

Coastal Louisiana and South Florida: A Comparative Wetland Inventory



In Review...

- Physical and historical facts about wetlands in each state and region
- Restoration program similarities and differences
- Comparative environmental and economic resources
- Lessons from Florida?

Everglades bill sent to Clinton for signing 11/3/2000

WASHINGTON – After weeks of debate, a \$7.8 billion project to restore the Everglades sailed through the House on Friday and will be sent to President Clinton for his signature. The bill containing the Everglades plan, the Water Resources Development Act (WRDA), was approved 312-2, the only dissenters were Reps. Helen Chenoweth-Hage, R-Idaho, and Marshall Sanford Jr., R-S.C. "Finally, America's Everglades are getting the much needed attention they deserve," said Clay Shaw, R-Fla., said.

CARA Bill Dies 12/12/2000

The Conservation & Reinvestment Act of 1999 (CARA) suffered a painful death in the 106th Congress despite unprecedented support in both the U.S. House and Senate. Two other bills, the Interior Appropriations and the Commerce, Justice and State (CJS) Appropriations bills were passed as alternatives to CARA. Unfortunately, both of these bills fall short of the provisions found in CARA. "It is extremely disappointing after the landslide victory in the House of Representatives that CARA was left to die in the Senate," said David Waller, past

Separate news excerpts portray different results for two major wetland restoration initiatives proposed by Florida and Louisiana in 2000. This disparate outcome has intensified interest in Louisiana for a comparison of the state's coastal wetland resources against those of the Florida Everglades.

A CATALYST FOR COMPARISON

In the spring of 2000, the 106th Congress was considering two pieces of environmental legislation of unprecedented scale. The Comprehensive Everglades Restoration Plan (CERP), was a 20-year, \$7.8 billion request for federal funding of wetland restoration and hydrology improvement projects in south Florida. Likewise, the Conservation and Reinvestment Act (CARA) proposed a 15-year program of wetland restoration and infrastructure improvement projects in coastal states nationwide, with the lion's share, \$4.5 billion, targeted for Louisiana. By year's end, CERP would be authorized and CARA rejected. The apparent unfairness of this outcome was duly noted in Louisiana, a state threatened by a severe crisis of coastal wetland loss.

Apples and Oranges?

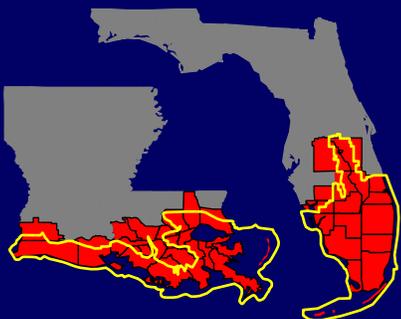
Long before the failure of CARA, interest was growing in Louisiana for a competitive assessment of the state's wetland resources against those of Florida. The intent of such a comparison would be to reflect a perceived disparity in the level of federal support provided for Louisiana's tremendous crisis of coastal wetland loss. But Florida and Louisiana differ in many ways regarding wetland resources and restoration rationale, and a highly standardized comparison would be problematic, primarily because of the lack of comparably collected data. However, where general and reliable information does exist, valuable insight can be gained through a side-by-side discussion of the similarities and differences related to wetlands at the state, regional, program, and resource levels.

THE STATE LEVEL

A comparative wetland inventory of Florida and Louisiana at the state level reveals some interesting similarities. The states are of like size, with total surface areas (land and water) of 34.6 and 28.9 million acres, respectively. Both states have historically held the top two spots in wetland acreage in the lower 48, despite tremendous wetland losses. Nationwide, more than 104 million acres of U.S. wetlands have been lost since 1780, a 53% reduction in the wetlands of the coterminous U.S. Though many states have lost greater percentages: California (91%), Iowa (89%), Missouri (87%); no state has incurred more absolute wetlands loss than Florida or Louisiana. Between the 1780s and 1980s, it is estimated that Florida and Louisiana each lost 46% of their wetland acreage, or 9.3 and 7.4 million acres, respectively. In the past 200 years, Florida's wetlands have been reduced from 54% percent to 31% percent of the state's total surface area. In Louisiana, the percentage has fallen from 52% to 27%.

State Level	Florida	Louisiana
Land (acres) ¹	34,647,040	28,899,200
Water	2,831,360	2,155,520
Total Area	37,478,400	31,054,720
Wetlands-1780s ²	20,325,013	16,194,500
Surface Area	54%	52%
Wetlands-1980s	11,038,300	8,784,000
Loss 1780s-1980s	46%	46%
Wetlands-1990s	11,018,000	7,783,840
Loss 1980s-90s ^{3,4}	0.2%	11%
Wetland* Types ⁵		
Palustrine	70%	56%
Estuarine	4%	18%
Lacustrine	10%	8%
Other	16%	18%
* Non-federal Lands		
Population ¹		
1950	2,771,305	2,683,516
1960	4,951,560	3,257,022
1970	6,791,418	3,641,306
1980	9,746,424	4,205,900
1990	12,937,926	4,219,973
2000	16,396,515	4,465,430
Percent Coastal ⁶	97%	78%

Regional Level	South Florida	Coastal Louisiana
Geography ⁷	Gulf and Atlantic Coastal Flats and Coastal Zone	Gulf Coastal Flats, Coastal Zone, and Lower Miss. Alluvial Plain
Composition ^{8,9}	16 counties South Florida Water Mgt. District (SFWMD)	20 parishes Louisiana Coastal Zone (LCZ)
Population ^{6,10} (percent of state)	6,300,000 40%	2,200,000 50%
Square miles ^{8,11}	18,000	20,000
Public lands ^{8,12}	30%	30%



The Louisiana Coastal Zone and the South Florida Water Management District (outlined in yellow). These regions contain the greatest amounts of human population and critical wetland area in each state.

