

Into the sea

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newwave@tulane.edu



Water encroaches on houses on Isle de Jean Charles, a narrow ridge located in Terrebonne Parish, Louisiana. (Photo by Paul Morse)

Perched along the lip of Louisiana, an island off the coast of Terrebonne Parish has been home to members of the Biloxi-Chitimacha-Choctaw tribe of Native Americans for generations.

But now, Isle de Jean Charles is slipping into the sea, meaning a perilous future for those who call it home.

Albert Naquin, chief of the Isle de Jean Charles tribe, is a Vietnam veteran and retired oil field inspector for the federal government. He is well aware that his island's embattled ecology is part of a larger pattern of peril that extends far beyond Louisiana.

He visited the United Nations on behalf of his tribe in 2010, and he's also traveled to Alaska to gain insights from coastal residents who dealt with the 1989 Exxon Valdez oil spill.

"We don't have time," Naquin told *National Geographic* last year. "The longer we wait, the more hurricane season we have to go through. We hate to let the island go, but we have to. It is like losing a family member. We know we are going to lose it. We just don't know when."

GHOST TREES BUT HOME

Chantel Comardelle, secretary of the Biloxi-Chitimacha-Choctaw tribe, began her life on Isle de Jean Charles but left in 1985 when she was 4 years old.

"Our trailer was flooded twice—after Hurricane Danny, then Hurricane Juan after that," Comardelle recalled. Subsequent mold problems in her family home made her chronically ill, prompting the family to relocate. She now lives in Houma, where she works as a purchasing agent for the Terrebonne Parish government.

Comardelle's roots on Isle de Jean Charles run deep. Her grandparents still live on the island, which is named after one of her 19th-century ancestors.

In the decades since Comardelle moved away, much of the landscape of her childhood has vanished.

"The land is not there anymore," she said. "The trees and vegetation have drastically changed. Where there were trees and wooded areas, now there's marsh."

Islanders call stumps from the ruined woodland "ghost trees," which points to the way that the natural history of the island continues to resonate with residents even when touchstones of the local geography have disappeared.

The memories of that home ground, along with what still remains of Isle de Jean Charles, exert a powerful pull on the people with ties to the island.

"It's where my heart is," said Comardelle. "I would live there now if I could. The trees seem to come alive as you drive into the island. You can sit on the porch there

and be at peace with the rest of the world. I call it home.”

As many residents like Comardelle have gradually moved to safer ground, maintaining tribal traditions has become more difficult. “We are documenting our oral history,” she said. “We are documenting our way of making bas9/kets, our ways of making other things. We have different medicines that we’ve always made from the plants here. We’d like to be able to propagate those plants in a different location.”

ASTONISHING LOSS OF LAND

Since the early 1950s, Isle de Jean Charles has lost 98 percent of its land, a coastal calamity caused by culprits Louisiana knows all too well.

Girdled by levees, the Mississippi River can no longer sweep the land as it once did, carrying its cargo of rich sediments to the coast and replenishing the marshes. Without that lifeblood, coastland has disappeared. Damage done by oil and gas exploration also weakened the coast, and rising sea levels from climate change, along with land subsidence, are wreaking havoc, too.

In the 1950s, Isle de Jean Charles spanned 33,000 acres. Now, only 320 acres remain.

“Around the globe, governments are confronting the reality that as human-caused climate change warms the planet, rising sea levels, stronger storms, increased flooding, harsher droughts and dwindling freshwater supplies could drive the world’s most vulnerable people from their homes,” *New York Times* writers Coral Davenport and Campbell Robertson noted. “Between 50 million and 200 million people—mainly subsistence farmers and fishermen—could be displaced by 2050 because of climate change.”

Isle de Jean Charles is at ground zero of the crisis.

The tribe and its partners have developed a resettlement plan to move families to less environmentally vulnerable land. Last year, the U.S. Department of Housing and Urban Development awarded \$48 million to the state of Louisiana to support the resettlement. The funding, part of \$1 billion HUD distributed to assist communities in answering climate change, sparked national headlines.

The biggest challenge is advancing a resettlement plan to move residents to safer ground. A related goal is preserving the island's legacy.

TULANE AND TRIBAL LEADERS

A Tulane faculty member, Amy Lesen, is collaborating with tribal leaders as they develop solutions to the profound challenges facing the community.

Lesen is a research associate professor with the Tulane ByWater Institute, which engages scholars in studying coastal and urban environmental issues in the New Orleans area and the Lower Mississippi Delta Region.

