

## South Restoration Project

Spring 2004



The Indian River Lagoon is the most biologically diverse estuary system in North America.

Restoration efforts will protect the health of this unique ecosystem, as well as revitalize fish and oyster habitats.

### What is WRDA?

Approximately every two years, members of Congress write and pass into law a Water Resources Development Act, or "WRDA." Typically, each WRDA provides federal authorization for construction of facilities and systems used to manage water resources.

Projects such as those constructed by the U.S. Army Corps of Engineers are approved in the WRDA legislation. The Indian River Lagoon South Restoration Project recommended plan may be among many considered for authorization in the next WRDA, which is expected in late summer or early fall (2004).

Once WRDA authorization is secured, separate congressional funding will still have to be sought for the project's engineering and construction activities. Approximately \$1.2 billion — split equally between the state and federal government — is needed to implement the Indian River Lagoon South Restoration Project.

### Where are we now?

The U.S. Army Corps of Engineers and its state partner, the South Florida Water Management District, are making final preparations to submit the Indian River Lagoon South Restoration Project Implementation Report (recommended plan) to the assistant secretary of the Army (Civil Works) for final review within the Army, other agencies and the public. Once finalized, the report will be submitted to Congress for WRDA authorization. For a copy of the Project Implementation Report, visit [www.evergladesplan.org](http://www.evergladesplan.org).



Patrick Lynch/SFWM

## Getting the water right

### Restoration of estuarine treasure nears congressional authorization

**A**ptly named, Florida's "Treasure Coast" encompasses some of the state's most productive and most threatened estuarine treasures — the Indian River Lagoon and St. Lucie Estuary. Home to more than 4,300 species of plants and animals, and supporting an annual economic impact of more than \$730 million lagoonwide, Martin and St. Lucie counties will benefit from careful and deliberate protection and restoration of these water bodies.

The lagoon and estuary have suffered from altered water flow patterns and degraded water quality. In the past few years, excessive rains required additional flood water releases to the estuary from Lake Okeechobee. These freshwater releases, combined with excess stormwater runoff arriving in the estuary through drainage canals, altered the salinity balance, stressing the estuary's unique ecosystem. In addition, neighborhoods and farms were popping up all around the estuary's 827-square mile watershed. Outdated stormwater management systems and runoff from fertilized areas caused an increase in the volume of fresh water and pollution levels entering the estuary and lagoon.

### Fixing the problem

A huge effort, called the Indian River Lagoon South Restoration Project, is under way to reverse the damaging effects of pollution and unnaturally large freshwater discharges into these ecologically vital water bodies. The delicate balance of fresh and salt water in the lagoon and estuary will be restored, polluted water will be treated and depleted habitats will be revitalized.

The Indian River Lagoon South Restoration Project is part of an even bigger, system-wide plan to restore, protect, and preserve the water resources of central and southern Florida. This plan is known as the Comprehensive Everglades Restoration Plan, which includes several projects

throughout the vast Kissimmee-Lake Okeechobee-Everglades connected watershed, including the Indian River Lagoon. When all of these projects are in place, the natural environment will be dramatically improved.

From 1996 to 2003, the South Florida Water Management District and U.S. Army Corps of Engineers conducted a study — the Indian River Lagoon South Feasibility Study — during which comments were provided by the public to help shape the final recommended project plan to address the issues facing this region. Called the Indian River Lagoon South Project Implementation Report, the plan is expected to go to Congress for review and authorization under the Water Resources Development Act (WRDA) in late summer or early fall — making it the first Everglades restoration project to be submitted for congressional authorization.

### Other restoration efforts

While the Indian River Lagoon South Restoration project works to achieve more comprehensive, long-term ecosystem restoration goals, local restoration and water quality improvement efforts have an effect on the health of the estuary and lagoon. These efforts complement other short-term solutions such as the projects conducted through the Indian River Lagoon Surface Water Improvement and Management (SWIM) Plan and the National Estuary Program.

In 1998, the interagency South Florida Ecosystem Restoration Task Force formed a St. Lucie River Issues Team made up of federal, state and local governments as well as agricultural and environmental interests. The team was tasked with documenting the existing condition of the estuary, describing the impacts of the 1998 releases from Lake Okeechobee and developing an interim action plan made up of specific short-term projects that can be implemented within five years to improve the estuary's water quality.

Funding through the Issues Team allows local governments to take the necessary steps to improve the quality of water discharges. To date, the Issues Team has funded 96 projects throughout Martin and St. Lucie counties, totaling more than \$57 million including local sponsors' 50 percent cost match. Stormwater retrofits comprise almost half of the projects funded by the team. Agricultural and urban best management practices, habitat restoration, and research and education are the other main categories.