Agricultural Conversions

Historic wetland losses in Florida, and to a lesser extent Louisiana, have been predominantly due to agriculture. Annual wetland conversions attributed to farming averaged almost 600,000 acres nationwide during the 1950s to 1970s, and remained as high as 280,000 acres per year into the early 1980s. In Florida and Louisiana most of the conversion occurred on forested wetlands, though palustrine wetlands still account for the majority of wetland acreage in each state. Overall, agriculture-related wetland losses have been dramatically curtailed in recent years with the advent of environmental regulations and Farm Bill conservation initiatives. Current estimates by the U.S. Geological Survey (USGS) indicate that such policies have greatly curtailed wetland loss in Florida. By the mid-1990s, Florida wetlands were estimated by USGS at 11 million acres, a 0.2% decrease from the mid-1980s. The same estimate for Louisiana depicts an 11% reduction during this period.

Population Growth

The states of Florida and Louisiana not only share common histories regarding wetland acreage and wetland loss, but at one time each state also held approximately the same number of people. Fifty years ago each state had around 2.7 million residents, however, Florida's population has since exploded to 16.4 million, growing at an average rate of 4.3% annually, four times faster than Louisiana. Florida's rapid population growth reflects a nationwide trend of migration toward coastal regions. Counties included in a narrow, 50-mile-wide band of the U.S. coastline contain less than 15% of U.S. land, but are home to more than 60% of the population. Florida is almost entirely coastal, with 97% of its population in coastal counties. Less than half of Louisiana's parishes are considered coastal by this definition, yet these parishes are home to 78% of Louisiana residents.

THE REGIONAL LEVEL

The wetlands of south Florida and south Louisiana are also characterized by similar physiographic regions. In south Florida, the landscape is predominantly comprised of Gulf and Atlantic coastal flats within an encircling coastal zone that expands toward the Florida Keys. Likewise, Louisiana also contains Gulf coastal flats within an encircling coastal zone, but also contains a vast area of wetlands formed by the lower Mississippi River alluvial plain. The political boundaries intersected by these geographies include all or part of 16 counties in the South Florida Water Management District (SFWMD) and 20 parishes in the Louisiana Coastal Zone (LCZ).

The SFWMD and the LCZ are of similar size, containing 18,000 and 20,000 square miles, respectively. In each region, most land (70%) is privately owned. These regions also contain the highest level of population in each state, 40% of Florida and 50% of Louisiana. Each of the regions contains wetland areas that have been severely altered. The most critical of these areas in the SFWMD is the Greater Everglades, and in the LCZ, it's the state's coastal marshes and swamps. These two wetland areas share many similarities in scale, significance, and historic loss rates.

The Greater Everglades

At 25% of the state's total wetland acreage, the Greater Everglades represent the most significant wetland area in Florida. The Greater Everglades consists primarily of three sub-areas: 1) the 2,150-square-mile Everglades National Park; 2) 1,309 square miles of water conservation areas, and 3) the 871-square-mile Big Cypress Preserve. This 4,350-square-mile ecosystem is world renowned for its natural beauty and recognized as an International Biosphere Reserve, a World Heritage Site, and a RAMSAR wetland of international importance. However, much of the Everglades has succumbed to development. Flood control and navigation projects have taken their toll, but agriculture has been the primary cause of wetland loss. About 24% of the original Everglades area is now in crop production. Fortunately, this type of conversion has been effectively halted by environmental and agricultural policies implemented over the past 30 years.

Critical Wetland Regions ^{8,12}	Greater Everglades of the SFWMD	Coastal Marshes and Swamps of the LCZ
% of state wetlands	25%	40%
Wetland Subregions and square miles ^{12,13,14}	Everglades National Park: 2,150	Coast 2050 Ecosystem Sub-Regions (Marsh)
	Water	
	Areas:	
	1 221	1 395
	2 173	2 1,029
	3 786	3 1,206
		4 1,185
	Big Cypress Preserve 891	Atchafalaya Basin 929
Total:	4,350	4,744
Conversion 1900-2000: percent	1,379*	1,900†
2000-2050: percent	24%	29%
	0 - 40*	700†
	1%	15%
	*Converted to other uses	†Converted to open water
Major Causes of Wetland Loss ^{12,13}	Agricultural Conversion	Levees on Miss. River
	Urban Development	Hydrologic Modification
<i>*In order of significance</i>	Hydrologic Modification	Subsidence

Program Level	Greater Everglades	Louisiana Coastal Zone
Selected Events and Initiatives ^{12,15}	1934: Est. of Everglades National Park 1948: Central & Southern FL Project 1972: Land & Water Conserv. Act 1994: Gov's Commission for Sustainable South Florida 1996: C&SF "Re-Study" authorized under Water Res. Dev. Act (WRDA) 2000: Congress approves CERP	1923: Seismic Exploration on Gulf Coast 1928: Levee Construction via Flood Control Act 1989: Barataria-Terrebonne National Estuary Program (BTNEP) 1990: Coastal Wetland, Planning, Protection, & Restoration Act (CWPPRA) 1998: Coast 2050 Report Released 2000: Congress rejects CARA
Program Cost Share Objectives ^{9,12} <i>In order of priority</i>	CERP 50% Freshwater Reintroduction & Hydrologic Restoration Water Storage Projects Water Quality Improvement	CWPPRA / 2050 15% Freshwater Reintroduction & Hydrologic Restoration Structural Restoration Vegetative Restoration
Authorized: - Spending - Projects	\$11 billion 60	\$600 million* 108* / 77† *includes WRDA †2050 Strategies
Acres to be Restored or Preserved ^{9,12,16,17}	217,000	141,758*/149,240† *includes WRDA †Fully funded 2050

