

COMMITTEE MEETING EXPANDED AGENDA

APPROPRIATIONS SUBCOMMITTEE ON GENERAL GOVERNMENT

Senator Hays, Chair

Senator Thompson, Vice Chair

MEETING DATE: Wednesday, January 15, 2014

TIME: 2:00 —4:00 p.m.

PLACE: *Toni Jennings Committee Room, 110 Senate Office Building*

MEMBERS: Senator Hays, Chair; Senator Thompson, Vice Chair; Senators Bradley, Braynon, Bullard, Dean, Detert, Joyner, Latvala, Legg, Simpson, Soto, and Stargel

| TAB | BILL NO. and INTRODUCER | BILL DESCRIPTION and SENATE COMMITTEE ACTIONS | COMMITTEE ACTION |
|---------------------------------|---|---|------------------|
| 1 | Discussion of constitutionally required trust fund creations, re-creations and terminations | | Presented |
| 2 | Discussion of project funding recommendations in the Select Committee on Indian River Lagoon and Lake Okeechobee Basin Report | | Presented |
| Other Related Meeting Documents | | | |

Appropriations Subcommittee on General Government
Summary of Proposed Trust Fund Re-Creation
Department of Financial Services

Section 19(f)(2), Article III, of the State Constitution, requires the termination of all state trust funds no later than four years after their initial creation unless re-created or exempted from termination by the State Constitution or operation of law. The **Federal Grants Trust Fund** within the Department of Financial Services (DFS) will terminate July 1, 2015, if no action is taken by the legislature to re-create.

Section 215.32(2)(b)2g, F.S., requires each agency to utilize a Federal Grants Trust Fund as a depository for allowable grant activities funded by restricted program revenues from federal sources. Moneys credited to the trust fund consist of grants and revenue from the federal government, interest earnings, and cash advances from other trust funds.

The legislation prepared for introduction by the subcommittee Chairman **re-creates the Federal Grants Trust Fund** within the Department of Financial Services.

Appropriations Subcommittee on General Government
Summary of Proposed Trust Fund Re-Creation
Department of Business and Professional Regulation

Section 19(f)(2), Article III, of the State Constitution, requires the termination of all state trust funds no later than four years after their initial creation unless re-created or exempted from termination by the State Constitution or operation of law. The **Federal Grants Trust Fund** within the Department of Business and Professional Regulation (DBPR) will terminate July 1, 2015, if no action is taken by the legislature to re-create.

Section 215.32(2)(b)2g, F.S., requires each agency to utilize a Federal Grants Trust Fund as a depository for allowable grant activities funded by restricted program revenues from federal sources. Moneys credited to the trust fund consist of grants and revenue from the federal government, interest earnings, and cash advances from other trust funds.

The legislation prepared for introduction by the subcommittee Chairman **re-creates the Federal Grants Trust Fund** within the Department of Business and Professional Regulation.

Appropriations Subcommittee on General Government
Summary of Proposed Trust Fund Terminations and Modifications
Department of Agriculture and Consumer Services

In order to implement Article III, section 19(f), of the State Constitution related to state trust funds, section 215.3208 (1), Florida Statutes, directs a review of trust funds on a four-year cycle. The schedule for the trust fund review is included in the legislative budget instructions as authorized in section 216.23, Florida Statutes.

The trust funds in the **Department of Agriculture and Consumer Services** (department) are scheduled for review during the 2014 Legislative Session. All of the department's trust funds are established in Chapter 570, Florida Statutes, except for seven. All seven trust funds have been previously re-created in conformity with Florida Law and, therefore, met the requirements of the constitutional provision. For consistency purposes, the following trust funds would be **codified in Florida Statutes** by the legislation prepared for introduction by the subcommittee Chairman.

- The *Administrative Trust Fund* was previously re-created in chapter 2004-113, Laws of Florida, effective November 4, 2004. The fund is used as a depository for revenue from other department trust funds to be used for administrative activities that are departmental in nature.
- The Contracts and Grants Trust Fund was renamed the *Federal Grants Trust Fund* effective July 1, 2007, in chapter 2006-79, Laws of Florida. This fund is used as a depository for federal revenue sources to be used for allowable grant activities.
- The *Florida Saltwater Products Promotion Trust Fund* was previously re-created in chapter 2004-128, Laws of Florida, effective November 4, 2004. The purpose of the fund is to promote all fish and saltwater products produced in this state.
- The *Plant Industry Trust Fund* was previously re-created in chapter 2004-124, Laws of Florida, effective November 4, 2004. This fund was established for the regulation of nurseries, plant and apiary inspections, and eradication of insects and diseases for the agricultural industry.
- The *Pest Control Trust Fund* was previously re-created in chapter 2004-125, Laws of Florida, to carry out the provisions of chapter 482, Florida Statutes, for the licensing of pest control businesses, examinations for operator's certificates, and educational activities of the pest control industry.
- The *Citrus Inspection Trust Fund* was previously re-created in chapter 2004-125, Laws of Florida, for the purpose of regulating and certifying citrus fruit and processed citrus products.
- The *Incidental Trust Fund* was previously re-created in chapter 2004-121, Laws of Florida, to promote and encourage proper forest management, including fire protection, stewardship, and management of public lands.

In addition, the recommendation includes **terminating** three trust funds which have limited use and where other funds within the department may be utilized. These funds include the Agricultural Law Enforcement Trust Fund, the Market Trade Show Trust Fund, and the Relocation and Construction Trust Fund.

- The *Agricultural Law Enforcement Trust Fund* was authorized in s. 932.7055, Florida Statutes, as a depository for revenues received from forfeited properties or restitution under the provisions of the Florida Contraband Forfeiture Act. A separate trust fund is no longer necessary to support the activities authorized for this fund and those activities can be handled by the General Inspection Trust Fund (GITF). The proposal transfers all balances, revenues and outstanding appropriations, to the GITF. All future revenues and expenditures will be supported from the GITF.
- The *Market Trade Show Trust Fund* was previously re-created in chapter 2004-122, Laws of Florida, to offset costs in promoting and marketing Florida's agricultural products. This trust fund is no longer needed as it supports activities that are duplicative of the Florida Agricultural Promotion Campaign Trust Fund (APCTF). The proposal transfers all balances, revenues and outstanding appropriations, to the APCTF. All future revenues and expenditures will be supported from the APCTF.
- The *Relocation and Construction Trust Fund* was created in section 253.025, Florida Statutes, for the purpose of relocating forestry towers and work centers. Revenues are derived from the sale or lease of forestry facilities. A separate trust fund is no longer necessary to support the activities authorized for this fund and those activities can be handled by the Incidental Trust Fund (ITF). The proposal transfers all balances, revenues and outstanding appropriations, to the ITF. All future revenues and expenditures will be supported from the ITF.

Finally, the bill revises various statutes relating to trust funds administered by the Department of Agriculture and Consumer Services.

Appropriations Subcommittee on General Government
Summary of Proposed Trust Fund Modifications and Terminations
Department of Environmental Protection

In order to implement Article III, section 19(f), of the State Constitution related to state trust funds, section 215.3208 (1), Florida Statutes, directs a review of trust funds on a four-year cycle. The schedule for the trust fund review is included in the legislative budget instructions as authorized in section 216.23, Florida Statutes.

The trust funds in the **Department of Environmental Protection** (DEP) are scheduled for review during the 2014 Legislative Session. All of the department's trust funds are established in Chapters 20, 253, 259, 373, 375, 376, 380, and 403, Florida Statutes, except for five funds. All five trust funds have been previously re-created in conformity with Florida Law and, therefore, met the requirements of the constitutional provision. For consistency purposes, the following trust funds would be **codified in Florida Statutes** by the legislation prepared for introduction by the subcommittee Chairman.

- The *Administrative Trust Fund* was previously re-created in chapter 2003-225, Laws of Florida, effective November 4, 2004. The fund is used as a depository for revenue from other department trust funds to be used for administrative activities that are departmental in nature.
- The *Environmental Laboratory Trust Fund* was previously re-created in chapter 2003-227, Laws of Florida, effective November 4, 2004. The fund is used as a depository for revenue from other department trust funds to be used to fund the operations of the DEP Environmental Lab.
- The *Working Capital Trust Fund* was previously re-created in chapter 2003-233, Laws of Florida, effective November 4, 2004. The fund is used as a depository for revenue from other department trust funds to be used for the ongoing information technology operations of the DEP's data processing center and other information technology resources.
- The *Air Pollution Control Trust Fund* was previously re-created in chapter 2004-101, Laws of Florida, effective November 4, 2004. The fund was established to provide funding for air pollution monitoring and control activities. The primary sources of revenue to support these activities are licenses and permits.
- The *Minerals Trust Fund* was previously re-created in chapter 2003-230, Laws of Florida, effective November 4, 2004. The fund supports the operations of the Florida Geological Survey program and the regulation of oil and gas exploration. The primary sources of revenue to support these activities include severance taxes on phosphate, solid minerals, and oil and gas.

In addition, the recommendation includes **terminating** two trust funds, the Florida Communities Trust Fund and the Florida Preservation 2000 Trust Fund, within the DEP. Both funds are obsolete and inactive with no anticipated revenues and expenditures in the future.

- Terminates the *Florida Communities Trust Fund* and transfers any remaining balance to the Land Acquisition Trust Fund. The proposal also adds the Florida Communities Trust program statutory authority to the Land Acquisition Trust Fund. This fund was historically used for administrative purposes under the former Department of Community Affairs (DCA). The 2011 Legislature eliminated the DCA and transferred the Florida Communities Trust program from the DCA to the DEP.
- Terminates the *Florida Preservation 2000 (P2000) Trust Fund* and transfers any remaining balance to the Florida Forever Trust Fund. The P2000 program ended in 2000 and was replaced with the Florida Forever program. All outstanding debt obligations for the P2000 program were paid in June 2013. The bill also eliminates references to the Preservation 2000 bonds in other statutes. Finally, the proposal adds cross references related to the Preservation 2000 Act to retain the statutory authority of the program.

Finally, the recommendation **modifies** nine trust funds within the department. These include the Internal Improvement Trust Fund, the Water Management Lands Trust Fund, the Land Acquisition Trust Fund, the Save Our Everglades Trust Fund, the Conservation and Recreational Lands Trust Fund, the Grants and Donations Trust Fund, the Solid Waste Management Trust Fund, the Water Protection and Sustainability Program Trust Fund, and the Ecosystem Management Restoration Trust Fund.

- Modifies the *Internal Improvement Trust Fund* adding clarifying language that the land granted to this state for internal improvement purposes includes nonconservation lands.
- Modifies the *Conservation and Recreation Lands (CARL) Trust Fund* to eliminate obsolete language related to debt service for CARL and Save Our Coast bonds. All outstanding debt obligations were paid in June 2011.
- Modifies the *Water Management Lands Trust Fund* revenue distribution formula to include \$20 million to be transferred to the Save Our Everglades Trust Fund for Everglades restoration related to the Long-Term Plan authorized in s. 373.472(1), F.S., by the 2013 Legislature. In addition, the modifications eliminate obsolete language related to distribution of funds to all five Water Management Districts. This provision has not be implemented since 2009 and will eliminate ongoing, repetitive implementing bill provisions.
- Modifies the *Land Acquisition Trust Fund (LATF)* to allow the use of the fund to support the Total Maximum Daily Loads program. The LATF has supported Total Maximum Daily Loads for over 10 years, and the modification will eliminate annual, repetitive implementing bill provisions. In addition, the recommendation clarifies that LATF may be utilized for State Park operations which has occurred for over 20 years. The recommendation eliminates obsolete language related to retired Save Our Coast bonds and a 10-year comprehensive budget request. Finally, the duties and responsibilities provided in Chapter 380, part III, for the Florida Communities Trust is added to the Land Acquisition Trust Fund. This provision authorizes the LATF for this same purpose.

- Modifies the *Grants and Donations Trust Fund* to eliminate the use of federal revenue for expenditure purposes in the fund. This is duplicative with the existing Federal Grants Trust Fund in the department.
- Modifies the *Solid Waste Management Trust Fund* related to solid waste management grants. For 18 years, solid waste management grants have been provided to only small counties with a population of 100,000 or less. The modification will eliminate annual, repetitive implementing bill provisions. The 0.2% of total sales tax collections revenue that supported the distribution of solid waste management grants to all counties was eliminated by the 2002 Legislature.
- Modifies the *Water Protection and Sustainability Program Trust Fund* to remove obsolete language related to the documentary stamp tax revenue distributed to the fund. The distribution of revenue to the fund was eliminated by the 2009 Legislature.
- Modifies the *Ecosystem Management and Restoration Trust Fund* to remove obsolete language related to the distribution of 0.2% of total sales tax collections revenue to the fund to support the Water Projects Grants Program. The distribution of this revenue to the fund was eliminated by the 2009 Legislature.
- Eliminates obsolete references in the *Save Our Rivers Trust Fund* and the *Florida Communities Trust Fund* and replaces references with the appropriate trust funds, the Water Management Lands Trust Fund and the Land Acquisition Trust Fund.



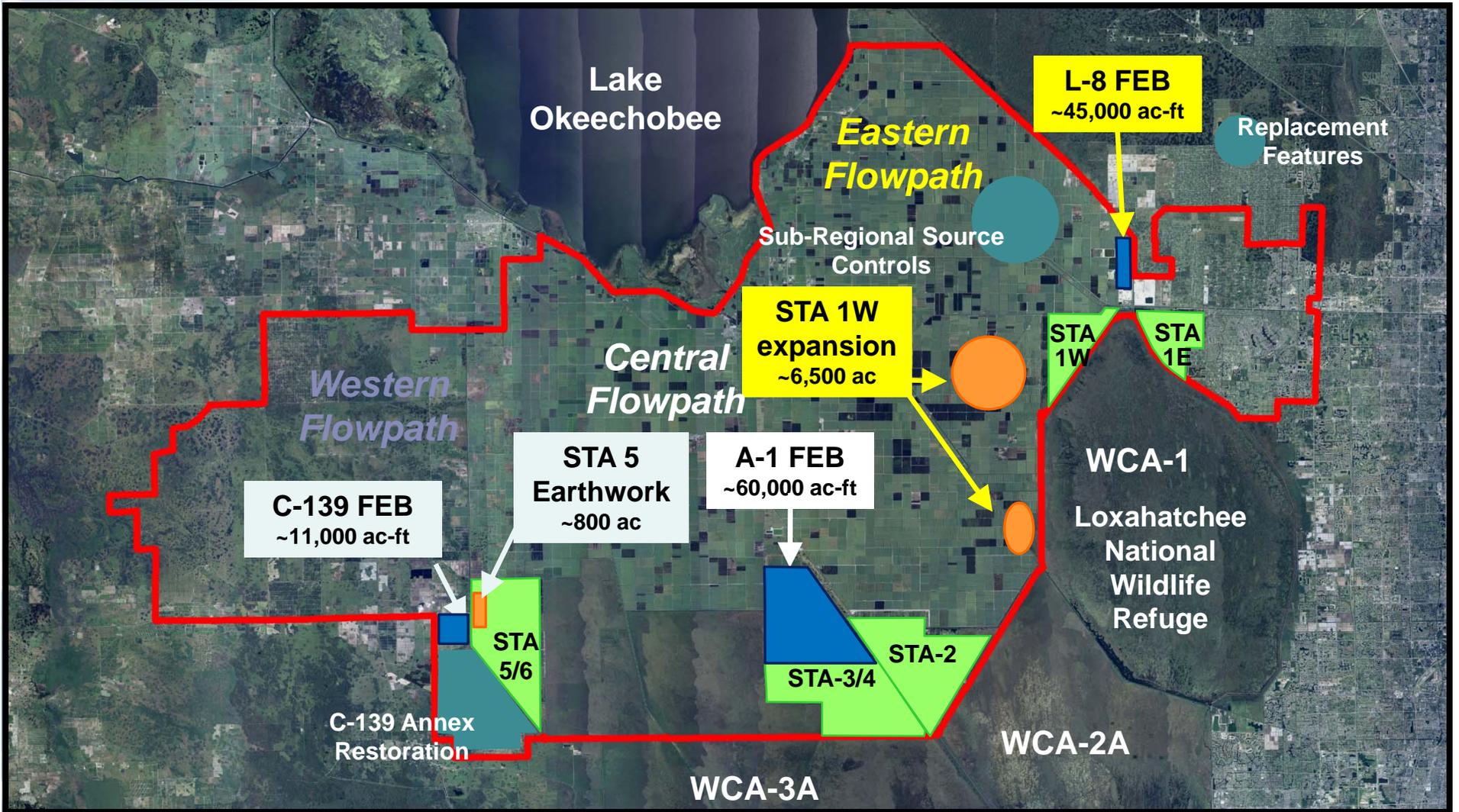
Senate Appropriations Subcommittee on General Government

Presentation of SFWMD Projects

Jan. 15, 2014

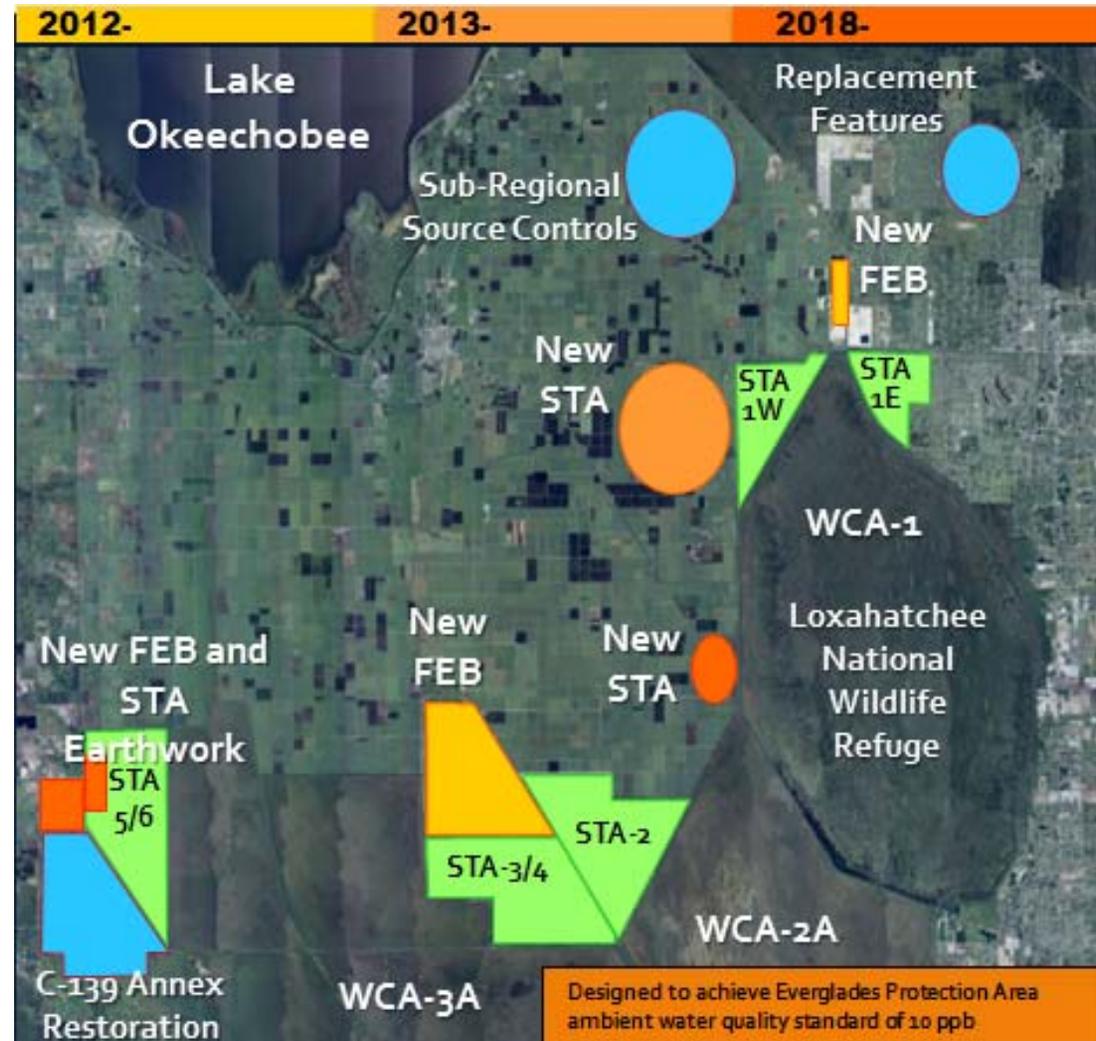
Blake Guillory, Executive Director, SFWMD

Restoration Strategies

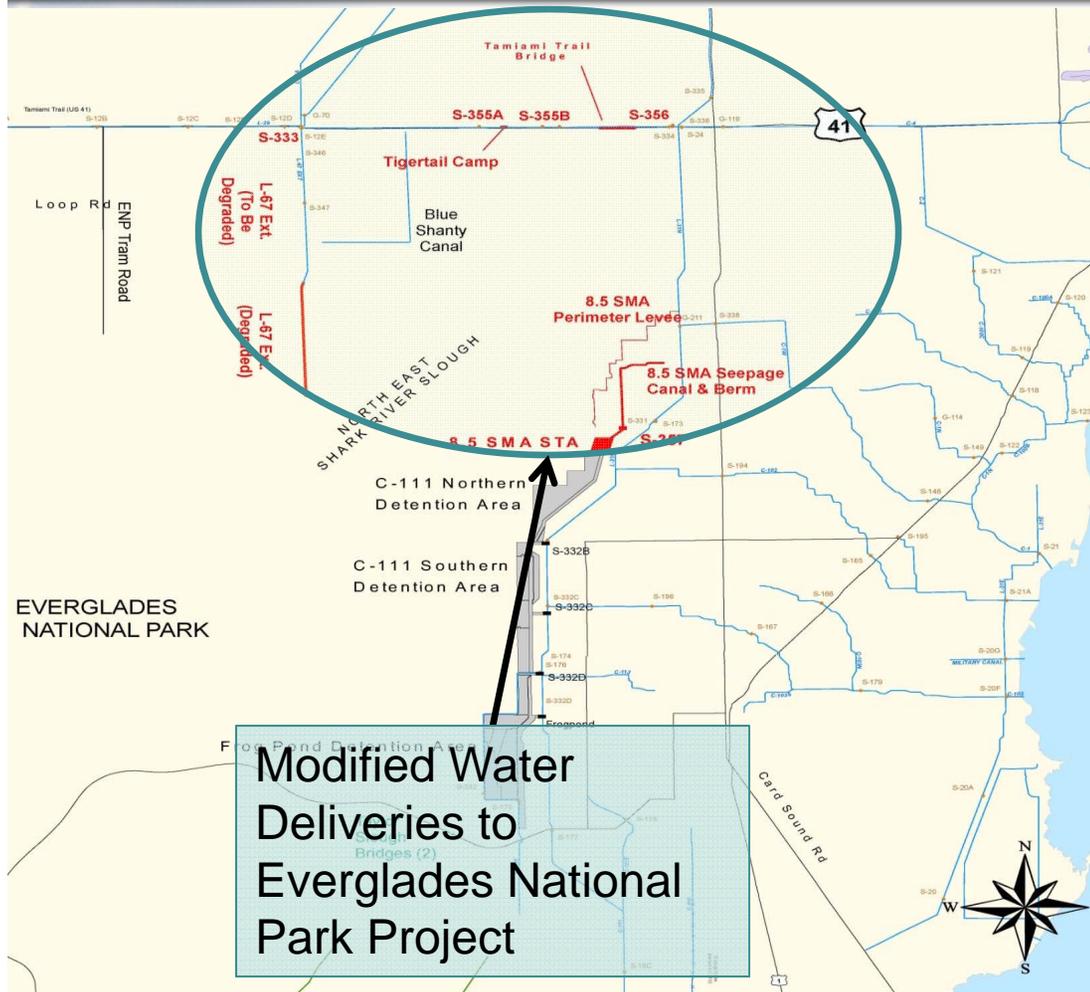


Restoration Strategies Increases Treatment Effectiveness

- Currently there are five Stormwater Treatment Areas with 57,000 acres of treatment
 - R.S. adds three Flow Equalization Basins
 - R.S. adds 6,500 acres of additional STA treatment
 - R.S. adds 110,000 acre feet of additional storage.
- To date 13,500,000 acre-feet (4.4 trillion gallons) of water treated; 1,727 metric tons of phosphorus removed
- Total Phosphorus inflow concentrations range from 104-228 ppb. Outflow concentrations range from 17-95 ppb (Avg 38 ppb).

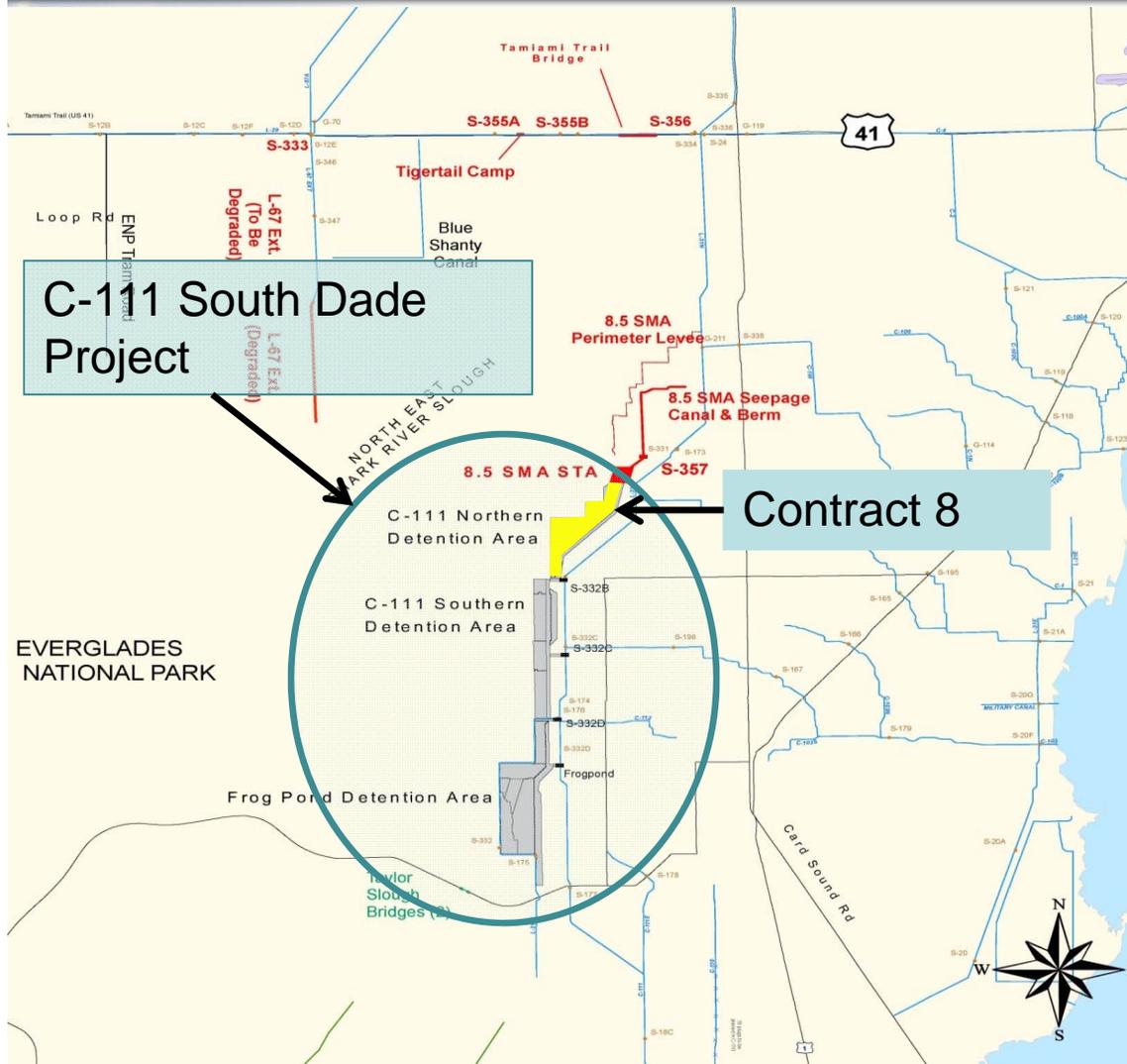


Modified Water Deliveries to Everglades National Park Project



- Improves water deliveries to the Northeast portion of Everglades National Park
- Status
 - Camp, culvert and canal improvements; temporary pump station and 1-mile Tamiami Trail bridge completed.
 - Benefits are dependent on completion of C-111 Contract 8, resolution of WQ issues, & development of operations plan

C-111 South Dade Project



- Improves water deliveries to the Taylor Slough portion of Everglades National Park while maintaining flood protection in developed areas east
- Status - Two contracts remaining
 - Contract 8 - Northern Detention Area - completes missing link with ModWaters
 - L-31W Canal plugging – Contract 9

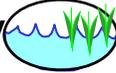
Kissimmee River Restoration Project Nearly Complete

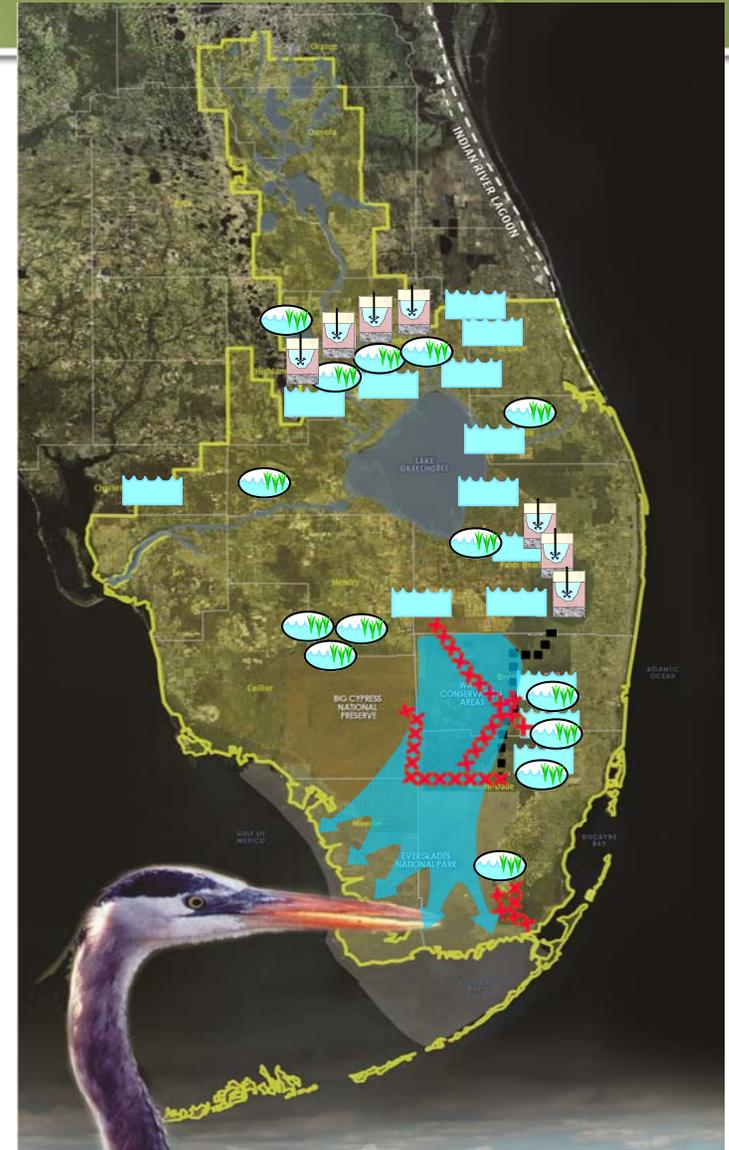
- Everglades Headwaters Restoration
- Status
 - Three construction phases complete, one remaining
 - Final phase expected to be complete around 2017
- Completion will:
 - Last backfill phase will store an additional 20,000 ac-ft of water in floodplain
 - Revising of the regulation schedules for entire chain of lakes could provide additional 80,000 acre-feet for a total of 100,000 acre-feet of storage.



