DECEMBER 1998 - JANUARY 1999

Louisiana
COAST LINES

LOUISIANA DEPARTMENT OF NATURAL RESOURCES

Parish Coastal Wetlands Restoration Program Enters Ninth Consecutive Year

For the ninth consecutive year, the Louisiana Department of Natural Resources (DNR), participating parishes, and other local groups continue to work together recycling Christmas trees into marsh restoration projects. Known as the Parish Coastal Wetlands Restoration Program(PCWRP), this program promotes the use of Christmas trees for preserving our coastal areas. Since its inception in 1990, the PCWRP has constructed over 38,000 linear feet, or about seven miles of fences, utilizing over 780,000 Christmas trees. The program promotes recycling, local involvement, increased awareness of coastal wetlands, and habitat conservation.

Christmas tree fence projects can inhibit erosion and enhance wetland habitats in several important ways. They provide effective wave-breaks to reduce marsh-edge erosion; enhance water clarity, allowing more aquatic vegetation to become established; provide important reef areas for many fish and crustacean species; and encourage the localized build-up of sufficient amounts of marsh soil to support the growth of marsh plants. As water moves through the trees, its velocity is greatly reduced and suspended solids tend to settle out, accreting marsh soil (or sediment). Studies of project areas over the past eight years have documented increased marsh vegetation, increased sub-merged aquatic vegetation, and soil build up. Birds, snakes, alligators, crabs, and fish are frequently seen in and around the projects.

DNR initiated its first Christmas tree fence project in the La Branche wetlands of St. Charles Parish in 1989. Because of this project's initial success, the PCWRP has become a part of the Christmas tradition in many of the coastal parishes. This year, the PCWRP will provide $18,000 to each participating parish for Christmas tree fence and other low-cost restoration efforts such as vegetative plantings.

Typically, a Christmas tree fence is a treated wooden fence, or "pen", constructed in shallow open-water areas. Christmas trees donated by Louisiana's citizens after the holiday season are placed into the pens.

According to DNR Secretary Jack Caldwell, the parishes provide the vital link since local officials are familiar with the coastal zone, the funds are spent in the community, and citizen awareness of coastal restoration increases each year because of the

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ongoing effort. "Parish officials are able to enlist local citizens in the coastal restoration cause, and each year we're pleased to see the participation grow," Caldwell said.

The PCWRP is offered annually to each coastal zone parish. This year, twelve coastal parishes as well as Southeastern Louisiana University will participate in the 1998-99 Christmas Tree Program. Most parishes will restock or rebuild existing fences. Participating parishes are Calcasieu, Cameron, Iberia, Jefferson, Lafourche, Orleans, St. Bernard, St. Charles, St. Martin, St. Mary, St. Tammany, and Vermilion. Southeastern Louisiana University will participate in place of St. John the Baptist parish. Trees will be picked up curbside or as advertised locally.

With input from DNR, Christmas tree brush fences have been constructed at Weeks Bay in Alabama and at Staten Island in New York.

Additional information on the Christmas Tree Fence Program may be obtained by contacting Kenneth Bahlinger, program manager, at (225) 342-7308.

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Restoration Efforts on Queen Bess Island

INTRODUCTION

Louisiana experiences 80% of the nations's coastal wetland loss. This loss is represented by several different wetland types, including those found on barrier and coastal islands. These islands are the first line of defense protecting coastal communities from tropical storms and hurricanes. They also offer breeding habitat to many coastal bird species. Since the 1890's, more than 40% of Louisiana's barrier islands have been lost (Suter et al. 1989) and some remaining islands have lost as much as 75% of their area (Penland and Boyd 1981).

Queen Bess Island is located in Barataria Bay, east of Mendicant Island and north of Grand Isle and Grand Terre Islands (Figure 1). Like many areas of Louisiana's coast, Queen Bess Island has experienced significant erosion over the last 100 years. By 1989, the island was reduced in size from 45 acres (ac.) in 1956 to 17 acres and decreased in elevation to the point that the island was frequently overwashed by small storms (Raynie and Sutton, 1992).