Many of the turn-dirt projects have been successfully completed. Funding has been through the Florida Legislature and, most recently, \$2 million from the South Florida Water Management District for projects starting in 2004.

The Indian River Lagoon South Restoration Project, as well as all related efforts, are moving forward because of a dedicated partnership between federal, state and county governments, and because of invaluable contributions from the local community.

### South Indian River Lagoon – Restoring the Flow

#### Predrainage Freshwater Flow (natural storage)



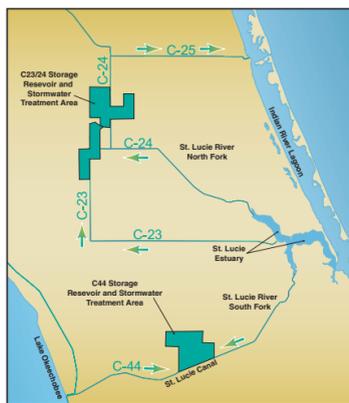
The St. Lucie Estuary watershed's natural ridge topography diverted most of the stormwater flow to the North Fork of the St. Lucie River. The arrows show how rainwater flowed before drainage canals were built. Vast areas of wetlands and uplands once served as natural storage areas.

#### Present Freshwater Flow (no storage)



While providing flood protection, drainage canals send too much fresh water too fast at the wrong times into natural waterways. Combined with the loss of natural storage areas to urban and agricultural development, these conditions have led to the lagoon's ecological decline.

#### After Restoration Freshwater Flow (new storage)

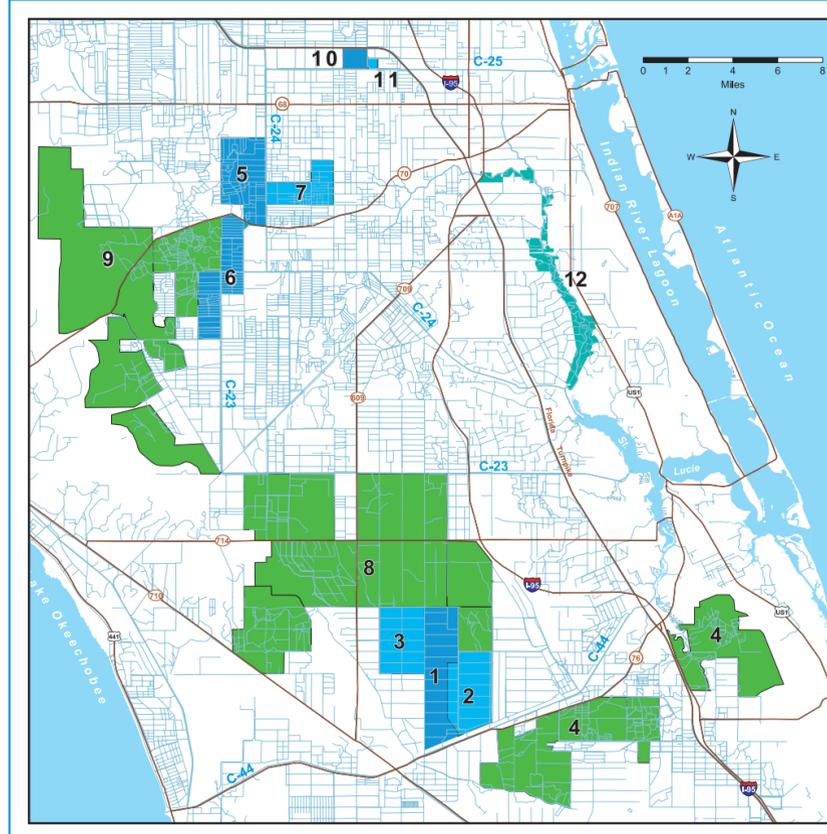


Rainwater will be diverted to the North Fork and South Fork of the St. Lucie River, resulting in more natural freshwater flows to the middle estuary. The new primary reservoirs will store excess fresh water and reduce the need to send large volumes of damaging fresh water to the delicate brackish (slightly salty) estuary and lagoon.

# Features, benefits of the South Restoration Project

The Indian River Lagoon South Restoration Project recommended plan lays out a regional approach to the problems of the Martin and St. Lucie County portion of the lagoon, and identifies five features that work together to restore and protect the lagoon.

