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Editorial

# Faulty Levees

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Published: September 22, 2005

The official explanation for the collapse of some of the flood walls protecting New Orleans has been that Hurricane Katrina simply overwhelmed the system. But reports yesterday in both [The Washington Post](#) and [The New York Times](#) suggested that Katrina might not have been as powerful as advertised and that the real culprit was the system itself - flood walls so poorly constructed that they were easily breached.

This points a finger at either the Army Corps of Engineers, which oversaw the design and construction of the flood walls, or Congress, which appears to have underfinanced the projects, or both.

Corps officials have said all along that the system was not designed to protect the city from hurricanes larger than Category 3, and corps spokesmen continue to insist that Katrina was a Category 4 hurricane when it hit the Gulf Coast. But federal meteorologists now say that New Orleans did not get the full brunt of the storm, whose strongest winds passed dozens of miles east of the city. What's more, sustained winds over Lake Ponchartrain reached only 95 miles per hour, even less than the winds of 111 to 130 miles per hour in a Category 3 storm.

Other research, meanwhile, has turned up serious weaknesses in the thinner and less stable flood walls built along

the city's canal system beginning in the 1960's. The failure of these walls - particularly along 17th Street and London Avenue - led to much of the devastation.

Here again the research seems to contradict the official version, which is that extraordinary surges reached the top of or even "overtopped" the flood walls, causing some sections to collapse. Yet Louisiana State University researchers doubt the water ever got that high. Even if it had, they argue, it would have been contained by properly constructed flood walls - essentially concrete slabs that resemble the sound barriers found beside highways.

A detailed analysis of the storm and of the city's defenses will take months. It is not clear, for instance, whether the flood walls' weaknesses were the result of faulty engineering and shoddy workmanship on the corps' part or whether they resulted from Congress's unwillingness over the years to provide enough money and leadership to do the job properly. What is clear is that whatever investigation Congress undertakes, either on its own or with outside counsel, it must meet high standards of diligence and spare no one, including those in Congress.

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## Experts Say Faulty Levees Caused Much of Flooding

By Michael Grunwald and Susan B. Glasser

Washington Post Staff Writers Wednesday, September 21, 2005; Page A01

NEW ORLEANS, Sept. 20 -- Louisiana's top hurricane experts have rejected the official explanations for the floodwall collapses that inundated much of New Orleans, concluding that Hurricane Katrina's storm surges were much smaller than authorities have suggested and that the city's flood- protection system should have kept most of the city dry.

The Army Corps of Engineers has said that Katrina was just too massive for a system that was not intended to protect the city from a storm greater than a Category 3 hurricane, and that the floodwall failures near Lake Pontchartrain were caused by extraordinary surges that overtopped the walls.

But with the help of complex computer models and stark visual evidence, scientists and engineers at Louisiana State University's Hurricane Center have concluded that Katrina's surges did not come close to overtopping those barriers. That would make faulty design, inadequate construction or some combination of the two the likely cause of the breaching of the floodwalls along the 17th Street and London Avenue canals -- and the flooding of most of New Orleans.

In the weeks since Katrina drowned this low-lying city, there has been an intense focus on the chaotic government response to the flood. But Ivor van Heerden, the Hurricane Center's deputy director, said the real scandal of Katrina is the "catastrophic structural failure" of barriers that should have handled the hurricane with relative ease.

"We are absolutely convinced that those floodwalls were never overtopped," said van Heerden, who also runs LSU's Center for the Study of Public Health Impacts of Hurricanes.

In an interview Tuesday, Corps spokesman Paul Johnston said the agency still believes that storm surges overtopped the concrete floodwalls near the lake, then undermined the earthen levees on which they were perched, setting the stage for the breaches that emptied the lake into the city.

Johnston said the Corps intends to launch an investigation to make sure it is correct about that scenario. But he emphasized that Katrina was a Category 4 hurricane when it smashed into the Gulf Coast, whereas Congress authorized the Corps to protect New Orleans against a storm only up to Category 3. "The event exceeded the design," Johnston said.

The center's researchers agree that Katrina's initial surge from the southeast overwhelmed floodwalls along the New Orleans Industrial Canal, flooding the city's Lower Ninth Ward as well as St. Bernard Parish. They believe that a little-used Army Corps navigation canal known as the Mississippi River Gulf Outlet helped amplify that surge, although they acknowledge that this surge was larger than the system was designed to control.

But the researchers have strong evidence that Katrina's subsequent surge from the north was several feet shy of the height that would have been necessary to overtop the 17th Street and London Avenue floodwalls. It was the failures of those floodwalls that emptied the lake into the rest of the city, filling most of New Orleans like a soup bowl.

On a tour Tuesday, researchers showed numerous indications that Katrina's surge was not as tall as the lakefront's protections. They showed a "debris line" that indicates the top height of Katrina's waves was at least four feet below the crest of Lake Pontchartrain's levees. They also pointed out how the breached floodwalls near the lake showed no signs of overtopping -- no splattering of mud, no drip lines and no erosion at their bases. They contended that the pattern of destruction behind the breaches was consistent with a localized "pressure burst," rather than widespread overtopping.

The center has also completed a computerized "hindcast" of Katrina, which has confirmed the evidence before their eyes. Their model indicates that most of the surge around the lake and its nearby canals was less than 11 feet above sea level, and that none of it should have been greater than 13 feet. The Army Corps's flood-protection system for New Orleans was designed to handle surges of more than 14 feet above sea level.

"This should not have been a big deal for these floodwalls," said oceanographer G. Paul Kemp, a hurricane expert who runs LSU's Natural Systems Modeling Laboratory. "It should have been a modest challenge. There's no way this should have exceeded the capacity."



Workers repair a section of the levee at the 17th Street Canal, which breached and caused flooding. (By Ricky Carioti -- The Washington Post)



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Hurricane Katrina brought unprecedented destruction to the Gulf Coast. View the Post's multimedia coverage of the disaster. (Ricky Carioti - The Washington Post)

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