

**BELLINGHAM REGION
PUGET SOUND MARITIME
DISASTER RESILIENCE
WORKSHOP
MARCH 3, 2022**



Executive Summary – Bellingham Maritime Area Workshop

March 3, 2022

Project Contacts

Program Coordinator:

Sasha Rector

Regional Catastrophic Program
Coordinator, King County
Emergency Management
srector@kingcounty.gov
206-205-4071

Workshop Coordinator:

Brandon Hardenbrook

Deputy Director
Pacific NW Economic Region
brandon@pnwer.org
206-443-7723

Contributing Participants

- John Gargett, Deputy Director, Emergency Management Whatcom County Sheriff's Department
- Dave Warter, Marine Terminals Manager and Emergency Services Manager, Port of Bellingham
- Pete Granger, Board Member, Whatcom Working Waterfront Coalition
- Alex Dolcimascolo, Subsurface Lead and Tsunami Hazard Geologist, Washington Department of Natural Resources
- Dante DiSabatino, Tsunami Program Coordinator, Washington State Emergency Management Division
- Tim Lupher, USCG Recovery Planner

Purpose

The Six Maritime Area Workshops were designed to identify specific strengths and gaps in response and recovery planning, build relationships and trust between emergency managers and the marine industry, and to inform development of the Maritime Resilience Framework through the identification of maritime assets, plans, and capabilities available after a major earthquake or tsunami incident. For a full recording of the workshop, please see [link here](#).

Overview

Exercise Participation: The Bellingham area workshop hosted 59 public and private stakeholders from a variety of organizations: Emergency Management; City, County, and State Government; Port Authorities and Operators; Public and Private Ferry Lines; Maritime Shipping Associations; Tug, Towing, and Barge Companies; Merchant Mariners; and the US Coast Guard.

Anticipated Earthquake and Tsunami Threats: WA EMD and WA Geological Survey provided anticipated earthquake and tsunami impacts for the Puget Sound Region as well as specific information for the Bellingham Maritime Area.

Local Response to Anticipated Impacts Panel: Specific areas discussed by members from both the maritime and emergency management sectors included concerns from the various sectors, immediate information needs after an incident, and how long will do citizens need to be prepared to be on their own.

All Hands Discussion: A communication and information-sharing discussion was held regarding the Tonga volcanic eruption and tsunami impacts. Information regarding communication tools and gaps were also discussed.

Best Practices: Whatcom County Tsunami Action Plan

Brief Overview of the Maritime Resilience Framework: Development objectives and processes to identify maritime assets and the resilience of those assets was presented.



Bellingham Region Workshop Results

Identified Plans or Planning Initiatives:

- Sector Puget Sound Maritime Transportation System Recovery Plan (MTSR)
- WA Tsunami Mitigation Planning Initiative (Port of Bellingham was first port involved)
- Whatcom County Tsunami Action Plan
- Regional Community Points of Distribution Siting and Planning Initiative [RCPGP Open Data](#)
- FEMA Cascadia M9 Response Plan
- Whatcom County utilizes HAM radio network for disaster communications
- Whatcom County set up a Coastal Working Group that includes private sector refineries and railroad for coordination and information sharing. Private sector has capabilities that could assist during an event.
- Philips and BP and others who operate refineries and pipelines have drones they use for damage assessment, and they work with the county to assist during an event.
- Whatcom County has an agreement with CBP to use their aircraft to provide assessment information.
- Whatcom County has an interlocal agreement with all local jurisdictions including the port to operate as a unified command and share EOC space. Federal partners also share the same space.

Identified Gaps & Opportunities

- Communications capabilities and interoperability in the event of a large-scale power outage
- The need for the development of regional rapid damage assessment protocols & coordination strategy along with a clearinghouse for reported damage information
- Limited structural engineers available for assessments of damage to maritime infrastructure
- Opportunity to develop partnership with working waterfront coalition members into existing volunteer programs to provide structured assistance with response and recovery efforts.

Recommendations

The following recommendations were developed based on stakeholder comments, presentations, and panel discussions throughout the workshop to help close gaps highlighted:

- Create regular opportunities for maritime stakeholders to coordinate with emergency management planners to build trusted relationships.
- Partner with the Working Waterfront Coalition to examine capabilities that could be called upon after a disaster and coordinate volunteers into a formalized process to assist the region.
- Partner with federal and private sector partners with specific capabilities that could be called upon in the event of a disaster (ex. specialized vessels, aircraft, communications, and drone technology).
- Continue to identify and coordinate key maritime assets and capabilities that could assist in response and recovery such as small barges with front ramps and oil spill response vessels.
- Develop a regional maritime and emergency planning communications working group to identify gaps and improvements across the Puget Sound.
- Develop and share marine volunteer management plans and capabilities across the region.
- Create a standardized process for sharing assessed damage of critical maritime transportation facilities with key organizations and decision makers.





Regional Catastrophic Preparedness Grant Program (RCPGP) Bellingham Area Maritime Resilience Workshop Report

Project Overview

The Federal Emergency Management Agency (FEMA) provided a Regional Catastrophic Preparedness Grant (RCPG) to King County on behalf of Central Puget Sound partners to address the enormous risk the region faces from a catastrophic earthquake. The purpose of this project is to maximize the ability of the Maritime sector to assist in the disaster response and recovery from a catastrophic earthquake when road, rail, and air transportation may be disrupted for weeks, months, and even years.

