Louisiana State University
Agricultural Center
Louisiana Cooperative Extension Service

LOUISIANA
SEA GRANT
College Program

Knapp Hall
Post Office Box 25100
Baton Rouge LA 70894-5100
504 388-2263

Louisiana Wetlands News

JULY 1994

LONG-TERM COASTAL RESTORATION PLAN RECENTLY RELEASED BY LSU

The LSU Center for Coastal, Energy, and Environmental Resources (CCEER) recently released a report titled "A Long-term, Comprehensive Management Plan for Coastal Louisiana to Ensure Sustainable Biological Productivity, Economic Growth, and the Continued Existence of Its Unique Culture and Heritage." Dr. Ivor Van Heerdon, coordinator of the Natural Systems Management and Engineering Program in CCEER, is chief author of the report. The report sets out a plan for managing and sustaining Louisiana's coastal resources for future generations.

The CCEER plan represents the thinking of many in the LSU research community. The plan calls for four major strategies:

1) Diversion of sediment-rich Mississippi River water into Breton and Chandeleur Sounds (create new wetlands);

2) providing for the diversion of approximately 10%-12% of the Mississippi River flow down Bayou Lafourche and into adjacent deteriorating wetlands;

3) increasing the discharge of the Mississippi River down the Atchafalaya River from 30% to 40% and increasing the extra flow into the coastal marshes as much as possible; and

4) restoring Louisiana's barrier islands.

The plan is estimated to cost at least $3 billion-4 billion in the next 20 years including the cost of compensating some of the adversely affected wetland resource users such as oyster fishermen. The plan centers around the protection and restoration of a sustainable coastal wetland resource base.

Protecting and sustaining coastal wetlands not only restores biological productivity, but creates opportunities to expand the region's natural resource-linked job base in industries such as commercial fishing, seafood processing, eco-tourism, recreational hunting/fishing enterprises, fur trapping, and alligator hunting.

It should be noted this is simply a discussion proposal at this time. The actions recommended in the plan (except for general barrier island restoration projects) have not been officially adopted by state and federal agencies to date. I expect, however, you will see these ideas come up at future wetland restoration planning meetings. CCEER is encouraging feedback from the general public.

Multiple copies of the report are available for distribution to local government officials, resource user groups, and the general public. To obtain a free copy, call my office in Baton Rouge.

COASTAL RESTORATION APPROACHES IN LOUISIANA

Louisiana is blessed with tremendous diversity in both fisheries and wildlife species and coastal habitat. The island-like upland habitat found on the ridges of the southwest Louisiana Chenier Plain, the tremendous land building wetland deltas of the Atchafalaya River located in south-central Louisiana, and the floating marsh ecosystem prevalent in the large subdelta region of southeast Louisiana, all offer unique opportunities for both traditional and innovative coastal restoration efforts. Because of this tremendous diversity, a variety of coastal restoration initiatives will have to be implemented to effectively reduce Louisiana's serious coastal erosion rate which now exceeds 25 square miles per year.

Coastal restoration options that have proved to be effective in both slowing wetland loss and restoring degraded wetlands include 1) freshwater diversion, 2) sediment diversion, 3) hydrologic management/ marsh management, 4) barrier island restoration/coastline protection, and 5) vegetative plantings.

1) Freshwater Diversion

One of the most effective coastal restoration approaches, especially in southeast Louisiana, is freshwater diversion. Because of to the strategic route the mighty Mississippi River takes through the wetlands of southeast Louisiana, tremendous opportunities exist for the diversion of fresh water from the River.

Traditionally, the Mississippi River overflowed its natural levees and constantly replenished coastal marshes with life-giving fresh water. With the advent of man-made flood protection levees, however, the River has been all but completely controlled and most of the river water is released in the deeper waters off the Louisiana coast. Additionally, the creation of numerous deepwater shipping channels off the coast of Louisiana has increased the flow of sea-strength saltwater into traditionally freshwater marshes.

Because of to the Mississippi levees and increased saltwater intrusion, fresh water from the Mississippi River must now enter Louisiana's deteriorating coastal marshes through man-made freshwater diversion projects such as the Caernarvon Structure (St, Bernard and Plaquemines parishes, the Violet Siphon (St. Bernard Parish), Naomi Siphon (Plaquemines Parish), and the proposed Davis Pond Structure (Jefferson and Plaquemines parishes). These structures are an attempt to mimic the Mississippi River's natural flow, effectively buffering coastal marsh salinities. Additional freshwater diversion projects have been proposed and must be continually evaluated if we are to utilize the tremendous resources of the Mississippi, the Atchafalaya, and other watersheds draining into Louisiana's coastal zone.