Comprehensive Everglades Restoration Plan (CERP)

- 68 Components

- ▶ Storage  Surface  ASR
- ▶ STAs for water quality 
- ▶ Seepage management ■■■■
- ▶ Removing barriers to flow 
- ▶ Revised operations



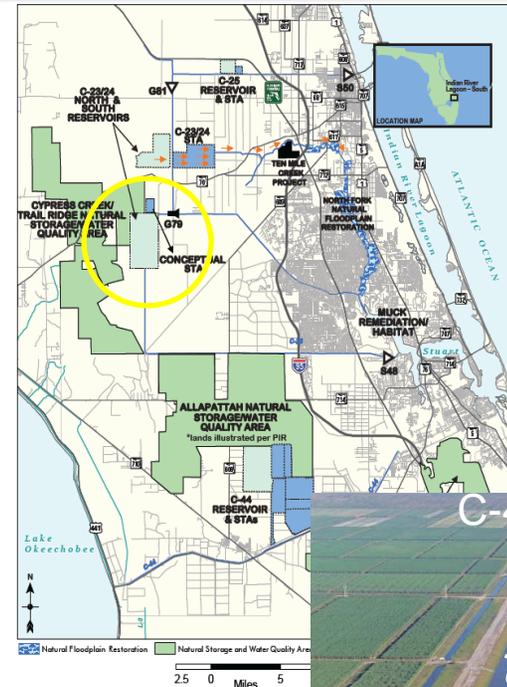
CERP: Indian River Lagoon – South

■ Purpose

- Reduce harmful freshwater discharges to the St. Lucie Estuary and Indian River Lagoon through a series of storage and water quality improvement features
- Increase wetland/upland habitat for threatened and endangered species

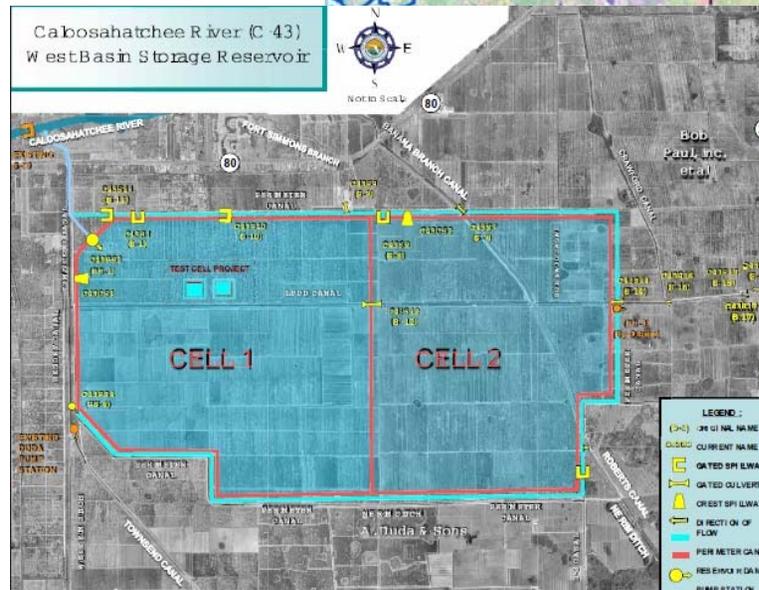
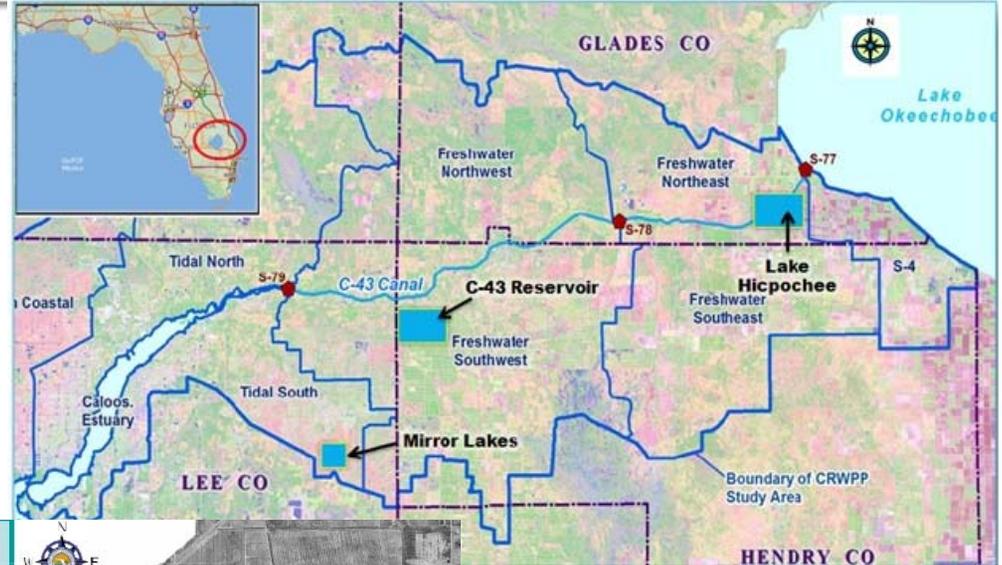
■ Status

- USACE scheduled to complete first of three construction contracts on C-44 Reservoir in March 2014
- SFWMD expected to begin construction on C-44 Stormwater Treatment Area in summer 2014
- FY13-14 State Appropriation - \$20 million



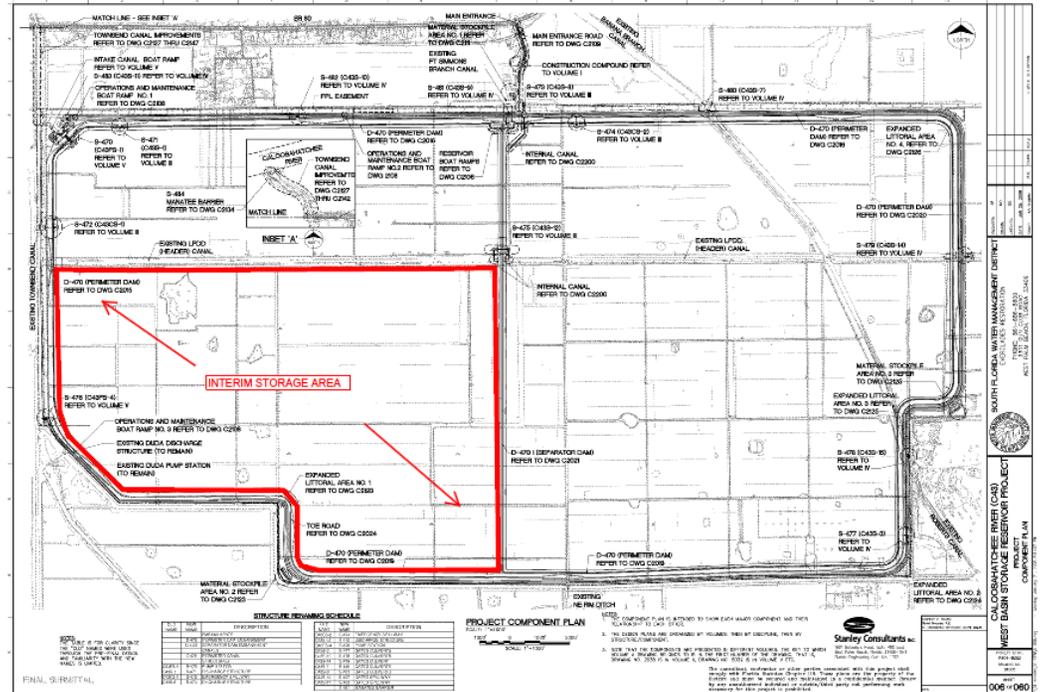
CERP: C-43 Caloosahatchee West Basin Storage Reservoir

- Stores water in wet times & provides water in dry times
 - 170,000 acre-feet of storage
 - Land acquired
 - Project design complete
 - Awaiting Congressional Authorization

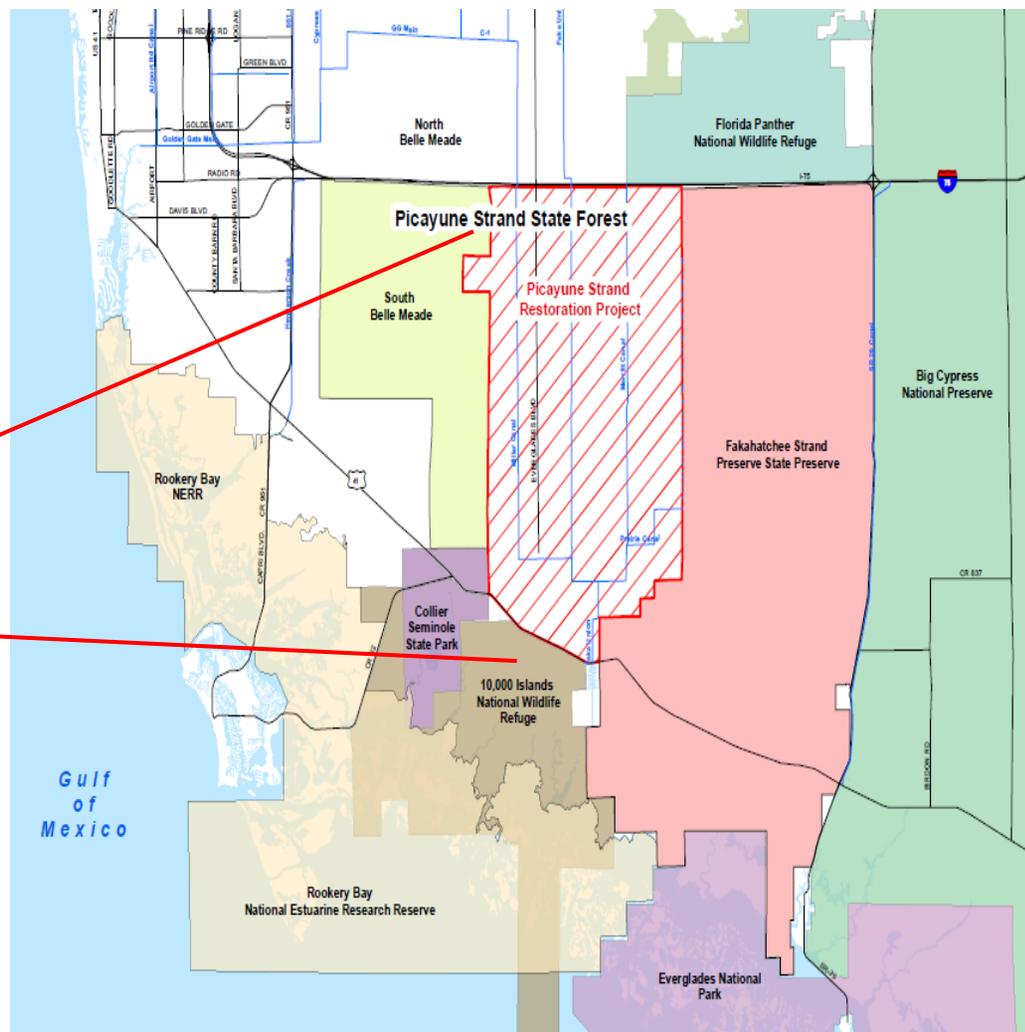
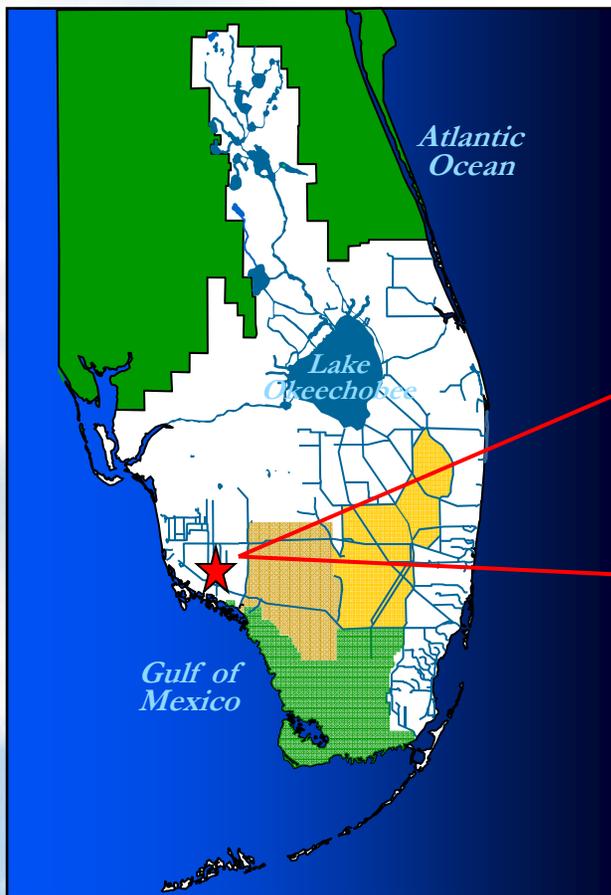


C-43 Phase Options

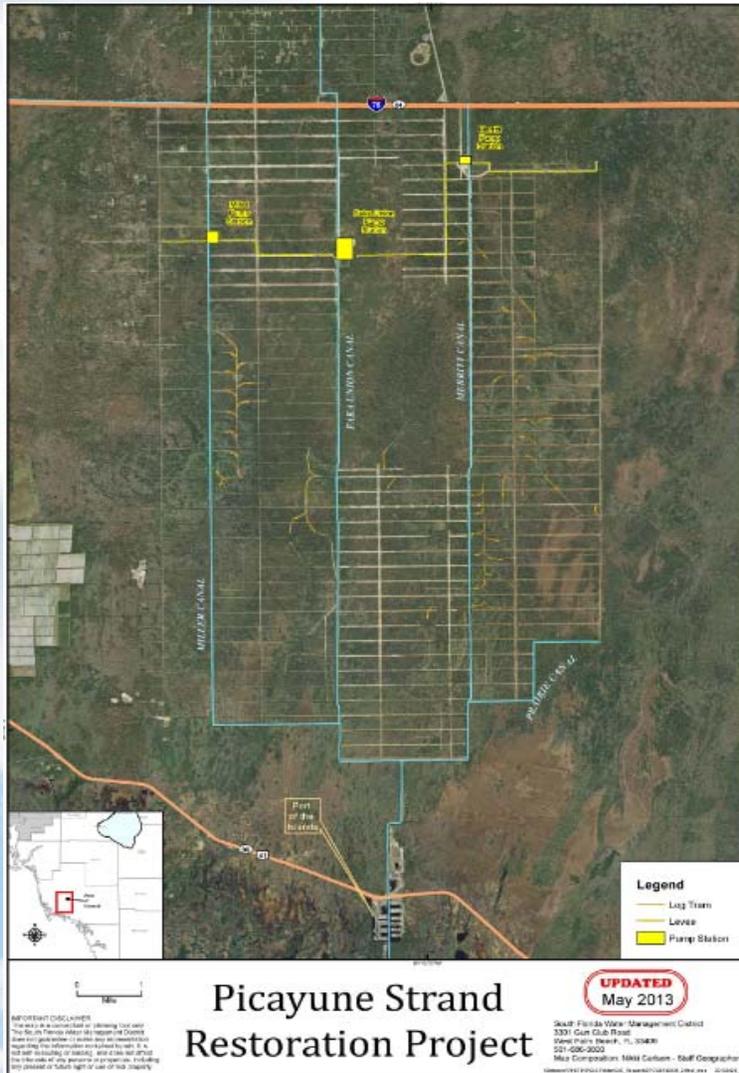
- Smaller phases have been evaluated
 - Construction of project components that provide immediate benefit and can be incorporated into final design
 - For example:
 - 10,000 acre-feet shallow storage
 - Construct seepage pump to serve as interim Inflow pump station
 - Compatible with larger reservoir



CERP: Picayune Strand Restoration



CERP: Picayune Strand Restoration



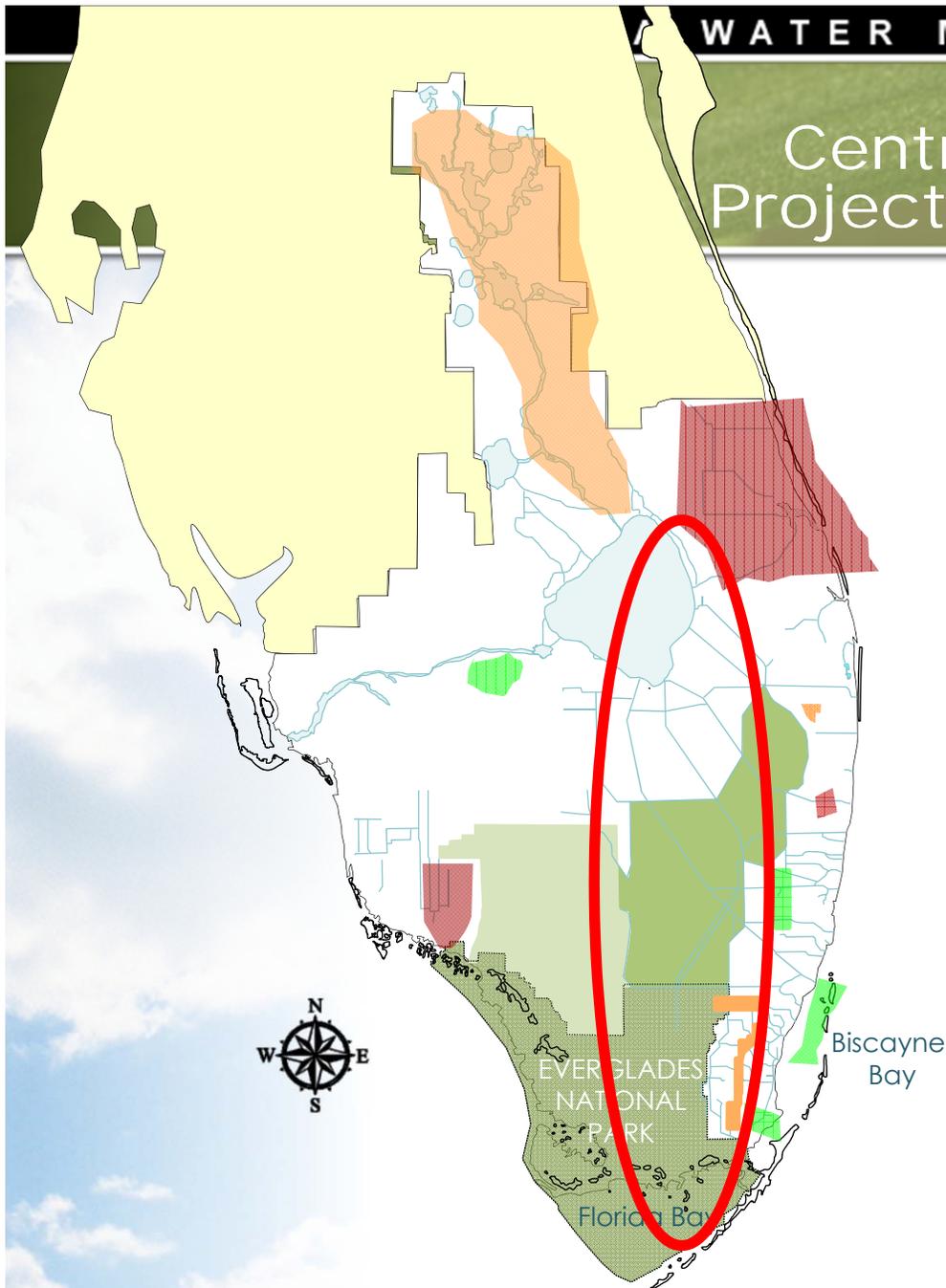
■ Final Piece of the puzzle in Western Everglades

- Restore the natural flow of water to 55,000 acres of wetlands in the former Southern Golden Gate Estates
- Improve water quality by moderating and distributing freshwater inflows to the Ten Thousand Islands National Wildlife Refuge

■ Status

- Was the first CERP project under construction and is closest to completion

Central Everglades Planning Project Moves More Water South



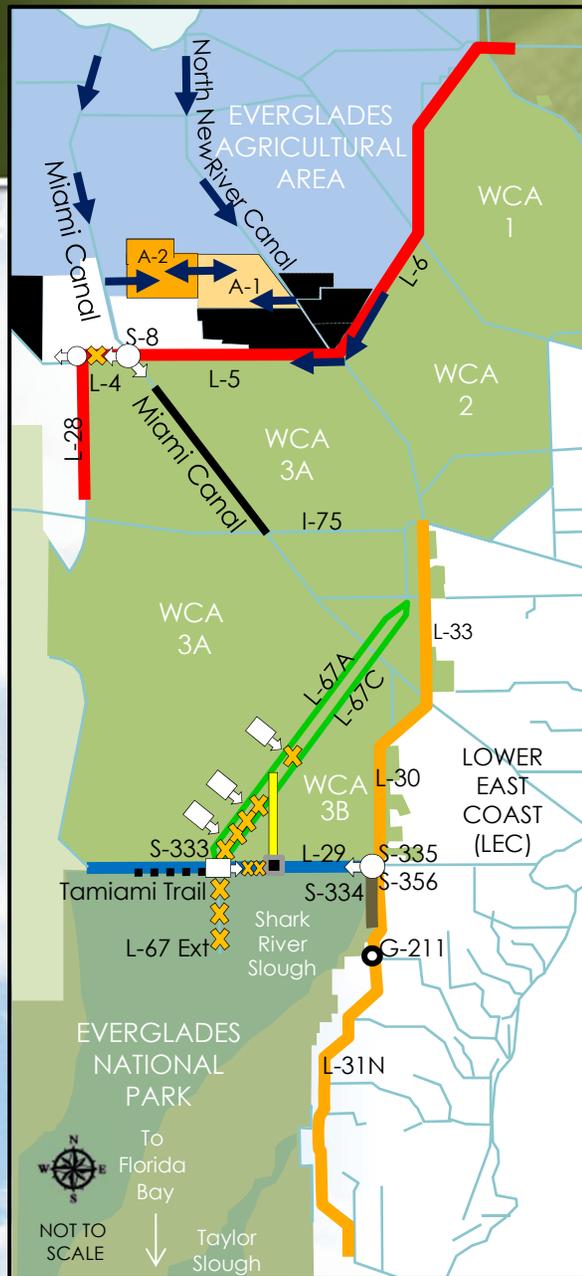
■ Purpose

- Redirect damaging coastal discharges from Lake Okeechobee south to improve the flow, timing and distribution of water through the Everglades

■ Status

- Preparing final Project Implementation Report and Chief's Report for inclusion of project in a WRDA bill

CEPP Benefits Summary



- Reduction in high flow events to the St. Lucie and Caloosahatchee estuaries
- Reductions in average annual discharges from Lake Okeechobee to St. Lucie (23%) and Caloosahatchee (25%)
- Increases water supply in portions of Broward County (12 MGD) and Miami-Dade County (5 MGD)
- Sends 210,000 acre-feet per year south into the Everglades restoring sheet flow and related patterns of hydroperiods and water depths
- Creates a flowway that reconnects WCA 3A to 3B and Everglades National Park
- Increase in quantity of fresh water (~168,000 acre-feet per year) into Florida Bay via Shark River Slough



Questions?

Freshwater Discharges to Lake Worth Lagoon

Effects on Resources



Canals that Discharge Freshwater into the Lake Worth Lagoon & St. Lucie Estuaries



2013 Freshwater Discharge to Local Estuaries

| Structure (Canal) | Lake Okeechobee Discharge (Ac-ft) | | | Stormwater Drainage From Basin (Ac-ft) | Total Discharge into Local Estuary (Ac-ft) | | | |
|--------------------------------|--------------------------------------|------------------|-----------------|---|--|-----------------|----------------|----------------|
| | S-352 (C-51) | L-8.441 (L-8) | S-308 (C-44) | | Total Estuary Discharge subtract Lake O Discharge | S-155 (C-51) | S-44 (C-17) | S-41 (C-16) |
| Lake Worth Lagoon | 27,885 | 68,240 | | | 254,242 | 46,006 | 128,420 | |
| Total Lake Worth Lagoon | 96,125 | | | 332,543 | 428,668 | | | |
| St. Lucie Estuary | | | 217,480 | 232,964 | | | | 450,444 |

2013 Freshwater Discharge from C-51

| Structure (Canal) | Discharge (Ac-ft) | Percentage of C-51 Discharge |
|---|----------------------|------------------------------------|
| S-352 (C-51) | 27,885 | |
| L-8.441 (L-8) | 68,240 | |
| Total Lake O (S-352 plus L-8.441) | 96,125 | 38% |
| Drainage from West Ag Basin (S-155A subtract Total Lake O) | 110,375 | 43% |
| S-155A (C-51) | 206,500 | |
| Drainage from East of S-155A (S-155 subtract S-155A) | 47,742 | 19% |
| S-155 (C-51) Total Discharge | 254,242 | |

2013 Total Freshwater Discharge to Lake Worth Lagoon

| Structure (Canal) | Discharge (Ac-ft) | Percentage |
|-------------------|----------------------|------------|
| S-155 (C-51) | 254,242 | 59% |
| S-44 (C-17) | 46,006 | 11% |
| S-41 (C-16) | 128,420 | 30% |
| Total LWL | 428,668 | |

Note: Data obtained through SFWMD DBHydro

The Point of Record for the data is Jan 1, 2013 - August 18, 2013



LAKE WORTH LAGOON INITIATIVE



www.LWLI.org



2014 Legislative Funding Request

Peanut Island Reef

\$2.075M

Currie Park Living Shoreline

Muck Capping at Grassy Flats

Bryant Park & Steinhardt Cove
Living Shoreline



Habitat enhancement projects designed to:

- Preserve public investment
- Enhance tourism & recreation infrastructure
- Leverage local & federal funding



>1,000 marine
related
businesses

\$1.3B in direct
sales

16,000 jobs

Peanut Island

“Internationally recognized by scuba divers, underwater photographers, and scientists as one of the top dives in the world for its unique marine life” Sport Diver Magazine



Living Shorelines?

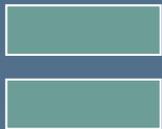
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- Oyster/mangrove habitat
- Improved water clarity
- Public seawall preservation
- Fisheries enhancement



MUCK CAPPING



Ibis Isles, restored in 2010



The birds of Ibis Isles: our newest Ecotourism destination



Since 1998, the Florida Legislature has appropriated \$16.5m for the Lake Worth Lagoon Partnership Program. Together with local and federal matching funds, \$76.6m has been invested in 45 projects to improve the Lagoon as a habitat, a destination, an amenity and a livelihood.

