

Louisiana's Biggest Environmental Problem

As all who are familiar with coastal Louisiana know, we are on the losing end in our efforts to combat coastal wetland loss. This is evident to any fishermen - both recreational and commercial, hunters, bird watchers, beach combers, and especially those folks who live close to the coast. And it is easily made evident to anyone who views and understands this map.

Recent efforts have been completed to assess the magnitude of coastal land loss in Louisiana. Based on the available information, Louisiana has lost an estimated 1,900 square miles of coastal land between 1932 and 2000, roughly an area the size of the state of Delaware. Additionally, the best scientific estimates that are presented in the Louisiana Coastal Area (LCA) Land Loss Report indicate that the Louisiana coast will lose an additional 700 square miles by the year 2050.

The area currently undergoing the greatest wetland loss is the Barataria and Terrebonne basins - the area essentially between the Atchafalaya and Mississippi rivers. From 1956 to 1978, Barataria-Terrebonne accounted for 43 percent of Louisiana's coastal wetland loss. From 1978 to 1990, this area experienced 61 percent of the state's loss and from 1990 to 2000, it was 66 percent. The LCA report predicts the area's percentage of loss to be as much as 80 percent from 2000 to 2050 if no new restoration occurs. If these predictions are correct, this means that the Barataria-Terrebonne area would lose an additional 560 square miles of coastal habitats.

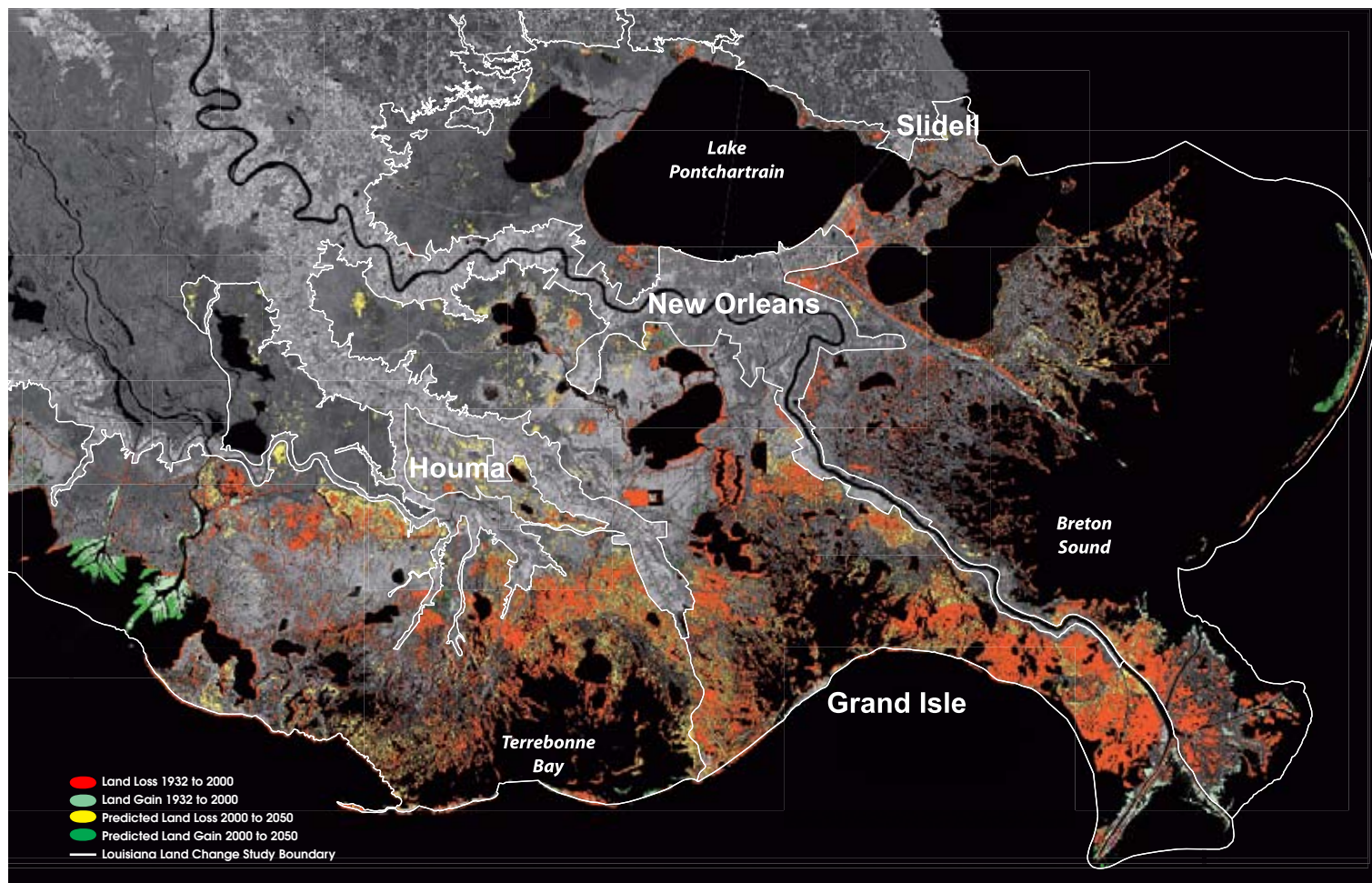
These coastal habitats are economically, ecologically, and culturally important not only to the residents who reside here and the folks who visit, but they are also valuable to the Nation. If these losses continue, the impacts on human populations, oil and gas infrastructure, fisheries and the seafood industry, and wildlife will be unimaginable.

