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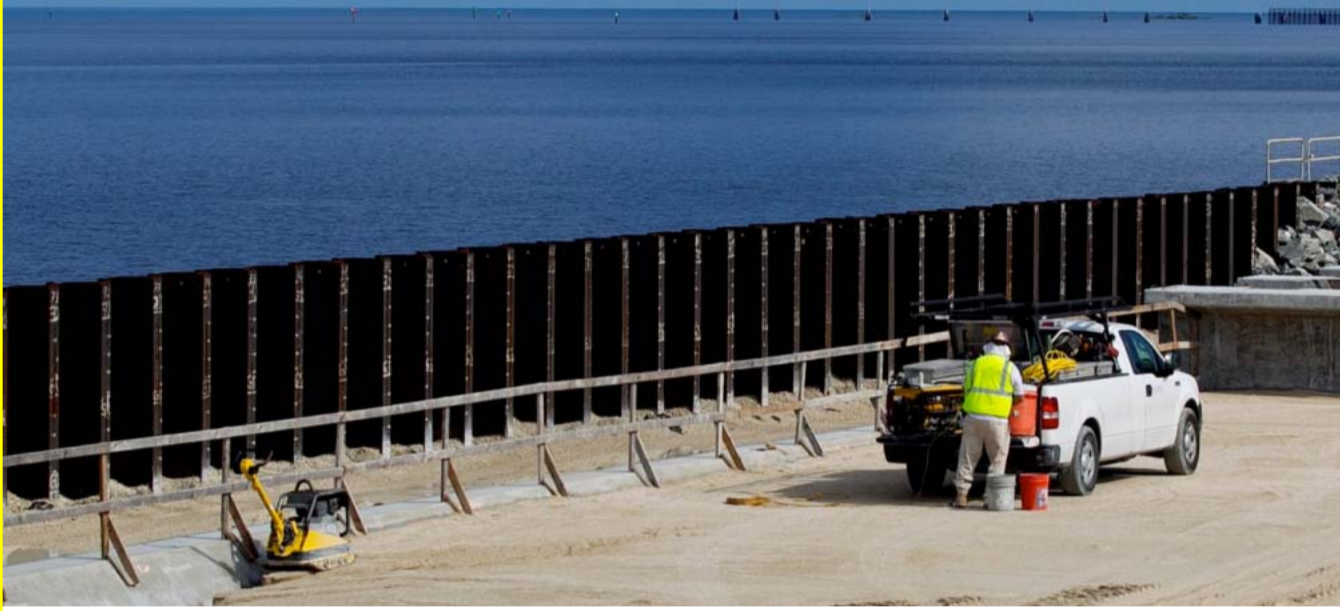
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# Miami Herald

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H3

## On the brink of disaster



JOE RIMKUS JR./MIAMI HERALD STAFF

**VULNERABLE:** Steel wall holds back water from Lake Okeechobee as the Army Corps of Engineers works on the 80-year-old Herbert Hoover Dike. The dike remains on a national shortlist of unsafe Class 1 dams.

### A project to shore up the levee around Lake Okeechobee has made progress — but not enough to avert catastrophe

BY CURTIS MORGAN  
cmorgan@miamiherald.com

**CANAL POINT** — For two decades, reports from government engineers and outside experts have reached largely the same conclusion about the Herbert Hoover Dike: The levee ringing Lake Okeechobee is a disaster waiting only for high water to happen.

Even after the U.S. Army Corps of Engineers completed a \$220 million-plus overhaul to shore up its most vulnerable stretch this year, the dike remains on a national shortlist of unsafe Class 1 dams. It's a category defined as either "almost certain to fail under normal operations" or at extreme risk of failure with high fatalities and economic losses.