Puget Sound waterways provide a means to transport all manner of personnel, goods, and materiel that may be needed to respond to, recover from, and restore the region after a catastrophic earthquake. The RCPG project focuses on six maritime areas across Puget Sound, involves public and private partners from the region and Alaska, and works to identify maritime assets and capabilities that could play a role in response, recovery, and restoration efforts.

Following a catastrophic earthquake, supplying the Puget Sound Region with life-sustaining commodities such as water and food will require a tremendous, coordinated effort. Current planning to supply Community Points of Distribution (CPODs) assumes that resupply will come via land routes over the Cascade Mountains from the east or by air. These delivery routes are not assured due to the significant potential for large landslides to block the few mountain passes, for bridges to collapse, for airfield runways and facilities to be significantly damaged, and for uncertain availability of aircraft.

The Regional Catastrophic Preparedness Grant (RCPG) project focuses on public and private maritime assets in the following six maritime areas of focus in the Puget Sound Region, and also involves stakeholders from the State of Alaska:

Bellingham	Bremerton	Everett
Seattle	Tacoma	Olympia

Workshop Overview

Facilitated by the Pacific Northwest Economic Region (PNWER), the Bellingham area workshop focused on the port and surrounding maritime transportation system assets and capabilities. The workshop was designed to identify specific strengths and gaps in response and recovery planning, build relationships and trust between emergency managers and the marine industry, and to inform development of the Maritime Resilience Framework. A full recording of the workshop can be found at

kingcounty.gov/depts/emergency-management/emergency-management-professionals/Regional-Catastrophic-Planning.aspx

Fifty-nine public and private stakeholders attended the workshop from a variety of organizations.

Examples of the disciplines represented include:

- Emergency Management
- City, County, and State government
- Port Authorities and Operators
- Public and Private Ferry Lines
- Maritime Shipping Associations
- Tug, Towing, and Barge Companies
- Merchant Mariners
- U.S. Coast Guard

Workshop Goal: Work to identify maritime assets, plans and capabilities available that could play a role in response, recovery, and restoration efforts after a major earthquake and subsequent tsunami.

Objectives:

1. Orient stakeholders to maritime supply chain response and Community Points of Distribution (CPOD) concepts.
2. Connect maritime stakeholders with emergency management and supply chain planners across the region.
3. Identify specific rapid damage assessment plans and information sharing protocols and procedures.
4. Elicit information about stakeholder capabilities, practices, and plans that support maritime supply chain response and recovery efforts.

Sponsor: Funding for the workshop was provided through a Regional Catastrophic Preparedness Grant (RCPG) funded by the Department of Homeland Security to King County Office of Emergency Management on behalf of the eight-county region that is part of the Regional Catastrophic Planning Team (RCPT).

Workshop Design: A planning team consisting of regional and local stakeholders provided input during several planning meetings on the development of the agenda and by identifying specific speakers and topics for discussion. The planning team included:

- Brandon Hardenbrook, Deputy Director, Pacific Northwest Economic Region (PNWER)
- Sasha Rector, Regional Catastrophic Program Coordinator, King County Office of Emergency Management
- Eric Holderman, Director, Center for Regional Disaster Resilience, PNWER
- Jeannie Beckett, AICP, The Beckett Group
- Dave Warter, Maritime Terminals Manager, Port of Bellingham

- John Gargett, Deputy Director, Emergency Management, Whatcom County Sheriff's Department
- Don Goldberg, Director of Economic Development, Port of Bellingham
- Norm Smith, Emergency Manager, Port of Bellingham

Workshop Summary

Welcome-Brendan McCluskey, Director, King County Emergency Management

As the project lead for the eight-county region, Brendan McCluskey welcomed everyone on behalf of the Regional Catastrophic Preparedness Grant Team. He spoke about the importance of the maritime sector and the need to collaborate with all transportation sectors to better coordinate as the region prepares for a major disaster. This workshop is the first of many opportunities to strengthen regional relationships and build new partnerships to become more resilient. McCluskey emphasized that regional preparation and restoration is a collective effort. Emergency Managers are like orchestra conductors—they facilitate relationships that bring together the essential people, assets, and capabilities.

Opening Remarks- Dave Warter, Maritime Terminals Manager, Port of Bellingham

Dave Warter welcomed participants on behalf of the Port of Bellingham, along with their partners in Whatcom County. We welcome the opportunity to benefit from the collective knowledge of the attendees and to build relationships.

Workshop Introduction and Overview- Sasha Rector, Regional Catastrophic Program Coordinator, King County Office of Emergency Management

Sasha Rector gave a brief overview of the importance of the project and some background information on regional planning underway. King County is managing the project on behalf of the Regional Catastrophic Planning Team and is working closely with partners in all of the eight counties in the region. The workshops are designed to establish relationships, update current contacts, establish cross-sector trust, identify gaps and needs, and understand roles and responsibilities of key public and private players across the region. These workshops are an opportunity to both provide and gather information, which does end with the workshops. Rector asked attendees to continue to share any information and thoughts that they had.

Project Background and Workshop Goals- Brandon Hardenbrook, Deputy Director, Pacific NorthWest Economic Region

Brandon Hardenbrook explained that the Puget Sound Regional Catastrophic Preparedness Project consists of two phases: In Phase One, a series of workshops will introduce stakeholders to disaster risks, review existing response and recovery plans, and discussed assets and capability gaps; Phase Two facilitates development of the Maritime Resilience Framework. The Framework will create an adaptable and usable document that identifies key maritime assets to aid in emergency efforts and resource distribution.

