LSU AgCenter Research & Extension

Sea Grant Louisiana

Louisiana Wetland News

Winter 2002

Crossing The Leeville Bridge

Editor's Note: Technical writing requires a detached, somewhat clinical approach that often fails to connect reader to subject matter, much less reader to author. Certain topics just demand a more personal treatment – this is one of them. RHC.

There are several landmarks in coastal Louisiana that physically embody the state's tremendous crisis of coastal erosion. With access by boat, plane or helicopter, one can visit such famous sites as the statue of the Virgin Mary on Isles Dernieres, the isolated Chandeleur Lighthouse, and the ruins of Fort Livingston, crumbling into the sea. But most people depend on a roadside view for their coastal education. For years, one of the most accessible icons of coastal land loss has been a drawbridge over Bayou Lafourche in the little coastal town of Leeville.

Because of its relatively high elevation, the structure provides a unique vantage point for surveying the rapidly deteriorating marshes of lower Lafourche Parish. Many a newcomer has received a drive-by education on the subject. The typical initiation follows a basic pattern: as vehicles cross over, fingers are pointed towards the southeast, followed by statements like: *"See that marsh out there, well when I was a kid that was all solid land*" or "*When I first started coming fishing down here, that bay wasn't there."* For the tourist, such a drastic tale may be hard to comprehend. Indeed, for many Louisianans, it's a lesson that has taken a lifetime to grasp.

A First Person Perspective

There has been a bridge on La. Hwy 1 in Leeville for almost 70 years, but the current bridge was built in 1965, the year that I was born. I grew up in Baton Rouge, and my first passage over the bridge was probably around the age of seven. This was the first of what would become many fishing trips with my father to the beaches of Grand Isle, Elmer's Island, and Port Fourchon. I recall knowing from a very early age that I had a passion for fishing. However, I don't recall knowing what an estuary was back in those days, and I'm sure that neither I nor my father knew anything about coastal erosion.

I was just as oblivious during my high school years, when to me, the bridge remained simply a gateway to recreation, the first smell of salt air, and only 12 miles to a bait stand called "Minnow-Pause." Like most of the Yankees from above Thibodaux, my only concern was whether the bridge would be up or down when I arrived. This was no small matter, because clearly any holdup was lost fishing time. Each minute of delay meant that some fraction of my preordained quota of speckled trout and redfish would end up in someone else's ice chest.

My perspective started to slowly evolve during the early 1980s when I began working summers as a "college hand" on the oil rigs of the Gulf of Mexico. Many of those seven-day offshore hitches had me departing from the PHI heliport, just a mile south of the Leeville bridge. College hands were at the bottom of the offshore hierarchy, well below the high-status jobs of roustabout, welder's helper, and galley mate. This was the petroleum industry's version of a G.I. Bill. You followed orders, kept your mouth shut, worked hard, and at the end of the summer you had some tuition and spending money.

The most memorable times were the helicopter flights over the coastline. Over four years I probably logged more than a 100 flights, and each trip was spent with my nose firmly pressed to the window. As I scanned the coast looking for good places to fish, I was getting a subliminal education in coastal hydrology and ecology.

Photo by Josh Lott, NOAA

A Common Thread *- The Leeville drawbridge has become an icon of Louisiana's coastal land loss problem.*

From Fisherman to Disciple

Those offshore flights led to a new appreciation for the "inland" marsh and I began to actively explore the wintertime fishing around Leeville. With help from the local experts, I also became acquainted with the economic and environmental history of the town. At places with names like Gail's, Griffin's, and Boudreaux's, I heard stories and saw old photos from the 1930s, Leeville's oil and gas heyday.

It was easy for a fisherman to see how the oil and gas industry had scarred up the marsh with interconnecting canals. The phrase "saltwater intrusion" was becoming a mainstay of my coastal lexicon, though it would be years before I heard phrases like "marsh subsidence" and "nutrient starvation." Pointing the finger of blame at Big Oil was a popular pastime in those days, and I was no different, despite the origin of my summer paycheck. It was probably around 1985 when I started giving my own version of the bridge-top lecture.