It is your responsibility to educate yourself about these issues and inform your elected officials about your thoughts. Many informative products have been developed that address Louisiana's biggest environmental problem, including brochures, reports, videos, maps, cd's, etc. For more information or to find out how to receive these products, visit these Web sites:

www.lacoast.gov • www.savelawetlands.org

www.btneq.org • www.crcl.org

www.estuaries.org • www.americaswetland.com



Fall 1999 Landsat Thematic Mapper Satellite Image
Map prepared by the U.S. Geological Survey, National Wetlands Research Center



A Symbol of A Nation

As anyone who peers into the spring skies can attest, our nation's symbol – the bald eagle – is once again becoming a fairly common sight. Migrating to Louisiana each fall, male and female bald eagles frequent our cypress tupelo swamps, beginning the search for just the right nesting tree. In most instances, bald eagles use the same nests year after year for rearing their young. By Christmas Day, many bald eagle nests include two new chicks, and that is when we begin seeing the parents as they busily hunt for food to feed their hungry bunch.

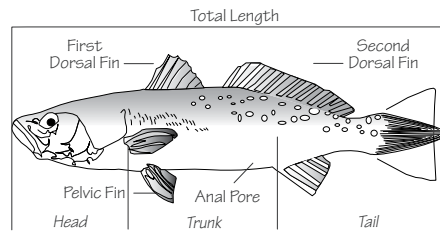
However, as most people know, the bald eagle was almost just a memory, much like our State bird—the brown pelican. Heavy use of the pesticide DDT and others throughout the middle of the 20th century caused the populations of many birds to decline drastically. Birds affected by these chemicals were those at the top of the food chain as accumulation of these toxic substances impaired their ability to reproduce.

Today, there are 256 active nests spread across the state with the bulk occurring within the Barataria and Terrebonne basins. The number of active nests has risen from well below 50 in the early 1990s to 256 during the 2004/2005 nesting season. In 2005, more than 350 young birds survived to the fledgling or flight stage (normally 10-12 weeks of age). This recovery has allowed the downlisting of bald eagles in Louisiana from endangered to threatened in 1995. Efforts to remove the bald eagle from the endangered species list began in 2003. Banning the use of DDT is the major cause of population recovery, though it has been helped by habitat protection and increased public awareness and education as well. At present, the population across the state appears stable and seems to be expanding.

Because of the increasing presence of the bald eagle, the Cajun Coast Visitors & Convention Bureau is planning the first “Eagle Expo” in February 2006 to be held in the Lake Palourde area near Morgan City, Louisiana. Anyone interested in seeing bald eagles and wanting to learn more about them should consider attending this event.

For more information, visit www.btnep.org on the Web.

FRESHWATER species SALTWATER species



Fork Length (FL): Tip of snout to fork of tail
Total Length (TL): Tip of snout to tip of tail



FRESHWATER species

Black Bass (Largemouth)
Atchafalaya Basin and Lake Verret-Palourde Area
Crappie (Sac-a-lait)
Striped or Hybrid Bass
White Bass
Yellow Bass
Channel Catfish
Blue Catfish
Flathead, Spotted, Yellow or Opelousas Catfish
Freshwater Drum (Gaspargou)

SIZE limit

None
14" minimum (TL)
None
None: 2 over 30" (TL)
None
None
25 less than **11"** (TL)
25 less than **12"** (TL)
25 less than **14"** (TL)
25 less than **12"** (TL)

Daily limit

10
10
50
5 (Any combination)
50
50
100
100
100
No limit over 12"



SALTWATER species

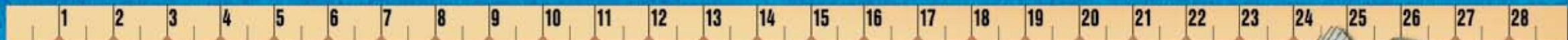
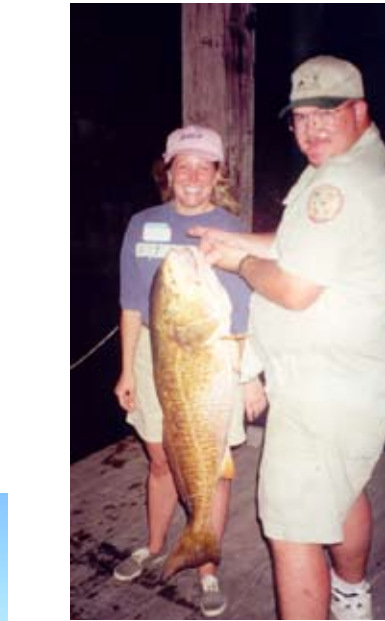
Speckled Trout
Red Fish
Black Drum
Southern Flounder
Amberjack
Cobia (Ling or Lemon)
King Mackerel
Spanish Mackerel
Red Snapper

