

OLYMPIA REGION PUGET SOUND MARITIME DISASTER RESILIENCE WORKSHOP MARCH 10, 2022



Image courtesy of Port of Olympia

Executive Summary – Olympia Maritime Area Workshop

March 10, 2022

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- Conley Booth, Maritime Terminals Operations Manager, Port of Olympia
- Todd Carson, Deputy Chief, Olympia Fire Department and Olympia Emergency Management Coordinator
- T.J. Quandt, Harbor Senior Manager, Port of Olympia
- Dan Musser, Marine Terminal Foreman, Port of Olympia
- Corina Allen, Chief Hazards Geologist, Washington Geological Survey
- Elyssa Tappero, Tsunami Program Coordinator, Washington Emergency Management Division

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 Olympia area workshop hosted 43 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 Olympia 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: Thurston County's Cascadia Rising 2022 Exercise

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

Olympia Maritime Area Workshop Results

Identified Plans or Planning Initiatives:

- US Navy, Joint Logistics Over the Shore Plan
- Sector Puget Sound Maritime Transportation System Recovery Plan (MTSR)
- WA Tsunami Mitigation Planning Initiative (Port of Bellingham)
- Regional Community Points of Distribution Siting and Planning Initiative [RCPGP Open Data](#)
- FEMA Cascadia M9 Response Plan
- National Vessel Movement Center established by the United States Coast Guard as a single clearinghouse of incoming and outbound vessels
- [WA Safe through WABO](#) has a group of volunteer engineers available to assist with damage assessment with coordination through the county
- WA Public Ports Association Mutual Aid Agreement
- Thurston County Drone Policy Planning initiative
- County and city mutual aid agreements in place to provide coordinated assistance

Identified Gaps

- 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
- Ongoing coordination and communications between all levels of government planners with maritime transportation system stakeholders
- Counties and state may not have direct links to vessel tracking services to know what vessels are in the area during and after an event
- All engineering assistance in port damage assessment is outsourced which could delay rapid assessments of facilities
- Drones could help with rapid assessment of damage of port facilities and other infrastructure

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.
- Continue to identify key maritime assets and capabilities that could assist in response and recovery.
- Develop communication and information-sharing strategies to reach maritime stakeholders.
- Develop a regional maritime and emergency planning communications working group to identify gaps and improvements across the Puget Sound.
- Encourage the Port and surrounding area to work with WA Emergency Management to develop a tsunami mitigation framework.
- Develop and share coordinated rapid damage assessment 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.
- Explore resources to host an annual regional maritime resilience exercise to test and update plans.
- Explore the use of drones to provide situational awareness and damage assessment assistance.



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
Seattle

Bremerton
Tacoma

Everett
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
- Eric Holderman, Director, Center for Regional Disaster Resilience, PNWER
- Jeannie Beckett, AICP, The Beckett Group
- Sandy Eccker, Deputy Director, Thurston County Emergency Management
- Conley Booth, Maritime Terminals Operations Manager, Port of Olympia
- Patrick Knouff, City of Olympia
- Len Faucher, Port of Olympia

- Dan Musser, Port of Olympia
- Jennie Foglia-Jones, Port of Olympia
- Todd Carson, City of Olympia

Workshop Summary

Opening Remarks

Brendan McCluskey, Director, King County Emergency Management:

Mr. McCluskey stated that the purpose of these workshops is a region better prepared and more resilient for catastrophic events, and how our maritime system fits into that effort. He emphasized that regional response and restoration is a collective effort—a symphony, not notes and noise. We all need your assistance and insights to find creative solutions to difficult problems. Emergency Managers are like orchestra conductors—we facilitate relationships that bring together the essential people, assets, and capabilities.

Host Welcome

Sam Gibboney, Executive Director, Port of Olympia:

Ms. Gibboney noted that vulnerability takes many forms. Interest in supply chains has peaked since the COVID pandemic. Our species is not talented at risk assessment—assessments tend to be either over or under the actual threats, due to cognitive bias. However, it took the sinking of the *Titanic* to develop situational awareness of North Atlantic ice and adequate at-sea radio communications. It has taken the pandemic for us to examine today's potential threats, recovery, and resilience.