In 1989, Queen Bess Island was also one of only three nesting sites for Louisiana's state bird, the brown pelican (*Pelicanus occidentalis*) (Figure 2). Historically, the brown pelican occurred throughout coastal Louisiana and estimates of the original pelican population were between 75,000 and 85,000. Although thousands of brown pelicans were reported in 1958, the brown pelican was virtually extinct in Louisiana by 1962. The Louisiana Department of Wildlife and Fisheries reintroduced juvenile brown pelicans to Louisiana

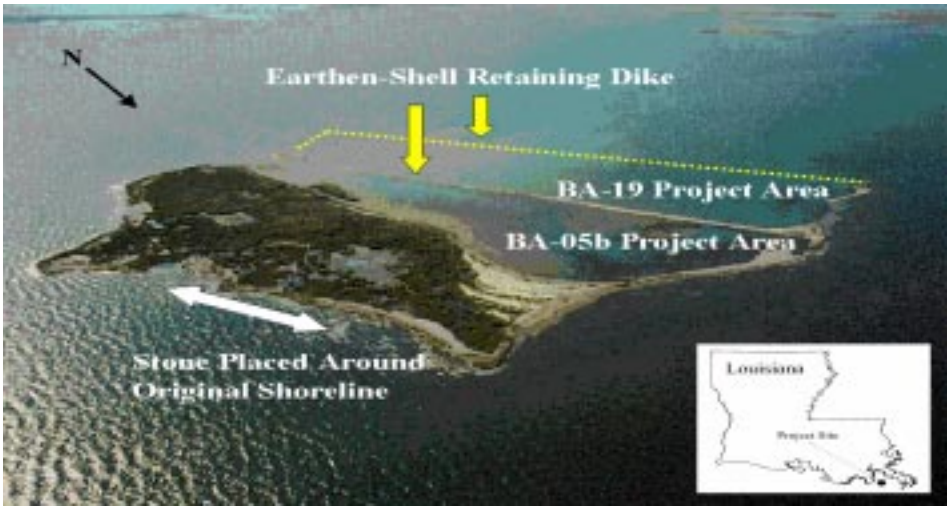

Figure 1. BA-05b and BA-19 project features.

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Figure 2. Brown Pelican chicks on Queen Bess Island

from Florida in the late 1960's and early 1970's. Due to Louisiana's high rates of subsidence and land loss, however, nesting sites were becoming virtually nonexistent. Reduction in the size of Queen Bess Island, as well as the loss of black mangrove (*Avicennia germanis*) and other important vegetation, severely limited nesting habitat for the endangered brown pelican. To rectify this erosion and loss of pelican habitat the state of Louisiana and the U.S. Army Corps of Engineers implemented the Queen Bess Island Restoration Project (BA-05b) in the fall of 1990.

QUEEN BESS ISLAND STATE RESTORATION PROJECT (BA-05b):

The objectives of the Queen Bess Island State Restoration Project (BA-05b) were to enhance and create wildlife habitat for the brown pelican and a variety of other colonial nesting water birds; protect the island from shoreline erosion due to boat traffic, wave action, and tidal scour; and limit erosion caused by storm events. The project was implemented in two phases.

Phase 1

In October 1990, an 1,800 ft. retainment dike was constructed on the western side of Queen Bess Island (Figure 1). This dike linked the northern and southern tips of the island, creating an 8 ac. dredged material containment site. Approximately 75,000 yd^3 of material was removed from a 2 mile (mi.) segment of the Barataria Bay Waterway (BBW) and placed in the shallow-water containment area at the western edge of the island. This area was filled with dredged material to an elevation conducive to marsh vegetation. To increase the elevation of the original island, a breach was made in the shore dike through which effluent from the 8 ac. containment site was routed to the existing interior marsh.

In June 1991, wax myrtle (*Myrica cerifera*), black mangrove (*A. germinans*), baccharis (*Baccharis halimifolia*), matrimony vine (*Lycium carolinianum*), and marsh elder (*Iva frutescens*) were planted on the island and in the containment area (for planting scheme and vegetation monitoring results, see Raynie and Sutton 1992) to create vegetated habitat for brown pelican nesting and to aid in stabilization of sediments (Figure 3).

