

# MORGANZA *Report*

Report Number 1 Fall 2003

News of the Morganza-to-the-Gulf Hurricane Protection Project

## Coastal Communities Struggle to Survive

page two



## From Blueprint to Footprint

page four

## Working Against Time and Tide

page six

## Healthy Wetlands Provide Natural Protection

page eight

## Morganza Interview: Jerome Zeringue

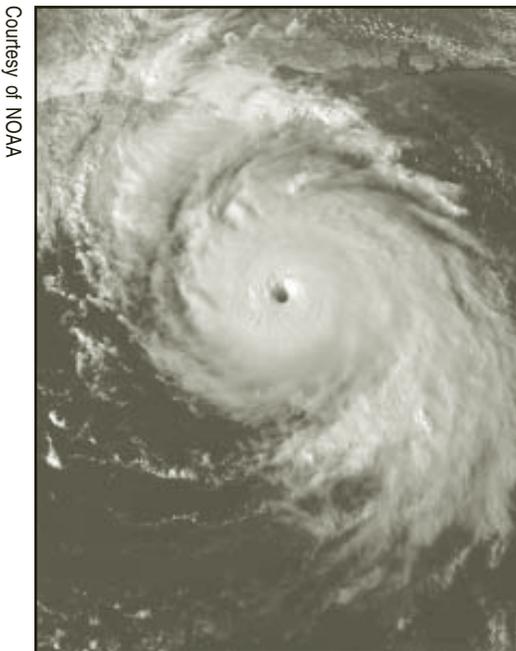
page ten



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# LOSING LAND, LOSING TIME: Coastal Communities Struggle to Survive

Decades before Thomas Jefferson signed the Louisiana Purchase, Junior Theriot's great-great-grandfathers settled along the bayous of coastal Louisiana. Now Theriot's own great-grandchildren play on these same marsh banks, within earshot of the place that Theriot has lived all of his 75 years. "This is home," Theriot declares,



Courtesy of NOAA

In 2002, Hurricane Lili caused widespread flooding in areas of southeastern Louisiana lying outside of the existing federal levee system. Diminished wetlands and rising sea levels increase the region's vulnerability to storm damage.

"and no matter where it is, you always want to be home."

But the Theriot family may soon part from their home. They aren't selling out or moving on; they aren't leaving for dreams of someplace else. Rather, the land itself is leaving them, dissolving under their feet and disappearing into open water where there used to be marsh.

"We're about five miles from the Gulf," Theriot says, "and every day the Gulf gets closer. I've been out in a boat and watched two-foot waves eating the land away. If a big storm hit, we'd be under water."

Like most of his neighbors, Theriot is eager to see his home included in a hurricane protection system and anxious to see it built. "We know levees can work," Theriot says. "Even our forced-drainage levee held back Hurricane Lili, but not until it pushed within a foot of the top. Morganza would give us even more protection, protection we need if our community's going to survive."



Courtesy of USACE

The Morganza system will erect a barrier against storm surges, protecting the more populous regions of Terrebonne and Lafourche parishes and diminishing the threat of floods throughout southeastern Louisiana.

## MORGANZA: Protecting People and Wetlands

Once Louisiana's expansive coastal wetlands buffered towns like Dulac and Montegut from the destruction of hurricane-force storms. Now, degraded by the effects of natural subsidence and human activity, weakened wetlands are converting to open

Courtesy of Jerome Zerignue, TLCD

water and exposing the old bayou communities to nature's power. In the past 30 years, Junior Theriot's parish, Terrebonne, has lost over 300 square miles of land.

The Morganza-to-the-Gulf project is part of a comprehensive hurricane protection plan for coastal Louisiana. Designed both to halt saltwater intrusion and hold back hurricane storm surges, its 72-mile-long levee will shield human life and property as well as the enclosed wetlands. Twenty-four floodgates and water control features built into the system will maintain the wetlands' hydrology.

