

Continuity of Operations Plan (COOP)

“We don’t know exactly what will happen, but we can’t be thinking about it for the first time when it does.” HMSC employee

Purpose and Scope

This Continuity of Operations Plan (COOP) for the Oregon State University (OSU) Hatfield Marine Science Center (HMSC) is the primary planning document for HMSC regarding mitigation and response for earthquake and tsunami risk.

This document has been created by and serves as the COOP for the HMSC Director, their staff, and, in the absence of more specific individual plans, for all co-located partners of HMSC. The COOP is a living document and will be frequently updated as resources, information, funding and planning progresses. The response section is structured chronologically, as reacting to and recovering from a natural disaster will constitute multiple stages, each of which need to be planned for in advance.

Notes on the COOP:

- This plan, although optimized for earthquake/tsunami, would serve for a variety of incidents including flooding, closure of the Yaquina Bay bridge, etc.
- Planning is for all “t-shirt” sized local earthquakes, with the understanding that for smaller or distance tsunami events, utilities and services may be intact. The COOP assumes use of all available resources.
- This COOP applies regardless of when the earthquake occurs. We expect that at any time of the day or night including weekends and holidays, HMSC employees, students and leadership will be dispersed. They may be at work, at home, in the dorms, out in the community, in the field, or on travel. This COOP is primarily focused on those physically on the HMSC campus at the time of the earthquake.
- HMSC nearest evacuation point is the Marine Studies Building (MSB) rooftop Assembly Area. The building is constructed to withstand a 9+ earthquake and an XXL tsunami event. The roof is designed to serve as an emergency assembly site for more than 920 people for up to two days after an earthquake. HMSC also has two horizontal evacuation sites, Safe Haven Hill and Community College Hill. They are currently both considered Assembly Areas, meaning they are appropriate for short term refuge from high water for up to several days. Community College Hill will be upgraded to a Shelter when supply caches are completed. In this document, the term “evacuation sites” refers to both Shelters and Assembly Areas.

Sections

The COOP includes:

- A. [Mitigation Plan](#)
- B. [Response Plan](#)
- C. [Appendix 1](#) : **Current state of Emergency Management at HMSC**

A. Mitigation Plan:

In preparation for an earthquake, the OSU Hatfield Marine Science Center has and will continue to:

- Incorporate vertical evacuation signage in to the Marine Studies Building.
- Foster development and sustainment of the two local horizontal evacuation routes and evacuation sites.
- Engage with NOAA, Oregon Emergency Management and Oregon’s Department of Land Conservation and Development to develop a disaster cache manual and protocols for use of equipment and supplies. Anticipated completion in Summer 2021.
- Continue to conduct regular drills (1 or more per year) to the vertical evacuation and horizontal evacuation sites.
- Train HMSC leadership and staff through FEMA training and participation in exercises.
- Advocate and complete seismic retrofit of older buildings on the HMSC campus over time to prevent collapse and allow safe building evacuation.
- Continue to develop this COOP in partnership with OSU Emergency Management, local emergency management community and co-located federal and state agencies.
- Facilitate development of early warning systems where possible. These systems would allow escape from buildings before shaking starts.
- Continue to train all new incoming staff and students on HMSC emergency plans and tsunami preparedness, and continue to improve training based on research, feedback and experience.

See [Appendix 1](#) for specific tasks completed, in progress or planned.

B. Response Plan:

In the minutes following an earthquake:

Individuals are expected to make immediate decisions to protect themselves, following the HMSC tsunami evacuation [plan](#):

- Duck, cover, hold on, GO! Escape buildings and head to higher ground as soon as possible.
- Follow marked and/or practiced routes to high ground.

- Wait at high ground for further guidance from city/county as to status/all-clear.

Through drills, employees train to protect themselves from the shaking and evacuate to high ground immediately (as soon as they can walk). HMSC's ongoing evacuation training, especially for new students and employees, is key to success. HMSC's training program currently includes two drills per year for the entire HMSC community (OSU, federal/state agencies, housing residents and neighboring facilities such as NOAA Ship Ops, Oregon Coast Aquarium and OMSI Camp Gray), and frequent communications and updates. New students, employees and visiting researchers are oriented as to tsunami risk and evacuation procedures upon arrival (and, when possible, prior to employment).

HMSC currently has two evacuation sites, Safe Haven Hill and Community College Hill. Both are horizontal evacuation routes. With construction of the new Marine Studies Building (MSB) complete in the HMSC campus, a third, vertical evacuation route is in place on the rooftop, accommodating mobility impaired, injured, and other evacuees who are at risk due to the distance of the existing horizontal evacuation sites. The program is robust but is: 1) constantly being evaluated for improvement, 2) updated based on new information, and 3) contributes to and benefits from current OSU research (for example, research by OSU faculty Dan Cox and Lori Cramer).