- Reservoirs.** Four aboveground reservoirs on approximately 12,000 acres of land are planned in Martin and St. Lucie counties to capture water from the, C-23, C-24, C-25 and C-44 canals. Collectively, these reservoirs will provide storage for 135,000 acre-feet or approximately 44 billion gallons of water. The stored water should greatly reduce the need to send large volumes of fresh water caused by stormwater runoff in Martin and St. Lucie counties to the lagoon through the C-23, 24, 25 and 44 canals. The C-44 (St. Lucie Canal) reservoir is one of the three Comprehensive Everglades Restoration Plan reservoirs identified for accelerated construction. The large releases of fresh water from Lake Okeechobee will also be significantly reduced when other features of the Comprehensive Everglades Restoration Plan are constructed, such as the Everglades Agricultural Area storage south of the lake, C-43 storage west of the lake and aquifer storage and recovery wells north of the lake.
- Stormwater Treatment Areas.** Four constructed wetlands will be built on 9,000 acres of land, which will treat stormwater runoff captured by the project prior to discharge to the lagoon. The "STAs," as they are known, will reduce phosphorus volume entering the lagoon by up to 41 percent and nitrogen by up to 26 percent. These constructed wetlands will also provide water supply benefits, storing up to 35,000 acre-feet or approximately 11 billion gallons of water with an average depth of 6 to 18 inches.
- Restored Natural Areas.** Another 90,000 acres of existing uplands and wetlands in Martin, St. Lucie and Okeechobee counties will be used for multiple purposes including water storage and natural area restoration. These areas will hold 30,000 acre-feet or about 10 billion gallons of water, and will provide increased wetland and upland habitat for wildlife. In addition, approximately 3,100 acres of the floodplain along the North Fork of the St. Lucie River will be restored, benefiting the wildlife and ecology of the area. With the Indian River Lagoon South Restoration Project, these areas will receive a natural flow of fresh water similar to that received prior to human alterations.
- Diversion of Water.** Existing water flow within the basins will be diverted to reduce the damaging



## Indian River Lagoon South Recommended Plan

### C-44 Basin Components

- C-44 - Reservoir
- C-44 - Stormwater Treatment Area
- C-23/C-44 - Stormwater Treatment Area
- Palmar Complex - Natural Storage and Water Quality Area

### C-23/24 Basin Components

- C-23/C-24 - Stormwater Treatment Area
- C-23/C-24 - North Reservoir
- C-23/C-24 - South Reservoir
- C-23/C-24 - Stormwater Treatment Area
- Allapattah - Complex Natural Storage and Water Quality Area
- Cypress Creek/Trail Ridge Complex - Natural Storage and Water Quality Area

### C-25, Northfork and Southfork Basin Components

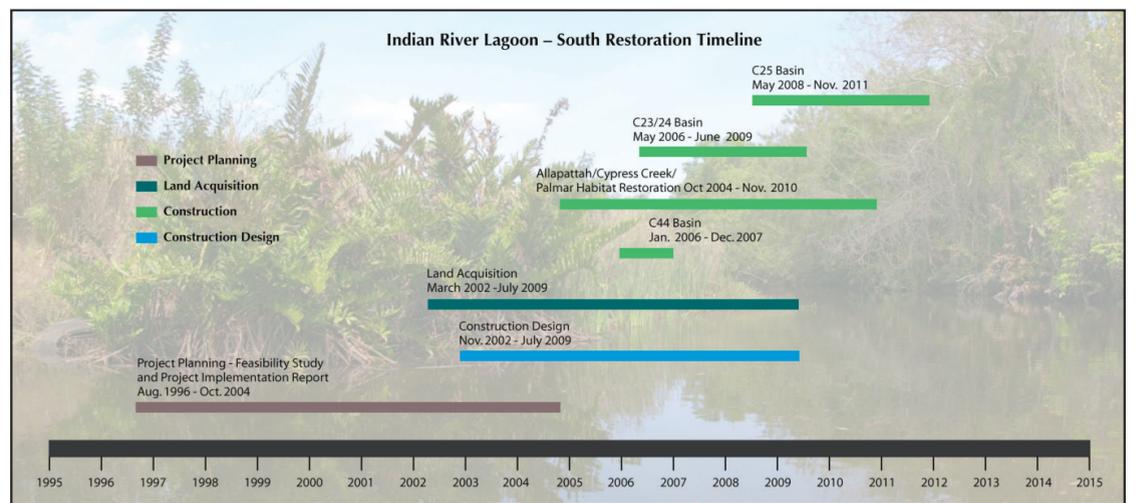
- C-25 - Reservoir
- C-25 - Stormwater Treatment Area
- Northfork Natural Floodplain Restoration
- Muck Remediation and Artificial Habitat

- Natural Floodplain Restoration
- Natural Storage and Water Quality Area
- Reservoir
- Stormwater Treatment Area

impacts associated with large, rainy season, freshwater discharges to the middle estuary and improve ecology in the North Fork of the St. Lucie River. Water will be diverted to the North or South Forks of the St. Lucie River, to the C-44 canal, resulting in more natural freshwater flows to the middle estuary.