2) Sediment Diversion

The Mississippi River has traditionally drained 1/3 of the continental United States and parts of Canada. With such a vast watershed, a tremendous amount of topsoil and sediment has historically been carried by the river down to the Gulf of Mexico. These rich sediment deposits have been responsible for building numerous river deltas along the coast from Marsh Island in Iberia Parish to the Breton Sound marshes in St. Bernard Parish. Additionally, these rich sediments have been largely responsible for the marsh building in the Chenier Plain of southwest Louisiana through Gulf of Mexico east-to-west currents. When the river made a westerly shift, the Gulf sediments were carried westward; this allowed for marsh building south of the active beach ridge (future chenier). When the river shifted back eastward, these sediment deposits would cease and a new beach ridge would form.

Over the past 75 years, numerous efforts have been implemented to reduce soil erosion within the Mississippi River watershed through the implementation of soil and water conservation practices. USDA's Soil Conservation Service (SCS) technical assistance programs and educational programs conducted by the Cooperative Extension Service have been very effective in reducing Mississippi River related sediment loads.

The Mississippi River, however, still carries a tremendous amount of marsh-building sediment that can only be effectively used through man-made sediment diversion projects. The fresh water diverted from the river can serve as an effective sediment transport mechanism, allowing for the formation of new river deltas and ultimately the creation of new marshes along the coast.

Approximately 30 percent of the Mississippi River water is now diverted through the Atchafalaya River. The Atchafalaya River delta located in St. Mary and Terrebonne parishes is one of the only areas along the

Louisiana coast where land building is now taking place. This is because of sediment rich waters entering shallow areas of Atchafalaya Bay, where a new delta has developed. Thousands of acres of new marsh have been formed through this relatively recent process. This active example of sediment diversion provides scientists with tremendous evidence of what can be accomplished through Mississippi River related sediment diversion projects if implemented properly.

The re-alignment of the Mississippi River delta continues to be evaluated as an effective coastal marsh restoration option. Many believe long-term coastal restoration cannot be effectively accomplished unless both freshwater diversion and sediment diversion projects are seriously considered and ultimately implemented. Few argue with the belief that diversion projects will ultimately provide the greatest magnitude of restoration benefits in Louisiana.

3) Hydrologic Modification / Marsh Management

In many areas experiencing coastal land loss, limited opportunities exist for the diversion of fresh water and sediments into deteriorating wetlands. The absence of large river systems like the Mississippi and the Atchafalaya often removes the use of diversion projects as a viable restoration option. This dilemma is *significant in parts of both south-central and southwest* Louisiana. Marsh deterioration, however, remains a significant problem in these areas, requiring more intense restoration management approaches such as hydrologic modification and marsh management.

Many man-made channels and canals were established for temporary navigation purposes without regard for possible disruption of natural marsh drainage. Hydrologic restoration involves the re-establishment of natural drainage routes through coastal wetlands by selectively blocking man-made channels or canals. This can be done by placing control structures or earthen plugs in selected artificial drainage channels. In some cases, hydrologic restoration may also consist of placing gaps in impoundment levees for periodic influxes of water, sediment, and nutrients to promote wetland stability and growth. This has worked best in previously impounded marsh areas that have experienced serious subsidence (marsh sinking) problems caused by soil compaction and a lack of marsh replenishing sediments.

Marsh management typically involves the enclosure of specific areas experiencing marsh deterioration through levees and strategically placed water control structures. This allows for the controlled manipulation of both water levels and salinities which promotes the restoration and growth of wetland vegetation, and fish and wildlife productivity. Water levels and exchange between the outside estuary and the managed area are in some cases indirectly manipulated (as when non-adjustable fixed crest weir structures are used), or directly manipulated (as when stop-log gated culvert structures are used). In both cases, however, management objectives must typically address continued ingress and egress of estuarine-dependent marine fishes.

4) Barrier Island / Coastline Restoration

Barrier islands perform an extremely important function in protecting interior coastal bays and marshes from high Gulf of Mexico salinities and storm energy. Islands help regulate seawater inflow into the estuary and the frequency and duration of flooding in marshes located along the fringe of coastal bays.