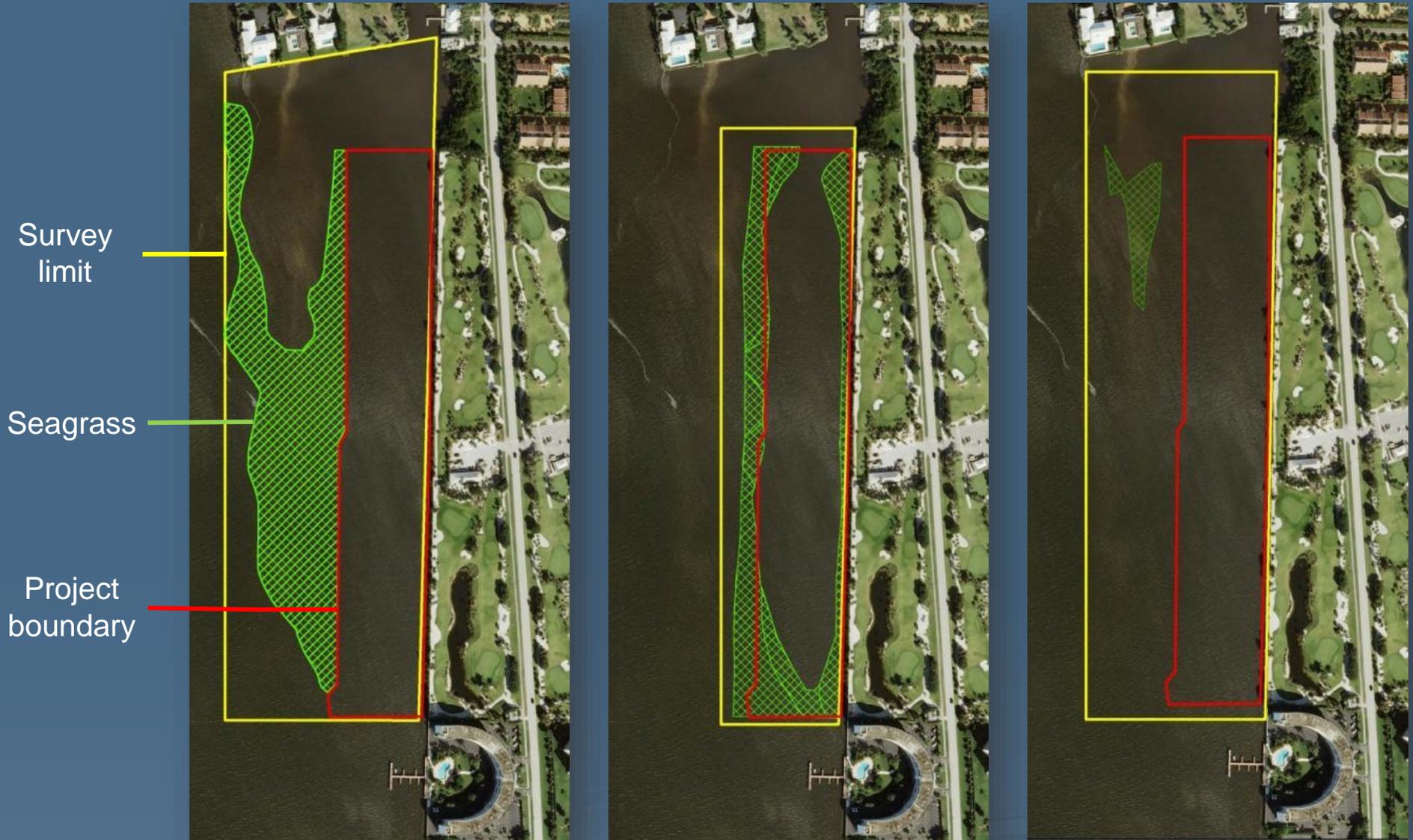


Thank You



Additional information for questions

Grassy Flats

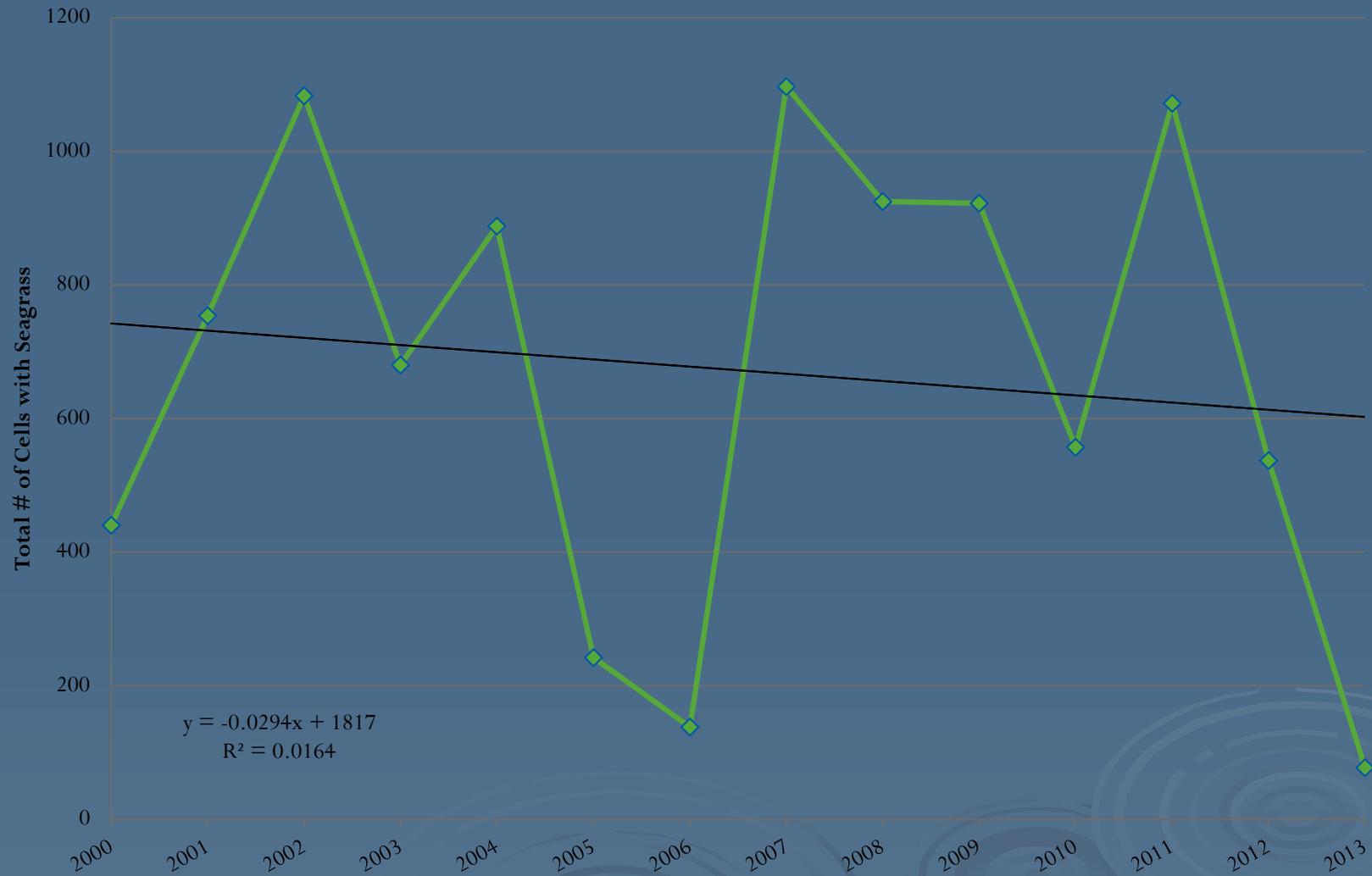


9.31 acres in 2010

5.90 acres in 2011

0.92 acres in 2013

Overall frequency of seagrass occurrence in the Lake Worth Lagoon, 2000-2013





Improved water clarity

Lake Worth Lagoon Management Plan



May 2013 Update
Draft

Lake Worth Lagoon Initiative
LWLI.org



sfwmd.gov





LAKE WORTH LAGOON INITIATIVE



Summary of Projects and Fiscal Year 2014 Funding Requests



www.LWLI.org

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Acknowledgement

Water quality improvements and habitat restoration in the Lake Worth Lagoon would not be possible without the Florida Legislature's leadership and support. Our special thanks are offered to the local legislative delegation for communicating the importance of enhancing and protecting this urban estuary. Their tireless efforts, along with community leaders, local governments, agencies, organizations, businesses, and residents, have made significant measurable changes in the Lagoon. Mangrove, saltmarsh cordgrass, and maritime hammock habitats are increasing, oyster reefs and seagrass beds are expanding, and the quality of stormwater discharging to the Lagoon has been improved. Thank you to all who have taken action to protect and enhance our estuary.

1.0 Executive Summary

The Lake Worth Lagoon is the largest estuary in Palm Beach County, running 20 miles parallel to the coast. It stretches from the Village of North Palm Beach to the Town of Ocean Ridge. This valuable urban estuary is separated from the Atlantic Ocean by Palm Beach Island and Singer Island. Human activities over the past 100 years have degraded the Lagoon's habitat and water quality. While the Lagoon faces many challenges, significant natural resources remain (fisheries, oysters, seagrass, manatees, sea turtles, and more) that are worth preserving, enhancing, and restoring.

The Lake Worth Lagoon Management Plan

Beginning in 1998, over 150 individuals representing municipalities, agencies, organizations, businesses, and concerned citizens participated in the development of the Lake Worth Lagoon Management Plan. The plan identifies specific restoration goals and objectives. With significant progress made over the years, the plan was updated in 2008 and 2013. The plan update focuses on five areas:

- Water and sediment quality
- Habitat restoration, enhancement, and monitoring
- Public use and outreach
- Interagency planning and coordination; and
- Funding.

The Lake Worth Lagoon Initiative (LWLI)

The LWLI is a multiagency and stakeholder collaborative that provides support for increasing awareness of the Lagoon and its valuable resources, carrying out action plans and projects outlined in the Management Plan. Three informal working groups focus discussions on habitat, water quality, and public outreach.

The Lake Worth Lagoon Partnership Grant Program

Since 1998, the Florida Legislature has appropriated \$16.5 million for the Lake Worth Lagoon Partnership Grant Program. Together with local and federal matching funds, 45 projects totaling \$76.6 million were constructed to benefit water quality and habitat. Mangrove, saltmarsh cordgrass, maritime hammock, and seagrass habitats were created and restored, oyster and artificial reefs were constructed, and stormwater management systems were put in place throughout the watershed to remove pollutants from the water before discharging to the Lagoon.

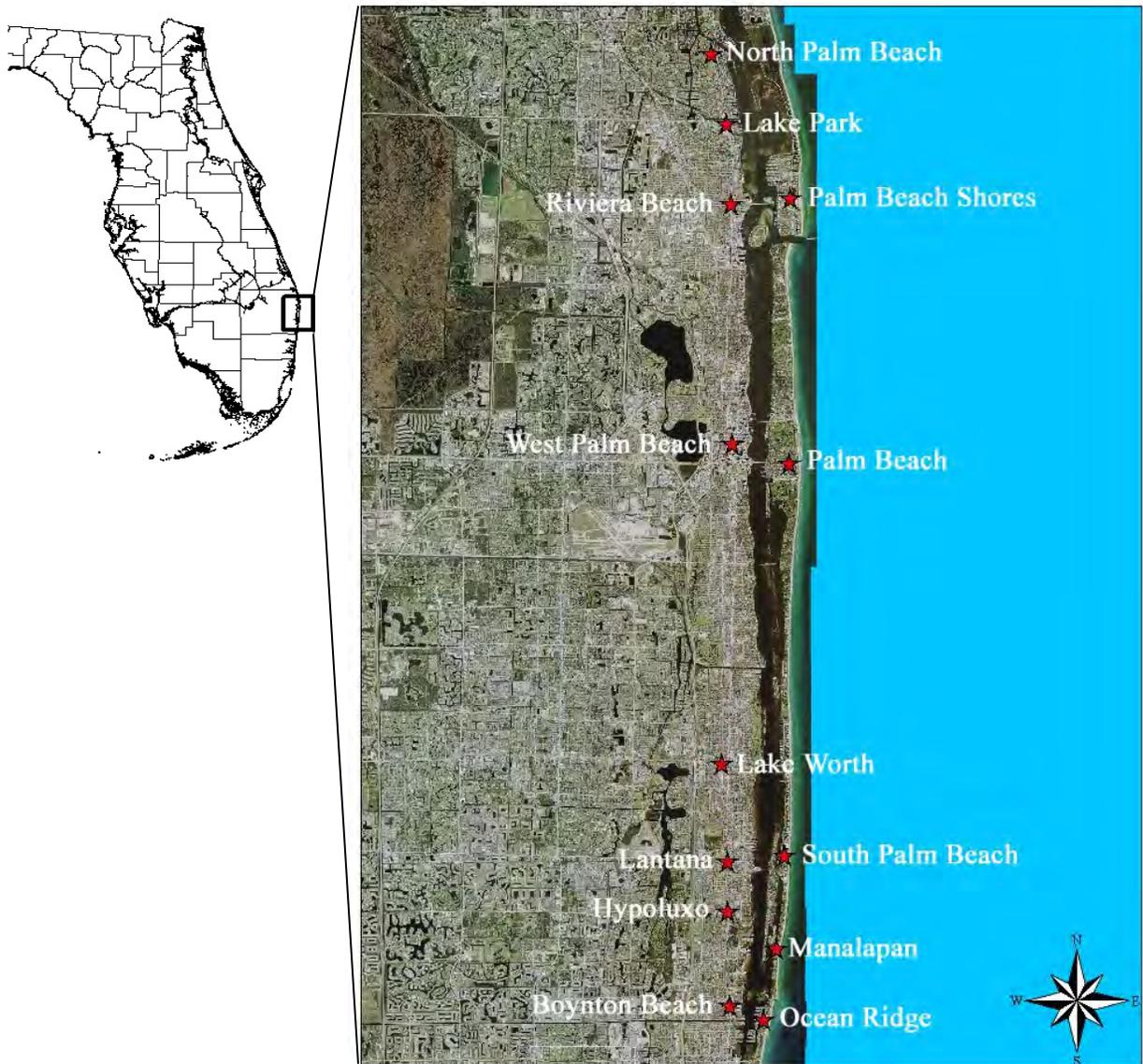
Funding Request For Fiscal Year 2014

The LWLI is requesting \$2.075 million in State Legislative appropriations in Fiscal Year 2014 to fund proposed sub-projects that will benefit the Lake Worth Lagoon's habitat and water quality as well as monitoring and administration. Matching local funds are expected to exceed \$2.075 million.

2.0 Introduction and Background

The Lake Worth Lagoon is the largest estuary in Palm Beach County, running 20 miles parallel to the coast (Figure 1). It stretches from the Village of North Palm Beach to the Town of Ocean Ridge. This valuable urban estuary is separated from the Atlantic Ocean by Palm Beach Island and Singer Island. Two permanent man-made inlets, the Lake Worth Inlet and the South Lake Worth Inlet, make it possible for saltwater to mix with freshwater from canals.

Figure 1. Location of Lake Worth Lagoon (LWL), Palm Beach County, Florida



Human activities over the past 100 years have degraded the Lagoon’s habitat and water quality. Examples include the construction of permanent inlets, dredging and filling of wetlands along the shoreline, channel dredging, wastewater discharges, and the construction of seawalls, canals, bridges, causeways, docks, marinas, the port, and power plant. Today, 81% of the shoreline is bulkheaded, only 295 acres of mangroves remain, and much of the stormwater from the urbanized watershed is not treated to remove pollutants before discharging to the Lagoon.

While the Lagoon faces many challenges, significant natural resources remain that are worth preserving, enhancing, and restoring. Since 1987, multiple partners have implemented efforts to benefit the Lagoon. Projects include creation and enhancement of valuable habitat and implementation of stormwater retrofits to improve water quality as identified in the Lake Worth Lagoon Management Plan.

Despite the restoration success of the past 26 years, challenges remain. Urban and agricultural runoff containing contaminants, toxins, nutrients, and sediments, increasing residential and commercial growth, and a lack of understanding among residents and visitors regarding how individual behaviors affect the Lagoon, continue to stress this valuable urban estuary.

3.0 Lake Worth Lagoon Initiative (LWLI)

The Lake Worth Lagoon Initiative (LWLI) is a multiagency and stakeholder collaborative that provides support for increasing awareness of the Lagoon and its valuable resources, carrying out action plans and projects outlined in the Management Plan. Three informal working groups focus discussions on habitat, water quality, and public outreach.

4.0 Lake Worth Lagoon Partnership Grant Program

The Florida Legislature provides leadership and support for the restoration and enhancement of the Lagoon (Table 1). Since 1998, the Legislature has appropriated \$16.5 million for the Lake Worth Lagoon Partnership Grant Program. Funds reach local sponsors of construction projects that benefit water quality and habitat with limited funding available for monitoring.

Summary:

- Total grant funds: ~\$16.9 million
- Total matching funds from local sponsors: ~\$59.7 million
- Total cost of projects implemented: ~\$76.6 million
- Total habitat and stormwater management construction projects: 45

Table 1: Lake Worth Lagoon Funding – FY 1998-2013

| FY | Construction Projects | Grant Funding Award | Local Funding | Total Project Costs |
|--------------|-----------------------|---------------------|---------------------|---------------------|
| 2013 | 1 | \$150,000 | \$150,000 | \$300,000 |
| 2012 | 0 | \$0 | \$0 | \$0 |
| 2011 | 0 | \$0 | \$0 | \$0 |
| 2010 | 0 | \$0 | \$0 | \$0 |
| 2009 | 0 | \$0 | \$0 | \$0 |
| 2008 | 1 | \$500,000 | \$474,200 | \$974,200 |
| 2007 | 6 | \$3,500,000 | \$4,610,383 | \$8,110,383 |
| 2006 | 4 | \$1,863,425 | \$4,913,425 | \$6,776,850 |
| 2005 | 3 | \$1,500,000* | \$3,477,584 | \$4,977,584 |
| 2004 | 0 | \$0 | \$0 | \$0 |
| 2003 | 0 | \$0 | \$0 | \$0 |
| 2002 | 5 | \$2,485,000 | \$17,706,541 | \$20,191,541 |
| 2001 | 3 | \$1,500,000 | \$2,111,504 | \$3,611,504 |
| 2000 | 8 | \$3,000,000 | \$19,423,757 | \$22,423,757 |
| 1999 | 7 | \$1,400,000 | \$3,320,526 | \$4,720,526 |
| 1998 | 7 | \$1,000,000 | \$3,489,321 | \$4,489,321 |
| TOTAL | 45 | \$16,898,425 | \$59,677,241 | \$76,575,666 |

*\$500,000 awarded to the Grant Program through the South Florida Water Management District in FY 2005

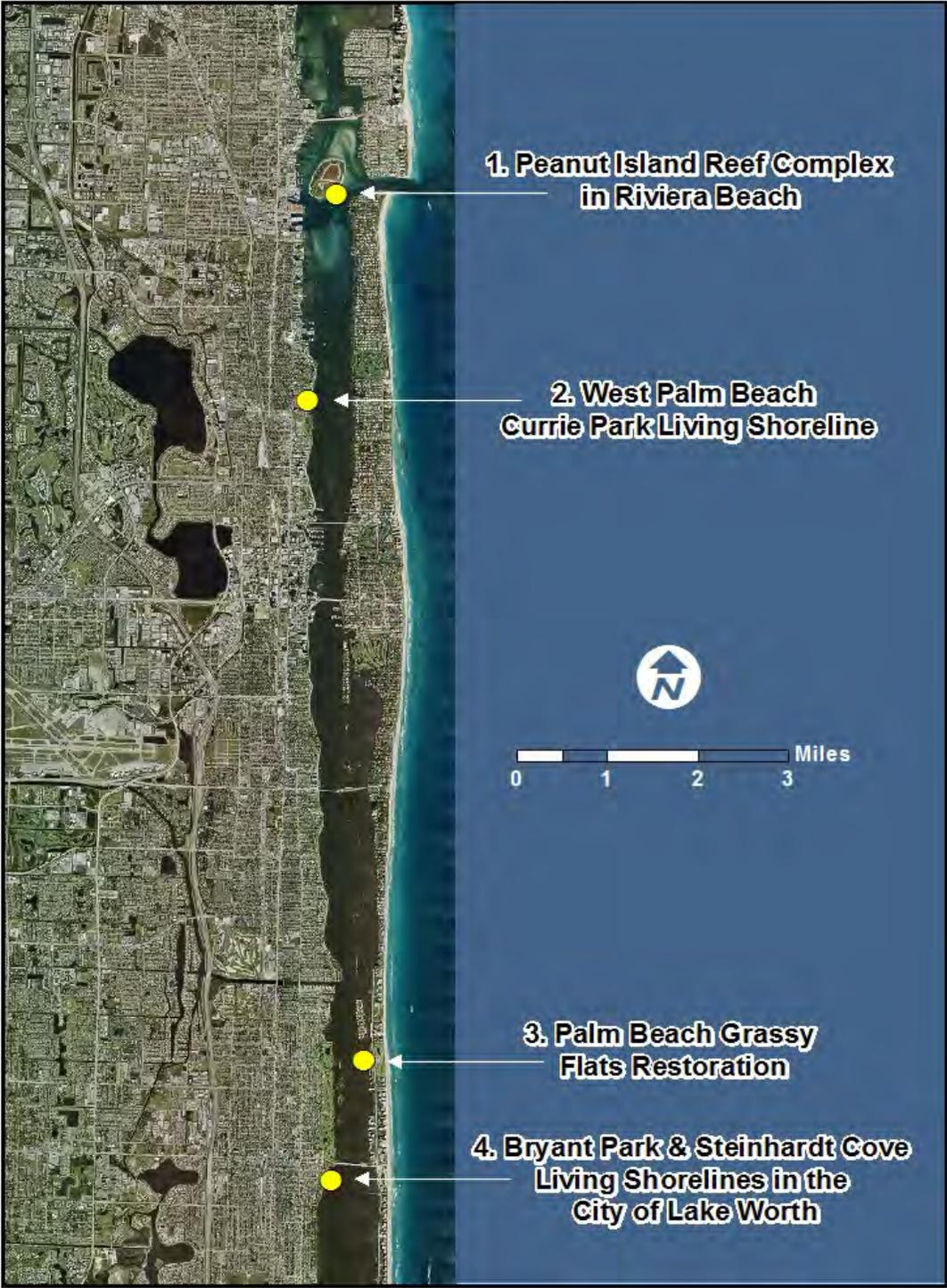
5.0 LWLI Funding Request for FY 2014 (\$2.075 million)

The LWLI is requesting \$2.075 million in State Legislative appropriations in Fiscal Year 2014 to fund proposed projects, such as those described below, that will benefit the Lake Worth Lagoon's habitat and water quality as well as monitoring and administration. Matching local funds are expected to exceed \$2.075 million.

Table 2: Lake Worth Lagoon Funding Requests, Fiscal Year 2014

| No. | Project Name | Grant Funding Request | Local Match | Estimated Project Cost |
|-----|---|-----------------------|--------------------|------------------------|
| 1 | Peanut Island Reef Complex in Riviera Beach | \$75,000 | \$75,000 | \$150,000 |
| 2 | West Palm Beach Currie Park Living Shoreline | \$300,000 | \$300,000 | \$600,000 |
| 3 | Palm Beach Grassy Flats Restoration | \$900,000 | \$900,000 | \$1,800,000 |
| 4 | Bryant Park & Steinhardt Cove Living Shorelines in the City of Lake Worth | \$400,000 | \$400,000 | \$800,000 |
| 5 | Monitoring and Administration | \$400,000 | \$400,000 | \$800,000 |
| | TOTAL | \$2,075,000 | \$2,075,000 | \$4,150,000 |

Figure 2. Lake Worth Lagoon Proposed Project Locations, Fiscal Year 2014



5.1 Peanut Island Reef Complex in Riviera Beach

Total LWL Partnership Grant Request: \$75,000

Proposed Match Amount: \$75,000

Estimated Total Project Cost: \$150,000

The Peanut Island Reef Complex will provide artificial reef habitat to benefit marine life and recreational snorkelers and divers. Approximately 2,000 tons of limestone rock will be placed to create emergent reef structures that will help reduce the wave energy and provide shoreline protection. An additional 1,000 tons of limestone will be placed into discrete piles to create an artificial snorkel reef trail within a two and half acre area on the east side of Peanut Island.



5.2 West Palm Beach Currie Park Living Shoreline

Total LWL Partnership

Grant Request: \$300,000

Proposed Match Amount: \$300,000

Estimated Total Project Cost: \$600,000

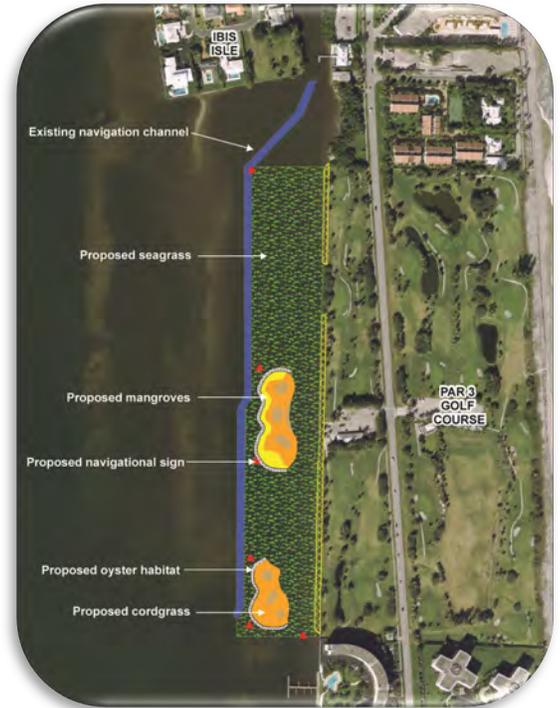
Mangrove planters are proposed along a portion of Currie Park's 2000 foot-long seawall. The planters and riprap will attenuate waves and boat wakes. Living shorelines provide mangrove, saltmarsh cordgrass, oyster, and reef habitat as well as adaptive seawall/shoreline protection in response to climate change.



5.3 Palm Beach Grassy Flats Restoration

Total LWL Partnership Grant Request: \$900,000
Proposed Match Amount: \$900,000
Estimated Total Project Cost: \$1,800,000

The Grassy Flats Restoration Project, located immediately south of the successful Ibis Isle Restoration Project, will provide additional muck management in the Lagoon. According to surveys, the 12-acre area is blanketed with an average of 1.5 feet of muck sediments. The goal for the project is to contain the muck by capping with a thin layer of sand thereby restoring both subtidal and intertidal habitat. The project will provide 10.5 acres of seagrass habitat, 1.1 acres of salt marsh, 0.3 acre of mangrove habitat, 0.3 acre of open area for bird foraging, and 0.6 acre of artificial reef/oyster habitat. In addition, limerock used to stabilize the fill will provide substrate for the recruitment of oysters.



5.4 Bryant Park & Steinhardt Cove Living Shorelines in the City of Lake Worth

Total LWL Partnership Grant Request: \$400,000
Proposed Match Amount: \$400,000
Estimated Total Project Cost: \$800,000

Bryant Park: Construct 1,100 linear feet of mangrove planters and 1,000 linear feet of rip-rap along portions of Bryant Parks' 2,600 foot-long bulkheaded shoreline. The planters and riprap will attenuate waves and boat wakes. Living shorelines provide mangrove, saltmarsh cordgrass, oyster and reef habitat, and enhance shoreline resilience to climate change.

Steinhardt Cove: Remove exotic vegetation and install native plants along 1,100 linear feet of shoreline. Riprap will be installed to protect the eroding shoreline and provide mangrove, saltmarsh cordgrass, oyster and reef habitat, and enhance shoreline resilience to climate change.



5.5 Monitoring and Administration

Total LWL Partnership Grant Request: \$400,000

Proposed Match Amount: \$400,000

Estimated Total Project Cost: \$800,000

Monitoring efforts are instrumental to document habitat restoration and stormwater improvements and keep a pulse on the health of the Lagoon. Projects monitor physical conditions such as sediments and biological parameters such as seagrass, mangroves, fisheries, benthic organisms, and sea turtles.

Proposed monitoring projects include:

- Water Quality Monitoring
- Seagrass Mapping and Transect Monitoring
- Oyster Monitoring
- Fishery Survey
- Bird Survey
- Sediment Mapping
- Sediment Sourcing Part II



6.0 LWLI Progress to Date

Table 3: Grant Projects, Awards, Local Match Dollars, and Total Project Costs.

| FY | Project Name | Grant Funding Award | Local Match | Total Project Cost |
|------|--|---------------------|---------------------|---------------------|
| 2013 | Monastery Artificial Reef | \$150,000 | \$150,000 | \$300,000 |
| | TOTAL FY13 | \$150,000 | \$150,000 | \$300,000 |
| 2008 | South Cove Natural Area – Phase 2 | \$415,000 | \$424,200 | \$839,200 |
| 2008 | Monitoring and Administration | \$85,000 | \$50,000 | \$135,000 |
| | TOTAL FY08 | \$500,000 | \$474,200 | \$974,200 |
| 2007 | Westgate Infrastructure Improvements – Phase 4 | \$1,080,383 | \$1,525,383 | \$2,605,766 |
| 2007 | Riviera Beach Artificial Reef | \$20,000 | \$20,000 | \$40,000 |
| 2007 | South Cove Natural Area – Phase 1 | \$600,000 | \$600,000 | \$1,200,000 |
| 2007 | Ibis Island Restoration | \$300,000 | \$900,000 | \$1,200,000 |
| 2007 | John’s Island Oyster Reef – Phase 1 | \$265,000 | \$465,000 | \$730,000 |
| 2007 | Federal Highway Stormwater Improvements | \$750,000 | \$750,000 | \$1,500,000 |
| 2007 | Monitoring and Administration | \$484,617 | \$350,000 | \$834,617 |
| | TOTAL FY07 | \$3,500,000 | \$4,610,383 | \$8,110,383 |
| 2006 | Boynton Beach/Ocean Ridge Mangrove Riprap | \$330,000 | \$330,000 | \$660,000 |
| 2006 | Hypoluxo Shores Sewer Project – Phase 2 | \$400,000 | \$400,000 | \$800,000 |
| 2006 | Westgate Infrastructure Improvements – Phase 3 | \$400,000 | \$2,400,000 | \$2,800,000 |
| 2006 | West Palm Beach Stormwater Master Plan – Phase 5 | \$500,000 | \$1,550,000 | \$2,050,000 |
| 2006 | Monitoring | \$200,000 | \$200,000 | \$400,000 |
| 2006 | Administration | \$33,425 | \$33,425 | \$66,850 |
| | TOTAL FY06 | \$1,863,425 | \$4,913,425 | \$6,776,850 |
| 2005 | Ocean Ridge Natural Area Restoration – Phase 2 | \$418,500 | \$811,980 | \$1,230,480 |
| 2005 | Westgate Infrastructure Improvements – Phase 2 | \$337,948 | \$1,662,052 | \$2,000,000 |
| 2005 | West Palm Beach Stormwater Master Plan – Phase 4 | \$300,000 | \$430,000 | \$730,000 |
| 2005 | West Palm Beach Stormwater Master Plan – Phase 3 | \$300,000 | \$430,000 | \$730,000 |
| 2005 | Monitoring and Administration | \$143,552 | \$143,552 | \$287,104 |
| | TOTAL FY05 | *\$1,500,000 | \$3,477,584 | \$4,977,584 |
| 2002 | West Palm Beach Stormwater Master Plan – Phase 2 | \$500,000 | \$630,000 | \$1,130,000 |
| 2002 | Westgate Infrastructure Improvements – Phase 1 | \$400,000 | \$440,267 | \$840,267 |
| 2002 | Snook Islands Natural Area – Phase 2 | \$546,863 | \$14,493,137 | \$15,040,000 |
| 2002 | Ocean Ridge Stormwater Improvements – Phase 2 | \$400,000 | \$1,105,000 | \$1,505,000 |
| 2002 | Boynton Beach Stormwater Improvements | \$500,000 | \$900,000 | \$1,400,000 |
| 2002 | Monitoring and Administration | \$138,137 | \$138,137 | \$276,274 |
| | TOTAL FY02 | \$2,485,000 | \$17,706,541 | \$20,191,541 |
| 2001 | Ocean Ridge Natural Area Restoration – Phase 1 | \$607,000 | \$811,979 | \$1,418,979 |
| 2001 | West Palm Beach Renaissance Project – Phase 4 | \$250,000 | \$250,000 | \$500,000 |
| 2001 | Ocean Ridge Stormwater Improvements – Phase 1 | \$493,475 | \$900,000 | \$1,393,475 |
| 2001 | Monitoring and Administration | \$149,525 | \$149,525 | \$299,050 |
| | TOTAL FY01 | \$1,500,000 | \$2,111,504 | \$3,611,504 |