Anticipated Earthquake and Tsunami Threats-Alex Dolcimascolo, Subsurface Lead and Tsunami Hazard Geologist, Washington Department of Natural Resources, and Dante DiSabatino, Tsunami Program Coordinator, Washington State Emergency Management Division

Alex Dolcimascolo provided attendees with an introduction to the geologic processes and effects that produce earthquakes and tsunamis in our region. Tsunamis are waves triggered by large disturbances or displacement of seawater, most often caused by earthquakes but can be produced by landslides, volcanoes, or meteorological events.

The recent Tonga volcanic eruption is an example of a distant source. These events occur at a distance, provide at least some advance warning, and are generally less hazardous. A Local Source event has an impact affecting all of the Pacific Northwest, has little or no warning, limited evacuation time, and are the most destructive.

The Cascadia Subduction Zone (CSZ) is potentially the most destructive local source in the Puget Sound region. The CSZ extends 700 miles off our coast, stretches from Vancouver Island to Northern California and marks where slowly moving oceanic plates slide under North America. The CSZ is the most predictable source in the region, with major events occurring every 300-600 years. The last great rupture (magnitude 8.0-9.0+ with shaking felt for three to six minutes) occurred about 1698. There is a 10-25% chance of a similar rupture within the next 50 years. A tsunami might arrive within 10 minutes to several hours, with the greatest impact on the coast but with serious implications for inner coasts and waterways. Aftershocks could continue for many years and potentially produce tsunamis themselves.

Several crustal faults in the Puget Sound basin are potential local tsunami sources with the Seattle Fault being the largest. Less geologic history is available on these local faults, but a Seattle Fault 7.5 magnitude quake occurred in 900-930 CE. There appear to be at least 2500 years between events of this size.

Tsunami Hazards:

- Strong and unpredictable currents
- Water level fluctuations
- Eddies/whirlpools
- Tsunami bores and amplified waves
- Major damage to transportation infrastructure
- Drag--vessels left on land/docks
- Debris in water
- Scour and sedimentation
- Damage to petroleum and natural gas storage and piping systems
- Facilities (air, road, air) west of the I5 Corridor suffer severe damage or are destroyed.
- Communication assets
- Potable water infrastructure
- Some bridges may take 2.5 years to repair
- Uninformed decision making
- Dangerous tsunami conditions can last tens of hours

Dante DiSabatino, Tsunami Program Coordinator, Washington State Emergency Management Division Maritime Earthquake and Tsunami Hazards in Washington:

Local Effects:

- First tsunami warning is feeling the earthquake
- < 3 hours until the first wave arrives, depending on distance to epicenter
- More inundation/severe currents than with distant events
- Greater impact to the coast, but inland waters are also threatened
- Biggest local threat: CSZ

Distant Effects:

- You do not feel the earthquake
- Tsunami alerts are primary warning
- > 3 hours until first wave arrives
- Less inundation and current effect
- Biggest distant threat: Alaska

Transportation--sea, air, & rail will take a huge hit. The 2011 Japan tsunami destroyed or damaged 2,126 roads, 56 bridges, 319 ports, and over 28,000 vessels. At risk in Puget Sound are:

- 31 ports
- 400 private marinas
- 700 fishing and processing operations
- Largest US ferry system
- NW Seaport Alliance (Seattle/Tacoma) 5th largest US container gateway

Tsunami Maritime Response and Mitigation Strategies:

- Focus on the tsunami threat to the maritime community in a specific port, harbor, or marina
- Expands on guidance developed by CA, OR, and AK
- WA additions include sections on:
 - Local risk/guide
 - Site-specific maps of waterways showing inundation, dangerous currents, and modeled minimum water depths
 - Agency roles and responsibilities
 - Harbor specific response and mitigation measures
- First WA Strategy was compiled by the Port of Bellingham, view it at www.mil.wa.gov/tsunam
- Warning Levels:
 - Warning > Inundating wave possible > Full evacuation suggested
 - Advisory > Strong currents likely > Stay away from the shore
 - Watch > Danger level not yet known -> Stay alert for more info
 - Information Statement > Danger level not yet known -> Stay alert for more info
- Official tsunami alert methods:
 - Wireless Emergency Alerts (WEA)
 - Twitter

- NOAA
- Marine VHF Radio Channel 16
- Emergency Alert Systems (EAS)
- Tsunami sirens

Panel Discussion: Local Response to Anticipated Impacts-Moderated by Eric Holdeman, Director, Center for Regional Disaster Resilience

- **Moderator--Eric Holdeman, Director, Center for Regional Disaster Resilience, PNWER**
- **John Gargett, Deputy Director, Emergency Management Whatcom County Sheriff's Department**
- **Dave Warter, Marine Terminals Manager and Emergency Services Manager, Port of Bellingham**
- **Pete Granger, Board Member, Whatcom Working Waterfront Coalition**
- The Whatcom County Tsunami Action Plan - John Gargett:
 - John Gargett provided an overview of the Whatcom County Tsunami Action Plan. This includes the coastal warning list that is made up of federal, state and local organizations on or near the coast. This list includes Washington State and Canadian stakeholders, media contacts, points of contact from the federal government, the City of Blaine, the City of Bellingham, Tribes, Whatcom County as well as members of the private sector. Members are notified of any significant coastal event such as a tsunami or king tide or other significant event. We get two sources of info regarding tsunamis, one from Canada and one from the US. So far they haven't matched up and often one is canceled well before the other or one doesn't issue any warning.
 - Whatcom county uses an inundation risk assessment for tide levels during a tsunami, with 20 feet as the planning height
 - There are many coastal areas that are below 20-40 feet elevation near the coast, these are at risk and they have plans to notify and evacuate
 - They have broken the county into subzones to examine risk to property and personnel. They use this information to place the sirens. They have identified roadblocks and the goal is to get people out and then prevent them from coming back.
 - In marinas they have assessed that there is about \$500 million in boats alone.
 - They have an action driven checklist of steps to take when an alert or warning comes out. They have standard advisory and warning messages prepared that go out to our citizens.
 - They are aware that in addition to M9 Cascadia they also have the Birch bay fault that is a threat for tsunami and we have a Boulder Creek fault that is a 6.9 fault that may have caused a near shore tsunami.
 - The assumption is that the BNSF rail line on the coast will be taken out from the tsunami and any rail would need to be rerouted to Sumas.
 - Whatcom county is closer to British Columbia than the state of Washington, so we work closely with Canadian partners in planning and coordination. We have mutual aid agreements with BC to support each other.