Much more work will be needed to determine the most cost-effective barrier island restoration methods; however, various beach "nourishment" approaches have shown tremendous potential on many Louisiana barrier islands such as Grand Isle, East Island, and Wine Island. *Long-term barrier island restoration concepts may call* for the mining of sand from sources offshore that can be used for large-scale barrier island reconstruction.

Gulf shorelines located primarily along the western Louisiana Chenier Plain and Grand Isle have experienced tremendous erosion rates of up to 100 feet per year. In addition to the high risk of losing additional interior marshes if these beach ridges are breached, millions of dollars continue to be lost annually caused by loss of homes, camps, and highways as a result of continued shoreline erosion. Segmented rock breakwaters have been constructed in the areas experiencing the highest erosion rates. Segmented breakwaters help stabilize shorelines by breaking Gulf of Mexico wave energy and inducing deposition of coarse beach material behind the breakwater structures. Existing breakwaters have shown positive results; plans are to expand the area where segmented breakwaters can be constructed.

5) Vegetative Plantings

Because of constant wave energy and fluctuating water levels, many Louisiana lake, bay, river, and canal shorelines continue to experience tremendous erosion rates. Along shorelines experiencing low energy wave action, marsh grass plantings can help bind marsh and bank soils and ultimately reduce shoreline erosion. Additionally, re-established vegetation helps revitalize the coastal marsh energy cycle by supplying life-giving organic material that is critical to marine fisheries productivity within the estuary.

Because of tremendous coastal vegetative marsh loss rates, the USDA Soil Conservation Service (SCS) has established a coastal Plant Materials Center (PMC) in Golden Meadow. The Golden Meadow PMC has been established to develop and field-test varieties of marsh plants that can be used effectively in vegetative planting related restoration approaches. Native marsh plants showing great potential include smoothcord grass (Spartina alterniflora) and bulwhip (Scirpus californicus).

A regional strain of smoothcord grass from Vermilion Parish (Vermilion Smoothcord Grass) has been successfully generated at the Center. Planting projects using the Vermilion variety in both Louisiana and other Gulf Coast states have shown great promise in both shoreline protection and marsh re-vegetation efforts.

Many projects contained in Louisiana's 1994-95 Coastal Wetlands Conservation and Restoration Plan use wetland restoration approaches described above. To obtain a copy of this year's plan, contact Dr. Len Bahr, Executive Assistant, Governor's Office of Coastal Activities, P.O. Box 94004, Baton Rouge, LA 70804.

For more information about coastal restoration approaches, contact my office in Baton Rouge.

LOUISIANA COASTAL RESTORATION SUMMIT PLANNED

Responding to a call from the Coalition to Restore Coastal Louisiana (the Coalition), the State of Louisiana will soon hold a Coastal Restoration Summit to identify ways to improve the state's ability to restore vital coastal wetlands. The summit will be co-sponsored by the Governor's Office of Coastal Activities, the State Wetlands Restoration Task Force, the Louisiana Department of Natural Resources, and others.

The need for a summit arose from several issues that have emerged during the planning and implementation of state and federally sponsored coastal restoration projects. Issues identified by the Coalition include the resolution of property rights in restored areas, ways of expediting projects, and reconciliation of user group conflicts associated with coastal restoration efforts. The Coalition strongly believes failure to make substantial progress in building restoration projects during the next year could seriously affect federal and state funding of future coastal restoration projects.

All major coastal communities, user groups, and other interested parties are expected to be key participants in the summit. A final date is expected to be announced soon. For more information about the summit, contact my office in Baton Rouge.

PRIVATE PROPERTY OWNER BILL OF RIGHTS

Congressman Billy Tauzin from Louisiana has recently introduced H.R. 3875 in Congress. This bill, generally referred to as the Private Property Owner Bill of Rights, is co-sponsored by several other Louisiana congressmen including Representatives Jimmy Hayes, Bob Livingston, Jim McCrery, and Richard Baker.

The bill includes the following provisions:

- Adopts a federal policy to encourage, support, and promote ownership of private property,
- requires agencies to comply with state, local and tribal property laws,
- requires agencies to implement Endangered Species Act (ESA) and wetland rules in ways that have least impact on private property owners,
- requires written consent of private property owners for entry by federal officials to gather information under ESA or wetland rules,
- guarantees property owners access to information gathered on their property and a right to dispute that information;
- guarantees property owners the right to an

administrative appeal of decisions under ESA or wetland rules,

- provides for compensation for property owners for loss of 50% of market value or use of affected property and sets forth an administrative procedure for resolving the property owners claim, and

- requires that private property owners be included under property management agreements between the federal government and the states which affect private property under the ESA.

