

SPECTRUM

WINTER 2007

U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION

VOL. 2 NO. 1

Restoration
Protection of *Ecosystems*
a Corps Priority



CONTENTS

Message from BG Schroedel	3
Charleston District Employs New, Environmentally Friendly Method in Maintenance of Inland Waterway.....	4
By Marilyn Phipps, Mobile District	
Historic Plan to Save America’s Everglades is Worthy Corps Legacy “Getting the Water Right” in South Florida.....	6
By Sonya Goines, Jacksonville District	
Progress Continues towards Greater Everglades Restoration.....	8
By Amanda Ellison, Jacksonville District	
Savannah District Update: Tomkins Island.....	9
By Sarah McCleary, Savannah District	
Partnership Creates 350 Acre Longleaf Pine Ecosystem at Lake Allatoona.....	10
By Pat Robbins, Mobile District	
Nature Conservancy Partner to Restore Savannah River.....	12
By Sarah McCleary, Savannah District	
Wilmington District Leads Multi-Agency Effort to Restore Currituck Sound.....	14
By Hank Heusinkveld, Wilmington District	

Coming Soon: Second National Conference on Ecosystem Restoration

The U.S. Army Corps of Engineers is a proud co-sponsor, along with the U.S. Geological Survey and several non-government organizations, of the Second National Conference on Ecosystem Restoration, scheduled for April 22-27, 2007 in Kansas City, Mo. The theme of this year’s conference is The Spirit of Cooperation: Integrating Partnerships Between Science and Management for Sustainable Ecosystem Restoration, and will provide an interdisciplinary forum in which to discuss issues and challenges, exchange information and share knowledge and lessons learned.

Open to federal, state and local agency personnel, tribal governments, non-government organizations, scientists, researchers, modelers, students and environmental interest group members, the conference will draw upon major ecosystem restoration projects from across the country and will include sessions on the science of restoration, system responses and trends, planning for restoration, adaptive management, partnering and communication and priorities for ecosystem restoration. For more information, please visit the conference web site at: <http://conference.ifas.ufl.edu/NCER2007/>.





Brig. Gen. Joe Schroedel
The South Atlantic Division Commander

Message from BG Schroedel

Traditional missions of the U.S. Army Corps of Engineers have served the nation well in meeting their intended purposes. However, the needs of the nation have changed with the times, and our projects have sometimes contributed to degradation of the environment. Other human uses have also resulted in significant alteration of our aquatic resources.

As a result, the mission of the Corps has expanded to meet these needs. We're undertaking restoration efforts across the region. Demand for a more holistic watershed approach to water resource problems has increased, as exemplified by the Corps' Environmental Operating Principles, with their emphasis on a systems approach. The most prominent example in the Southeast is the Everglades Restoration effort, but the Everglades is not the Corps' only environmental restoration project in the region.

A more holistic approach requires active engagement of our federal, state, and local partners. We need to work collectively to address the problems identified and to ensure our actions meet identified objectives. Current fiscal challenges and competition for federal dollars necessitates that we focus on the most critical actions first and that we get the biggest bang for the buck. This, too, emphasizes the need to actively engage our partners and manage our restoration efforts to ensure that we accomplish what we set out to do.

Often this means dealing with significant uncertainties. The key to success here is adaptive management – taking small steps and learning as we go. But getting restoration plans moving from paper to action on the ground is the key!

Deeds, not words!

Best wishes always,
Joe Schroedel

SPECTRUM

The South Atlantic Division

Commander
Brig. Gen. Joe Schroedel

Charleston District

Connie Gillette
Chief, Public Affairs

Jacksonville District

Nancy Sticht
Chief, Public Affairs

Mobile District

Pat Robbins
Chief, Public Affairs

Savannah District

Billy Birdwell
Chief, Public Affairs

Wilmington District

Penny Schmitt
Chief, Public Affairs

Executive Editor

Rob Holland, South Atlantic Division

Managing Editor

Nancy Sticht, Jacksonville District

Design and Layout Editor

Linda Torres, Jacksonville District

The Spectrum is published quarterly by the Virtual News Bureau, South Atlantic Division, US Army Corps of Engineers to provide regional information on the people and activities of the Division and its five Districts.

This publication is printed and distributed in accordance with AR 360-1. Questions about or submissions to this publication should be directed to Public Affairs, U.S. Army Corps of Engineers - South Atlantic Division. The editor can be contacted by telephone at 404-562-5011.

Contents within this publication do not necessarily reflect the official views of the U.S. Army Corps of Engineers, the Department of Army, or the Department of Defense.

Charleston District Employs New, Environmentally Friendly Method in Maintenance of Inland Waterway



Severe erosion is taking place along this section of the Atlantic Intracoastal Waterway.

The Atlantic Intracoastal Waterway (AIWW) is a 740-mile navigation channel that extends from Norfolk, Va. to the St. Johns River near Jacksonville, Fla. The federally-maintained AIWW is a shallow-draft inland navigation route that provides for safe navigation and harbor of commercial, military, dredging industry vessels and recreational boat traffic.

The boundaries for the waterway begin within Norfolk District and flow south through Wilmington, Charleston, Savannah, and Jacksonville districts.