Workshop Introduction and Overview

Sasha Rector, Regional Catastrophic Program Coordinator for the King County Office of Emergency Management, 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.

Project Background and Workshop Goals

Brandon Hardenbrook, Deputy Director of PNWER, 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.

The workshop is designed to establish relationships, update current contacts, establish cross-sector trust, and understand roles and responsibilities of key players across the region. Additionally, awareness of relevant technology, such as underwater vehicles, salvage divers, and lessons learned from other disasters, should be spread. Maritime volunteer management is a unique challenge.

Anticipated Earthquake and Tsunami Hazards:

- Corina Allen, Chief Hazards Geologist, Washington Geological Survey, and
- Elyssa Tappero, Tsunami Program Coordinator, Washington Emergency Management Division.

Corina Allen 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 potentially the most destructive. Some local events include a landslide in Commencement Bay (1894), a Salmon Bay landslide producing a 6-8 foot local tsunami (1949) and a major storm in (1954).

The Cascadia Subduction Zone is potentially the most destructive local source in our region. The Zone 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 Zone is the most predictable source in our 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 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, 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. A detailed Seattle Fault Tsunami Analysis is underway, and will be released shortly. Most of our modeling and mapping is grant funded through the WA EMD tsunami program, which limits the amount we can complete each year.

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

For example, the 2011 earthquake/tsunami in Japan caused 20,000 casualties, displaced 500,000 persons, and economic costs that may reach \$350bn, making this the costliest disaster in history. The 2004 Banda Aceh event, started by a 9.1 quake, killed more than 227,000.

More tsunami simulations and other information are available at the Department of Natural Resources Tsunami Page at

<https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/tsunamis/>

Elyssa Tapero:

Local Effects:

- First tsunami warning is feeling the earthquake
- Depending on distance to epicenter, a post-CSV tsunami might arrive in Olympia 4 hours after the event, producing a 0.5 foot inundation (?) and 3-6 knot currents
- 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

Communications at Risk:

- 53 AM Radio Stations
- 42 FM Radio Stations

- 15 TV Broadcast Stations
- 171 Cell Towers

While the 1/15/2022 did not affect Washington, in California wave heights and currents caused multimillion dollar damages to pilings, floats, harbor infrastructure, and public and private boats.

Questions:

Is there any potential relationship between the Cascadia Subduction zone or other faults in the region and volcanoes in the Cascades?

There is no known connection between CSZ or other crustal faults causing a volcanic eruption. There are fault zones near the volcanoes that are connected to the volcanic plumbing system that may indicate there is volcanic activity happening but no connection between Cascadia and volcanic eruptions that have been correlated in geologic history.

For situational awareness, does WA EMD or county EM have links to vessel tracking services to have real time info about where vessels are at any given moment?

The National Vessel Movement Center was established by the United States Coast Guard as a single clearinghouse for submission and processing of notice of arrival and departure information for vessels entering U.S. ports and facilities. This could be good information for EOCs to be aware of.

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 mi.wa.gov/tsunami
- 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. Panel:

- Sandy Eccker, Deputy Director, Thurston County Emergency Management
- Conley Booth, Maritime Terminals Operations Manager, Port of Olympia
- Todd Carson, Deputy Chief, Olympia Fire Department and Olympia Emergency Management Coordinator
- T.J. Quandt, Harbor Senior Manager, Port of Olympia
- Dan Musser, Marine Terminal Foreman, Port of Olympia

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

Sandy Eccker responded that her organization would immediately start establishing the safety of where they are located followed by establishing the condition of the community and how extensive the damage is and what the status of infrastructure is?

Holdeman then asked how long it would take to get a brief idea of what was going on within the community?

Eccker responded that it would be very difficult to establish without communication. They would rely on citizens' reports, the media, and be highly dependent on amateur radio. It would likely take about at least eight hours for a rough snapshot but that will also depend on the time of day the event occurs and many other factors.

Todd Carson reiterated that the length of time it would take the Olympia Fire Department to establish operations would depend on the time of day. Can we even get out on the roads to start to assess some of the infrastructure? We also have the responsibility of covering the capital campus and from the Nisqually quake we received most of our calls from there so we would have that be a priority if they are in session.