Environmental inclinations aside, fishing was still my primary passion. In 1991 I began to parlay this interest into graduate programs in resource economics and fisheries. During those years my income was partly derived from a hare-brained scheme involving a commercial chartering venture. The idea was to payoff a new boat by chartering out of Port Fourchon. The economics of this operation, however, required a minimum of six trips per month just to break even, and back-to-back trips were needed to reduce overhead costs. That meant sleeping in my van at the public landing between charters.

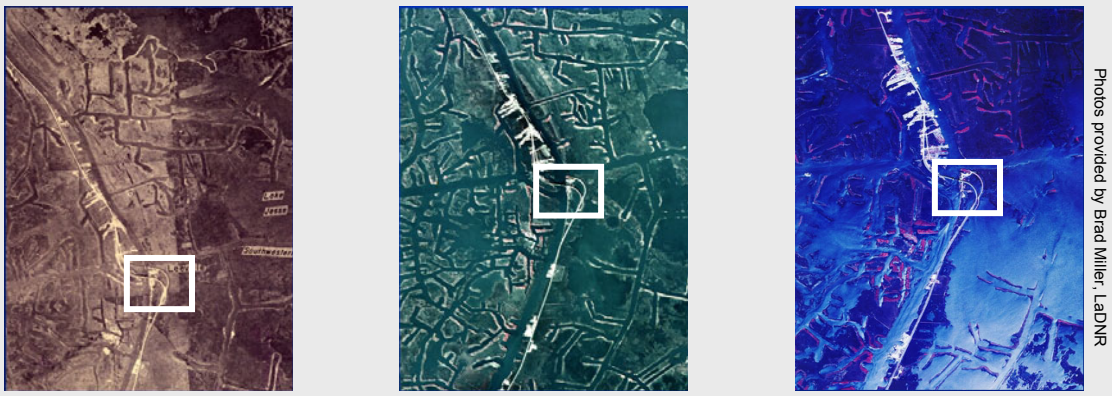
Nevertheless, through the mid 1990s I was crossing over the bridge almost weekly, many times with three or four charter clients in tow, yet another opportunity to describe the coastal crisis to a new audience. By then, many of the spots below the bridge where I had fished just 10 years prior were no longer discernible (see inset below).

Places like the "boat graveyard" and the "tower canal" had begun to coalesce into larger lakes and bays. My explanation for the crisis had also begun to coalesce into a larger discussion of deltaic processes and the need for freshwater inputs. The sermon was becoming less of a zealous rant and more of a proactive commentary.

Marine Extension

Since 1998 I have worked for the LSU AgCenter conducting extension programs on the topic area of wetlands and coastal resources. My position is partially assigned to the Marine Extension Project (MEP), a network of 12 coastal specialists and agents jointly sponsored by the Louisiana Sea Grant College Program. The MEP has traditionally worked most closely with the commercial fishing industry, but in recent years programs have expanded to address a variety of coastal-based communities, economies, ecosystems, and habitats.

My brief tenure with the MEP has primarily been spent grappling with an emerging conflict between one of our oldest constituents and one of our newest initiatives: commercial fishermen and ecosystem restoration. It turns out that the most promising method for restoring Louisiana's marshes involves the reintroduction of vast quantities of sediment-laden, nutrient-rich Mississippi River water. This diversion technique benefits fisheries



Then and Now - This 42 year span of aerial photography portrays a disturbing rate of land loss in the marshes southeast of the Leeville bridge (white box). The deterioration of coastal marsh in the Leeville area is due to the same suite of problems that has plagued most of Louisiana's coastline, namely: hydrologic modification, saltwater intrusion, nutrient /sediment starvation, and subsidence. Restoration projects that use native vegetation and hard structures offer some hope, but the success of such efforts hinges on the reintroduction of freshwater-borne sediments and nutrients. Unfortunately, freshwater inputs into the region can barely keep up with the current demand for drinking water. State and federal agencies are now studying the feasibility of large-scale conveyance channels and massive dredge-spoil pipelines as mechanisms for delivering the needed materials for marsh stabilization. Ultimately, the sustainability of such initiatives is much more than an environmental matter. To be successful, considerable public buy-in must be established across a broad range of user groups, including coastal landowners, the petroleum industry, and fishermen.

by helping to restore critical habitat in the long run. The short run is more problematic. Freshwater reduces salinity. Depending on the flow rates, diversions can cause the physical displacement of fisheries, and the economic displacement of fishermen. Such conflicts are of major concern in a state that accounts for 25% of the annual fisheries landings of the lower 48 . However, the issue of compensating fishermen pales in comparison to the challenge of funding a massive restoration effort.