The depth and width varies with impact of tide and storms. However, the River and Harbor Act of 1937 authorized a depth of 12 feet and a width of 90 feet in South Carolina. The construction of the South Carolina portion of the AIWW was completed three years later in 1940.

The waterway runs 235 miles within the state of South Carolina. Charleston District maintains the 210 miles that run from above Little River Inlet on the North-South Carolina border to Port Royal Sound near Hilton Head. Savannah District maintains the remaining 25 miles of the AIWW in South Carolina. Through most of its length in South Carolina, the AIWW consists of

a system of naturally deep estuaries, rivers, and sounds that have been connected by a series of manmade land cuts to provide a continuous inland navigation route.

The section of the waterway from Georgetown to Little River from the coastline did not offer inlets or marshes to easily accommodate the construction of a waterway canal. With no connecting waterways, a 20-mile reach in Horry County, S.C. had to be cut through uplands. Due to its narrow nature, the land cut portion, primarily in the Myrtle Beach area, requires one-way commercial vessel traffic. Commercial vessel operators are required to coordinate by radio on each end before entering the 20-mile portion.

Now, 87 years after the project began, the Corps is developing creative, environmentally friendly ways to maintain the AIWW. Dredging is not the only operation and maintenance challenge that Charleston District faces on the AIWW. Their budget has to stretch to conduct and assure project condition surveys, perform mosquito abatement and real estate management, maintain environmental compliance, and maintain or improve dredge disposal areas. These areas are surrounded by dikes, or earthen structures with drainpipes, to dewater

the dredged material placed within them. Project manager Jimmy Hadden explains that the district received a \$1.5 million congressional add in fiscal year 2006. "We are going to use this money to perform critical erosion protection and maintenance work on a disposal area," he said.

Boat wakes have caused erosion along the waterway, resulting in the loss of the outside slopes of the containment dike. If left unchecked, the dike could eventually breach, possibly creating environmental damage to the surrounding salt marsh and causing a loss of disposal area acreage and capacity.

The protection plan is to install a quarry-run granite rock breakwater or sill approximately 70 feet offshore and parallel to the outside toe of the dike slope. It is broken into two segments to allow adequate tidal flow.

Hadden finds the project exciting. "I came from an environmental background and have always been interested in being able to perform necessary AIWW project maintenance in an environmentally sensitive manner," he said. "This project is designed to enhance both.

"Some of the disposal areas only have about a 50-year lifespan. This is an opportunity to maintain that lifespan by allowing the salt

marsh to regenerate naturally and providing additional erosion protection to the dike.”

The original project had to be redesigned within the \$1.5 million budget. This meant selecting one disposal area site from a prioritized list of more than 10 sites. Norman Moebs of the Charleston District’s Navigation Branch made onsite visits to each eroding disposal site to identify the most critical sites as well as those that would benefit the most from the erosion protection project.

The site that was selected for the erosion control-environmental restoration project covers a 1,200-foot section of the AIWW northeast of Charleston in a narrow stretch of the AIWW, located between Mount Pleasant on the mainland and the Isle of Palms and Sullivans Island.

The AIWW project delivery team (PDT) member from the Wilmington District, Hasan Pourtaheri, was previously involved in completing the design and construction of a dual purpose erosion control-environmental restoration project and brought his expertise to the project. The Wilmington project involved creating a rock sill pile breakwater, filling the area with disposal material and planting vegetation to restore the wetlands.

Hadden explained the plan, using the Wilmington concept. “We will create a pyramid-shaped rock pile in front of the disposal area dike to reduce the erosion. The rocks will attenuate the waves and boat wakes to keep from eroding the marsh and shoreline, and eventually destroying the dike.

“After the rocks and riprap are in place, the sediments will be allowed to accumulate in the area between the sill and the toe of slope to allow the reestablishment and maintenance of the tidal marsh, similar to that which existed in the past”, Hadden said.

Other resource agencies were concerned about fish entrapment and tidal flow, so the design was modified. Restoring salt marsh tidal flow is critical to regeneration. Hadden explained that, in the past, the Corps used riprap to protect dikes, but has never used the breakwater-type



The Corps’ contractor placed geotextile material with granite rock on top of it to construct the breakwater. Notice the severe damage to the embankment in the background. If not protected from erosion, the embankment could breach, potentially impacting wetlands and navigation.

construction method. The regenerated salt marsh vegetation will help to stabilize the area.

Navigational hazard signs will be installed to warn marine vessel traffic of the new rock breakwater. The PDT is coordinating with the U.S. Coast Guard because of the significant recreational marine traffic in the area.

To ensure environmental compliance, Bob Chappell of the environmental resources section coordinated with the waterway sponsor, the South Carolina Department of Health and Environmental Control and Ocean Coastal Resource Management, as well as with other state and federal agencies, such as the South Carolina Department of Natural Resources, the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

The project started in mid-December and is expected to be finished in three months. ■

by Marilyn Phipps
Mobile District

Breakwater at high tide.