*\$500,000 awarded to the Grant Program through the South Florida Water Management District in Fiscal Year 2004/05

| FY | Project Name | Grant Funding Award | Local Match | Total Project Cost |
|------|---|---------------------|---------------------|---------------------|
| 2000 | West Palm Beach Renaissance Project – Phase 3 | \$400,000 | \$1,787,096 | \$2,187,096 |
| 2000 | West Palm Beach Stormwater Master Plan – Phase 1 | \$500,000 | \$526,000 | \$1,026,000 |
| 2000 | PBC School District Artificial Reefs – Phase 2 | \$62,000 | \$62,000 | \$124,000 |
| 2000 | Peanut Island Environmental Restoration – Phase 2 | \$244,274 | \$10,699,337 | \$10,943,611 |
| 2000 | Snook Islands Natural Area – Phase 1 | \$1,082,201 | \$1,377,799 | \$2,460,000 |
| 2000 | Palm Beach D-12 Stormwater Pump Station | \$200,000 | \$4,385,000 | \$4,585,000 |
| 2000 | Lantana Cove Mangrove Planter | \$12,000 | \$12,000 | \$24,000 |
| 2000 | Boynton Beach Regional Stormwater Facility and Outfalls – Phase 3 | \$325,000 | \$400,000 | \$725,000 |
| 2000 | Monitoring and Administration | \$174,525 | \$174,525 | \$349,050 |
| | TOTAL FY00 | \$3,000,000 | \$19,423,757 | \$22,423,757 |
| 1999 | John’s Island Natural Area Restoration | \$202,475 | \$607,425 | \$809,900 |
| 1999 | West Palm Beach Renaissance Project – Phase 2 | \$200,000 | \$1,426,016 | \$1,626,016 |
| 1999 | Palm Beach Mangrove Planter | \$200,000 | \$239,560 | \$439,560 |
| 1999 | Lake Park Stormwater Management System – Phase 2 | \$73,000 | \$73,000 | \$146,000 |
| 1999 | Hypoluxo Shores Sewer Project – Phase 1 | \$450,000 | \$450,000 | \$900,000 |
| 1999 | Boynton Beach Regional Stormwater Facility and Outfalls – Phase 2 | \$250,000 | \$500,000 | \$750,000 |
| 1999 | Administration | \$24,525 | \$24,525 | \$49,050 |
| | TOTAL FY99 | \$1,400,000 | \$3,320,526 | \$4,720,526 |
| 1998 | Peanut Island Environmental Restoration – Phase 1 | \$250,000 | \$1,443,765 | \$1,693,765 |
| 1998 | West Palm Beach Renaissance Project – Phase 1 | \$100,000 | \$455,556 | \$555,556 |
| 1998 | Port of Palm Beach Master Drainage Plan | \$147,408 | \$147,408 | \$294,816 |
| 1998 | Lake Park Stormwater Management System – Phase 1 | \$80,000 | \$80,000 | \$160,000 |
| 1998 | Lake Park Marina Pump-out Facility | \$42,500 | \$82,500 | \$125,000 |
| 1998 | Boynton Beach Regional Stormwater Facility and Outfalls – Phase 1 | \$300,000 | \$1,200,000 | \$1,500,000 |
| 1998 | PBC School District Artificial Reefs – Phase 1 | \$51,000 | \$51,000 | \$102,000 |
| 1998 | Administration | \$29,092 | \$29,092 | \$58,184 |
| | TOTAL FY98 | \$1,000,000 | \$3,489,321 | \$4,489,321 |
| | | | | |
| | TOTAL | \$16,898,425 | \$59,677,241 | \$76,575,666 |

Figure 3. Lake Worth Lagoon Project Locations - North, Fiscal Years 1998-2013

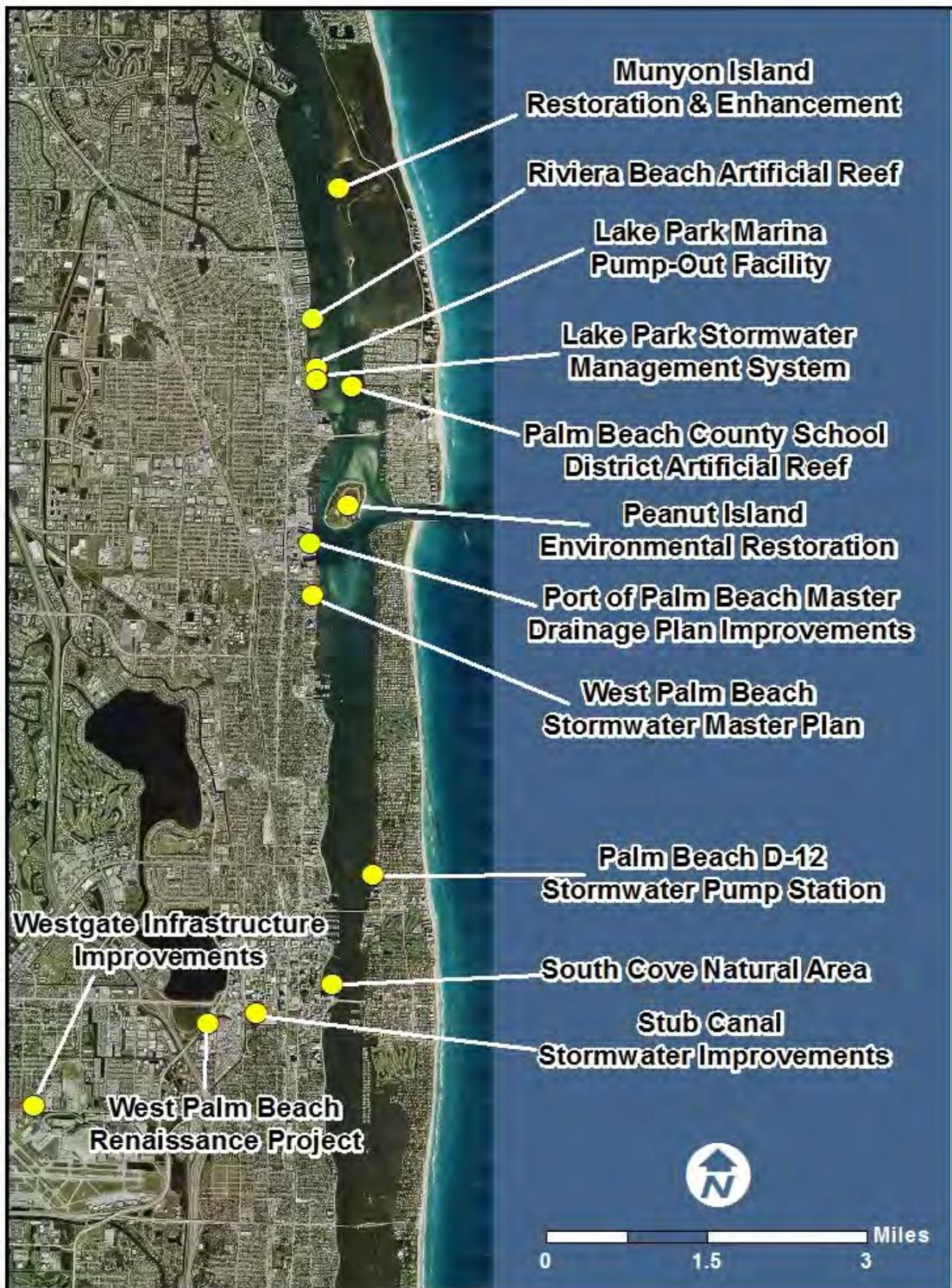
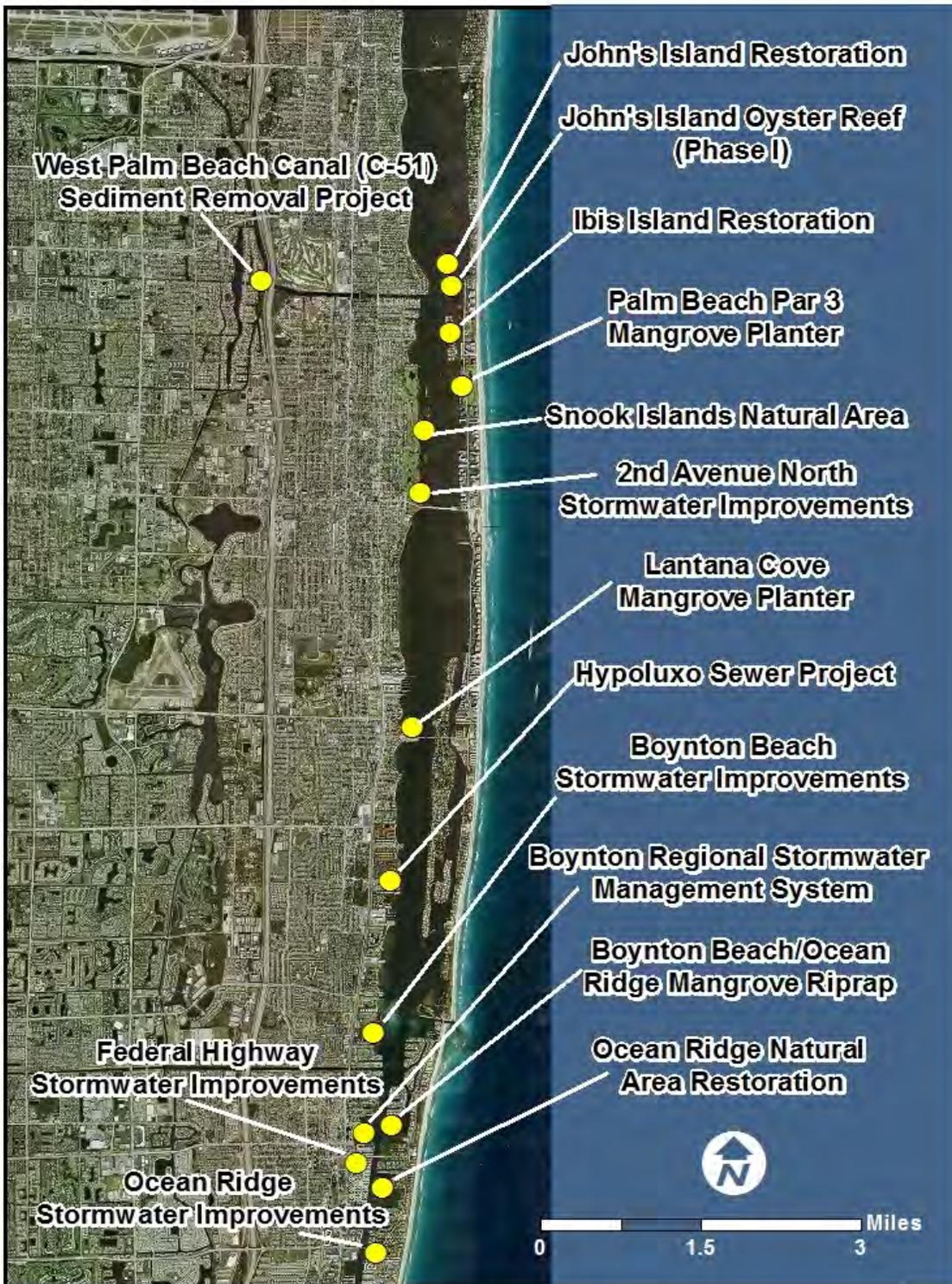


Figure 4. Lake Worth Lagoon Project Locations – South, Fiscal Years 1998-2013



Funded Projects to Date

6.1 South Cove Natural Area – Phases 1 and 2

Local Sponsor: Palm Beach County

Total LWL Partnership Grants: \$1,015,000 (\$415,000/FY08; \$600,000/FY07)

Match Amount: \$1,024,200

Total Project Cost: \$2,039,200

A deep dredge hole was filled with sand to cap muck sediments and raised to elevations for recruitment of seagrass and creation of a series of mangrove islands. The project created mangrove (2 acres), seagrass (3.5 acres), and oyster habitat (1 acre). Fisheries and wildlife benefit from increased food supplies, nursery areas, and water quality improvements. Public-use components include an elevated boardwalk, observation deck, and an informational kiosk. Project partners included the City of West Palm Beach and the Florida Inland Navigation District.



Photo Credit: John A. Marshall

6.2 Westgate Infrastructure Improvements

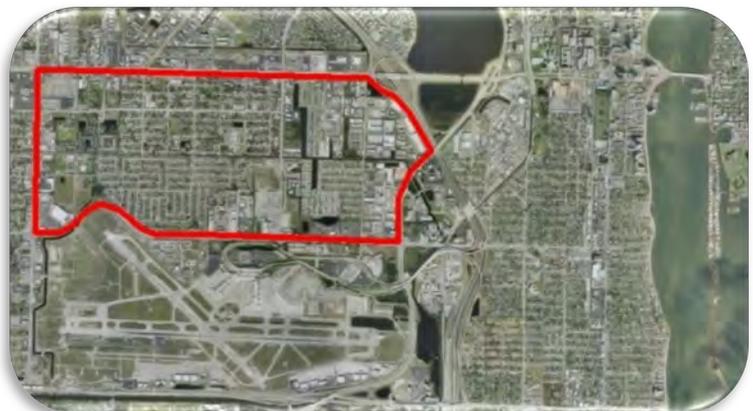
Local Sponsor: Westgate Community Redevelopment Area

Total LWL Partnership Grants: \$2,218,331 (\$1,080,383/FY07; \$400,000/FY06; \$337,948/FY05; \$400,000/FY02)

Match Amount: \$6,027,702

Total Project Cost: \$8,246,033

An existing septic sewer system was replaced with a sanitary sewer system, detention areas were constructed, and swales re-graded and replaced. All sewage generated in the 65-acre area is conveyed to a wastewater treatment plant. Improved swales and retention areas result in cleaner water runoff and the elimination of the septic system protects the Lagoon from sewage discharges. Fewer pollutants such as metals, nutrients, oxygen depleting materials, and sediments are expected. Project partners included Palm Beach County.



6.3 Riviera Beach Artificial Reef

Local Sponsor: Riviera Beach Maritime Academy
Total LWL Partnership Grants: \$20,000 (FY07)
Match Amount: \$20,000
Total Project Cost: \$40,000

The Riviera Beach Maritime Academy Artificial Reef Building Program provides high school students the opportunity to learn about artificial reef construction. Students built and deployed 20 prefabricated rebar and concrete artificial reef habitats - also known as rice cakes - in the Lagoon. The reef provides valuable habitat for fish and shellfish.



6.4 Ibis Island Restoration

Local Sponsor: Palm Beach County
Total LWL Partnership Grants: \$300,000 (FY07)
Match Amount: \$900,000
Total Project Cost: \$1,200,000

Muck deposits were capped along Ibis Island providing substrate and habitat improvements. The sand cap was placed and contoured to create 8.3 acres of mangrove, saltmarsh cordgrass, and 0.8 acres of oyster habitat. The project creates a refuge for fish and wildlife and provides water quality improvements by reducing re-suspension of sediments into the water column. Partners included the Town of Palm Beach and the South Florida Water Management District.



6.5 John's Island Oyster Reef – Phase 1

Local Sponsor: Palm Beach County

Total LWL Partnership Grants: \$265,000 (FY07)

Match Amount: \$465,000

Total Project Cost: \$730,000

Limestone rock was placed to create almost 10 acres of oyster reef habitat. The addition makes a significant contribution to intertidal habitat and water quality improvements. Rock was placed in discrete piles with open spaces between each pile. The open space provides an edge between the sand and rock, allowing fish and invertebrates easy entry to the structures and promoting water flow. Water flow is important to oyster health by delivering oxygen and food, and for settlement of oyster spat. Project partners included the Town of Palm Beach and Florida Inland Navigation District.



6.6 Boynton Beach Federal Highway Stormwater Improvements

Local Sponsor: City of Boynton Beach

Total LWL Partnership Grants: \$750,000 (FY07)

Match Amount: \$750,000

Total Project Cost: \$1,500,000

A stormwater management system for neighborhoods within a 46-acre area using a combination of valley curb grates and catch basins will collect stormwater to be disposed of via a centralized exfiltration system. The project will retain stormwater onsite and treat it before it reaches the Lagoon. The project is also expected to reduce freshwater discharges.



6.7 Boynton Beach/Ocean Ridge Mangrove Preserves and Breakwaters

Local Sponsor: Palm Beach County

Total LWL Partnership Grants: \$330,000 (FY06)

Match Amount: \$330,000

Total Project Cost: \$660,000

Limestone boulders were placed along the shoreline to serve as a wave break. Gaps were left in the wave breaks to provide adequate flushing of the mangroves. To provide additional habitat, a mangrove planter was constructed behind the wave breaks. The project was designed to protect 35 acres of existing mangroves, including a mangrove fringe that has slowly eroded from boat wakes.

Mangroves provide important habitat for many species of fish and wildlife and improve water quality. The rock, by nature of its makeup and location, also provides shallow water artificial reef habitat that is ideal for oysters and other attaching organisms. Partners included the City of Boynton Beach and the Town of Ocean Ridge.



6.8 Hypoluxo Shores Sewer Project

Local Sponsor: Town of Hypoluxo

Total LWL Partnership Grants: \$850,000
(\$400,000/FY06; \$450,000/FY99)

Match Amount: \$850,000

Total Project Cost: \$1,700,000

All septic tanks east of US Highway 1 were closed and 99 single-family homes were connected to the municipal sewer system. The septic systems were more than 50 years old and located just 10 feet from the edge of the Lagoon. Due to the shallow groundwater level in the project area, a vacuum sewer system was designed as an alternative to a conventional gravity sewer system. By eliminating septic loading to the Lagoon, a reduction in pollutants such as metals, nutrients, and oxygen depleting materials is expected.



6.9 West Palm Beach Stormwater Master Plan

Local Sponsor: City of West Palm Beach

Total LWL Partnership Grants: \$2,100,000 (\$500,000/FY06; \$300,000/FY05; \$300,000/FY05; \$500,000/FY02; \$500,000/FY00)

Match Amount: \$3,566,000

Total Project Cost: \$5,666,000

Stormwater pollution control devices (PCDs) were installed to reduce the amount of trash, oils, greases, and suspended solids entering the Lagoon. PCDs have been reported to remove 75-90% of total suspended solids, 45-70% of nutrients (phosphorous and nitrogen) and 75-90% of heavy metals. The project enhances the quality of water running off the 451-acre watershed before it enters the Lagoon.



Pollution Control Devices

6.10 Ocean Ridge Natural Area Restoration

Local Sponsor: Palm Beach County

Total LWL Partnership Grants: \$1,025,500 (\$418,500/FY05; \$607,000/FY01)

Match Amount: \$1,623,959

Total Project Cost: \$2,649,459

After exotic vegetation was removed from a spoil area created from dredged material, mangrove wetlands, tidal ditches and ponds, and coastal strand uplands were restored. Installation of a rock revetment and two groins protect the area and provide a layer for oysters, sponges, and algae to grow, and nooks for fish and shellfish. The project also provides public access and environmental education opportunities. Project partners included the Town of Ocean Ridge and the South Florida Water Management District.



6.11 Snook Islands Natural Area

Local Sponsor: Palm Beach County

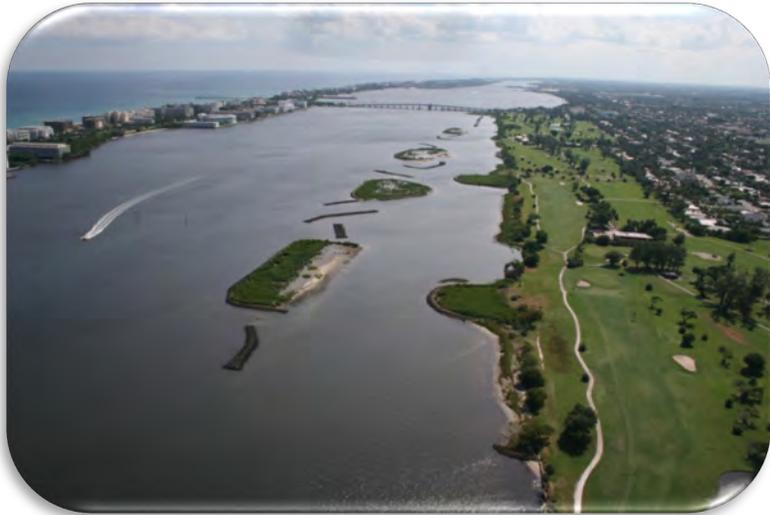
Total LWL Partnership Grants: \$1,629,064 (\$546,863/FY02; \$1,082,201/FY00)

Match Amount: \$15,870,936

Total Project Cost: \$17,500,000

Significant wetland habitats were created, partially offsetting the effects of shoreline bulkheading that has occurred over many years. The 100-acre dredge hole site was filled to wetland elevations to create a diverse wetland system. Red mangroves provide habitat for fish and wildlife and saltmarsh cordgrass stabilizes sediments and filters nutrients. Oyster reefs are growing and over 30 acres of threatened seagrass *Halophila*

johnsonii can now be found in the area. Project partners included the Florida Inland Navigation District, the U.S. Army Corps of Engineers, and the City of Lake Worth.



6.12 Ocean Ridge Stormwater Improvements

Local Sponsor: Town of Ocean Ridge

Total LWL Partnership Grants: \$893,475 (\$400,000/FY02; \$493,475/FY01)

Match Amount: \$2,005,000

Total Project Cost: \$2,898,475

A new stormwater system now captures and treats water from a 70-acre residential area. New structures and piping improved the gravity flow of stormwater, reducing contamination to the groundwater. The stormwater is captured and pumped to the treatment area where a reduction in suspended solids, biological oxygen demand, and nutrients occurs. Pollution control devices are used to trap pollutants prior to discharge.



6.13 Boynton Beach Stormwater Improvements

Local Sponsor: City of Boynton Beach
Total LWL Partnership Grants: \$500,000 (FY02)
Match Amount: \$900,000
Total Project Cost: \$1,400,000

A new system now captures and conveys stormwater from a 34-acre residential neighborhood to four stormwater retention ponds for treatment. A mangrove wetland area was incorporated into the stormwater management system design. Upgraded interconnecting piping was installed, as required by the South Florida Water Management District, to enhance tidal flushing of the mangrove area.



6.14 West Palm Beach Renaissance Project

Local Sponsor: City of West Palm Beach
Total LWL Partnership Grants: \$950,000 (\$250,000/FY01; \$400,000/FY00; \$200,000/FY99; \$100,000/FY98)
Match Amount: \$3,918,668
Total Project Cost: \$4,868,668

The Renaissance Project is an integrated water resource management plan for diverting runoff from a 375-acre urban watershed and conveying the water through a settling basin and wetlands eventually to become part of the City of West Palm Beach's potable water supply. Phase 1 of the project included facilities necessary to pre-treat the first 0.5 inch of runoff through dry retention. Phase 2 included facilities to collect and treat all runoff from the watershed and store it within the southern lobe of Clear Lake.



6.15 Palm Beach County School District Artificial Reef

Local Sponsor: Palm Beach County School District

Total LWL Partnership Grants: \$113,000 (\$62,000/FY00; \$51,000/FY98)

Match Amount: \$113,000

Total Project Cost: \$226,000

Artificial reef structures were designed, deployed, and monitored within Ocean Avenue Reef at Lantana Bicentennial Park, along the Peanut Island Fishing Pier, and within the Rybovich Reef. Marine and estuarine organisms use these artificial structures for shelter, feeding and spawning. Water-purifying organisms like oysters attach to these structures, leading to improved water quality.



6.16 Peanut Island Environmental Restoration

Local Sponsor: Palm Beach County

Total LWL Partnership Grants: \$494,274 (\$244,274/FY00; \$250,000/FY98)

Match Amount: \$12,143,102

Total Project Cost: \$12,637,376

Over 60 acres of exotic vegetation were removed from the island, and dune, coastal strand, and maritime hammock habitats were restored. A snorkeling reef system and shallow water lagoon habitat were constructed along with tidal channels to flush existing mangroves. Breakwaters and jetties were built to protect the island and provide reef habitat. The perimeter of the island is a County park providing public amenities such as a



boardwalk, boat docks, snorkeling, and camping. The restored island is a popular site for environmental education and ecotourism while retaining its function as a dredged material management area. Project partners included the Florida Inland Navigation District, the U.S. Army Corps of Engineers, the Port of Palm Beach, the U.S. Department of Agriculture, and the Florida Fish and Wildlife Conservation Commission.

6.17 Palm Beach D-12 Stormwater Pump Station

Local Sponsor: Town of Palm Beach
Total LWL Partnership Grants: \$200,000 (FY00)
Match Amount: \$4,385,000
Total Project Cost: \$4,585,000

The Town of Palm Beach constructed 41 inlets and manholes along with 12,300 linear feet of pipe to convey runoff to a pump station. The station incorporates a wet well and an erosion prevention system to keep storm sewer debris such as oils, trash, and sediments, from discharging to the Lagoon.



6.18 Lantana Cove Mangrove Planter

Local Sponsor: Town of Lantana
Total LWL Partnership Grants: \$12,000 (FY00)
Match Amount: \$12,000
Total Project Cost: \$24,000

A mangrove planter prototype was constructed along the seawall in Lantana Bicentennial Park. Base rock was removed from the site, the area smoothed out, and the bottom covered with filter cloth. Eight mangrove planters were placed along the existing seawall, enhancing the marine habitats of the Lagoon's Lantana Cove. Project partners included Palm Beach County School District/Spanish River Community High School and the West Palm Beach Fishing Club.



6.19 Boynton Beach Regional Stormwater Facility and Outfalls

Local Sponsor: City of Boynton Beach

Total LWL Partnership Grants: \$875,000 (\$325,000/FY00; \$250,000/FY99; \$300,000/FY98)

Match Amount: \$2,100,000

Total Project Cost: \$2,975,000

A new system now collects and treats stormwater from a 49-acre area in the central business district. Stormwater is directed to a 3-acre detention pond that includes influent structures with skimmers and sediment removal. Pollution removal devices were also installed in existing outfall lines at 31 locations. As a result, fewer amounts of oil, grease, floating debris, suspended solids, and nutrients enter the Lagoon.



6.20 John's Island Restoration

Local Sponsor: Palm Beach County

Total LWL Partnership Grants: \$202,475 (FY99)

Match Amount: \$607,425

Total Project Cost: \$809,900

All exotic plant species were removed from the 7-acre island. A tidal channel was excavated, spoil material removed, and the island was re-graded to wetland elevations. Approximately 13,800 red mangrove seedlings, 11,400 plugs of saltmarsh cordgrass, and 500 maritime hammock trees and shrubs were planted. Fish and wildlife benefit from this extensive habitat restoration. Project partners included the U.S. Army Corps of Engineers and the Town of Palm Beach.



6.21 Palm Beach Par 3 Mangrove Planter

Local Sponsor: Town of Palm Beach
Total LWL Partnership Grants: \$200,000 (FY99)
Match Amount: \$239,560
Total Project Cost: \$439,560

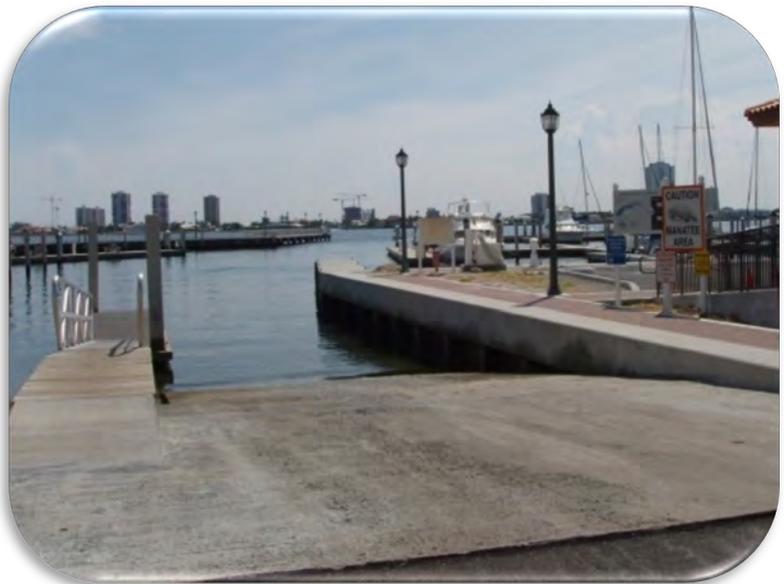
A rock berm 2,000 feet long and 8 feet away from the seawall was constructed. The rock was lined with filter fabric and red mangroves were planted between the seawall and rock berm. The project restored valuable mangrove habitat. Project partners included Palm Beach County.



6.22 Lake Park Stormwater Management System

Local Sponsor: Town of Lake Park
Total LWL Partnership Grants: \$153,000 (\$73,000/FY99; \$80,000/FY98)
Match Amount: \$153,000
Total Project Cost: \$306,000

A stormwater management system now treats runoff from the Town's marina and surrounding commercial lands. Stormwater is captured and treated in one large area in the center along with several smaller areas throughout the marina. As a result, the total amount of stormwater discharged to the Lagoon is reduced and stormwater discharged is cleaner.



6.23 Lake Park Marina Pump-out Facility

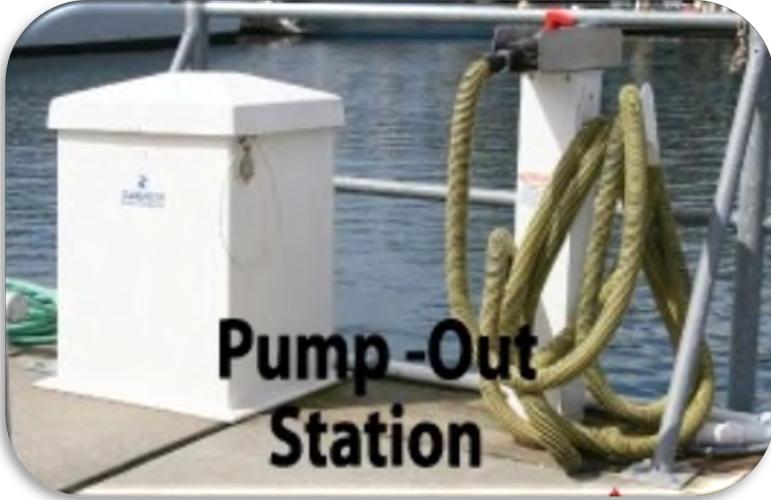
Local Sponsor: Town of Lake Park

Total LWL Partnership Grants: \$42,500 (FY98)

Match Amount: \$82,500

Total Project Cost: \$125,000

Sewage pump-out services are now available for vessels using the marina's wet slips (more than 70) and transient dock. Pumps were installed and pump-out lines connected to the existing municipal sanitary sewer system. Boaters protect water quality when they "pump it" instead of dumping sewage holding tanks overboard.



