

Tulane awarded \$5 million to find out if recycled glass can help save Louisiana wetlands

September 26th, 2022

|

Barri Bronston bbronst@tulane.edu

[View PDF](#)

For the past 12 months, Tulane University scientists and engineers have been working almost non-stop to prove that sand made from recycled glass can help prevent coastal land loss. They've shown that the material can grow native marsh grasses and willow trees, is non-toxic to marine life and can resist erosion better than silt.

Now, they're getting [\\$5 million from the National Science Foundation](#) (NSF) to take the project from proof-of-concept to a much larger scale where they can have a bigger impact on glass recycling and coastal wetland restoration in South Louisiana.

The project, called [ReCoast](#), is a partnership between Tulane researchers and [Glass Half Full](#), a New Orleans-based glass recycling center founded by two Tulane alumni to recycle glass and help the coast.

"We aim to create a blue economy network centered on glass recycling and community engagement to restore coastal environments and to promote smart and sustainable use of our ocean-related natural resources in the future."

Julie Albert, associate professor of chemical engineering at Tulane

"Solving our land loss crisis requires convergence of all types of ideas, and glass sand is an important part of that solution," said [Julie Albert](#), PhD, associate professor in the Department of Chemical and Biomolecular Engineering and the principal

investigator of the project. “We know what happens if we do nothing: swamps will turn into lakes, homes and businesses will literally be washed away with the land, and the intrusion of salt water into freshwater areas will kill wildlife, all further hastening coastal land loss.”

The cooperative agreement is part of [Phase 2](#) of NSF’s Convergence Accelerator Track E: Networked Blue Economy. The program was launched a year ago with the awarding of 16 team grants up to \$750,000 under Phase 1.

ReCoast and five other teams were selected for Phase 2 after a formal Phase 2 proposal and pitch. Over the next two years, the teams will work to refine their ideas into prototypes and participate in an innovation and entrepreneurial curriculum that includes training on product development, intellectual property financial resources and sustainability planning.

“The teams selected for Phase 2 are building solutions and strong partnerships to improve human engagement with the ocean and to tackle some of the most pressing ocean-related challenges such as plastic waste and coastal erosion,” said Douglas Maughan, head of the NSF Convergence Accelerator program. “Within the next two years, we expect the teams to provide high-impact deliverables that will be sustained beyond NSF support.”

For ReCoast, those deliverables include carrying out planned restoration projects, which Albert said are expected to attract investment in glass recycling and coastal restoration to sustain the blue economy (i.e. water resources) network in Louisiana beyond the project. They will also extend lessons learned from Louisiana’s coastal marshes to other ecosystems and broaden participation to include residents of the Lower Ninth Ward, a neighborhood that researchers say has been subject to environmental racism for decades. The project will include interdisciplinary training of undergraduate and graduate students and the development of K-12 outreach workshops on soil stabilization research and its importance for historical preservation.

Since receiving the initial award from NSF a year ago, the Tulane and Glass Half Full teams have demonstrated the efficacy of their glass-to-sand initiative at two sites in southeast Louisiana — Big Branch Marsh National Wildlife Refuge, north of New Orleans, and land that is home to Pointe-au-Chien Tribe in Lafourche and Terrebonne parishes, which were devastated in Hurricane Ida.

“Coastal erosion negatively impacts the livelihoods of residents in coastal communities and reduces the resilience of inland communities to withstand rising sea levels and increasingly severe storms,” said [Franziska Trautmann](#), a Tulane chemical engineering graduate and co-founder of Glass Half Full, which collects over 150,000 pounds of glass each month.

“Our solution aims to protect and restore our coasts while supporting the economies of coastal communities through multi-disciplinary research and collaboration between community members, government, scientists and engineers.”

The ReCoast Team consists of over 20 scientists and engineers conducting the research needed to ensure that recycled glass sand is safe to use in waterways and in coastal environments. In addition to Albert and Trautmann, the team includes Tulane scientists Ehab Meselhe, professor in the River-Coastal Science and Engineering Department; Katie Russell, senior professor of practice in the Chemical and Biomolecular Engineering Department; and Sunshine Van Bael, associate professor in the Ecology and Evolutionary Biology Department.

The team also includes researchers from Jackson State University, Louisiana State University, University of Texas - Rio Grande Valley, and Bard College.

A full list of researchers and collaborators is available on the [ReCoast website](#), which is being updated regularly with new collaborators and research findings.