Conley Booth stated that the Port of Olympia would first confirm the safety and wellbeing of staff and then they would begin a quick visual assessment of equipment and decide where to go from there. They have a list of scenarios that they practice at least once a year so they would follow protocols. Once concern is the large log yard, we would likely have logs scattered in the water so that would be one area of concern. We would gather all staff available at the port and terminal and check in to send them out to check for damages.

TJ Quandt stated that the marina would assess their assets but confirmed that their response also depends on the time of day. Our first priority is to look for injuries and check in on people. There are 70 liveaboard families at the marina so we would want to check on these first. After that we

would look at our assets. We have a unified maintenance team and dock workers. Depending on who was available we would ask them to begin assessments. Who would be available is a big variable based on the time of day and year.

Dan Musser: Most staff live far from the port but a couple live close enough to walk. We would be dependent on who is available to respond and start doing assessments.

Holdeman asked about “windshield assessments” and if the fire department of Olympia would engage in that kind of assessment.

Carson responded that they would depend on availability of staff, but the department will likely become overwhelmed very quickly. We saw this in 2001 during the Nisqually quake with calls for shortness of breath, anxiety and building collapse. This took up resources that would be assigned to do windshield assessments. Because of this, we adapted and employed an all hands on deck approach. We have identified the people who would perform those duties and they would report back to those departments. We have designated zones and routes looking at lifelines and critical infrastructures. One of the barriers is the roadway availability, and we note that the main road to the port is in high liquefaction and might be difficult to get to. Teams capture a written log of damage and write a quick summary and take a picture and they would hold the info until they could get it to the EOC or a centralized reporting center.

Eckker responded that in a small event her department would likely send a team of people out to look, but in a bigger event the focus would be to establish the EOC so that they could receive information and communicate with other departments. They would also utilize social media as well as set up a citizen hotline. We would rely on partners from law enforcement and public works, fire districts and 911 to get a picture of the situation. The citizen hotline is a good way to get updates into the EOC but only works if the phones are working.

Holdeman asked what the procedures are for rapid damage assessment at the port?

Quandt responded that all of their engineering is outsourced so they would need to begin timely assessments and mark off areas with significant damage with staff on hand. We no longer have in-house engineers on staff so this is something to note. We would rely on staff to assist until we can get outsourced assistance from contracted engineers. We have 54 acres that is built on fill that was done in the late 70’s so there is a good chance a lot of the port infrastructure damage will result from being on liquefaction.

Corina Allen - highlighted a program called WA-Safe through WABO has a group of volunteer engineers available to assist with coordination through the jurisdiction. This could be a good resource to know about.

WABO’s Emergency Management committee has been working since 2011 to help establish Washington State’s building safety responder program. Through their efforts WAsafe (**WA**ashington **S**afety **A**ssessment of **F**acilities **E**valuators) was formed. WAsafe is a coalition comprised of WABO, [SEAW](https://www.seaw.org/), AIA Washington, and ASCE - Seattle Section whose mission is to train, enroll, and aid in the dispatch of volunteer building safety evaluators **to help local building officials** in Washington respond to disasters.

<https://www.wabo.org/emergency-responders-wasafe>

Question: Do any organizations or the port have drones?

The port doesn't have any drones but we have staff that have personally owned drones that we might be able to tap if needed. County fire doesn't have any drones however, there was a large structure fire a couple of months ago in the county and fire reached out to a mutual aid partner to use one of their drones and it was extremely useful to see the extent of the event and damage and we highly recommend this for future events. The sheriff's office has a drone and county emergency management has used these during flooding events to look at damage and it has been very successful to give us an idea of inundation to homes and other areas. The images and footage provided by the drones helped support our request to the state and for our federal declaration

Thurston county has a very good program starting from the policy side first on using drones and is a model best practice we should note. After they developed the policies they invited the media in to do a demonstration of capabilities and uses. This is different from a lot of organizations where individual agencies will purchase drones without clear policies set out at the top up front.