Historic Plan to Save America's Everglades is Worthy Corps Legacy

"Getting the Water Right" in

The Everglades, a fragile, tropical ecosystem, home to 68 threatened or endangered plant and animal species, was dying. As the population of south Florida and resulting development boomed, the Everglades was reduced to nearly half its original size. Some areas of south Florida were difficult and even dangerous to live in, due to the potential for hurricanes and flooding, so in 1948 Congress authorized the Central and Southern Florida (C&SF) project, consisting of 1,700 miles of levees and drainage canals that crisscrossed the Everglades and routed "excess water" to the sea. The multi-purpose project provided flood damage reduction, water supply and other benefits to the area between Orlando and Florida Bay.

The C&SF project was successful, but it also contributed to the decline of the south Florida ecosystem. Extreme fluctuations in Lake Okeechobee's water levels, deterioration of water quality and major adverse impacts on plant and animal communities in the Everglades are a few of the unintended impacts of the C&SF project. In 1996, Congress authorized a reevaluation, to study the possibility of modifying the C&SF project in an effort to restore the Everglades.

In the 10 years since Congress authorized the study to restore the Everglades, the Corps of Engineers has moved the plans and designs from the pages of the resulting "Yellow Book" – a ten-volume, four-thousand-page document – to preparations to break ground on two projects, plans for 19 others well under way and a critical foundation project in its second and final phase.

The Comprehensive Everglades Restoration Plan (CERP) is the 30-year, \$8 billion undertaking that resulted from the three-year study, performed by more than 150 scientists, biologists and engineers from as many as 30 federal, state, local and tribal agencies. The holistic plan takes a watershed approach and represents one of the largest restoration projects ever attempted. The purpose of CERP is to restore and preserve south Florida's natural ecosystems while enhancing water supplies and providing flood damage reduction.

By "getting the water right," we mean getting the right amount and right quality of water to the right place at the right time - it's all about

quantity, quality, timing and distribution. Saving the remaining Everglades and restoring it as close as possible to its original state is the ultimate goal. The Everglades is believed to have developed over a period of many years. And just as it took time for this unique work of nature to develop, it will take time to restore it. But CERP will not only improve the condition of the Everglades. It will also improve associated rivers, lakes and bays in south Florida and will enhance the quality of life for people and wildlife.

CERP consists of 68 different components, including 50 construction projects, many of which are large, complex projects that may include multiple components. The plan serves as a framework for providing the most comprehensive course of action, taking into consideration the complexity of this ecosystem. It provides the best possible solutions for addressing the major concerns of restoring the Everglades, improving the water quality, providing flood damage reduction and meeting future water supply needs.

The plan also includes an adaptive assessment strategy, to ensure that new information about the natural system, learned through continuing research and by measuring responses to the implementation of plan components, can be used to increase the ultimate level of success of the overall restoration program.

Currently, plans for two major components of CERP are complete and awaiting authorization and funding by Congress - Indian River Lagoon South and Picayune Strand Hydrologic Restoration. This authorization is usually accomplished through the Water Resources Development Act (WRDA); however, a WRDA has not been passed by Congress since 2000. In late January, Senators Bill Nelson (D) and Mel Martinez (R) of Florida introduced the projects in a stand-alone bill, Restoring the Everglades: An American Legacy Act of 2007. The Indian River Lagoon South project consists of constructing several reservoirs and stormwater treatment areas. Picayune Strand Hydrologic Restoration will restore wetland function to over 55,000 acres. "Everglades restoration hinges on these two projects. They simply must move forward," Martinez said. "Indian River Lagoon and the Picayune Strand projects will bring Florida closer to restoring

the Everglades and improving our quality of life."

The Yellow Book projected report authorizations to be made quickly after studies were completed, and funding at a rate of \$200 million annually. Since 2000, however, funding has only amounted to \$300 million and no authorizations have been made. The State of Florida has tried to mitigate for the lack of authorizations and funding with their Acceler8 program, which is moving eight projects forward, including construction of stormwater treatment areas, reservoirs and water preserve areas. By accelerating the funding, design and construction of these projects, the Everglades will experience positive benefits much sooner, and in a more cost-effective manner. The state will finance project construction in a unique way for a restoration project - with "Certificates of Participation" revenue bonding. Financing and fast-tracking these projects will help to avoid the inevitable increases in construction materials and labor costs.

While CERP is the major piece of the total effort to restore the Everglades, it is not the only piece. The intricate nature of the south Florida ecosystem will involve projects other than those identified as CERP projects. These foundation projects will provide vital restoration of water quality and quantity to south Florida. Two examples of foundation projects are the Kissimmee River Restoration Project, which is in its second of two phases of construction, and Modified Water Deliveries to Everglades National Park, a key foundation project because funding and construction of certain other components of CERP rely on its completion. In addition, some critical projects, specific water quality-related projects essential to the restoration of the Everglades such as those at Ten Mile Creek and Taylor Creek/Nubbin Slough, have been completed.

An American treasure, the Everglades includes three national parks – the third largest in the Continental United States - a marine sanctuary and 12 wildlife refuges. It is designated as an International Biosphere Reserve, a World Heritage Site and a Wetland of International Significance. Restoring the majestic Everglades is a legacy worthy of our efforts, our resources, our commitment and our unflinching dedication. ■

by Sonya Goines
Jacksonville District

South Florida

“There are no other
Everglades in the world.
They are, they have always been,
*one of the unique
regions of the earth;*
remote, never wholly known.
Nothing anywhere else
is like them...”

