



# Restoration Projects Prioritization State Projects

Governing Board Meeting – January 9, 2014

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# Restoration Projects Prioritization

- Part 1 - Overview of Federal Restoration Projects
  - Pre-CERP Foundation Projects
  - CERP
- Part 2 - Overview of State Restoration Projects
  - Restoration Strategies
  - Northern Everglades
- Part 3+ - Discussion of obligations and priorities

# Restoration Strategies

# Restoration Strategies

## Water Quality Projects

- Proposed projects developed to meet discharge limit necessary to achieve 10 parts per billion ambient water quality criterion for Everglades Protection Area
- Project Types
  - STA Expansions
  - Flow Equalization Basins (FEBs)
  - Conveyance Improvements

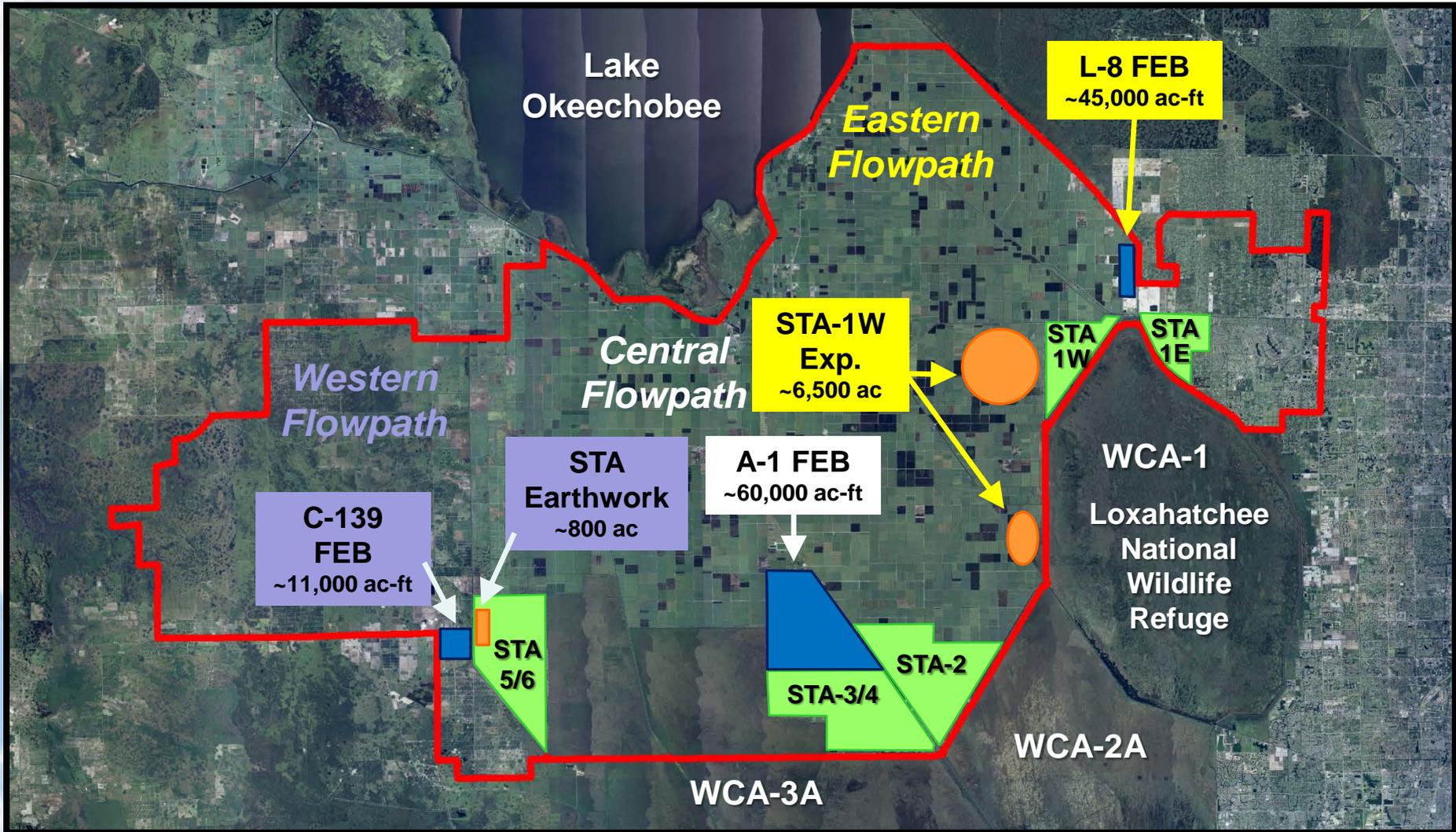


# Restoration Strategies

## Regulatory Framework

- State-Issued Permits and Consent Orders:
  - Everglades Forever Act (EFA) Permit
  - EFA Consent Order
  - National Pollutant Discharge Elimination System (NPDES) Permit
  - NPDES Consent Order
- Each document covers the entire watershed including eastern, central, and western flowpaths
- Contain a series of compliance actions and dates by which they must be achieved for each project (e.g., initiate design, complete construction)

