

Giant Ocean-Trash Vortex Attracts Explorers

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It may lack the allure of the North Pole or Mount Everest, but a Pacific Ocean trash dump twice the size of [Texas](#) is this summer's hot destination for explorers.

The Eastern Pacific Garbage Patch, situated in remote waters between [California](#) and [Hawaii](#), is created by [ocean](#) currents that pick up millions of tons of the world's discarded plastic.



As much as 10 percent of the 260 million tons of plastic produced annually ends up in the oceans, much of it in trash vortices like the Pacific garbage patch. This summer, two separate expeditions will set sail for the patch to document the scope of the problem and call global attention to disastrous ocean pollution.

"Every single person who has ever been to a beach anywhere has seen plastic, even in the remotest of places," said Doug Woodring, head of the ocean-health nonprofit Project Kaisei that will launch two boats next week.

The 174-foot (53-meter) *New Horizon*, owned by the Scripps Institution of Oceanography at the University of California, San Diego, leaves San Diego with Kaisei team members on August 2. The expedition's flagship 150-foot (46-meter) *Kaisei* pushes off from San Francisco on August 4.

(Follow [the Kaisei expedition's progress with an interactive voyage tracker.](#))

Toxic Morsels

Though the garbage patch provides a visible reminder of how humans can trash the environment, the vortex isn't carpeted with a surface layer of plastic.

Perhaps 70 percent of plastic at the site has sunk—out of sight, but not out of the ecosystem.

[Much of the plastic has broken down into tiny pieces](#) that saturate the water and become a toxic part of the marine ecosystem.

Enormous numbers of fish and birds die after eating tiny plastic morsels mistaken for prey.

Scripps' Jim Dufour is advising Project Kaisei and its efforts to quantify the amount and condition of trash in the little-studied region.

"We need to do the chemistry and see how much plastic is reaching the water and the ocean sediments, how much is being broken into [these] tiny particles and ingested by marine life at rates we can't imagine," Dufour said.

The project will also explore clean up options, which aren't as easy as simply scooping up waste.

"It's a tough job. [Open-ocean] fish live under things like Styrofoam cups. If you simply drag a net you'll end up killing off a lot of the resources that you want to protect," Dufour said.

(Test your [toxic-pollution IQ](#).)

Close to Home

Kaisei's Woodring stressed that preventing more plastics from reaching the ocean has far less to do with illegal ocean dumping than choices made closer to home.

Eighty percent of the waste stream is land-based, explained Woodring, also a Hong Kong-based environment-and-technology entrepreneur.

"It's coming from rivers, streams, drains, gutters, and beaches within a mile or so of the shoreline."

In many parts of the world, particularly in developing nations, people have no means of disposing of the plastic bottles and packaging that have become ubiquitous parts of daily life.

(Related: ["Plastic-Bag Bans Gaining Momentum Around the World."](#))

Project Kaisei hopes to somehow assign value to that plastic, particularly the overwhelming majority that is never recycled.

Technologies that convert plastic to fuel, clothing, or simply more profitable plastic could give people a good reason to pick up all that plastic and make a profit from it.

"It's controllable," Woodring said. "We have to let people know that enough is enough, but it's not just a negative story about toxicity and wrecking our oceans. There is a huge amount of opportunity for innovation."

Plastiki

Innovation is a hallmark of David de Rothschild's expedition.

The environmentalist and Adventure Ecology founder [will sail a boat made of recycled plastic](#)—mainly discarded water bottles—from San Francisco to the garbage patch and beyond to [Sydney](#), Australia, in coming months.

His craft, dubbed the *Plastiki*, is a nod to famed explorer Thor Heyerdahl, who led a 1947 voyage on the *Kon-Tiki* to test theories of Polynesian settlement by South Americans.

De Rothschild's voyage hopes to show people what can be accomplished by rethinking current uses of plastic.

"Plastic is not the enemy," said de Rothschild, also a National Geographic [Emerging Explorer](#). (National Geographic News is owned by the National Geographic Society.)

"But it's our understanding of disposal and reuse that's to blame."

De Rothschild explained that *Plastiki's* construction has already jump-started research into a future "smart plastics" industry—before ever leaving port.

For instance, studies are underway on glues that could someday replace common marine epoxies and plastics that could replace non-recyclable fiberglass.

"The *Plastiki* [voyage] will be a great adventure, but I think more exciting is the ability to create a conversation on the issue of smarter plastics."