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It May Take a Major Earthquake to Make Seismic Safety a Priority in the U.S.

Damage caused by the fire in San Francisco's Marina District after the Loma Prieta earthquake struck in 1989. Photo courtesy of FEMA.

John Schelling is the Earthquake/Volcano/Tsunami Program Manager for the Washington State Emergency Management Division. He is responsible for managing the seismic and natural hazards safety efforts in the state through the earthquake, tsunami and volcano programs. Schelling serves on the state Seismic Safety Committee; chairs the State/Local Tsunami Work Group, which coordinates efforts to improve tsunami preparedness and mitigation efforts in tsunami hazard zones; and serves as the state co-chair of the National Tsunami Hazard Mitigation Program's Mitigation and Education Subcommittee. He also represents the National Emergency Management Association on the U.S. Geological Survey Advanced National Seismic System Steering Committee.



Schelling shared his thoughts on specific questions that *Emergency Management* magazine posed to him about seismic and tsunami risks and what people and government can do to reduce their impacts.

Question: As someone responsible for seismic safety programs for Washington State Emergency Management, what aspect of seismic safety concerns you the most?

Answer: Probably that many people feel there is nothing they can do to prepare for and survive these incidents, when in fact these events are survivable and people can take very simple steps to protect themselves and their loved ones. It used to bother me until I realized people are people and this is simply another interesting challenge for us. Washington State Emergency Management has developed programs, like Map Your Neighborhood and Prepare in a Year, to empower citizens and communities to reduce their risk and vulnerability, and make that their own. It's exciting to see.

If you were to rank the seismic hazards in Washington state, what would top your list from most dangerous to least and why in that order?

Certainly the Cascadia Subduction Zone and Seattle fault are right at the top. However, other faults in the region like the southern Whidbey Island, Tacoma and Olympia faults will cause significant impacts as well. Faults in eastern Washington, like the Saddle Mountain fault and Hite fault, aren't off our

Satus Populi Suprema Lex "The Safety of the People is the Supreme Law"

radar either, but before heading east, I'd have to say the most dangerous threat that comes next is the prospect of a Mount Rainier lahar, [which is a type of mudflow that flows down from a volcano].

When people think about earthquakes, California comes first to mind. What do you think it will take for the other regions of the nation to step up and have more active government and private-sector seismic safety programs?

Washington and other states have for many years engaged in concerted efforts to educate residents, visitors and businesses about the benefits of personal and community preparedness when it comes to seismic safety. Unfortunately funding for these efforts comes slowly — almost in terms of geologic time. I think it may take a serious earthquake in the Pacific Northwest or elsewhere in the country, like the New Madrid Seismic Zone, to make seismic safety a greater national priority. Funding for these programs is some of the first to get cut since these events do not occur as frequently as floods, wildfires and severe storms, so I think there's a tendency to take our eye off the ball.

Washington state is known for having a strong tsunami program. What caused the emphasis on tsunamis, and what work remains undone?

Prior to the devastating 2004 Indian Ocean tsunami, Washington Emergency Management and the Washington Department of Natural Resources had been working directly with coastal communities to prepare for both a locally generated tsunami from the Cascadia Subduction Zone as well as distant events, like the Honshu tsunami that washed up on our shores from Japan. However, the 2004 event marked a turning point. Local and state planners came away from that with a much greater sense of urgency and direction as to what still needed to be done to protect our residents, visitors and local businesses along the coast.

You have worked with coastal communities to establish tsunami mitigation programs and projects. What process are you following to work with communities on tsunami mitigation? What lessons have you learned along the way as to what works and what doesn't work?

We always use a community-based, top-down approach with local and tribal communities at the top. By engaging local stakeholders from the very beginning, we discovered it makes the process of education, preparedness and mitigation much easier. Residents take ownership and get engaged with creating preparedness efforts. It becomes promulgation for the people by the people. Also the team of experts that we work with is phenomenal. We just have to be careful sometimes, as this is an ever-evolving science and trying to oversell yourself and the program has pitfalls.

How close do you think we are getting to having a seismic warning system for the West Coast? How much warning time might be provided and for what types of quakes?

Earthquake early warning is a relatively new capability that has been deployed in countries like Japan, but is just now being developed in the United States. California has more seismic monitoring instrumentation and more frequent earthquakes than anywhere else in the country, so it's a logical first

step to pilot a system there and that process is under way. It is important to note that this type of system would be most beneficial for communities farther away from the epicenter of any type of earthquake, so if Cascadia began to rupture off the coast of California, areas in Washington state would have several minutes to prepare or vice versa.

If you could “rub your seismic safety genie lamp” and be granted three wishes, what would your wishes be?

First, I would wish that as a nation, we could keep attention and resources focused on preparing for earthquakes, tsunamis and volcano eruptions during times when there isn't a natural disaster. We react swiftly and most often decisively when an earthquake or other natural hazard occurs, but we can all do a better job of mitigating risks to ourselves and our communities. Second, I would hope that we could get every individual and family prepared to deal with these significant events for a minimum of three days and perhaps longer.

Resilient Washington State is an initiative to improve earthquake preparedness, mitigation, response and recovery. What do you hope will be accomplished by this effort?

My definition of success for this project will be identifying our current gaps, establishing transparent performance measures, and finding a clear, concise direction forward. That's the start, further success will be when decision-makers fill those gaps and dramatically reduce our risk from — as well as increase our resilience to — damaging earthquakes over the next 50-year period. This will have been the result of the public and private sectors collaborating and engaging key stakeholders along the way — partners working together to improve our state and local communities.

How does the United States federal earthquake program compare with other nation's that you have come in contact with?

My impression is that the National Earthquake Hazards Reduction Program, which is designed to reduce our risks to seismic events, serves as an international model for ensuring strong and continued collaboration between science, engineering and emergency management. I think many countries around the globe desperately wish they had the capability to establish such a program. That said, I think one of the best models of states collaborating with federal partners is employed by the National Oceanic and Atmospheric Administration's National Tsunami Hazard Mitigation Program.

Is there anything else you would like to share about your work or seismic safety in general?

Yes, the United States as a whole and Washington state in particular have some of the smartest and sharpest people I have ever met working on these challenging issues. Seismologists, geologists and others are making some truly fascinating discoveries and providing emergency managers with incredibly useful data to increase our level of preparedness. However, without continuing to educate emergency managers and planners on what this data means, we will not be as successful in the future as we have been in the past.

Also, I think it is important for us to remember, especially in the difficult fiscal times, there is no overnight solution to some of the challenges we face. Our infrastructure and critical facilities do not get retrofitted overnight when new hazards are identified, but that does not mean we shouldn't draw a line in sand and march forward.

What early lessons have you learned from the recent Japanese earthquake and tsunami?

First, my heart goes out to the victims and survivors of this devastating event. To be honest, it was very difficult for me to watch this unfold on television because I know that one day the Cascadia Subduction Zone earthquake will occur and the roles will be reversed.

I think a few early lessons have been learned. For the duration of the event, the Washington State Emergency Operations Center was in constant contact with the West Coast and Alaska Tsunami Warning Center, which projected extremely accurate arrival times and wave heights of the tsunami up and down the Washington coast. This information was critical to providing a good response by state agencies and local jurisdictions. But data is no good without knowing how to use it — that's why educating both local emergency managers and the public is so important.

Another incredibly valuable lesson is the need to implement a new evacuation strategy in some coastal communities in Washington state that do not have access to natural high ground/vertical evacuation. Project Safe Haven is a community-driven process to locate potential berms, towers and/or buildings. Follow along at www.facebook.com/projectsafehaven.