SIZE limit

12" minimum (TL)
16" minimum (TL), one over 27"
16" minimum (TL), one over 27"
None
State & Federal Reg. **28"** min. (FL)
State & Federal Reg. **33"** min. (FL)
State & Federal Reg. **24"** min. (FL)
State & Federal Reg. **12"** min. (FL)
State & Federal Reg. **16"** min. (FL)

Daily limit

25
5
5
10
1
2
2
15
4



2006 BTNEP LOUISIANA FISHING GUIDE

This is not a comprehensive or official copy of the laws in effect and should not be utilized as such. Size and creel limit regulations are presented for selective species only. These species as well as other species may be managed by seasons, quotas and permits. Different regulations for bass, catfish and crappie may apply within specific areas. Contact the Louisiana Department of Wildlife and Fisheries (LDWF) for specific information.

* For Red Drum (Redfish) and Spotted Seatrout (Speckled Trout), Recreational saltwater anglers may possess a two-day bag limit on land; however, no person shall be in possession of over the daily bag limit in any one day or while fishing on the water; unless that recreational saltwater angler is aboard a trailer engaged in commercial fishing for a consecutive period of longer than 24 hours.

** There are specific regulations for Red Snapper and Shark. Contact the LDWF for more information.

FORK LENGTH (FL): Tip of snout to fork of tail. TOTAL LENGTH (TL): Tip of snout to tip of tail.

The development of this product was supported by LUMCON and LDWF.

FRESHWATER SPECIES	SIZE LIMIT	DAILY LIMIT
Largemouth and Spotted Bass	None	10
Atchafalaya Basin and Lake Verret-Palourde Area	14" Minimum (TL)	10
Crappie (Sac-a-lait)	None	50
Striped or Hybrid Striped Bass	None: 2 over 30" (TL)	5 (Any combination)
White Bass	None	50
Yellow Bass	None	50
Channel Catfish	25 less than 11" (TL)	100
Blue Catfish	25 less than 12" (TL)	100
Flathead Catfish (Spotted, Yellow or Opelousas)	25 less than 14" (TL)	100
Freshwater Drum (Gaspargou)	25 less than 12" (TL)	No Limit over 12"

SALTWATER SPECIES	SIZE LIMIT	DAILY LIMIT
Speckled Trout*	12" Minimum (TL)	25
Red Fish*	16" Minimum (TL), one over 27"	5
Black Drum	16" Minimum (TL), one over 27"	5
Southern Flounder	None	10
Amberjack	State & Federal Reg. 28" Min. (FL)	1
Cobia (Ling or Lemon Fish)	State & Federal Reg. 33" Min. (FL)	2
King Mackerel	State & Federal Reg. 24" Min. (FL)	2
Spanish Mackerel	State & Federal Reg. 12" Min. (FL)	15
Red Snapper**	State & Federal Reg. 16" Min. (TL)	4



www.btnep.org

Illustration courtesy of Florida Fish and Wildlife Commission and artist Diane Peebles.

Cheniers Are Part of the Coastal Landscape Too!



Since the early 1990s much focus has been attributed to Louisiana's coastal wetland loss crisis. Because of numerous efforts that sprang up since then, many projects have been started that address restoration of marsh habitats across the coastal landscape. However, little attention is being paid to the chenier ridges - those important landscape features spread out across the Louisiana coast.

But now, this lack of attention is slowly changing. In early 2001, the Barataria-Terrebonne National Estuary Program (BTNEP) and the Greater Lafourche Port Commission (GLPC) formed a partnership with other organizations to reestablish a chenier ridge and adjacent coastal marsh habitats in southeast Louisiana. This partnership was born from a desire to further the knowledge and expand the focus of habitat restoration in coastal Louisiana from a vision that almost exclusively supported marsh restoration to one that encompassed other natural landscape features.