"I wanted to see what I could do to be helpful," she said. "In this project, we'll develop a model for bringing together a sustainable cross-boundary collaboration of scientists, community members, practitioners and other professionals to combine community knowledge with scientific knowledge to address the challenges facing the Isle de Jean Charles community. This collaborative team will help the tribe envision a science center, a seed bank, a plant-cutting library and other elements that could be incorporated into their resettlement."

The work is being supported by a \$200,000 grant from the National Academies of Science, Engineering and Medicine's Gulf Research Program. The project lead is the Lowlander Center, a Terrebonne Parish nonprofit that's working with coastal residents to adapt to land loss and the changing coastline.

Lesen is working with Isle de Jean Charles tribal leaders to develop a more sustained and integrated model for scholars, scientists and community members to work together. Their insights could eventually help other communities facing similar struggles.

"It's a beautiful place with a deep history," she said. "The environment and the place are part of the community. The conundrum of being in a place where your community lives and that may no longer be viable and safe is very poignant. It's a place that embodies a lot of the challenges many coastal communities are facing.

"I love talking to Chief Albert about the island and all the plants and animals he's encountered," Lesen added. "It's moving to me to talk to the people of the community about what the island means to them."

For Lesen, as for many others, Hurricane Katrina dramatized the vulnerability of coastal areas to the forces of nature. A graduate of the University of

Massachusetts–Amherst with a Bachelor of Science in marine fisheries biology, the New York City native earned a PhD from the University of California–Berkeley in integrative biology.

For her first seven years in New Orleans, Lesen was on the faculty at Dillard University, where she developed *Scientists, Experts and Civic Engagement*, a 2015 book in which contributors explore the ways that scientists and other academic specialists could connect in a more equitable way with communities that might benefit from their expertise. The book grew out of a 2010 New Orleans symposium on the subject that Lesen organized with the collaboration of

Richard Campanella, a geographer with the Tulane School of Architecture, and Julie Hernandez, a research assistant professor at Tulane University Law School’s Payson Graduate Program in Global Development.

In the wake of Katrina, “New Orleans and the southeastern coast of Louisiana were now extremely popular places for scholars, researchers and students from all over the world to study,” Lesen recalled in the preface to her book. “But the scores of academics flocking to New Orleans—all doing important work—also made me think about the dilemmas this situation poses. What are the ethical implications when scholars come into a location—particularly one where people are in distress—study the situation, and then leave to go home and write an article or book for an academic audience? Isn’t there a way this can be done where the research plan and the benefits of the work can be formulated with the intention of also benefitting the local residents?”

Lesen’s team of scholars and practitioners who are working with Isle de Jean Charles’ tribal leaders includes not only natural and social scientists like her, but planners and landscape designers.

“We’ve brought together a number of different types of expertise, including the expertise of the Isle de Jean Charles community,” she said, “and we do have partners from elsewhere in the United States. Hopefully, we’re building a model that can be useful for other coastal communities—not only in the United States, but the rest of the world. It’s generally not part of the training of people in the sciences to do this kind of cross-boundary work. But it’s becoming clearer that these kinds of partnerships are necessary in coastal cities and in coastal communities facing environmental change.”

GLOBAL COASTAL CRISIS

“We as a tribe know that we’re not the only community dealing with this,” Comardelle said.

That fact was underscored in 2015, when President Barack Obama visited the Inupiat Eskimo community of Kivalina in coastal Alaska. Residents there have no more than a decade left before coastal erosion will force many of them from their homes, Millie Hawley, president of Kivalina’s tribal council, told the Associated Press.

Around the world, coastal villagers are confronting similar problems. But Louisiana residents don’t have to look very far to find parallels with the plight of Isle de Jean Charles. “We’re the first wave of challenges,” Comardelle said of the island. “The next will be the inland areas.”

As if to prove Comardelle’s point, New Orleans Mayor Mitch Landrieu recently designated climate change as an “existential threat” to Tulane’s home city.

Comardelle said the island could conceivably exist in some form for decades, though life on Isle de Jean Charles is becoming increasingly tenuous. “The general feel of the island has changed,” she noted, echoing Naquin’s warning that future storms could radically accelerate the island’s demise.

As the community draws on collaboration and expertise from many sources in deciding its future, voices from the distant past might offer insights on adaptability, too.

In the 19th century, the island became home to tribal members displaced by federal policies, part of a series of forced relocations of Native Americans that came to be known as “The Trail of Tears.”

“Our ancestors once lived east of the Mississippi,” Comardelle said. As they were forced to move, some members turned south to coastal Louisiana, she added.

“It’s a matter of resilience,” Comardelle said. “We’re family, and we’re going to stick together and survive.”

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