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## Background

The Cascadia Subduction Zone, stretching along the coast from northern California, Oregon, Washington and into southern Canada, is at risk for a magnitude 9+ subduction earthquake and subsequent tsunami<sup>1</sup>. Preparations are underway in many communities to increase their resilience to this impending disaster. Science centers are influential in raising science literacy within a community<sup>2</sup>; how can science centers enhance community earthquake and tsunami resiliency?

### Purpose of the study:

After interacting with earthquake and tsunami hazards exhibits at a coastal Pacific Northwest science center, how do docents describe the transfer of what they've learned to their lives?

## Research Setting

- » Science center located in coastal Pacific Northwest of the Cascadia Subduction Zone in the tsunami inundation zone
- » Multiple exhibits focused on earthquake and tsunami hazards & actions to take during a hazard event.



## Methods

- » Qualitative tradition: Case study, purposeful sampling, maximal variation
- » Participants: Science center informal educators / docents
  - Mostly retired
  - Residents of coastal region
  - Many not comfortable with technology
- » Sample size (desired): 15 participants; (so far): 3 participants
- » Data collected: In-depth semi-structured, one-hour, individual interviews
- » Verification procedures: triangulation, thick, rich descriptions, and member checks plus researcher reflection

## Discussion Points

Open-ended "ice-breaker" demographic questions:

- Tell me about yourself... How long have you been a docent?
- What is your professional background before becoming a docent, etc

**Main question:** How would you describe your awareness of local natural hazards such as earthquakes and tsunamis where you live and work?

**Main question:** What are your strongest or most vivid memories from interacting with the earthquake and tsunami exhibits in your visitor center and how have your perceptions about the hazards, their likelihood, or severity changed as a result?

**Main Question:** How have you applied this learning and awareness to your life? ... How has this changed your behaviors?

**Main Question:** How do you feel about your vulnerability and survivability to these hazards?

**Main Question:** Where you have noticed information about regional earthquake & tsunami hazards?

**Main Question:** What precautions and/or plans have you adopted?

**Main Question:** What kind of improvements would you want to improve your family and community resilience? How much more would you pay in taxes?

## Connections to WeatherReady

### Improving Resilience

- » Coastal residents voted to tax themselves to relocate schools and store post-event supplies



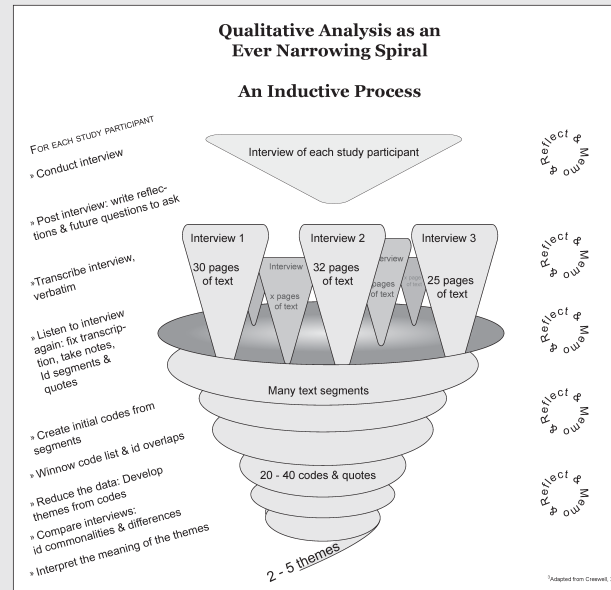
### Improving Infrastructure

- » More tsunami zone and evacuation signs; however visual clutter has also increased
- » Low-tech solution visual of tsunami inundation zone through grass-roots efforts



### Individual Preparedness

- » Various stages: bug-out bags, disaster preparedness kits at home vs in the car vs at work, food and water for multiple weeks



## Preliminary Results: Emergent Themes

### Hazard awareness is very high

"When I walk the beach ... I know where I can possibly go up" ~ 'Stacy'  
 "[I think about an earthquake and a tsunami] ... probably every time I drive by the ocean <laughing>" ~ 'Genie'

"... Oh, we talk about this [tsunamis] all the time. Yes, all the locals, the whole community talks about this all the time ..." ~ 'Genie'

"When I'm there at [the science center] I'm very aware, you know, when I'm there" ~ 'Brandi'

### Living & working location is contributor to awareness

All of the docents live and work in the coastal region; all live in the earthquake hazard zone; living close to but not in the tsunami inundation zone - by choice.

"...My thought processes have gone in a different direction since I'm here permanently now." ~ 'Genie'

### Concern for tourists & non-English speaking residents

"... If you let people know that you care about them and you are doing this because you want them to come here... If a motel, every motel, would tell people what to do for fire and what to do for tsunami." ~ 'Stacy'

"As far as the tourists go ... what's going to happen to those people, those people are probably in motels. They don't have the food; they don't have supplies, they don't have anything at all for protection against them for the first six days or so. ... all communities are going to have to open up their arms to people and feed them." ~ 'Genie'

"... it makes me think more about that because, everybody should be prepared. And I don't want to leave out, people because they don't speak the language or have misunderstanding about how to prepare..." ~ 'Brandi'

## Discussion

- » Resilience: Various stages of preparedness
- » Exhibits enhance hazard & disaster understanding & preparedness
- » Limitations: Very small sample size
- » Implications: Docents are positive role-models; offer preparedness exhibits/programs; encourage outreach from science centers to local community.

## Future Research

- » Research into visitor vs resident perception & behavior
- » Apply Theory of Planned Behavior<sup>4</sup> to findings.

## References

1. Pacific Northwest Seismic Network. (unk). Cascadia Subduction Zone. Retrieved May 5, 2015, from <http://pnwn.org/outreach/earthquakesources/csz>
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