Introduction

Earthquakes occur throughout the world, and Cascadia is no exception. The Cascadia Subduction Zone (CSZ) extends for thousands of kilometers off the western coast of North America, from northern British Columbia to southern California. The plate boundary, where the Juan de Fuca Plate subducts beneath the North American Plate, is a region of ongoing seismic activity and potential for large earthquakes.

The Cascadia Subduction Zone has been one of the most investigated subduction zones due to its unique characteristics and the destructive potential of earthquakes associated with it. Historically, the CSZ has produced great earthquakes with magnitudes in the range of Mw 8.0 or larger. A particularly well-known example is the 1700 Cascadia earthquake, which produced a tsunami that caused significant damage along the Oregon coast.

Recent studies have shown that the rate of seismicity along the CSZ has increased significantly in recent decades, leading to heightened concerns about the potential for a large earthquake in the near future. These studies have also highlighted the importance of understanding and mitigating the geologic hazard posed by the CSZ.

Map Explanation

This map of the Coos River South, Oregon, shows the tsunami inundation areas associated with using hypothetical Cascadia and Alaska earthquake scenarios. The map includes wet/dry contour lines, regulatory tsunami inundation line, and the Wet/Dry Zone, which equates to the area of expected tsunami inundation based on scientific evidence and wet/dry level of the tide.

Legend

- Wet/Dry Zone
- Regulatory Tsunami Inundation Line
- Urban Growth Boundary
- Wet/Dry Contour Lines
- Tsunami Inundation Map

Data References

- Conformal Conic, Unit: International Feet, Horizontal U.S. Navy Navigation Chart
- Plate 1: Don W.T. Lewis, Rachel R. Lyles Smith
- Building Footprints: Using hypothetical Cascadia and Alaska earthquake tsunami inundation at Bandon, Coos County, Oregon, for industry use of the tsunami hazard maps of the Oregon coast, Industries Special Paper 41, 87 p.
- Source Data: Geophysical and bathymetric data were redigitized by Rachel R. Lyles Smith and Sean G. Pickner for the map area.
- Funding: This work was funded by federal funding awarded by NOAA, DOGAMI has developed a tsunami inundation map for the Coos River South, Oregon.

Buildings within Tsunami Inundation Zones

Buildings within the tsunami inundation zones are indicated on the map. The inundation levels are color-coded to represent different heights.

Exposure to Tsunami Wave Height through Time for Simulated Gauge Station

This chart shows the exposure to tsunami wave height through time for a simulated gauge station. The data used to create this chart came from tsunami simulations and is labeled as follows:

- Low: Small (S), Medium (M), Large (L), Extra Large (XL), Extra Extra Large (XXL)

References

- U.S. Highway 101 Map Explanation.