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Not My Fault: Amazing tsunami voyages

Lori Dengler/For the Times-Standard
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April 7 marked eight years since the small boat Kamome touched land just south of Crescent City. For just over two years, the small boat drifted across the Pacific, unnoticed and unlooked for. She was just one of thousands of boats, large and small, pulled away from moorings and swept far offshore by the 2011 tsunami.

The Japanese government estimates that more than five million tons of material was pulled into the ocean by the tsunami. Most sank close to the coast or was deposited back on land by subsequent surges. But perhaps a third to a quarter of the debris was pulled far enough offshore to be caught in the trans-Pacific circulation system. The Northern Pacific Gyre is a slowly clockwise-rotating system, driven by winds, temperature variations and the Coriolis effect. The currents are fastest at the surface, moving at speed of a slow jogger.

Shortly after the tsunami, a number of oceanographic institutions made models predicting how the debris would disperse across the Pacific. Early models suggested about two years for debris to reach Alaska and the West Coast. Later models took into account the additional push provided by winds. Containers and boats that stick up above the water get an additional push from prevailing winds, and might arrive in only half that time.

The models were very good. The first tsunami debris was spotted on March 23, 2012. The Ryou-Un-Maru, a 148-foot fishing vessel from Aomori Prefecture, was spotted 170 miles off British Columbia's Haida Gwaii Islands. The US Coast Guard sunk the ship as a navigational hazard a week later when it drifted into US territorial waters.

Over the following month, a soccer ball, a dock and a Harley Davidson motorcycle all made their way to Alaska and the Pacific Northwest. The motorcycle had beached on Graham Island in the Haida Gwaiis, posing a puzzle as to how it could float across the Pacific. The license linked it to Miyagi Prefecture where it was a cherished possession of a young man and always kept in an insulated shipping container. The motorcycle is now on display at the Harley-Davidson Museum in Milwaukee.

As debris arrived, everyone asked "is it radioactive?" The Fukushima nuclear power plant was in the news and there was concern about contamination. A number of environmental organizations addressed the question. No, they all agreed for three reasons. First, the release of radionuclides from the plant didn't occur until a day after the earthquake and by that time, the debris was already far off the coast. Second, the prevailing winds at the time of the release were all to the northwest, blowing particles away from the Pacific. And finally, these nuclides are water-soluble which means they would quickly be absorbed by the water. Just to be sure, state agencies scanned suspected debris with Geiger counters. No detectable radiation was ever found.

That isn't to say that debris might not be hazardous in other ways. One concern was invasive species clinging to debris. A 60-foot dock from northern Honshu landed near Newport Oregon on June 5, 2012. At least 90 different species had survived the long trans-Pacific voyage including the Japanese shore crab and wakame kelp that could adversely affect local ecosystems. The dock was dismantled and hitchhikers quickly dispatched.

All flotsam and jetsam on the beach is potentially hazardous. Sharp edges can cut the unwary and containers can hold dangerous chemicals. Teach your children to be cautious when beach combing and to get your attention when they spot something other than shells and rocks. If you find something you aren't sure of, let local authorities know. And of course the most dangerous things on the beach are sneaker waves so always keep an eye on the surf.

The debris models predicted it would take about two years to reach the Northern California coast. Kamome arrived just about on schedule. When first spotted by Del Norte Sheriff deputies at Crescent Beach, two things were immediately obvious. The surfaces were covered in sea life – evidence of being in the water for a long time. It had an unusual shape, unlike anything you would see along the California coast. I learned that is was a Panga boat, small sturdy open-deck craft designed for easy handling by one person. Pangas are common in many parts of the world including Asia and Latin America, but considered too slow for North American tastes.

I first saw the boat the following day. Underneath the burden of goose-necked barnacles was proof of the boat's origin – the Iwate Prefecture registration sticker. Japanese characters had also been hand-painted on the side. I snapped photos and sent them to my friend and HSU

colleague Kumi Watanabe-Schock who deciphered the characters. Takata High School was the name on the side, registered to Rikuzentakata. The boat's name was Kamome, meaning seagull.

The following year another Panga arrived on the North Coast. It beached near Dry Lagoon. In the four years after the tsunami, NOAA estimated 635 metric tons of debris was removed from Alaska, Hawaii and Pacific Northwest coasts, largely attributed to the tsunami. NOAA's marine debris program identified more than 60 boats definitively tied to the tsunami.

The peak years for tsunami debris were 2012 and 2013 and by 2017, the window appeared to have closed. But in December 2020, another Panga boat was found on the coast of Hachijo Island 168 miles south of Yokohama. The registration sticker linked it to the port of Kesennuma, 380 miles to the north. There are no currents running to the south along the Japan coast. This little boat likely made a complete round trip on the Northern Pacific Gyre, perhaps passing just off our coast a few years ago before being steered back to Japan.

Note: Learn more about the story of Kamome at https://kamome.humboldt.edu/. The Dry Lagoon Panga boat is on display at the National Weather Service Office on Woodley Island.

Lori Dengler is an emeritus professor of geology at Humboldt State University, an expert in tsunami and earthquake hazards. The opinions expressed are hers and not the Times-Standard's. All Not My Fault columns are archived online at https://www2.humboldt.edu/kamome/resources and may be reused for educational purposes. Leave a message at (707) 826-6019 or email Kamome@humboldt.edu for questions and comments about this column, or to request a free copy of the North Coast preparedness magazine "Living on Shaky Ground."
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