Panel Discussion:

March 3, 2022

UNCLASSIFIED

Eric Holdeman began the discussion by asking the panelists what information they are trying to get once the ground has stopped shaking.

Dave Warter responded that his team will immediately try to establish communication with their partners including WA EMD and Whatcom County. He also said their response will depend on the severity and how well they are able to alert the community and move resources.

Peter Granger stated that his coalition has done no planning for this type of event and he is happy to see so much has been done at the county and state levels. His organization can assist through volunteers and more should be done for this coordination. His organization has ships available that may be a conduit for transporting resources to the islands if they are cut off. Our oil spill response is a model that we can tap to assist in an event. If they can get vessels of opportunity signed up and registered they could assist in the event. These are some of the things his organization has begun to think about since this workshop was announced. Eric noted that there are programs that work through the city and county to register volunteers and give them some liability protection, it's best to work closely with the county on this as you move forward.

Holdeman asked who operates the sirens and if they are tone only or if they are voiced as well?

John Gargett responded that there are 13 sirens, which are results of NOAA grants. The Division of Emergency Management coordinates them locally, and Washington State Emergency Management operates them in the event of a 7.0 or greater magnitude earthquake. They can be set off by satellite or tone encoded radio signals and they have voice capabilities. They have been used for non tsunami activities, such as in Birch bay at midnight on the 4th of July to announce that the beach is closed.

Holdeman asked what needs to be done for a rapid damage assessment.

Dave Warter responded that this is something we really need to look at more in depth. His internal engineering team has some capabilities to provide some level of assessment. Ultimately a structural engineer is needed to inspect the shipping terminal piers or go under in the water to see if they have lifted off of end caps. Ultimately what needs to be determined is when we can utilize these assets again. Resource planning needs to be done because there are a limited number of structural engineers available and we need to send them where they are needed the most.

John Gargett responded that during the January 15th advisory, the fuel docks were told they needed to shut down supply lines. When the alerts were sent out, marinas, refineries, etc. were told to let his team know what they were seeing rather than his team going out and doing all of the assessing.

Daryl English noted that there aren't very cohesive guidelines for assessing structures on the waterfront after an earthquake. This is unlike bridges and roads. Since you can't see some of the damage due to the infrastructure being under water you need to look for clues to what the impact

might be. There is a limited number of engineers who can do this work so we should plan for this and tap the community now.

Holdeman asked if there is a direct link for reporting status from oil terminals.

John Gargett responded the coastal working group that the county set up includes refineries and the railroad for information sharing and updates. They all have teams with special capabilities to respond and go out and assess the damage. They were all asked to report back on damage to John's team and this was the message from the recent event as well.

Holdeman asked about the availability of drones for the port to use for damage assessment.

The port has drones they use for social media promotion of the port but they haven't looked at incorporating this into damage inspection planning but it is a possibility. Philips, BP and others who operate refineries and pipelines have drones they use for this purpose. And one of them used a drone during the January event to see if there would be any kind of tsunami effect. They also used it during a recent flooding event where they flew the coast line where there had substantial landslides.

Frank Immel pointed out that if you don't know what you have beforehand how do you know what the damage is afterward? Infrastructure should be surveyed now and then later they can be visually compared to see if there is a difference. Several organizations use underwater drones to survey bathymetry and structures and you can use aerial drones to do this on the landside as well.

- Participant poll: Participants were asked about their own organization's rapid damage assessment plans. 59% of participants reported that they don't have a plan and 23% said they would contract with an engineering company to do the assessment. The remaining 19% have a plan but 5%e have never exercised it.

Holdeman asked how coordination between the city, the county, and the port works. He then asked if this kind of incident would warrant unified command.

John Gargett responded that they have an interlocal agreement with all organizations including the port with the exception of the city of Bellingham to form an emergency management council. They all coordinate in the county EOC and are very connected with the city EOC there as well. Jurisdictions are not segregated in the Tsunami action plan and coordination has been planned with all jurisdictions, including the Lummi Nation since they have a large unprotected exposure that is vulnerable to tsunami impacts. They have a 25,000 sf facility with plenty of space for all players to be together to coordinate operations. They have arranged for unified command in one room and command staff in another and the rest operating off the floor.

Holdeman asked what actions would be taken in regard to the border.

John Gargett responded that they have a number of action plans with US Customs and Border Protection and Canada Border Services Agency, and British Columbia, for the transport of emergency personnel and assets. Bellingham is closer to Canada so it has been arranged that certain areas fall under the jurisdiction of Canada under agreement. During the pandemic the border was not a problem and they use this all of the time, including during the recent floods and during power outages.

Holdeman asked what would happen to inbound ships.

