

# City in Oregon Considers Beacon for ‘the Big One’

William Yardley, *New York Times*, 4-15-10

CANNON BEACH, Ore. — Well before recent earthquakes shook Haiti, Chile and the California border with Mexico, this corner of the West Coast was trying harder than many places to prepare for the Big One. It has upgraded its warning signs and sirens, refined evacuation routes and reassessed bridges and buildings.

Now, as anxiety has increased, Cannon Beach, a tourist-friendly curve on the rocky Oregon coast, wants to be the first community in the United States to build a seismically sound evacuation tower, a \$4 million escape from earthquakes’ deadly ocean offspring, tsunamis.

“It’s going to be distinctive,” said Jay Raskin, a former mayor and an architect who is leading the effort to get the tower built. “So people will know what it’s for.”

California is often perceived as the epicenter for earthquakes in the United States. Yet new scientific studies show that the Pacific Northwest — Oregon, Washington and parts of Northern California, British Columbia and Alaska — is at a greater risk of experiencing a catastrophic “great earthquake,” a giant rupture in the Cascadia Subduction Zone that could set the region shaking for as long as five minutes, from the sea to Seattle.

The new studies add to fears that increased after the 2004 earthquake and tsunami in Indonesia, and the 2008 earthquake in China’s Sichuan Province. The region has taken several steps to prepare, including allocating \$15 million this year to strengthen school buildings in Oregon and a plan to upgrade fire stations and scores of other buildings in Seattle.

On the southwest coast of Washington, that state is considering building 25-foot-high berms to which people could evacuate; the berms would be intended to withstand the 18-foot waves a tsunami could generate.

Yet whether all the work will get done in time is unclear. No one knows the deadline.

“If it happens tomorrow, it’s going to be a disaster, no doubt,” Chris Goldfinger, who heads the Active Tectonics and Seafloor Mapping Laboratory at Oregon State University and was the lead author of a recent study, said of a potential earthquake. “But if it happens 20 or 40 or 50 years from now it might not have to be that way, if we have enough knowledge and will to take action.”

Mr. Goldfinger and his colleagues recently projected that the southern part of the Cascadia zone, off the Northwest coast, has a 37 percent probability of causing an earthquake with a magnitude of 8 or higher in the next 50 years, a significant rise in the risk rate compared with earlier studies. The last major earthquake occurred about 1700. Mr. Goldfinger said new data showed that 80 percent of earthquakes here over the past 10,000 years had occurred within 360 years of each other. Big cities like Seattle are also believed to be at a greater risk than previously thought, with some buildings built as recently as the 1990s in danger of collapse. Infrastructure like water pipes and sewer pipes also are at risk.

In 2001, the Puget Sound area experienced damage but no deaths in the Nisqually earthquake, a magnitude 6.8 quake centered about 50 miles southwest of Seattle. But experts say future quakes could be far larger. The same is true for tsunamis, which have struck the coast here before. In 1964, a tsunami set off by an earthquake in Alaska killed 11 people in Crescent City, Calif., just south of the Oregon border.

That wave also knocked out the main bridge north of Cannon Beach. Experts say the current bridge, over Ecola

Creek, would not survive an earthquake or a tsunami, and local officials are discussing whether to try to strengthen it or build something new.

Cannon Beach Elementary and its 120 students are just south of the bridge, in the heart of what scientists say would be the inundation zone in a tsunami. The school district is considering moving the school and two others in nearby towns to higher ground.

Awareness seems to be on the rise everywhere here.

Color-coded evacuation instructions are posted by the beach and breakfast joints: “Drop, cover and hold. Move immediately inland to higher ground. Do not wait for an official warning.”

Cleve Rooper, the local fire chief, explained the range of risk.

“In the best case, we’ll have a few hours’ warning from an earthquake that happened somewhere far away in the Pacific Basin,” said Mr. Rooper, who has worked in the fire department for 40 years. “In the worst case, we’ll have 10 to 20 minutes after the ground stops shaking here to try to get to high ground.”

Yet the variables do not stop there. A quake could register a magnitude of 7, or of 9 or even higher. A tsunami could hit on a weekday in winter, when Cannon Beach is largely left to its year-round residents, about 1,700 people. It could also strike on a Saturday in August, when the population swells significantly.

“Cannon Beach has been thought of as a leader on this stuff on the coast and maybe we are, but I still don’t feel like we’re prepared,” said Rich Mays, the city manager. “It’s a tourist destination. What are we going to do if there are 15,000 people in town when it happens?”

If the earthquake is nearby, Cannon Beach, hemmed in by the Coast Mountains and the coast itself, could have a hard time finding help if the rest of the region is devastated. Nearby towns like Seaside and Manzanita face similar risks, as do Indian tribes on the Olympic Peninsula in Washington.

The proposed evacuation tower, based on those built in Japan, could hold up to about 1,000 people, possibly more, but far from all who might need help. Mr. Raskin, who is part of a group that submitted a federal financing request for the project through Oregon’s Congressional delegation, has proposed replacing City Hall with the new structure, though other sites are also being considered.

The tower, like the berms being considered in Washington, is based on new guidelines for vertical evacuation from tsunamis by the Federal Emergency Management Agency, and the proposal for financing is thick with structural diagrams and data from soil scours.

Some considerations are based on more local preferences, however. A rendering by Mr. Raskin includes cedar shingles that he designed to echo, perhaps as much as a tsunami evacuation tower can, the windswept houses here.

“I knew that you have to kind of engage the locals and their ideas about the town,” Mr. Raskin said. “That’s why I put the shingles on it.”