6.24 Port of Palm Beach Master Drainage Plan Improvements

Local Sponsor: Port of Palm Beach

Total LWL Partnership Grants: \$147,408 (FY98)

Match Amount: \$147,408

Total Project Cost: \$294,816

As part of the Port's Master Stormwater Plan Improvements, a trench grate system was constructed to capture stormwater that previously discharged directly to the Lagoon with no treatment. Once captured, the stormwater is routed through a system of exfiltration trenches, oil/water separators, and weirs which provides treatment of the water to reduce suspended solids prior to discharge. The system increases the stormwater retention volume and the remaining water that is discharged to the Lagoon is cleaner.



7.0 Lake Worth Lagoon Monitoring Efforts

The main objective of monitoring is to determine if habitat restoration and stormwater improvement projects are improving the health of the Lagoon. Projects have monitored physical conditions such as sediments and biological measurements like the abundance of seagrass, mangroves, fishes, benthic organisms and sea turtle use of the Lagoon.

Monitoring projects include:

- Sediment Sourcing
- Sediment Management
- Substrate Characterization
- Shoreline Change
- Inshore Sea Turtle Survey
- Water Quality Monitoring
- Seagrass Mapping and Transect Monitoring
- Mangrove Mapping
- Oyster Monitoring
- Fishery Survey



8.0 Other Significant Efforts

In addition to Lake Worth Lagoon Partnership Grant funded projects, significant projects funded through state and local partnerships have improved the health of the Lagoon.

8.1 Palm Beach County Artificial Reef Program

There are six artificial reefs within the Lagoon: Sugar Sands Reef, Peanut Island Fishing Pier, Rybovich Reef, Lantana Artificial Reef, Boynton Inlet Reef, and Kelsey Park Reef. These man-made habitats built from various materials (rock, old ships, concrete, prefabricated modules) are placed in areas away from natural reefs, creating new marine life communities. Funding for the Artificial Reef Program comes from the County's Vessel Registration Trust Fund. These fees, used strictly to build environmental enhancement projects, are supplemented by grants from federal, state, and local governments and organizations.



8.2 Munyon Island Restoration and Enhancement

Local Sponsor: Palm Beach County
Total Project Cost: \$2,500,000

Invasive exotic plants were removed and mangrove and saltmarsh cordgrass wetlands (20 acres) and maritime hammock uplands (23 acres) were restored. Dredged material on the island was removed and placed in a nearby anoxic dredge hole to enhance nine acres of submerged land. The island was graded down to wetland elevations, and tidal channels and ponds were constructed. Significant habitat for fish and wildlife was created and submerged land was enhanced for benthic and

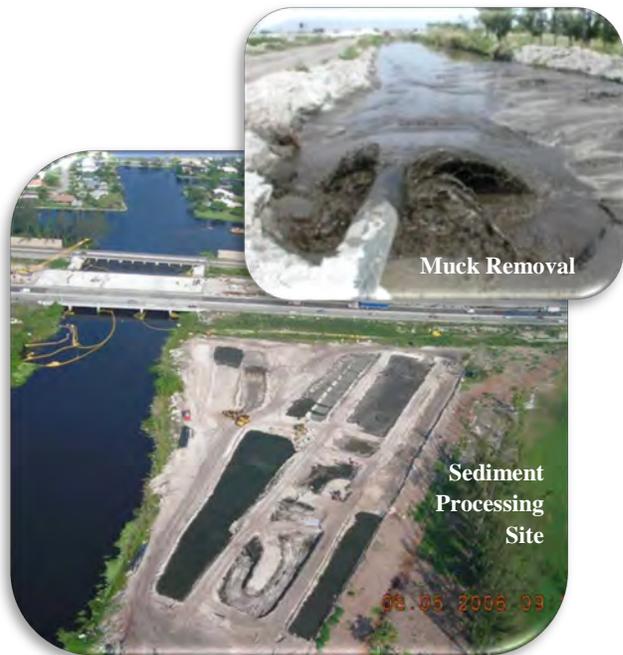
seagrass habitat. Project partners included the Florida Inland Navigation District, the U.S. Army Corps of Engineers, the Florida Department of Agriculture and Consumer Services, the West Palm Beach Fishing Club, and the State of Florida.



8.3 West Palm Beach Canal (C-51) Sediment Removal Project

Local Sponsor: Palm Beach County
Total Project Cost: \$3,000,000

Over 100,000 cubic yards of muck deposits up to 20 feet thick in the West Palm Beach (C-51) Canal were removed and a sediment trap created. Nutrient loading to the Lagoon decreased, with an estimated 480 tons of nitrogen and 52 tons of phosphorus removed from the system. Several alternatives for the beneficial reuse of the muck created additional partnerships for public use projects such as Florida Department of Transportation right-of-way areas and Palm Beach County Parks. Project partners included the South Florida Water Management District and the City of West Palm Beach.



**For more information on the efforts of the Lake Worth Lagoon Initiative,
please visit LWLI.org
or contact us at Lake Worth Lagoon Initiative
c/o Rob Robbins, Department Director
Palm Beach County Department of Environmental Resources Management
2300 North Jog Road, West Palm Beach, FL 33411-2743; (561) 233-2400.**

THE INDIAN RIVER LAGOON OBSERVATORY

Phase I: Monitoring and Predictive
Modeling for the St. Lucie Estuary



History and Broad Scope

42 years of study across many focus areas:

- Seagrass Biology
- Water Quality
- Nutrient Pollution
- Marine Mammal Health
- Microbiology
- Harmful Algal Blooms
- Coral Reefs





Indian River Lagoon Observatory

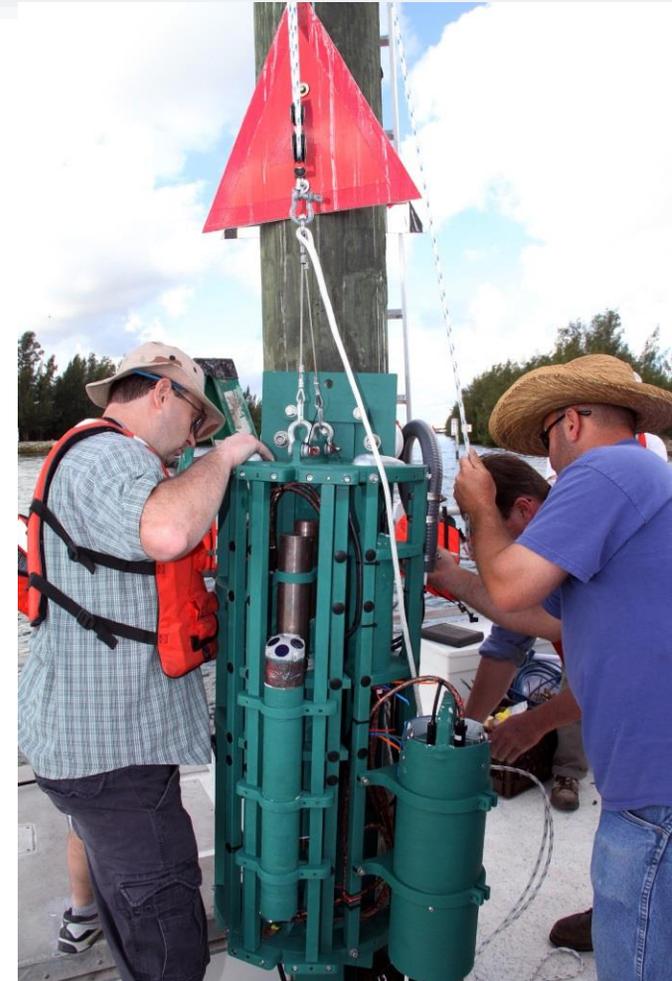
Key Elements

- All Harbor Branch IRL-related research programs, ecosystem-based approach
- Network of advanced observing stations
- Collaboration among organizations
- Dissemination of data and knowledge



Building a Network

- Taking monitoring efforts to next level
- Land/Ocean Biogeochemical Observatories (LOBOs)
 - HBOI has purchased 2 LOBOs
 - Florida Legislature approved 2013 request for 12 LOBOs, vetoed by the Governor
 - Pending proposal through South Florida Water Management District/St. Lucie River Issues Team for 2 additional LOBOs deployed in the St. Lucie Estuary
 - Focused request



2014 Request

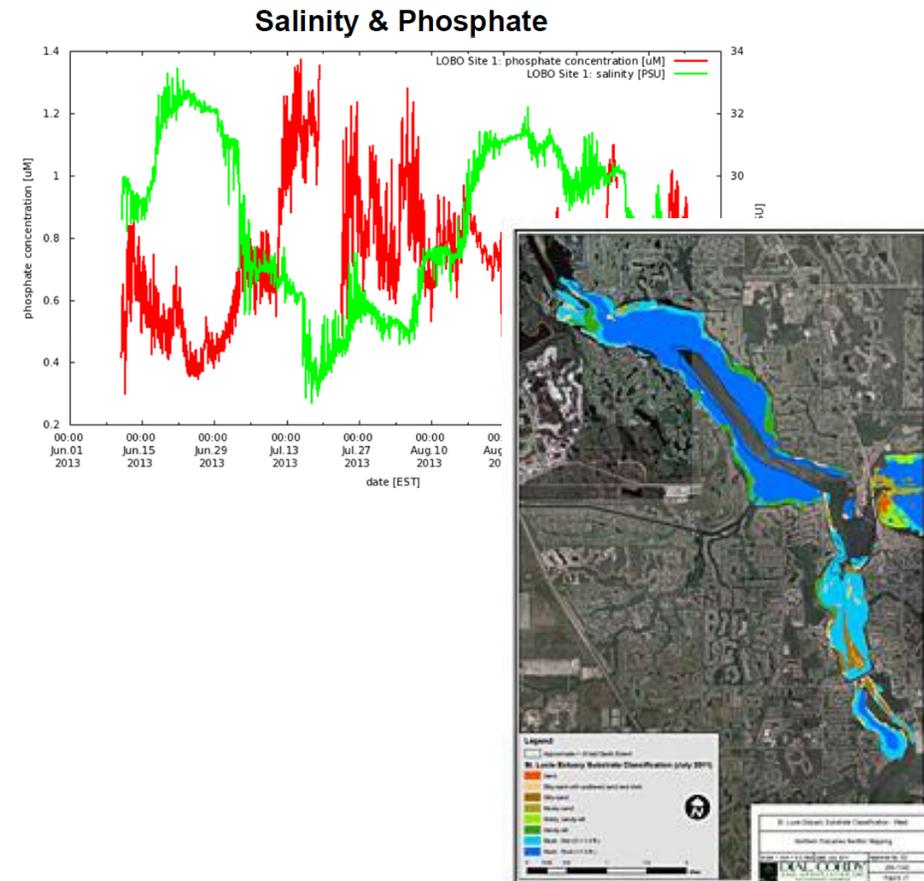
Funding to lead the development of a monitoring network and predictive model, in coordination with agencies, organizations and other stakeholders, to facilitate ecosystem and economic recovery:

- St. Lucie Estuary-specific, using:
 - Reliable science/data from existing HBOI research programs and other organizations/agencies
 - LOBO: Real-time water quality measurements
 - GIS technology to translate data in an easy to use format
 - FAU's significant expertise in GIS and Urban Planning

Monitoring and Modeling

Provides a necessary tool for managers and policy makers to:

- Build consensus on solutions
- Understand the science to make informed decisions
- Verify effectiveness of policy and management changes
- **Follow the recovery of the estuary**



Partnering is Essential

- **Current:** FAU, HBOI Foundation, South Florida Water Management District (SLRIT)
- **Potential:** Water management, environmental agencies and research organizations have valuable data that can be utilized for this project

Fostering Collaboration

- Annual Indian River Lagoon Symposium
- Our Global Estuary workshop
- Local IRL Workshop, Spring 2014, Observation and Prediction Networks



Saving the Indian River Lagoon



Dr. Edie Widder, Co-Founder, CEO & Senior Scientist
Ocean Research & Conservation Association

www.teamorca.org



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Martin County



St. Lucie County

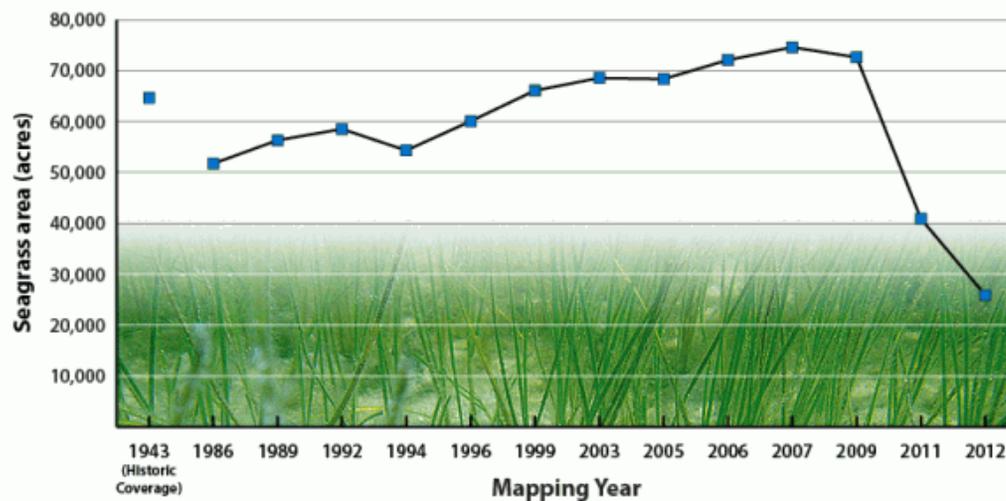


Brevard and Indian River Counties



Indian River Lagoon Seagrass Coverage

(within SJRWMD to Fort Pierce Inlet)



- Aerial photographs of lagoon seagrass are taken every two years and new seagrass maps are produced from this photography. Scientists monitor seagrass transects and collect water quality samples monthly.
- Scientists recorded a 60 percent loss of seagrass in the lagoon between 2009 and 2012.



STEP 1:
Identify and quantify
sources of pollution

SOURCES OF NITROGEN POLLUTION IN THE CHESAPEAKE BAY



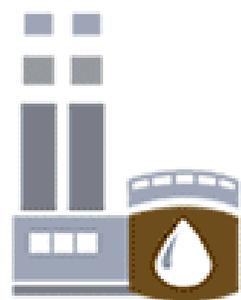
**AGRICULTURAL
RUNOFF**

41%



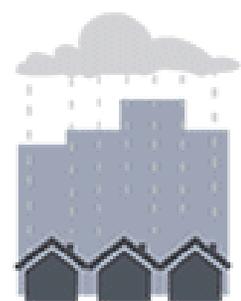
AIR POLLUTION

25%



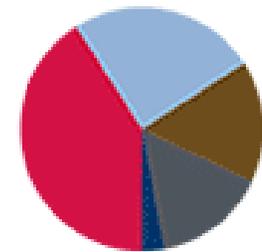
**WASTEWATER
TREATMENT &
FACTORIES**

16%



**URBAN &
SUBURBAN
STORMWATER
RUNOFF**

15%



**THE BIG
PICTURE**



SEPTIC

3%

Animal waste and fertilizers wash off agricultural land or contaminate groundwater, polluting rivers and streams and the Bay.

Air pollution from power plants and motor vehicles falls back to the ground and is washed into our waterways by rain.

Discharges from wastewater treatment plants and factories are released directly into our rivers and the Bay.

Stormwater running off parking lots, roofs, and other hard surfaces carries pollution like fertilizer and pet waste into our waterways.

The drain fields of septic systems deliver pollution to our rivers and the Bay through contaminated groundwater.

STEP 2:

Prioritize spending on pollution reduction based on cost benefit analysis.



The 80 20 rule

Roughly 80% of the effects come from 20% of the causes



Ocean Research & Conservation Association

Dedicated to protecting aquatic ecosystems and the species they sustain through the development of innovative technologies and science-based conservation action.

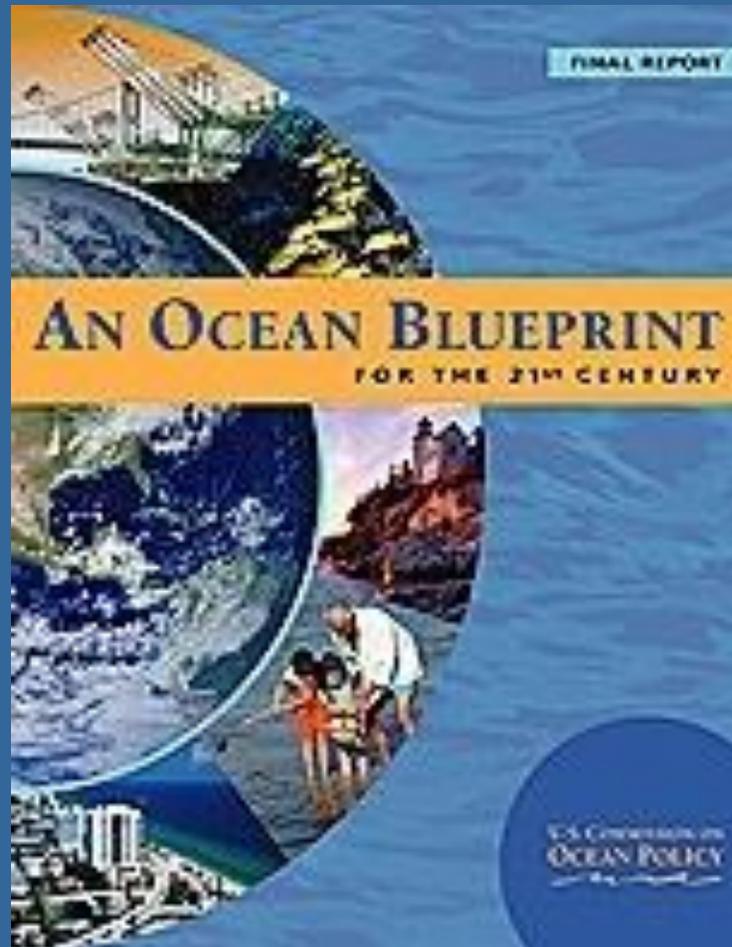


IRS 501(c)(3) Nonprofit Corporation

ORCA

UNITED STATES COMMISSION ON

OCEAN POLICY

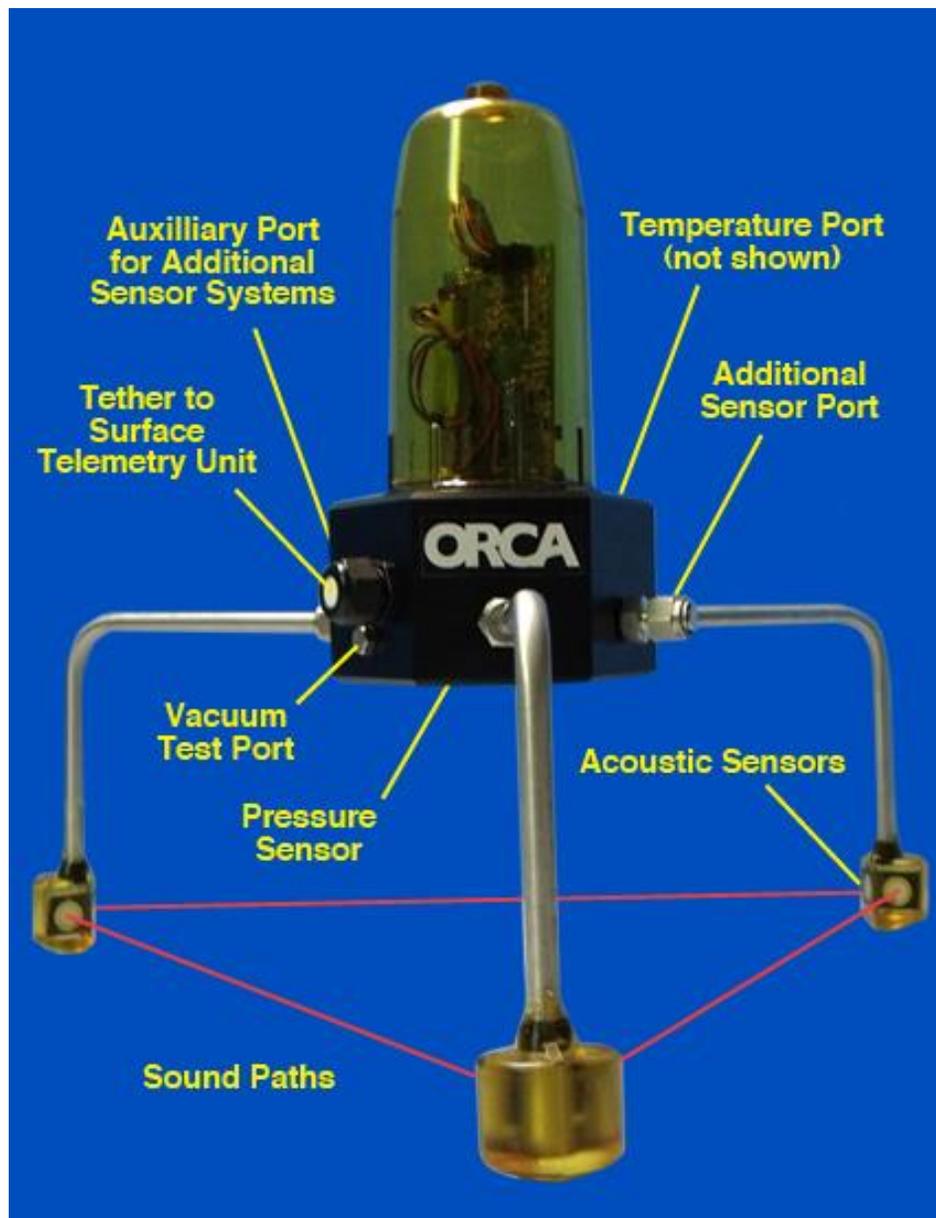






ORCA

18"





Kilroy ecosystem monitoring

- Real time
- Wireless
- Low cost
- Easy to install

Kilroy
Sensor
Suite



10 W
Solar
Panel

Kilroy's Voice
(Telemetry Unit)

Kilroy's Hatrack

Kilroy Measurements

Temperature
Water level
Wave height
Wave period
Flow magnitude
Flow direction
GPS (position, UTC)

Turbidity
Speed of sound
Bioluminescence

Kilroy ecosystem monitoring

- Real time
- Wireless
- Low cost
- Easy to install

ORCA Kilroy Integration with 3rd Party Sensors

Weather
Stations

Salinity
sensors
pH
sensors

Nutrient
sensors

Dissolved
Oxygen Probes

Crude Oil
Probes

Hydrocarbon
Probes



PetroSense

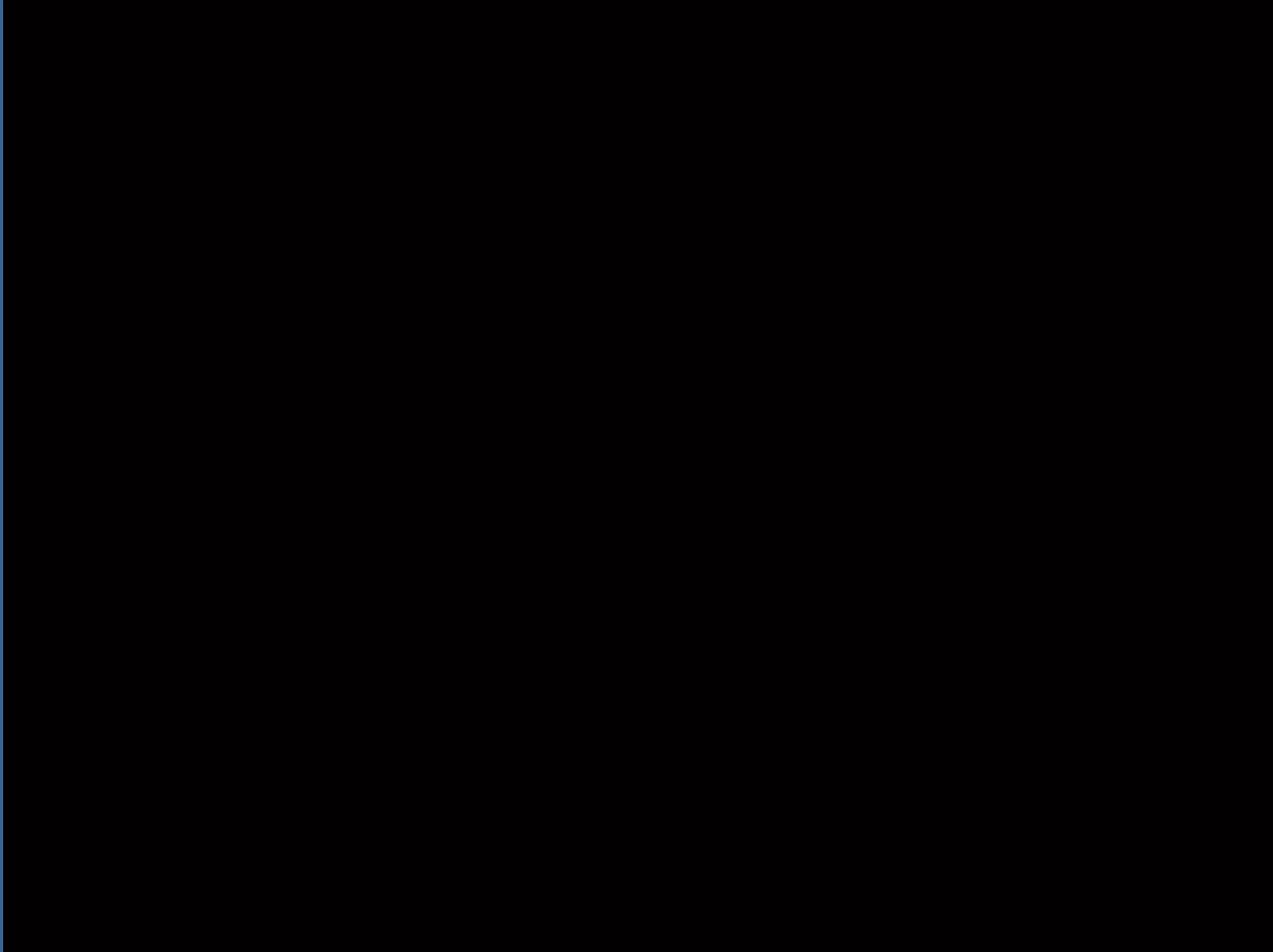


Sondes

Finding Pollution Sources



Finding Pollution Sources





OCEAN RESEARCH & CONSERVATION ASSOCIATION

 Search

CHANGING THE NATURE OF AQUATIC CONSERVATION

ABOUT ORCA

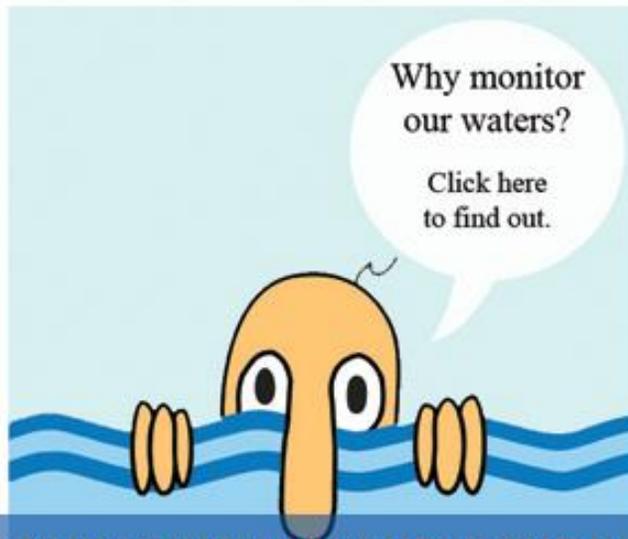
COASTAL PROGRAMS

DEEP SEA PROGRAMS

HOW YOU CAN HELP

MEDIA & EVENTS

ORCA STORE



HOW CAN REAL TIME MONITORING HELP THE INDIAN RIVER LAGOON?

ORCA IS DEDICATED TO THE PROTECTION & RESTORATION OF AQUATIC ECOSYSTEMS & THE SPECIES THEY SUSTAIN THROUGH THE DEVELOPMENT OF INNOVATIVE TECHNOLOGIES & SCIENCE BASED CONSERVATION ACTION. PLEASE HELP SUPPORT OUR MISSION.

[MAKE A DONATION](#)



Live Kilroy Data

View live, realtime Kilroy data and meteorological data from the Ft. Pierce Inlet, FL. [View Feed](#)



Ocean Research & Conservation Association

[Like](#) 2,037



[Connect With Us On Google+](#)

LATEST HEADLINES



The Campaign for a Clean Indian River Lagoon

ORCA has created a Campaign for a Clean Indian River Lagoon. The plan includes simple steps; first we will create a pollution gradient map of the entire 156 miles of the Indian River Lagoon. Then we will install 50 ORCA Kilroy™ water monitoring devices in the lagoon. With

KFL0008

ProPS

Salinity

D.O.

Kilroy

'West Inlet'

The basic Kilroy™ sensor suite measures flow speed, flow direction, water temperature, water level, GPS location and power. Additional sensors incorporated into different units include an ORCA-designed turbidity sensor (ORCA™), ORCA-designed flow-through bathyphotometer (ORCA BP™) to measure bioluminescence as well as third-party sensors including salinity, pH, dissolved oxygen, nitrate and phosphate.