In the hours following an earthquake:

Disaster caches are opened and an emergency command is established by evacuees.

- Evacuees open cache at one of the three assembly areas. The key to the cache is secured in a lockbox onsite, and the combination of the lock box is distributed to residents and employees of the neighborhoods surrounding each cache. It is also available through Lincoln County Emergency Command, if contact can be made. Development of a seismically-controlled lockbox is desired.
- Evacuees, using protocols within the cache, follow chain of command, address medical emergencies and deploy cache resources including supplies and equipment to provide shelter, water, food, lighting, communications and sanitation for all evacuees at that assembly area.

Disaster caches are in place at each of the three assembly areas. Protocols for the deployment of the MSB rooftop cache supplies is underway. Supplies and protocols at the two horizontal evacuation locations are being amassed incrementally and continually improved through collaboration and cooperative funding by an ad hoc group of agency and community partners. Having caches readily accessible, with medical supplies, generators and equipment for lighting and communication, water, shelter, food and sanitation is critical to success. Protocols for using the caches are being developed and the combination to the lockboxes is being shared widely.

In the days following an earthquake:

Evacuees move from minimally supplied Assembly Areas to longer-term Shelters or to their homes. Immediate needs are:

- account for people and share information with families and between sites (especially families separated by water) to facilitate safe modes of reunification.
- address medical and other needs that cannot be readily addressed with equipment and supplies on hand.
- establish robust communications with OSU and Lincoln County emergency commands.

HMSC leadership, if and when available and from any possible location, will follow protocols to establish HMSC EOC (Emergency Operations Center) to facilitate communications and direct and coordinate activities. At any given time, leadership may be on the road, at work, or at home, and the composition of the emergency command will depend on the locations and disposition of HMSC leadership. A permanent site, available 24/7, located north of the Yaquina Bay Bridge will be established with satellite internet/phone service and solar power sufficient to charge computers, phone, modem, and LED lights. This EOC facility is in the planning stage and will connect with and supplement emergency commands established at evacuation sites.

In the weeks following an earthquake:

Regroup. Communicate.

Establishing communications between campuses, between leadership of the various organizations and agencies and between employers and employees is critical. Employees will need to know when they can come back to work (in a small seismic event) or if they are still employed, being paid, or covered by health insurance (in larger events). Many people, if not at home, will start to move toward home if they can, or move out of the area if necessary. As it will be important to not lose touch with employees, HMSC leadership has access to their emergency contacts electronically. HMSC supported a state wide 2-Week Ready campaign in winter 18 and encouraged employees to have supplies at home that will make them self-sufficient for at least 2 weeks. HMSC is also co-leading efforts to equip a long-term shelter at Community College Hill.

In the months/years following an earthquake:

The new Marine Studies Building is designed to be usable as a safe haven (Assembly Area) for any sized earthquake/tsunami event, and designed to be resilient to and reusable after a small to large earthquake. This resilience will allow HMSC to rebuild OSU programs, and serve as part of the social and economic recovery of the Oregon coast. Plans for recovery will be developed in the coming years in partnership with OSU leadership and OSU Emergency Management.

Appendix 1: Current state of Emergency Management at HMSC**Infrastructure:**

HMSC has invested in infrastructure and equipment to prepare for or respond to an earthquake/tsunami. Below are some of the infrastructure plans or improvements at HMSC:

- HMSC/OSU built an earthquake and tsunami resistant research and teaching building (MSB) that serves as a vertical evacuation site for 920 or more people.
- HMSC is developing vertical evacuation and tsunami education signage plan and is actively working to install evacuation and educational signage around the new building.
- HMSC/OSU will continue to advocate and retrofit existing buildings on the HMSC campus.
- HMSC/OSU is evaluating current horizontal evacuation routes to determine what infrastructure improvements can be made.
- HMSC/OSU will be relocating student housing to high ground near one of the horizontal assembly areas.
- HMSC has purchased a community-sized emergency water purification system (40,000 gpd) stored at the Newport Municipal Airport near complimentary infrastructure.
- HMSC/OSU has fully stocked the MSB rooftop community assembly area with emergency cache supplies to support more than 920 evacuees for up to 2 days.
- HMSC along with co-located and community partners are actively working to stock the disaster caches at Safe Haven Hill and the community college. The supplies at Safe Haven Hill will currently support 2000 people for two days following the event with the goal of gathering enough supplies to support 3500 people for 2 days.