The Louisiana Coastal Zone

At 40% of the state's total wetland acreage, the marshes and swamps of the LCZ represent the most significant wetland area in Louisiana. The LCZ includes 3,815 square miles of coastal marshes and swamps divided among four sub-regions of the Mississippi Deltaic Plain and Chenier Plain ecosystems. Similar to the SFWMD, the LCZ also covers a large sub-region of palustrine and estuarine wetlands, including the 929-square-mile Atchafalaya Basin. Together, these sub-regions contain 4,744 square miles of wetlands that are world-renowned for their natural productivity and economic significance. Similar to the Everglades, the LCZ has seen a 29% reduction in marsh area (1,900 square miles) in the past century. Unlike the Everglades, wetlands of the LCZ are not being converted for other uses, they are being converted to open water. Though some abatement of this loss has occurred since the 1970s, the situation remains dire. If current loss rates persist, the state could lose an additional 15% (700 square miles) of coastal land by the year 2050. In contrast, less than 1% (40 square miles) of Everglades wetlands is expected to be lost over the next 50 years.

THE PROGRAM LEVEL

Understanding how Florida and Louisiana have succeeded or failed in their attempts to obtain federal funding requires more detailed knowledge of how each program evolved. Clearly, at one time the Everglades and coastal Louisiana were both viewed in a similar manner, as wilderness areas to be conquered for settlement and commerce. But over the past century, an environmental mindset has taken hold. A brief review of selected events helps to explain how restoration programs have evolved in each region.

Program History: Everglades

Active conservation efforts targeting the Florida Everglades date back to the early 1920s and national concern led to the creation of Everglades National Park in 1934. The park was intended to be a natural area, with no development allowed to alter native flora and fauna. However, this mandate was increasingly at odds with ongoing efforts to drain adjacent wetlands for urban and agricultural development. In 1948, Congress authorized the Central and Southern Florida Project (C&SF) to provide water and flood control for urban and agricultural lands. Through the C&SF, the U.S. Army Corps of Engineers (Corps) presided over the drainage of more than half the original Everglades and construction of an intricate water network that allowed rapid population growth along the lower east coast.

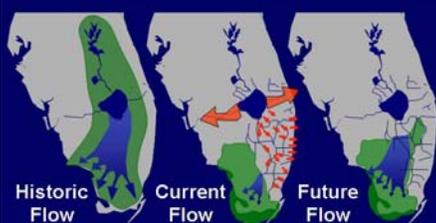
By the late 1960s, the hydrology of the region was severely altered, and Everglades National Park experienced reduced water quality and habitat degradation. Competing demand for water to meet human and environmental needs led to passage of the Florida Land and Water Conservation Act in 1972. The act resulted from a growing body of scientific research that indicated the C&SF project had severely compromised the sustainability of southern Florida. However, scientists alone could not garner the attention needed to fund a massive restoration program. Progress would require engaging political leaders.

In 1994, Florida established the Governor's Commission for Sustainable South Florida, a panel of prominent industry and environmental leaders that is now widely credited as the body that built the political will for Everglades restoration. Further support came in 1996 through the Water Resources Development Act (WRDA), which authorized the Corps and the SFWMD to re-evaluate the C&SF Project. Now referred to as the "Restudy," this evaluation led to development, and ultimately Congressional authorization, of the Comprehensive Everglades Restoration Program (CERP) under WRDA 2000.

Several restoration objectives fall under the auspices of CERP, but the primary goal is to return the hydrology of the SFWMD to a more natural pattern. The \$7.8 billion authorized under the plan adds to the \$3.2 billion spent on Everglades restoration efforts since 1983. The CERP contains more than 60 project features and is expected to create 217,000 acres of new reservoirs and wetlands.

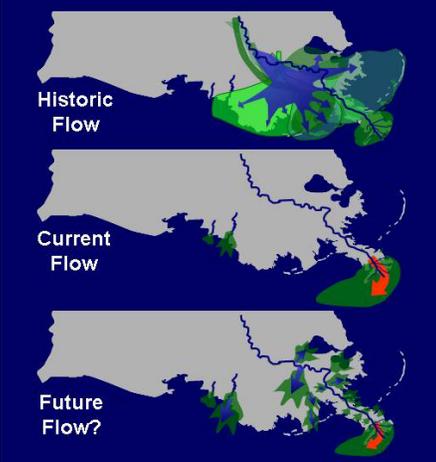
Then and Now: South Florida ⁸

Historically, freshwater flowed through an unimpeded Kissimmee River southward to Lake Okeechobee, then by shallow sheet-flow across the Everglades into Florida Bay. Currently, much of the water is lost to the Gulf and Atlantic, and the remaining water is constrained by hundreds of gates and structures and more than a thousand miles of canals and levees. These alterations, along with agricultural conversions, have caused a 31% reduction in the Everglades over the past century. Restoration plans call for the removal of 240 miles of canals and levees in an effort to partly mimic historic Everglades hydrology and to ensure adequate water supplies for the SFWMD. More than \$3.2 billion has already been spent on such efforts, and an additional \$7.8 billion was authorized in 2000.