Support for the project is nearly unanimous among the residents of Terrebonne and Lafourche parishes. It is, after all, their homes and businesses, their roads and landscape that are at risk. But should hurricanes ravage coastal Louisiana, the entire nation would suffer. Damage to the oil and gas pipelines that zigzag through the wetlands could compromise the nation's energy security. Closure of ports and disruption of shipping could hinder delivery of fuel and other cargoes, with costly consequences. Seafood harvests would decline if degraded wetlands diminish the traditionally rich fisheries of the coastal waters.

### **THREE PARTNERS BUILD MORGANZA**

Confirming Junior Theriot's belief that "the community's all for building Morganza,"



Flooding from hurricanes can displace thousands of residents, cause millions of dollars of damage to buildings, wash out roads, erode the landscape and threaten the existence of entire communities.

the people of Terrebonne Parish voted to fund their share of the project through an increase in sales tax. Local support is matched by the state. "Even before Congress has authorized this project," says Reggie Dupre, state senator for south central Louisiana, "the state and parish have allocated millions of dollars for it. This demonstrates how strong the commitment to Morganza is in Louisiana."

It is anticipated that Congress will authorize the project in 2003, and that

35 percent of the project's costs will be shared by the local sponsor, Terrebonne Levee and Conservation District, and the state sponsor, Louisiana Department of Transportation and Development. These two sponsors will form a partnership with the U.S. Army Corps of Engineers to design and construct Morganza. Through the Corps, federal monies will pay for the remaining 65 percent of the estimated \$700 million cost. ●

## FROM BLUEPRINT TO FOOTPRINT: *Construction Slated for 2005*

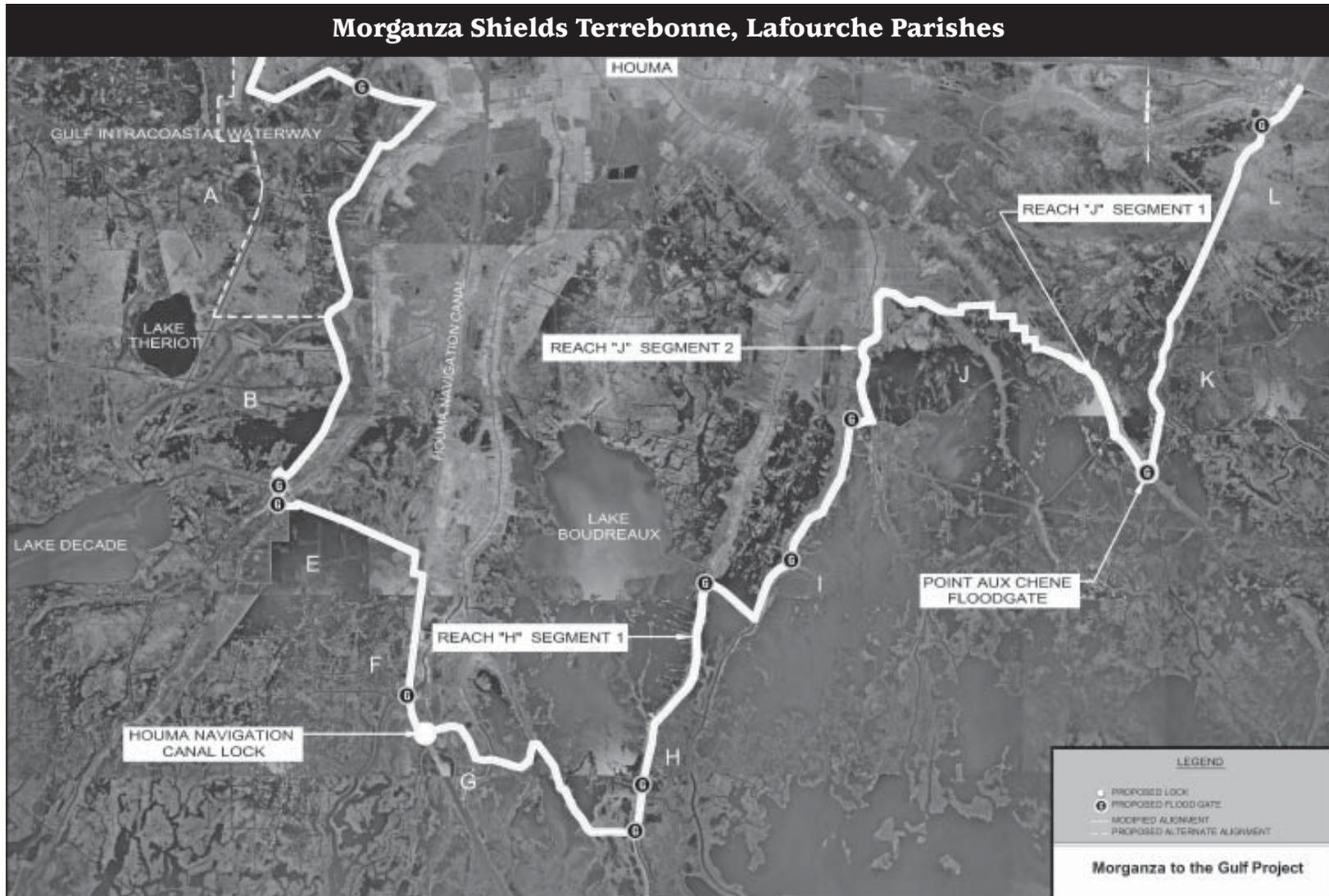
Wind-whipped tides nibble at the edge of land, forcing saline water into the marsh and weakening the vegetation. This natural process, repeated in the wetlands over the seasons, sends an urgent message today to coastal residents: Time is running out. The entire region is vanishing for lack of fresh water, nutrients and sediment.

