Freshwater diversion plans delayed

Posted by Chris Kirkham / Times-Picayune April 17, 2008 10:42PM

As it courses through southern Louisiana at the highest level in 11 years, the Mississippi River is bringing an estimated 900,000 tons of sediment -- enough to fill 45,000 dump trucks lined up from New Orleans to Houston -- past the state's disappearing wetlands and into the Gulf of Mexico.

This year's flood has disrupted commerce and led to heightened levee security, but it also represents a critical juncture in the state's mission to save the coast.

Before the river was hemmed in by levees over the past few centuries, periodic river floods such as the one this spring were the life-sustaining force responsible for building Louisiana's rich coastal landscape over thousands of years. But those wetlands have been disconnected from their source over time.

As coastal restoration concerns reached an all-time high after the 2005 hurricane season, the state this year has missed out on a once-in-a-decade major flood event that could funnel much of the Mississippi River's fresh water and mud into the starved wetlands on the other side of the levees.

More than a billion dollars of coastal restoration projects are on the books, including a slew of river diversions that equate to a wholesale replumbing of the river, but many of them are likely years away from completion due to past financing issues. Instead, river water is cascading into the Bonnet Carre Spillway and Lake Pontchartrain, where blankets of algae leading to fish kills may soon result. Floodwater billowing into the Gulf is expected to have similar effects.

As many in the coastal restoration community say the state has less than a decade to avoid disastrous land loss, the missed opportunity to harness the river's power has broad implications for the coast's future, and puts state and federal agencies under heightened pressure in upcoming years.

"Every year we don't have the opportunities to use these resources, it's really resources lost," said Denise Reed, who heads the Laboratory for Coastal Restoration Science at the University of New Orleans. "If we really want to rebuild the coast, we really need to take advantage of them."

A natural system

Spring flooding events historically have showcased the complicated relationship between Louisiana residents and the Mississippi River. Early settlers were attracted to fertile delta farmland and the productive fisheries nourished by the river, but long-term commercial success through shipping and navigation was impossible without harnessing its power.

In past floods, churned-up sand and silt deposited thick layers of mud over the banks and dumped fresh water into the wetlands that beat back the Gulf of Mexico. In turn, the nutrients and minerals in the mud allowed plants to take root and flourish, keeping the system intact.

Man's attempts to tame the river through dikes and levees has allowed the gradually rising Gulf to creep farther north, funneling most of the land-building river mud off the edge of the continental shelf. Working to maintain navigation channels, the Army Corps of Engineers is also dredging river bottoms near the mouth of the river and dumping the mud in deep water south of Venice.

"You really have to think about it as a system, and unfortunately coastal restoration and storm protection came to the party long after flood protection and navigation got there," said Mark Davis, director of the Institute on Water Resources Law and Policy at the Tulane University Law School. "We're miles away from where we could be in better mimicking what nature once did for free to build this land."
Freshwater diversion projects, on the drawing boards of coastal scientists for decades, aim to strategically siphon river water and sediments into the adjoining marshes to imitate the land-building processes of the past. The Caernarvon and Davis Pond diversions, in St. Bernard and St. Charles parishes, already have been built.

Projects delayed

But many more projects are needed to make a dent in wetlands loss, say coastal experts, especially major diversions near the mouth of the river that would work to re-create the delta structure.

"Look at the scale of it, look at the processes that used to form this landscape. And we're trying to just piece it together," said Mark Schexnayder, a regional coastal adviser with LSU's Sea Grant College Program. "We've been kind of nipping at the heels of coastal restoration projects."

The state's master plan for coastal restoration, approved last year, proposes a series of diversions beginning at Donaldsonville and extending to the river's mouth. But the blueprint has not been fully financed. Another long-awaited restoration study from the corps, delayed since last year, is expected by December.

Projects at Violet and Myrtle Grove in St. Bernard and Plaquemines parishes, along with upriver projects designed to stimulate the Lake Maurepas area, were specifically mentioned in last year's Water Resources Development Act passed by Congress. Although authorized, the appropriations for those projects have not come through.

Just in that bill, authorizations for diversion projects total more than $700 million, and they address only portions of the river system. Next month, the Louisiana Coastal Protection and Restoration Authority will decide on how to spend $300 million in state surplus money set aside for hurricane protection and coastal restoration projects. Other money will be available through Louisiana's share of offshore oil and gas revenue, and a 1990 bill known as the Breaux Act.

