

MATT SIMON - SCIENCE 10.26.2019

Ocean Cleanup's New Plastic-Catcher ... Kinda Already Exists?

The anti-plastic crusaders have another plan to keep junk from reaching the sea: trash-eating barges in rivers.



a trash pick up device in middle of brown jakarta sea COURTESY OF THE OCEAN CLEANUP

A little over a year ago, a group called The Ocean Cleanup launched an unprecedented campaign to rid the seas of plastic, complete with an unprecedented device: a 600-meter-long, U-shaped tube that was meant to passively gather debris in the Great Pacific Garbage Patch for a ship to come along and scoop up and take back to land. A few months later, the plastic catcher not only wasn't catching plastic, it had split in two, so The Ocean Cleanup had to tow it to Hawaii for repairs and upgrades. Then earlier this month the group announced its device was at last gathering plastic, though one researcher pointed out on Twitter that it was also gathering marine life. Not such smooth sailing, it would seem.

Scientists started raising the alarm about The Ocean Cleanup's design choices years before the device even launched. The potential to harm ocean life, the fact that the giant piece of plastic would slough off its own microplastics, the vulnerability of 600-meter-long tubes amid brutal seas: all were obvious

causes for concern from the start. And then there's the fact that The Ocean Cleanup has spent tens of millions of dollars on what scientists consider to be the wrong solution. The best place to catch plastics, they say, is upstream, before it even enters the sea.

The Ocean Cleanup was apparently listening. Today in a slick Apple-style event in Rotterdam, the group unveiled what it's calling The Interceptor, a solar-powered barge with a long floating barrier that extends upstream, funneling debris into the vessel's mouth, where a conveyor belt ferries the trash into onboard containers. Two are already in operation in Indonesia and Malaysia, with another preparing for operation in the Mekong in Vietnam and another planned for the Dominican Republic. It's a great idea that, well, has been done before: interceptors (lowercase), as their known, have been operating for several years in Baltimore. That'd be Mr. Trash Wheel, an interceptor with giant googly eyes in Baltimore Harbor that gobbles up 200 tons of trash a year, and its sibling Professor Trash Wheel. (If you're not following Mr. Trash Wheel on Instagram, you're missing out.)



Trash from sea on a conveyor belt. The barge's conveyor belt ferries trash into bins, which operators tug to shore when filled. COURTESY OF THE OCEAN CLEANUP

"The scientific community has been saying for years that moving upstream is the way to correctly solve this problem," says Adam Lindquist, director of the Waterfront Partnership of Baltimore's Healthy Harbor campaign. "And certainly imitation is the greatest form of flattery."

Whereas Mr. Trash Wheel was purpose-built for Baltimore, The Ocean Cleanup designed its barge to be mass-producible. And it's significantly higher tech: Baltimore's barge uses a water wheel to power its conveyor belt, with solar power as backup, while The Interceptor is fully solar powered. Trash flows up its belt (Boyan Slat, founder and CEO of The Ocean Cleanup, demonstrated today with a flow of rubber duckies) and into a "shuttle" bin, which deposits the waste in one of six dumpsters situated below. Once the barge is full, the system sends a text message to operators in the area, who come with a tug boat and pull the bins to shore. It can capture some 50,000 kilograms of trash a day, and is designed to last 20 years.

The Ocean Cleanup says The Interceptor is also easily transportable to rivers around the world. Not all rivers, mind you, but by singling out the worst plastic emitters, the group can make a bigger dent in the problem. "About 1,000 rivers contribute 80 percent of terrestrial emissions," says Laurent Lebreton, chief scientist at The Ocean Cleanup. "So if we want to reduce significantly plastic emissions into the ocean, we want to tackle those rivers."



The ever-charming Mr. Trash Wheel collecting trash in Baltimore.
COURTESY OF WATERFRONT PARTNERSHIP OF BALTIMORE

We know that rivers are spewing massive amounts of plastic, but where that plastic eventually ends up has been harder to pin down. Even by The Ocean Cleanup's own calculations, the far-offshore gyres it had been trying to tidy up with its big tube hold a tiny fraction of ocean plastics: Perhaps .06 percent of plastics from coastlines make it out to gyres, the rest likely caught in a perpetual cycle of washing out a bit, then returning to shore, then washing out. "I would argue almost any weekend of beach cleanup could probably capture more trash than they've collected in their six, seven years in business," says

Marcus Eriksen, who studies ocean plastic and directs the 5 Gyres Institute. “If you want to solve a problem, you go upstream or downstream. And the further you go downstream, you just keep on adding dollar signs to the cost of the mitigation.”



Another perk of the upstream method: propaganda—the good variety. Mr. Trash Wheel doesn’t have googly eyes so it can see the trash and move around the harbor to gobble it up, a la Pac-Man. “We put the googly eyes on it and turned it into a behavioral change campaign,” says Lindquist. “We think it’s a very, very important part not just to have an interceptor, but to have behavior change associated with those interceptors. So you’re not just endlessly picking up trash out of a waterway.”

Whatever your feelings about The Ocean Cleanup’s ocean-going catchers, it’s hard to deny that they’ve garnered a whole lot of attention about plastic pollution in just a few short years. And by moving upstream in their efforts, perhaps they can bring that attention even closer to home. “We want people to realize that we have an emergency, a plastic epidemic,” says Lebreton, of The Ocean Cleanup. “Putting something in a river is not going to solve everything, but it will help going up upstream and trying to change behavior.”

Googly eyes optional, but highly encouraged.

From Wired - https://www.wired.com/story/ocean-cleanup-interceptor/?bxdid=5cc9e1fe3f92a477a0e95495&cndid=56434341&esrc=bounceX&source=EDT_WIR_NEWSLETTER_0_DAILY_ZZ&utm_brand=wired&utm_campaign=aud-dev&utm_mailing=WIR_Daily_102719&utm_medium=email&utm_source=nl&utm_term=list2_p4