A Working Coast

Last summer I was granted a partial research appointment to conduct economic studies on topics related to coastal wetland restoration. Since then I have been working with a small group of resource economists on a variety of issues ranging from cost-benefit analyses of restoration projects to nonmarket wetland valuation. I took some of these economists on a driving tour of coastal Louisiana last week. Since most are newcomers to the state, we drove through Leeville and I gave them the requisite bridge lesson. We ended up at the Greater Lafourche Port Commission visiting with Ted Falgout. Ted was Louisiana Sea Grant's first fisheries agent in 1971, then went on to become a director of one of the fastest growing seaports in the country. Ted explained to us how lower Lafourche has become increasingly strategic to the nation's economic security. As Ted likes to point out, the little community of Port Fourchon is not just another "dot on the map."

With the advent of Outer Continental Shelf (OCS) drilling activity, Port Fourchon has grown from two to 160 companies in the past 25 years. Most of that growth has occurred since 1995 when the port was less than a third of its current size. Port Fourchon now serves as the intermodal support hub for 75% of Gulf of Mexico drilling, 16% of U.S. domestic oil and gas production, and the nation's only offshore oil terminal, the Louisiana Offshore Oil Port (LOOP). The Leeville Bridge has become the weakest link of the deteriorating north-south corridor of La Hwy. 1. This substandard road services Port Fourchon and serves as the only evacuation route for the residents of lower Lafourche and more than 6,000 offshore workers. Falgout and others are working to bring national attention to the plight of this region. Their point is simple: Louisiana has a "working coast" and Fourchon is the economic gateway to the Gulf of Mexico (see inset below). Failure to reinforce this infrastructure and restore these wetlands could have disastrous economic repercussions for the entire nation. This threat came ominously close in October of this year when the port was hit directly by a tropical storm and glanced by a hurricane within a single week.

It's not a new message, but it is one with a new sense of urgency. Years of federal testimony and funding requests have only recently begun to draw Washington's attention. Yet, as places like the Florida Everglades are receiving billions in federal restoration dollars, coastal Louisiana remains largely ignored.

Still Crossing Over

Over the past 30 years I have traversed lower Lafourche Parish as a fisherman, oil field worker, charter boat captain, graduate student, marine educator, and researcher. Each of these phases has brought a new level of appreciation for Louisiana's coastal resources. Like many people, I still struggle to fully comprehend the degree, implications, and solutions of coastal land loss. In this sense, I am continually forging and reforging my philosophy of coastal stewardship.

Now I have a seven-year old son of my own, and, like his dad before him, he's fixated on hermit crabs, popping corks, and all things fishy. In the summers I take him on fishing trips to Grand Isle and as we approach the town of Leeville, I prepare him for the impending rite of passage. In my very best second-grader speak, I talk to him about what an estuary is, why it's important, and how Louisiana is losing its coastal marsh. And when we get to the top of the Leeville bridge, I point my finger towards the southeast, and I illustrate the story.

Photo by Fonville Winans

Photo by Rex Caffey

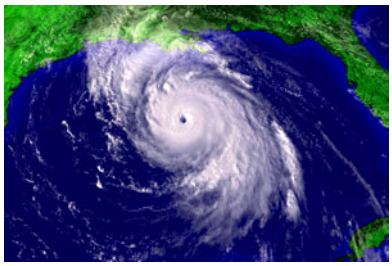
Then and Now - An old photo of the Leeville marshes (top left) depicts the many oil derricks that once dotted the region's landscape during the early 20th century. Although oil and gas extraction once brought wealth and commerce to the region, the environmental legacy of petroleum extraction on inland marshes has been costly. However, the petroleum industry may now represent the best hope of funding for environmental and infrastructure restoration. In the past decade, changes in federal royalty policy combined with technological advancements like deepwater drilling (bottom left) have led to tremendous economic activity just eight miles south of Leeville at Port Fourchon. As Port Fourchon has grown, the strain on the region's only corridor, La Hwy 1, has become overwhelming. An industry consortium known the La 1 Coalition has proposed an improved version of the Leeville bridge as part of a $500 million infrastructure project. The project would connect the communities of Golden Meadow, Leeville, and Port Fourchon via 17 miles of elevated 4-lane highway. Funding for the project would likely require a reapportionment of the $6 billion in federal fees derived annually from OCS activities off the Louisiana coast. Louisiana currently receives little to none of these offshore drilling royalties, but sustains all of the onshore burden.

