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TURNING THE TIDE

Since Hurricane Katrina, there have been encouraging signs that federal and state agencies finally understand that healthy wetlands and barrier islands can protect the public from storm surges. Even so, faith in levees that enclose wetlands dies hard, illustrating the clash between old and new thinking.

By Ted Williams

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There had been big changes in southern Louisiana since my last visit in January 2006. For one thing, there was about 1.5 billion square feet less of it.

The state's coastal wetlands—wild, beautiful fish and wildlife sanctuaries that sustain ecosystems far inland and far into the Gulf—have been disappearing at the approximate rate of 83,000 square feet per hour since 1932. That was about 60 years after the Army Corps of Engineers set about “protecting” floodplain residents with large levees that constrict the Mississippi River, squirting marsh-building sediments out to sea, where they fall off the continental shelf. It's like heating your house by burning the beams, floors, and siding.

The levees have reversed an ancient process by which the river eased over its floodplain, snowing sediments and creating flood-absorbing marsh at the rate of between 800,000 and a million acres per millennium. Now, as the Gulf of Mexico races inland, storm surges get higher and stronger, more hurricane levees fail, and more get built.

But in June 2008 I saw other big changes, too—encouraging changes. At least in state and federal government, most everyone had abandoned the notion that levees by themselves can protect people. Educated by Hurricanes Katrina and Rita, most agencies now agree that barrier islands have to be rebuilt, and wetlands restored by pumping or diverting sediment from the river into silt-starved marshes destroyed or degraded by wind, waves, and saltwater intrusion.

On June 5, 2008, a week before I arrived in Louisiana, Congress had authorized the U.S. Army Corps of Engineers to plug the Mississippi River Gulf Outlet (“Mr. Go”)—the 76-mile, little-used shipping shortcut between the Gulf and New Orleans that has destroyed or degraded at least 27,000 acres of wetlands by burying them with spoil and exposing them to waves from ships, and that funneled storm surges into New Orleans. At Parrain's Seafood Restaurant in Baton Rouge, Natalie Snider and Steven Peyronnin of the Coalition to Restore Coastal Louisiana, Paul Kemp of Audubon's Louisiana Gulf Coast Initiative, and I raised our beer mugs and toasted Mr. Go's impending demise.

In 2006 ancient cypress swamps that had slowed and absorbed storm surges were being clear-cut for garden mulch. Last year Wal-Mart and Lowe's, heeding the pleas of Audubon and other environmental groups, stopped marketing cypress mulch from southern Louisiana, shutting down most local suppliers.

A measure of enlightenment seems to have descended upon even the Corps' New Orleans district office, which is embracing the idea of restoring and protecting wetlands as levee buffers. The Corps is backing away from the super levee it conceived before the hurricanes, when its strategy was to charge out in front of the wetlands, carve a line in the sand, and dare the sea to step across it. The 72-mile “Great Wall of Louisiana,” as the project is called by its many critics, would weave from Morganza to the Gulf, through the Terrebonne Basin between Larose and Houma, cutting 550,990 acres of wetlands off from the river and exposing them to

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development. According to the Corps' own model, it would funnel storm surge, increasing the high-water mark by as much as 12 feet.

When the Great Wall was conditionally authorized as part of the 2000 Water Resources Development Act (WRDA), it was going to cost \$680 million, but because the Corps was late filing paperwork, it had to be restudied and reauthorized in the 2007 WRDA, at which point it was going to cost \$882 million. With that, the Corps announced that the real cost would be at least 20 percent higher than this last estimate, which meant the project would have to be re-restudied and re-reauthorized. Now there are federal requirements for better, non-local construction material that will have to be trucked or barged in, soaring fuel costs, and new specs for greater height and width. So the Great Wall's expected cost has ballooned by at least 1,000 percent. The latest (not final) estimate is between \$10.7 billion and \$11.2 billion.

"The Corps realizes the levee has to be bigger," says Paul Harrison, the Environmental Defense Fund's coastal Louisiana project manager. "And that can be a fatal flaw, because if you build something bigger out in the wetlands, it becomes exponentially more expensive and may become physically impossible. I think there are a lot of people in the Corps who realize this is a boondoggle. Frankly, it's not going to work."

Using wetlands and barrier islands as the first lines of defense against floods is central to the "multiple lines of defense strategy" being pushed by the state and the environmental community. You protect wetlands by nourishing them with flows of freshwater from the Mississippi that simulate natural, pre-levee flooding. This keeps out saltwater, which can destroy wetland vegetation. You restore wetlands by saturating them with silt pumped from the river or, where possible, cutting diversion channels in levees and letting the river deposit the silt itself.