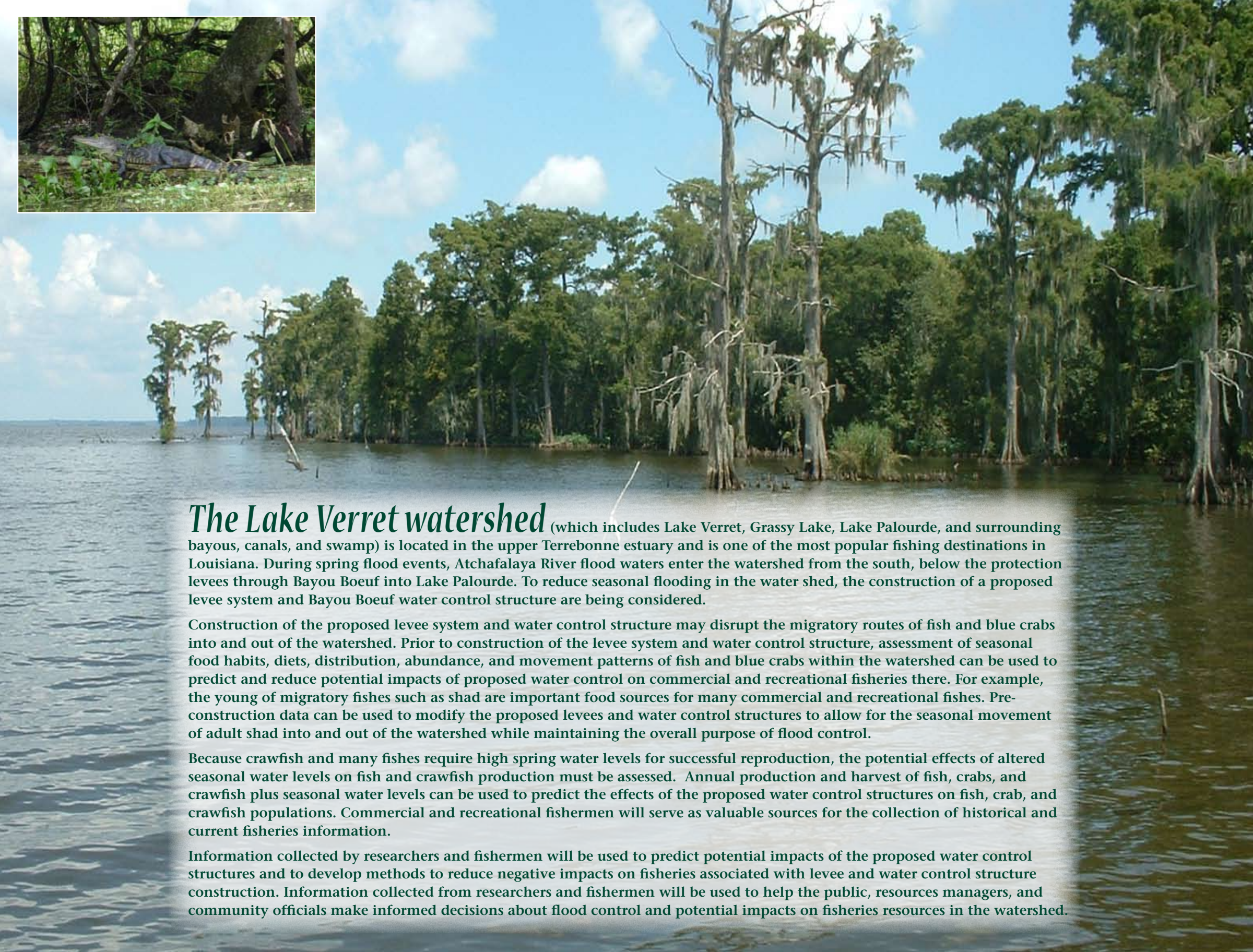
This BTNEP-GLPC chenier-marsh restoration project involves pumping earthen material via hydraulic dredge and placing it in shallow open water. Constructed in phases, each of the three components when finished will mean the restoration of over 100 acres of chenier ridge/marsh habitat that will encompass an area 12,000 linear feet long by 400 feet wide. It is hoped that the lessons learned here can be applied to other, similar coastal restoration projects.

This project has occurred largely through the generous contributions and grants of numerous funding partners. Shell Oil Company, the most recent contributor to this project, provided a substantial grant to BTNEP and its foundation that went directly to on-the-ground work. To date, project partners include the following: GLPC, National Oceanic and Atmospheric Administration, Louisiana Department of Natural Resources, Natural Resources Conservation Service, Shell Oil Company, Gulf of Mexico Foundation, Gulf of Mexico Program, and BTNEP.



Louisiana's unparalleled coastal wetland loss problem means dire consequences for many species of fish and wildlife. But just as important as the coastal wetlands, the distributary ridges and chenier ridges are also being lost at an alarming rate. These ridge habitats and associated wetlands are crucial to the survival of many terrestrial animals including the millions upon millions of migrating birds that frequent our coast.



A wide-angle photograph of a swampy landscape. In the foreground, there is a body of water. In the middle ground, a dense line of trees, including many cypresses with Spanish moss hanging from their branches, stands in the water. The sky is blue with scattered white clouds.

The Lake Verret watershed (which includes Lake Verret, Grassy Lake, Lake Palourde, and surrounding bayous, canals, and swamp) is located in the upper Terrebonne estuary and is one of the most popular fishing destinations in Louisiana. During spring flood events, Atchafalaya River flood waters enter the watershed from the south, below the protection levees through Bayou Boeuf into Lake Palourde. To reduce seasonal flooding in the water shed, the construction of a proposed levee system and Bayou Boeuf water control structure are being considered.

Construction of the proposed levee system and water control structure may disrupt the migratory routes of fish and blue crabs into and out of the watershed. Prior to construction of the levee system and water control structure, assessment of seasonal food habits, diets, distribution, abundance, and movement patterns of fish and blue crabs within the watershed can be used to predict and reduce potential impacts of proposed water control on commercial and recreational fisheries there. For example, the young of migratory fishes such as shad are important food sources for many commercial and recreational fishes. Pre-construction data can be used to modify the proposed levees and water control structures to allow for the seasonal movement of adult shad into and out of the watershed while maintaining the overall purpose of flood control.