# Governor's Restoration Strategies Plan



# Key Projects Construction Schedule

## 2012-2016

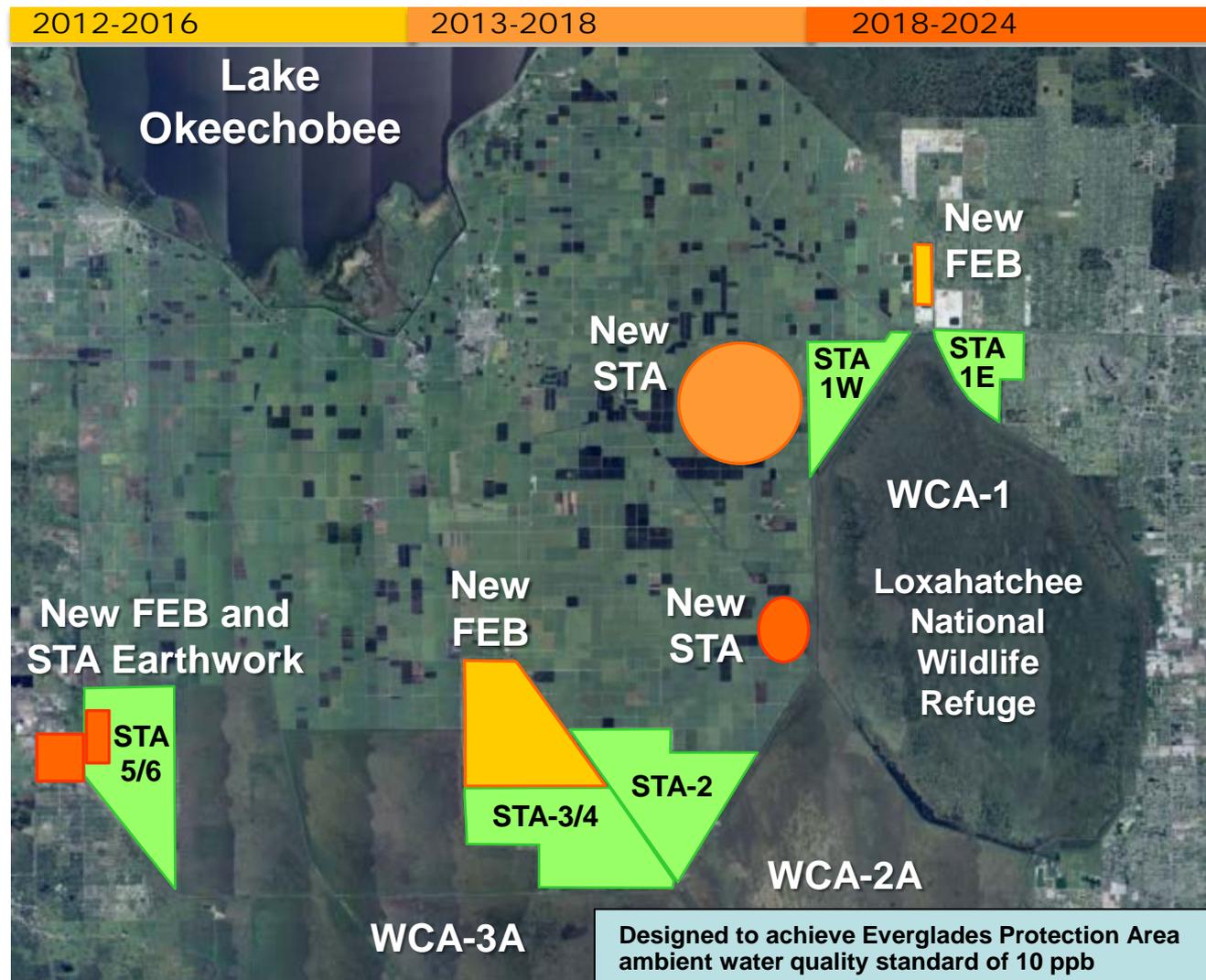
- Eastern Flowpath: 45,000 acre-foot Flow Equalization Basin
- Central Flowpath: 54,000 acre-foot Flow Equalization Basin