The Great Wall would supposedly protect wetlands and the people who live on them. But levees by themselves rarely protect anything, and they destroy wetlands by cutting them off from freshwater and sediments.

The environmental community has learned some lessons, too, none more important than the fact that levees are necessary. "You can't go back to when there were no levees and the river just flooded every year," explains the National Wildlife Federation's regional director, Susan Kaderka. "But in a controlled way, we need to reconnect the river with the delta."

That's what the multiple lines of defense strategy—as set forth in a 178-page report produced by the Lake Pontchartrain Basin Foundation and the Coalition to Restore Coastal Louisiana—is all about. Levees are like scalpel cuts; depending on how and where they're made, they can be life ending or life saving. The report recommends a cheaper, shorter alternative to the Great Wall in the form of a more northerly levee route ("alignment") that encloses far fewer wetlands and uses wetlands to the south for a buffer. When storm surge hits naturally vegetated wetlands, it slows and settles. Every 2.7 miles of marsh grass between a point of land and the sea reduces flood level by one foot, estimates the Corps.

"No one argues that these people shouldn't have protection from hurricane surge," says Audubon's Kemp, one of the report's authors and the former LSU professor and coastal-restoration expert who did surge modeling for the state and helped produce its forensic study on the flooding of New Orleans. "But our experience with Hurricane Katrina east of New Orleans in the Mr. Go funnel was that enclosing wetlands with levees exposed to waves is a recipe for disaster. First, the coastal wetlands die, and second, the levees fail. We need to put the levee behind the wetlands, not out in front."

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John Lopez—the report’s lead author and director of the Lake Pontchartrain Basin Foundation’s coastal sustainability program—has a personal as well as a professional motive for restoring wetlands. Katrina took his house on Lake Pontchartrain, leaving not a splinter. There’s no side of any wetlands or levee issue he doesn’t know. For 20 years he worked as a geologist for Amoco. Then in 2001, while continuing his doctoral work at the University of New Orleans documenting environmental impacts from such events as oil spills and hurricanes, he signed on with the Corps. In 2005, 16 years of volunteer work for the foundation morphed into a full-time job.

From five feet below the level of Lake Pontchartrain’s surface, Lopez and I surveyed the urban sprawl along the south shore. We weren’t wading; it was just that all the development there had subsided along with the sediment-starved, desiccated, leveed delta on which it squats. Katrina had kicked up nine-foot waves on the 25-by-40-mile lake, damaging the levees. Now Lopez’s foundation is working to buffer them with the kind of wetlands that used to fringe the shore. The plan is to build a breakwater several hundred feet out into the lake, then pump in sediment. With the new marsh will come an invasion of shorebirds, wading birds, and waterfowl.

We left Lake Pontchartrain and drove west on Route 10 to the LaBranche wetlands, between the St. Charles Parish levee and Lake Pontchartrain. Three hundred acres of marsh had been built here by pumping sediments from the lake. Lopez called it a “good example of what needs to be done on a large scale.” Some of the hunting camps to our left had survived the storms, and the landowners are requesting an additional sediment-pumping project.

Another good example is the Davis Pond diversion at the top of the estuary and about 78 miles from the Gulf, though its purpose is more to prevent saltwater intrusion than build land. “It’s pointless to introduce sediment here because it would just choke up existing wetlands and not get down to where we need it,” said Lopez as we stood on top of the levee, perusing the enormous, \$200 million diversion structure. Out on the brown Mississippi a freighter eased downstream, a barge towed by a tugboat plowed upstream, and below us two black-bellied whistling-ducks preened on wet rocks.

The LaBranche wetlands and the Davis Pond diversion are just two of about 70 larger coastal wetlands projects that, together, have restored 100 square miles of wetlands in the past 17 years. That sounds like a lot until you consider that the state has lost 2,100 square miles since 1932. “It’s a good program but not on the right scale,” said Lopez. “To really make a difference you need major river diversions. The multiple lines of defense strategy is a minimalist approach—just things you have to do in the short term. We propose building another 150 square miles of marsh over the next 10 years by pumping sediment.”

Lopez and his allies will do well to get funding for even this minor work. Maybe some small-scale version of the Great Wall will eventually get built. But anyone who believes the state can wangle \$11 billion in federal pork for an old-style Corps mega-project is dreaming. There are, however, lots of dreamers in Terrebonne Parish. And their all but hopeless fight for the Great Wall perfectly illustrates the clash between old and new thinking.

Still, Terrebonne residents and parish leaders are less committed to the Great Wall’s alignment than to getting some kind of levee in place. They believe that however long it takes the Corps to build the Great Wall it will go up faster than any alternative, because the project has been studied since 1995. They’re in grave danger, and they’re desperate. They claim that the Corps, with all its studies, modeling, and endless paper shuffling, moves like a glacier. And they’re right.

