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## Signs around LA beaches warn of tsunami threat

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Like many Californians who put down roots in earthquake country, Robin Rudisill knows the "Big One" could strike without warning. Yet from her Venice beachfront duplex, Rudisill worries about a different massive blow from Mother Nature - a tsunami.

Her 1950s-era home - with its cool ocean breeze and golden sunsets - sits smack in the heart of a potentially deadly tsunami zone. If that big one ever came ashore, scientists say, it could raze the landscape from the sun-kissed beach to about a mile inland.

To alert homeowners and beachgoers that they are in tsunami territory, the city of Los Angeles has begun posting blue and white "TSUNAMI HAZARD ZONE" signs with an image of ominous-looking waves. The signs, which have surfaced in beach parking lots and at major intersections in Venice and other low-lying communities, also point out evacuation routes.

"It makes it clear that we are in an inundation zone, which most people did not previously, and many still do not, know," said Rudisill, who pushed for the signs.

While a tsunami threat to the Golden State is real, the potential for killer waves is far less likely than the earthquakes, wildfires, landslides and floods that plague the nation's most populous state.

According to scientists, there's a 99.7 percent chance that California will be struck by a magnitude 6.7 earthquake or larger in the next 30 years. No such calculations exist for the potential of a tsunami.

The 2004 Indian Ocean tsunami that wreaked havoc to Indonesia, Thailand, Sri Lanka and India jolted U.S. cities on both coasts to review their emergency plans.

Devastating tsunamis have pounded North America in the past, with California, Hawaii, Alaska, Washington, Oregon and the Caribbean islands most at risk.

In California, tsunami signs already are up in parts of Orange County and in several seaside Northern California counties, where the tsunami danger is greater. Beachfront communities are responsible for securing their own funding for the tsunami displays - a first step in preparing for a potential disaster.

Tsunami waves can be raised by underwater earthquakes, submarine volcanoes or coastal landslides. If a powerful undersea quake rattled the Pacific Rim, the first waves could reach the California coast hours after the shaking stops. That time is cut to mere minutes if one hit closer to shore - not enough time for authorities to send out a warning.

"A large local tsunami hitting on a summer afternoon with hundreds of thousands of people on Southern California beaches could cause Thailand-like devastation. This is why we rely on the signs," said tsunami expert Costas Synolakis of the University of Southern California.

A 2005 study by the California Seismic Safety Commission found that a tsunami generated by a large offshore quake would threaten at least 1 million coastal residents and swamp the nation's largest port complex. The same report also found gaps in the state's readiness to handle a tsunami.

Since 1812, 14 tsunamis with waves higher than 3 feet have been observed along the California coast, but only six caused destruction. The deadliest occurred in 1964 when a magnitude-9.2 quake in Alaska spawned tsunami waves that killed 12 people in Northern California.

While devastating tsunamis are rare, emergency responders are concerned because of increasing development along the coast.

Last winter, Los Angeles spent about \$8,000 to post 60 signs in Venice, Pacific Palisades and coastal communities near the Los Angeles International Airport. The city plans to use a \$350,000 federal grant to install more signs as early as this summer.

"It's for public safety. The more people know about it, the better they're prepared for an emergency," said Richard Deppisch, the city's emergency preparedness coordinator.

Some beachgoers say the signs are useless without emergency sirens to warn tourists and residents of incoming waves.

"If it happens at night, no one is going to be on the beach to say, 'Run away,'" said E. Grant Hardacre, a lawyer and surfer.

Los Angeles County, which is considering posting signs in unincorporated areas, currently broadcasts emergencies through television and radio. While the county has studied using sirens to warn about a tsunami or other natural disasters, there are no current plans to activate them, said Jeff Terry, the county's tsunami coordinator.

Don Howe, a senior transportation engineer with the California Department of Transportation, said the signs are experimental and the department is collecting feedback.

Police in Humboldt County near the Oregon state line recently grappled with a string of sign crimes. Last year, about 5 percent of the 400 signs posted on state highways and county roads were stolen, damaged or vandalized. No arrests have been made.

"It's tapering off," said Brenda Godsey, a spokeswoman with the Humboldt County Sheriff's Office, said of the sign tampering. "The novelty of the signs is waning."

Late last month, coastal counties received draft tsunami maps from the state pinpointing beach towns prone to flooding. The maps, which were updated from ones made after the 2004 Indian Ocean disaster, are intended to help local governments identify places where people can evacuate to higher ground or consider building evacuation shelters.

For Venice Beach resident Rudisill, living steps away from the sand is a mixed blessing. While she has easy access to the water, she also worries about the possibility of a tsunami.

Two years ago, Rudisill channeled her worry into action. Along with neighbor Darryl DuFay, who lives in the Venice canals, the duo held an information meeting with members of the local neighborhood council.

Despite living in the path of a tsunami, Rudisill cannot imagine making her home anywhere else.

"The daily joy I get from living here is worth all those risks we face," she said.

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On the Net:

USC Tsunami Research Group: <http://www.usc.edu/dept/tsunamis/2005/index.php>

Caltrans tsunami page: <http://www.dot.ca.gov/hq/traffops/signtech/signdel/tsunami.htm>

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