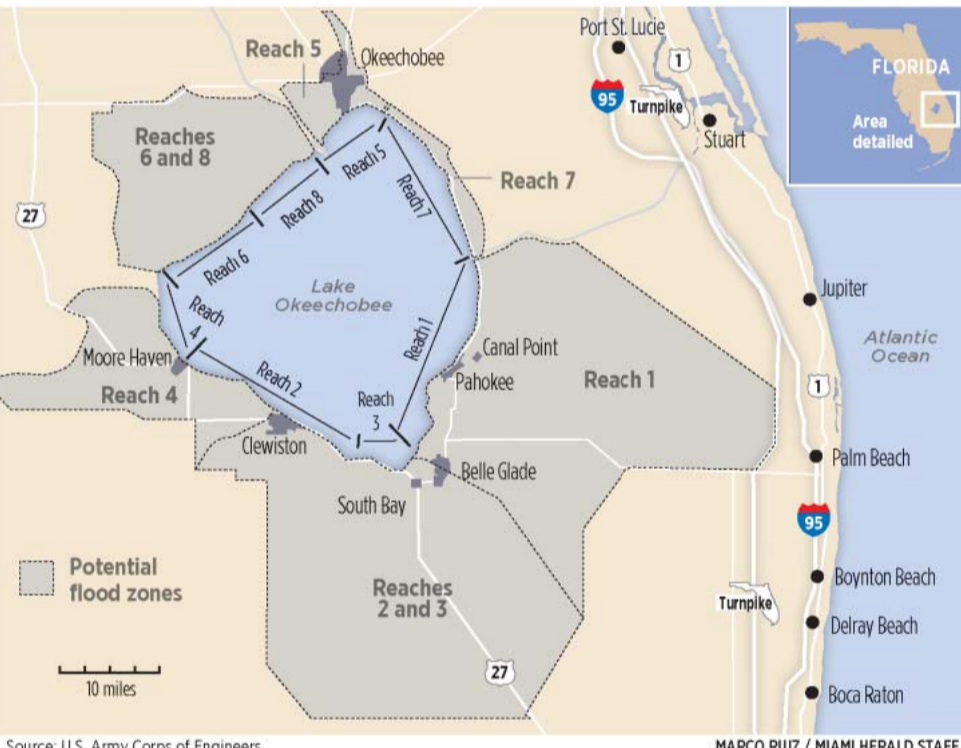
The Corps' "tolerable failure rate" for dams is once every 10,000 years. One 2011 risk assessment estimated the dike's probable failure rate at every 14 years.

"Right now, Herbert Hoover is one of a handful of our

• TURN TO OKEECHOBEE, 16A

### Lake O flood zones

A breach in the 143-mile-long Herbert Hoover Dike could flood vast swaths surrounding Lake Okeechobee. A 2011 study commissioned by the U.S. Army Corps of Engineers analyzed the impact of failures along sections of the levee, called reaches. The Corps cautions that the computer-based simulation, based on an unlikely 25-foot water level in the lake, shows only general areas that could flood. Depths would vary and not every area would be impacted at one time.



Source: U.S. Army Corps of Engineers

MARCO RUIZ / MIAMI HERALD STAFF

### STEROIDS SCANDAL

## Grand jury digs into MLB 'secrets'

■ The MLB scandal intensified as a grand jury took possession of records showing ballplayers' — and others' — steroid use.

BY JULIE K. BROWN  
jbrown@miamiherald.com

If Major League Baseball's "dirty dozen" suspended ballplayers thought their steroid problems were behind them, they were wrong.

On Friday, the whistleblower whose records linked New York Yankees slugger Alex Rodriguez and 12 other ballplayers to a South Florida doping clinic was summoned before a federal grand jury, two sources close to the case told the Miami Herald.

Porter Fischer, the clinic's former marketing director, was ordered to turn over the records that shook Major League Baseball to its foundation — and now may lead to criminal drug charges against the clinic's owner, Anthony Bosch, his partners, his suppliers and, depending on their involvement, even his clients.

"It's going to make a lot of people start sweating now," said Miami lawyer David Weinstein, former chief of narcotics for the U.S. Attorney's Office in Miami.

"This was pretty much the players' dirty little secret. Now someone else is looking at their dirty little secret."

Among Bosch's alleged clients: more than 100 athletes, as well as police officers, lawyers, judges and high school students.

Federal investigators are zeroing in on the clinic's entire distribution network, including looking into

• TURN TO MLB, 2A

### ECONOMY

## Beacon Council ends guessing game, picks outsider as new chief

■ Miami-Dade's economic-development group opted against a local insider, instead hiring North Carolina native Larry Williams from the Atlanta Chamber of Commerce.

BY DOUGLAS HANKS  
dhanks@miamiherald.com

The Beacon Council tapped as its new president and CEO a veteran of the economic-development front who currently runs the technology arm of the Atlanta Chamber of Commerce.

