Tulane and LSU awarded $22 million for plan to save Lower Mississippi River Delta

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Mead Allison, chair of Tulane University's Department of River-Coastal Science and Engineering, is co-leading the MissDelta consortium that will chart a new course for the future of the fragile Lower Mississippi River Delta over the next five years. (Photo by Sabree Hill)

Tulane University and Louisiana State University have been awarded $22 million by the National Academies of Sciences, Engineering and Medicine to lead a 15-member consortium that will chart a new course for the future of the fragile Lower Mississippi River Delta.

The region where the river meets the Gulf of Mexico is crucial for U.S. commerce, energy, wildlife and fisheries and the people who live there, but it's also one of the most vulnerable coastal areas in the world. Recent research shows the lower reaches of the delta retreating both above and below water. The river is also redirecting its flows to the east and west, which poses critical challenges to navigation and implications for water management, including the recent saltwater intrusion crisis.

The Mississippi River Delta Transition Initiative, or MissDelta, as the consortium is known, will include a team of 38 investigators working with the National Academies' Gulf Research Program. The group will begin engaging stakeholders this year as they work to project the evolution of the disappearing delta through the year 2100 should nothing be done to forestall its erosion or counter threats from increasingly intense hurricanes, rising seas, ground subsidence, diminishing river sediment, coastal dead zones, navigation channel changes and growing maintenance costs.

"Preserving the fragile Lower Mississippi River Delta is not just a mission; it's an imperative for our future," said Bren Haase, chairman of the Louisiana Coastal Protection and Restoration Authority, a key consortium partner, along with the U.S. Army Corps of Engineers, local communities and industries. "Together, we'll navigate the challenges of sea-level rise, erosion and shifting river dynamics, forging a sustainable path forward for future generations."

The consortium will spend most of the five-year initiative testing alternative scenarios and solutions to increase the sustainability of the ecosystem and the economy that relies on it. Investigators will work in concert with agencies and stakeholders to identify critical issues affecting people and industries within the delta. They will then develop plans and predictive modeling strategies for the future of the delta under a range of climate and sea-level scenarios and pass along recommendations to decision-makers.

"The project is long enough, the resources are significant enough, the team is comprehensive enough and the methodology is rigorous enough that we can pursue

a strategy of not just forecasting the future, but also test scenarios with the natural systems and socio-economic models to trial solutions working in partnership with decision-makers," said Mead Allison, a consortium co-lead and chair of Tulane University's Department of River-Coastal Science and Engineering.

"This is about developing a shared vision for our coastal future in Louisiana and the northern Gulf Coast," said Samuel Bentley, a consortium co-lead and endowed professor in Louisiana State University's Department of Geology and Geophysics. "We're moving into a brave new world of more science-based, proactive management of the river by a more diverse and culturally anchored research community than ever before."

Besides LSU and Tulane, the consortium includes six historically Black colleges and universities in Louisiana and Mississippi—Southern University of Baton Rouge, Xavier University of New Orleans, Jackson State University, Grambling State University, Dillard University and Alcorn State University—as well as the University of Southern Mississippi, the University of Central Florida, the University of Louisiana at Lafayette, the Louisiana Universities Marine Consortium, the Water Institute of the Gulf and the College of William & Mary in Virginia.

