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Recyclers, Scientists Probe Great Pacific Garbage Patch

By COLIN SULLIVAN of [Greenwire](#)

RICHMOND, Calif. -- Scientists, sailors, journalists and government officials set sail from San Francisco Bay yesterday to study the planet's largest known floating garbage dump, about 1,000 miles north of Hawaii.

The goal of the monthlong mission, dubbed Project Kaisei after a 151-foot brigantine ship purchased from Japanese sailors in 1991, is to chart the so-called Great Pacific Garbage Patch, learn about its mysterious vortex of discarded plastic and assess what might be done about it.

The venture is no working vacation for environmental advocates. Project Kaisei is at its core a commercial endeavor, funded in part by international recycling companies that see opportunity in a sea of debris thought to be twice the size of Texas.

In addition to funding from individual donors, Project Kaisei is backed by the Bureau of International Recycling, whose membership counts 77 companies from Austria, China, Cuba and Canada, to name just a few of the nations represented. Deutsche Bank AG is also a key funder.

Mary Crowley, co-founder of the project, said examining the dump's potential as recycled material is just as important as studying the decomposed and decomposing plastic, which largely originated in California and Japan before being trapped by currents of the North Pacific Gyre.

"The missing link is how can you capture the plastic, since it's spread out over such a large area," Crowley said from the ship's deck here several days before its departure. "The key realization here is that the plastics might have a value, a recycled value, which is a very exciting deal."

The alliance between a group of activists who want to see the trash heap cleared and the corporate recycling world is no accident. Doug Woodring, a technology entrepreneur and former Merrill Lynch financier turned co-founder of Project Kaisei, said the marriage of commercial interests and environmental is key to the research mission's success.

"Anything that we're promoting is going to come back to expanded recycling programs," Woodring said. "If we're right, everyone who's in the recycling business will benefit."

A black hole in the Pacific

A second ship launched from the Scripps Institution of Oceanography in San Diego will aid the *Kaisei* over the next 30 days and focus on science. The 170-foot *New Horizon*, funded by a \$600,000 grant from the University of California, left last week with a crew of 20 graduate students looking to measure the size of the patch and its effects on wildlife.

Both vessels intend to produce hard data and an eventual white paper on what is still a largely unexplored phenomenon. The crews will look at how decomposing plastic over the last few decades has mixed with phytoplankton and zooplankton and whether netting techniques might be used to clean it up.

The problem, Crowley said, is that much of the plastic has already broken down in a soupy mix that tends to move around as ocean currents and storms produce swells and wind over the course of a given year. Ultraviolet rays break the plastic into molecular strains that are impossible to detect with the naked eye or satellites.

Cleaning up the bigger piles of trash, which float in random clumps over long distances above and beneath the surface, is possible but may not solve the core issue. And sweeping thousands of miles of ocean for molecular litter would be expensive and possibly unrealistic.

So the focus may have to turn to clearing only the more recent accumulation, in the last three or four years, rather than the last 30, Crowley said.

"Even if we're able to clean that up, it would make a pretty big difference," Crowley insisted.

But the challenge is daunting. According to a 2006 report from the U.N. Environment Programme, every pound of plankton in the central Pacific Ocean is offset by about 6 pounds of litter. The report adds that every square mile of ocean is home to nearly 50,000 pieces of litter, much of which tends to harm or kill wildlife that either ingests the plastic or gets trapped in discarded netting, which is just as common in the Northern Gyre as discarded soda bottles.

Woodring says uncertainty about the scope of the problem is precisely what is driving the voyage and the subsequent white paper. And he stressed that making the cleanup into an economic, rather than just a moral, argument is essential to moving forward to actual commercial activity.

"We're trying to promote a way to put a value or a booty on this area," Woodring said. "As soon as there's value, it will get collected."

'Data gaps'

Holly Bamford, director of the National Oceanic and Atmospheric Administration's marine debris program, expressed support for the basic thrust of Project Kaisei, which she said should improve her agency's understanding of the garbage patch. But she added that NOAA, in the meantime, is focused on better-understood challenges like removing discarded fishing lines from islands and atolls.

From 1996 to 2006, she noted, NOAA cleared about 1.3 million pounds of derelict fishing nets from reefs and shores in Hawaii and surrounding islands. The beaches in the region tend to be magnets or junkyards in the ocean, attracting fishing line, plastics and other discarded items.

The fishing gear and nets are a very real threat to marine mammals that get snared in their webs, Bamford said. The smaller plastics' effect on the environment is less well-understood, assuming the researchers are able to find it.

"Their biggest challenge is going to first find where the debris is accumulating," she said. "It's extremely

variable. It's spotty."

Moreover, if removal is warranted -- a big "if," in Bamford's view -- a cleanup operation would have to address how to collect smaller plastics that can bob on the ocean surface or collect beneath it like streamers or confetti. And it would have to cope with jurisdictional conflicts among international parties.

"We're at the very early stages of understanding this," Bamford said. "Before you engage a large removal expedition, you really have to understand the impact that it's having."

"There's just a lot of data gaps," she added. "This voyage does offer an opportunity to collect some new scientific information."

Ride of her life

To Crowley, the size, scope and uncertainty of the problem are not reasons to stay home or give up. She said the planned research into persistent organic pollutants in the sea, in particular, is a vital aim that could help advance science in that arena, eventually raising awareness in the mainstream about the consequences of consumption.

To that end, the project has booked two documentary filmmakers who will be shooting footage over the next month. And Crowley is optimistic that the project could result in initial cleanup operations within the next year, assuming her crew can grab enough media attention when it returns.

"This really is a problem of the commons," Crowley said. "People need to see that."

As for the trip itself, Crowley, an experienced sailor, said she expects to have the time of her life.

"I don't consider it dangerous in any way," she said. "But it's still probably the most exciting mission I've ever set out on."

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