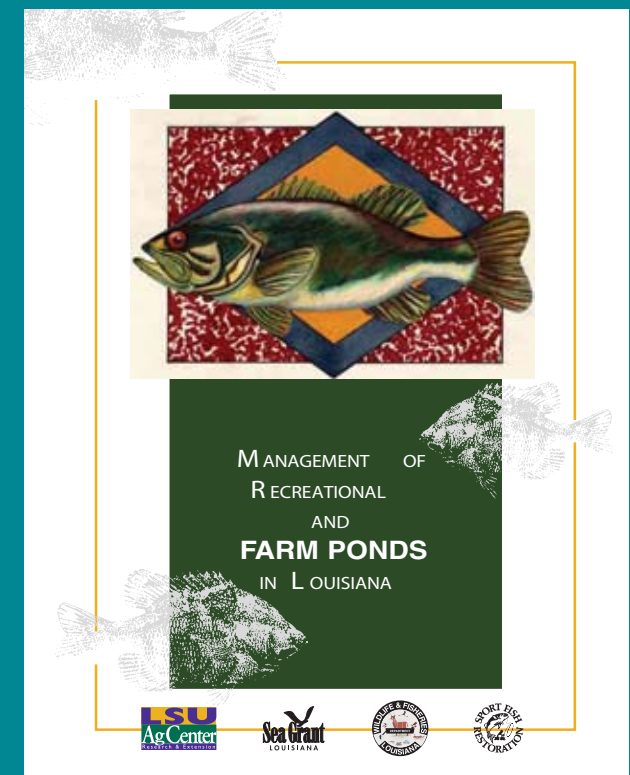
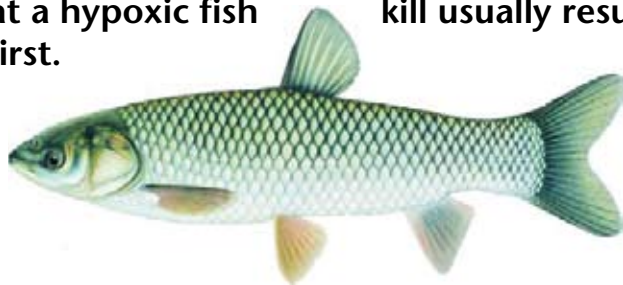
Because crawfish and many fishes require high spring water levels for successful reproduction, the potential effects of altered seasonal water levels on fish and crawfish production must be assessed. Annual production and harvest of fish, crabs, and crawfish plus seasonal water levels can be used to predict the effects of the proposed water control structures on fish, crab, and crawfish populations. Commercial and recreational fishermen will serve as valuable sources for the collection of historical and current fisheries information.

Information collected by researchers and fishermen will be used to predict potential impacts of the proposed water control structures and to develop methods to reduce negative impacts on fisheries associated with levee and water control structure construction. Information collected from researchers and fishermen will be used to help the public, resources managers, and community officials make informed decisions about flood control and potential impacts on fisheries resources in the watershed.

Private Pond Management

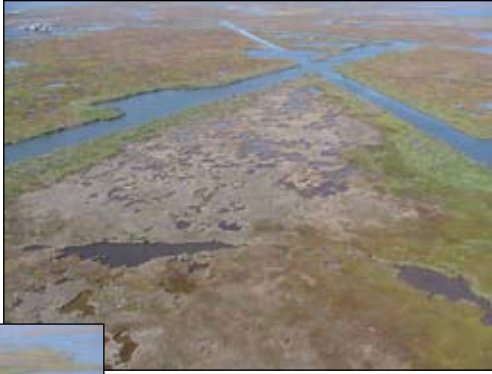
As the weather warms in the spring and early summer, some pond problems become more likely. Dissolved oxygen problems are the most common, particularly during prolonged cloudy and rainy weather that follows a warm period. In early spring, deep ponds (more than 7 feet) can experience “turnover” when a cold rain or cold wind causes the surface water to mix with the bottom layer of oxygen-poor water. The mixed water does not contain enough dissolved oxygen for fish to survive.

Pond owners who notice dying fish often suspect poisoning from drifting agricultural chemicals or from some activity on a neighboring property. In almost every case, however, fish kills in private ponds are due to dissolved oxygen depletions, a condition called hypoxia. One characteristic that differentiates hypoxia from any other problem is that a hypoxic fish kill usually results in the loss of bigger fish first.



Good pond design and management can minimize the chances for hypoxic events. An excellent information source is the handbook *Management of Recreational and Farm Ponds in Louisiana*. A copy of this comprehensive manual can be obtained from your parish agricultural extension office or at:

www.lsuagcenter.com/en/crops%5Flivestock/aquaculture/recreational%5Fponds/



Brown Marsh

Brown marsh is a term that describes the sudden browning, stress and dieback of marsh plants. Louisiana's intertidal salt marshes suffered this phenomenon in 2000 and 2001 following an extended drought. Two of the state's most common salt marsh plants, smooth cordgrass (*Spartina alterniflora*) and wire grass (*Spartina patens*), were affected. In Louisiana, about 390,000 acres of marsh were affected, making this one of the most extensive diebacks ever recorded. Salt marshes in Terrebonne and Lafourche parishes were hardest hit. About two-thirds (260,000 acres) of the intertidal salt marshes in the Barataria-Terrebonne estuaries were impacted. Most marshes have since recovered. However, about 4 percent (17,000 acres) have converted from dense vegetation to open mud flats with little or no vegetation. Research with unaffected species of marsh plants has determined that lack of water or elevated salinities alone were not the cause of Louisiana's brown marsh.