Dave Warter responded that ships already in the Port will be locked down and will try to ride it out since there wouldn't be a pilot or tug to assist. In regard to inbound ships, they would be notified and asked to remain in deep water. This includes the Alaska ferry which can be reached via satellite phone. If the ferry was tied up they could potentially move off quickly but it is not known if this is part of their plan for sure and but this will be followed up on.

John Gargett responded that oil refinery partners have told them that they will notify inbound ships to remain in deep water near the Strait of Georgia. If there is a tsunami warning they will do an assessment of ships at the dock and may decide to cast those off with the help of several tugs that are standing by for rapid deployment for this reason.

Holdeman asked about possible opportunities for partnering.

Pete Granger responded that his organization is ready to coordinate and participate in any planning with the port and county. They were talking about scenarios when this project began and how they might assist. They have envisioned a Dunkirk type movement where volunteer vessels and capabilities would be pre-identified and they could be registered with clear guidance beforehand. They are open to exploring this more in the future. Eric mentioned Boat Lift 9-11 that was the story of the evacuation of New York during 9-11 (link to video) <https://www.youtube.com/watch?v=18lsxFcDrjo> While this is important, we want to make sure the volunteers are well coordinated.

John Gargett stated he would be happy to work with Pete and the coalition to sit down and explore options. Washington has volunteer programs as well as the USCG Auxiliary where they have pre established plans to provide some liability protection and better coordination of volunteers. He would be interested in exploring a marine unit for volunteers.

Holdeman asked what are the Captain of the Port's Authorities in an event like thi.

Tim Lupher, USCG: Captain of the port has the authority over all safety and security of all the maritime domains across the Puget Sound. Our first response would be focused on life safety and the status of the maritime domain. This includes looking at the status of aids to navigation, debris in the water, potential hazmat, status of shallow waters to look at safety. Our immediate priority would be the ferries and life safety vessels to move responders and equipment. After that the priorities would be based on the capabilities of the ports. We would check to see what capabilities they have. Oil vessels or container ships won't be a priority if they don't have a place to go. We might be able to get a vessel to a dock but if we can't get anything offloaded or transported to a staging area it doesn't make sense to move a vessel in. USCG would work with industry and government partners to get an assessment of what we can do to support the local community response. No particular part would be a priority, but modeling shows that Bellingham might be less impacted than some other ports. We would be looking at this to help make some decisions. We would do a lot of our assessments in conjunction with our search and rescue efforts immediately after the incident.

Holdeman responded to Tim that some fire departments do windshield assessments of local areas after an event and they don't necessarily stop to provide assistance during this time. They are doing a general damage assessment of the local area to report back on routes to the hospital or status of water tanks or other impacts. He then asked if the coast guard does something similar with vessels and aircraft?

John Gargett responded that they do have some aerial capabilities with US CBP here at the airport and they have agreed to assist similar to what they did during the flooding. They would be doing the first assessments in an incident. It's important to reach out to as many organizations as possible ahead of time to take advantage of capabilities in your jurisdiction.

Tim Lupher responded that if their vessels are capable, we have 7 stations and aircraft that could be available. They would all be doing an assessment while they are doing life safety.

Holdeman then asked if there are areas where barges could be used in an area where it isn't normally used to unload cargo.

Pete Granger stated that in addition to the emergency oil spill response vessels, there are a number of vessels that have from 25-35 feet with front ramps that service smaller islands that don't have ferries. Many of these sit in Squalicum harbor where there is a larger tsunami threat. These could be some of the first vessels available to assist.

Dave Warter responded that tugs could be available to push out debris and receive goods by barge if the port could receive it. When the bridge went out on I5, using barges to get supplies if the highway remained disrupted has been discussed.

All Hands Discussion: Communication and Information-Sharing Tools

Moderated by Jeannie Beckett, AICP, The Beckett Group

Jeannie Beckett moderated an open discussion around communications and information-sharing tools, focusing specifically on the recent tsunami alerts that were issued following the Tonga Volcanic Eruption. Beckett then began the discussion by asking attendees several questions regarding communications following the Tonga volcano event and subsequent tsunami. She started by asking emergency management representatives to respond first before having the maritime industry representatives and other attendees offer their experiences. Questions for the group discussion included:

- What kind of communication tools did you use during the Tonga event?
- What worked best?
- What needs improvement?
- Were you a part of a team that had communication protocols? Or were you on your own?

Elyssa Tappero, Tsunami Program Coordinator, Washington State Emergency Management Division, began by explaining that WA EMD uses AlertSense for most of their tsunami alerts and information to emergency management, state agencies, and the like. These alerts currently go out as text messages and emails. They also use social media which was used extensively for the Tonga tsunami event including Twitter, Facebook, and NextDoor. They are developing canned messaging for the different tsunami alert levels that can be easily used for future events by partners and other agencies. They did not use WEA or the sirens for the Tonga event, but they would have if the event were a warning instead a watch or advisory.

Dante DiSabatino, Tsunami Program Coordinator, Washington State Emergency Management Division, added that they did use the recent Tonga event to educate the public about tsunami and related alerts and information that they could use for future events through their website: mil.wa.gov/tsunami. They are open to coordinating on messaging with other organizations and agencies as well.

Beckett then asked attendees to respond to a poll asking “Where do you expect to get critical information and updates after an earthquake?” Attendees could choose from City/County EM; Local News outlets; WA Emergency Management Division; U.S. Coast Guard or other. 38% responde WA EMD and 38% responded City/County Emergency Management.