Larry Williams, 49, was picked by the tax-funded group's board as the replacement for Frank Nero, the longtime head of the Beacon Council who was ousted earlier this year amid tension with Miami-Dade's elected officials. The Beacon Council is an independent nonprofit that relies on Miami-Dade taxes for the majority of its budget. Its mission is to recruit companies to Miami-Dade and promote economic growth in the county.

"Miami has a lot of great things going for it," Williams said in an interview at the group's Brickell Avenue headquarters in Miami. "It seems to be doing well."

In picking Williams, Beacon Council leaders opted for an executive with experience in the economic-development business, rather than a local candidate well-versed in Miami-Dade politics. PortMiami

• TURN TO BEACON, 17A



WILLIAMS

### ECUADOR

## Move to halt park-oil protection faces fight

■ As Ecuador said it was ending a program to keep crude oil underground, a coalition of indigenous and environmental groups vowed to save it.

BY JIM WYSS  
jwyss@miamiherald.com

**BOGOTA** — Ecuador is killing an ambitious conservation program intended to leave more than 800 million barrels of oil beneath a pristine swath of the Amazon. But on Friday it was clear that the Yasuni-ITT Initiative, as it's known, won't die easily.

A coalition of environ-

mental and indigenous groups is vowing to keep the government and oil companies out of the area, which is rich in animal species and isolated tribes.

"The government doesn't have the right to dissolve the Yasuni-ITT Initiative because this doesn't belong to them," said Esperanza Marti-

• TURN TO YASUNI, 2A



**PULLING THE PLUG:** In a speech Thursday, Ecuador's President Rafael Correa said he has abandoned the Yasuni-ITT Initiative.

DOLORES OCHOA/AP

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## LAKE OKEECHOBEE | DISASTER SIMULATION

# How dike breach could flood vast swaths

■ A burst in the dike would test mass evacuation plans for towns around Lake Okeechobee.

BY CURTIS MORGAN  
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A breach of the Herbert Hoover Dike would almost certainly rank as a catastrophe — but the scope and scale of loss would vary widely depending on where and when it burst and how much water was in Lake Okeechobee.

If the worst did happen, the U.S. Army Corps of Engineers, regional emergency managers and local leaders hope they have taken steps to — at the very least — minimize the death toll.

“I would like to hope and pray that it’s not as much a life safety issue anymore,” said longtime Palm Beach County Administrator Robert Weisman.

After Hurricane Katrina overwhelmed the protective levees surrounding New Orleans and killed some 1,800 people in 2005, South Florida emergency managers for the first time drew up mass evacuation plans for towns that suffered deadly flooding from Lake Okeechobee during hurricanes in 1926 and 1928. The Corps, meanwhile, says it has strengthened the dike’s most vulner-

able 21-mile stretch.

But at high water levels, the dike remains a high-risk hazard for potentially devastating flooding. A major failure could send torrents through lakeside towns and muddy water to the suburban outskirts of Palm Beach County.

## ‘SO MANY VARIABLES’

Corps spokesman John Campbell said it’s difficult to predict what might happen. “There are just so many variables,” he said. “A lake at 17 feet is going to be very different than a lake at 20 feet. Certainly, the higher the lake level, the more that would actually be felt.”

A hurricane battering embankments or pushing the lake over the levee could also multiply the threats.

A Corps-funded simulation of breaches presented at a 2011 national dam safety conference mapped out huge swaths of lakeside land vulnerable to flooding. The simulation underlined what history has already shown. The biggest threats and impacts would come along the southern bank, where the dike protects 40,000 resi-

dents living along the lake’s most populated stretch from Clewiston to Pahokee.

In an extreme worst-case failure, the simulation extended flood waters more than 20 miles, spreading south and east across an expanse dominated by sugar farms. The deepest pools would collect in areas that have subsided by several feet after decades of farming on eroding peat soils that were once Everglades marsh. Much of the area is still farmed but homes and apartments also have been built in some of the lowest-lying areas near the lake.

The modeling suggests elevated roads, railroad tracks and levees would help contain much of the water as it neared western Palm Beach County’s suburbs.