For additional information contact the La 1 Coalition: (985) 448-4485, http://www.la1coalition.org

Louisiana Gets a One-Two Punch with Isidore and Lili: Economic Losses Expected to Exceed those of Hurricane Andrew

The $500 million in damages to Louisiana caused by Hurricane Andrew in 1992 are likely to be exceeded by the two storms that slammed our coast within a seven day period earlier this fall. Tropical Storm Isidore and Hurricane Lili made landfall on September 26th and October 3rd, respectively. Immediately following the two storms, reports were stating that Louisiana had "dodged a bullet." However, two months down the road, damage estimates are still mounting, and the full range of economic losses is remains unknown.

NOAA Magazine



Less than one week after Tropical Storm Isidore brought torrential rains and flooding to southeastern Louisiana, Hurricane Lili was bearing down on the coast as a category 4 storm. Pictured here at the height of its power, Lili's sustained winds reached 145 mph (category 4 status) before weakening to 100 mph prior to landfall. Preliminary assessments indicate that Hurricane Lili had a greater shoreline impact than Hurricane Andrew. Because of the deteriorated conditions of Louisiana's coastal marshes, the cumulative effects of Hurricane Lili reportedly equaled the impacts that category 4 storm would have produced in years past.
Source: http://www.coastal.uno.edu/

British Petroleum

Of the 4000 offshore structures located off Louisiana's coast, 800 were directly in the path of Hurricane Lili. The platform seen here (Eugene Island 322-A) was destroyed during the storm. Two drilling platforms sank and a large semi-submersible platform, the Lexington, broke loose its moorings and drifted 45 miles inland. Despite these occurrences, the U.S. Minerals Management Service reports that the storm caused no incidents of fire or major pollution. Production losses, however, have been costly. Upwards of 25,000 workers had to be evacuated and there has been several weeks of downtime on many rigs. One major oil company was still reporting production losses of 14,000 barrels a day in late October. Source: http://www.gomr.mms.gov

National Wetland Research Center

Louisiana's barrier islands and coastal marshes were hard hit by the storms. Damage extended across a 175 mile stretch of the coast from the Chandeluer Islands (pictured here) east of New Orleans to South Marsh Island on Vermilion Bay. Damage included extensive beachside erosion, over-wash, and fragmentation. Fresh and intermediate salinity marshes sustained significant impacts from Hurricane Lili. Storm surge, winds, and wave action caused marshes to be displaced, inverted, and stacked. More than 25,000 people were displaced in Lower Terrebonne Parish after storm surge caused the failure of a hurricane protection levee. Source: http://www.nwrc.usgs.gov/special/lilipage.htm

Jay Stander, LSU AgCenter

Extensive damage occurred to homes and businesses because of the two storms. Insurers are expected to pay $100 million in property damage claims from Isidore and $335 million in claims from Lili. Half a million people were left without power immediately following Hurricane Lili. The most extensive damage occurred in the coastal communities of New Iberia, Lafayette, Crowley, and Abbeville. High winds persisted well north of the coast, and considerable damages occurred along the I-49 corridor. The house pictured here is located 50 miles inland in the city of Opelousas. Like thousands of other homes, it was damaged from a tree toppled by high winds.
Source: http://www.iso.com

Howard Viator, LSU AgCenter

Louisiana's agriculture industry sustained some of the greatest economic damage from Isidore and Lili. The impact of the two storms was exacerbated by excessive rains throughout the fall harvest season. Agricultural losses are estimated at $469 million. The picture shown here is typical of the weather-ravaged crops and saturated fields that have combined to make harvesting and processing almost impossible. LSU AgCenter economist Dr. Kurt Guidry estimates the following losses to agricultural commodities: sugarcane - $338 million, cotton - $52 million, soybeans - $42 million, sweet potatoes - $25 million, rice - $9 million, and $3 million to hay and forage crops.
Source: http://www.lsuagcenter.com/news/