Corina Allen mentioned that the WA GIS has drones that they plan to use in this type of event.

Holdeman asked what each panelist anticipates are likely problems they will encounter? Starting with the port.

Quandt responded that communication will be a big obstacle if cell phone towers are down. We have radios used for communications between operations, however we are spread all over Thurston county. We have property in Lacey and across the county and the radios only go so far. So the challenge is if the power goes out, how do we coordinate together. We only have a couple of radios that are police and fire band and vhf for coast guard. We operate a fuel dock so we are concerned about potential hazards so we would want to secure any leaks and we are aware of a natural gas line as well that we would want to inspect.

Musser responded that the stormwater plant may be a problem because of hazardous materials including hydrogen peroxide. We have a containment system but in the event of an earthquake it could fail. We rely on cell phones and our radios only reach a short distance so communication is a concern. We purchased a large quantity of generators in 2015 with port security funding. We have 790 kw generators and several small ones available so we could power up the port's infrastructure. The terminals are set up to be somewhat self-sufficient.

How has the county and city coordinated these types of events? Would there be a unified command structure?

Eckker stated that partnering with different organizations will be vital. For many years, Thurston County EMD has partnered with Olympia EMD so they have agreements, joint plans and procedures prepared to work with each other. We exercise together and work in each other's EOCs so we know how each will operate and respond. This is a clear advantage in a scenario like this. We have policy level teams that come together, these can be multi-jurisdictional depending on the type of event. This could be done virtually if we have the capability. We have held exercises, for example the FEMA Integrated Emergency Management Courses for our elected officials to do multi level policy

coordination. We want to look at things countywide and we rely on each other to be successful. All of the cities in Thurston county work together through an intergovernmental agreement and mutual aid agreement and we meet monthly. All of the communities in the county have their own emergency management. But we do have funding for a half time employee to help support the three smallest communities in the county. These communities don't have the resources to pay for support from the county.

Holdeman asked what would happen to inbound ships in the event of a catastrophic earthquake.

Musser responded that it would depend where they are. If they are docked the Port would secure them and if they were offshore they would be asked to stay in deep water and ride it out. After the earthquake and potential tsunami has subsided, whether or not the ship heads to the Port will depend on the ship owner and cargo it is carrying.

Once concern would be the status of the Narrows bridge, this could impact any inland response and recovery efforts. The port would plan to move the log ships out of the way to clear the docks for emergency supplies and materials if available.

Holdeman asked about maritime facilities and capabilities outside of the port that could be used in an event like this?

Quant responded that they have a double launch and rec doc that they have used for barges in the past, they can come right up to the edge to unload. We have a dock for a travel lift in the boat yard and a plaza dock on the other side that might be able to offer some capability but depends on the level of damage and if the waterways are clear. The plaza dock is a 200 ft dock with a ramp near the terminal. It's a deeper water area so it potentially could be used.

Eccker stated that examining where boat launches and other docks are located would be something to investigate in the future. There isn't a clear picture of what is out there at this time.

Holdemen mentioned that FEMA had a recent three day workshop that they were discussing how to get supplies into the region after this type of event. He mentioned that limited air transport of supplies will be available but it was noted in the workshop that their capability is limited and the key to getting large amounts of supplies would be to use the waterways and maritime sector. FEMA has had this experience in hurricane scenarios and Puerto Rico. Some of our smaller ports like Olympia might be better served at assisting in this earthquake scenario.

Holdeman asked how many firefighters are on duty at any given time in Olympia.

Carson responded that as of that moment, there were 20 members on duty, 4 stations, and 7 apparatus available. We rely heavily on mutual aid partners whenever we are overwhelmed. The fire department would get easily overwhelmed in the event of a catastrophic earthquake so they would rely heavily on other partners if available. In this scenario there won't be much mutual aid because everyone will be dealing with their own issues.

Holdeman mentioned the Puget Sound Mutual Aid Agreement that is in place that was coordinated by PNWER seven or eight years ago. The agreement is hosted by WPPA and member ports

Holdeman asked how long it would likely take for national and federal aid to arrive in the region.

Eccker responded that her planning assumption would be 14 days, but perhaps longer for smaller counties.