Hans Kahl, Emergency Management Specialist/Planner for Skagit County Department of Emergency Management, wanted to emphasize the importance of coordination between counties especially given how many residents work or recreate across county lines. It is critical that the messaging be consistent across the counties.

Norm Smith, Port of Bellingham Emergency Manager, received the alert directly from WA EMD through email as well as coordination from John Veentjer through text messaging. Smith then pushed out the information to the harbormasters as well as emergency services. Because they were not under a higher threat level, they did not engage all of their alert and messaging systems, but they did communicate with the City of Bellingham. Email and phones were not affected by this event, but that may not be the case for future events. Social media is also a valuable resource for sharing information.

Dave Warter, Marine Terminals Manager and Emergency Services Manager, Port of Bellingham, added that, because it was just an advisory, they just notified the waterfront contacts rather than the full chain of people and departments.

How can we communicate and use our tools the best? Where are there gaps?

- Elyssa Tappero – Tonga was an opportunity to establish what worked and what did not work. One thing that went well was utilizing AlertSense to notify those who have signed up for notifications of what was going on.
- Dante DiSabatino – Push a lot of materials through the alerts page for WA EMD. Our notifications systems have different alerting thresholds embedded in their software but the best alert you will get is the earthquake itself. If you feel shaking, stop and take cover and once the shaking has stopped, head to high ground.
- John Veentjer – establishing communication network for those in the maritime industry – if we are without communications tools except for those on boats (until they run out of fuel) – we need a backup system
- John Gargett – we made the assumption we’re going to lose our communication abilities, so we have set up amateur radio which as well as rely on the fire department & the local population
- Frank Immel – Social media, if up and running, will be a great resource to utilize. Another important step civilians can take is to keep your car’s gas tank over half a tank full. It will be important for mobility but it can also be a heat source and generator.

Brief Overview of the Maritime Resilience Framework Presented by David Cruz, Senior Port Planner, Moffat & Nichol

The Maritime Resilience Framework will be a usable document that evolves over time, identifies key maritime assets, and assesses how resilient those assets are. The document will also outline processes and actions to take before, during, and after a large-scale emergency. The purpose of the framework is to incorporate maritime and transportation resources to use, receive, and distribute the sustaining commodities to CPODs with maritime assets in the event of a Cascadia Zone Fault Event.

Closing Remarks

Brandon Hardenbrook thanked the attendees for their contributions and their enthusiasm. The upcoming workshops will continue gathering additional information and identifying gaps, which will inform the specific goals and deliverables that will be incorporated into the Maritime Disaster Resilience Framework. A final region-wide workshop will be held on May 24, 2022.

Recommendations

The following recommendations were developed based on stakeholder comments, presentations, and panel discussions throughout the workshop to help close gaps highlighted.

1. Create regular opportunities for maritime stakeholders to coordinate with emergency management planners to build trusted relationships.

2. Partner with the Working Waterfront Coalition to examine capabilities that could be called upon after a disaster and coordinate volunteers into a formalized process to assist the region.
3. Partner with federal and private sector partners with specific capabilities that could be called upon in the event of a disaster (ex. specialized vessels, aircraft, communications, and drone technology)
4. Continue to identify and coordinate key maritime assets and capabilities that could assist in response and recovery such as small barges with front ramps and oil spill response vessels.
5. Develop a regional maritime and emergency planning communications working group to identify gaps and improvements across the Puget Sound.
6. Develop and share coordinated rapid damage assessment plans and capabilities across the region.
7. Create a standardized process for sharing assessed damage of critical maritime transportation facilities with key organizations and decision makers.

Acronyms

AAR	After Action Report
AHAB	All Hazard Alert Broadcast
CPOD	Community Point of Distribution
CRDR	Center for Regional Disaster Resilience
CSZ	Cascadia Subduction Zone
DHS	Department of Homeland Security
EAS	Emergency Alert System
EMD	Emergency Management Division
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HITRAC	Homeland Infrastructure Threat and Risk Analysis Center
NANOOS	Northwest Association of Networked Ocean Observing Systems
PNWER	Pacific Northwest Economic Region
RCPG	Regional Catastrophic Preparedness Grant
RRAP	Regional Resiliency Assessment Program
USCG	United States Coast Guard
WEA	Wireless Emergency Alerts

Planning Resources – During the workshop several planning and information resources were mentioned to assist in the planning and coordination after a major disaster. These can be found at--

<https://www.cisa.gov/regional-resiliency-assessment-program>

[Maritime Coordination | RCPGP Hub - Home \(arcgis.com\)](#)

mil.wa.gov/alerts , mil.wa.gov/preparedness

[Emergency Management Information portals \(wa.gov\)](#)

NAVY Joint Logistics Over the Shore
edocs.nps.edu/dodpubs/topic/jointpubs/JP4/JP4-01.6_050805.pdf

National Tsunami Warning and Alert Page <https://tsunami.gov/>

Washington State Tsunami Resilience Planning and Projects: mil.wa.gov/tsunami

Geologic Information Portal <https://geologyportal.dnr.wa.gov/>

Tsunami Hazard Maps
<https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis#tsunami-hazard-maps>

Tsunami Evacuation Maps
<https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis#tsunami-evacuation-maps>

Tsunami Simulations
<https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis#tsunami-simulation-videos>

Northwest Association of Networked Ocean Observing Systems (NANOOS) [Pacific Northwest - NANOOS - The U.S. Integrated Ocean Observing System \(IOOS\) \(noaa.gov\)](#)