Then and Now: Coastal Louisiana ¹²

Historically, coastal Louisiana was sustained by an unimpeded Mississippi River, which over time built coastal deltas by depositing sediment and nutrients. Currently, the river is confined by levees, and millions of tons of alluvial material are lost annually to the Gulf of Mexico. This alteration, combined with natural and human factors, has led to the loss of 32% of the state's coastal wetlands over the past century. Restoration plans call for the strategic re-introduction of Mississippi River water into the LCZ. More than \$600 million has been spent on coastal wetland restoration projects in Louisiana over the past decade. Yet, a 10-fold increase in restoration funding is needed to fully address the crisis. Without federal help, an additional 21% of the state's coastal wetlands could be lost by the year 2050.



Program History: Coastal Louisiana

During the 1920s, when Everglades activism was in its infancy, a development mindset was just beginning to peak in coastal Louisiana. In 1923, seismic exploration technology was introduced to the region and a decade later the LCZ was bustling with oil and gas exploration and production activity. After the Great Flood of 1927, Congress passed a Flood Control Act that instructed the Corps to construct a fortified and fully contiguous levee system along the lower Mississippi River. As in Florida, the hydrology of coastal Louisiana would be severely altered by the 1960s. The confined river no longer deposited alluvial sediments and nutrients on adjacent marshes, and the coast was dissected by thousands of miles of oil and gas navigation canals. The net result was accelerated rates of erosion, saltwater intrusion, and the loss of 29% of the state's coastal marsh. The severity of this crisis was formally documented in 1970 in the report series, *Hydrologic and Geologic Studies of Coastal Louisiana*. These reports provided a basis for restoration planning efforts in coastal Louisiana over the next 20 years.

In 1989 Louisiana received federal recognition of its coastal wetland crisis when Congress authorized the Barataria-Terrebonne National Estuary Program (BTNEP). The BTNEP initiative provided momentum for the Coastal Wetland Planning, Preservation, and Restoration Act (CWPPRA), a state and federal task force that now directs \$30-50 million annually for coastal restoration projects in Louisiana. Unlike the 50% cost share in Florida, the state share under CWPPRA was initially set at 25%, and has since been reduced to 15%. There have been 106 projects authorized under CWPPRA since 1992, and two large-scale freshwater reintroductions, Caernarvon and Davis Pond, were constructed with special WRDA allocations. In total, \$600 million has been spent on projects that are expected to preserve or restore 141,758 acres of coastal wetlands over the next 50 years. Unfortunately, these efforts alone are not adequate to effectively reduce the land-loss crisis.

The 1998 report, *Coast 2050: Toward a Sustainable Coastal Louisiana*, indicates that a sufficient restoration program for the LCZ will require a 10-fold increase in the funding currently provided by CWPPRA. The plan outlines 77 restoration strategies needed to protect 449,250 acres of coastal wetlands. Implementation of the plan is expected to cost \$14 billion over the next 50 years. Funding for such a massive effort might have been obtained through the failed CARA initiative, which would have redirected a portion of \$6 billion in federal royalties received annually from oil and gas production off the Louisiana coast.

In the wake of CARA's failure, Louisiana is pursuing actions similar to those which proved successful for Florida. In 2001, the Louisiana legislature created the Governor's Advisory Commission on Coastal Restoration and Conservation. This commission of politically influential leaders is charged with helping to develop and promote a holistic plan for coastal restoration. Meanwhile, the state and Corps have begun a re-evaluation of the region under the Louisiana Coastal Area Comprehensive Study. Referred to as the "LCA Study," this initiative is examining the feasibility of implementing the Coast 2050 plan. The LCA Study is expected to provide a framework for requesting billions in federal restoration dollars through future WRDA legislation.

THE RESOURCE LEVEL

As Louisiana moves forward with the LCA study and pursues WRDA funding, comparisons with the Florida Everglades are likely to become more frequent. Such assessments will invariably extend beyond the state, regional, and program levels, and shift toward individual wetland resources. At this level, several pertinent questions arise, including: *What are the specific environmental and socioeconomic concerns that have predicated wetland restoration in the Everglades? What is the status of those same wetland resources in Louisiana? and What additional resources are at risk from wetland loss in the LCZ?* Although full coverage of these resources is beyond the scope of this document, a general discussion of major issues can help characterize the threat of wetland loss in coastal Louisiana relative to the Greater Everglades.

How Does Coastal Louisiana Compare to the Florida Everglades? *Environmental Resources*

Physical Landscape 12, 2, 7



The Greater Everglades and coastal Louisiana each contain approximately the same amount of wetland area, and each region has experienced a similar level of historic wetland loss. However, conversion of Everglades wetlands has been effectively halted by the advent of agricultural and environmental policies that prevent or prohibit wetland conversion. Such policies have had little effect in coastal Louisiana, where wetland loss continues largely unabated. Without additional restoration funding, Louisiana is expected to continue losing a tremendous amount of its coastal landscape. Predictions of coastal wetland loss in Louisiana by the year 2050 range from 600 to 1,000 square miles.