Facilitated Discussion – Communication and Information Sharing Tools, Jeannie Beckett, The Beckett Group, Moderator:

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?

Sandy Eccker responded that she began receiving alerts around 4 AM. She notified the Port, and participated in the state led conference calls throughout the event. There was not much concern voiced for the Puget Sound itself so she kept communications internal.

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.

Beckett asked if Olympia has a tsunami siren.

Tappero responded that sirens are primarily intended for alerting those who have a very small amount of time to get to high ground that there is an imminent tsunami. This is not a concern in Olympia because a tsunami would take much longer to get to the region than it would to the coast, and there is more access to high ground.

Brandon Hardenbrook asked TJ Quandt how boat owners and liveaboards were alerted of the event?

Quandt identified that there were gaps in this system and they are currently updating their software to address quick messaging.

Jennie Foglia-Jones noted that the residents of the Swantown Marina have a Facebook group that is very active and is often an effective way of informing residents of events.

Jeannie: How would communications differ during a Magnitude 9 event?

Jenny Foglia: We would notify key staff, activate our Incident Command System, connect with County EM, use surviving social media to communicate with the public.

Todd Carson: We have pre-scripted messaging to physically distribute to homes, including in Spanish and Vietnamese.

Sandy: All depends on the state of phones and the internet. Texting seems to be more reliable. We have reverse 911, but only on hard lines. We can go door-to-door if needed.

Jeannie: We are setting up a Communications Workgroup as part of this effort. Let me know if you are interested in joining.

Jeannie then asked how communications would differ during a Magnitude 9 event.

Jennie Foglia-Jones said she would notify key staff, activate their Incident Command System, connect with County EM, and use surviving social media to communicate with the public.

Todd Carson stated they have pre-scripted messaging to physically distribute to homes, including in Spanish and Vietnamese.

Sandy noted that it would all depend on the state of phones and the internet. Texting seems to be more reliable. Reverse 911 is available, but only on hard lines, so they would go door-to-door if needed.

Jeannie confirmed that a Communications Workgroup is being set up as part of this effort.

Best Practices in the Olympia Region: Thurston County's Cascadia Rising 2022 Exercise, Sandy Eccker, Deputy Director, Thurston County Emergency Management.

Washington State Emergency Management Division will conduct the Cascadia Rising exercise from June 13 to June 16 2022, with Thurston County participating June 14th from 10:00 AM to 2:00 pm at Thurston County Fairgrounds. We will use a discussion format. The Exercise Purpose is to define essential elements of information necessary for incident stabilization; identify and prioritize state and local Critical Transportation routes and Mass Care services and functions; and assess state, tribal, and local abilities to fill capability gaps following a catastrophic incident. We will focus on potential Population Islands following a catastrophe. WA DOT, Thurston County, Olympia, Lacey and Yelm will attend.

Brief Overview of the Maritime Resilience Framework

March 10, 2022

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. Thurston County, Olympia, Lacey and Yelm

Closing Remarks

Brandon Hardenbrook, Deputy Director, Pacific Northwest Economic Region, 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. Please mark your calendars for our Regional Workshop on May 24th, bringing together all six maritime areas.

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.
- Continue to identify key maritime assets and capabilities that could assist in response and recovery.
- Develop communication and information-sharing strategies to reach maritime stakeholders.
- Develop a regional maritime and emergency planning communications working group to identify gaps and improvements across the Puget Sound.
- Encourage the Port and surrounding area to work with WA Emergency Management to develop a tsunami mitigation framework.
- Develop and share coordinated rapid damage assessment 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.
- Explore resources to host an annual regional maritime resilience exercise to test and update plans.
- Explore the use of drones to provide situational awareness and damage assessment assistance.

