

## Western States Seismic Policy Council 2014 Awards in Excellence

### *Award in Excellence for Response Plans/Materials*

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<b>Administering Agency:</b>	Washington Department of Natural Resources, Division of Geology and Earth Resources
<b>Program/Project Name:</b>	<i>Landslide and Liquefaction Maps for Aberdeen, Cosmopolis, and Hoquiam, Grays Harbor County, Washington: Effects on Tsunami Inundation Zones of a Cascadia Subduction Zone Earthquake</i>
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#### **Program Summary**

Although tsunami inundation zones have been modeled and evacuation routes planned in previous publications from the Washington Department of Natural Resources, Division of Geology and Earth Resources (DGER), there had been no detailed evaluations of soil initiation of liquefaction or detailed evaluations of seismically induced landslide risk for evacuation routes in coastal communities. Earthquake-induced ground failures could adversely affect tsunami evacuation by blocking or damaging evacuation routes, potentially rendering them impassable, or impeding an efficient and rapid evacuation. The purpose of this project was to evaluate the suitability of existing tsunami evacuation routes and assembly areas for potential vulnerability to ground failure (liquefaction and shallow landslide) from a M9+ Cascadia Subduction Zone (CSZ) earthquake on specific areas within Grays Harbor County.

DGER has concentrated part of their technical program on earthquake-induced ground failures in order to improve evacuation planning for tsunamis that would inundate coastal areas in less than an hour after earthquake ground shaking. The combination of modeled ground failures with existing tsunami evacuation routes is the first of its kind in Washington State. DGER calculated critical acceleration of slopes and compared the data to estimated PGA values to identify shallow landslide hazards. The intent of this project was to visually communicate the potential seismically-induced ground failures to non-geologist; for officials who do not understand that the evacuation routes may likely be impassable to vehicular travel, the products further convey the need for alternative escape routes, especially walking. As a result of the report, some evacuation routes have already been modified, and there may be additional additions, removals, or other modifications to current evacuation routes and assembly areas.

The report can be found at: [http://www.dnr.wa.gov/Publications/ger\\_r136\\_aberdeen\\_liquefaction.zip](http://www.dnr.wa.gov/Publications/ger_r136_aberdeen_liquefaction.zip)