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While federal engineers openly discuss dike deficiencies the Corps remains reluctant to provide details, maps or modeling of the potential consequences of a failure, citing security con-

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“We try and balance the risk of making sure the public is informed, and keeping the public safe with operational security of not allowing others to know what our vulnerabilities are,” said Lauren Borocharner, engineering division chief of the Corps’ Jacksonville office, which monitors and maintains the dike.

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could be inundated.”

While anything or anyone directly in the path of billions of gallons of roaring water would be in danger, Vince Bonvento, director of public safety for Palm Beach County, said that with a vast area to absorb runoff, he doesn’t anticipate lakeside towns would experience the deadly flooding of Katrina.

## ‘WADING IN WATER’

“What happened in New Orleans, that’s not going to happen with a breach of the dike out there,” Bonvento said. “People obviously would be wading around in water but not to the point where their houses would be covered.”

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looming failure. But ultimately, said Campbell, local emergency managers must make any call to evacuate.

Bonvento said he considers the chances of a dike failure “slim.” Still, with the lake hovering near 16 feet, a Category 2 or stronger hurricane tracking from the east or west toward Lake Okeechobee would concern him. He said he’d be inclined to order lakeside communities to get out. “I think we would still err on the side of caution,” he said.

Evacuations are common in coastal South Florida but a mass evacuation around Lake Okeechobee would be unprecedented, calling for school buses to ferry residents who can’t provide their own transportation.

“From an emergency management perspective, it puts a lot more pressure on us to have to decide on evacuating the Glades cities,” said county administrator Weisman. He hopes any breach would come in an isolated area and with plenty of warning. “If it happened during a storm, it would be a horrible situation because getting the resources together and trying to get people out of there would be a nightmare.”

## ENVIRONMENT

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• OKEECHOBEE, FROM 1A

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“There is still a long way to go in the wet season,” cautioned Lt. Col. Thomas Greco, the Corps’ deputy district commander.

## ‘SEEP’ SITES

Water levels, hovering just below 16 feet, remain near all-time highs for mid-August and an inspection last week found slightly more water leaking from two past “seep” sites. The minor leaks are nothing to worry about yet, Greco said — the combined volume of three gallons a minute is not even a drop in Lake O’s bucket.

But they indicate what could come with more rain. At 16.5 feet, inspections shift from weekly to daily. From there, every added inch on the lake increases pressure on the dike along with risks of more serious leaks or even a major breach.

The Herbert Hoover Dike, much of it built in the 1930s after two hurricanes overwhelmed a crude levee and drowned some 3,300 people in lakeside towns, is a massive structure. It’s 143 miles long and as broad as a football field at its base. At 25 to 30 feet high, it stands taller than most buildings in its shadow.

But an ongoing \$44 million Corps project to overhaul two culverts along the southeastern shoreline illustrates the biggest underlying problem: The dike that protects surrounding communities from a lake roughly twice the size of Biscayne Bay is a mammoth but dete-

riorating antique that doesn’t come close to modern engineering standards.

“The Herbert Hoover Dike is a huge reservoir that benefits South Florida but it’s also a gun pointed at South Florida,” said Steven Vick, a Colorado-based dam safety consultant and co-author of a 2006 report commissioned by that state that branded the dike “a grave and imminent danger” with a one-in-six chance of failing in any given year.

The headwall of a new culvert, which allows water to flow from the lake to surrounding farms, looks like a hulking fortress, a mass of concrete and steel several stories tall and 500 feet wide. Comparing it to old culverts is like putting a vintage Army jeep next to a modern M-1 Abrams tank.

The Corps is designing the new culverts to the higher standards of a modern dam, capable of enduring the immense pressure of a 26-foot lake level. That’s more than seven feet higher than the lake has ever been and well beyond the 21-foot level considered almost certain to burst unrepaired portions of the existing levee.

The Corps is in the process of replacing half the 32 culverts around the lake that are now viewed as the greatest risk to the dike’s stability, a project expected to take until at least 2018.

But they are far from the only weak points. The massive embankments themselves hide a weakness: decades of internal erosion.

The dike was built from material dredged up along Lake Okeechobee’s shoreline — a varying mix of sand, shell, rock, muck and peat. It was built to provide seasonal flood protection but over time, it’s been turned into a holding tank for flood waters and reservoir for sugar farms.

The higher year-round water levels have exposed an aging levee to forces it was never designed to endure, said dam expert Vick.

