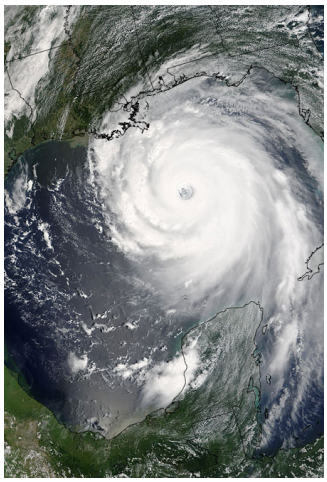
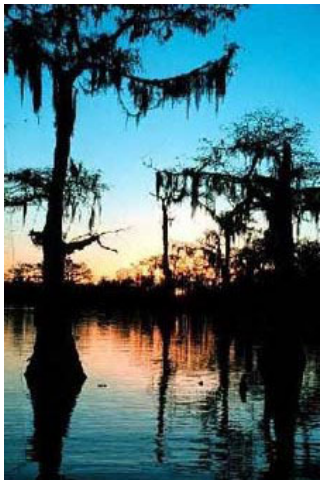
Storm Cloud Over New Orleans

Is the Big Easy Ready for the Next Big Storm?

By Sue Sturgis

June 1, 2006





A Special Report by

GULF COAST RECONSTRUCTION WATCH

A Project of the INSTITUTE FOR SOUTHERN STUDIES

STORM CLOUD OVER NEW ORLEANS was written by Sue Sturgis, editorial coordinator of Gulf Coast Reconstruction Watch, a project of the Institute for Southern Studies. For more coverage of critical Gulf issues, visit www.reconstructionwatch.org

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Storm Cloud Over New Orleans

As hurricane season begins, the city's storm-protection infrastructure remains unprepared

Hurricane season officially opens on June 1, and experts foresee another year of unusually intense storm activity.

Scientists at the University of Colorado are predicting a total of 17 named storms and nine hurricanes, five of them rated at a Category 3 or stronger on the Saffir-Simpson scale of 1 to 5. They calculate that the probability for at least one major hurricane hitting the Gulf Coast is 47 percent—well above the last century's average of 30 percent.[1] The National Oceanic and Atmospheric Administration also expects a very active season, with 13 to 16 named storms, eight to 10 hurricanes, and four to six major hurricanes.[2]

Unfortunately, the protective infrastructure in New Orleans—a city still recovering from the devastation wreaked by last year's Hurricane Katrina—remains unprepared to face another major storm.

Katrina was the costliest hurricane ever to hit the United States and one of the deadliest, killing more than 1,500 people. Making landfall in Louisiana's Plaquemines Parish 60 miles southeast of New Orleans on Aug. 29, 2005 as a strong Category 3 storm, Katrina's powerful storm surge and winds devastated vast areas of the Louisiana, Mississippi and Alabama coasts. The material damage has been estimated at $115 billion.

New Orleans was especially vulnerable to the slow-moving storm, as the city sits on a marsh below sea level and is surrounded on three sides by water: the Mississippi River to the south, Lake Pontchartrain to the north and Lake Borgne to the east. By Aug. 31, 80 percent of New Orleans was flooded, with some parts under 20 feet of water. Four of the city's protective levees and floodwalls—built by the U.S. Army Corps of Engineers reputedly to withstand a Category 3 storm—were breached. These man-made failures compounded a natural disaster to create a national tragedy.

In the intervening months, federal, state and local authorities have worked to understand what led to the drowning of New Orleans, and a number of efforts are underway to improve the city's protective infrastructure. But with hurricane season here, that infrastructure is still not ready to withstand an intense storm.