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"Every day that passes without the levee system in place increases our risk of losing lives, homes, businesses, and entire communities to deadly tidal surges," proclaims the website of the Morganza Action Coalition, a group of Terrebonne Parish residents and business owners lobbying for the Great Wall. Indicative of local desperation, anger, and sense of abandonment is the motive ascribed by coalition president Dan Walker to George W. Bush for his administration's dilly-dallying and for his attempted sabotage of the project with a WRDA bill veto, which Congress overrode last November. The president, Walker contends, wants to further enrich his home state: "Terrebonne Parish is vital to the oil and gas industry. If it is completely obliterated and we can't give the assistance to the industry we now provide, it all goes to Texas."

At the new Government Tower in Houma I met Terrebonne Parish president Michel Claudet, a friendly, soft-spoken public servant who described at length and in accurate detail the value of wetland buffers. "Something is better than nothing," he declared when I inquired why he was fighting for the Great Wall when it would degrade so many wetlands. Then, in answer to my question about why he didn't back the cheaper, more wetlands-friendly northerly route advocated by the environmental community in the multiple lines of defense strategy report, he said: "I represent 125,000 people, and I'd be telling 40,000 of them [those who live, work or own property on the seaward side] that they're not very important."

Not surprisingly, Natalie Snider—whose Coalition to Restore Coastal Louisiana co-produced the multiple lines strategy—joins Paul Kemp in dismissing Claudet's assessment. While they understand Claudet's distaste for a levee that supposedly protects fewer people, they point out that the multiple lines of defense plan would enclose only four percent fewer floodplain residents. "People outside our alignment wouldn't be excluded or abandoned," Snider explained. "We'd elevate their homes."

Snider and Kemp also disagree with Claudet that something is always better than nothing—especially when that something is inadequate flood protection that encourages human settlement of wetlands by providing a false sense of security and when extremely limited funds could be used to deliver such real and immediate protections as elevating houses and pumping or diverting sediments into eroding marshes. "New Orleans had 'something' before Hurricane Katrina," Kemp remarked.

Nothing is what Terrebonne Parish had when Hurricane Rita flooded 10,000 homes, a fact that the media and the nation basically ignored. And Claudet worries that nothing is what his parish will continue to have if the Corps insists on building the Great Wall to its new standards, because it will be too costly to construct. "The levee is hopelessly over-engineered," he complains. "By the time it's studied and re-studied and triple studied, they're going to have to move it north to Assumption Parish. And then they'll start studying it up there. If we were being attacked by Russians, Washington would spend whatever it took to defend us. Well, we're being attacked by Mother Nature, and our cries are going unanswered."

When Claudet was a farm boy he watched his dog corner a cat in the barn. Finally the cat leapt into the air and landed on the dog's back. Claudet says the torpor of the feds and the swiftness of the advancing sea make him feel like that cat.

It was also in Houma that I met Win-dell Curole, the effervescent, good-humored levee manager for Lafourche and Terrebonne parishes. In a family that has been retreating from the advancing sea since 1893, he's the first to learn English before French. Curole is fiercely committed to the Great Wall and angry at proponents of the multiple lines plan, which, to his disgust, is now being studied by the Corps as a possible alternative. "The discussion was there, and everyone was invited," he said. "But to come in at this late hour is not fair. It's very discouraging that a minority of people who live behind levees can change things for people who have no levees."

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I was accompanied to my interview with Curole by Natalie Snider, a tireless promoter of the multiple lines of defense levee. So it astonished me to see them greet with an embrace and kisses. I understood the reason when Curole delivered precisely the same message I'd been getting from Lopez, Kemp, and Snider. "Why did Grand Lake get little and Little Lake get grand?" he asked in his rich Cajun accent, pointing to a map he'd unrolled on the floor. Grand Lake, he explained, got little because the Atchafalaya River, a Mississippi distributary (offshoot) that carries away 30 percent of its flow, has been allowed to build its delta while Little Lake is being sediment-starved by levees. This, plus a lengthy and impassioned dissertation on the value of wetlands and the sour fruits of 150 years of gross mismanagement, revealed Curole for what he is—a dedicated wetlands advocate working with the environmental community to reconnect the river to its floodplain. The Great Wall is about the only thing they argue over. Curole didn't admit it, but it was clear to me that beneath the bubbles he, too, felt like a cornered cat.