H.R. 3875 is supported by many private property rights advocacy groups throughout Louisiana and the U.S. The Coalition to Restore Coastal Louisiana, however, has recently announced its opposition to the bill.

The balancing of private property rights and the public interest continues to dominate congressional debate over reauthorization of the Clean Water Act, the Endangered Species Act, and many other environmental statutes. Continued mediation and discussion will be critical to final resolution of this issue.

To obtain a copy of the Private Property Bill of Rights (H.R. 3875), contact my office in Baton Rouge.

WORKSHOP ON STRUCTURAL MARSH MANAGEMENT ANNOUNCED

The Environmental Protection Agency (EPA) is sponsoring a workshop on marsh management August 16-18, 1994, at the Doubletree Hotel, 300 Canal Street, New Orleans. For the purpose of the workshop, marsh management is defined as the use of spoil banks, levees, canal plugs, and/or water control structures to enhance or restore vegetated wetlands.

This interactive workshop is aimed at developing a common understanding and approach regarding structural marsh management in coastal Louisiana. The workshop will bring together practitioners of marsh management, natural resource user groups, agency regulators and planners, and the scientific community who will:

- Share their experiences and perspectives to create a dialogue regarding structural marsh management in Louisiana,

- develop areas of agreement on structural marsh management and identify unresolved issues which need to be addressed in the future, and

- provide input to EPA's fact-finding effort to develop future agency guidance for evaluation of marsh management projects.

Pre-registration is important because seating is limited. Registration will be $65 if received by August 5 or $75 at the door. Tuesday and Wednesday luncheons will be included in pre-registration packet only.

Pre-registration forms are available from my office in Baton Rouge, or you may fax registration information to Coastal Environments Inc. (fax no. 504-383-7925) and mail check immediately to Coastal Environments, Inc. Attn: Shannon Bonton, 1260 Main Street, Baton Rouge, LA 70802.

USDA APPROVES 75,000 ACRES IN SECOND WRP SIGNUP

On July 13, 1994, Secretary of Agriculture Mike Espy announced that farmers and ranchers in 20 states soon will receive acceptance for enrollment of 75,000 acres in the USDA's Wetlands Reserve Program (WRP). Through the WRP, landowners sell permanent easements to USDA's Agricultural Stabilization and Conservation Service (ASCS) and receive lump sum payments in exchange for restoring converted cropland and other acreage to productive wetlands; ownership, however, remains in the private sector. Additionally, USDA pays up to 75% of the required wetland restoration costs.

Landowners in Arkansas, California, Illinois, Indiana, Iowa, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, New York, North Carolina, Oregon, South Dakota, Tennessee, Texas, Virginia, Washington, and Wisconsin are participating in this year's $66 million program.

In March 1994, approximately 5,775 intentions to participate, covering 590,000 acres, were submitted by eligible landowners in the 20 states. In Louisiana, 278

intentions to participate covering over 59,385 acres were offered by farmers. By law, only 75,000 acres nationwide could be accepted in fiscal year 1994 for a total cost not to exceed $66.7 million.

The 75,000 acres selected by ASCS from the 590,000 acres offered, provided the most environmental benefits in the most cost-effective manner. Final acceptance, however, will be conditional on eligible owners complying with program provisions including conveyance of a perpetual easement to ASCS.

The estimated accepted acres and cost by state are listed in the table below:

State	Projected Acres	Projected Cost
Arkansas	10,338.5	$ 4,620,000
California	3,568.9	3,750,000
Illinois	2,771.6	1,200,000
Indiana	1,780.0	1,000,000
Iowa	5,793.7	3,950,000
Kansas	2,600.0	1,000,000
Louisiana	11,956.1	5,300,000
Minnesota	3,380.8	1,050,000
Mississippi	13,562.5	5,625,000
Missouri	3,523.6	1,750,000
Nebraska	1,547.0	1,000,000
New York	743.0	580,000
N. Carolina	1,076.1	1,000,000
Oregon	1,977.5	1,050,000
S. Dakota	2,631.9	1,050,000
Tennessee	1,823.4	1,000,000
Texas	2,052.6	990,000
Virginia	806.6	850,000
Washington	740.0	1,000,000
Wisconsin	2,326.2	1,280,000
Total	75,000.0	$39,000,000