## 2013-2018

- Eastern Flowpath: 4,700 acres of Stormwater Treatment Area (STA)

## 2018-2024

- Eastern Flowpath: 1,800 acres of STA (2018-2022)
- Western Flowpath: 11,000 acre-foot Flow Equalization Basin (2018-2023)
- Western Flowpath: 800 acres of earthwork within existing STAs to maximize effective treatment area (2019-2024)



# Eastern Flowpath Projects

# Restoration Strategies Projects

## L-8 Flow Equalization Basin (FEB)

### ■ Purpose

- Capable of storing 45,000 acre-feet of water
- Attenuates peak storm water flows to improve STA-1E and STA-1W treatment performance

### ■ Status

- Pump station and inflow works designs are complete
- Reservoir and the pump station construction underway
- Ahead of consent order milestone schedule



# Restoration Strategies Projects

## L-8 FEB

- Next Steps
  - Construction - To be complete December 2016
- Sunk Costs - \$220M (land and previous works)
- Estimated Total Cost = \$72M
  - SFWMD Investment to date - \$70M



# Restoration Strategies Projects

## STA-1W Expansion

### ■ Purpose

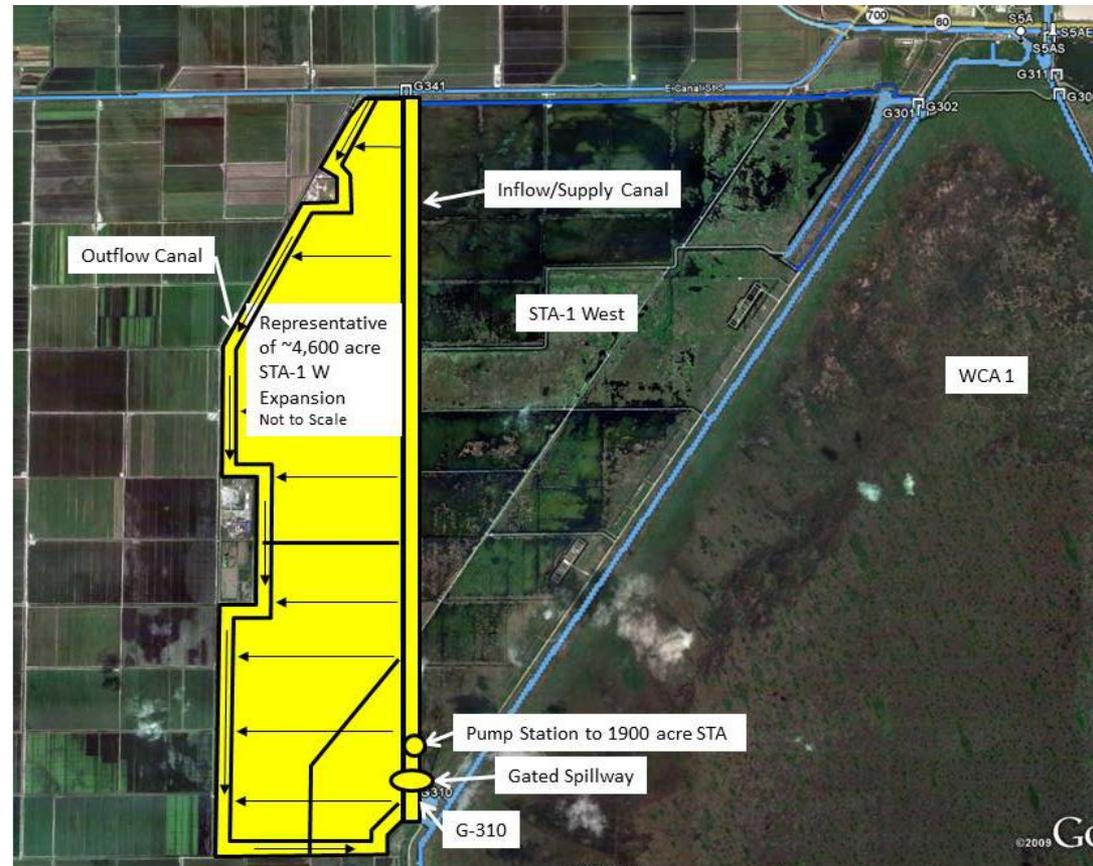
- Expansion of STA-1 West will double its effective treatment area, further reducing phosphorus concentrations
- The expansion will take place in two phases, with the total STA area of approximately 6,500 acres

### ■ Phase I Status

- Conceptual design is underway
- Non-binding letter of intent approved to pursue a final land exchange contract