Nutrient overload

Since Katrina, much of the public's attention has turned to stronger levees as a safeguard against flooding. But the often unseen marshes and barrier islands are the first line of defense, and are of broader importance to the state's ecology, scientists argue.

"Public safety cuts both ways," said John Day, a Louisiana State University professor emeritus and leading expert on state coastal issues.

In the future, river diversions will come with a considerable price tag: both in construction costs and the immediate effect they can have on nearby marshes.

Just as levees to control the Mississippi have changed the character of the wetlands, more sophisticated agricultural techniques upstream have changed the character of the river itself.

Increased fertilizer application on farms in the Midwest, coupled with wastewater discharges from cities like St. Louis and Chicago, has poured billions of gallons of excess nutrients such as nitrogen and phosphorus into the river. Those nutrients are necessary for nourishing the marsh environment, but an overabundance can poison the system, leading to unnatural algae blooms that suck up available oxygen in the water.

The initial shock from nutrients is the same pattern that leads to the annual "dead zone" in the Gulf each summer.

Last week's opening of the Bonnet Carre spillway brought the same nutrient issues to Lake Pontchartrain. Fishermen and environmental groups have expressed concerns about potential fish kills and a wholesale migration of shrimp in the lake.

A healthy marsh

The spillway is a diversion of sorts, but coastal scientists say it delivers sediments in a much less concentrated way in an area that doesn't need it as much as marshes to the south. Wetlands and swamps, with many more trees and root systems than Lake Pontchartrain or the Gulf, can more easily take in those nutrients than the open waters of the lake.

"Instead of potentially creating a dead zone in Lake Pontchartrain right now, if we had some really progressive diversions this would be a tremendous opportunity to get some nutrients into the wetlands, some fresh water into the wetlands," said Carlton Dufrechou, executive director of the Lake Pontchartrain Basin Foundation.

The fisheries impacts of freshwater diversions are a classic short-run versus long-run conflict, experts say. Fishers who are already hobbled by high gas prices will be economically impacted by the movement of the fishery, as they have to travel farther to chase the same catch. But studies dating back to the 1920s have
shown that reintroducing fresh water can spur greater productivity in the long run, as more fertile vegetation from fresh water and sediments leads to a healthier ecosystem.

"Shrimp, oysters, finfish -- all those things come into play," said Kirk Rhinehart, who heads the coastal restoration division of the state Department of Natural Resources. "But all those things do better with a healthy marsh. The big picture is: get a healthy marsh, get a healthy ecosystem in the long term."

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COMMENTS (43)  

Posted by bayoustjohn on 04/18/08 at 1:19AM

Coastal Restoration is necessary because of the needs of navigation and flood protection. We need to take down some of the river levees and tell folks in Lower St. Bernard and Plaquamines that they will no longer be totally protected from the river. We also need to put the Corps on notice that we need river flooding in rural areas and their mission to maintain river navigability needs to be tempered by that fact. The river is vital to the health and prosperity of this region. We need commerce that takes advantage of it and river management that recognizes it.

Posted by zebrafox on 04/18/08 at 4:57AM

Call me a bleeding heart but I would hate to be the guy telling folks that their property will flood every spring even if they've been paying their share of taxes for years to keep it dry.

Posted by MrNola1414 on 04/18/08 at 5:10AM

Hey Zebra...that's what raised basements are for.

Posted by spinfilter on 04/18/08 at 5:18AM

The Bonner Carre spillway openings are NOT detrimental to Lake Pontchartrain and will lead to more fish, bird, wildlife and a healthier cypress tupelo forest that surrounds the parts of the lake we didn't drain and fill. Please stop repeating this old wive's tale. Also, algae is a plant. Plants produce oxygen, not "suck it up from the water". That only happens if they die before being consumed. Other than that I agree with this article 100 percent. Very well done!

Posted by gonewest on 04/18/08 at 5:27AM

Keep delaying. There are millions of dollars to be made from engineering, planning, discussing, seminars, etc. And much of that money will go to the politically connected with absolutely no qualifications. It's The Louisiana Way.

Posted by noladood on 04/18/08 at 6:27AM

Gonewest- You hit the nail on the head. As a frustrated coastal geologist I deal with this daily. Too many meetings, too many figureheads, not enough land built. Its time to make these upper level jobs volunteer type positions. That way, we get people there who want to restore the coast.