

Study: Louisiana slipping slowly into gulf


Findings may impact plans to build bigger levees to protect New Orleans



Bill Haber / AP

New flood gates are lowered in New Orleans' London Avenue Canal in August. Their role is to reduce the strain on the levee walls from surges of storm water from Lake Pontchartrain.

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NEW ORLEANS - A new report by scientists studying Louisiana's sinking coast says the land here is not just sinking, it's sliding ever so slowly into the Gulf of Mexico.

The new findings may add a kink to plans being drawn up to build bigger and better levees to protect this historic city and Cajun bayou culture.

If the land is shifting — even slightly — engineers may need to take that into consideration as they build new levees and draw lines across the coast to identify areas that should and shouldn't be protected.

Researchers have known for years that the swampy land under south Louisiana is sinking (potholed streets and wobbly porches and floors are visible evidence of that) but a lateral movement of the land into the Gulf enters largely unstudied terrain.

'People should not be afraid'

The report, which appeared in December's *Geophysical Research Letters*, a peer-reviewed journal published by the American Geophysical Union, says the bedrock under heavily populated southeast Louisiana is breaking away at a glacial speed — at the pace fingernails grow.

The southward movement, the study says, is triggered by deep underground faults slipping under the enormous weight of sediment dumped by the Mississippi River.

The slippage, though, is confined to a large egg-shaped area approximately 250 miles long and 180 miles wide that encompasses the delta of the Mississippi, which was built up by river deposits over the past 8,000 years, the report says.

The report was based on data collected between 1995 and 2006 by Global Positioning System stations installed in recent years to better understand the dynamic nature of this delta the French settled in 300 years ago.

"People should not be afraid that we're going to fall into the Gulf. That's not going to happen," said Roy Dokka, lead researcher and executive director of the Center for GeoInformatics at Louisiana State University.

He described the slide into the Gulf as "a kind of avalanche of material, except that it is happening very slowly. It moved about the width of two credit cards this year."

Impact on new levees

While that may seem trifling in the big picture, Dokka said engineers need to include this reality into their plans for levees, floodgates and other projects.

Windell Curole, a levee and hurricane expert who is on a state board developing a master protection plan, said the phenomenon of sinking, or subsidence, has not been "included in a big way" in the new plan but that planners are "aware of it."

"As we understand it better, we will include it," he said. "You have to be aware of the elevation issues and the rate — these things need to be in the equation."

Flood protection planners have their work cut out for them as they choose between often competing theories about what is causing Louisiana to lose land at alarming rates. Since the 1930s, more than 2,000 square miles of coast sank or eroded.

Some scientists believe oil and natural gas extraction in the middle and late 20th century caused much of the sinking; others say the land is caving in because the Mississippi River and other waterways were straightjacketed by levees, which stopped floodwaters from replenishing the soil.

And some scientists have suggested the debate over subsidence is overstated.

Torbjorn Tornqvist, an associate professor of earth and environmental sciences at Tulane University, found much of the region surprisingly stable and the rate of sinking to be at least 10 times less than previously reported.

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