### ■ Phase II Status

- Working with Department of Interior on land swap



# Restoration Strategies Projects

## STA-1W Expansion

- Next Steps
  - Anticipate final land contract approval in early 2014
  - Continue with detailed design for Phase I
- Estimated Total Cost = \$231.8M
  - SFWMD investment to date - \$1M



# Restoration Strategies Projects

## Eastern Flowpath Conveyance Features

| Project                    | Status     | Next Steps                              | Total Cost | SFWMD Exp. To Date |
|----------------------------|------------|---|------------|--------------------|
| L-8 Divide Structure       | In design  | Construction complete<br>September 2018 | \$5.2M     | \$177K             |
| S-5AS Divide               | In design  | Construction complete<br>September 2016 | \$3.0M     | \$0                |
| S-375 Structure Expansion  | In design  | Construction complete<br>December 2018  | \$5.3M     | \$0                |
| G-341 Related Improvements | Not active | Initiate design<br>October 2020         | \$66.0M    | \$0                |

# Central Flowpath Projects

# Restoration Strategies Projects

## A-1 Flow Equalization Basin (FEB)

### ■ Purpose

- Capable of storing 60,000 acre-feet of water
- Attenuates peak storm water flows to improve STA-2 and STA-3/4 treatment performance

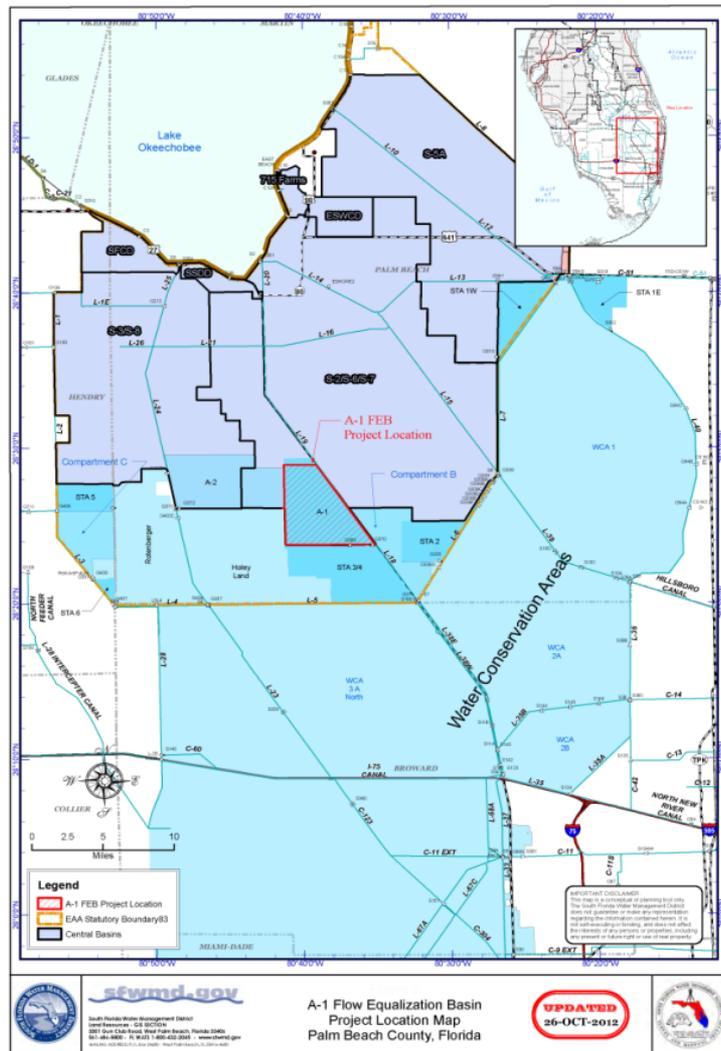
### ■ Status

- Design complete July 2013
- Construction initiated
- Ahead of consent order milestone schedule



# Restoration Strategies Projects

## A-1 Flow Equalization Basin (FEB)



- Next Steps:
  - Construction - To be complete July 2016
- Sunk Costs = \$216M (land and A-1 Reservoir construction)
- Estimated Total Cost = \$72M
  - SFWMD Investment to date - \$69.3M

# Western Flowpath Projects

# Restoration Strategies Projects

## STA-5 Earthwork and C-139 FEB

### ■ STA-5 Earthwork

- Purpose - 800 acres of earthwork to create new treatment wetland area
- Status - Not active
- Next Steps - Initiate design by December 2019
- Costs - \$47.9M; Investment to Date - none