Salt marsh diebacks are not uncommon. They are a part of the natural cycle of marshes but usually occur when plants are submerged for too long. These areas are generally small – less than an acre – and the plants often grow back within a few years. Typically, too much water for too long a time causes changes in the soil chemistry and the plants suffer from toxicity. The brown marsh phenomenon in Louisiana is different. Louisiana's sudden brown marsh appears to have been triggered by too little water rather than too much. Texas, Florida, South Carolina, Massachusetts and Georgia have also had some degree of similar dieback in recent years.

A team of scientists has been assessing many factors that affect marsh plant health in field, laboratory, and greenhouse experiments in an attempt to find the causes of brown marsh. These factors include hydrology, soil chemistry, drainage, rainfall, salinity, and snail, insect and fungal infestation. Determining the causes of dieback has been complicated, but researchers believe the phenomenon was a result of several interacting factors triggered by drought conditions. Plants became stressed or died because of low soil moisture in combination with physical and chemical changes in the soil. High salinity and plant fungus may have had a secondary role as well.



Brown marsh is a term that describes the sudden browning, stress and dieback of marsh plants

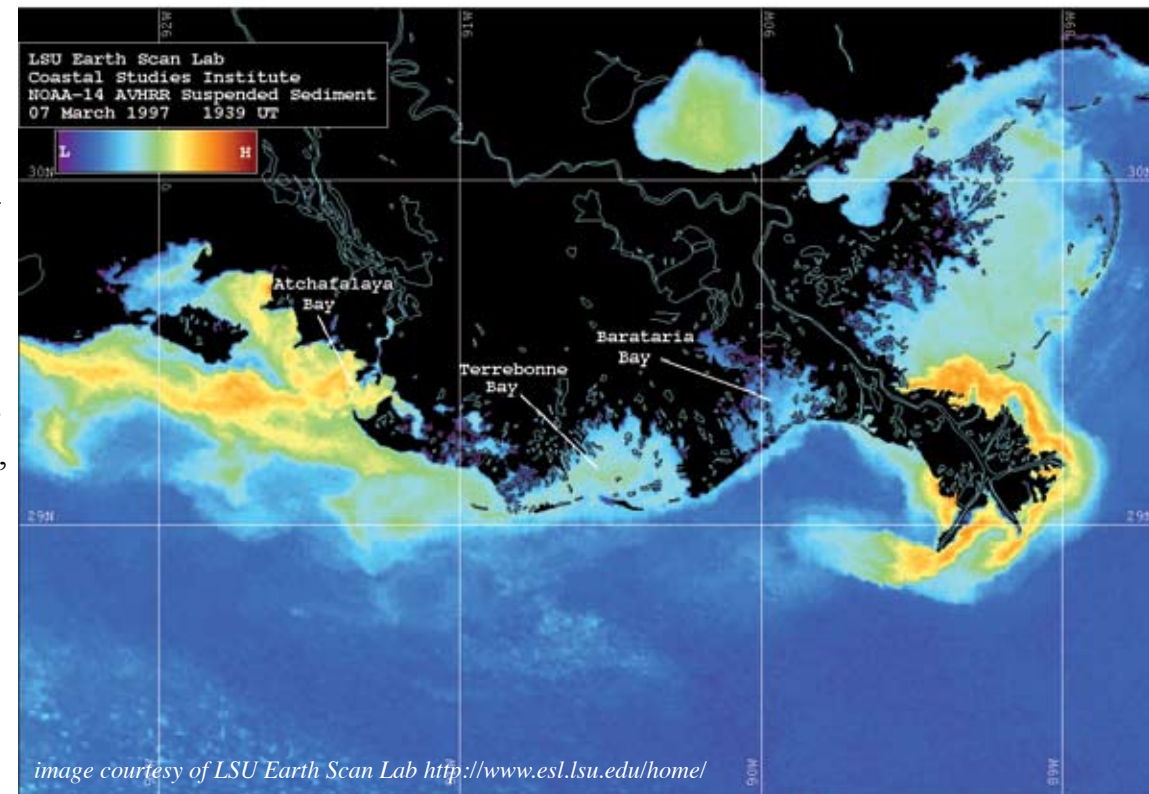


Did You Know That Millions of Cubic Yards of Sediments Are Wasted Each Year?

It's true. Each year, millions of cubic yards of precious sediments are wasted – deposited off into the deep waters of the continental shelf. It's also true that millions of dollars of tax payer monies are used in making this happen.

The mighty Mississippi River – the once sustaining life-blood of much of coastal southeast Louisiana – still today...carries millions of tons of sediments and deposits that sediment into the depths of the Gulf of Mexico. What's more, we as taxpayers pay an exorbitant amount to help subsidize this process. In order to maintain water depths near Head of Passes, dredges almost constantly work to deepen the channel, sometimes pumping the sediments to more turbulent parts of the river, or sometimes carrying it near the mouth of Southwest Pass and depositing it in deep open water. In any case, this is a waste – of sediment and money. If we are to restore our barrier islands, forested wetlands, shoreline habitats, natural chenier ridges, and fresh, brackish, and saline marshes, it is these sediments that we must use to do so.