Water seeping through cracks and crevices has cut damaging channels inside called “piping.” As lake levels and water pressure increase, the piping can grow into caverns that can potentially undermine the dike. A hurricane piling storm surge against the dike can dramatically worsen the strain.



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The Corps has made repeated emergency repairs, always managing to prevent a serious breach.

But with the dike in continuing decline, Vick said, sandbags aren’t the solution.

“It’s like you had the little Dutch boy trying to cover 140 miles of dike with his fingers,” Vick said.

The 2006 report Vick co-authored, which was commissioned by the South Florida Water Management District, put a harsh spotlight on dangers from the dike. But it was hardly the first warning. In crafting the report, the state’s experts drew on decades of damage reports and studies documenting increasing concerns from the Corps and engineering consultants.

More sophisticated risk analysis done since has not only largely validated the state report, he said, but also identified additional weak points, like the culverts.

The southern stretch from Moore Haven to Canal Point is considered at highest risk but the most recent assessments, said the Corps’ Halpin, “pretty much confirm that we have a series of deficiencies all the way around the project.”

After the alarming 2006 state report, the Corps moved to beef up the structure and reduce pressure on



JOE RIMKUS JR./MIAMI HERALD STAFF

**ONE STEP AT A TIME:** Culvert 16 will also be replaced by the Army Corps of Engineers.

it, establishing a plan aimed at keeping the lake under 15.5 feet. It’s a tricky balancing act water managers don’t always get right.

In January, the Corps finished the first major work to bolster the dike, building a two-foot-thick, 70-foot-deep concrete-like “cutoff wall” down the center of the dike along a 21-mile segment from Port Mayaca to Belle Glade.

## STRATEGIC STEPS

The Corps took other steps as well, removing foliage that can weaken the dike, fortifying land-side features and stockpiling rock at strategic spots.

Before repairs, the Corps calculated there was almost no chance of dike failure with the lake below 15.5 feet, a 45 percent probability at 18 feet and near-certainty at 21 feet.

Lauren Borocharner, engineering division chief of the Corps’ Jacksonville district office, said the work significantly bolsters the dike’s most trouble-prone

segment though engineers have not yet put numbers to how much repairs may have reduced risks.

But in 2011, the Corps, balking at the \$10 million-a-mile price tag for the cutoff wall, announced a new study to draw up more affordable repair options.

Borocharner said the new analysis, to be completed in 2015, will be the most comprehensive ever of the dike’s flaws and potential fixes. Some options might include shallower cut-off walls or erosion-fighting filters that would let water seep through but hold earthen material in place.

In the meantime, said Corps spokesman John Campbell, the Corps will continue replacing the high-risk culverts.

“It’s not like we’re not doing anything,” he said. Still, the pace of repair has drawn criticism over the years from area congressional leaders, the Palm Beach County Commission, the sugar industry and others. Under current schedules,

the goal of bringing the aging dike up to dam standards remains a decade or more away.

Vick said that by typical Corps standards, recent work on the dike had been “done at the speed of light.” Repairs on the New Orleans levees, he said, had been going on for a half-century.

While the Corps’ sluggish bureaucracy played a role in letting the dike go neglected for so long, Vick said much of the blame fell on Congress for failing to push for repairs or pay for them.

The Corps, he said, “really deserves a lot of credit for turning the battleship around and getting the attention this deserved.”

In the small farming towns along Lake O, there is still confidence in a dike that has withstood nearly 80 years of hurricanes and sea-sawing water levels.

At the Sugar Cane Golf Club in Belle Glade, where fairways run up against the dike, the rising lake has been a hot topic — but mainly about how it affects fishing.

“This is the bass capital of the world right here,” said general manager Phil Valencia. “That’s mostly what people care about with water levels.”

But more rain or a looming storm could change the blasé attitude.

Willie Holmes, a retired mechanic for the Sugar Cane Growers Cooperative who lives in Belle Glade, said he has ridden out hurricanes in the past. This time, said Holmes as he fished last week for crappie at Sand Cut, he’d be inclined to leave.

“If they don’t get that lake down,” he said, “we could be in a world of trouble.”

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**THE NEW CULVERT 11:** The Corps is in the process of replacing half the 32 culverts around the lake that are now viewed as the greatest risk to the dike’s stability, a project expected to take until at least 2018.

