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ABSTRACT

This poster focuses on tsunami hazards associated with the Cascadia Subduction Zone in Western Oregon. The Oregon Coastline is characterized by low-lying estuaries, beaches and floodplains that fall within the hazard zone associated with potential surges of water that come with a tsunami. Mitigation efforts include public education, inundation mapping, and relocation of sensitive buildings to higher ground. Given the history of high magnitude, low-frequency seismic events associated with coastal Oregon, advancement of tsunami mitigation plans to preserve life and essential infrastructure is of the utmost importance with respect to implementing emergency management strategies.

WHAT IS A TSUNAMI?

- A tsunami is a series of waves generated by an earthquake below the ocean surface.
- Tsunamis can travel up to 800km an hour (500 MPH)!
- When the tsunami waves reach the continental margin, they slow down at a very high rate.
- Tsunamis can be triggered from offshore earthquakes.
- Tsunamis can be as high as 100 meters.
- Tsunamis can last for a long period of time.



Tsunami Hazards in Coastal Oregon

when the wave reaches the continental margin.

THE CASCADIA SUBDUCTION ZONE

- The Cascadia Subduction Zone extends from Northern California at Cape Mendocino all the way up to Brooks Peninsula in British Columbia for an approximate length of around 700 miles.
- This subduction zone is caused by the Juan de Fuca plate subducting underneath the North American plate.
- The subduction zone is a convergent plate boundary with massive amounts of tectonic uplift which forms the cascades and the coast range mountains.
- This subduction zone is capable of producing a megathrust earthquake that can produce extensive damage to the coastal communities.



3-D Model of the Cascadia Subduction Zone

FSUNAMI HAZARDS

- Low lying coastal towns and communities that sit right along the immediate coastline.
- Weak or outdated infrastructure that could topple when the earthquake strikes as well as when the tsunami moves inland.
- Lots of smaller earthquakes that could strike inland after the major one offshore.
- Liquefaction of soils and roadways as a result of heavy rains, materials and ground shaking.



HAZARDS MITIGATION EFFORTS

- Mapping out these particular areas.
- Relocating sensitive infrastructure and buildings to much safer locations or higher ground
- Implement tsunami warning systems such as reverse 911 calls and tsunami sirens that are tested on a regular basis.
- Retrofitting buildings so that way the initial shaking from the earthquake doesn't damage the buildings as bad as they would if they were not retrofitted.



CONCLUSION

Tsunamis are a major environmental impact. This is because tsunamis can really hurt the land surrounding the Oregon Coastline. It can also damage out infrastructure when the earthquake is occurring. Finally, tsunamis are very deadly and can kill/harm anything that it is in their path and can inundate many different structures. So, if you feel the shaking, drop and cover. After the shaking, do not wait for the authorities to tell you to get to higher ground. Just do it. Then, when the tsunami waves have receded, come back and survey the damage.

References

Oregon Department Of Geology And Mineral Industries, N/A. *Oregon Geology Fact Sheet:* Tsunami Hazards in Oregon, 4-03-09 Revision(n.d.): n. pag. Oregon Dept. of Geology, 2014. Web. 15 May 2016.

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Diagram showing the particular tsunami hazards in Clatsop County Oregon.