U.S. SENATE HEARING HELD ON REAUTHORIZATION OF CLEAN WATER ACT

On June 1, 1994, Senator Bennett Johnston chaired a field hearing in Baton Rouge on the reauthorization of the Clean Water Act. The hearing focused on the wetlands provisions in Senate Bill 2093, believed by many to be the primary legislation addressing Clean Water Act Reauthorization this year. Commissioner Bob Odom from the Louisiana Department of Agriculture and Forestry, as well as administrative representatives from the Department of Natural Resources and the Department of Environmental Quality (DEQ), provided testimony. Additional testimony was heard from the Louisiana Farm Bureau Federation, the Louisiana Forestry Association, the Coalition to Restore Coastal Louisiana, and the Sierra Club.

During the hearing, Senator Johnston asked the panelists their opinions pertaining to several key wetland policy issues. Most presenters supported these five proposals:

1) Allowing USDA's Soil Conservation Service (SCS) to make wetland determinations on all wetlands nationwide,

2) allowing for state assumption of the Section 404 wetland permitting program (now under the authority of the U.S. Army Corps of Engineers),

3) removing the authority of the Environmental Protection Agency to veto Section 404 permit decisions.

4) establish a permit appeals process, and

5) establish permit decision deadlines.

Debate will no doubt continue over the wetland provisions of the Clean Water Act during congressional reauthorization hearings on S. 2093 and related legislation. To obtain a complete copy of S. 2093, contact my office in Baton Rouge.

- Symposium Announcement -

"ECONOMICS IN NATURAL RESOURCE MANAGEMENT: VALUING FISH, WILDLIFE, AND HABITAT"

Economic valuation is a critical factor used to determine appropriate natural resource policy decisions at the local, state and federal levels. Debate over endangered species management, wetland regulations, commercial and recreational fisheries management, and natural resource impact assessment have all centered on the importance of economic considerations in the decision-making process.

In an effort to increase the competency of natural resource managers in the area of natural resource

economics, a professional improvement symposium is being jointly sponsored by the Louisiana Wildlife Biologists Association, Louisiana Chapter - The Wildlife Society, Louisiana Chapter - The American Fisheries Society, LSU Agricultural Center - Louisiana Cooperative Extension Service, Louisiana Sea Grant College Program, Louisiana Department of Wildlife and Fisheries, and the Governor's Office of Coastal Activities. The target audience includes professional natural resource managers, land managers, landowners, university scientists, and private citizens interested in natural resource management.

The symposium will be held at the Louisiana Department of Wildlife and Fisheries (LDWF) building located on Quail Drive in Baton Rouge, October 4-5, 1994. Registration will begin at 11:00 a.m., and the first session will begin at 12:45 p.m. on October 4. The symposium will re-convene at 8:00 a.m. and adjourn at noon on October 5. Regular registration will be only $20 and student registration (college I.D. required) will be only $15 (includes refreshments and a jambalaya supper on the evening of October 4).

Symposium sessions will include 1) an introduction to natural resource economics, 2) using economics in the management of Louisiana's natural resources, and 3) the role of natural resource economics in issues-based decision-making process. Symposium participants will become familiar with the techniques used to determine the economic value of fish and wildlife resources and wetlands. Additionally, the pitfalls associated with using economics in natural resource management decisions will also be discussed. Symposium speakers will include noted natural resource economists and resource managers.

To obtain pre-registration material and a symposium program, contact Michael Liffman, Louisiana Sea Grant College Program, LSU, Baton Rouge, LA 70803-7507, or call (504) 388-6290 or 6448. The conference planning committee appreciates your cooperation in pre-registering no later than September 26, 1994. This will enable the committee to better plan the social and entertainment portions of the program.