Vulnerability to Tropical Storms & Hurricanes 18, 19



South Florida's coastline is highly vulnerable to tropical storms and hurricanes, and Florida receives \$15 to \$25 million in federal funds annually for beach nourishment. Yet, the interior Everglades is far less exposed to these storms than the LCZ. Coastal marshes and barrier islands are Louisiana's front line of defense against storm surge and inundation, but 90% of these wetlands are at or below sea level elevation. According to the LSU Hurricane Center, the central Louisiana coast has experienced landfall of more major hurricanes (Category 3 and above) than anywhere in the continental United States over the past century. Coastal wetland loss combined with increases in relative sea level rise have made the city of New Orleans one of the most hurricane-vulnerable metropolitan areas in the U.S. (NOAA Photo)

Water Quantity Issues 8, 20



The loss of freshwater inputs has been a major cause of wetland deterioration in the Greater Everglades. Primarily due to channelization and diminished sheet flow, the South Florida Water Management District currently loses 1.7 billion gallons of fresh water each day to the Gulf of Mexico. Coastal Louisiana loses the same amount every eight minutes. The Mississippi River, which once sustained coastal Louisiana, now deposits 160-200 million metric tons of waterborne sediment and nutrients off the continental shelf each year. Confinement of the river has deprived the LCZ of the alluvial materials needed to maintain marsh health and productivity. The sustainability of LCZ wetlands hinges on freshwater reintroduction projects that return Mississippi River waters to adjacent coastal marshes.

Water Quality Issues 21, 22



Water quality concerns are one of the biggest motivations behind wetland restoration in the Everglades, where excessive nutrients have led to an overabundance of undesirable vegetation and declines in productivity. Similar concerns exist in Louisiana's offshore waters, but on a much larger scale. Excess nitrogen in the Mississippi River, primarily from agricultural sources in the mid-west, contributes to a seasonal hypoxic zone along the Louisiana coast which ranges in size from 2,000 to 8,000 square miles. Despite this problem, many of Louisiana's coastal marshes are actually nutrient starved. Preliminary research indicates that a significant reduction in Gulf hypoxia could be achieved using coastal restoration efforts that filter Mississippi River water through the wetlands of the LCZ.

Estuarine Nursery Habitat 5, 23, 24, 25



Florida has four federally approved National Estuary Programs, though it contains only one fourth of the estuarine wetlands of Louisiana. The LCZ provides food and/or shelter for countless marine organisms and supports the larval and adult stages of more than 75% of the commercial and recreational fisheries of the northern Gulf of Mexico. Unfortunately, much of this area is shallow water habitat, and thus is not counted in wetland acreage estimates. Estuarine productivity in the LCZ has been historically supported by a high degree of land-water interface. As coastal wetlands continue to succumb to the Gulf of Mexico, such habitat (and its associated carrying capacity), will inevitably begin to decline. (Photo by Chris Woolridge)

Resident and Migratory Birds 15, 26



The Greater Everglades harbor some 350 species of birds, although habitat degradation has led to a 90-95% reduction in wading bird colonies since the 1930s. There are more than 400 species of birds in south Louisiana, and most of them are found in the coastal zone. Colonial waterbirds, seabirds, shorebirds, and waterfowl depend heavily on Louisiana's barrier islands, chenieres, and coastal marshes. Habitat degradation and wetlands loss represent severe threats to bird populations in the LCZ. Combined with pollution, these factors led to local extinction of Louisiana's state bird, the Eastern Brown Pelican, during the 1960s. The recovery of Brown Pelican colonies in coastal Louisiana required reintroduction of the species from populations in Florida.

Threatened Endangered Species 26, 27



The Greater Everglades is home to 61% of the 111 Threatened and Endangered Species (TES) federally listed in Florida. Some of the most notable are the Wood Stork, the West Indian Manatee, and the American Crocodile. The LCZ is home to 77% of the 26 TES listed in Louisiana, including well-known species such as the Bald Eagle, and less familiar ones like the Pearlscale Clam and the Gulf Sturgeon. Furthermore, an additional 103 plants and 64 animals in the LCZ have been listed as "species of special concern" by the Natural Heritage Program. Though many of these species may have healthy populations in other states, in coastal Louisiana they are classified as rare. (Photo by Howard Rogillo, LDWF)

Non Indigenous Species 13, 27



Both Florida and Louisiana are listed among the top four states with the most non-indigenous species. Particular problems exist in the Everglades, where hundreds of exotic plants pose a major threat to native vegetation. Many of the same plants threaten the LCZ, but ironically, it is an exotic herbivore that causes the most damage. Nutria were introduced into Louisiana in the 1930s and populations have since exploded. Nutria are especially problematic in coastal marshes, where they can completely denude an area of wetland vegetation. If uncontrolled, it is predicted that nutria alone will convert an additional 100,000 acres of the LCZ to open water by 2020.

How Does Coastal Louisiana Compare to the Florida Everglades? Socioeconomic Resources

Recreational and Commercial Fishing

15, 28



Statewide, Florida has three times more licensed recreational anglers than Louisiana, but that difference is related more to human population than fisheries productivity. It is unknown how many Florida anglers reside in the SFWMD, but residents of LCZ parishes account for 70% of the basic fishing licenses and 95% of the saltwater fishing licenses sold in Louisiana. Commercial fishing, which is prohibited in most of the Greater Everglades, is a major industry in coastal Louisiana. The LCZ supports the largest commercial seafood sector in the coterminous U.S., accounting for 20-25% of the annual fisheries harvest. More than 1.4 billion pounds of commercial fish (75% of the northern Gulf harvest) were landed in coastal Louisiana ports in 2000 alone.

Recreational and Commercial Wildlife

29, 30, 31



Florida is known for its alligators, which contribute about \$7.5 million annually in wholesale value to the Florida economy. However, the top alligator producing state nationwide is Louisiana, where the value of wild and farm-raised alligators exceeds \$30 million annually. Louisiana is known as the "Sportsman's Paradise," and the state has more than twice the licensed hunters than Florida. Coastal Louisiana harbors the greatest percentage of migratory waterfowl in North America. Waterfowl hunting is a major industry in coastal Louisiana, where millions of ducks and geese are harvested annually, contributing more than \$100 million in economic activity to the state. Loss of coastal habitat severely threatens these resources, as well as many other wildlife inhabitants of the LCZ.