Although the landscape now lies vulnerable to storms, the process of putting protective measures into place is well underway. Years of thorough study and planning have already gone into the Morganza project, a process that has required the participation of hundreds of dedicated individuals — engineers, environmentalists, businessmen, sportsmen, civic leaders, citizens — with scores of different points of view. Each perspective was carefully considered to develop Morganza's current design.

Actual construction is scheduled to begin in late 2004. Initial features of the project include levees in the Montegut area, which was ravaged within a 10-month period by both Hurricane Lili and Tropical Storm Bill. Soon thereafter, work will begin on the Houma Navigation Canal Lock access road, followed by construction of the lock itself. The entire project is scheduled for completion in 2019. ●

### 2003: Year 11 in a 28-year Process





Adapted from map provided by T. Baker Smith & Son, Inc.

Morganza's 72 miles of levees will protect the populous regions of Terrebonne and Lafourche parishes. A canal lock, floodgates and environmental control features pierce the barrier to maintain a natural flow of water through the enclosed wetlands. The Terrebonne Levee and

Conservation District will begin construction on the first sections, Reach J, Segments 1 and 2, a portion of Reach H, and the Point aux Chene floodgate in late 2004 or 2005.

# WORKING AGAINST TIME AND TIDE: *Storm by Storm, an Imperiled Coast Survives*

**K**erry Chauvin is blunt in assessing the need for the Morganza project. “Morganza’s the only hope for saving Terrebonne Parish before it all washes away,” declares the chairman and CEO of Gulf Island Fabrication, Inc. in Houma. “If Morganza’s not built, we’ll all have to move.”

Courtesy of LA Department of Tourism



Offshore drilling platforms in the Gulf of Mexico depend on suppliers based in southeastern Louisiana for delivery of equipment and materials.

For the 105,000 residents living within its proposed boundaries, survival itself may depend on this hurricane protection system. Without the Morganza project, their lives could be threatened, and their houses, towns and businesses could flood in storms and be swept into the waters of the Gulf of Mexico.

## ECONOMIC BENEFITS OF MORGANZA

The cost of hurricane protection is typically justified, for authorization purposes, by comparing its cost to the potential damages the project is designed to prevent. Aside from the lives it might save, Morganza will deliver benefits to coastal Louisiana that are measurable in purely economic terms.