Study Finds Dramatic Increase in Use of Mitigation Banks and In-Lieu-Fees

The face of mitigation banking has changed substantially over the past 10 years, according to a report released by the Environmental Law Institute. Based on a two-year study of off-site compensatory mitigation, ELI found that wetland mitigation banking has evolved from a small industry dominated by state and local governments to a growing nationwide commercial enterprise dominated by entrepreneurs. Building on ELI's 1993 study of wetland mitigation banking, "Banks and Fees: The Status of Off-Site Wetland Mitigation in the United States" describes and analyzes wetland mitigation banks, in-lieu-fee mitigation, and umbrella banks, and makes recommendations for improving their effectiveness. Beyond the published report, ELI has posted its compiled data on banks and fees in a comprehensive database at http://www2.eli.org/wmb. The study may be ordered from ELI for $24.99 plus shipping by calling (800) 433-5120 or online at http://www.eli.org.

Source: ELI news Release, 10/16/02. Jennifer Brady-Connor, WETLAND BREAKING NEWS.

Nomination Forms Available for 2003 National Wetlands Awards

The National Wetlands Awards Program honors individuals from across the country that have demonstrated extraordinary effort, innovation, and excellence through programs or projects at the regional, state, or local level. Awards are given for the following categories: Education/Outreach, Science Research, Volunteer Leadership, Land Stewardship and Development, and Outstanding Wetlands Program Development. Since the Program was initiated in 1989, Louisiana has submitted numerous nominations and several Louisianans have received national recognition, including: Cliff and Connie Glockner, Sue Ellen Lyons, Gene Turner, Norman Haigh, Linda Beyt, Robert Hastings, William Patrick, and James Gosselink.

Nomination forms for the 2003 National Wetlands Awards Program are now available. The deadline for submitting nominations is January 10, 2003. Organizations and federal employees are not eligible. To download the nomination form, please visit http://www.eli.org/nwa/nwaprogram.htm. For more information about the National Wetlands Awards Program, please e-mail wetlandsawards@eli.org or contact Erica Pencak at 202-939-3822.

Adapted from ELI news release, 10/16/02.

Economic Importance of Recreational Resources Emphasized in USFWS Survey

Every 5 years the U.S. Fish & Wildlife Service conducts a National Survey of Fishing, Hunting, and Wildlife Associated Recreation. The most recent edition of this survey was conducted in 2001.

According to the report, millions of Americans continue to enjoy wildlife recreation. While the number of sports persons fell from 40 million in 1991 to 37.8 million in 2001, their expenditures increased from $53 billion (adjusted for inflation and comparability between Surveys) in 1991 to $70 billion in 2001.

Photo by Paul Corell

In the past decade the number of Americans involved in wildlife recreation has dropped 6%, however, expenditures on wildlife recreation have increased to $70 billion annually, 32% over 1991 estimates.

The state-specific reports which usually accompany the U.S. Fish & Wildlife Service National Survey of Fishing, Hunting, and Wildlife-Associated Recreation are still being developed. The state-level reports are scheduled to be released starting in November 2002, with all states available by the end of February 2003.

To view the entire report, go to:
http://federalaid.fws.gov/surveys/surveys.html
Regional reports are also available at:
http://library.fws.gov/Pubs/State_overview01.pdf

For additional information about National Fishing, Hunting, and Wildlife-Associated Recreation Surveys, Contact Sylvia Cabrera, Sylvia_Cabrera@fws.gov, U.S. Fish and Wildlife Service, Division of Federal Aid Arlington Square, Room 140, 4401 N. Fairfax Drive, Arlington, Virginia 22203, (703) 358-1842 (voice), (703) 358-1837 (fax).