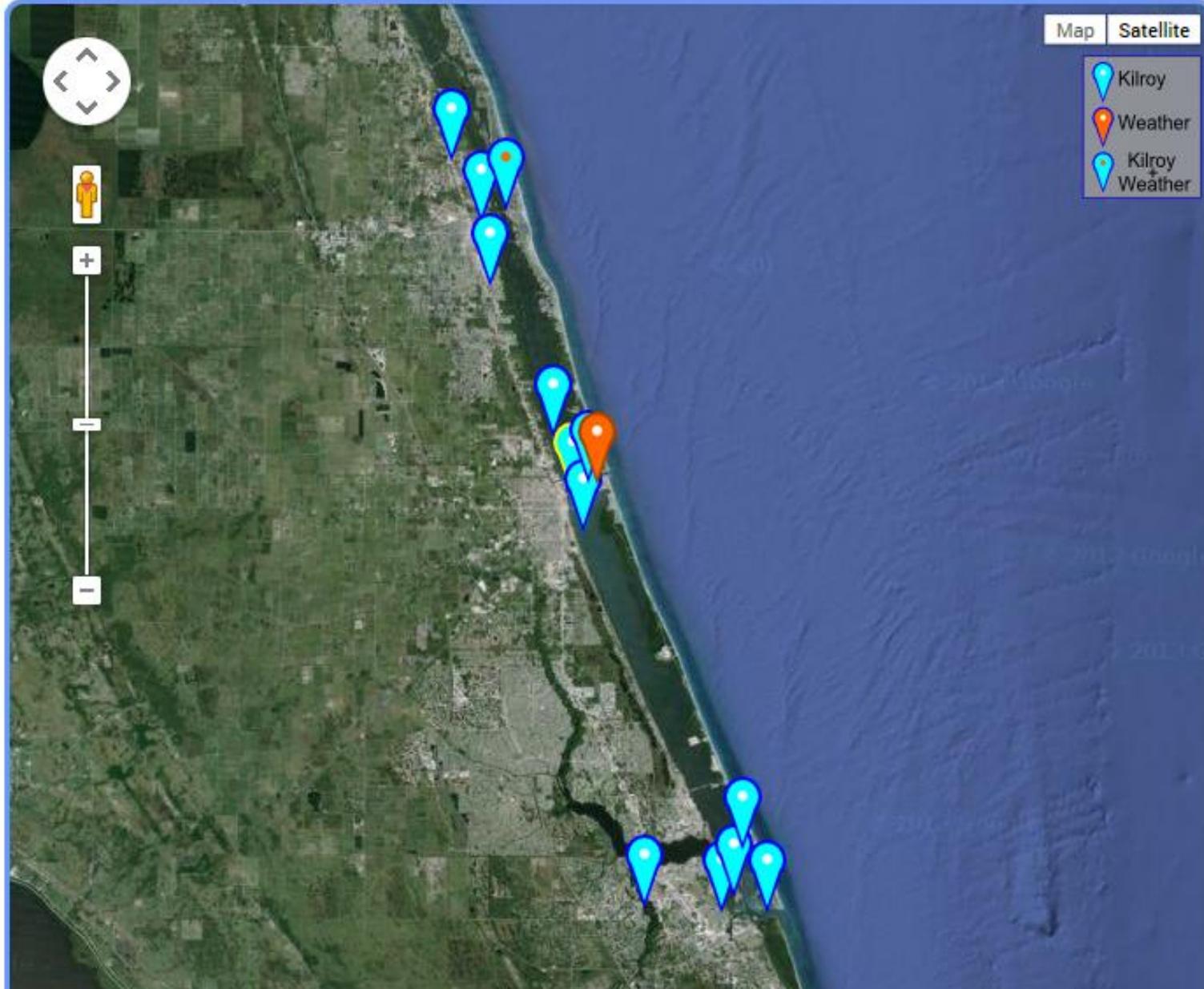
Flow Speed 0.265 m/s (0.592 mph) ⓘ
Depth 0.89 m (2.93 ft) ⓘ
Flow Direction SSE (168°) ⓘ
Water Temp. 22.7°C (72.8°F) ⓘ



Fort Pierce Inlet Project - location 'West Inlet'

Plot Historical Data

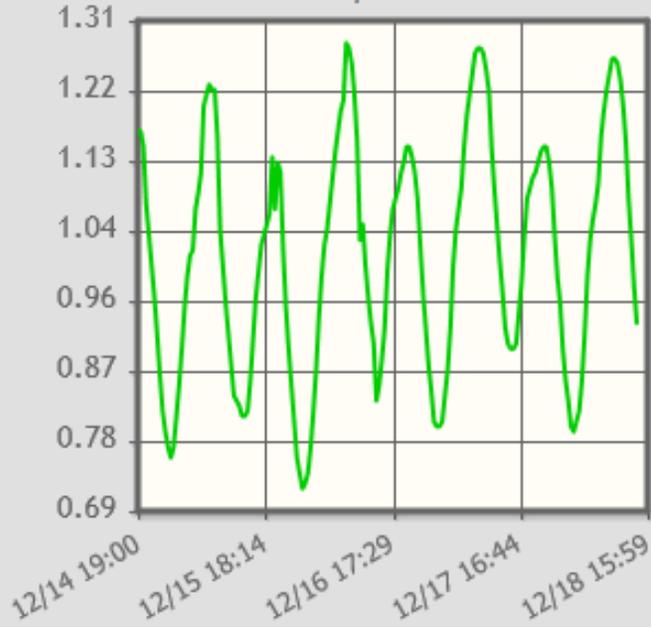
Enable Flow Animation



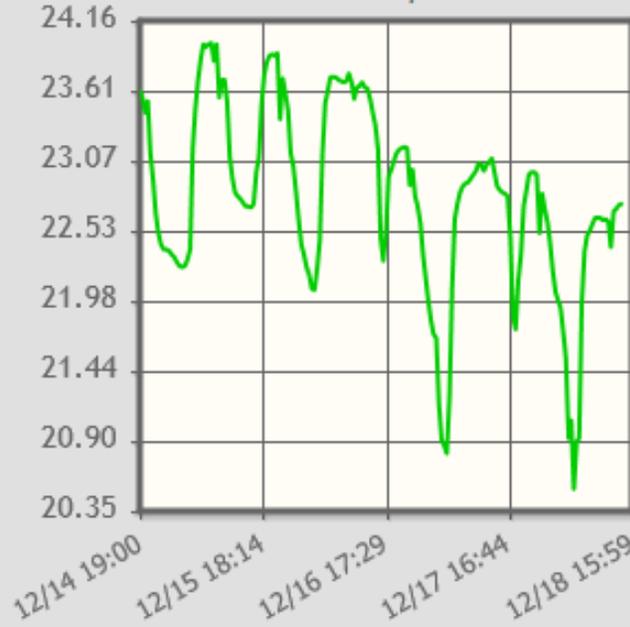
Measurements for KFL0008 - 'West Inlet'

3 Day historical data, drag box to zoom, double click to return to full zoom.

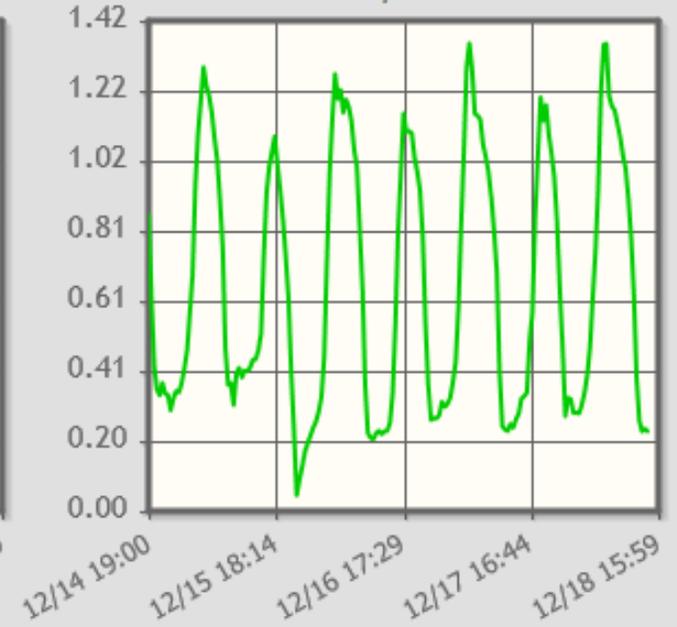
Depth



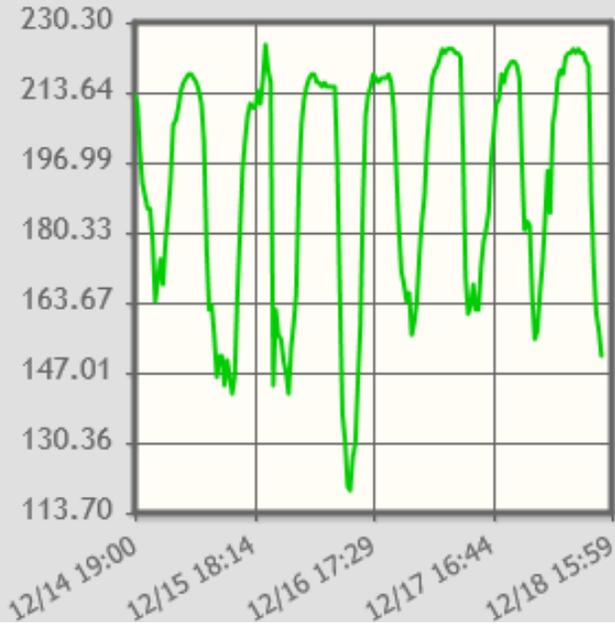
Water Temp.

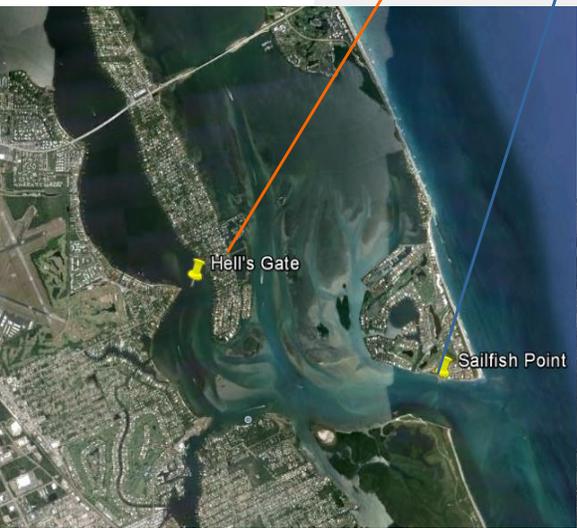
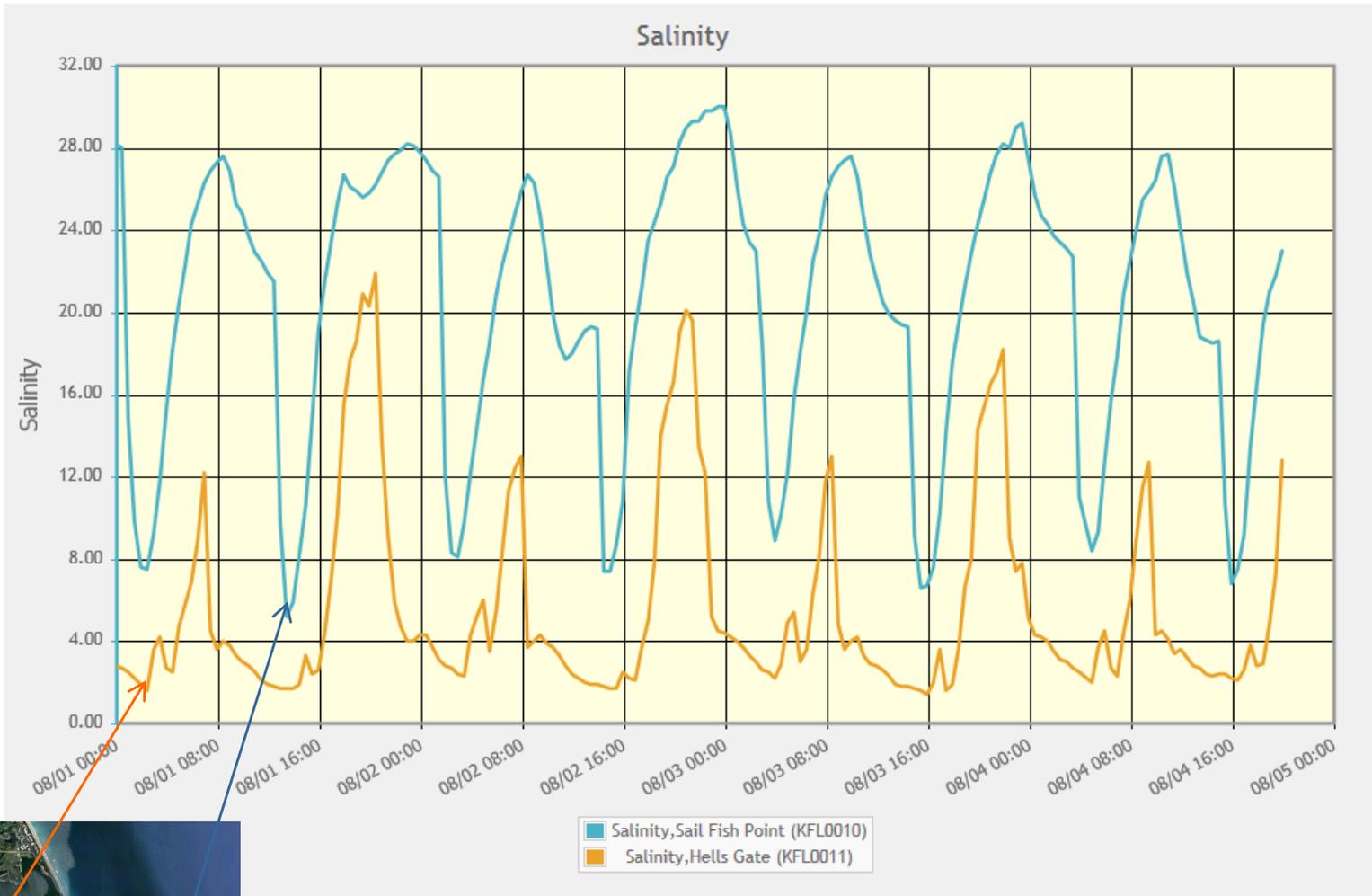


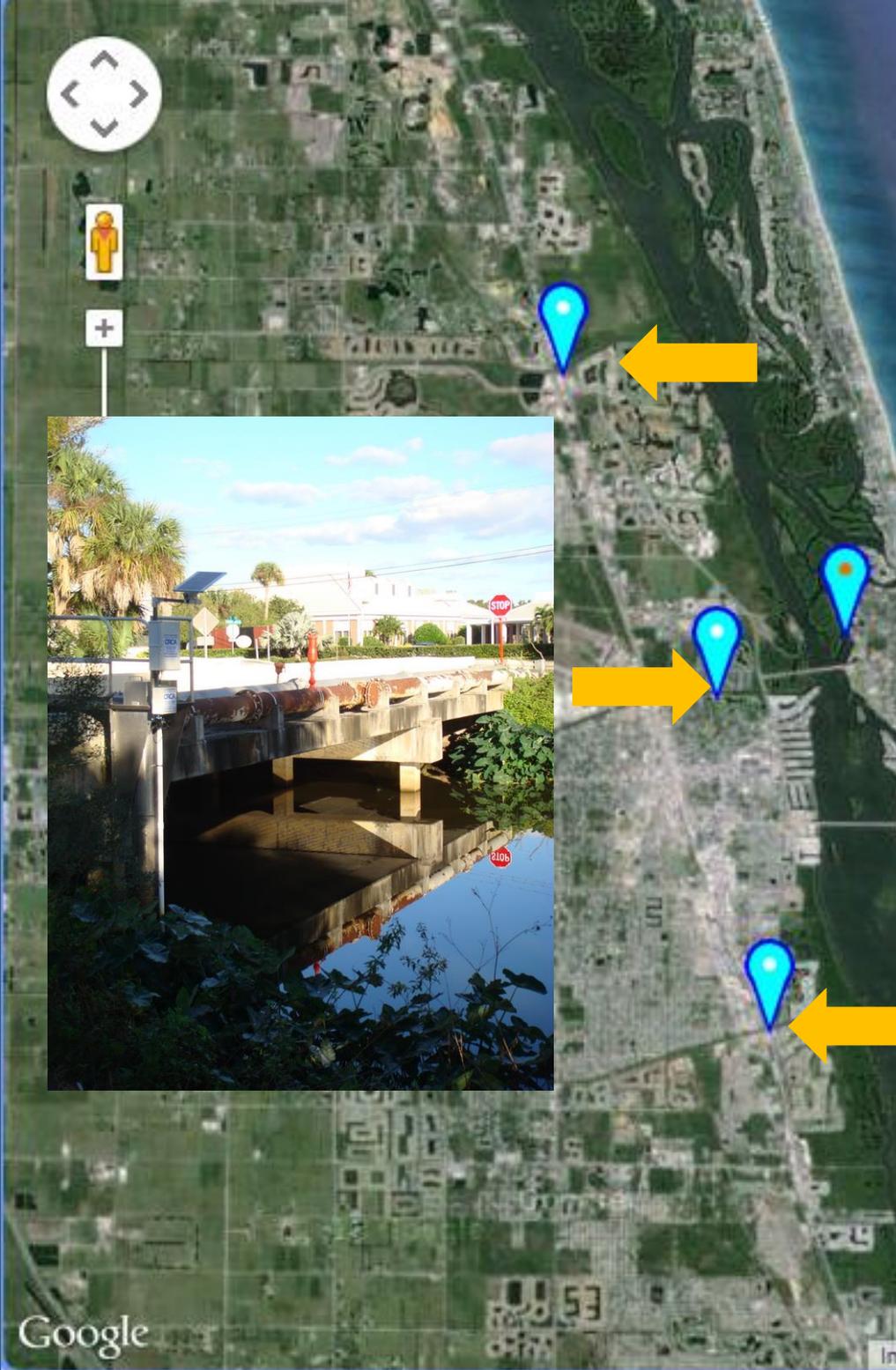
Flow Speed



Flow Direction







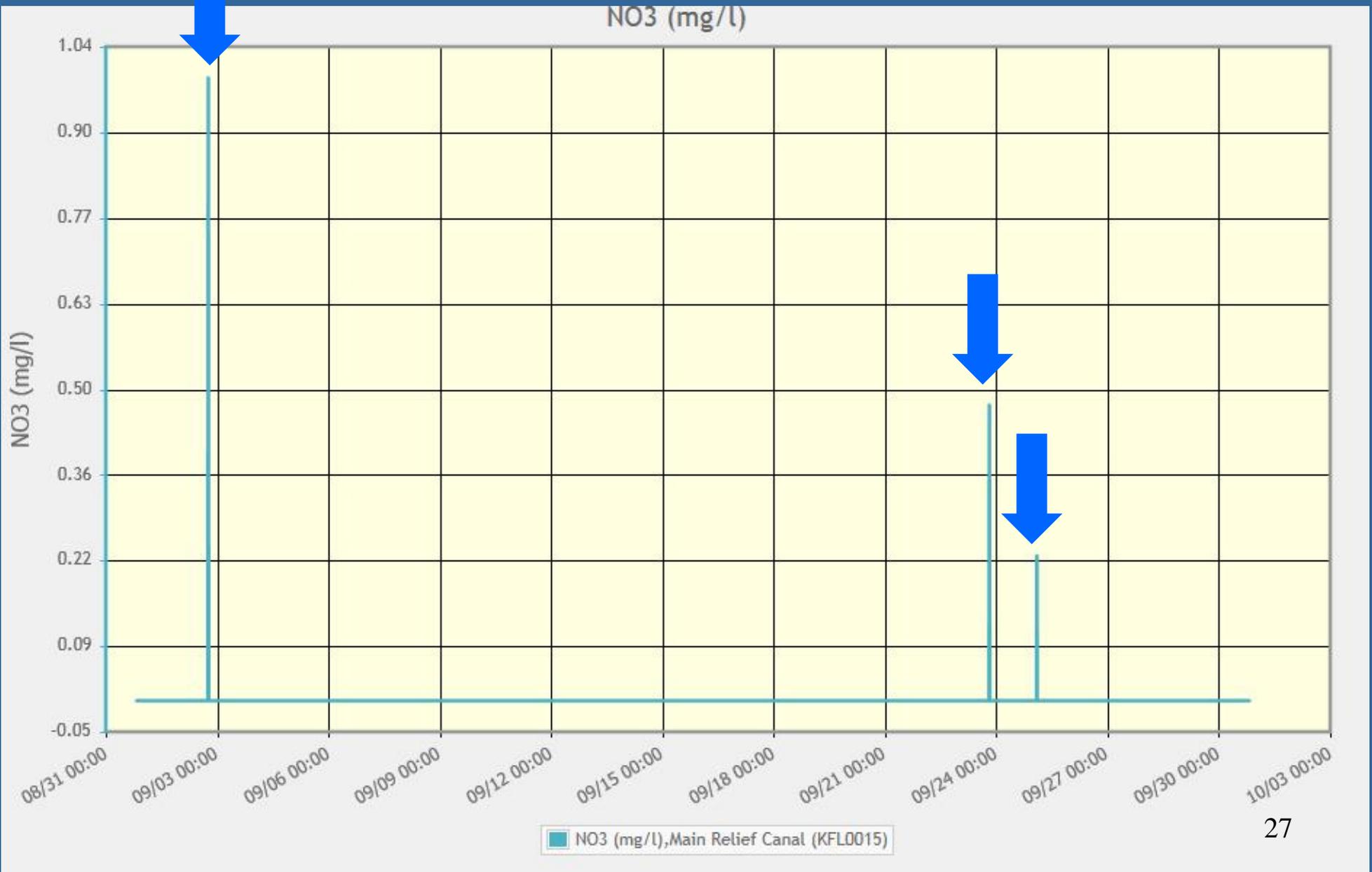
Satellite

- Kilroy
- Weather
- Kilroy Weather

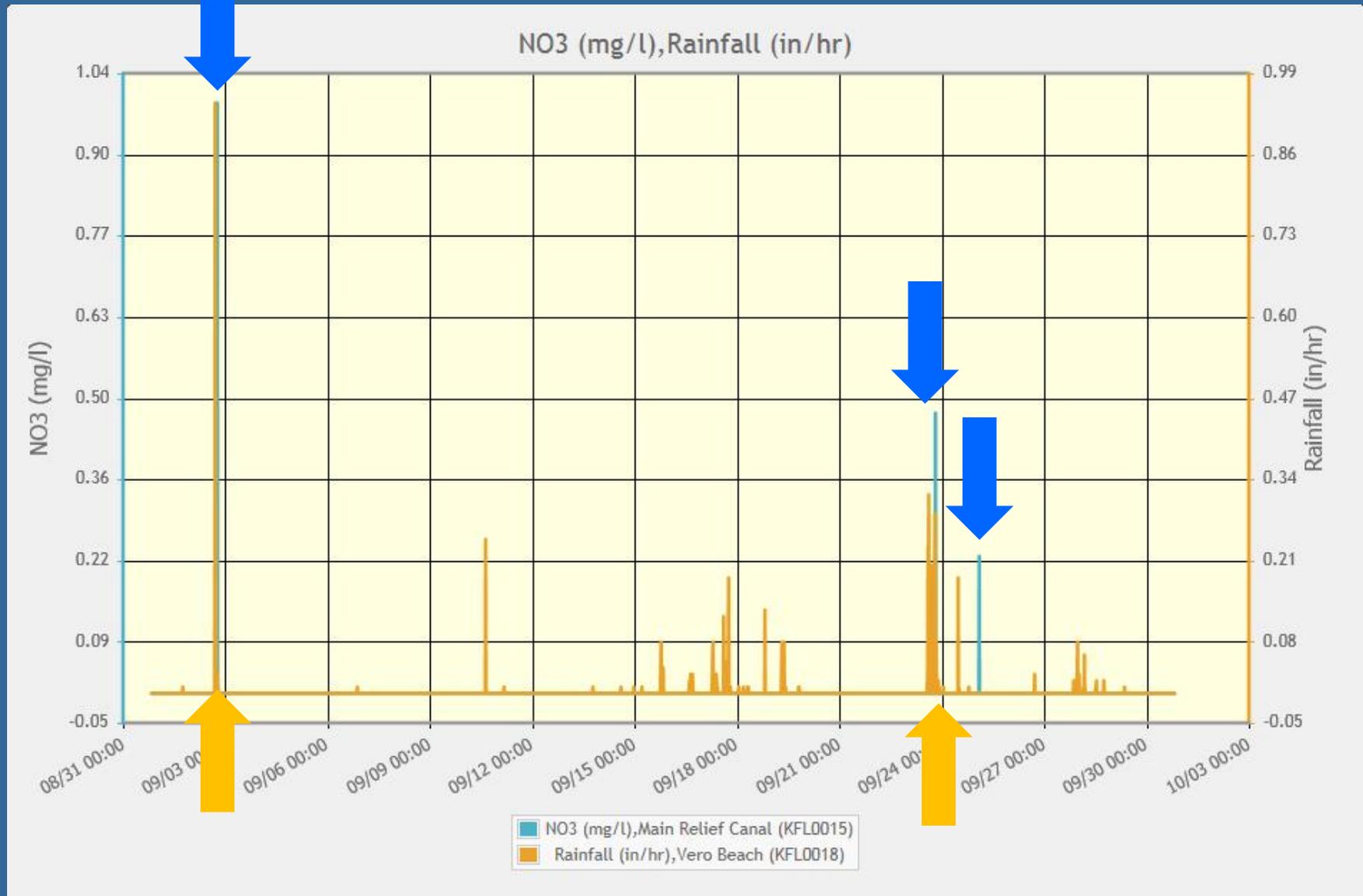
ort a map error



Main Relief Canal



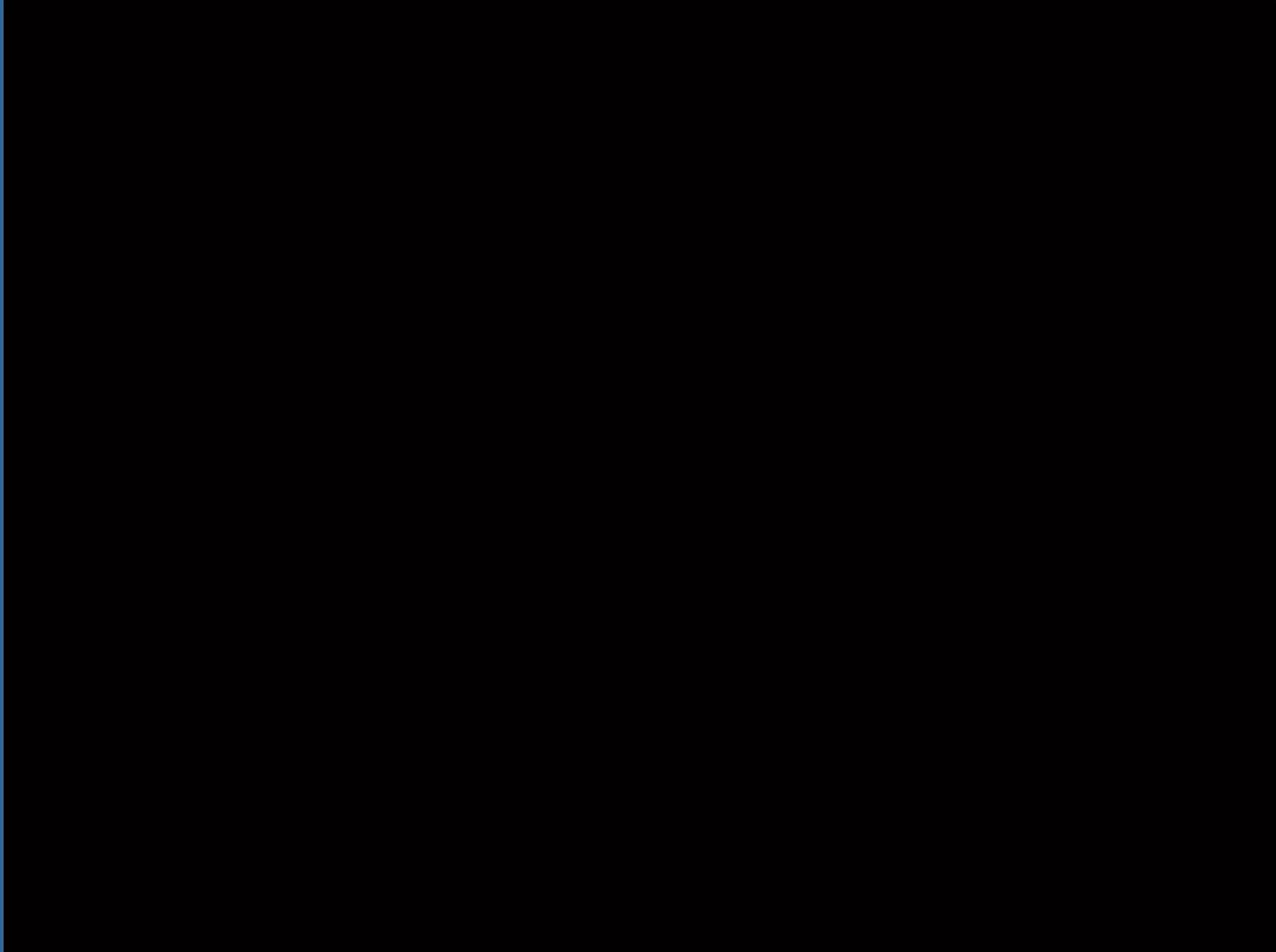
Main Relief Canal



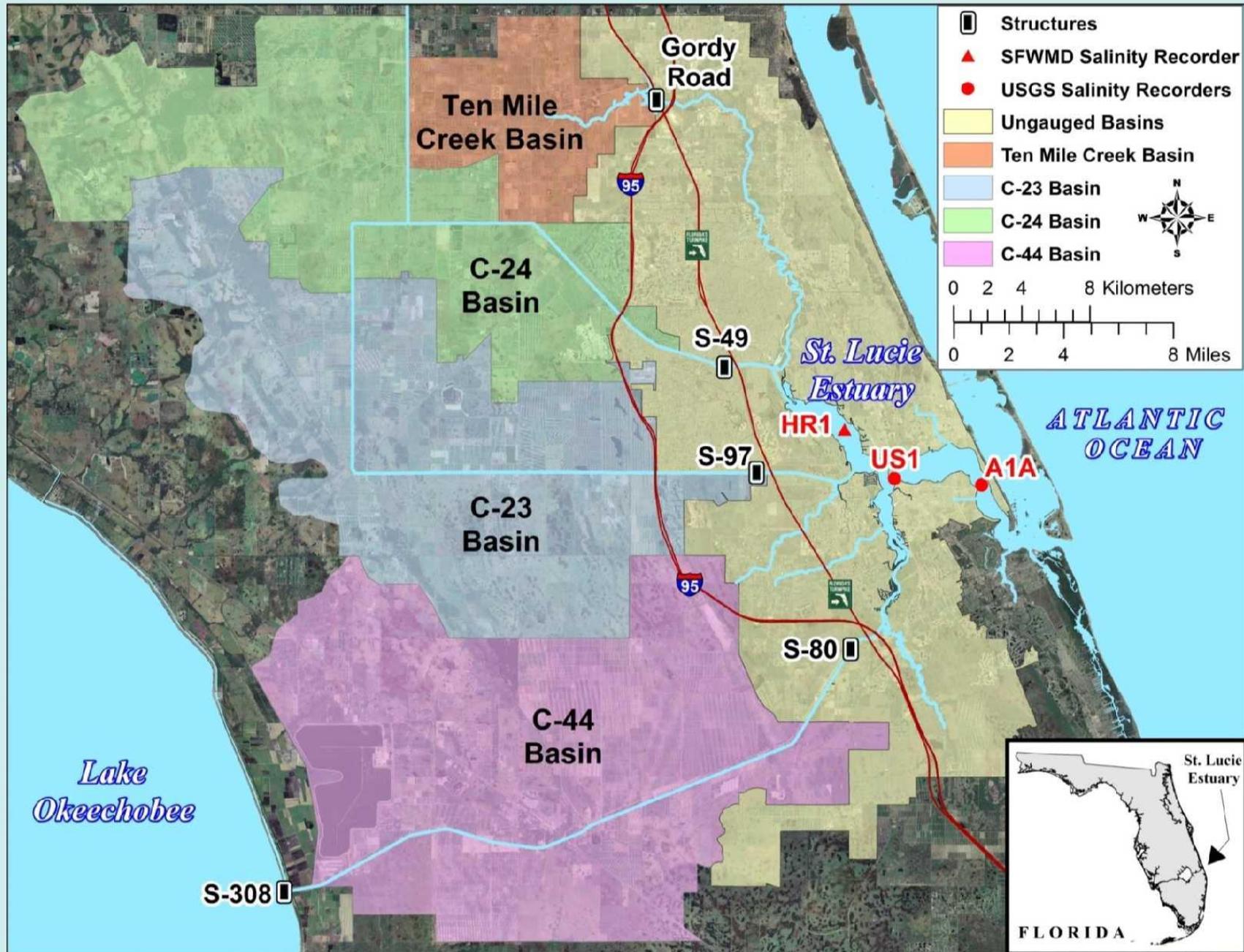
Automatic collection of a water sample triggered by detection of a turbidity event



