Oregon's Land Use Guide for Tsunami Preparedness

The Oregon Coastal Program helps communities understand their tsunami risks and implement policies that will protect property and save lives.

A warning sign along Oregon's Highway 101.

A sleeping dragon lies 50 miles off the coast of Oregon. At least, that's how it feels to the 22,000 residents living within the tsunami inundation area. The Cascadia Subduction Zone, where one tectonic plate is sliding beneath another, can produce earthquakes of magnitude 9.0 and higher. If a major earthquake occurs along this fault line, the resulting tsunami would strike the Oregon coast within 15 minutes. Prolonged ground shaking, landslides, and extreme flooding could devastate the region. Geologic evidence shows that the largest Cascadia Subduction Zone earthquakes occur every 300-600 years. The last major earthquake struck on the evening of January 26, 1700—meaning that Oregon is within the time window for the next one. According to geologists at Oregon State University, the chance of a major earthquake and tsunami within the next 50 years is one in three.

Cognizant of this increasing threat, the Oregon Coastal Management Program (OCMP) began working with coastal communities to reduce their risk of property damage and loss of life from a tsunami. OCMP engages with local government partners all along the Oregon coast, working together to educate both residents and visitors about coastal hazards. Their outreach efforts have not only raised awareness about tsunamis, but also generated local momentum for actions to increase resilience.

With that in mind, OCMP developed a comprehensive land use guide to assist local planners as they incorporate tsunami resilience measures into their community's policies. The land use guide was designed so that coastal communities can tailor the materials to address their individual locations and levels of tsunami risk. The guide focuses on three main themes: improving evacuation planning and infrastructure, reducing certain types of development in high-risk areas, and encouraging building techniques that decrease structural damage during an earthquake and tsunami event. Specific tools include sample text for local land use plans, a set of Tsunami Hazard Maps that define tsunami risk for the entire Oregon coast, model zoning regulations, and resources to help communities leverage additional funds for disaster preparedness.

Using the guidance, several coastal communities have worked with OCMP to implement land use policies that reduce tsunami impacts. In Coos County, local officials amended their comprehensive land use plan and adopted Tsunami Hazard Maps for their region. OCMP continues to assist Coos County as they work to modify zoning regulations, develop incentives for homeowners to increase their tsunami preparedness, and improve evacuation facilities. In Clatsop County, the local planning commission is holding hearings to adopt a robust set of tsunami-related provisions for their development code. Clatsop County is also working with OCMP to improve their plans for an evacuation. Ten other communities, representing all seven of Oregon's coastal counties, signed letters of commitment to move forward with tsunami resilience measures when more funding becomes available.

By developing the guide, OCMP also improved coordination among the relevant state agencies. Now, these agencies collaborate more effectively to deliver the data and expertise that communities need. “This work is not easy,” said Laren Woolley, Coastal Shores Specialist at OCMP. “It’s a pretty heavy lift for local governments, and we are committed to do everything we can to help them.