"If another Katrina were to occur tomorrow, you're going to have six feet of water overtopping some levees," Don Resio of the Army Corps of Engineers told a National Academies of Science committee May 15. "The levees will hold, but you're still going to have some amount of water inside the levees."[3]

Because the drowning of New Orleans was a national tragedy caused in large part by the design failures of federal engineers, the federal government must take immediate action to ensure the city's residents are adequately protected from another preventable disaster. To help the public and policymakers better understand what remains to be done, Gulf Coast Reconstruction Watch summarizes the status of four critical aspects of infrastructure affecting the city's readiness to withstand another severe storm: (1) levees and floodwalls, (2) pump systems, (3) coastal wetlands and (4) the Mississippi River-Gulf Outlet.

Construction Incomplete on Levees and Floodwalls

From the French word meaning "to raise," a levee is an earthen embankment built along a water body to keep it from overflowing, while a floodwall is a vertical protective barrier usually made of concrete. New Orleans is surrounded by some 350 miles of levees and floodwalls, designed largely by the U.S. Army Corps of Engineers as part of its Lake Pontchartrain and Vicinity Hurricane Protection Project, which aims to protect the city and surrounding areas from a Category 3 storm.

Despite spending more in Louisiana for hurricane protection than in any other state, the corps still failed to protect New Orleans from catastrophic flooding during Katrina. The major levee failures in the city occurred at the 17th Street Canal, the London Avenue Canal and the Industrial Canal. Flooding from the breaches left 80 percent of the city under as much as 20 feet of water. Originally it was thought that the storm surge had simply overtopped the city's levees, but independent investigations found that was not the case—that engineering design flaws, such as building atop weak soils and using unstable "I-beam" construction, were to blame.[4,5]

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- Don Resio, Army Corps of Engineers, May 15, 2006

Today the city's levees and floodwalls are still not ready to face another storm season.

The corps has not completed work needed to protect New Orleans from a Category 3 hurricane. Following Katrina, the corps launched the $800 million Task Force Guardian project to repair the city's faulty levees and floodwalls. For months, corps officials assured the people of New Orleans that the structures would be ready to protect them by the start of the hurricane season—but they now say they will not meet that deadline. As of mid-May, the corps estimated it had finished about 81 percent of the scheduled repair work.[6]

The corps is installing floodgates to protect weakened levees at the site of the breaches. The gates are designed to block storm surges from entering the canals, and they will be equipped with pumps to allow some rainwater to drain back into the lake. The corps expects installation of the gates and pumps at the Orleans canal to be completed by the June 1 target date, and the gate at the London Avenue location is on track to be completed by mid-June. But the corps expects to take at least until mid-July to install the pumps at the 17th Street Canal site, and it won't install floodgates until that time.[6]

The delay was a "huge disappointment," said U.S. Sen. David Vitter (R-La.) "I have been told for months that our system would be considerably stronger this season than the day before Katrina, though we had much more short-term work to do. I no longer have confidence in that being the case. The corps leadership is completely failed and the corps process completely broken."[7]

Questions remain about whether the work being done will be adequate to protect the city. Scientists who have conducted independent evaluations of the levee system's failures say that while the corps is nearing completion of its repair efforts, the improvements still may not protect the city in the event of another storm like Katrina. In fact, Ivor van Heerden of Louisiana State University's Hurricane Center believes that at this time the system could fully protect the city from only a Category 2 storm.[8]

Hard-hit parts of the city remain vulnerable to flooding. For example, in the Lower Ninth Ward—a largely African-American community that was devastated by Katrina's floodwaters—the corps

has built 4,000 feet of new levee and strengthened the floodwalls. However, the rebuilt eastern wall of the Industrial Canal, whose breach inundated the area, is now higher than the old wall on the canal's west side. As a result, a major storm would cause the western side to overflow first, sending floodwaters into the city.[8]

There is no effort underway to protect New Orleans from a Category 4 or 5 storm. The corps is still studying how to protect New Orleans from hurricanes more intense than Katrina, but Category 4 or 5 protection can't be built within the levees' existing footprint. Until Congress provides authorization for a massive overhaul, the rebuilt levee system will remain vulnerable to overtopping or collapse.[3]

The Bush administration has proposed spending $2.5 billion to strengthen New Orleans' levee system to 100-year protection, meaning there would be a 1 percent chance of structures being overtopped in any given year. It would take until 2010 to construct such a system, bringing the total cost of levee repair and improvement since Katrina to about $6 billion. But many engineers and scientists say that a comprehensive protection plan for the city—including measures to adequately address wetlands loss—would cost 10 times that amount.[9]

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- Sen. David Vitter (R-La.)