But how, you may ask?

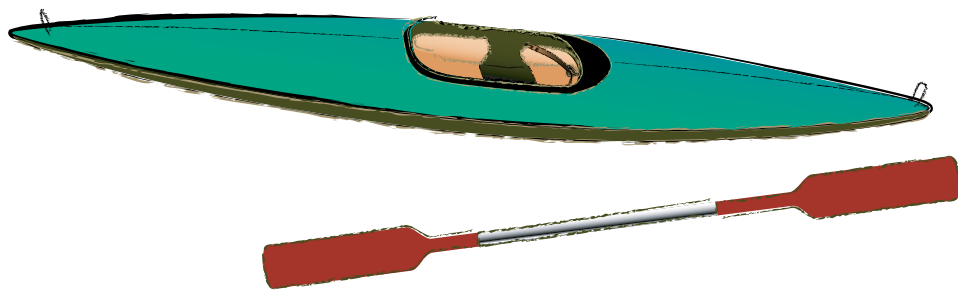


There is one tool in the proverbial “toolbox” that can be used to make this happen and still maintain the natural character of the landscape...the maintenance of a gradient of fresh to brackish to saline habitats within our region. That tool is “pipeline sediment delivery” – the use of hydraulic dredges to mine sediment from our rivers and the Gulf of Mexico and pump that material to desired locations.

Pipeline sediment delivery mimics deltaic processes by re-introducing enough sediment to provide significant restoration. One advantage of this concept is that it can build a marsh-level platform on which vegetation can grow, and the magnitude of impacts upon salinity gradients can be regulated. Pipeline sediment delivery could be combined with small or medium freshwater diversions to rebuild marshes and maintain publicly acceptable salinity regimes. Because pipeline sediment delivery would allow for a movable discharge site from which sediment could be released, it can also be used to restore or repair the critical system of remnant distributary ridges that also serve to provide protection for adjacent marshes.

For more information, visit www.btnep.org

Kayaks & Red Drum: the Perfect Match



kayaks are
ideal in providing
necessary
access & stealth

Fishing kayaks can help harvest a wide variety of marine and freshwater fishes, and it is rapidly gaining popularity with a growing legion of very passionate anglers. In particular, fishing kayaks and red drum in shallow marsh habitats is the perfect match. The first shallow-water red drum caught from a kayak will instantly hook you for life. Kayaks offer little resistance in the water, and a hooked red drum can easily pull a kayak across a marsh pond for what Louisianians call a "Cajun sleigh ride"!

Kayaking is relatively easy compared to the difficulties of catching the often uncooperative fish, and novices easily adapt to them. Fishing kayaks are light, stable, easy to paddle, maneuverable, and have a very shallow draft. Anglers quickly learn that kayaks offer numerous advantages for red drum fishing. A major key to successfully fishing for red drum in shallow water is the ability to quietly move into lightly fished ponds, and kayaks are ideal in providing the necessary access and stealth. Kayaks may be paddled into areas where larger boats with trolling motors cannot venture, such as very shallow or heavily vegetated ponds or smaller bodies of water without access from traditional boat launches. Kayaks are also much quieter than larger boats and startle fewer fish in shallow marsh habitats. Other reasons for trying a fishing kayak include low cost, ease of maintenance, and convenience/portability.

The passion that many kayakers have for their sport is more personal. Kayak fishing is low stress and great exercise, provides a whole new perspective on the sport, and presents new challenges and rewards. Tailing red drum can be easily approached and targeted, and then there's that thrill of the "Cajun sleigh ride"! Kayaking also allows you to take your time and quietly enjoy the scenery and wildlife. Kayak fishing is also considered an environmentally friendly sport that does not negatively impact aquatic ecosystems. Sensitive habitats such as submerged aquatic vegetation beds are not damaged, air quality is not compromised because fossil fuels are not used, and the quietness of a kayak does not intrude on wildlife.

The kayak fishing community cuts through all social and financial classes but all anglers share their passion for the sport. A friendly camaraderie is present such that members are anxious to promote their sport and to share their knowledge of kayak use and rigging, fishing techniques, and, believe it or not, choice fishing locations. A growing group of kayak fishermen in the Barataria-Terrebonne region frequent the "Kayak Fishing Stuff Forum."

For more information go to www.kayakfishingstuff.com and then click on "Forum" and "Cajun Country."

Barrier Islands and their shorelines



Barrier islands and their shorelines play important ecological roles in the estuary. They are a habitat formed by the erosion of a deltaic headland formed when the river changes its course and the gulf begins to erode marshes, moving sands deposited during marsh creation up into beaches along the shoreline. Due to their elevations above tidal waters, barrier islands form unique vegetation communities along the coast that become important for hosts of wildlife and shorelines that serve as important habitat for fish that require sandy bottomed areas. Additionally, these barrier islands and shorelines protect the estuary from gulf waves and provide some important storm protection to coastal communities. So even though barrier islands are signs of an eroding delta, they are an important part of the ecosystem and must be restored for the system to function properly.

