

PLASTIC OCEANS

Student wins national science award for research project



News-Journal photos/NIGEL COOK

Daytona State College student Angela Boney displays plastic items collected from the ocean in her class at the school's environmental studies lab in Daytona Beach. View more photos at news-journalonline.com

By **DUSTIN WYATT**

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Angela Boney dug her fingers into the soft sand, sifted through what the tide brought in and used tweezers to pick up each piece of plastic she found.

She looked more like an explorer than a sun-bather in her khaki cargo shorts, and when curious beach-goers approached about her activities, Boney seized the opportunity to spread a message.

"All of that plastic that winds up in the ocean kills sea birds, turtles and mammals," the Daytona State College student explained as she put pieces into a glass jar. "So we need to pick up our trash."

Boney, 30, is a student in DSC's Institute of Marine



Plastic collected from the ocean is displayed at the environmental studies lab at Daytona State College.

and Environmental Studies and was one of 16 college students in the nation to recently receive an award from the Geoscience Division of the Council on Undergraduate Research.

In the fall, she traveled to 10 Florida beaches, six on

the Atlantic coast and four on the Gulf Coast, where she spent hours collecting plastics for an independent research study. She wanted to determine if plastic debris washes ashore on Florida's beaches and, if so, which coast has the largest quanti-

ty of plastic. She didn't find a lot of plastic on the west coast, but it was a different story on the east coast, with volumes increasing the further south she went. There were pieces that had "Haiti" written on them. Others featured Spanish writing. Ninety-five percent of the 807 pieces she found came from the east coast in Fernandina, Marineland, Melbourne, Fort Pierce, Pompano and North Miami.

It's a huge issue across the state, said Holly Parker, Florida Regional Manager of the Surfrider Foundation, a nonprofit environmental organization dedicated to the protection and enhancement of the world's waves and beaches through conservation.

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She said an assortment of plastic materials are found every time the organization does a beach cleanup, most of which is left behind by litterers. On the dunes, really weathered pieces can be found that have drifted in from somewhere else.

"People often are curious as to whether these are things going overboard from ships or if these are things that come from land and wind up in the ocean. It's the latter primarily," she said, adding that 80 percent of the ocean plastic comes from land sources.

But this is a worldwide problem, not just on Florida's Atlantic coastline.

The ocean collects 245,000 tons of garbage a year, according to a recent study by National Geographic. Another study by the Journal of Science said that the amount of plastic dumped into the oceans each year, if stacked toward the sky, could stretch halfway to Mars.

And all of this plastic can endanger marine animals.

Sea turtles eat plastic bags floating in the ocean mistaking them for a jellyfish. Their digestive systems can't break down the plastic and many die. The Sea Turtle Hospital at the Marine Science Center in Ponce Inlet has already treated 60 turtles this year, many injured because of plastic. Melissa Ranly, manager of

the hospital, said it's a problem that needs more global attention.

"Locally, just take your trash with you when you leave the beach," she said. "Put things in a responsible garbage can and recycle. We know that every plastic that has ever been made is still out there in the ocean floating around."

It's not just animals that are affected. Pollutants and other toxins collect on the plastic over time. Fish eat the plastic, and then people eat the fish.

"It climbs up the food chain," said Debra Woodall, assistant chair of Daytona State College's School of Biological and Physical Sciences, who nominated Boney for the national award.

"This is going to be a long-lived problem because plastic stays in the environment for so long," she said. "Even if we stop (putting plastic in the oceans) now, it's going to take decades and decades, if not centuries, before all of these plastics are finally removed from our environment. ... We are killing ourselves with this stuff."

She said the reasons why more ocean plastics might wash up on the east coast than the west coast is because the east coast is far more exposed to cruise routes and because the Gulf Stream is a major current off of the east coast that likely transports much of the garbage that tends to float back onshore.

The hard-packed sand and a desire to see other parts of the state kept Boney from collecting samples in Daytona Beach, but she still picks

up plastic whenever she's there. A large collection of the trash can be found outside the Institute of Marine and Environmental Studies lab on the DSC campus. It includes children's sand toys, bottles, piles of cigarette butts (which do contain plastic fragments), plastic Easter eggs, balloons, toothbrushes and more. If it made its way into the ocean, she said, the plastic could stay there for decades, if not centuries, and impact a lot of animals and wildlife before washing back to shore.

"The whole point is to make people think about it and care about it," she said. "I hope people see me out there picking up plastic. That's all I can do."

Sometimes, after she told curious beachgoers what she was doing in the sand, families and children would get down on their hands and knees to help collect plastic pieces.

Woodall said Boney's making a difference and it's her passion and determination that helped her win the award.

She requires that each of her students work on an independent research study before they can graduate; Boney spent more time on hers than required.

"She took this on and she took it farther than an average student would take it," she said. "She designed her project; she went out of her way to do her sampling. ... She's going to be a scientist that you're going to hear about someday soon."