Nanoos Mobile Tsunami Evacuation app
<https://apps.apple.com/bo/app/nvs-tsunami-evacuation/id478984841>

Maps for Washington State Building Code <https://www.dnr.wa.gov/wa-td>

Please email Elyssa.tappero@mil.wa.gov to be added to the tsunami workgroup email list

Whatcom County Tsunami Action Plan
<https://www.whatcomwin.org/documents/TsunamiAction-June2020.pdf>

BELLINGHAM REGION MARITIME DISASTER RESILIENCE WORKSHOP

A Regional Catastrophic Planning Grant Project

Thursday | March 3, 2022, 9:00 am to 12:30 pm
Virtual attendance via Zoom



WELCOME & INTRODUCTIONS | 9:00 AM

Welcome & Opening Remarks will be provided by Brendan McCluskey, Director of King County Emergency Management and Rob Fix, Executive Director of the Port of Bellingham



Brendan McCluskey
Director
King County Emergency Management



Rob Fix
Executive Director
Port of Bellingham

PROJECT OVERVIEW | 9:15 AM

Sasha Rector, Regional Catastrophic Planning Coordinator at King County Emergency Management and Brandon Hardenbrook, Deputy Director of the Pacific Northwest Economic Region will give a brief presentation on the project and the workshop goals and objectives



King County

Emergency Management

Sasha Rector
Regional Catastrophic Planning
Coordinator
King County Emergency Mgmt



Brandon Hardenbrook
Deputy Director
Pacific NorthWest Economic Region

ANTICIPATED EARTHQUAKE & TSUNAMI HAZARDS | 9:40 AM

Experts from Washington Geological Survey and Washington Emergency Management Division will describe what the Bellingham area can expect during a Cascadia Subduction Zone Earthquake.



Dante DiSabatino
Tsunami Program Coordinator
Washington Emergency
Management Division



Alex Dolcimascolo
Tsunami Geoscientist
Washington Geological Survey

Visit our webpage at
Kingcounty.gov



LOCAL RESPONSE TO ANTICIPATED IMPACTS | 10:40 AM

Short presentation on GIS map of maritime capabilities in the area, followed by panel discussion with several key maritime and emergency management partners. Moderated by Eric Holdeman, Director of PNWER's Center for Regional Disaster Resilience



John Gargett
Deputy Director, Emergency
Management
Whatcom County Sheriff's Office



Dave Warter
Marine Terminals Manager
Port of Bellingham



Pete Granger
Board Member
Whatcom Working Waterfront
Coalition

FACILITATED DISCUSSION:

Communication and Information Sharing Tools | 11:40 AM

Attendees will be invited to join a discussion about how to build connections between the maritime industry and emergency managers and provide for better communication, information sharing, and understanding each partner's roles and responsibilities in the event of a disaster. Moderated by Jeannie Beckett, Principal at The Beckett Group



Jeannie Beckett
Principal, The Beckett Group

VISION FOR MARITIME RESILIENCE FRAMEWORK | 12:10 PM

David Cruz from Moffatt & Nichol will brief their upcoming work to develop a Maritime Resilience Framework and invite input from workshop participants on how to keep the Framework updated and relevant and ensure the maritime sector can stay engaged



David Cruz
Senior Port Planner, Moffatt & Nichol

ADJOURN | 12:30 PM

Visit our webpage at Kingcounty.gov



BELLINGHAM REGION MARITIME DISASTER RESILIENCE WORKSHOP

March 3, 2022 | 9:00 am to 12:30 pm

Featured Speakers



ROB FIX
EXECUTIVE PORT DIRECTOR
PORT OF BELLINGHAM

Rob Fix has lived in Bellingham since 1999. He came to the Port of Bellingham in 2008 first serving as Chief Financial Officer, Real Estate Division Manager, and Deputy Director and was selected as Executive Director in 2012. Prior to joining the Port, Fix was a partner and Chief Financial Officer for MTM Luxury Lodging & FST Asset Management. He also served as the CFO for Trillium. Fix is a graduate of Washington State University with a Bachelor's Degree in Hotel and Restaurant Administration.



BRENDAN MCCLUSKEY
DIRECTOR
KING COUNTY OFFICE OF EMERGENCY MANAGEMENT

Brendan McCluskey is the Director of Emergency Management for King County. King County Emergency Management is responsible for regional emergency preparedness and operations, including mitigation, response, and recovery, and a variety of homeland security matters. Mr. McCluskey oversees all functions of the organization, from planning, to public outreach, to grant management, to operations coordination and EOC operations. McCluskey is the County Executive's representative to the King County Emergency Management Advisory Committee, a designee to the State Emergency Management Advisory Group, and a core member of the Seattle UASI. King County Emergency Management was accredited by the Emergency Management Accreditation Program (EMAP) in 2017. McCluskey got his start as a paramedic for the Newark (NJ) EMS system and became manager of the paramedic service and the EMS training unit. He has been involved with numerous high profile events, including New Jersey's response to 9/11, and has lectured on a number of disaster, infrastructure, and continuity topics.



ALEX DOLCIMASCOLO
TSUNAMI GEOLOGIST
**WASHINGTON STATE DEPARTMENT OF NATURAL
RESOURCES**

Alex is the Tsunami Geoscientist in the hazards section of the Washington Geological Survey. Alex received a B.S. in Geology from Union College (NY) and a M.S. in Geology from Central Washington University. Alex has a research background in tsunami modeling and his Master's thesis work centered on defining a new methodology to characterize earthquake parameters of pre-instrumental tsunamigenic earthquakes. Some of Alex's personal interests include skiing and snowboarding, pick-up soccer, and catching sunsets.