- Removing Muck and Adding Artificial Habitat.** Some 7.9 million cubic yards of muck will be removed from four "dead zones" located in the

North Fork, South Fork, and middle estuary of the St. Lucie River. Muck removal will establish clean river and estuary bottom suitable for re-colonization of bottom-dwelling organisms including oysters. Oyster shell, artificial reef balls and artificial submerged aquatic vegetation will be deposited near the muck removal sites, creating another 90 acres of habitat and accelerating the colonization process.



## New reservoir on fast-track Accelerates implementation of the South Restoration Project

C-44 basin components of the Indian River Lagoon South Restoration Project include a 3,315-acre, 10-foot-deep above-ground reservoir and two 3,000-acre stormwater treatment areas. The new reservoir will provide relief to the delicate health of the estuary and lagoon. The project is one of the three Comprehensive Everglades Restoration Plan reservoirs identified for accelerated construction. The two other reservoirs will be located on the Caloosahatchee River (C-43) west of Lake Okeechobee and in the Everglades Agricultural Area south of the lake. Together, these reservoirs will significantly increase water storage availability and significantly reduce the need for damaging flood control releases from Lake Okeechobee to the Caloosahatchee and St. Lucie estuaries.

To accelerate the C-44 components, the South Florida Water Management District has implemented

a public-private partnership for the first phase. The agreement is to produce a conceptual plan for the project on the identified site and complete approximately 15 percent of the detailed design. This phase will last through the end of July 2004, when the construction schedule will be finalized. Overall, the project has been accelerated by almost two years with completion scheduled by 2007.

The C-44 components will capture runoff from the area watershed, clean some or all of it, and then return it to the basin when there is a need. The Indian River Lagoon and the St. Lucie Estuary will benefit from improved timing of releases and water quality, which will help maintain desirable salinity levels. In addition to improving water quality, the reservoir and treatment areas will increase available water supplies for the environment, people and farms.

## Who to call to volunteer

If you would like to join the local efforts to help protect the Indian River Lagoon, you can call:

### St. Lucie County

- Harbor Branch Oceanographic Institute (772) 465-2400

### Martin County

- Florida Oceanographic Society (772) 225-0505
- Hobe Sound National Wildlife Refuge (772) 546-6141
- St. Lucie River Issues Team, (772) 223-2600, Ext. 3603

Or you can visit these Web sites for information on upcoming meetings, plan changes and recent activity.

- Upper East Coast Water Supply Plan – [www.sfwmd.gov](http://www.sfwmd.gov)  
Go to Major Projects then Water Supply Plans
- Indian River Lagoon Restoration (North and South) [www.evergladesplan.org](http://www.evergladesplan.org)  
Go to Projects then Feasibility Studies
- Official Web page of Martin County – [www.martin.fl.us](http://www.martin.fl.us)  
Go to Hot Topics

Finally, you can attend the Rivers Coalition Meetings, which are held on the last Friday of each month at the Realtor Association of Martin County.

## For more information

To learn more about the Indian River Lagoon South Restoration Project and the Comprehensive Everglades Restoration Plan, visit [www.evergladesplan.org](http://www.evergladesplan.org). Or, contact the two Indian River Lagoon South Restoration Project Managers:

### David Unsell

South Florida Water Management District  
3301 Gun Club Road  
West Palm Beach, FL 33406  
(561) 682-6888  
[dunsell@sfwmd.gov](mailto:dunsell@sfwmd.gov)

### Michael Rogalski

U.S. Army Corps of Engineers • Jacksonville District  
Prudential Building • 701 San Marco Blvd.  
Jacksonville, FL 32207  
(904) 232-1460  
[michael.b.rogalski@saj02.usace.army.mil](mailto:michael.b.rogalski@saj02.usace.army.mil)

## The Journey to Restore America's Everglades

A partnership of the U.S. Army Corps of Engineers, South Florida Water Management District and many other federal, state, local and tribal partners.



US Army Corps of Engineers