Ecotourism

32, 33, 34



Wildlife resources also generate considerable economic activity in each state under the non-consumptive category of ecotourism. Ecotourism is the one of the fastest growing segments of outdoor recreation nationwide. In Louisiana activities such as bird watching, camping, and visitation of natural areas accounted for more than \$200 million in expenditures in the state during 1996 alone. Yet, this amount is dwarfed by the \$1.6 billion in wildlife viewing expenditures made in Florida during 1996. Everglades National Park is a popular destination for those who enjoy ecotourism, and the park averages about one million visitors annually. Visitors to Everglades National Park comprise approximately 1% of the 70 million non-resident tourists that visit Florida annually.

Cultural Resources

33, 35



South Florida's inhabitants include descendants from Native American tribes, European settlers, former slaves, and Latin American and Caribbean immigrants. This cultural mix has diminished over time within the Greater Everglades area because of development pressures and federal land acquisition. The LCZ also contains cultural remnants of these and many other ethnicities, including: French-speaking Acadians (Cajuns), Creoles, Germans, Italians, Irish, Filipino, Islenos, Croatians, and Vietnamese. Many of these people have carved out a specific niche in the abundant fisheries supported by Louisiana's coastal wetlands. Continued loss of Louisiana's coastal wetlands is a severe threat to this cultural diversity. (Photo by Fonville Winans)

Agriculture

15, 36



The SFWMD has a highly productive agricultural sector, the major commodities are citrus and sugarcane. Over the past century, encroachment from these sectors has been a primary cause of wetland loss and deterioration in the Everglades. In coastal Louisiana these commodities and others contribute \$1.35 billion annually to the state economy. But as the state's coastal wetlands continue to erode, encroachment of the LCZ is becoming a major threat to Louisiana agriculture. Saltwater intrusion is increasingly detrimental to planting and irrigation of agricultural commodities. Just as agriculture has threatened the integrity of Everglades wetlands, the loss of wetland integrity is now threatening agriculture in coastal Louisiana. (Photo by John Wozniak)

Irrigation and Drinking Water

8, 37



More than 70% of the directives called for in the C&SF Restudy pertain to water storage. Improved water storage will provide undeniable environmental benefits to south Florida, but the primary beneficiary will be the public. Concern over drinking water and irrigation supplies has been the linchpin issue behind the broad-based support that has emerged for the CERP. Through revenues and taxes, the SFWMD has committed to providing 50% of all CERP project costs. Similar concerns exist in the LCZ. In addition to problems with agricultural irrigation, saltwater intrusion increasingly threatens drinking and potable water supplies. During a recent drought period, large portions of the LCZ were unable to meet municipal and commercial demands for fresh water.

Navigation and Shipping

38



With more than 120 million tons of shipments annually, Florida is among the top five states in waterborne commerce. Florida has many ports in the SFWMD, including Port Everglades, which accounted for 20.5 million tons of commerce in 2000. However, Louisiana is by far the national leader in waterborne commerce, with more than 507 million metric tons in 2000. The LCZ is home to the majority of this commerce, and contains the first, fourth, and tenth largest U.S. ports by volume. These ports are severely threatened by coastal wetland loss, which can undermine supporting roads and other infrastructure. Without preventative action, coastal land loss will significantly impact these ports, causing negative economic consequences that extend nationwide. (Photo by Dan Dix)

Energy Resources

39, 40



Loss of coastal infrastructure is also one of the greatest threats facing the nation's domestic energy resources. While the Everglades do not contribute to this supply, the LCZ contains much of the U.S. Strategic Petroleum Reserve, supports several thousand of miles of pipelines, and houses hundreds of petroleum storage terminals and refineries. The LCZ also provides shore-based infrastructure that supports 75% of the production and drilling operations in the northern Gulf of Mexico; 16% of the nation's domestic oil and gas production; and the nation's only offshore oil terminal, the Louisiana Offshore Oil Port (LOOP). However, since most of this production takes place beyond the three-mile territorial limit of state waters, the beleaguered LCZ receives little to none of the \$6 billion in federal royalties and fees derived annually from offshore oil and gas activities.

“Based on an evaluation of conditions in the year 2050 without the recommended Comprehensive (Everglades Restoration) Plan, it was determined that the overall health of the ecosystem will have substantially deteriorated.”

Central and Southern Florida
Comprehensive Review Study,
Final Integrated Feasibility Report
and Programmatic Environmental
Impact Statement, 1999

“If recent loss rates continue into the future, even taking into account current restoration efforts, then by 2050 coastal Louisiana will lose more than 630,000 additional acres of coastal marshes, swamps, and islands.”

Louisiana Coastal Wetlands
Conservation and Restoration
Task Force and the Wetlands
Conservation and Restoration
Authority, 1998

Group Tours La. Coast, to Aid in Restoration

6/18/2003

(By BRUCE SCHULTZ) A nationwide panel got a firsthand look at Louisiana's land loss problem this week, with the aim of helping implement a \$14 billion program. The Coastal Engineering Research Board, an advisory arm of the U.S. Army Corps of Engineers, toured the state's coastline Monday.