- Marjory Stoneman Douglas (1890-1998)
The Everglades: River of Grass, 1947

Some of the MAJOR FEATURES of the plan include:

Water Storage Reservoirs

More than 180,000 acres of above- and in-ground reservoirs are planned to store billions of gallons of water, and more than 300 underground water storage wells are proposed to store up to 1.6 billion gallons of treated water a day in the upper Floridan aquifer.

Stormwater Treatment Areas

Almost 36,000 acres of manmade wetlands will be constructed to remove pollutants and other harmful contaminants from water before discharge to the Everglades.

Water Deliveries to the Everglades

Projects will improve the volume, timing and quality of water delivered to the south Florida ecosystem.

Seepage Management

Barriers will be built to stop the rapid underground seepage of water out of the Everglades, which today results in the loss of millions of gallons of water each year.

Removing Barriers to Sheetflow

More than 240 miles of project canals and internal levees will be removed to reestablish the natural sheetflow of water through the Everglades.

Wastewater Treatment and Reuse

Two advanced wastewater treatment plants will be constructed in Miami-Dade County.

Fresh Water Flows to Florida Bay

Water deliveries to Shark River Slough, Taylor Slough, and wetlands to the east of Everglades National Park will be improved.

Lake Okeechobee

Management of intermediate water levels on Lake Okeechobee will be improved, while allowing the lake to continue to serve as an important source for water supply.

South Florida
Everglades
Ecosystem
Restoration Division

A recent initiative to improve the efficiency of Jacksonville District's and the Corps of Engineers' restoration efforts is the 'reset' of the Everglades Restoration Division from the South Florida Everglades Ecosystem Restoration Division (SFEER) in Jacksonville District. This new division will have national implications for every Corps district and every division.

SFEER will create a virtual team from Jacksonville to Headquarters to the Pentagon. "Virtually behind me are people like Assistant Secretary of the Army for Civil Works, John Paul Woodley, Jr.; Chief of Engineers, Lt. Gen. Carl Strock; and Corps' Director of Civil Works, Maj. Gen. Don Riley," said Col. Paul Grosskruger, commander of Jacksonville District. "The strategic leaders of the nation believe in this," he said.

"Changing from Restoration Division to Everglades Division will capture the essence of what we do," said Dennis Duke, chief of the South Florida Everglades Ecosystem Restoration Division.

The emphasis of this new division will be project delivery. Clear and direct lines of authority, policy and budget development will expedite implementation.

The significance of this reset is also demonstrated at the headquarters level, with the creation of a senior executive service position to oversee a Corps-wide ecosystem restoration program. That program will encompass all major restoration efforts, such as Everglades, Coastal Louisiana, Coastal Mississippi and Upper Mississippi River Navigation.

Progress Continues towards *Greater Everglades Restoration*

It has been seven years since Congress authorized the Water Resources Development Act (WRDA) of 2000 that began the journey towards restoring America's Everglades. Since that time, the U.S. Army Corps of Engineers, Jacksonville District, has been hard at work implementing the Comprehensive Everglades Restoration Plan (CERP). In addition to making progress on CERP, we have made tremendous strides towards restoration on projects that preceded it. These projects are demonstrating that restoration is possible.

The most successful restoration project to date is the Kissimmee River Restoration Project. This project dates back to 1992, when the U.S. Congress authorized this joint federal-state project to restore more natural flows to the historic Kissimmee River. After extensive planning, construction for environmental restoration began in 1999, with backfilling 7.5 miles of the C-38 canal, carving 1.2 miles of new river channel and removing a water control structure.

The results of progress are already providing much needed ecosystem restoration benefits around the Kissimmee River. The initial backfill restored 15 miles of the original riverbed, improving 11,000 acres of floodplain wetlands and vastly enhancing wildlife habitat. Key benefits of the restoration include improvement in water quality and an almost immediate increase in fish and wading birds, including the endangered Wood Stork. Sandy river banks have reappeared in the restored oxbows, and wetlands vegetation has been restored in the floodplain.

Right now, the Corps is backfilling 1.9 miles of the C-39 canal and removing three additional water control structures. At the northern end of

the Phase 1 project area, four miles of historic river is being restored. The Kissimmee River Restoration project and its success has inspired future restoration efforts.

The Taylor Creek/Nubbin Slough project is part of the greater Everglades restoration, considered part of the Critical Restoration Projects program. The Corps completed construction on the Taylor Creek Stormwater Treatment Area (STA) in March 2006, and the construction for the Nubbin Slough STA in April 2006.

The Lake Okeechobee Aquifer Storage and Recovery (ASR) pilot project is vital to determining the feasibility of ASR for successful restoration. In June 2006, ground was broken and construction began on the ASR pilot project. The Kissimmee ASR pilot facility is under construction, with completion scheduled for August 2007.

