

PARTING SHOTS

A weekly snapshot from The Daily Astorian and Chinook Observer photographers



Barrett Creek is seen from the cockpit of Allen Sprague’s 1965 Beechcraft Bonanza during a flight earlier this month.

JOSHUA BESSEX — The Daily Astorian

Invention leads to cleaner beaches

By EDWARD STRATTON
The Daily Astorian

Sea turtle researcher Seaside resident Marc Ward had just finished a study of the toxicity of microplastics five years ago, finding the garbage a popular and deadly food among the reptiles he studied. Taking some time off, he decided to take his family to Short Sands Beach in the Oswald West State Park, one of his favorite spots. It was there that Ward said he noticed his 1-year-old son Needham, enjoying his time on the sand, about to eat a small piece of plastic. Ward said he had an epiphany at that moment.

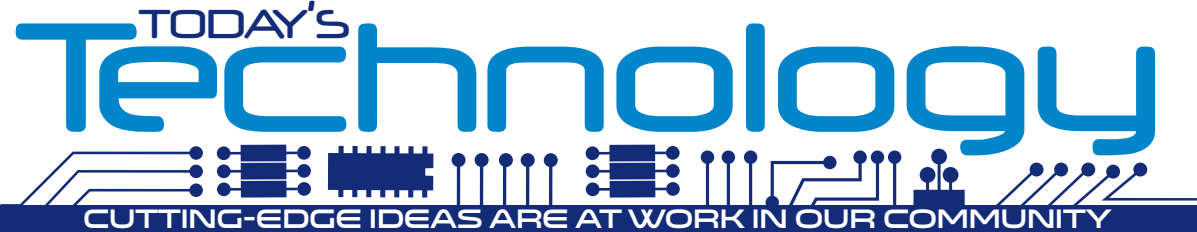
“I wanted to find a way to get the microplastics out of the sand,” Ward said. The microplastics mostly come from the Great Pacific Garbage Patch, a floating sea of garbage, much of which has been broken down over years, if not decades, and contains PCBs and other toxic pollutants. In February, Ward received a U.S. patent (No. 8944253, <http://tinyurl.com/filterpatent>) for his microplastic particle removal tool, which he’s using to clean up local beaches and assembling for groups around the world to clean theirs.

The filter is a simple, heavy duty mesh screen, coated in plastic polymers and supported by a pole with handles at either end. “It took me about three years to reach the right design,” Ward said, adding that he reached the patented iteration of the filter about two years ago. Ward, a Seaside native who’s worked on fishing vessels and in construction, attended the University of Portland in his mid-30s, studying environmental systems, but said he dropped out to head to Punta Pargos, Costa Rica, and run Sea Turtles Forever. “One of the most severe threats we have to our sea turtle population is plastic,” Ward said, adding that the animals like to forage for the plastics in the ocean, sometimes dying en masse afterward.

Sifting for debris
On April 9, Ward and volunteer Tony Gardner took the screen down to



Photos by EDWARD STRATTON — The Daily Astorian
Tony Gardner, left, and Marc Ward use the microplastics filter to clean a portion of Crescent Beach April 9. Patagonia is sponsoring the cleanup of Crescent Beach for microplastics, which wash up on the Pacific Northwest’s shores from the North Pacific Gyre.



Crescent Beach, where apparel company Patagonia’s Portland store has funded him to filter several hundred meters of beach over eight days. Ward scrapes the top layer of sand with a shovel onto the mesh net, unfurled on the ground. He and Gardner take up an end of each pole, as sand dumps through the bottom of the net. As they sift the sand through the net, only microplastic particles and larger pieces of plastic and woody debris remain. Ward then dumps the leftovers into a bucket, with the debris eventually going out with the rest of the trash. “We’re pulling particles of mi-

croplastic down to 60 to 80 microns (one-millionth of a meter),” Ward said, adding that the simplicity is in the static charge created by the plastic debris rubbing up against plastic polymer coating of the net, sticking it to his filter as clean sand falls back onto the beach. “You’ve transformed a garbage patch into something clean and pristine,” Gardner said. “It makes you feel good about what you did.” Ward said that on Crescent Beach, there’s a 20-meter-wide band of microplastics washed up with a previous high tide. It might be possible to clean 50 meters a day he added, and he needs

more volunteers for the cleanup, likely in May or June. Contact 503-739-1446 or marc@seaturtlesforever.org for more information. The beaches only need cleaning once a year, he added, to clean up the landfall from winter storms and before the main tourist season. **Cleaning the world’s beaches** “We’re starting to get municipalities that are starting to work with us,” Ward said, adding that Cannon Beach and Manzanita have both sponsored filtering on their beaches. Ward keeps a list of all the places



Marc Ward’s microplastics filter removes small plastic debris from the beach, leaving pristine sand.

that have made orders for his screens. It includes several cities and organizations across California, including the Friends of Albany Beach near Berkeley, the city of Richland and the Clean Oceans Project in Santa Cruz. Northwestern University in Illinois bought a screen, along with a group in Hawaii. And Ward said more have gone internationally to Canada; Wilmington University in New Zealand; Salve Monos in Costa Rica; Great Barrier Reef researchers in Sydney, Australia. Ward said David McCall, Tillamook County’s solid waste coordinator, wants to filter all of its beaches and has ordered four of his screens to do so. The screens run \$179 apiece, last for years and are assembled to order by Ward, who said he’d like to set up a small manufacturing space to make 100 or so of them in advance. “I have a decade of volunteer hours and \$100,000 into microplastics and sea turtle monitoring,” said Ward, who for a day job runs American Tile & Stone. With the stress it’s placed on his family, he added, any work with microplastics from here on out needs to be paid. Patagonia was one of his first big sponsors, and Ward hopes private investors can help him expand the reach of his filters.

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From left: Peter Wong, Hillary Borrud, Mateusz Perkowski