Morganza is designed to:

- prevent saltwater contamination of drinking-water sources, resulting in lower costs for reservoir maintenance and water treatment facilities
- protect local business and industrial sites, thereby expanding commerce and reducing insurance costs
- protect infrastructure, including roads, ports, and oil and gas pipelines
- maintain navigation routes and

shipping channels and provide a safe harbor for watercraft

- preserve fisheries dependent on coastal wetlands
- maintain hunting, fishing and eco-tourism capacities

## NURTURING NATURE’S STORM BUFFER

Levees can halt storm surges and reduce flooding, but they can also damage coastal wetlands, Louisiana’s natural system of hurricane protection. A buffer between land and open water, wetlands absorb energy from wind and wave and moderate the size of storm surges. Barriers that starve wetlands by cutting them off from seasonal

Courtesy of USACE



Energy resources extracted from the Gulf of Mexico are transported through coastal Louisiana for distribution throughout the country. About a third of all the nation’s oil and gas supplies moves through the region’s pipelines and ports.

Courtesy of LA Department of Tourism



Hunting and fishing are major components of the coastal economy. Eco-tourism activities in the region, such as bird watching, hiking and camping, are estimated to contribute over \$200 million in annual revenues.

flows of fresh water diminish their productivity and protective capacity.

Morganza provides protection both by building artificial barriers and by fostering healthy wetlands. Using a lock, floodgates and water control features, Morganza maintains normal tidal and estuarine flows through the enclosed wetlands, distributing nourishing water. During storms, the structures close to stop storm surges as well as intruding salt water.

“Morganza is the first of its kind in



Courtesy of Judy Navarre

Despite its vulnerability to hurricane disaster, southeastern Louisiana continues to attract new residents to its coastal lifestyle. Morganza will protect recent developments and improvements to the infrastructure, as well as regional historic sites and environmental treasures.

providing hurricane protection and environmental benefits in the same system,” says Reggie Dupre, state senator for south central Louisiana. “There are communities on the verge of collapse for

which the project is a salvation. But in the final analysis, without a healthy wetlands system to buffer storms, the entire coast of Louisiana is in jeopardy.” ●

## ALLIED WITH NATURE: *Healthy Wetlands Provide Natural Protection*

If water was left to itself, without interference from man-made levees or canals, much of Louisiana's coastal environment would eventually return to a natural equilibrium. Fed with waterborne nutrients and sediment, wetlands would thicken and expand and once again buffer the mainland from storms.

But water flowing naturally would also affect the human presence, flooding houses, industry, ports and infrastructure, washing away the foundations of community and commerce. By these human measures, the cost of letting water go its own way is unimaginable, yet the environmental price of controlling water is also high. The decline and disappearance of the wetlands, largely a result of human attempts to control the flow of water, exacerbate the area's vulnerability to hurricanes.

### WETLANDS PROVIDE NATURAL PROTECTION

Like most structures that alter hydrology, levees can impact the environment. In designing the Morganza project, the

challenge is to devise a 72-mile system of levees that benefits the human population without degrading the environment. To be successful, the project must bar water from



A floodgate in Terrebonne Parish holds back an eight-foot storm surge, protecting the wetlands and communities to the north from inundation.

flooding the region during hurricanes, and yet permit a healthy flow of water through the wetlands under normal conditions.

"Morganza is environmentally sensitive in two important ways," says Dr. Denise

Reed of the University of New Orleans. "First, by using hydrologic barriers already in place — existing levees, roadbeds and naturally higher ground — it minimizes the impact of construction on adjacent wetlands. Secondly, water control features built into the levee will maintain hydrologic exchange through the system and allow nutrients, sediment and marine organisms to flow in and out with the water."

Courtesy of Jerome Zerique, TLCD

Normally left open, these water control structures would close during hurricanes, blocking storm surges that could flood the enclosed area and drive salt water into the marshes. Similarly the lock on the Houma Navigation Canal would keep storm surges from sweeping up the channel and prevent seasonally high saline waters from displacing waters of lower salinity. In spring, the lock could act as a

dam, forcing the sediment-rich Atchafalaya River to spread out over the coastal marshes.