Modified Water Deliveries to Everglades National Park (MWD) project will restore natural hydrological (water) conditions in Everglades National Park. Several components of the MWD project are under way and moving full speed ahead. The Tamiami Trail Project, approved in January 2006, is currently in design and includes construction of a 2-mile bridge to the west and a 1-mile bridge to the east, and raising the remaining road surface by about two feet to allow more natural flows of water. Construction is scheduled to begin in early 2008.

The 8.5 Square Mile Area project component was designed to provide flood mitigation for the residential area. Currently, 842 tracts of real estate have been acquired and 99% of demolition has been completed. Construction on a levee, seepage canal and STA is scheduled for completion in August 2007. ■

by Amanda Ellison
Jacksonville District



Savannah District Update:

Tomkins Island

Since early 2005 Tomkins Island, fondly called “Bird Island,” has provided rest and nesting areas for thousands of shore birds and seabirds migrating along the Georgia-South Carolina coast. Situated at the mouth of the Savannah River, Tomkins Island provides protected habitat for some endangered species using the east coast flyway.

Tomkins Island, a five-acre, horseshoe-shaped island, grew out of material dredged from the Savannah Harbor Navigation Project. Now almost two years old, Tomkins has seen a huge increase in its bird population, according to James Calver, biologist with Savannah District. The variety of birds also increased in the second year. Tomkins Island is now home to Brown Pelican, Royal Tern, Sandwich Tern, Gull-billed Tern, Black Skimmer and Laughing Gull nests.

The nearly \$9 million project was originally constructed as part of mitigation for the Corps’ use of a dredge disposal area and contains 261,000 cubic yards of sand, 33,700 tons of rock, 3,300 feet of geo-tubes, five tons of rounded stone, and 330 treated landscape timbers.

Tomkins Island was an immediate success, drawing in thousands of colonial water birds. According to Calver, more than a thousand Royal and Sandwich Tern nests were found on the island in the first year. Since 2005, nesting at Tomkins Island has nearly quadrupled.

Savannah District is still doing its part to keep up the success at Tomkins Island, according to Burt Moore, Savannah District dredge contract administrator. Maintaining the island includes clearing and grubbing, administering herbicide, and pest control. The location of the island, far from shore, keeps land predators like raccoons off the island.

The island marks a cooperative effort between the South Carolina Department of Natural Resources and the Savannah District. The district maintains the island and the DNR monitors the bird population. All in all, Tomkins Island provides an ideal stop-over for some very special guests. ■

by Sarah McCleary
Savannah District



Partnership Creates 350 Acre Longleaf Pine Ecosystem at Lake Allatoona

The Mobile District's Allatoona Lake Project, located 30 miles north of Atlanta in Cartersville, Ga., is home to a 350-acre longleaf pine ecosystem restoration effort, thanks to a partnership between the U.S. Army Corps of Engineers, Georgia Department of Natural Resources, National Wild Turkey Federation, National Fish and Wildlife Foundation and Southern Company. This partnership is responsible for planting more than 125,000 longleaf pine seedlings along the northern shoreline of Allatoona Lake.

The Allatoona Longleaf Pine Ecosystem Restoration project began in 2002 when foresters at the project discovered a substantial population of longleaf pines in the Allatoona Wildlife Management Area.

"After we discovered the longleaf pine population, we began researching the site," said Terrell Stoves, forester and park ranger at Allatoona Lake. "Research showed the area was cleared for pastures and farming as recently as 50 years ago. It also showed the area was surrounded by Native American settlements at one time. The Native Americans appeared to have managed the area with frequent burnings, which created prime conditions for the fire-adapted longleaf pine to thrive."

When the area was cleared for farming, frequent burning stopped, which allowed competing species to outgrow the seedlings produced by the longleaf pines. This was clearly evident by the domination of loblolly pines, sweetgum and black cherry trees. There were just a few ridges that still had longleaf pines in the entire area.

"We decided to try a small restoration project with our funding in 2003," said Stoves. "Due to funding and personnel limitations we limited the effort to approximately 60 acres."

Project foresters cleared the area of any competition by timber harvesting and then a prescribed burning. The 60 acres were then planted with longleaf pine seedlings.

"We did a very wide spacing of the plantings to allow native grasses and shrubs that typically accompany longleaf pine forests to grow," explained Stoves. "It is this combination of plants that creates an extremely diverse ecosystem."

In 2005, after determining that the seedlings planted in 2003 were surviving

and, in fact, thriving in the original test site, the Allatoona Lake personnel established the partnership with Georgia Department of Natural Resources, National Wild Turkey Federation, National Fish and Wildlife Foundation and the Southern Company through the Longleaf Legacy Program. This allowed the restoration effort to expand to almost 350 acres.

"With the assistance of our partners we were able to plant longleaf pine and some fruit producing hardwoods," explained Stoves. "In addition, food plots were planted with chufa for turkeys, clover for deer, turkeys and small game, as well as a mix of oats and other species for all wildlife. The partnership also allowed for the removal of large pine thickets of trees that are too small to harvest for sale; this reduced competition and created more room for planting the longleaf pines."