Governor Appoints Members to New Coastal Commission

On October 21, 2002 the newly appointed “Governor's Advisory Commission on Coastal Restoration and Conservation (GCCRC) held its first meeting in Baton Rouge. The inaugural meeting of the GCCRC comes after a year of activity which began with Governor’s Coastal Summit in August of 2001 and ended on February 28th with an interim committee report on the status of coastal Louisiana. In their report "Saving Coastal Louisiana" the interim committee called for the development of the commission that would become the GCCRC. The CCCRC was created by Act No. 114 of the First Extraordinary Session of 2002 for the purpose of:

> *"assist(ing) the State of Louisiana in the development and implementation of a holistic engineering plan to achieve a sustainable ecosystem, encompassing Louisiana's fragile coast from the Pearl to the Sabine Rivers, predicated upon best practices and the adoption of uncompromising engineering, ecological, and scientific programs."*

The Commission represents statewide interests from various regions and industries. Members include:

King Milling, Chair
Mayor Randy Roach, Co-Chair
Ted Beaullieu
Dr. James Coleman
Dr. Paul Coreil
Windell Curole
Mark Davis
Stephanie Desselle
Merlin Dupre
Berwick Duval
William P. Edwards, III
Ted Falgout
Montgomery “Monty” Fisher
Dr. William Jenkins
Gary LeGrange
Lori Leblanc
Wayne Leonard
Paul McIlhenny
Stacy Methvin
Ryan Montegut
Representative Loulan Pitre
James Tripp
Newman Towbridge
Wilson Voison
William Borden Wallace
Joseph Wiley
Linda Zaunbrecher
Senator John Hainkel
Senator Craig Romero
Representative Damon Baldone
Representative Wilfred Pierre

Source: La Governor’s Office of Coastal Activities

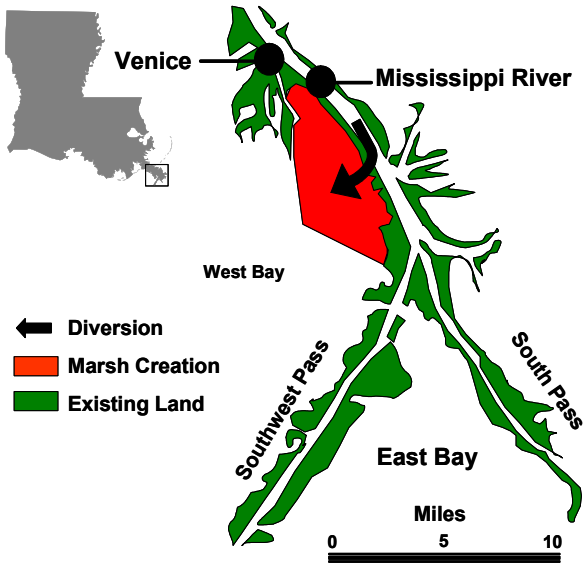
Construction on West Bay Sediment Diversion To Begin in Spring 2003

The first large-scale sediment diversion on the Mississippi River is slated to begin construction in the Spring of 2003. The project will be located below Venice Louisiana at West Bay. Unlike controlled diversions such as siphons or gated structures, the West Bay diversion will be an “uncontrolled” re-introduction of the Mississippi River.

A dredge will be used to cut a deep channel through the river's low, narrow bank and allow for sediment-laden water from the Mississippi’s bed load to create almost 10,000 acres of marsh from Grand Pass at Venice down to Southwest Pass. The initial channel will be constructed to divert 20,000 cubic feet per second (cfs) of water and sediment through the project. The channel may ultimately be enlarged for full-scale diversion of as much as 50,000 cfs at average river stage.

Representatives from the U.S. Army Corps of Engineers have indicated that more sediment diversions will be needed in the future to effectively combat the problem of coastal land loss. Information generated from the new West Bay sediment diversion will likely prove useful in guiding future projects of a similar nature.

The U.S. Army Corps of Engineers and Louisiana Department of Natural Resources will cost-share the $22.3 million project, 85 percent federal and 15 percent state. For more information, please contact John W. Hall at 504-862-2201.