Morganza is designed to nurture healthy wetlands, which in turn moderate

Courtesy of Jerome Zeringue, TLCD



Water control features such as this gate allow a flow of tidal water under normal conditions, but hold back floodwaters during storms.

the threats of storms and floods. Benefiting human communities and the natural environment simultaneously, Morganza complies with the goals of the Coast 2050 plan: to sustain the natural ecosystem, to restore diverse and productive wetland acreage, and to do so in ways that benefit

not only the region's ecology, but the region's people as well.

### HET TEAM'S GOAL: Healthy Wetlands

To help design the Morganza system, the Corps formed a Habitat Evaluation Team (HET) with representatives from 11 federal and state environmental-resource agencies. "The idea of HET," says Nathan Dayan, Corps environmental manager, "was to involve these agencies early in the decision-making process. For the Corps, this reflects a trend toward increasing both its cooperative efforts and environmental sensitivity."

The habitat team helped to assess the project's impact on wetlands and develop a mitigation plan. Its criteria for recommending a project design required that:

- the project's footprint have the smallest possible impact on the wetlands

- aquatic resources could pass readily through the system
- water quality was not compromised by stirring up and spreading contaminants
- unique requirements of local species were recognized
- the design would operate as close to the natural process as possible, and would be operated as designed
- needed hurricane protection was provided to communities
- cultural and historic sites were identified, studied and preserved where feasible

Agencies participating on the habitat evaluation team will continue to work on the project, assisting the Corps in preparing environmental assessments and advising on construction issues. Once Morganza is built, each agency will monitor the system's environmental effects and help Terrebonne Levee and Conservation District develop guidelines for its operation. ●

### The Habitat Evaluation Team (HET) presently includes members from the following agencies:

- Environmental Protection Agency
- Louisiana Department of Natural Resources, Coastal Management Division
- Louisiana Department of Natural Resources, Coastal Resource Division
- Louisiana Department of Transportation and Development
- Louisiana Department of Wildlife and Fisheries
- National Oceanographic and Atmospheric Administration – Fisheries
- Natural Resource Conservation Service
- Terrebonne Levee and Conservation District
- Terrebonne Port Commission
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service

## MORGANZA INTERVIEW: Jerome Zeringue

### Executive Director of Terrebonne Levee and Conservation District

**Morganza Report:** *The Morganza project will create 72 miles of uninterrupted levee and affect the flow of water over hundreds of square miles in a region that's already in an environmental crisis. Won't this project result in the loss of even more of Louisiana's coastal wetlands?*

**Zeringue:** The project has been carefully designed so that it won't harm the wetlands. Levees cause problems when they prevent a natural flow of water, and that won't happen with Morganza because the project will be built on natural ridges and existing drainage levees. Twenty-four gates and water control structures in the levee will open or close according to environmental conditions or storm activity, and in some places this will actually improve the hydrology.

**Morganza Report:** *According to the construction schedule, Morganza won't be finished for 15 years. Does that mean the parish will be as vulnerable 10 years from now as it is today?*

**Zeringue:** It doesn't mean that at all. The project doesn't have to be completed before it starts providing protection. Every mile of levee built or enhanced will

significantly reduce our vulnerability. Although Morganza isn't scheduled for completion until 2019, we'll be safer in the first year of construction than we are today.

**Morganza Report:** *A quarter-cent sales tax has been in place for two years. Why aren't we seeing any construction?*

**Zeringue:** Morganza is a big project with a price tag of \$700 million. And most of those dollars are federal, which means that Congress must allocate funds before the Corps of Engineers can begin construction. It's frustrating for those of us who face the threat of hurricanes on a day-to-day basis — it feels like things are at a standstill because we don't see new levees going up.

While I share the frustration, I also



Jerome Zeringue

Courtesy of Vincent Kremer

know that we've been able to make real progress while we're waiting for Congress to act. We've used those sales tax dollars to build or improve levees at the places we're the most vulnerable. But more importantly, we're getting a significant head start on the engineering and design of the entire 72-mile levee system and the Houma Lock, as well as on all the required state and federal permitting. Now I know that doesn't sound exciting, but, by being aggressive and doing this phase now, we'll be able to start construction

much sooner than if we just sat back and waited for something to happen.