Tuesday, CERB members heard from state experts on the land loss problem. Maj. Gen. Robert Griffin, CERB president and chief of civil works for the corps, said in a news release that the panel will help the

Coastal erosion brings federal officials to state

9/20/2002

(By MIKE DUNNE) Key White House and U.S. Army Corps of Engineers officials will tour south Louisiana next week to get a look at the state's coastal wetlands. Louisiana officials hope to garner support for an Everglades-style restoration program for Louisiana's coast. Last year, Congress created a \$7.8 billion program to restore the Everglades in Florida. Louisiana wants the Everglades a cost of \$14 billion. The Louisiana Department of Natural Resources and the corps already are working on two studies that will be used to ask for Federal

Tours of coastal Louisiana are being provided to federal officials as part of a new campaign to raise awareness about the state's severe crisis of coastal wetland loss.

SIMILARITIES AND DIFFERENCES

A systematic review of wetland literature at the state, regional, and program level reveal many similarities between Florida and Louisiana. Both states have historically held the top two spots in wetland acreage in the coterminous U.S. and no other state in the nation has incurred more absolute wetlands loss. Similarities also exist at the regional and sub-regional levels. The SFWMD (18,000 square miles) and the LCZ (20,000 square miles) each contain the majority of their respective state's population and a surprisingly similar amount of critical wetland acreage: 4,350 square miles in the Greater Everglades and 4,744 square miles in coastal Louisiana.

Additional similarities can be found in the physical and programmatic histories of each sub-region. Hydrologic modification has been the most detrimental factor in both the Everglades and coastal Louisiana, and the restoration of wetlands in each area now hinges primarily on the extent to which fresh water flows can be restored. Finally, functional wetland loss in each region poses risks to many of the same environmental and socioeconomic resources, although the degree and implications of these risks can differ greatly.

The most obvious difference between the Greater Everglades and coastal Louisiana is that of wetland deterioration versus wetland loss. This difference is evident in the stated rationale of restoration programs in each region (see quotes left). A no-action scenario for the Florida Everglades (failure to fund CERP) would have resulted in substantial wetland deterioration by the year 2050. Conversely, the complete loss (conversion to open water) of 700 square miles of wetlands is predicted for coastal Louisiana by the year 2050, even at the current level of CWPPRA funding. While the loss of so much physical habitat would be dire, environmental concerns alone are not sufficient to warrant the billions needed for comprehensive restoration.

LINCHPIN ISSUES

In the past two years, Louisiana has hosted informational exchanges with Florida where representatives from the Everglades described the strategies which culminated in authorization of CERP. Two of the most reiterated points were: 1) the importance of developing a meaningful process for stakeholder input and dispute resolution and 2) the identification of a central, key issue that binds disparate groups (perhaps for different reasons) behind a common message and a shared commitment. Concerns about municipal water supply have been the linchpin issue behind Everglades restoration efforts. Though water storage provisions of CERP will provide undeniable environmental benefits, it is the general public that stands to benefit most. To ensure adequate water supplies, 50% of all CERP project costs will be provided by the SFWMD through a combination of bond funding, self-levied taxes, and general revenues.

Louisiana's recent LCA initiative and newly appointed Governor's Advisory Commission are examples of how the state is following Florida's lead in addressing its coastal wetland crisis. And as the state gears up for a WRDA authorization, a central message is beginning to emerge. Louisiana's appeal for restoration funding will be predicated on a host of concerns, but the linchpin issues are likely to be fisheries and petroleum infrastructure.

The relevant question is: *Can Louisiana convince the national interest that a "working coast" is worth saving?* At home, the challenge becomes one of internal funding, specifically: *What will be the state's ante in a \$14 billion dollar restoration bid?* Self-levied taxes have not been highly successful in the state, so ultimately, the federal royalty sharing concept of the failed CARA plan must be revisited. Regardless of the internal funding sources identified, securing billions in federal dollars for coastal Louisiana will require a restoration plan that is developed with considerable public buy-in across a broad range of user groups.



What's In a Name?

Over the past 20 years the word "Everglades" has become ingrained in the American lexicon, while coastal Louisiana has suffered from an identity crisis. Although certain sub-regions like the Atchafalaya are recognized at the national level, the Louisiana coast as a whole lacks such familiarity. To rectify this problem, Louisiana is embarking upon one of the largest outreach campaigns in its history. "America's WETLAND: Campaign to Save Coastal Louisiana" is an intensive effort designed to raise awareness of the national impact of Louisiana's wetland loss and to increase support for efforts to restore and conserve coastal Louisiana. To date, the campaign has sponsored several international wetland science summits, held numerous congressional briefings, and secured many large corporate sponsors, including Shell Oil, Eitel, and Tabasco. Success in the new campaign will require that Louisianans speak with a unified voice and exhibit a strong commitment to paying the state's share of restoration costs. For additional information about America's WETLAND, visit: <http://www.americaswetland.com>