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 \(wa.gov\)](#)

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> or Android
<https://play.google.com/store/apps/details?tsunami> evacs.nvs.nanoos.org nvs.tsunami.android

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

National Infrastructure Simulation and Analysis Center-- Homeland Infrastructure Threat and Risk Analysis Center (HITRAC) within the DHS Office of Infrastructure Protection, [NRMCI CISA](#)

OLYMPIA REGION MARITIME DISASTER RESILIENCE WORKSHOP

A Regional Catastrophic Planning Grant Project

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

WELCOME & INTRODUCTIONS | 9:00 AM

Welcome & Opening Remarks will be provided by Brendan McCluskey, Director of King County Emergency Management and Sam Gibboney, Executive Director of the Port of Olympia



Brendan McCluskey
Director
King County Emergency Management



Sam Gibboney
Executive Director
Port of Olympia

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 Olympia area can expect during a Cascadia Subduction Zone Earthquake.



Elyssa Tappero
Tsunami Program Coordinator
Washington Emergency
Management Division



Corina Allen
Chief Hazards Geologist
Washington Geological Survey

BREAK | 10:30 AM

Visit our webpage at
Kingcounty.gov



LOCAL RESPONSE TO ANTICIPATED IMPACTS | 10:35 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



Sandy Eccker
Deputy Director
Thurston County Emergency
Management



Conley Booth
Marine Terminals
Operations Manager
Port of Olympia



Todd Carson
Deputy Chief
Olympia Fire Department
City of Olympia Emergency
Management Coordinator



TJ Quandt
Harbor Senior Manager
Port of Olympia



Dan Musser
Marine Terminal Foreman
Port of Olympia

FACILITATED DISCUSSION:

Communication and Information Sharing Tools | 11:30 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

BEST PRACTICES IN THE OLYMPIA REGION:

Thurston County's Cascadia Rising 2022 Exercise | 12:00 PM

Sandy Eccker from Thurston County will describe what is in store for the participants of Thurston County's Cascadia Rising Exercise to be held on June 14th. The exercise will focus on identifying and developing a plan for reopening critical transportation corridors to move life sustaining supplies to where they are needed.

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](https://www.kingcounty.gov)



OLYMPIA REGION MARITIME DISASTER RESILIENCE WORKSHOP

March 10, 2022 | 9:00 am to 12:30 pm

Featured Speakers



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.



SAM GIBBONEY

EXECUTIVE DIRECTOR

PORT OF OLYMPIA

Sam Gibboney is Executive Director of the Port of Olympia, Washington, named to the post by the Port of Olympia Commissioners in 2018. As Executive Director of the Port of Olympia, Ms. Gibboney reports to a body of three elected Commissioners and oversees all management and operations of the Port of Olympia. She leads the Port staff of nearly 50 and an average annual budget of \$22 million. Inclusiveness and collaboration are hallmarks of Ms. Gibboney's leadership style. The Port manages operations for a breakbulk deepwater marine terminal, Swantown Marina and Boatworks – the 7th largest marina in the State of Washington – as well as the Olympia Regional Airport, and a wide range of commercial and industrial properties throughout Thurston County. Prior to starting her new role as Executive Director of the Port of Olympia, Ms. Gibboney was most recently the Executive Director of the Port of Port Townsend, and prior to that, she was the Director of Community Development in San Juan County. Ms. Gibboney started her career working for the U.S. Air Force in the North Pole, Alaska.

Presenters



ELYSSA TAPPERO

TSUNAMI PROGRAM COORDINATOR

WASHINGTON EMERGENCY MANAGEMENT DIVISION

Elyssa Tappero has been the Tsunami Program Coordinator at the Washington Emergency Management Division since July 2019. In this role Tappero focuses on mitigating the impact of tsunami hazards through public education and community response planning. She also has broad experience across social, environmental, and emergency management issues in the public and nonprofit sectors.



CORINNA ALLEN

CHIEF HAZARDS GEOLOGIST

WASHINGTON GEOLOGICAL SURVEY

Corina Allen is the Chief Hazards Geologist at the Washington Geological Survey and is the program manager for the earthquake, tsunami, and volcanic hazards section of the Survey. Corina is the State science representative for the National Tsunami Hazard Mitigation Program and is a member of the Tsunami Science and Technology Advisory Panel for the National Oceanic and Atmospheric Administration.