The partnership with Southern Company and National Fish and Wildlife Foundation has ended. However, the Georgia Department of Natural Resources and the National Wild Turkey Federation have extended their relationship with the project to continue to provide management of the area to remove competition from trees that sprouted from the roots of cut trees or volunteer seedlings and to monitor and remove invasive exotic species.

The ecosystem restoration project proved successful and has now led to an additional partnership with Georgia Department of Natural Resources – Red Top Mountain State Park, Wildlife Action Inc., Keep Bartow (County) Beautiful and Trees Bartow to establish a Longleaf Pine Restoration Demonstration Site at Red Top Mountain State Park.

Red Top Mountain is the most visited Georgia State Park annually, and is adjacent to the Allatoona Lake Project.



Boxes containing Longleaf Pine saplings await transplant in recently prepared area.

Establishing this demonstration site at Red Top Mountain will provide an excellent educational opportunity for the public as they watch the ecosystem grow.

“The original Longleaf Pine Ecosystem Restoration project within the Allatoona Wildlife Management Area requires a four-wheel drive vehicle to reach,” said Stoves. “This new location at Red Top Mountain State Park is adjacent to one of the most heavily traveled roads at Allatoona Lake and is accessible to the public.”

The new demonstration site will include interpretive signs highlighting the benefits of a diverse ecosystem and will inform the public about forestry and natural resource management practices like timber harvests, prescribed burning, invasive and exotic plant management and other topics.

The federal, state, private and non-profit organization partnerships established by the Allatoona Lake Project will establish approximately 350 acres habitat to its natural state. These partnerships allowed for a much larger effort than the project could have accomplished by going it alone. They also provide management activities which lessen the burden on project foresters and provide public awareness of the Corps’ efforts to restore and preserve native plant communities and ecosystems. ■

by Pat Robbins
Mobile District



After a prescribed burn, a staff member from our partner, the National Wild Turkey Federation visits area.



Partners inspect prescribed burn area before planting longleaf pine saplings.



Volunteer plants bareroot longleaf pines.



Nature Conservancy Partner to Restore Savannah River

Do government river managers and a national environmental group working together form an unlikely marriage? Not in Georgia and South Carolina.

Working together to create a balance between man and nature along the Savannah River, the U.S. Army Corps of Engineers, Savannah District and The Nature Conservancy (TNC) developed a partnership in 2002 as part of the nationwide Sustainable Rivers Project. One of 11 projects around the United States, the project builds on the strengths of the Corps and the Conservancy. The project goal is to adjust Corps of Engineers' dam operations to improve downstream ecology while meeting human needs for water.

"Our goal is to provide expertise and scientific information to Corps leaders, helping them modify the way they manage dams to better mimic natural patterns of river flow to restore ecosystem health," said Amanda Wrona, aquatic scientist and Savannah River Basin project director for TNC. "The challenge is balancing the need to restore these habitats with the important human needs of the entire Savannah River Basin," said Bill Lynch, Savannah District civil works senior project manager.

The lower Savannah River spans 115 miles, from the base of Thurmond Dam to the Atlantic Ocean, and is home to more than 75 rare and endangered species. According to a study conducted through the partnership, without these natural flow patterns, including natural flooding, the river's forests, wetlands, and downstream estuary cannot maintain their habitats.

"One of the largest effects dams have on rivers is the change they create in natural ecological flows," said Wrona. The natural rise and fall of water levels in the Savannah support endangered fish, such as the shortnose sturgeon and popular sport fish such as the redbreast sunfish and striped bass. Water birds and migratory songbirds are currently suffering from shrinking nesting and feeding habitats along the Savannah River Floodplains, according to TNC's website. "The Nature Conservancy is the voice for downstream wildlife interests," said Wrona.

The Savannah District operates three dams on the Savannah River: Hartwell, Russell, and Thurmond. "J. Strom Thurmond was the first dam constructed by the Corps and was created in response to heavy annual flooding, especially in the Augusta area," said Lynch. "Dams control the river flow to prevent loss of human life and structural damage in Georgia and South Carolina border towns." As time progressed, human uses for the conservation pools continued to grow, including the need to meet hydropower demands, water supply, and water quality requirements. The three Savannah River Dam Hydropower Plants produce an average energy output

The first of the Corps' dams along the Savannah River, Thurmond dam controls flooding in the Augusta area.



of 1,922,000 megawatt hours. “This energy output is enough power to meet the electrical needs of 200,000 homes for one year,” explained Lynch.

TNC and the Savannah District work in partnership to balance the needs of humans and nature. “We’ve learned a lot from each other,” said Wrona. “The Corps is learning more about the biology of river health, and we are learning a lot about dam operations.” TNC personnel from both Georgia and South Carolina as well as expert state biologists from various agencies participate by conducting scientific studies of the river, focusing on environmental restoration. TNC then gathers this information and makes dam management recommendations to the Savannah District to improve river health. The district’s experts use these recommendations as guides in their comprehensive study of the river system. “We have the challenge of balancing environmental, hydropower, recreation, navigation, water supply, and water quality needs,” said Lynch.