DANTÉ DISABATINO
INNER COAST TSUNAMI PROGRAM COORDINATOR
**WASHINGTON STATE EMERGENCY MANAGEMENT
DIVISION**

Danté DiSabatino is the Inner Coast Tsunami Program Coordinator with Washington State Emergency Management Division. He facilitates the development of Tsunami Maritime Response and Mitigation Strategies and oversees the Inner Coast Tsunami Workgroup. Danté is passionate about using his current position to empower communities along Washington's coastline to better prepare for, mitigate the effects of, and respond to tsunamis. Prior to working at the state, he was a hazard mitigation planning intern at the City of Seattle Office of Emergency Management. He received a Master's of Infrastructure Planning and Management from the University of Washington with a focus on hazard mitigation, community-driven resilience, and floodplain management and a Bachelor's of Environmental Science with a minor in Meteorology from Florida State University.



DAVE WARTER
MARINE TERMINALS MANAGER
PORT OF BELLINGHAM

Dave has worked for the Port of Bellingham nearly 29 years on the Bellingham waterfront. Having started out in the marinas in 1993, he assumed the management of the Port's Marine Terminals in 2005 consisting of the Bellingham Cruise Terminal and the Bellingham Shipping Terminal. That includes not only the oversight of day to day operations, but long range strategic planning for each of those areas to best maximize the customer experience by providing first class facilities. In January 2020, Warter took on the role of Company Security Officer, and oversight of the Ports Emergency Management & Security office. With new support staff in place, the team's role is to ensure the Port is integrated into the regions short and long-term plans for emergency response and general public safety.



PETE GRANGER

BOARD MEMBER

WHATCOM COUNTY WORKING WATERFRONT COALITION

Pete brings to the Working Waterfront Coalition his extensive experience in the seafood industry. From commercial fishing in Puget Sound (reefnet) and Alaska (gillnet in Bristol Bay), to advocacy work for several national trade associations, to Program Leader of the Marine Advisory Services for Washington Sea Grant at the University of Washington, Pete's knowledge of state, national, and international maritime issues is essential in this leadership position. Pete has a BS in oceanography and an MBA in international business from the University of Washington. He continues to reefnet fish off of Lummi Island, WA and lives with his wife, Debbie, in Bellingham.



JOHN GARGETT

DEPUTY DIRECTOR

WHATCOM COUNTY SHERIFF'S OFFICE

John Gargett has over 35 years as a nationally and internationally recognized expert in Risk, Safety, Security, Emergency and Crisis Management. As a Thought Leader he was one of the creators of the Maturity Model for the international Organizational Resilience standard, developed new methodologies for risk assessment, and has testified before the US House of Representatives on transportation of Hazardous Materials. He has worked in over 40 countries. His Assessment, Exercise and Evaluation experience is extensive, with the design, conduct and evaluation of hundreds of assessments, evaluations and exercises. Gargett has a unique insight into the problems of Risk, Safety, Security, Emergency and Crisis Management from the perspective of local, state and federal governments, international agencies, developing countries, fully industrialized nations, the military, and the private sector



DAVID CRUZ

SENIOR PORT PLANNER

MOFFATT & NICHOL

David Cruz has more than 40 years of experience as a planner for port-wide studies and maritime facility projects. He has specialized in project management and civil design for port security projects and all hazards' studies. Mr. Cruz is ANSI/ASME certified in Risk Analysis and Management for Critical Asset Protection (RAMCAP). He has international experience including conducting port and rail facilities' assessments in Peru, Chile, South Africa, and Myanmar.

Facilitators and Moderators



BRANDON HARDENBROOK
CHIEF OPERATING OFFICER
PACIFIC NORTHWEST ECONOMIC REGION

Mr. Hardenbrook's duties include overseeing all PNWER staff and programs in coordination with PNWER's governing board, which includes legislative leadership of each state, province, and territory as well as governors and premiers, and private sector leaders. PNWER's 22 working groups include trade & economic development, energy, border issues, agriculture, invasive species, tourism, disaster resilience, transportation, water policy and others.



ERIC HOLDEMAN
DIRECTOR
CENTER FOR REGIONAL DISASTER RESILIENCE

Eric Holdeman is the Director of the Center for Regional Disaster Resilience (CRDR), which is part of PNWER. His areas of expertise include building regional coalitions between agencies, governments, the private sector and non-profits. Building regional disaster resilience is key to what he does day-to-day. He has also authored numerous articles for professional journals and opinion pieces for local, regional and national newspapers. He is a Senior Fellow, columnist, contributing writer and blogger for Emergency Management Magazine. An experienced and accomplished public speaker, he is sought after to present at national and regional conferences. Eric has the United States' most popular blog on the topic of emergency management at www.disaster-zone.com.



JEANNIE BECKETT
PRINCIPAL
THE BECKETT GROUP

Jeannie's 40 years of expertise in provides her clients with "boots on the ground" knowledge of business continuity, emergency management and the logistics of inland transportation. Ms. Beckett works with agencies and associations to leverage their resources and build economic vitality for their regions. Before starting The Beckett Group in 2009, She had a 25 year career with the Port of Tacoma in leadership positions including Senior Director, Inland Transportation, and Director of Operations. Jeannie has worked on projects that profile the logistics and freight delivery needs, business resiliency and recovery as well as infrastructure resiliency efforts. These projects pinpointed areas of inefficiency in the highway and rail freight delivery systems and the lack of business / infrastructure continuity planning.