REFERENCES

- 1 Economic Research Service (2002), United States Department of Agriculture, State Fact Sheets, October 28, 2002, <http://www.ers.usda.gov/statefacts/>
- 2 Dahl, T. E. (1990), Wetlands Losses in the United States 1780's to 1980's. U.S. Department of the Interior, Fish and Wildlife Service, <http://www.npwrc.usgs.gov/>
- 3 Hefner, J., Wilen, B., Dahl, T., and W. Frayer (1994), Southeast Wetlands: Status and Trends, Mid 1970s - Mid 1980s US Fish and Wildlife Service, <http://wetlands.fws.gov/>
- 4 Hartley et al. (2000), 1993 Satellite Imagery, National Wetland Research Center, Lafayette, La.
- 5 Natural Resources Inventory (2000), USDA-NRCS, Wetlands and deepwater habitats on water areas and nonfederal land, <http://www.nrcs.usda.gov/>
- 6 Culliton, T., et al. (1999) 50 years of Population Change along the Nation's Coasts, 1960-2010. NOAA, Strategic Assessment Branch, Rockville, MD. 41 pp.
- 7 Dahl, T.E. (2000), Status and Trends of Wetlands in Conterminous United States 1986-1997, US Dept. of Interior, Fish and Wildlife Service, Washington, D.C. 82 pp.
- 8 Central and Southern Florida Project Comprehensive Review Study (1999), Facts and Statistics, US Army Corps of Engineers and South Florida Water Management District
- 9 La Dept. of Natural Resources (2002), Press Release—New La Coastal Zone Map, <http://www.dnr.state.la.us/crm/coastmgt/cmdpage.html>
- 10 South Florida Water Management District (2002) <http://www.sfwmd.gov/>
- 11 USACE (2002) Louisiana Coastal Area Ecosystem Restoration Project <http://www.mvn.usace.army.mil/prj/lca/fullpicture.asp?number=index>
- 12 Louisiana Coastal Wetlands Conservation and Restoration Task Force (1999) Coast 2050: Toward a Sustainable Coastal Louisiana, La Dept. of Natural Resources. Baton Rouge, La. 161 pp.
- 13 Everglades Consolidated Report (2002), South Florida Water Management Dist. and Florida Dept. of Environmental Protection. <http://www.sfwmd.gov/org/ema/everglades/index.html>
- 14 Barras et al. (2003) Historical and Predicted Coastal Louisiana Land Changes: 1978-2050, USGS Open File Report, July 2003, 11p.
- 15 South Florida Ecosystem Restoration Task Force (2000), Coordinating Success: Strategy for Restoration of the South Florida Ecosystem, July, 31, 2000, 68 pp.
- 16 Good, B. (1999), Coast 2050: Governor's May Day 1999, La Dept. of Natural Resources.
- 17 CWPPRA (2001) Wetland Benefits for Priority List Projects 1-10. <http://www.lacoast.gov>
- 18 American Coastal Coalition (2000) Coastal Facts, <http://www.coastalcoalition.org>.
- 19 LSU Hurricane Center (1999) Storm Journal, Fall 1999, p. 1, <http://www.hurricane.lsu.edu/>
- 20 Calhoun, M. and J. Frois (1997) Louisiana Almanac, Mississippi River Facts, p. 294.
- 21 Mitsch, W.J., et. al. (2001) Reducing nutrient loading to the Gulf of Mexico from the Mississippi River Basin: strategies to counter a persistent ecological problem, BioScience, 51, 373-388, 2001.
- 22 Lane, R.R., J.W. Day, Jr., and B.Thibodeaux (1999) Water quality analysis of a freshwater diversion at Caernarvon, Louisiana, Estuaries, 22, 327-336, 1999.
- 23 Browder, J.A., H.A. Bartley, and K.S. Davis (1985). A probabilistic model of the relationship between marshland-water interface and marsh disintegration. Ecological Modelling; 29: 245-260.
- 24 Day, J.W. et. al. (1989) Estuarine Ecology, John Wiley & Sons ISBN 0-471-06263-4, 581 pp.
- 25 McHugh, J.L. (1980) Coastal Fisheries, in R.T. Lackey and L.A. Nielson (Eds.), Fisheries Management. Blackwell Scientific Publ., Oxford, pp. 323-346.
- 26 Gosselink, J., Coleman, J. and R. Stewart, Jr. (1999) Coastal Louisiana, in Status and Trends of the Nation's Biological Resources, USGS, # 024-001-03603-7.
- 27 USFWS (2003) Threatened and Endangered Species System, <http://ecos.fws.gov/webpage/>
- 28 NMFS (2001) Commercial Landings of Fish by States, US Dept. of Commerce
- 29 LFAAC (2002) Louisiana Fur and Alligator Advisory Council, <http://www.alligatorfur.com>
- 30 FAMEAC (2002) Florida Alligator Marketing and Advisory Committee, <http://www.fl-seafood.com>
- 31 LDWF (2002) Louisiana Department of Wildlife and Fisheries <http://www.wlf.state.la.us>
- 32 USFWS (1996) National Survey of Fishing, Hunting, and Wildlife-Associated Recreation
- 33 ENP (2000) Everglades National Park Information, <http://everglades.national-park.com>
- 34 FLA-USA (2003) Florida Tourism <http://www.flausa-media.com>
- 35 Davis, D. (2000) History of Land Use, Economic Development, and Population Trends in Louisiana's Coastal Areas, LAOSRDT, LSU, Baton Rouge, La, 70803
- 36 LSU AgCenter (1999) Summary of Agriculture & Natural Resources, <http://www.lsuagcenter.com>
- 37 Koehl, C. et. al. (2001) Putting it Back Together: Making Ecosystem Restoration Work,
- 38 USACE (2002) Waterborne Commerce Statistics Center, <http://www.iwr.usace.army.mil/>
- 39 La-1 Coalition (2002) The La-1 Coalition, Energy Facts and Estimates
- 40 MMS (2002) Minerals Management Service, <http://www.mms.gov/>

Caffey, R. H. and M. Schexnayder (2003) Coastal Louisiana and South Florida: A Comparative Wetland Inventory, *Interpretive Topic Series on Coastal Wetland Restoration in Louisiana*, Coastal Wetland Planning, Protection, and Restoration Act (eds.), National Sea Grant Library, 8p.



www.agctr.lsu.edu



www.LaCoast.gov



www.Laseagrant.org