Phase 2

In October 1992, Phase 2 was completed. The design of this phase of BA-05b called for the placement of riprap and crushed limestone completely around the island along the existing natural shore rim. The dike was built to an elevation of approximately 3 ft. above the marsh level using roughly 3 yd^3 of stone per linear foot. This dike served to armor the island and provide a raised nesting area for brown pelicans.

In May 1993, black mangrove

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Figure 3. Queen Bess vegetation plantings

seedlings were again planted by Natural Resources Conservation Service (NRCS) and DNR/CRD personnel to further increase suitable brown pelican nesting habitat (Figure 4). The vegetation was planted along the western side of the island on the inside of the rocks. This completed the construction phases of the Queen Bess Island State Restoration Project (BA-05b) and laid the groundwork for future restoration under the Barataria Bay Waterway Wetland Restoration (BA-19) project (CWPPRA Priority List 1).

BARATARIA BAY WATERWAY WETLAND RESTORATION PROJECT (BA-19):

Although Queen Bess Island was a complete success and met project objectives, the state of Louisiana and the CWPPRA Task Force decided to further restore the island's wetlands by implementing CWPPRA project BA-19. The BA-19 project involves the beneficial use of dredged material for the creation of an additional 9 ac. of wetland habitat on Queen Bess Island. This project is similar to BA-05b in that it utilizes dredged material removed during routine maintenance of the BBW. In August 1996, construction began on a shell dike that was constructed to create an additional 9 ac. containment area along the southwest side of Queen Bess Island (Figure 1). Dredged material was pumped into the containment area, with the effluent routed through the 8 ac wetland created in Phase 1 during 1990, as well as the natural wetland on the original Queen Bess Island. Project construction was completed in November 1996.

Figure 4. Brown Pelican nesting habitat on Queen Bess Island

SUMMARY

Two restoration projects, one state and one CWPPRA project, have been implemented on Queen Bess Island with goals of enhancing wildlife habitat and protecting the island from erosion. So far, restoration efforts have been very successful. In less than 10 years, many of the losses experienced in the previous 30 years have been reversed. By constructing dikes on and around the island, planting vegetation, and utilizing dredged material from nearby canals, the size of Queen Bess Island has nearly doubled since 1989. Engineering estimates showed that the island's total area had increased from 17 acres in 1989 to 32.3 acres in 1996 (Figure 5). Elevation of the island has also increased as to prevent overwashing

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Figure 5. Queen Bess Island showing increase in overall acreage.

from small storms and the crushed limestone placed around the entire island should help maintain shoreline stability. Though still fragile, the use of beneficial dredged material and vegetative plantings has helped to stabilize Queen Bess Island. Growth of smooth cordgrass (*Spartina alterniflora*) from the island's natural seed bed has helped to stabilize and consolidate sediment while providing wetland habitat for waterfowl and colonial shorebirds. Vegetation plantings for pelican nesting habitat were also successful with most plant species having high survival rates and vigorous growth. Queen Bess Island will continue to be monitored to evaluate overall success of the wetland restoration project and determine if overall objectives have been accomplished.

Increases in vegetation and island size have created quality habitat for the endangered brown pelicans and other species of shorebirds. The brown pelican population was heavily impacted in 1990 due to harsh environmental conditions, but numbers of breeding pairs on the island have greatly increased recently. The number of successful nests and chicks fledged were the highest ever recorded for the island, while fledglings per nest ranked the second highest ever on record (Figure 6; Larry McNease, Louisiana Dept. of Wildlife and Fisheries personal communication). Biological data suggest that the brown pelican is recovering coastwide in Louisiana, having established 10 known nesting sites (compared to 3 in 1989). Restoration efforts like those on Queen Bess Island have played a vital ecological role in providing nesting habitat for Louisiana's endangered state bird. As Queen Bess and other barrier islands continue to benefit from coastal restoration efforts, it is hopeful that the brown pelican population will respond with continued growth.