SCIENTIFIC ASSESSMENT OF COASTAL WETLAND LOSS, RESTORATION, AND MANAGEMENT IN LOUISIANA

In an effort to evaluate how best to reverse the large scale coastal land loss rates in Louisiana, the W. Alton Jones Foundation funded an independent scientific assessment of the coastal wetland loss, restoration, and management in Louisiana. This assessment, titled **Scientific Assessment of Coastal Wetland Loss, Restoration, and Management in Louisiana**, was conducted by a panel of environmental scientists with expertise in the science and engineering of coastal wetlands, who are not actively involved in research or management activities under way in Louisiana. The panel attempted to: 1) examine space and time scales over which the fundamental processes of wetland loss operate and on which appropriate restoration strategies should be based; 2) identify issues on which there is scientific consensus or controversy; 3) determine actions that will assure the long-term continuance of extensive wetlands in coastal Louisiana; and 4) propose scientific and technical needs for research, modeling, and monitoring, including criteria for assessing the effectiveness of wetland restoration and creation.

The panel concluded that large-scale, hydrologic basin-wide (for the whole Mississippi Deltaic Plain or the entire Chenier Plain) projects will be necessary if wetland loss is to be reduced significantly. However, these projects will be costly and require substantial and lengthy study and planning. Because of the widespread human-induced changes that have diminished the capacity of the coastal system to build and maintain wetlands (leveeing of the Mississippi River, for example), major coastal engineering approaches will have to be undertaken to significantly address the problem. The panel urged wetland restoration officials in Louisiana to identify the most feasible large-scale projects as soon as possible.

A list of the panel members and their final report is available from my office in Baton Rouge.

GULF OF MEXICO PROGRAM (GMP) TOWN MEETING REPORT AVAILABLE

In the spring of 1994, a series of town meetings on the GMP were jointly sponsored by the LSU Agricultural Center's Louisiana Cooperative Extension Service and the Governor's Office of Coastal Activities. Meetings

were held in Belle Chasse, Thibodaux, Cameron, Hammond, Franklin, Thibodaux and Baton Rouge. Public comments and ideas were recorded and printed in a final report. Free copies are available from my office in Baton Rouge.

COASTAL FISHING: WHAT IS THE FUTURE?

In April 1994, the LSU Agricultural Center's Louisiana Cooperative Extension Service and the Louisiana Sea Grant College Program co-sponsored a workshop titled "Coastal Fishing: What is the Future?" The conference focused on critical issues facing commercial and recreational fishing along the Louisiana coast and the need for leadership to address these issues.

For a free copy of the symposium proceedings, call my office in Baton Rouge.

MANAGEMENT BEYOND SCIENCE: THE BIOLOGIST'S ROLE IN FACILITATING NATURAL RESOURCE CONFLICT RESOLUTION

In September 1993, a jointly sponsored symposium titled, "Management Beyond Science: The Biologists Role in Facilitating Natural Resource Conflict Resolution," was conducted at the Louisiana Department of Wildlife and Fisheries building. The symposium was co-sponsored by the Louisiana Wildlife Biologists Association, The Louisiana Chapter - The Wildlife Society, the Louisiana Chapter - The American Fisheries Society, U.S. Fish and Wildlife Service, LSU Agricultural Center, Louisiana Sea Grant College Program, and the Louisiana Department of Wildlife and Fisheries. The symposium focused on 1) increasing awareness among participants about their respective roles in dealing with natural resource conflicts, 2) providing the tools available to facilitate the process of natural resource conflict resolution, and 3) demonstrating sources of help in resolving natural resource conflicts.

The symposium proceedings are available free from my office in Baton Rouge.

NEW PUBLICATION AVAILABLE ON RARE PLANTS OF PINE-HARDWOOD FORESTS IN LOUISIANA

The Louisiana Department of Wildlife and Fisheries and the Louisiana Department of Agriculture & Forestry have jointly released a new publication titled Rare Plant of Pine-Hardwood Forests in Louisiana. It features color pictures and descriptions of 24 herbaceous and woody plants considered rare in Louisiana, and are typically found growing in what may be generally called mixed pine-hardwood forests.

Copies of this publication may be purchased for $4 each from The Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, 2000 Quail Drive, P.O. Box 98000, Baton Rouge, LA 70898-9000, Phone (504) 765-2821.

For more information about any of the topics discussed in this newsletter or to obtain wetland and coastal resource related education information, contact your parish Louisiana Cooperative Extension Service office.

Sincerely,

Paul Coreil, Area Agent
(Wetland and Coastal Resources)

Louisiana State University Agricultural Center, H. Rouse Caffey, Chancellor
Louisiana Cooperative Extension Service, Bruce Flint, Vice Chancellor and Director

Issued in furtherance of Cooperative Extension work, Acts of Congress of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. The Louisiana Cooperative Extension Service provides equal opportunities in programs and employment.