Training and Drills:

HMSC actively prepares for evacuation to high ground. Below is a list of some of the trainings and drills that HMSC leads or participates in:

- HMSC has conducted tsunami drills since 2006. Drills are currently conducted twice each year in conjunction with the statewide Great Shakeout and in partnership with local emergency responders.
- HMSC conducts student-focused nighttime drills to MSB rooftop and Safe Haven Hill.
- HMSC collaborates with OSU researchers Dan Cox and Lori Cramer to collect data from simulated evacuations to improve evacuation routes and drill protocols and benefits from ongoing research on the Cascadia subduction zone conducted at OSU.
- HMSC tsunami drills have served as a model for Newport and other coastal communities.
- HMSC leadership are FEMA trained, including E0947 at NETC in Maryland with team from Lincoln County (2013), FEMA ATC-20 and FEMA 154 (2014), MGT 340 Crisis Leadership and Decision Making (2016), and ISC100, 200, 300, 700.b, 800.c (2019). Additional trainings are planned.
- HMSC orients and educates new students, new employees and potential employees to seismic risk, and informs them of HMSC's evacuation plan and additional resources (and, when possible, prior to employment).
- Exhibits in the HMSC Visitor Center and surrounding area educate visitors of the seismic/tsunami risk on the Oregon coast.

- HMSC leadership has frequent interaction and ongoing communication with Lincoln County Emergency Management, City of Newport Police, Fire and Leadership, and State and OSU Emergency Management on many topics including emergency preparedness. These relationships build working partnerships critical to successful response and recovery after a natural disaster.
- HMSC participated in the Cascadia Rising exercise in June 2016 and will participate in future training events.
- HMSC leadership attended the Oregon Emergency Management Conference (April 2017 & 2018), Oregon Emergency Managers Conference (October 2016), Oregon Tsunami Conference (December 2016), NOAA Tsunami Conference (October 2011) and hosted the Oregon Tsunami Conference in Newport in Winter 2019.

Community Service:

HMSC is an active member of the Newport and coastal communities. Below is a list of some of the activities that HMSC leads or participates in:

- HMSC and Oregon Sea Grant designed and implemented a tsunami interpretive trail from HMSC to Safe Haven Hill with coastal partners, which serves as a model for coastal communities.
- HMSC Facilities enhanced evacuation route signage on the campus in 2016 and is working on updating the signage plan in 2021.
- HMSC leadership facilitates the South Beach Disaster Cache Planning Group which is a local volunteer community committee that oversees the planning and development of the two South Beach tsunami horizontal assembly areas.
- HMSC leadership serves on the Tsunami Advisory Council chaired by Oregon Office of Emergency Management.
- HMSC purchased a community-sized, 40,000 gpd water purification system valued at over \$100,000 to serve the HMSC and local community in the event of a disaster.
- HMSC supported the City of Newport's successful bid for FEMA funding for Safe Haven Hill improvements (2011-2016), and partnered with the Lincoln County School District on a *FEMA Community Resilience Grant* in 2013.
- HMSC leadership partnered with the Marine Resources Program (2017) and OSU College of Engineering faculty (2016 & 2011) to enable student projects on tsunami response.
- HMSC hosted a presentation and reception for a demonstration of capabilities between the US Navy and Lincoln County Emergency Management utilizing the USS Anchorage (2017).
- HMSC is working with NOAA, OEM, and DLCD to develop a disaster cache manual with accompanying protocols for use of equipment and supplies. Anticipated completion summer 2021.

Preparedness:

HMSC puts a high value on preparedness. Below is a list of some of the preparations that HMSC leads or participates in:

- HMSC is leading planning for a disaster cache project to fill multiple containers at two horizontal evacuation sites with necessary food, water and equipment to be used in the event of an emergency. Fundraising for the disaster caches targets South Beach employers including OSU as well as outreach events for employees to contribute and get updates on progress.
- HMSC has developed an [Emergency Operation Plan](#) that works in conjunction with this HMSC COOP plan.
- HMSC conducts year-round in-reach through regular communications, events and electronic resources on emergency preparedness, and serves as a model for the OSU community.
- Oregon Sea Grant at HMSC supports the HMSC Tsunami Quest which encourages the public to practice walking to high ground from HMSC while learning about safety at the coast.
- HMSC Facilities secures bookcases and other potentially dangerous items in offices and common areas on an ongoing basis.
- HMSC is actively developing protocols for a HMSC EOC (Emergency Operations Center).

Exceptions to this COOP or other HMSC policies are at the discretion of the HMSC Director.

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