The dike has sprung leaks in the past, with the most serious erupting when lake levels topped 18 feet in 1995 and 1998, opening numerous assorted leaks dubbed “seeps,” “boils,” and “heaves” depending on severity and type. There have even been sinkholes. In 2005, Hurricane Wilma also chewed out a massive chunk near the Pahokee airport.

The Corps has made repeated emergency repairs, always managing to prevent a serious breach.

But with the dike in continuing decline, Vick said, sandbags aren’t the solution.

“It’s like you had the little Dutch boy trying to cover 140 miles of dike with his fingers,” Vick said.

The 2006 report Vick co-authored, which was commissioned by the South Florida Water Management District, put a harsh spotlight on dangers from the dike. But it was hardly the first warning. In crafting the report, the state’s experts drew on decades of damage reports and studies documenting increasing concerns from the Corps and engineering consultants.

More sophisticated risk analysis done since has not only largely validated the state report, he said, but also identified additional weak points, like the culverts.

The southern stretch from Moore Haven to Canal Point is considered at highest risk but the most recent assessments, said the Corps’ Halpin, “pretty much confirm that we have a series of deficiencies all the way around the project.”

After the alarming 2006 state report, the Corps moved to beef up the structure and reduce pressure on



JOE RIMKUS JR./MIAMI HERALD STAFF

**ONE STEP AT A TIME:** Culvert 16 will also be replaced by the Army Corps of Engineers.

it, establishing a plan aimed at keeping the lake under 15.5 feet. It’s a tricky balancing act water managers don’t always get right.

In January, the Corps finished the first major work to bolster the dike, building a two-foot-thick, 70-foot-deep concrete-like “cutoff wall” down the center of the dike along a 21-mile segment from Port Mayaca to Belle Glade.

## STRATEGIC STEPS

The Corps took other steps as well, removing foliage that can weaken the dike, fortifying land-side features and stockpiling rock at strategic spots.

Before repairs, the Corps calculated there was almost no chance of dike failure with the lake below 15.5 feet, a 45 percent probability at 18 feet and near-certainty at 21 feet.

Lauren Borocharner, engineering division chief of the Corps’ Jacksonville district office, said the work significantly bolsters the dike’s most trouble-prone

segment though engineers have not yet put numbers to how much repairs may have reduced risks.

But in 2011, the Corps, balking at the \$10 million-a-mile price tag for the cutoff wall, announced a new study to draw up more affordable repair options.

Borocharner said the new analysis, to be completed in 2015, will be the most comprehensive ever of the dike’s flaws and potential fixes. Some options might include shallower cut-off walls or erosion-fighting filters that would let water seep through but hold earthen material in place.

In the meantime, said Corps spokesman John Campbell, the Corps will continue replacing the high-risk culverts.

“It’s not like we’re not doing anything,” he said. Still, the pace of repair has drawn criticism over the years from area congressional leaders, the Palm Beach County Commission, the sugar industry and others. Under current schedules,

the goal of bringing the aging dike up to dam standards remains a decade or more away.

Vick said that by typical Corps standards, recent work on the dike had been “done at the speed of light.” Repairs on the New Orleans levees, he said, had been going on for a half-century.

While the Corps’ sluggish bureaucracy played a role in letting the dike go neglected for so long, Vick said much of the blame fell on Congress for failing to push for repairs or pay for them.

The Corps, he said, “really deserves a lot of credit for turning the battleship around and getting the attention this deserved.”

In the small farming towns along Lake O, there is still confidence in a dike that has withstood nearly 80 years of hurricanes and saw-sawing water levels.

At the Sugar Cane Golf Club in Belle Glade, where fairways run up against the dike, the rising lake has been a hot topic — but mainly about how it affects fishing. “This is the bass capital of the world right here,” said general manager Phil Valencia. “That’s mostly what people care about with water levels.”

But more rain or a looming storm could change the blasé attitude.

Willie Holmes, a retired mechanic for the Sugar Cane Growers Cooperative who lives in Belle Glade, said he has ridden out hurricanes in the past. This time, said Holmes as he fished last week for crappie at Sand Cut, he’d be inclined to leave.

“If they don’t get that lake down,” he said, “we could be in a world of trouble.”