

Japan Tsunami Marine Debris

In March 2011, a massive earthquake struck off the coast of Japan, creating a devastating tsunami that inundated 217 square miles of coastline. The combined disasters killed nearly 16,000 people and destroyed much of the Sendai coast.

When the tsunami wave retreated, it dragged rubble from buildings, people's belongings, and infrastructure into the ocean. Consumer debris, lumber, buoys, un-moored vessels, and even piers washed away. The Government of Japan estimated that the tsunami swept about 5 million tons of debris into the ocean.

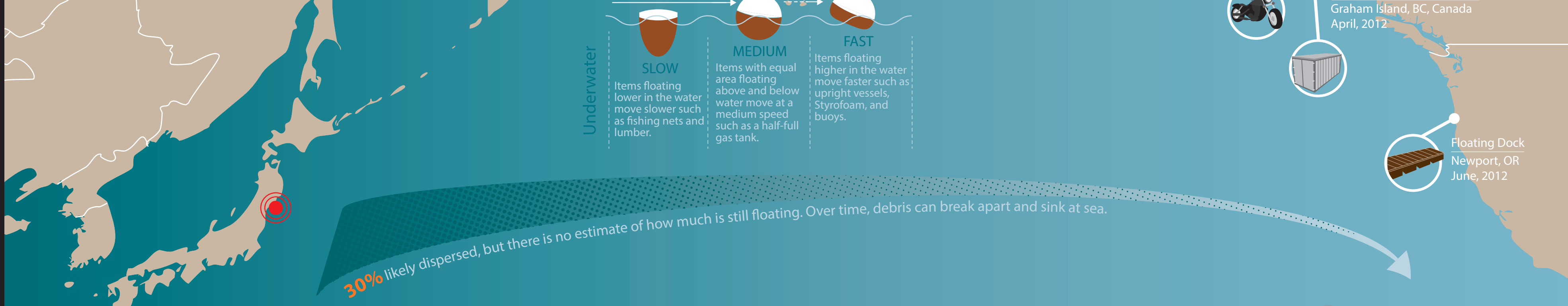
The floating debris scattered across the wide North Pacific, carried eastward by winds and currents. Some of that debris has now reached U.S. shores, serving as a reminder that marine debris, even from natural disasters, truly is a global problem.

NOAA Marine Debris Program

The NOAA Marine Debris Program leads national and international efforts to research, prevent, and reduce the impacts of marine debris. marinedebris.noaa.gov/



Tsunami Marine Debris

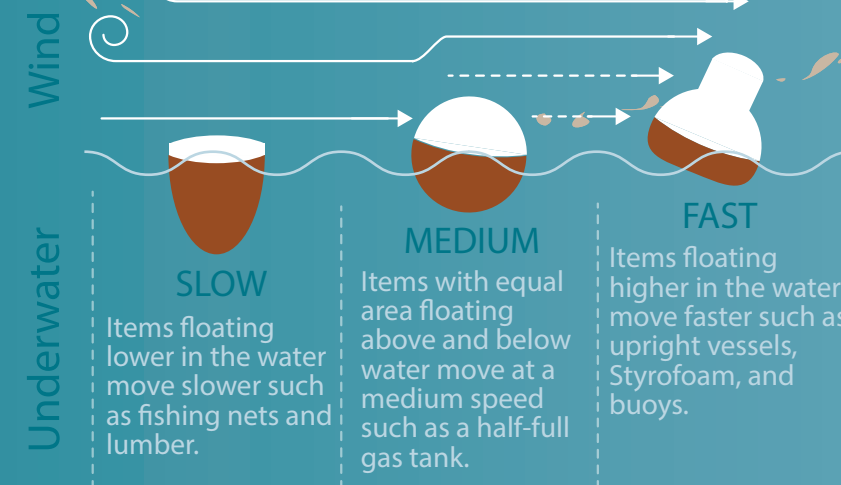


What happened to the debris?

70% likely sank right away.

30% likely dispersed, but there is no estimate of how much is still floating. Over time, debris can break apart and sink at sea.

How fast is the debris moving?



Where could the debris go in the future?

Large currents that make up the North Pacific Subtropical Gyre move clockwise, often taking marine debris on a circular ride around the Pacific. Debris that does not make landfall could get caught in these currents or enter "garbage patches," which are areas where debris tends to accumulate. Eventually, debris from the tsunami will blend in with existing marine debris.

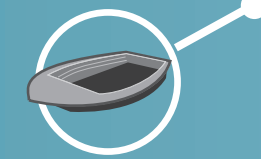
Does existing marine debris and debris from the Japan Tsunami degrade in the ocean?

Some types of debris, especially plastics, never really go away. Rather, debris breaks down into smaller and smaller pieces.

What has been found?

Higher floating debris arrived on U.S. shores during the winter of 2011-2012. Reported items include plastics, Styrofoam, sports balls, floating docks, vessels, and even a motorcycle in a container.

Small Skiff
North Pacific Ocean
October, 2012



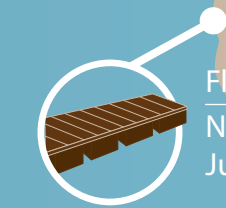
Soccer Ball
Middleton Island, AK
April, 2012



Harley Davidson Motorcycle in a Container
Graham Island, BC, Canada
April, 2012



Floating Dock
Newport, OR
June, 2012



Modeling

A NOAA modeling effort helps responders understand where the debris may be located today, because it simulates how winds and currents may have moved items through the Pacific Ocean. The model, which is a "hindcast," not a "forecast," shows that some fast-moving debris may have already reached U.S. shores. Winds and ocean currents constantly change, making it difficult to forecast the remaining debris' movement far in advance.

Interagency Collaboration

NOAA is leading efforts with federal, state, and local partners to coordinate information, collect data, assess the debris, and reduce possible impacts to our natural resources and coastal communities. Collaborative response efforts are underway in all impacted states.

Addressing Public Concerns

- It is highly unlikely that any debris holds harmful levels of radiation from the Fukushima nuclear emergency. Some items have been tested in impacted states, and all readings were normal.
- Experts think it is unlikely that tsunami debris will carry invasive species, unless an item (such as a dock) was in the water long before the disaster. Debris with marine life attached should be reported immediately to reduce the risk.
- It is highly unlikely that any human remains from the 2011 disaster will appear on U.S. shores. If you see something concerning, notify your local officials.

Debris Handling Guidelines

Use common sense and follow general safety guidelines. If you don't know what an item is, don't touch it. If safe and practical, litter and other typical marine debris items, such as aluminum cans and plastic bottles, can be removed or recycled. If the item is large, hazardous, or has marine life attached, don't touch it. Call appropriate authorities. Tsunami debris can be reported to DisasterDebris@noaa.gov.

The tsunami debris is not the only debris in the ocean.

Marine debris is an everyday problem.

When trash and other waste material is not recycled or properly thrown away it can enter our streams and oceans.

