‘Puget Sound area Tsunami and Earthquake risk assessment’

There are many fault lines around the Puget Sound, but it is the Cascadia fault that has the most potential for a major earthquake, which in turn could cause a tsunami. Both of these disasters could create significant damage to the Seattle metropolitan area.

Currently, most publicly available maps simply highlight areas that are at risk for earthquakes. This tells the user nothing about the impacts that an earthquake or tsunami would have on vulnerable populations, emergency resources, or public infrastructure. This project will create a series of enhanced maps that will illustrate those potential impacts using data from cities, counties, USGS, FEMA, and WA state natural resources GIS portals.

The project will enhance current emergency management mitigation planning if there is an earthquake or tsunami in the Puget Sound area. The project will improve current earthquake emergency mapping to incorporate various features that do not appear to be included in current publicly available emergency maps. For example, a spatial join between a topographic map and an emergency resources infrastructure map will create a web map highlighting which resources would be a greater risk of damage or incapacitation from a tsunami based on the elevation of those infrastructure resources.

Other maps will include: a vulnerability layer that will assist users in researching and analyzing problem areas, an analysis map of unreinforced buildings in the city of Seattle, a map showing the varying predicted impact areas based on the intensity of the earthquake, a vulnerability map based on other faults in the Seattle area that may be affected by a Cascadia quake, and a tsunami impact map. As the project develops, additional useful maps will be identified and created.

January 26th, 2022 marked the 332nd anniversary of the last Cascadia subduction zone earthquake and tsunami that struck the Pacific Northwest. Scientists predict a one in ten chance of another Cascadia subduction zone earthquake in the next 50 years. So, emergency services and the public must have additional resources than what is currently available, which this project will provide, to prepare for such an event.