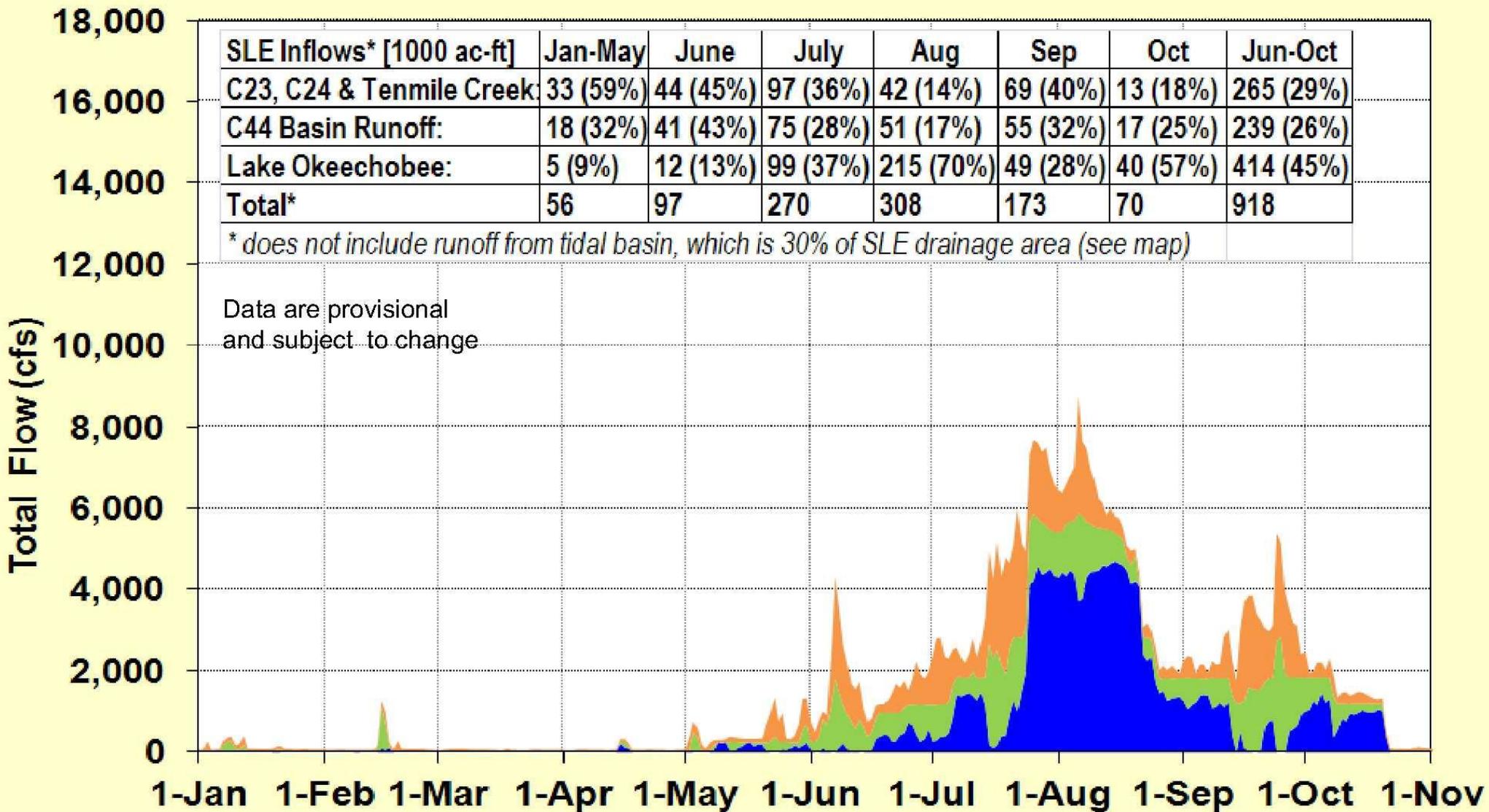
ET Phone Home



St. Lucie Estuary Drainage Basins



2013 Discharges to the St. Lucie Estuary



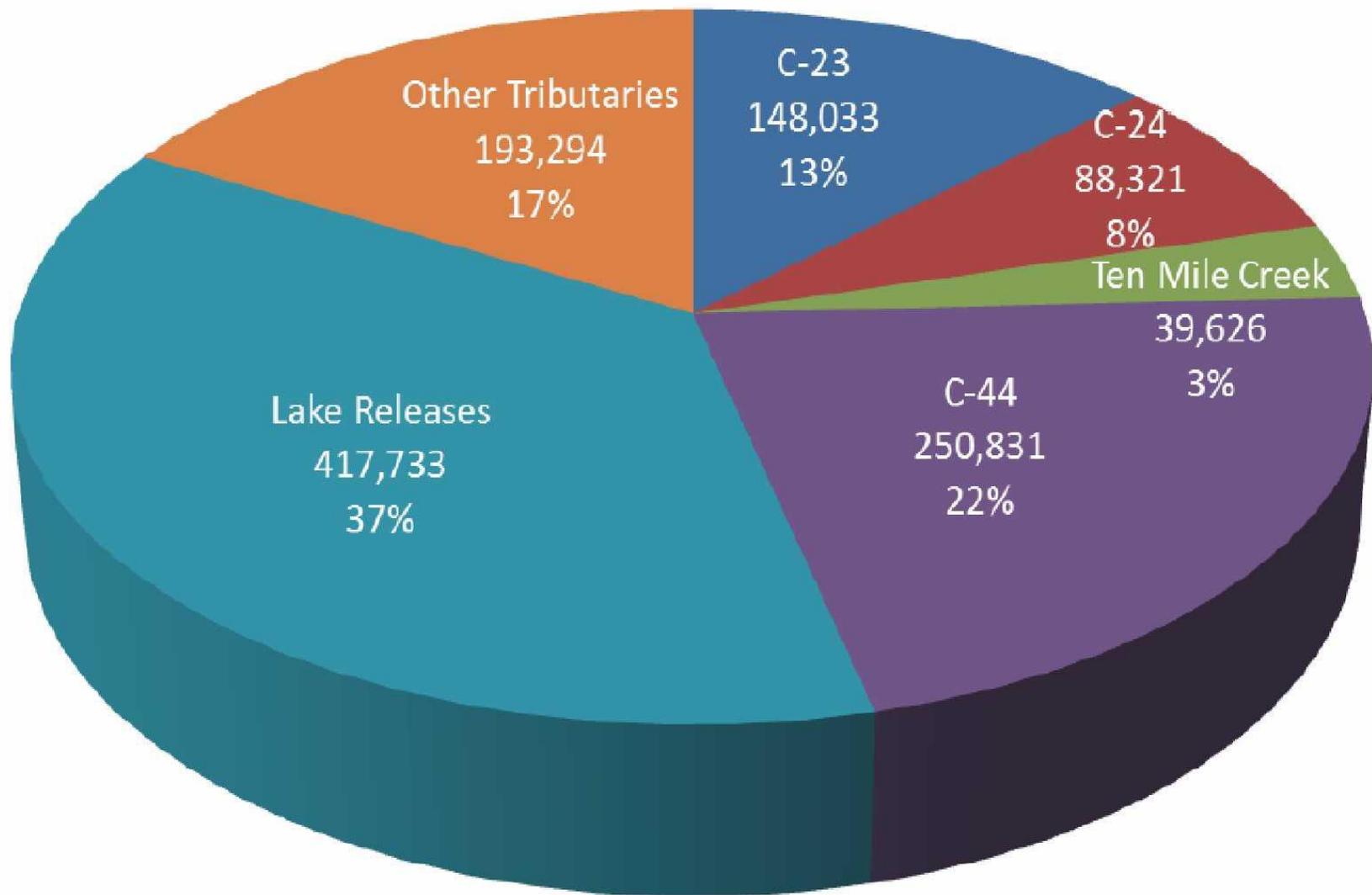
■ **Inflow from C-24, C23, and Tenmile Creek Basins***
Does not include runoff from tidal basin or groundwater

■ **C-44 Basin Runoff**

■ **Inflow from Lake**

Data through Oct 31st

Inflows to St. Lucie River & Estuary: May 8 - Oct 21, 2013



DRAFT - SUBJECT TO REVISIONS. Notes: 1. All flows in acre feet (1 acre foot = 325,872 gallons). 2. Other tributary inflows were estimated based on area proportion.

OUTCOME: SOURCE IDENTIFICATION



| Sensor | Cost |
|--|-------------|
| Kilroy monitoring station (includes flow speed, flow direction, water depth, water temperature) | \$6,000 |
| SUNA Nitrate sensor | \$22,000 |
| PO ₄ Sonde Orthophosphate sensor | \$22,000 |
| EXO2 Sonde (pH, Dissolved Oxygen, Turbidity, Total Algae, Colored Dissolved Organic Matter, Oxidation Reduction Potential, Conductivity) | \$20,000 |
| Installation per unit | \$500 |
| Piling installation per unit where required – includes permitting cost | \$500 |
| Miscellaneous (reagents for phosphate sensors, Niskin bottles, mounting hardware) | \$4,000 |
| Total Cost per installation | \$75,000 |
| Maintenance cost per unit | \$5,000 |
| Total Cost per unit | \$80,000 |



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ORCATM

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Muck Accumulation and Removal in the Indian River Lagoon System

John H. Trefry, Florida Institute of Technology



(Photo Credit: Florida Today)

**Presentation to The Florida Senate
Appropriations Subcommittee on General Government
January 15, 2014**

The New York Times

August 8, 2013

Deaths of Manatees, Dolphins and Pelicans Point to Estuary at Risk

By Michael Wines

MELBOURNE, Fla. — The first hint that something was amiss here, in the shallow lagoons and brackish streams that buffer inland Florida from the Atlantic's salt water, came last summer in the Banana River, just south of Kennedy Space Center.

Copyright © 2013, The New York Times Company

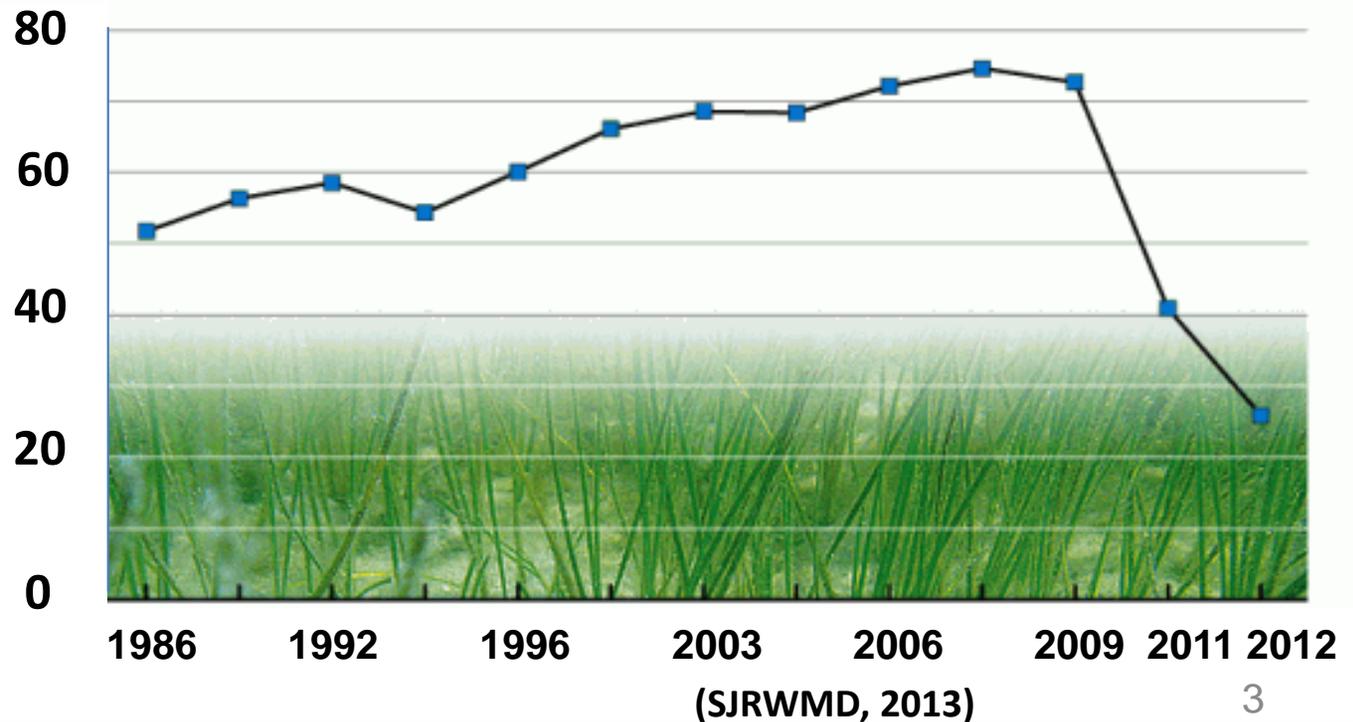


Indian River Lagoon near Haulover Canal (SJRWMD)

Since 2011, 47,000 acres of seagrass have been destroyed by sun-blocking algae blooms.

Loss of 47,000 acres of seagrass Scottsmoor to Fort Pierce Inlet

Area (thousands of acres)



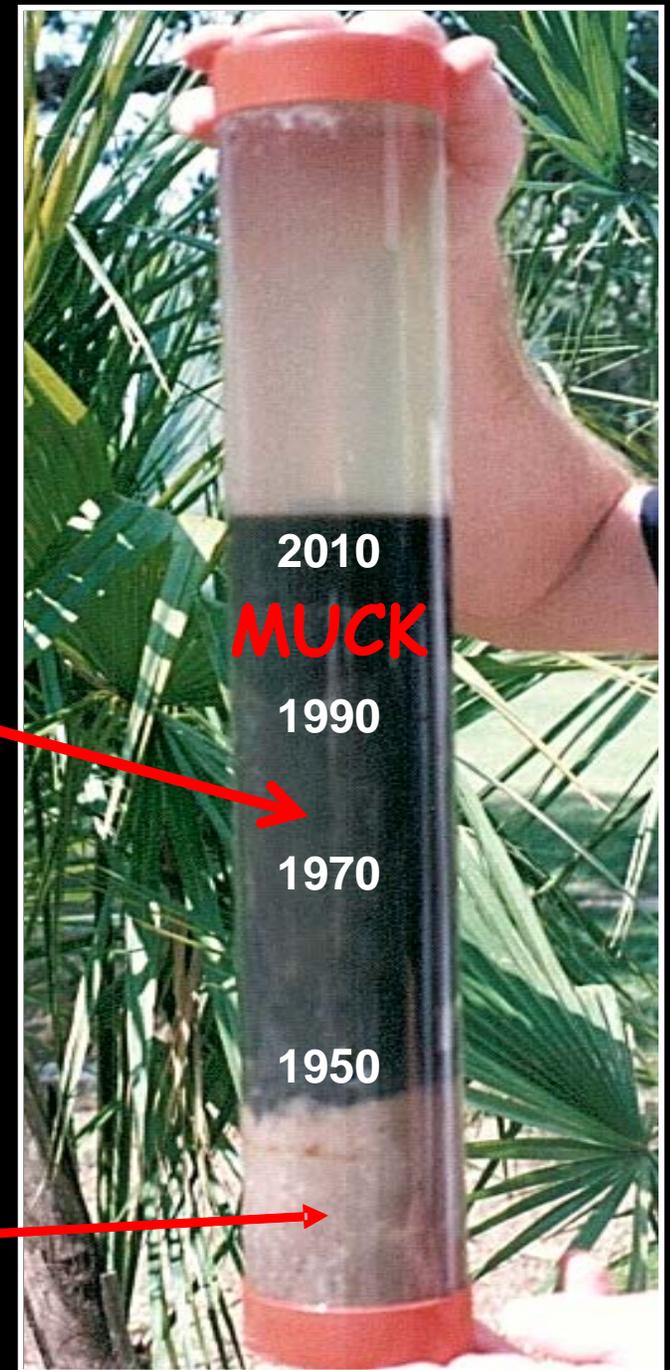
For >60 years, a variety of substances have runoff with freshwater to the lagoon:

- **Soil**
- **Grass cuttings and other vegetation**
- **Nutrients (nitrogen, phosphorus)**

For >60 years, a variety of substances have runoff with freshwater to the lagoon:

- **Soil**
- **Grass cuttings and other vegetation**
- **Nutrients (nitrogen, phosphorus)**

Natural sand and shell
(pre-1950)



Muck ...

- Increases turbidity and inhibits seagrass growth.
- Stores and releases nutrients.
- Covers natural bottom and destroys natural habitats for lagoon organisms.

Muck Distribution

Indian R. Lagoon

Banana R. Lagoon

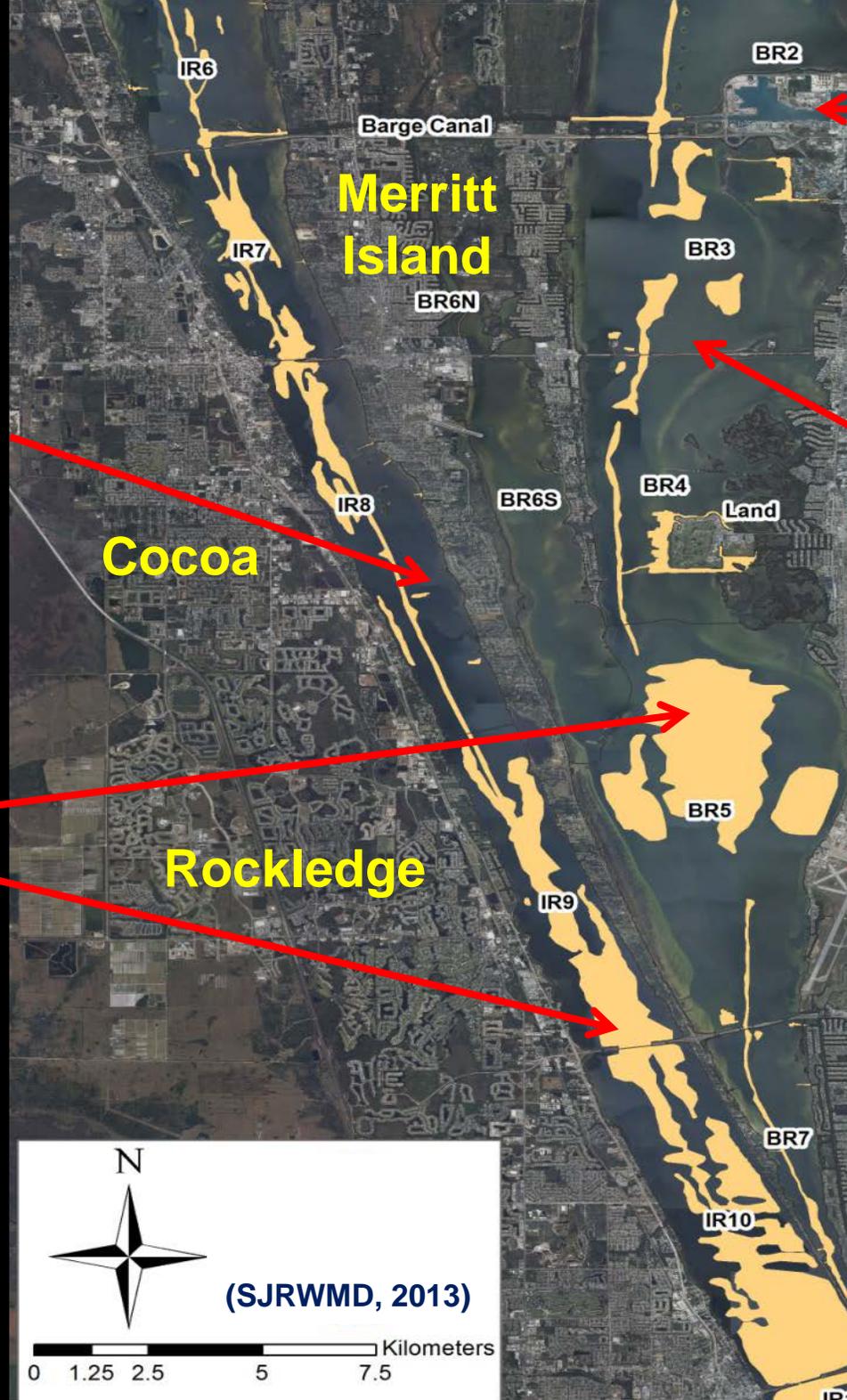


Muck Distribution

Indian R. Lagoon

Port Canaveral

Banana R. Lagoon

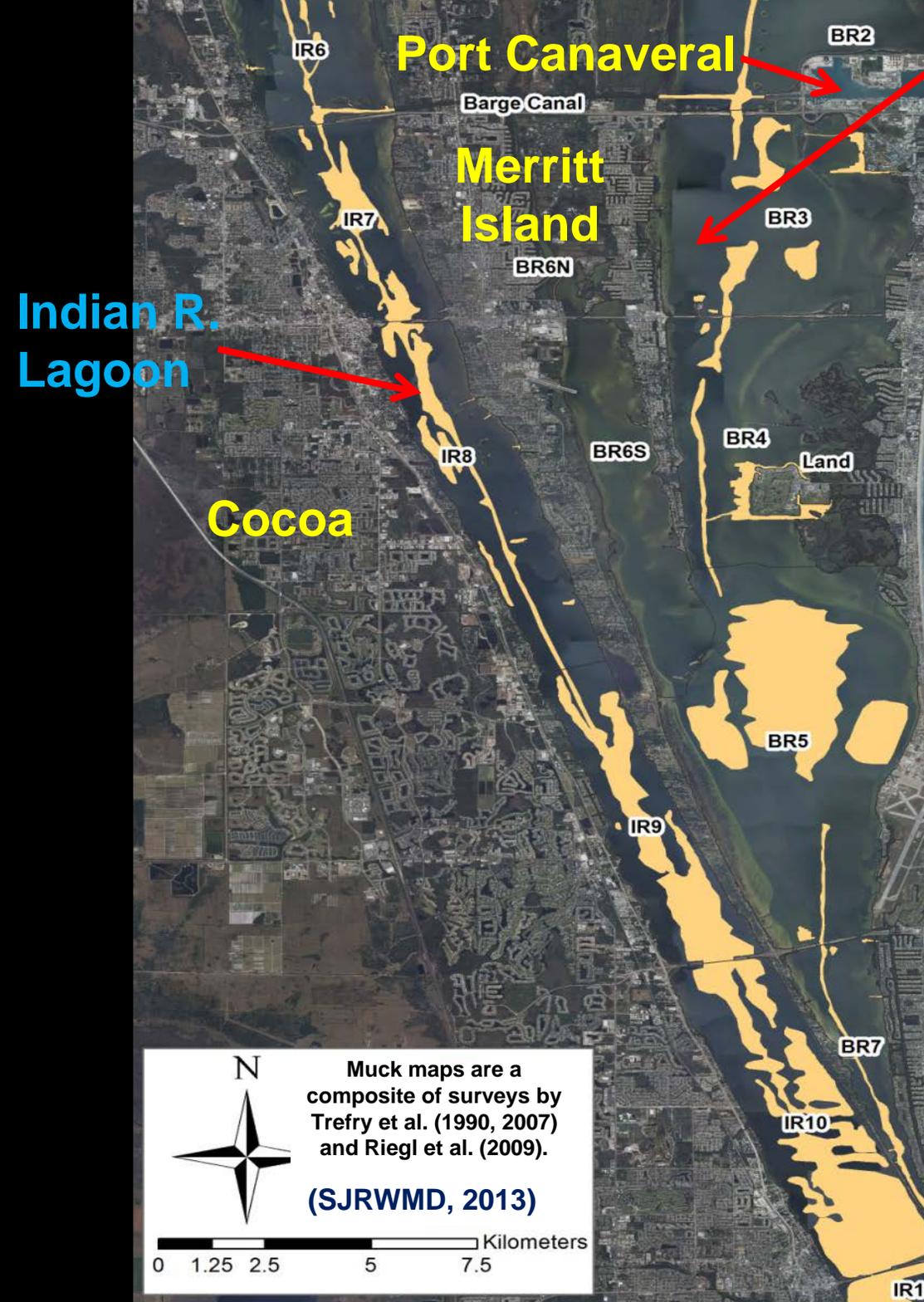


Cocoa

Rockledge

Patrick AFB

Muck maps are a composite of surveys by Trefry et al. (1990, 2007) and Riegl et al. (2009).



An estimated 5-7 million yd³ of muck cover the bottom of the northern and central lagoon system.



A step forward in solving our problem is to begin a multi-year process of dredging muck from the Indian River Lagoon.

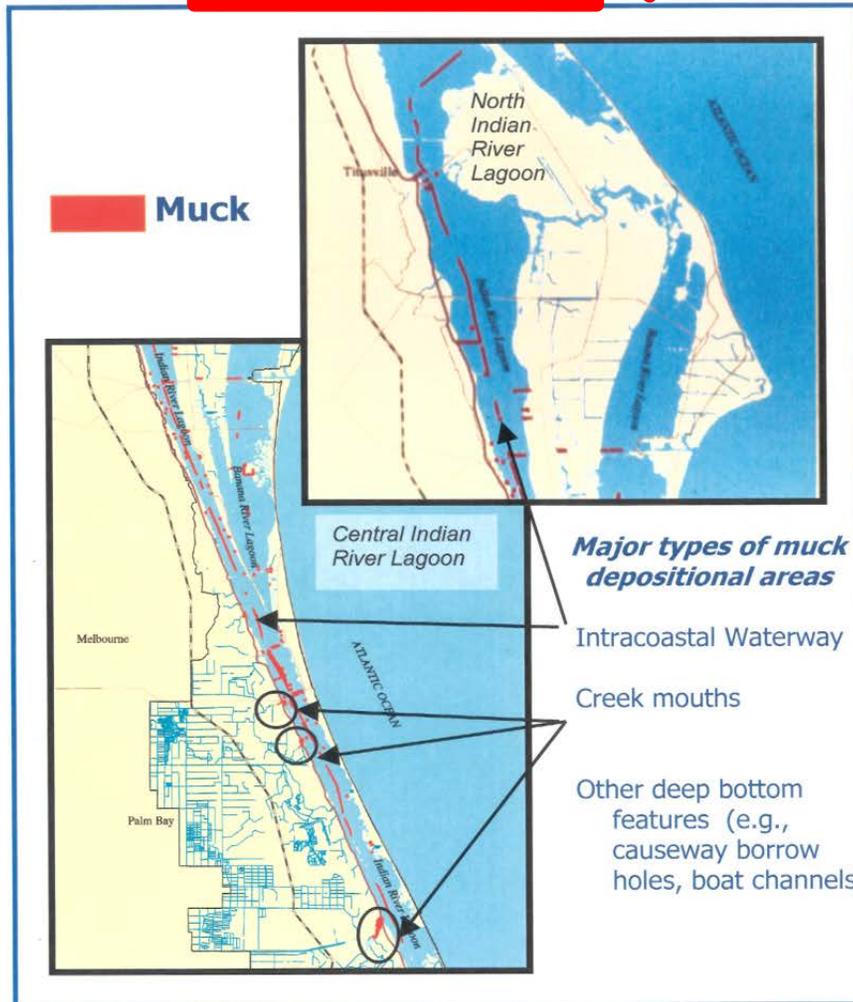
Dredging muck from the Indian River Lagoon is a necessary, but not solely sufficient part of the overall effort to restore the ecosystem.