Corroded Pumping Stations and Workers Neglected

To keep low-lying areas from flooding during storms, New Orleans Sewerage and Water Board operates a system of 22 massive drainage pumping stations throughout the city, with the capacity to pump out of the city more than 29 billion gallons of water a day.[10] But there are serious problems with the pumping system.

The pumps remain in a state of disrepair. During the post-Katrina flooding, the pumps' electric motors were corroded by brackish water, and there has been no concerted effort to test and repair the entire system. As a result, during a relatively light rainstorm in late April, three pumps failed.[11] Two other pumps were similarly burned up months ago, bringing the total of failed pumps to five.[12]

At a meeting held in April to discuss the pump problems, representatives of a neighborhood group called the Broadmoor Improvement Association said they believe the system is prone to breaking down. They blamed the Army Corps of Engineers for not starting repairs months ago as part of its work on the city's storm protection infrastructure. S&WB Director Marcia St. Martin acknowledged that repairs aren't scheduled to be finished until 2007 at the earliest.[12]

The corps plans to spend about $40 million over the next year or more to overhaul all flooded pump motors, but the Broadmoor group compared the work to emergency repairs that should have begun months earlier. A corps official said that while they were working to repair the three motors that burned in April, the rest of the contract for the pump work still had not been put out to bid as of late April—eight months after Katrina.[12]

Who controls certain pumping stations remains in dispute. In mid-May, officials in Orleans and Jefferson parishes were still squabbling over control of two huge stations, including one that drains neighborhoods near Lake Pontchartrain that flooded heavily during Katrina.[13]

New Orleans' evacuation plan does not address pump operators. Mayor Ray Nagin's new blueprint for evacuating residents in case of a storm does not include instructions for sheltering or rescu-

ing the city's pump station employees, who were left on their own during Katrina. Some of them have said that, in the absence of such a plan, they will refuse to work during the approach of a major hurricane.[14]

"I'll stay if I'm reassured they got a way to come and get me," pump operator Nestor James told the Times-Picayune. "If they don't, I'm not staying. That's the bottom line. I'm not going through what I went through last time."

Disappearing Wetlands Increase Storm Vulnerability

Over the past century, Louisiana has suffered a net loss of more than 1.2 million acres of coastal wetlands and continues to lose about 35 square miles of wetlands per year—the fastest loss rate in the nation.[15] This makes the state more vulnerable to hurricane damage, since wetlands help reduce surge, absorb wave energy and lessen the effects of daily wave action. Every mile of coastal wetlands is estimated to reduce storm surge by about one foot.[15]

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- Nestor James, pump operator

Louisiana's wetlands are being converted to open water largely as a result of human activity. Ironically, the building of flood control levees has contributed to wetlands loss by preventing the Mississippi River from overflowing its banks and depositing fresh sediment. Canals dug in the wetlands—many of them connected to oil and gas drilling and production operations—have eroded marshes and provided a conduit for saltwater, which in turn kills vegetation needed to stabilize the land. Sea rise from global warming is also accelerating wetlands losses.[16]

If the current rate of loss continues, an additional 800,000 acres of wetlands will disappear by 2040—and the Louisiana shoreline will move inland as much as 33 miles in some places.[15]

