

Disaster lessons: What you don't know can kill you

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Something remarkable happened on the island closest to the epicenter of the great Sumatra-Andaman earthquake last December: Only seven of the island's 78,000 inhabitants died. This is despite the fact tsunamis hit the island only eight minutes after the quake, despite the destruction of many Simuelue villages, and despite the lack of an official tsunami warning system and little in the way of telecommunications.

Why were the lives of Simuelue islanders spared when all around the Indian Ocean, coastal villages, towns, and cities hit by the tsunamis experienced near-total annihilation? The answer, says Humboldt State University geology professor Lori Dengler, is knowledge.

"The single most important lesson for anyone anywhere is that what you know can save your life and what you don't know can kill you," said Dengler, who was part of an International Tsunami Survey Team of scientists that visited the tsunami destruction zones in April. What she and others discovered in the western coast of Aceh province, Simuelue and the Nias Islands of Indonesia is that there are a number of vital lessons emergency planners and every human being can learn from the 26 December 2004 Indian Ocean catastrophe.

Dengler is also a member of the Redwood Coast Working Group, an unfunded volunteer consensus planning and mitigation group. She presented some of her findings – with particular emphasis on their application to the U.S. and the earthquake and tsunami-prone Pacific Northwest – on Sunday, 16 October, at the annual meeting of the

Geological Society of America at in Salt Lake City.

The knowledge the people of Simuelue had was simply this: Once in a while large earthquakes are followed by large killer waves, so it's always wise to run to high ground and wait a while, just in case.

"They have a long oral tradition that remembers what happened in 1907," said Dengler. That's the year Simuelue was last was struck by an earthquake-induced tsunami, she said. The survivors of that disaster learned their lesson and wisely didn't let their descendents forget it. "It doesn't matter that the information is a century old," said Dengler. "They don't ignore it. They take great pride in getting it perfectly. You don't fret about false alarms." They even have a word for the 1907 tsunami in their local language: "smong."

In stark contrast, the populations of other coastal areas where there was far more time between the quake and the tsunami's arrival to respond were nearly wiped out. "The west coast of Indonesia had fifteen to twenty minutes of warning time and had casualty rates upwards of ninety percent," Dengler said. "It was absolutely horrific." Survivors interviewed in those places had little or no knowledge of tsunamis or what caused them before the disaster, she said.

The Simuelue story was reenacted that day in other places around the Indian Ocean. A merchant marine in a Sri Lankan fishing village remembered the near-shore signs of an approaching tsunami from years ago when he witnessed another in Chile. His warning saved hundreds of lives. Near Phuket in Thailand, a 10-year-old English girl on holiday with her family remembered a geography lesson covering tsunamis given two weeks earlier. She also recognized the danger and is credited for saving at least 100 lives, including her own.

Yet other coastal communities received calls warning them of the

coming wave, said Dengler, but the warnings were not understood and were not heeded. The tragedy underlines a problem that's often overlooked by the public and even emergency planners: A warning is of little use if the public doesn't understand how to respond to it.

That message was driven home more recently in California on 14 June, when a 7.2 earthquake jolted the ocean floor off Northern California. A tsunami warning was issued within five minutes of the quake, said Dengler. "From that point it was complete chaos," she said. People just didn't know how to respond. Luckily, there was no tsunami after that earthquake.

The lessons from the Indian Ocean are clear: the answer is planning and public education.

Source: Geological Society of America

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