**Morganza Report: *How much time are you saving?***

**Zeringue:** By refusing to resign ourselves to the usual schedule, we're two and a half years ahead of where we would have been — and that's a huge accomplishment. As long as the federal agencies are telling us, 'slow down, you're pushing too hard,' I know we're doing our job.

**Morganza Report: *Aren't you taking a chance by getting so far out front and doing work that hasn't been authorized by Congress?***

**Zeringue:** We're taking a risk, but not having hurricane protection is a much bigger risk. And we're not foolish. Everything we do is reviewed and approved by state and federal agencies.

I'm confident that the dollars we spend now will be credited as part of the match that will be required in the future.

**Morganza Report: *What's the greatest danger that you see for the project in the future?***

**Zeringue:** Our country's domestic priorities are focused on the economy and national security, and rightfully so. My greatest concern is that authorizing Morganza could fall outside that focus. That would be a terrible mistake because 18 percent of the nation's petroleum products and 25 percent of its natural gas move through this region. It's not difficult to see the national security and economic implications of a hurricane cutting off



Courtesy of Judy Navarre

Although human interests are most often used to justify flood protection projects, Morganza will shield the habitat of other regional denizens from damaging storm surges and saltwater intrusion as well.

that flow. That's a message Washington has to hear when it considers final authorization for this project. ●



**US Army Corps of Engineers**  
New Orleans District

**THE MORGANZA REPORT:  
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The *Morganza Report* is published by the U.S. Army Corps of Engineers to communicate news and issues of interest related to hurricane protection measures in the Morganza project region.

The Morganza project is a joint effort of the U.S. Army Corps of Engineers, Louisiana Department of Transportation and Development, and Terrebonne and Lafourche parishes to increase hurricane protection. The project uses federal, state and local funds.

Please address questions, comments and changes of address to:

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More information about the Morganza project is at <http://www.mvn.usace.army.mil>; click on *Hot Topics*. For coastal restoration information, click on *Environment*.

**About this issue's cover:**

Gathering force and speed over the waters of the Gulf of Mexico, tropical storms and hurricanes frequently strike Louisiana's coast. Making landfall in the autumn of 2002 as a weak Category 2 hurricane, Lili, shown here, was the second storm in a week's time to cause extensive flooding in the state's southern parishes.

## MORGANZA: *Questions and Answers*



**Q** *When will actual construction of Morganza begin?*

**A** The Corps will begin work on its portion of Morganza as soon as Congress authorizes the project for construction. The Houma Navigation Canal access road could be under construction as early as October 2004.

The Terrebonne Levee and Conservation District is using funds from state and local sources to finalize permits for building its part of the project. Construction will begin when the permitting process is complete, possibly also as soon as the fall of 2004.

**Q** *Has the final location of the levee been determined?*

**A** There may be some adjustment

to address soil conditions or concerns of property owners, but the general path of the levee has been selected. Cost-benefit analyses and environmental impact studies determined its location. Wherever practical, Morganza uses existing levees and runs along ridges, road banks and other high ground to minimize disturbance from construction.

**Q** *Why is the project called Morganza?*

**A** Initially the project included an area from the Morganza Spillway, north of Baton Rouge, to the Gulf of Mexico. Although subsequent studies indicated that the most feasible cost-effective system should begin near Houma, the project continued to be called Morganza.

**Q** *The levee is designed to hold back a weak Category 3 hurricane. What happens in a bigger storm?*

**A** Morganza would be unable to hold back the full force of a Category 4 or 5 hurricane, but it would serve to moderate its destruction and reduce the level of damage.

**Q** *What is happening with the money already allocated from state and local sources?*

**A** This money has allowed the project to move forward on the local level by funding the design and permitting processes. In making these advance preparations, the Terrebonne Levee and Conservation District ensures that the project will progress without delay once construction begins. ●



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