Funding for needed wetlands restoration remains uncertain. In 2004, the Army Corps of Engineers worked with the state of Louisiana and other stakeholders to craft a restoration plan known as the Louisiana Coastal Area project. Even before Katrina, it was estimated that a comprehensive plan to repair and restore the state's wetlands and barrier islands would take $14 billion and 30 years. The LCA offered a more modest 10-year, $1.9 billion scaled-down plan.[17] But even the more modest LCA plan isn't funded yet. And while the Bush administration says it wants to spend $2 billion over 10 years on the most promising restoration projects, Congress has yet to authorize that spending.[18]

Congress has not approved a tax proposal to fund restoration. Louisiana officials have been pressing Congress to give the state a portion of oil and gas severance taxes from the Outer Continental Shelf in order to pay for its share of the restoration plan. However, Congress has not approved the request.[19]

"Gulf Coast states provide the oil and gas that keep our nation's lights on, but we get nothing in return to help offset our costs," Sen. Mary Landrieu (D-La.) said in testimony before the Senate Energy Committee on May 4.[20] "The only solution to this problem is coastal impact assistance in the form of an equitable revenue sharing plan."

Scientists question the adequacy of restoration plans. In an assessment of the LCA restoration plan published earlier this year, a National Research Council committee found that the majority of the plan's proposed projects were scientifically sound. But it also said the plan fell short of the type of integrated, large-scale effort needed for such an enormous undertaking.[17]

"Federal, state, and local officials, with the public's involvement, need to take a broader look at where land in coastal Louisiana should and can be restored, and at how some of the sediment-rich water of the Mississippi River should flow to achieve that," said Robert Dean, chair of the committee that issued the report.[21]

Delays put restoration efforts at risk. In April 2006, a conference organized by America's WETLAND—the state's coastal restoration public relations arm—and underwritten by oil giant BP America brought together scientists, environmentalists and public officials to refocus attention on the $14 billion plan. Participant Robert Twilley, a Louisiana State University biologist involved in the coastal restoration effort, said continued delays will reduce the area of salvageable wetlands.[19] "If we don't start now, we will run out of time," Twilley warned.

"Hurricane Superhighway" Remains a Threat

A 76-mile waterway winding through Louisiana's wetlands to connect the Mississippi River with the Gulf of Mexico, the Mississippi River-Gulf Outlet—MR-GO, known to locals as "Mr. Go"—provides an alternate shipping route to the Port of New Orleans. The U.S. Army Corps of Engineers completed the structure in 1965 at a cost of $92 million, promoting it as an economic boon to the New Orleans area.

The 36-foot-deep waterway—now so silted that it's virtually unusable—has proven environmentally ruinous. MR-GO has destroyed more than 20,000 acres of wetlands, altered the ecology of thousands more acres and serves as a "hurricane superhighway" into the city. Computer models suggest that MR-GO boosted Katrina's storm surge by two feet.[22] In addition, MR-GO breached its levees in about 20 places, contributing to the flooding of New Orleans East, St. Bernard Parish and surrounding communities.

"If you needed a poster child for the destruction of wetlands, the MR-GO would serve the role quite well."
- Darryl Malek-Wiley, Louisiana Sierra Club

"If you needed a poster child for the destruction of wetlands, the MR-GO would serve the role quite well," said Darryl Malek-Wiley of the Louisiana chapter of the Sierra Club. "Because of erosion, the width of the channel has increased from 650 feet to more than 2,000 feet—more than three times as big as it was originally dredged. This sharply increases its potential to serve as a conduit during hurricanes."[23]

Calls to shut down MR-GO have gone unheeded. The Sierra Club has called for the closing of MR-GO, as has the St. Bernard Parish Council, U.S. Sen. Mary Landrieu (D-La.) and U.S. Sen. David Vitter (R-La.). In February, the Louisiana State Legislature passed a resolution urging Congress to close the route, and Congress passed a resolution halting its upkeep.[24]

In April of this year, five New Orleans-area residents who lost homes or businesses in Katrina filed a federal civil lawsuit against the corps seeking an unspecified amount of damages related to MR-GO. The suit claims the corps was negligent in its design, construction, maintenance and operation of the structure.[25]

In May, the Senate passed an emergency supplemental appropriations bill to provide $12 billion to Louisiana, including $3.5 million for a plan to close MR-GO and address wetland losses caused by the structure. A conference committee that includes Landrieu is now working out differences between the House and Senate versions of the bill.[26]

Meanwhile, hurricane season is here, and MR-GO is still putting New Orleans at risk.