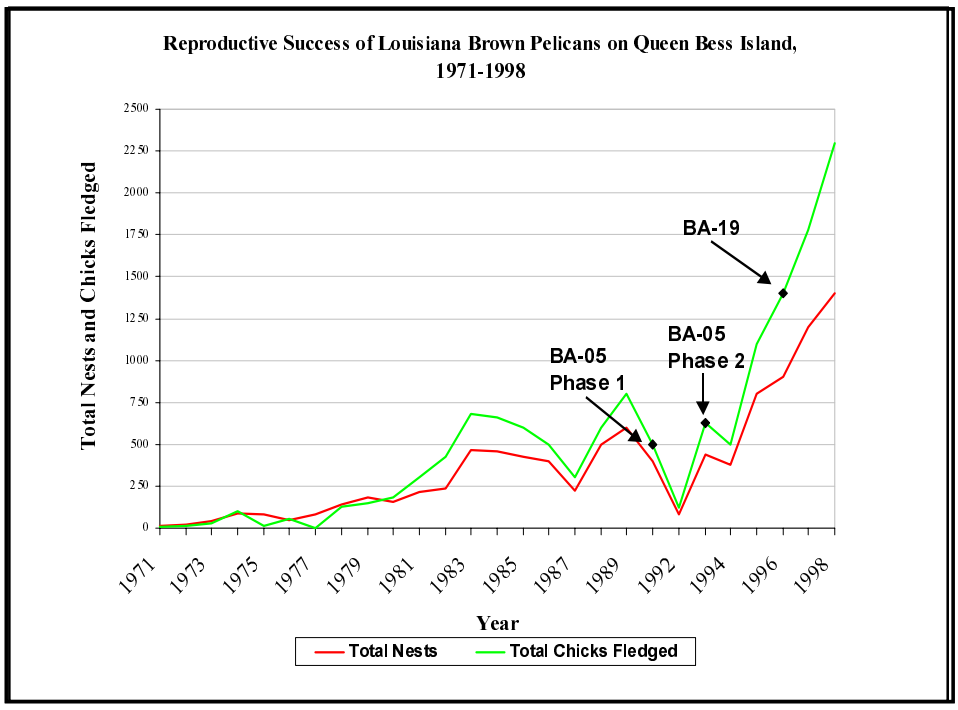

Figure 6. Reproductive Success of Louisiana Brown Pelicans on Queen Bess Island, 1971-1998

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Coastal Parishes To Receive DNR Grants

Twelve of the state's nineteen coastal parishes will receive monies this year to implement and/or develop local coastal programs. The Department of Natural Resources' Coastal Management Division received approval to award monies to local governments for implementation of coastal management plans approved under provisions of the federal Coastal Zone Management Act. In addition, the Department received approval to fund the development of local coastal programs in several parishes. Parishes receiving funding for implementation of their programs are Calcasieu, Cameron, Jefferson, Lafourche, Orleans, St. Bernard, St. James, and St. Tammany. Four parishes receiving funding to offset some of the costs associated with program development are Livingston, Plaquemines, St. Charles and Terrebonne.

The state and local programs are responsible for vegetated wetlands, coastal waters, and wetland habitats and resources. The local coastal programs are also responsible for reviewing and commenting on coastal use permits for activities of "state concern", such as the siting of oil and gas facilities. The local managers advise DNR of potential impacts of proposed activities on coastal resources in their areas. Coastal zone administrators utilize the grants in fighting coastal erosion, some include monitoring polluted runoff and protecting water-fowl habitats, while others expend funds on day-to-day administrative functions that support all of these other activities. The parishes have local coastal advisory committees that meet regularly and advise the administrator on permits, federal activities, coastal restoration priorities for the parish and any other matters affecting the parishes' coastal resources.

The Coastal Management Division is continuing in its efforts to encourage parishes without local programs to develop them. CMD can provide a wide range of technical assistance and would be available at any time to work with the parish in the development of a program. CMD hopes to foster relationships with and provide technical assistance to parishes with or without fully approved programs.

In partnership with the state, the National Oceanic and Atmospheric Administration (NOAA) provides 50 percent of the funds for the programs. Matching funds, provided by the parishes, reflect the level of commitment of local officials in protecting coastal resources in Louisiana.

For more information on this program, please contact CMD's Project Manager Gregory J. DuCote at (225) 342-5052.