**This effort requires us to hit the ground running,
to use the best science available to measure our success,
and to innovate.**

Identification and Environmental Ranking of Muck Deposition Zones in the North & Central Indian River Lagoon System

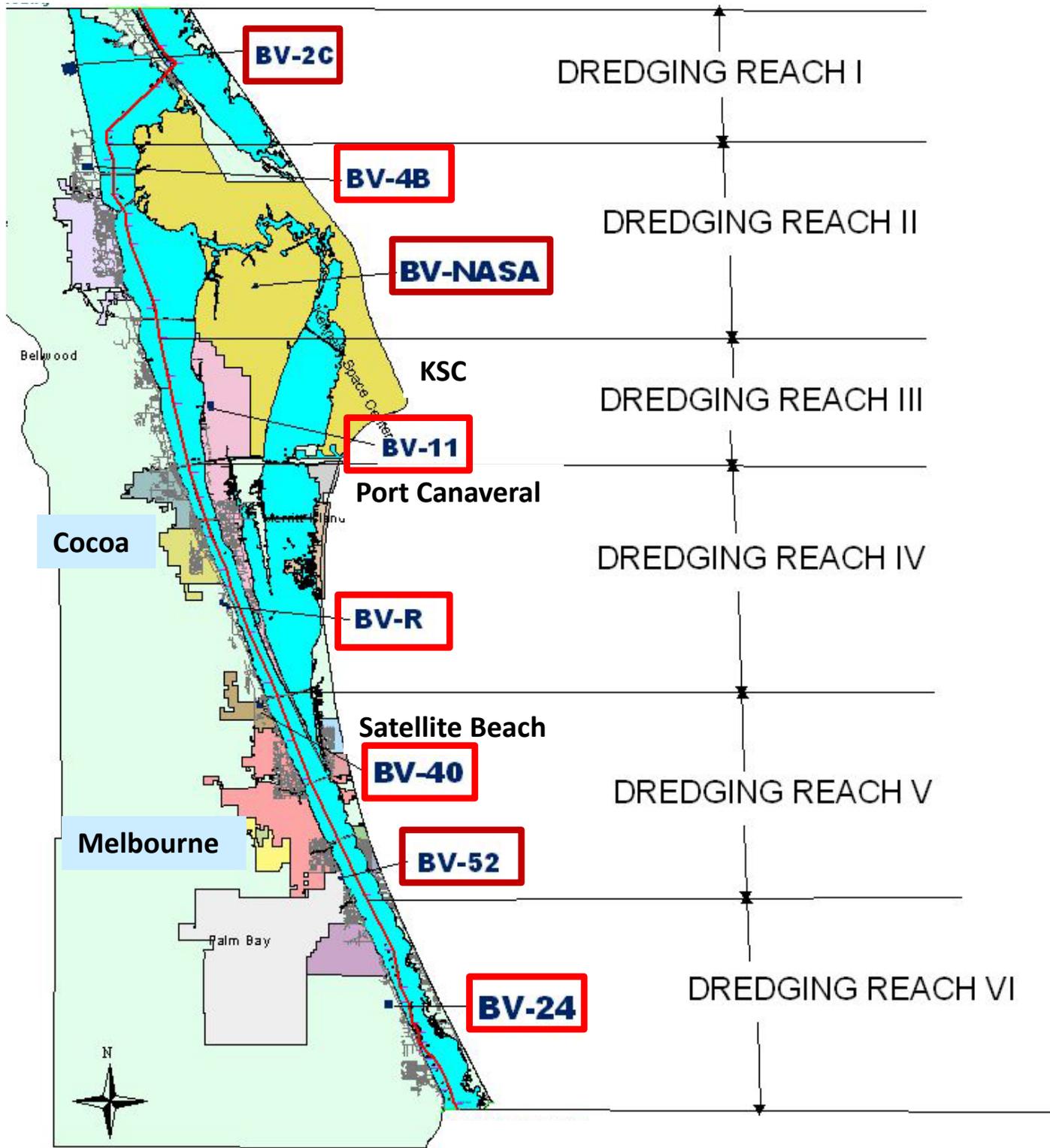
December 1999
Revised June 2004*



Joel S. Steward, St. Johns River Water Management District

The concepts
and
motivation for
this effort are
not new.

* Revisions included new graphics, a dredge project update, and Conclusions and Recommendations



The Florida Inland Navigation District (FIND) has >800 acres of land along the central and northern lagoon with a capacity of 6 million yd³ of muck.

Start dredging at an optimal site.

Muck Areas Indian River Lagoon

■ Muck Areas ●
■ Water

Titusville

Cocoa

Engineering studies
for a 4th creek, Eau
Gallie, are already
completed.

Eau Gallie R.

Melbourne

Crane Creek

Turkey Creek

St. Sebastian R.

Vero Beach Area



0 5 10 15 20 Miles

Source: /sjr/irl/areview_proj/Muck.apr.06/11/2002



Muck dredging
has already
taken place in
three creeks.

Creek dredging
helps limit new muck
inputs to the IRL;
however, ...

Muck Distribution

Indian R. Lagoon

Port Canaveral

Banana R. Lagoon

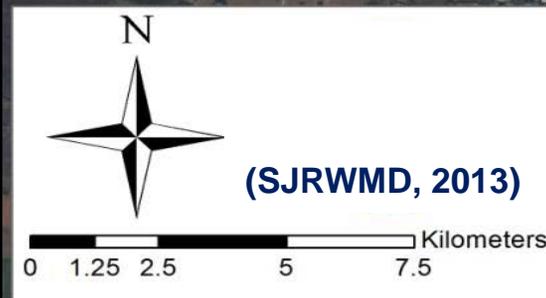


Cocoa

Rockledge

Merritt Island

Patrick AFB



Muck maps are a composite of surveys by Trefry et al. (1990, 2007) and Riegl et al. (2009).

There are many ongoing and planned complementary efforts:

- Oyster mats and reefs.
- Seagrass planting and experimentation.
- Coastal wetland restoration.
- Increased upland stormwater retention, treatment and flow controls (curtail upland inputs).



<http://www.marinediscoverycenter.org/community-restoration/oysters/>



Support Dredging with Sound Science and Engineering

- **Verify efficiency of muck removal and resulting water quality.**
- **Monitor seagrass and ecosystem improvement.**
- **Track sources and reduction in runoff of muck components (soil, vegetation, N and P).**
- **Innovative muck removal, dewatering, storage and use to help control costs.**



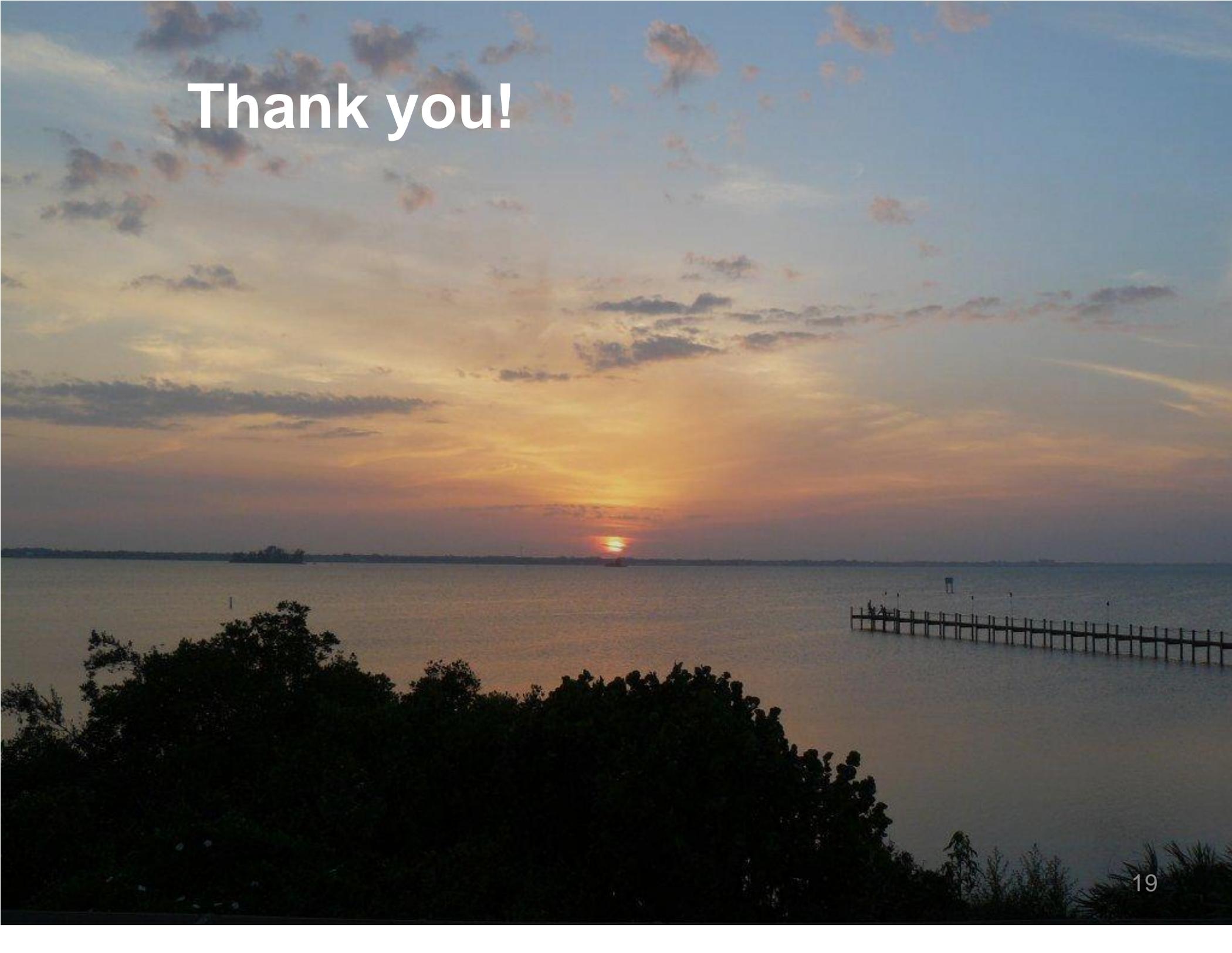
“We’re ready to meet the challenge!”



Acknowledgements for funding and collaboration in muck studies

**Florida Institute of Technology
and its Indian River Lagoon Research Institute
St. Johns River Water Management District
South Florida Water Management District
Indian River Lagoon National Estuary Program
Brevard County
Florida Inland Navigation District**

Thank you!



FDACS Lake Okeechobee and Estuaries Water Resource Protection Budget Overview

Florida Senate

General Government Appropriations Sub-Committee

January 15, 2014

Presentation by: Rich Budell, Director

FDACS Office of Agricultural Water Policy



Lake Okeechobee and Estuaries Water Resource Protection

- 2000 Lake Okeechobee Protection Program (s.373.4595 F.S.)
- 2007 Northern Everglades & Estuaries Protection Program (s. 373.4595 F.S.)

Require the development and submission, for Legislative approval, of a series of plans to improve water quality and hydrology.

FDACS charged with developing and adopting agricultural Best Management Practices (BMPs).



Water Quality BMPs – What are they?

- Practice or combination of practices based on research, field-testing and expert review, to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality in agricultural and urban discharges
- Nutrient (nitrogen & phosphorus) Management
- Stormwater Management
- Irrigation Management
- Fencing / Buffers near Waterways



FDACS BMP Enrollment Within the NEEPA Boundary, 09/30/2013

| Commodity | Total Acres | # of NOIs |
|--------------------|---------------------|--------------|
| Citrus | 265,161.33 | 1,593 |
| Cow/Calf | 1,127,011.66 | 410 |
| Dairies | 38,281.68 | 26 |
| Equine | 114.45 | 3 |
| Fruit/Nut | 920.44 | 13 |
| Mixed Use | 99,467.76 | 4 |
| Nursery | 4,549.42 | 135 |
| Row Crops | 424,556.67 | 178 |
| Sod Farms | 18,332.44 | 17 |
| Grand Total | 1,978,395.85 | 2,379 |

-  NEEPA Boundary
-  Major Lakes & Rivers
-  County Boundaries
-  Urban Areas (2007)
-  Public/Managed/Tribal Lands
- Commodity**
-  Citrus
-  Cow/Calf
-  Dairies
-  Equine
-  Fruit/Nut
-  Mixed Use
-  Nursery
-  Row Crops
-  Sod Farms
-  Land in FFS BMPs

Disclaimer: This map/information represents an estimate of the amount and/or location of acreage enrolled in FDACS BMP programs for specific commodities and/or regions of the state. It is not binding, and does not otherwise affect the interests of any persons, including any vested rights or existing uses of real property. The accuracy and reliability of this map/information are not guaranteed, and are affected by continual changes in land use, crop production, and other socioeconomic factors. Data current as of September 30, 2013.

The Landscape



Water Control Structures







Stormwater Management - Storage



Budget Overview

**IRLLOB Select Committee FDACS Funding Recommendation:
\$3M from General Inspection Trust Fund**



Questions?

Rich Budell

850-617-1704

Rich.Budell@FreshFromFlorida.com



THE FLORIDA SENATE
APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

1-15-14

Meeting Date

Topic SFWMD Projects for Select Comm. Bill Number TAB 2
(if applicable)

Name Blake Guillory Amendment Barcode _____
(if applicable)

Job Title Executive Director

Address _____ Phone _____
Street

_____ E-mail bguillory@sfwmd.gov
City State Zip

Speaking: For Against Information

Representing South Florida Water Mgmt District

Appearing at request of Chair: Yes No Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

This form is part of the public record for this meeting. S-001 (10/20/11)

THE FLORIDA SENATE
APPEARANCE RECORD

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1/15/14

Meeting Date

Topic LAKE WORTH LAGOON PRESENTATION Bill Number TAB 2
(if applicable)

Name TODD J. BONLARRON Amendment Barcode _____
(if applicable)

Job Title LEGISLATIVE AFFAIRS DIRECTOR

Address 301 N. OLEVE AVE Phone (561) 355-3451
Street

WEST PALM BEACH FL 33402 E-mail tbonlarro@pbcgov.org
City State Zip

Speaking: For Against Information

Representing PALM BEACH COUNTY

Appearing at request of Chair: Yes No Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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S-001 (10/20/11)

THE FLORIDA SENATE
APPEARANCE RECORD

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1-15-14

Meeting Date

Topic water project appropriations

Bill Number TAB 2
(if applicable)

Name DANIEL BATES

Amendment Barcode _____
(if applicable)

Job Title DEPUTY DIRECTOR, DEPT. OF ENV. RESOURCE MGMT.

Address 2300 N JOY RD
Street

Phone 561-233-2445

WPB FL 33411
City State Zip

E-mail DBates@PBCgov.org

Speaking: For Against Information

Representing PALM BEACH COUNTY

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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APPEARANCE RECORD

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1/15/14

Meeting Date

Topic IRL Senate Select Funding Presentation Bill Number TAB 2
(if applicable)

Name Carla Perry Amendment Barcode _____
(if applicable)

Job Title Dir. of External Relations

Address 5600 US 1 N Phone 772-332-0515
Street

Fort Pierce, FL 34946
City State Zip

E-mail perryca@fau.edu

Speaking: For Against Information

Representing Fau Harbor Branch Oceanographic

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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THE FLORIDA SENATE
APPEARANCE RECORD

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1-15-14

Meeting Date

Topic Indian River Lagoon water monitoring

Bill Number TAB 2
(if applicable)

Name Dr. Edith Widder

Amendment Barcode _____
(if applicable)

Job Title CEO + Senior Scientist ORCA

Address 1420 Seaway Drive
Street

Phone 772 467 1600

Port Pierce FL 34949
City State Zip

E-mail ewidder@teamorca.org

Speaking: For Against Information

Representing Ocean Research and Conservation Association (ORCA)

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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S-001 (10/20/11)

THE FLORIDA SENATE

APPEARANCE RECORD

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1/15/14
Meeting Date

Topic INDIAN RIVER LAGOON

Bill Number TAB 2
(if applicable)

Name Dr. JOHN TREFFY

Amendment Barcode _____
(if applicable)

Job Title PROFESSOR

Address 150 W. UNIVERSITY BLVD
Street

Phone 321-674-8000

MELBOURNE FL 32901
City State Zip

E-mail JTREFFY@FIT.EDU

Speaking: For Against Information

Representing FLORIDA INSTITUTE OF TECHNOLOGY

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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THE FLORIDA SENATE
APPEARANCE RECORD

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01-15-2014

Meeting Date

Topic IRLLOB

Bill Number TAB 2
(if applicable)

Name RICH BUDELL

Amendment Barcode _____
(if applicable)

Job Title DIRECTOR OF WATER POLICY

Address FL 10

Phone 850 617 1704

Street CAPITOL State FLA Zip FL.

E-mail RICH.BUDELL@FAISHFROMFLORIDA.COM

Speaking: For Against Information

Representing FDACS

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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1/15/14

Meeting Date

Topic INDIAN RIVER LAGOON

Bill Number TAB 2
(if applicable)

Name SARAH HEARD

Amendment Barcode _____
(if applicable)

Job Title MARTIN COUNTY COMMISSION CHAIR

Address _____

Phone 772-221-2358

Street

STUART

FL

34994

City

State

Zip

E-mail shearda.martin.fl.us

Speaking: For Against Information

Representing MARTIN COUNTY

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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S-001 (10/20/11)

THE FLORIDA SENATE

APPEARANCE RECORD

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1/15/14

Meeting Date

Topic Funding Recommendation of select Comm. for Indian River Lagoon

Bill Number TAB 2 (if applicable)

Name Troy McDonald

Amendment Barcode _____ (if applicable)

Job Title Mayor

Address 121 SW Flagler Ave

Phone _____

Street

Stuart FL 34994

City

State

Zip

E-mail Tmcdonald@CT.Stuart, FL, US

Speaking: For Against Information

Representing City of Stuart

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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1/15/2014
Meeting Date

Topic water

Bill Number TAB 2
(if applicable)

Name Nyla Pipes

Amendment Barcode _____
(if applicable)

Job Title Public Relations

Address 332 NW Aurora Street
Street

Phone 772-233-6182

Port St. Lucie FL 34983
City State Zip

E-mail nyla@onefloridafoundation.org

Speaking: For Against Information

Representing One Florida Foundation

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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S-001 (10/20/11)

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1-15-14

Meeting Date

Topic ~~Amy Datz IRL & OK~~

Bill Number TAB 2
(if applicable)

Name Amy Datz

Amendment Barcode _____
(if applicable)

Job Title Retired State Environmental Scientist

Address 1130 Crestview Ave.

Phone 850 322-7599

Tallahassee Fl. 32303
City State Zip

E-mail amali@datz@mac.com

Speaking: For Against Information

Representing Environmental Caucus

Appearing at request of Chair: Yes No

Lobbyist registered with Legislature: Yes No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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In the 2014 Florida Legislative Session, please help...

SPEAK UP
for the St. Lucie River
& Indian River Lagoon

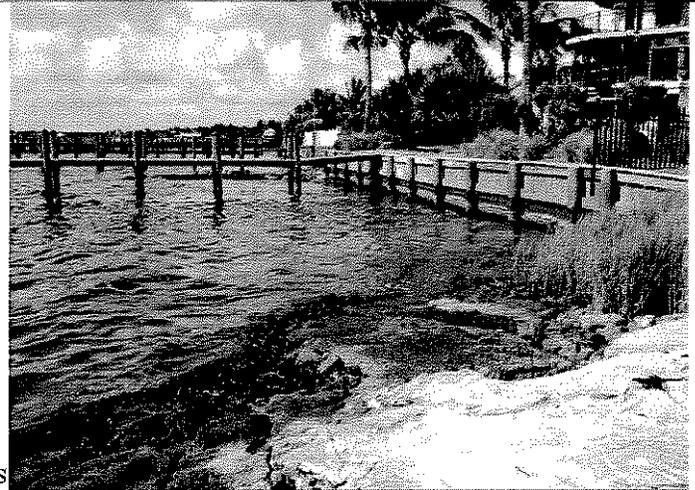


Pictured: Toxic algae in St. Lucie River, 7/25/13

The Martin County Board of County Commissioners asks for your support as we **Speak Up for the St. Lucie River and Indian River Lagoon** this legislative session.

Surface waters of the northeast Everglades naturally flowed south to the Everglades, west to Lake Okeechobee and east to the Indian River Lagoon, **the most diverse estuary in North America**. Projects constructed in the 1950s diverted surface waters into canals and into the St. Lucie Estuary and the Indian River Lagoon. During the "lost" summer of 2013, releases from Lake Okeechobee and basin runoff created toxic conditions in the St. Lucie Estuary. These dangerous conditions harmed aquatic plants and animals and required restrictions for human contact, severely impacting local businesses, residents and our very way of life.

As we continue to support solutions to this difficult issue, Martin County is vigilant in its desire to improve our waterways. A clean and sustainable water supply is essential to our community. A healthy Everglades and South Florida ecosystem supports tens of thousands of jobs and contributes billions of dollars to our economy. The following legislative priorities have been selected to advance Martin County's priority of ensuring healthy waterways and ecosystems, essential to our economy and quality of life.



Releases from Lake Okeechobee and local basins are harmful to our community. One out of every 10 jobs in Martin County is marine-related. The health of our waterways is essential to our economy and quality of life. (Pictured above: Green algae, Stuart, 7/31/13 photo by M. Gavitt/MCBOCC)

Support the recommendations of the Senate Select Committee on Indian River Lagoon and Lake Okeechobee Basin. We applaud the work of our Senator Joe Negron and other members of the Martin County Legislative Delegation including Senator Denise Grimsley, Representative Gayle Harrell and Representative MaryLynn Magar in working toward long and short-term solutions to the crisis in our waterways, and *we support the recommendations of the Committee totaling \$220 million.*

In particular, we support the Indian River Lagoon-South project referenced in the report, and the recommended \$40 million appropriation for the C-44 project component. Because Martin County residents have been such strong environmental advocates, we were among the first to fight hard to have our Comprehensive Everglades Restoration Plan component, the Indian River Lagoon-South Plan (IRL-S Plan), authorized under the 2007 Water Resources Development Act-- which makes our Plan eligible for federal funding right now. We are seeking state and federal funding to complete the C-44 component and acquire the remaining land necessary to complete the remaining components.

Support funding for the St. Lucie River and Indian River Lagoon Issues Team. The purpose of the Team is to develop an action plan that would accelerate progress toward improving water and habitat quality and further more comprehensive local ecosystem restoration goals. Projects include stormwater and septic tank conversions. *The total request for funding for projects in the St. Lucie Estuary and Indian River Lagoon is approximately \$6.5 million.*

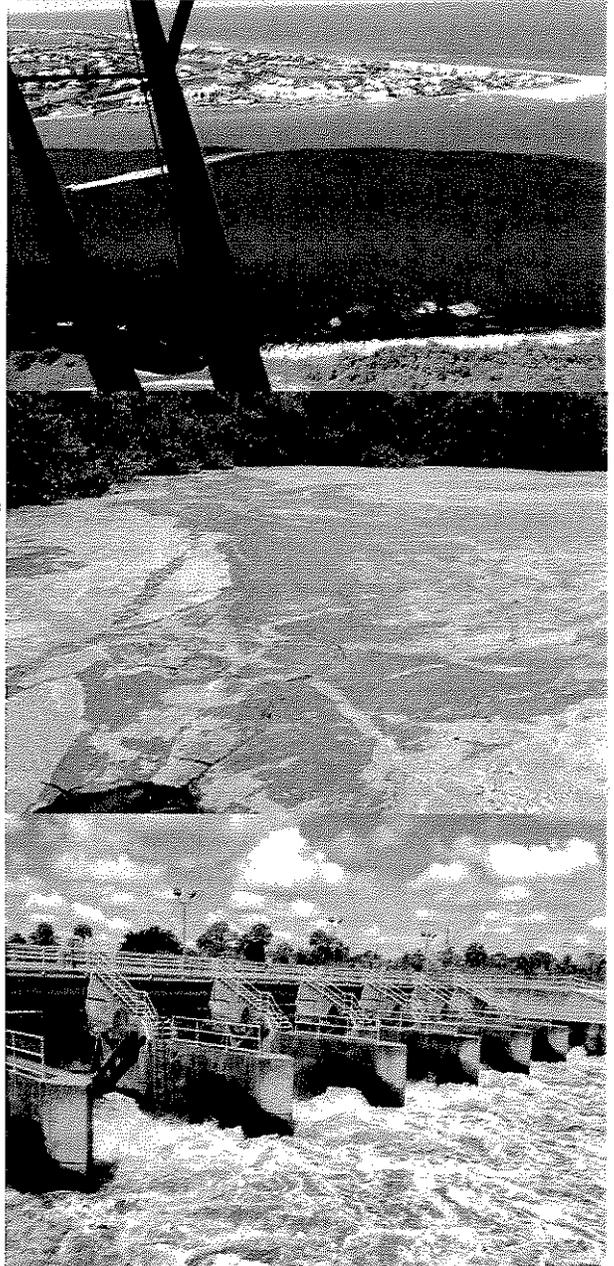
For more information please visit www.martin.fl.us/hottopics - "Speak Up for the St. Lucie"



Martin County: Speaking Up for the St. Lucie River & Indian River Lagoon

The Martin County Board of County Commissioners and citizens lead the way in the protection of our estuaries. For example:

- Martin County citizens have taxed themselves 8 out of the past 11 years, generating \$75 million for land acquisition, including \$27 million for the C-44 Reservoir project, and leveraged those funds with state dollars.
- Acquired 45,000 acres for various Comprehensive Everglades Restoration Plan (CERP) projects that include the restoration of upland and wetland ecosystems.
- Completed 23 local stormwater retrofits and leveraged \$15 million in local funds with state and regional grants to construct \$50 million of local projects serving 6,100 acres.
- Dredged 300,000 cubic yards of lifeless muck from the Manatee Pocket.
- Adopted a fertilizer ordinance and championed its protection.



Pictured from top: Citizens speaking up, aerial of releases in St. Lucie Inlet (photo by J. Thurlow-Lippisch), algae (photo by Mary Radabaugh) and releases at the St. Lucie Lock and Dam. Left: Algae in the St. Lucie River. July 2013

CourtSmart Tag Report

Room: EL 110
Case: Senate Appropriations Subcommittee on General Government

Type:
Judge:

Started: 1/15/2014 2:02:07 PM
Ends: 1/15/2014 3:54:24 PM
Length: 01:52:18

2:02:09 PM Sen. Hays (Chair)
2:03:00 PM TAB 2 - Discussion of project funding recommendations in the Select Committee on Indian River Lagoon and Lake Okeechobee Basin Report
2:03:40 PM Everglades Restoration
2:03:52 PM Blake Guillory, Executive Director, South Florida Water Management District
2:06:55 PM Sen. Hays
2:07:03 PM B. Guillory
2:09:27 PM Sen. Hays
2:09:29 PM B. Guillory
2:11:28 PM Sen. Hays
2:11:33 PM B. Guillory
2:11:51 PM Sen. Soto
2:12:03 PM B. Guillory
2:12:12 PM Sen. Hays
2:12:26 PM B. Guillory
2:12:28 PM Sen. Hays
2:12:40 PM B. Guillory
2:12:43 PM Sen. Hays
2:12:51 PM B. Guillory
2:14:59 PM Sen. Hays
2:15:25 PM B. Guillory
2:20:58 PM Sen. Bullard
2:22:43 PM B. Guillory
2:23:13 PM Sen. Simpson
2:23:24 PM B. Guillory
2:23:54 PM Sen. Simpson
2:24:01 PM B. Guillory
2:24:20 PM Sen. Simpson
2:24:30 PM Sen. Soto
2:24:44 PM B. Guillory
2:26:29 PM Sen. Soto
2:26:38 PM B. Guillory
2:26:41 PM Sen. Hays
2:27:16 PM B. Guillory
2:28:05 PM Sen. Hays
2:28:11 PM B. Guillory
2:28:19 PM Sen. Hays
2:28:44 PM B. Guillory
2:29:15 PM Sen. Hays
2:30:18 PM B. Guillory
2:30:26 PM Sen. Hays
2:31:03 PM B. Guillory
2:31:08 PM Sen. Hays
2:31:35 PM B. Guillory
2:32:15 PM Sen. Hays
2:32:30 PM B. Guillory
2:33:00 PM Sen. Dean
2:33:45 PM B. Guillory
2:34:44 PM Sen. Hays
2:35:20 PM B. Guillory
2:36:40 PM Sen. Hays
2:37:20 PM B. Guillory

2:37:26 PM Lake Worth Lagoon Restoration Initiative
2:37:39 PM Sen. Hays
2:37:53 PM Todd Bonlarron, Legislative Affairs Director, Palm Beach County
2:42:33 PM Daniel Bates Deputy Director, Environmental Resource Management, Palm Beach County
2:48:46 PM Sen. Simpson
2:48:57 PM D. Bates
2:49:28 PM Sen. Hays
2:49:34 PM D. Bates
2:50:22 PM Sen. Hays
2:50:47 PM Sara Heard, Martin County Commission Chairperson
2:53:20 PM Sen. Hays
2:53:35 PM S. Heard
2:53:53 PM Sen. Hays
2:54:04 PM Sen. Detert
2:54:54 PM Sen. Hays
2:55:20 PM S. Heard
2:55:27 PM Sen. Hays
2:55:35 PM Indian River Lagoon Observatory
2:55:43 PM Cara Perry, Director of External Relations, Florida Atlantic University/ Harbor Branch
3:04:24 PM Sen. Simpson
3:04:33 PM C. Perry
3:05:01 PM Sen. Hays
3:06:11 PM C. Perry
3:06:37 PM Sen. Hays
3:07:11 PM Kilroy Water Quality Monitoring
3:07:24 PM Dr. Edith Widder, CEO, Ocean Research & Conservation Association, Inc.
3:09:29 PM E Widder
3:20:01 PM Sen. Hays
3:20:06 PM E. Widder
3:20:17 PM Sen. Hays
3:20:22 PM E. Widder
3:20:43 PM Sen. Detert
3:21:00 PM E. Widder
3:21:20 PM Sen. Detert
3:21:53 PM E. Widder
3:22:55 PM Sen. Detert
3:23:16 PM E. Widder
3:23:38 PM Sen. Detert
3:23:42 PM E. Widder
3:23:49 PM Sen. Detert
3:23:51 PM E. Widder
3:24:30 PM Sen. Detert
3:24:41 PM E. Widder
3:24:44 PM Sen. Hays
3:24:47 PM Sen. Simpson
3:25:03 PM E. Widder
3:25:32 PM Sen. Simpson
3:25:42 PM E. Widder
3:25:43 PM Sen. Hays
3:26:00 PM E. Widder
3:26:20 PM Sen. Hays
3:26:26 PM Sen. Sota
3:26:34 PM E. Widder
3:26:59 PM Sen. Sota
3:27:06 PM E. Widder
3:27:22 PM Sen. Hays
3:27:32 PM Indian River Lagoon Sediment Removal
3:27:42 PM Dr. John Trefry, Professor, Marine & Environmental Systems, Florida Institute of Technology
3:30:33 PM Sen. Hays
3:30:49 PM J. Trefry
3:34:07 PM Sen. Hays
3:34:45 PM J. Trefry

3:35:24 PM Sen. Hays
3:35:35 PM J. Trefry
3:35:43 PM Sen. Hayes
3:35:46 PM J. Trefry
3:35:52 PM Sen. Hays
3:35:56 PM J. Trefry
3:36:09 PM Sen. Simpson
3:36:30 PM J. Trefry
3:39:53 PM Sen. Hays
3:40:09 PM Agricultural Best Management Practices
3:40:21 PM Rich Budell, Director, Office of Agricultural Water Policy, Department of Agriculture & Consumer Services
3:40:54 PM Sen. Hays
3:41:11 PM R. Buddell
3:47:17 PM Sen. Hays
3:47:22 PM Sen. Simpson
3:47:30 PM Sen. Hays
3:47:32 PM R. Buddell
3:47:39 PM Sen. Hays
3:47:55 PM Troy McDonald, Mayor, City of Stuart
3:49:54 PM T. McDonald
3:49:59 PM Sen. Hays
3:50:28 PM T. McDonald
3:50:41 PM Sen. Hays
3:50:54 PM Nyla Pipes, Public Relations, One Florida Foundation
3:51:42 PM Sen. Hays
3:51:45 PM Amy Datz, Environmental Caucus
3:52:00 PM Sen. Hays
3:52:19 PM TAB - 1- Discussion of Constitutionally required trust fund creations, re-creations and terminations
3:52:47 PM Sen. Hays