

# Minimal amount of debris from Japan's tsunami has washed ashore in California

September 23 2013, by Paul Rogers

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Not long after a massive earthquake and tsunami devastated Japan in 2011, washing whole towns out to sea, concerns grew that huge amounts of debris could wash up on California's coast.

But as an estimated 70,000 Californians prepare to participate Saturday in the state's annual coastal cleanup, the question remains: Where is it?

Very little tsunami trash has reached California, or other Pacific coastal states, even though the disaster happened 2 { years ago.

Federal officials have confirmed only 35 objects from the tsunami that have come ashore in the United States and British Columbia, ranging from two large chunks of docks that washed up in Oregon and Washington state last year to a soccer ball found off an Alaskan island and traced back to a Japanese schoolboy.

The only verified tsunami object found in California was a barnacle-encrusted [fishing boat](#) that hit the beach in April south of Crescent City, near the Oregon border. Through hand-painted characters on its side, the boat was traced to Takata High School in Rikuzentakata, a Japanese town devastated by the tsunami. The boat is scheduled to head back to Japan later this month courtesy of a large shipping company.

And the rest of the floating debris?

"It's possible that a great deal of it sank or broke up," said Dianna

Parker, a spokeswoman for the National Oceanic and Atmospheric Administration.

"Marine debris can become waterlogged and sink or be damaged by storms and wave action," she said. "It's also possible that we've seen the majority of it wash ashore that we're going to get. If more continues to wash ashore, we're prepared."

The magnitude 9.0 Tohoku earthquake in March 2011 was the largest recorded in Japanese history. It killed 15,833 people, destroyed 129,000 buildings and triggered a meltdown at the Fukushima [nuclear plant](#).

Afterward, the Japanese Ministry of the Environment estimated that 5 million tons of debris - everything from smashed homes to drums of chemicals to tires to millions of plastic toys, bottles and pieces of furniture - ended up in the ocean, but that 70 percent of it sank in the first few weeks.

Scientists say the debris is not radioactive, because it washed out to sea before the nuclear power plant melted down. Satellites were able to track the debris for the first month, but then much of it scattered.

Six months after the tsunami, a Russian ship reported finding a TV set, refrigerator and other floating Japanese debris off Midway. Lumber, Styrofoam and other debris also came ashore in Hawaii and Alaska in the past year.

In California, more than 100 pieces of trash with Japanese writing have been found on beaches this year. But it's impossible to say whether they came from the tsunami.

The National Oceanic and Atmospheric Administration requires serial numbers, writing or other identification to confirm with Japanese

Consulate officials that objects definitely came from the disaster.

"Especially on the north coast, up near the Oregon border, we are getting reports of odd stuff," said Eben Schwartz, [marine debris](#) manager with the California Coastal Commission. "It's hard to say it is definitely from the tsunami, but we are getting unusual things happening."

Volunteers who are looking for debris as part of a \$50,000 NOAA grant to each Pacific Coast state have found a chopping board and crab packing crate with Japanese writing in Pacifica, a milk crate and bottle caps with Japanese writing in Mendocino County, and a pile of lumber near the Oregon border with joinery commonly used in Japanese homes.

But nobody knows where the rest is or if it could still wash ashore.

Computer models produced by NOAA scientists based on winds and currents show that the largest concentration of debris could still be floating in the ocean between Hawaii and Alaska, about 750 miles off California.

Nikolai Maximenko, a scientist at the University of Hawaii who has developed computer models of the possible paths of the debris, said much of it may be trapped for years in the North Pacific Gyre, a vast area north of Hawaii also known as the Great Pacific Garbage Patch, where currents converge to trap floating plastic and other refuse.

Because of wind patterns that blow down the California coast, pushing the water westward and causing upwelling in the ocean, much of the [debris](#) may never hit California, he said, although more could come ashore in Oregon, Washington, Alaska and Hawaii, particularly during storms. Every object also behaves differently in the currents and winds, he said, and the North Pacific Ocean is vast - 5,100 miles from Tokyo to San Francisco.

"We probably are not going to see a large amount of large objects washing up anymore," he said. "But it's very complicated. We don't have enough observations."

As for Saturday's coastal cleanup, 55 of California's 58 counties are participating, with inland areas holding cleanups on streams, lakes and rivers. Last year, 65,544 volunteers collected 769,000 pounds of trash and recyclables in California.

"It doesn't matter where you live, everything flows to the ocean," Schwartz said. "If we can clean up this state, we have a good chance of keeping the ocean clean and healthy."

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