DAVID CRUZ

ALL HAZARDS TECHNICAL LEAD

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. Projects he has worked on include: Puget Sound Regional, All Hazards Risk Management/Mitigation Plan, Trade Resumption/Resiliency Plan, and Area Maritime Security (AMS) Assessment, Puget Sound, WA; Port of Tacoma Tideflats Facility All Hazards Assessment; and Area Maritime Security Committee Port-Wide All Hazards Management Plan, Los Angeles and Long Beach, CA.

Panelists



CONLEY BOOTH

**MARINE TERMINALS OPERATIONS MANAGER
PORT OF OLYMPIA**

Conley Booth is the Port of Olympia Marine Terminal Operations Coordinator. She began her career with the Port in 2005. She is responsible for coordinating all dock, vessel, rail, and cargo planning operations, inventory control and some business development. She is also responsible for working with vessel agents, longshore, customers, tenants, and US Customs.



SANDY ECCKER

**DEPUTY DIRECTOR
THURSTON COUNTY EMERGENCY MANAGEMENT**

Sandy Eccker began her career in emergency management in 1997. She served nine years as the Emergency Management Coordinator for Jackson County, Oregon and then sixteen years for Thurston County as an Emergency Management Coordinator and then Emergency Management Manager.

Throughout her career, Sandy has strived to improve regional collaboration through partnership building and multi-jurisdictional planning. She was a founding member of the Regional Catastrophic Planning Team and State Catastrophic Incident Planning Team where she led efforts to align local, state and federal resource management and logistics plans and procedures. Under her leadership, the region's logistics experts created a Tool Kit to help jurisdictions advance their resource management capabilities and develop Community Points of Distribution (CPOD) plans. Sandy has a BA in Chemistry from Smith College and a MS in Geology from Colorado State University. Outside of work she manages a small farm raising sheep and training border collies.



TODD CARSON

**DEPUTY CHIEF & EMERGENCY MANAGEMENT
COORDINATOR
OLYMPIA FIRE DEPARTMENT & CITY OF OLYMPIA**

Todd Carson has spent the last 24 years holding every operational position at the Olympia Fire Department and is currently serving as the Department's Deputy Chief. As a function of this role, Todd is also serving as the City of Olympia's Emergency Management Coordinator.



DAN MUSSER
MARINE TERMINAL FOREMEN
PORT OF OLYMPIA

Dan Musser is the Port of Olympia Marine Terminal Foreman and Facility Security Officer. He has been with the Port for more than 20 years, when he started his career as the marine terminal journeyman diesel mechanic. As Foreman and FSO, Dan is responsible for overseeing the maintenance to the equipment, facilities and infrastructure for the marine terminal, as well as working with the marine terminal staff on coordination to ensure equipment to be properly maintained and available for operations. He is responsible for administering and overseeing the Facility Security for the terminal per Coast Guard Regulations 33 CFR Part105. This includes administering the overall security of the facility by keeping abreast of best practices, maintaining effective port security policies and procedures, and maintaining an effective relationship with applicable local and government agencies. When vessels are on berth, Dan is the direct liaison with the Vessel Security Officer.



TJ QUANDT
HARBOR SENIOR MANAGER
PORT OF OLYMPIA

TJ Quandt serves the Port of Olympia as the Harbor Sr. Manager, joining the team in 2019. His core responsibility is to lead Swantown Marina, Boatworks, and Fuel Dock in daily operations, facility upkeep, future growth, and business development.

As the Harbor Sr. Manager, TJ is responsible for the oversight of 9 staff members serving the boating community and 30 volunteers with the Harbor Patrol program.

TJ has spent his life dedicated personally and professionally to the marine industries. With over two decades of maritime experience, he has worked in various avenues including the Alaskan fisheries, Marine Trades, and the public sector Port Authorities. Prior to working for the Port of Olympia, he spent 10 years working for the Port of Port Townsend coordinating with Shipwrights, Marina tenants, and Non-Profits/Clubs on boating matters and events.

With his wide spectrum of marine experience, TJ knows that issues need to be examined from all perspectives and that the big picture is just as important as the small. He is a strong believer that growth is achieved by adapting, learning, and striving for our greatest potential and that it applies to both personal and professional life.

While his focus is often on sustainability, his true love is for his wife and two children, boats, community, events, and more boats.

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.