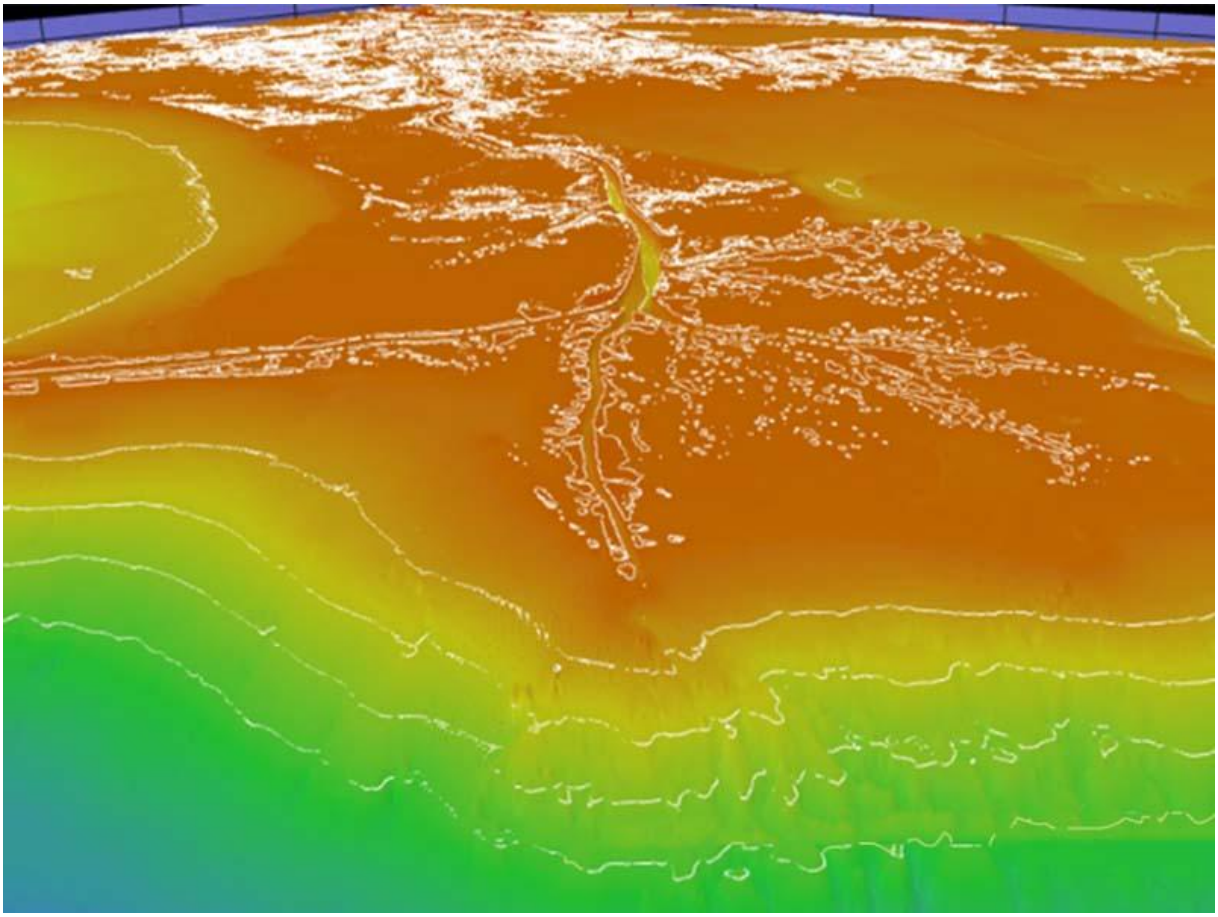
A major portion of the funding from the National Academies will be directed toward technical workforce development and diversity. Universities in the consortium will work with students in middle and high schools to increase the number of persons from underrepresented groups participating in coastal research and activities. They will create a robust mentoring network that supports students and teachers and advance opportunities for experiential learning to deepen understanding and broaden science identities. They will organize field trips and work in labs to create a more diverse technical workforce that also encourages the best and brightest to remain in the Gulf region.

"We're proud to partner with five other Louisiana and Mississippi HBCUs and all members of the MissDelta consortium," said Michael Stubblefield, vice chancellor for research and strategic initiatives at Southern University, which signed the A&M Agenda with LSU last year to increase university collaboration and community impact. "MissDelta will promote a more diverse technical workforce and form a blueprint for how we enact positive change in our management of land and water, which has phenomenal impact in our communities and on the environment."

The Lower Mississippi Delta provides navigation access to North America and is home to communities, extensive energy and transport infrastructure, valuable commercial and recreational fisheries, federal wildlife preserves and countless ecosystems. Its wetlands provide protection from hurricane surges to adjacent communities and coastlines, and its shipborne commerce is valued at approximately $300 million per day and includes 60 percent of U.S. global grain exports.

Degradation of the delta is thought to be caused by drastic reductions in sediment due to upstream release into shallow coastal bays. This has unstudied implications for water quality and food webs and is linked to wetland loss, erosional rollback of the delta front and increased need for dredging in the navigation channel. The consortium’s predictive capacity will aid in the understanding of how to lessen these and other negative impacts, including future saltwater intrusions during droughts.

“A sustainable Mississippi River Delta is critical for both the region and the nation,” said Colonel Cullen A. Jones, commander of the New Orleans district for the U.S. Army Corps of Engineers. “We look forward to the insight and contributions of the consortium as we collectively strive to identify the best long-term management approach for the river.”



The consortium will focus on the Lower Mississippi River Delta region. (Illustration courtesy of LSU)