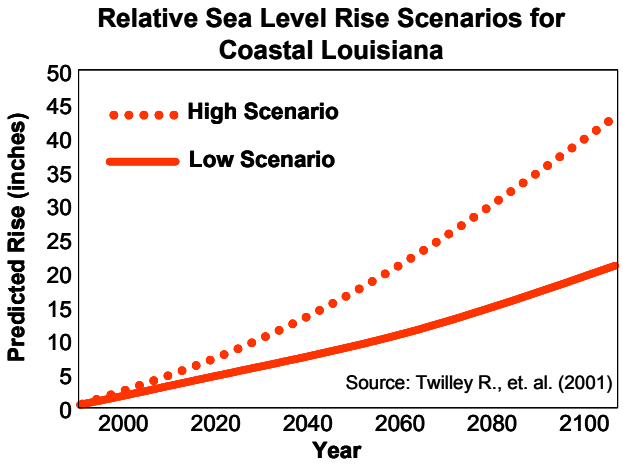
Graphic Adapted from Elena Napolitano, New Orleans District, USACE

Construction will begin in spring 2003 on the West Bay Sediment Diversion Project, a first-of-its-kind wetlands restoration in coastal Louisiana featuring uncontrolled sediment diversion from the Mississippi River.

Climate Change and Coastal Louisiana

A recent report from the Union of Concerned Scientists (UCS) depicts dire consequences for coastal Louisiana if even conservative climate change predictions prove true. The report, entitled *Confronting Global Climate Change in the Gulf Coast Region*, was published in late 2001, but has received an increasing amount of attention over the past year.

According to the report, global sea-level rise will have a disproportionate effect along the Louisiana Gulf Coast due to its flat topography and vulnerability to major storms. Sea-level along the Gulf Coast is expected to increase 20 inches in the next century, however, with subsidence (marsh sinking) factored in, "relative" sea level rise could increase by as much as 44 inches along the Louisiana/Mississippi Delta.



According to climate models, coastal Louisiana could see dramatic increases in relative sea level over the next century.

Dr. Robert Twilley (ULL) is the lead author of the UCS report and he is the featured interview in the upcoming edition of *WaterMarks*, the quarterly outreach publication of the Coastal Wetland Planning, Protection, and Restoration Act (CWPPRA). The purpose of this special edition of *WaterMarks* is to discuss how CWPPRA must revamp its efforts in light of these climate change forecasts. According to Twilley,

> *"... the most important word in the CWPPRA acronym is "planning." Every project, every design, every bit of engineering has to account for sea-level rise. It absolutely has to be one of the critical factors. If it's not, then I don't think there's been a buy-in to the idea of sustainability."*

Copies of the UCS report can be obtained at: www.ucsusa.org. Electronic and hard copies of *WaterMarks* are available through the CWPPRA website: www.LaCoast.gov.

Upcoming Meetings and Events in Louisiana

Dec. 12-13, 2002	**Meeting of the National Research Council's Committee to Review Coast 2050: Toward a Sustainable Coastal Louisiana,** Le Pavillon Hotel New Orleans, Louisiana, Gabrielle Bodin, (337) 266-8623, Gabrielle_Bodin@usgs.gov
Dec. 19, 2002	**Coastal Wetlands Conservation and Restoration Authority Meeting,** Thomas Jefferson Room, Claiborne Bldg., Baton Rouge, La, Kyle Rodriguiez, (225) 342-3968, , kyle.rodriguez@gov.state.la.us
Jan. 16, 2003	**CWPPRA Task Force Meeting,** U.S. Army Corps of Engineers, New Orleans District Office, Gregory Miller, (504) 862-2310, http://www.lacoast.gov/calendar/2003-01-list.htm#319
Jan. 23, 2003	**BTNEP Management Conference**, Nicholls State University, Thibodeaux, La, Deborah Schultz Deborah Schultz (985) 447-0868. http://www.btnep.org/

Louisiana Wetland News to go Completely Online!

Since 1992, the Louisiana Wetland News has been available through postal subscription. In 1999, an electronic version was also made available to subscribers. However, the next edition of this newsletter (Spring 2003) will be the final issue to be provided via postal mail. The move towards a completely electronic format will enhance the newsletter's capacity for colorful illustrations, access to archived materials, timely distribution, and reduced costs. You will need to have Adobe Acrobat Reader installed on your computer to open the newsletter. This is a free program that can be downloaded at:

http://www.adobe.com/products/acrobat/readstep.html

I encourage all of you who have not yet subscribed by email to do so as soon as possible. As always, if you would like to receive an electronic copy of this newsletter, simply send an e-mail addressed to **rcaffey@agctr.lsu.edu** In the message body simply type your full name and the words, "Subscribe LWN".

Thank you,

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