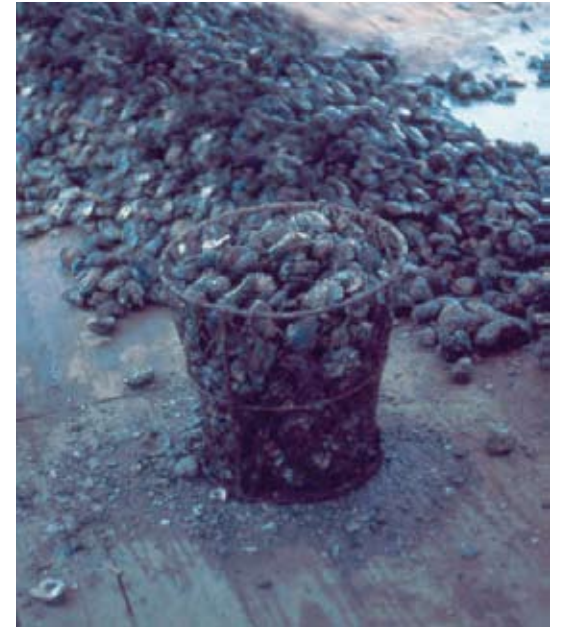
Since State and Federal restoration programs began in the late 1980's, over \$69 million has been spent on 19 projects restoring some portions of Barataria-Terrebonne's barrier islands, with another 7 projects currently being designed or constructed. Most early projects focused on adding sand to the system, while later projects have been combinations of dune creation with sand and marsh creation behind.

Future restoration of Louisiana's barrier shorelines and islands will continue to mean adding sand to the shoreline and creation of marshes to serve as important anchors to hold sands. The Louisiana Coastal Area – Ecosystem Restoration Program currently proposed in Congress has several projects of much larger scales than those previously constructed. Currently, the near-term plan for the Barataria Basin includes the restoration of over 13 miles of shorelines including the restoration of higher dunes with adjacent marshes. Implementing this near-term plan would require the spending of over \$242 million to move over 25 million cubic yards of sands and mud. This would restore over 3500 acres of sand dunes and marshes along the Barataria Basin gulf shoreline. Additionally, the LCA plan has proposed starting the Terrebonne Basin phase as soon as funding becomes available.

Louisiana Oysters

Louisiana's Barataria and Terrebonne estuaries are two of the most biologically productive coastal areas in the world. Oysters, in part, represent that productivity. Because of this bountiful resource, the oyster is a staple in south Louisiana homes and restaurants.

Because oysters are immobile animals, they are a great biological indicator of environmental conditions in coastal waters. Current university and industry research focuses on understanding how salinity and water temperature influence an oyster's survival, growth, and spawning success in Barataria Bay and how oystermen presently manage their bay fishery. Such information is a vital component to developing the best management options necessary to sustain the fishery. Fishery management strategies must become adaptable to address an ever-changing environment affected by coastal wetland erosion and the need to find the best methods for wetlands restoration.



Louisiana produced 40% of the nation's domestic oyster supply in 2002, which was 14,000,000 pounds of meat. It is a mainstay that must continue as part of Louisiana's cultural fabric and as the dominant commercial supplier for the nation.



Developing New Vertical Controls for the Coastal Area of Louisiana

Louisiana's changing landscape is due in a significant way to the subsidence of our coastal wetlands. As the coast subsides to that of sea level or below sea level, communities, ports, highways, and other important infrastructure become more vulnerable to flooding from storms and hurricanes. Drainage from heavy rains also becomes critical, potentially causing significant damage to homes and businesses. Even flood protection levees are subject to subsidence and become less able to hold back storm surge and high water that can flood coastal towns.

Because subsidence is affecting the entire Louisiana coast, the National Oceanic and Atmospheric Administration's (NOAA) National Geodetic Survey recently began to survey and reestablish a network of accurate elevations across the coastal parishes. In the near future, NOAA will issue a new set of elevations to approximately 100 vertical controls across south Louisiana. This network of vertical controls is part of the NOAA Height Modernization Network and was the reason for the implementation of the Nation's largest elevation survey. Approximately 10,000 square miles of the coastal zone were included in the survey effort.

With the publication of the new elevations across the Height Modernization Network, the State will then be able to apply the more accurate set of elevations to projects, programs and critical infrastructure, as well as coastal communities. These elevations will likely influence the elevations of State highways, bridges, hurricane evacuation routes, flood protection levees, restoration projects, ports and all other structures and efforts in which elevation is a significant component.

The goal of the overall effort is to recognize and address the changing elevations that Louisiana and other areas of the northern Gulf of Mexico are experiencing. A recent report by NOAA (Technical Bulletin 50) discusses the rates of movement seen over time for various vertical controls along the northern gulf. Information on Technical Bulletin 50 and the Height Modernization Network can be found at:

<http://www.ngs.noaa.gov/heightmod/Tech50.shtml>



Subsidence leaves a south Louisiana benchmark standing above current ground level.