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University of Georgia researchers study plastic pollution in Galveston

JOSÉ MENDIOLA The Daily News Dec 15, 2022



A plastic cup lies in the dunes along the Galveston Seawall as University of Georgia student Shelby Mendez uses a phone-based app to log plastic debris Thursday. STUART VILLANUEVA/The Daily News

GALVESTON

Trash can be found anywhere on the planet. But students from the University of Georgia are trying to find the source of that trash, where it came from and how it got there by conducting a two-week long study in Galveston.

Those students on Thursday arrived in Galveston to conduct a circularity assessment protocol in support of a nonprofit organization that's trying to eliminate the use of single-use plastic on the island.

The assessment is meant to get a snapshot of how trash circulates in the city. Information gleaned from the assessment is meant to provide data for local, regional or national decision-making that could reduce the amount of waste entering the environment, the University of Georgia's Circularity Informatics Lab said.

"We look at what products are being sold in local stores, what kind of plastic products are food vendors using and we also look at any reuse programs there are in a city," Kathryn Youngblood, research engineer with the University of Georgia said.

The study has been conducted in 40 different cities and 10 different countries around the world, with this being the first time in Galveston, Youngblood said.

The group will conduct studies in Galveston for two weeks, Youngblood said.

“It will take us two weeks for initial round of data collection and then it will take us a couple of months to analyze the data — we are planning to have the data gathered by early 2023,” Youngblood said.

Youngblood is being assisted on the study by three undergraduate students majoring in Environmental Engineering from the University of Georgia.

Shelby Mendez, a third-year student from the University of Georgia, said her main goal for study is to decrease the pollution of plastics in the ocean.

“We’ve been hearing that this is a city that is trying to work towards being sustainable,” Mendez said.

Because Galveston is a beach city, there’s a higher risk plastics residents or visitors use will end up on the beach, Mendez said.

“It’s really easy for all the waste to end up in the ocean,” Mendez said. “This can affect the marine life that inhabits these beaches.”

When plastics enter the ocean, they don’t decompose, but become smaller bits that end up as microplastics, Mendez said.

Microplastics are tiny plastic particles that result from breaking down from larger pieces of plastics, according to the National Oceanic and Atmospheric Administration.

Microplastics can come from a variety of sources, including larger plastic pieces that have broken apart, resin pellets used for plastic manufacturing, or in the form of microbeads, which are small, manufactured plastic beads used in health and beauty products, according to the administration.

Nearly 35 million tons of plastic entered global aquatic ecosystems in 2020, according to the Ocean Conservancy.

Although it’s tough to say how much plastic is in the ocean, scientists estimate about 8 million metric tons. That’s the weight of nearly 90 aircraft carriers, and it continues to grow, the administration said.

Plastic pollution is a threat to wildlife, which can become entangled in, or ingest plastics, and die, the administration said.

In laboratory tests, microplastics have been shown to cause damage to human cells, including both allergic reactions and cell death, according to National Geographic.

“Animals can actually digest these microplastics,” Mendez said. “There have been studies showing that humans have had microplastics in their blood streams.”

This is the first time that the University of Georgia has partnered with non-profit Perpetual.

Perpetual is trying to bring reusable foodware systems to the city of Galveston, Perpetual spokeswoman Kristina Gerken said.

“So, if you get a to-go meal you will get it in a reusable receptacle and a reusable cup,” Gerken said. “Instead of putting it in a trash can, you can put it in a bin that people will collect and wash and sanitize.”

The initiative will be directed at all restaurants in Galveston, including major chains, Gerken said.

“We want everyone to use it,” Gerken said. “A reuse system works best when it’s immersive and full-scale and that includes all your chain restaurants and your local ones. Coffee shops and hotels or even getting soda from convenience stores.”

Reusable foodware programs have the potential to be better for the environment than single-use plastics, create good local jobs and be economically sustainable over time, Gerken said.

Programs can help cities manage their waste generation and collection, and be cost-competitive with disposables for local businesses, Gerken said.

There are about 75 reuse programs around the United States.

“We really think that Galveston is an amazing opportunity to have this happen,” Gerken said. “People are passionate about their city being clean and keeping plastic out of their ocean.”

The Turtle Island Restoration Network has been working with Perpetual to reduce the amount of microplastics in the ocean, said Joanie Steinhaus, the local director for the network.

This project focuses on the effects of single-use plastics, not only on the environment but humans as well, Steinhaus said.

There are reports of people having microplastics in their blood, lungs, fecal matter, breast milk and placentas, Steinhaus said.

“We will do anything we can do to reduce single-use plastic products to benefit the environment and human health,” Steinhaus said.



University of Georgia student Rachael Johnson displays a phone-based app used to log plastic refuse Thursday.
STUART VILLANUEVA/The Daily News



University of Georgia student Eduardo Martinez uses a surveyor's wheel to measure a portion of beach along the Galveston Seawall on Thursday.
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Kathryn Youngblood, University of Georgia research engineer, speaks Thursday, Dec. 15, 2022, about an ongoing study to track plastic waste.
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