The Corps implemented a portion of the ecosystem flow recommendations so far, according to Lynch. The first includes a series of controlled water releases in the spring when there is adequate winter flood-storage; to mimic natural flooding that would have occurred before the dams were in place. In order to recreate this natural flooding, 25,000 cubic feet per second of water is released from J. Strom Thurmond Dam for a few days in both March and April. “These controlled floods return a seasonal flood pattern to the river, with the ultimate goal of protecting and restoring bottomland forests and estuaries and the species depending on them,” explained Wrona.

Scientists hope that spring controlled floods bring positive, immediate and long-term ecological changes for the river, according to Wrona. Seasonal water releases are expected to revitalize a major portion of the 70,000 acres of river floodplain. The increased flow will also have an important economic effect – a flush of freshwater to the river’s mouth could cause a boost to Georgia’s \$22.4 million blue crab, shrimp, oyster, and finfish industry. Fish habitats could be restored because fish are able to return to their historic spawning grounds. It may also aid in reducing parasites in oysters and act as a chemical cue for migratory fish to come up-river to spawn. Long-term, pulsing may support new forest growth in the floodplains and a healthy estuary by delivering nutrients to marsh habitats.

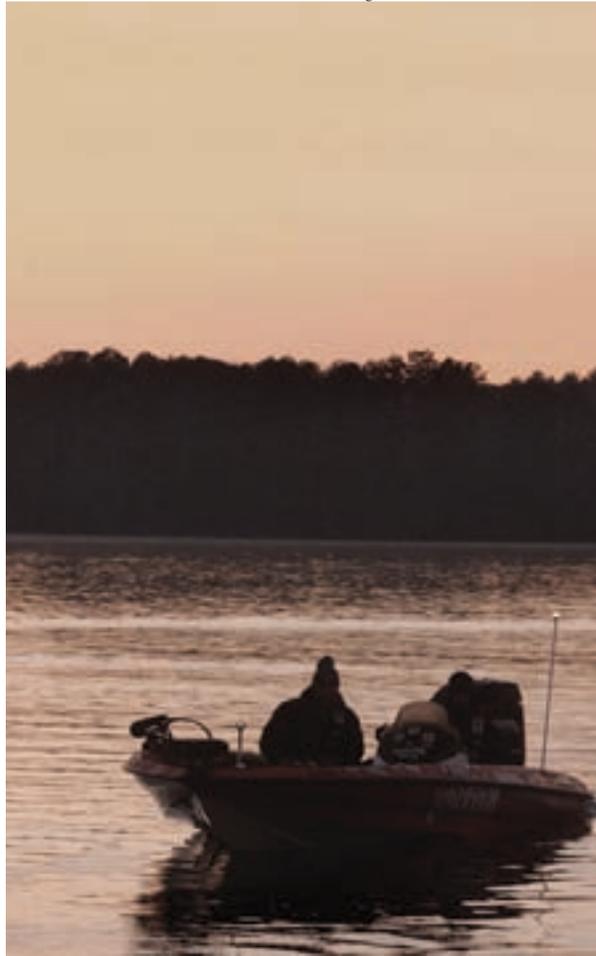
A project delivery team including representatives from TNC and other stakeholders also developed the updated Drought Management Plan that the Corps

operates under today. “The new plan keeps the river and lakes fuller for a longer period of time, while conserving or pooling water in the earlier stages of a drought,” said Lynch. “As pools drop during drought, we adjust trigger release flows to better meet environmental and human needs,” said Lynch. In the midst of a drought in September 2006, the Corps began using the updated plan to manage its dams along the river, resulting in lake levels remaining a foot to one and a half feet higher when compared to the old drought contingency management plan, according to Lynch.

The Sustainable Rivers Project on the Savannah River and conclusions drawn by the partnership’s studies act as a dam management model for the rest of the world. A meeting was recently held in China to develop similar dam management practices on the Yangtze River. Scientists from TNC and Corps personnel attended to provide information and share lessons learned with Chinese officials. “The Sustainable River Project on the Savannah is a chance for us to act locally while thinking globally,” said Wrona. ■

by Sarah McCleary
Savannah District

The Savannah River is a great recreational resource, hosting bass fishermen and others.



Wilmington District Leads Multi-Agency Effort to Restore Currituck Sound



Wilmington District project manager Mitch Hall, right, Elizabeth City State University's Liz Noble, left, and Tara Anderson, also of Wilmington District, analyze submerged aquatic vegetation data in Currituck Sound. (Chuck Wilson Photo)

Eighty-five-year-old Yates Barber, a retired wildlife biologist from the North Carolina National Marine Fisheries Service, remembers when the waters of Currituck Sound were pristine and abundant with all kinds of animals.

“Well, the water was clear and there was lots of waterfowl,” he said. “But things have changed a lot. Geese used to stay pretty much in the sound, but following World War II they began to fly inland. Speedboats never helped by stirring up sediment. I think the decline of the food supply is what made the birds start dwindling.”

Barber was one of dozens of concerned scientists and biologists who gathered at Elizabeth City State College for a Wilmington District-led think tank to find out what's causing the slow death of Currituck Sound. The big mystery of the declines in waterfowl and fish populations lies below the surface of Currituck Sound. Submerged Aquatic Vegetation (SAV) is slowly dying out. SAV provides food and habitat for fish, and, in turn, provides food for waterfowl. So, the goal

of the Wilmington District and project sponsor North Carolina Department of Environment and Natural Resources and various other agencies is to find out how to reverse the damage that's been done to this fragile ecosystem.