You can also obtain other information from the CMD web page at http://www.savelawetlands.org/cmdpage.html

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1998: A Mean Season For Atlantic Hurricanes

The 1998 hurricane season brought an above-average number of hurricanes and tropical storms — including the devastating Hurricane Mitch – making it the deadliest Atlantic region season in more than 200 years in terms of storm-related fatalities, reported scientists at the Commerce Department's National Oceanic and Atmospheric Administration. A contributing factor to the increased activity — 50 percent more hurricanes and 30 percent more tropical storms than normal — was a climate phenomenon called La Niña, cooler-than-average sea-surface temperatures in the central tropical Pacific.

In a joint Aug. 4 outlook, forecasters at NOAA's Climate Prediction Center, National Hurricane Center and Hurricane Research Division correctly predicted above normal tropical storms and hurricanes in the Atlantic between August and October. The Atlantic season, which runs June 1 to Nov. 30, spawned 14 tropical cyclones (average is 10) with ten becoming hurricanes (average is six). Almost all of these storms and hurricanes occurred subsequent to the forecasts. There were $3.2 billion in insured damages and 21 deaths in the United States.

"The art of forecasting is better than ever, thanks to our talented people and our investment in science and technology," said Secretary of Commerce William M. Daley. "Nevertheless, events of this Atlantic hurricane season are sobering. Our thoughts and prayers are with the hundreds of thousands of people affected by the hurricane season. I am deeply saddened by the tragic loss of life and property and the enormous economic losses. They are a reminder that we need to continue the momentum of modern forecasting, hurricane awareness for everyone from policymakers to families, communications designed to reach even the remotest of villages, and building disaster resistant communities."

"Our investment in technology has enhanced our ability to make better hurricane predictions," said D. James Baker, NOAA administrator. "We, as a nation, need to continue striving toward better hurricane track forecasts. The payoff is less disruption caused by needlessly evacuating areas that aren't affected, and longer lead times in which to evacuate people and safeguard property in areas that are."

"The season started a little late with Tropical Storm Alex on July 27, but made up for lost time," said Jerry Jarrell, director of the National Weather Service's National Hurricane Center. "In a remarkable span of 35 days between Aug.19 and Sept. 2, ten named tropical storms formed. That's nearly a whole year's worth of activity crammed into little more than a month."

The year tallied seven landfalling storms in the continental United States, including Hurricanes Bonnie, Earl, Georges, Frances and Mitch (the last two were downgraded to a tropical storm on landfall) and Tropical Storms Charley and Hermine.

The 1998 Atlantic season was the deadliest in more than 200 years. Not since the hurricane of 1780 that struck Martinique, St. Eustatius and Barbados (Oct. 10-16, 1780), killing between

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20,000 and 22,000, has the Atlantic hurricane basin seen storm-related fatalities like those of Hurricane Mitch (Oct. 21-Nov. 5). Wire services attribute some 11,000 deaths to Mitch, with thousands more missing.

In this "mean" season, Mitch, a Category 5 monster, registered average sustained winds near 180 mph (Oct. 25) with gusts well over 200 mph. Mitch was the fourth most intense hurricane ever observed in the Atlantic basin this century based on barometric pressure, and the strongest ever observed in the month of October. (For additional details, see the National Climatic Data Center's Web site at http://www.ncdc.noaa.gov/ol/reports/mitch/mitch.html)

During the 1998 season, NOAA scientists, working with NASA and University collaborators, conducted the most complete and sophisticated campaign of observations in hurricanes ever, noted Hugh Willoughby, director of NOAA's Hurricane Research Division.

"In Bonnie, Danielle and Georges, we had six or seven aircraft observing the same hurricane simultaneously," Willoughby said. "Advanced observational instrumentation and remote sensing technology aboard NOAA's Gulfstream-IV high altitude jet and WP-3D airplanes make each of these platforms an airborne laboratory, vastly more capable than those flying just a couple of decades ago. We can study and understand hurricanes on all scales, from a single raindrop to hemisphere-wide winds that control the storm's motion."

NOAA's hurricane forecasting technology includes sophisticated super computers and their numerical models, observational systems such as the GOES satellites, and "hurricane hunter" aircraft that include a new Gulfstream-IV jet and two WP-3D Orion turboprops.

This article was adapted from NOAA's 1998 Hurricane Season Wrap-up page located at http://www. outlook .noaa.gov/98hurricanes/

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