The Great Wall was supposed to be a cost-share venture, but with no federal dollars forthcoming, the citizens of Terrebonne Parish began raising the local match in 2001 by voting themselves a special sales tax. Paul Kemp drove Snider and me past dying wetlands and cypress stands killed by saltwater intrusion, out to Pointe Aux Chenes, where we inspected the stillborn Great Wall of Louisiana. All that exists so far is three miles of the eight-foot-high "first lift" or layer. It was just a low dirt pile connected to nothing and built entirely by a community fighting for its existence—a useless, \$25 million monument to desperation.

Kemp and Snider were sympathetic when I asked them for a response to Curole's pique about how the enviros came in late with a new levee scheme that threatens the Great Wall. "The Morganza alignment follows hydrologic barriers and would have destroyed fewer wetlands," Snider said. "We had to learn that this wasn't the bottom line, that to save the most wetlands and provide the most flood protection we had to look at the whole system. Just because bad decisions were made a long time ago doesn't mean we have to continue making them."

Because Isle St. Jean Charles is just outside the Great Wall alignment, the Corps offered to buy out and move the residents. They declined. Kemp drove us to the island over a causeway bisecting a lake that had been productive marsh during the lifetimes of middle-aged island residents. The road, a maintenance nightmare, floods on moderate south winds, and it acts as a levee, cutting off the tidal ebb and flow. Junked cars and boats littered the landscape. Windrows of rubbish curled around and between rusted trailers and sagging, semi-roofless shacks. Never, even in third world nations, had I seen such hopeless poverty. "This used to be a vibrant fishing village," commented Snider. "We're trying to keep Pointe Aux Chenes and other communities from winding up like this."

But without major river diversions, Isle St. Jean Charles will be the model for southern Louisiana's future. State and federal officials and even parish officials like Claudet and Curole understand this. They're pushing hard for diversions, but they haven't been able to generate the political will to get them funded.

In 2006 I had encountered jubilation about an ambitious project called the Third Delta, by which the Corps would divert water into an earthen ditch near Donaldsonville, letting the Mississippi excavate a 95-mile distributary that would split around Bayou Lafourche, spread, slow, and deposit its silt north of Terrebonne and Barataria bays. The flow would intensify tenfold over the next half-century until it carried a third of the Mississippi's volume. Unlike all completed and proposed diversions combined, the Third Delta would eventually halt, then reverse, the state's wetlands loss. The price tag would be about \$5 billion, less than half the projected cost of the Great Wall. But since my last visit, the Third Delta proposal had gone belly up.

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Consider also the \$26 million Caernarvon diversion, operational since 1991. It is restoring freshwater, natural sediment flow, and traditional fish and wildlife habitat to the coastal bays and marshes of Breton Sound. But it also inconveniences people who like catching brown shrimp, speckled trout, redfish, and other ocean species that move inland with marsh-destroying saltwater. Accordingly, in May 2008 residents of St. Bernard Parish passed a resolution calling for the state to close the Caernarvon diversion.

Nowhere is a diversion more desperately needed than at Bayou Lafourche. I was unable to see an inch into the chocolate water. If there were any fish, I couldn't detect them and they couldn't detect me. A scum-encrusted softshell turtle floated in the lethargic current, surveying me with half-closed eyes, not bothering to duck.

The proposed Donaldsonville diversion (unrelated to and far smaller than the deceased Third Delta) would send Mississippi River water into Bayou Lafourche, augmenting and cleansing its grossly polluted flow, restoring decent drinking water to Houma and Thibodeaux, recovering fish and wildlife, and building new marsh. Because the bayou is a natural conduit to the Gulf it provides an exceptional opportunity for diversion. But upstream locals resist it because it would flood their barbecue pits and drown some of their grass.

"We're 45 miles from Gulf, and we can't guarantee that the water will be fresh," lamented Curole, who likes to call the Davis Pond diversion "one small leak for a river, one giant leak for mankind." He went on to blame federal and state inertia on lack of political leadership. "If we can't do these little things, how are we going to do the big ones?" he inquired. With that, Curole made this eloquent, if inadvertent, case for the multiple lines of defense levee: "Our problem is that we're a society of spoiled people where everything has to be win-win. We have to learn to do what's best for the public, then take care of the people who get the negative effects."

WHAT YOU CAN DO

To participate in the restoration of Louisiana wetlands, visit the [Coalition to Restore Louisiana \(www.crcl.org\)](http://www.crcl.org). For more information on the multiple lines of defense strategy, including the full report, [click here \(www.mlods.org\)](http://www.mlods.org). To learn about Audubon's efforts on the Mississippi River Delta, [click here \(www.audubon.org/campaign/Mississippi/index.html\)](http://www.audubon.org/campaign/Mississippi/index.html).