Mitch Hall is the Currituck Sound restoration project manager. “Usually when you have a project you know what the problems are and what you want to restore it back to,” Hall said. “There's still debate about what the problems really are and that's why we have to collect the data. Our job is to understand the facts.”

Liz Noble, project coordinator for the Remote Sensing Program at Elizabeth City State University, said that the data that's currently being collected is helping to substantiate decisions for management goals and objectives. “That's where I think we are in this meeting. I hope that the data that's been collected over the last several months will be scientifically sound to help guide us when it's evaluated.”

This gathering of scientific minds is slowly melding. Hypotheses are hashed out and

rehashed until everyone can agree on one or several solutions to a problem. “We're trying to establish goals that everyone can work with,” Hall said. “Everybody knows that there's a problem, but fully quantifying what the problems are has not yet been completed. Everybody has seen the results of the problem, but nobody's defined it. And to add to the pot you have different groups of people with different ideas about the issues. This is why we have to go through the data collection and modeling process so that we can understand the problems. Second, we have to propose alternatives that would address the issues.”

Wilmington District biologist Chuck Wilson heads the Living Resources Work Group, which addresses the status of the sound's plant and animal life. Looking at the big picture of the study, he said that Currituck Sound is worth restoring because it's a critical component of a nationally significant estuarine ecosystem, the Albemarle Pamlico National Estuary. “The Albemarle Pamlico is one of the largest estuaries on the east coast after Chesapeake Bay, and, since the Currituck

Sound is fresh to slightly brackish water, it is a unique component of the system.”

Wilson said that Currituck Sound supports extensive but diminishing SAV beds, a critical food source for wintering waterfowl as they migrate up and down the east coast. “Without a healthy Currituck Sound there would be a tremendous effect on that waterfowl population.” An expected cause of SAV decline, he added, is reduced water clarity. His workgroup will investigate ways to help clear the waters of the Currituck Sound. He hopes there will be modifications to dredging practices in Currituck Sound to reduce turbidity. However, Wilson said dredging is one of many of factors that may have contributed to reduced SAV in the sound. Storm events and recreational boating also stir up sediments, and extensive development in the northern watershed of Virginia increases nutrient loads that promote plankton growth. “When you have too much plankton or suspended sediment, it doesn’t allow sunlight to reach SAV,” said Wilson.

Lead planner Tara Anderson said the Currituck Sound Restoration Project is one of the largest “group effort” projects ever for the Wilmington District. At least 19 outside agencies, including the North Carolina Coastal Federation, Virginia Marine Resources Division and NC Audubon Society are pooling their thoughts and ideas to find solutions to help restore the sound. “This is a very complex study,” said Anderson. “Currituck Sound is a huge area for our data collection effort, and it has been challenging trying to determine the

impacts of man-made versus natural influences. And Currituck Sound has historically fluctuated from fresh to saltwater, so conducting a thorough assessment of this 153-square-mile estuarine system and surrounding watershed is essential for success.”

Anderson feels that the group effort is key to accomplishing the data collection. Currently the study participants are developing a broad range of restoration alternatives. She said that the critical role of the Wilmington District and the NC Department of Environment and Natural Resources is to ensure that the results and analysis from data collection will drive the feasible and sustainable restoration alternatives that are selected. An equally critical role, she added, is to ensure that the public’s voice is heard and that anecdotal data is fully considered.

Hall said the Corps and its partners have their work cut out for them. Each person, he feels, is committed to doing everything possible to try to restore Currituck Sound. Many are North Carolina or Virginia natives like himself who’ve seen drastic changes to the mid-Atlantic area.

“One thing I don’t take for granted is what I used to see. That’s what I miss. And I’ve seen the decline on the coast. I’ve lived in Wilmington for most of my life and I’ve witnessed significant changes here, mostly in population growth which has had an impact on a lot of the things, like the environment, that draw people to this area. So, from a broader perspective, I see what’s happened because of urbanization and poor management of ecosystems. The question is, can we reverse what’s already happened? The Corps is mandated by

Congress to try to find a way to address some of the ecosystem degradation issues. And if you look at how many people are projected to live on the coast in the next 15 to 20 years, it’s going to be a challenge.”

The project is cost-shared between the U.S. Army Corps of Engineers and North Carolina Department of Environment and Natural Resources. Each cost share partner pays 50% of the feasibility phase costs, and the reconnaissance phase was federally funded. ■

by Hank Heusinkveld
Wilmington District



Wilmington District’s Tara Anderson, left, and Elizabeth City State University’s Liz Noble, right, identify submerged aquatic vegetation. (Chuck Wilson Photo)



What should be a rake full of submerged aquatic vegetation is now a meager sample of what exists beneath the surface in certain areas of Currituck Sound. (Chuck Wilson Photo)

The outlined area shows the immensity of the Currituck Sound Study. (Graphic by Jim Jacaruso)