NEW ORLEANS HURRICANE PREPAREDNESS by the numbers

Number of major hurricanes expected this year, according to the National Oceanic and Atmospheric Administration: 4-6

Probability that at least one major hurricane will hit the U.S. Gulf Coast this year, according to University of Colorado scientists: 47 percent

Average probability of that occurrence over the last century: 30 percent

Portion of New Orleans flooded after Katrina: 80 percent

Storm category the Army Corps of Engineers built New Orleans' protective structures to withstand, and category of Katrina: 3, 3

Portion of scheduled levee and floodwall repairs Corps had completed in New Orleans as of mid-May: 81 percent

Number of efforts underway to protect New Orleans from a Category 4 or 5 storm: 0

Amount the Bush administration has proposed spending to strengthen New Orleans' levee system to 100-year protection: $2.5 billion

Earliest year by which the strengthened system could be completed: 2010

Number of New Orlean's 22 pumping stations that have failed since Katrina due to corrosion of the electrical motors by the storm's floodwaters: 5

Year by which Corps' repair schedule will put the pump system at full health: 2007

Sections of New Orleans' official evacuation plan that address pump operators: 0

Amount of coastal wetlands Louisiana continues to lose each year: 35 square miles

Louisiana's national rank in terms of coast wetlands loss: 1

Estimated cost of a comprehensive plan to restore Louisiana's coastal wetlands: $14 billion

Cost of the Corps' Louisiana Coastal Area repair and restoration plan: $1.9 billion

Amount of funding authorized to date for LCA plan: $0

Cost for Corps to build the Mississippi River-Gulf Outlet in 1965: $92 million

Area of wetlands destroyed by MR-GO: 20,000 acres

Estimated amount by which MR-GO boosted Katrina's storm surge into New Orleans: 2 feet

Amount included bill for the closing of MR-GO in U.S. Senate's emergency supplemental appropriations, which has not yet become law: $3.5 million

2006 Gulf Coast Reconstruction Watch/Institute for Southern Studies

Resources

Advocacy and Community Organizations

Levees for Greater New Orleans
www.levees.org

Louisiana Environmental Action Network
www.leanweb.org

Louisiana Sierra Club
www.louisiana.sierraclub.org

Coalition to Restore Coastal Louisiana
www.crcl.org

Government Websites

Louisiana Rebuilds (public/private collaboration)
www.louisianarebuilds.info

Louisiana Department of Environmental Quality (LDEQ)
www.deq.louisiana.gov

US Army Corps of Engineers, New Orleans District
www.mvn.usace.army.mil

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ABOUT GULF COAST RECONSTRUCTION WATCH

Gulf Coast Reconstruction Watch — **www.reconstructionwatch.org** — was launched in November 2005 to document and investigate the rebuilding of the Southern Gulf in the wake of Hurricanes Katrina and Rita. Through original reporting, in-depth features, voices from community leaders, and other unique coverage, Watch aims to promote a more democratic and accountable reconstruction in the South.

Gulf Coast Reconstruction Watch is a project of the **Institute for Southern Studies** and ***Southern Exposure*** magazine. Founded in 1970 by civil rights veterans, the Institute is a non-profit research and education center that combines research, media and organizing programs to promote a democratic, just and sustainable future in the South. *Southern Exposure,* the Institute's flagship publication, has garnered dozens of prestigious awards for its insightful coverage of the South, including the National Magazine Award for Public Interest Reporting, the John Hancock Award for Business and Financial Journalism, and most recently the George Polk Award for Magazine Reporting.

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