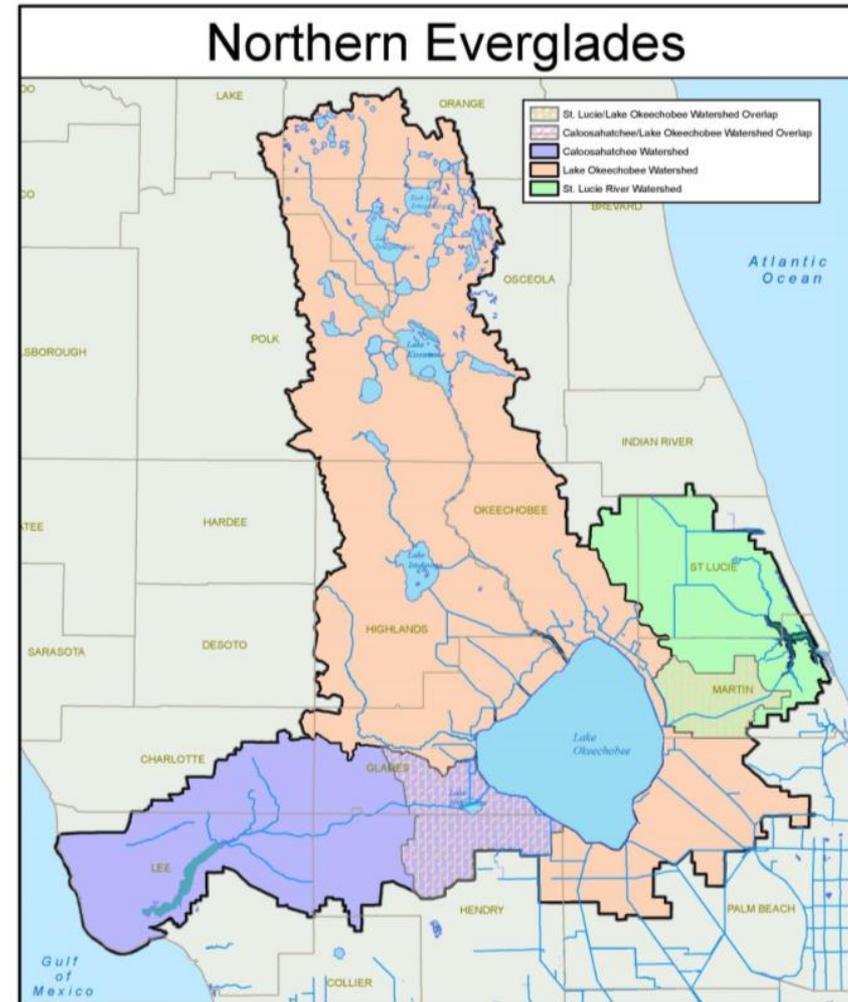
### ■ C-139 FEB

- Purpose - 11,000 acre-feet to attenuate peak storm water flows to improve STA-5/6 treatment performance
- Status - Not active
- Next Steps - Initiate design by December 2019
- Costs- \$69.4M; Investment to Date - none

# NORTHERN EVERGLADES

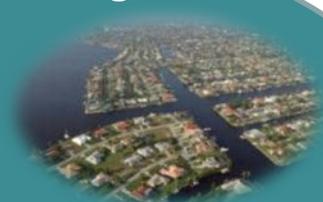
# Northern Everglades and Estuaries Protection Program (373.4595 Florida Statutes)

- Foundation for the Northern Everglades and Estuaries Protection Program
  - Defines the three Coordinating Agencies: District, FDACS and FDEP
  - Watershed Protection Plans
    - Holistic watershed approach to restoration
    - Suite of projects and programs to improve the quality of water discharged from the watersheds and minimize undesirable flows



# Plan Components and Goals

## Source Control Program



## Construction Project and Dispersed Water Management



## Research and Water Quality Monitoring Program



## GOALS

1. Meet established Total Maximum Daily Loads
2. Manage Lake Okeechobee water levels within an ecologically desirable range
3. Maintain a desirable salinity balance in the estuaries

# Agency Roles and Responsibilities

## Lake Okeechobee Basin Management Action Plan

Five-year Update/Annual reports

### FDEP

- BMAP development, assessment, monitoring and reporting.
- Overall water quality project coordination and partnership with BMAP entities.
- Source Control program (e.g., NPDES, ERP, biosolids rule, comprehensive planning).

### SFWMD

- Non-water quality Protection Plan elements/projects
- LOOP permit and specific projects
- Monitoring Network
- Source Control program (ERP & modified WOD Regulatory Program)

### BMAP Entities

- Implementation of management measures and monitoring, pursuant to BMAP and NPDES permits approved by FDEP.

### FDACS

- Source Control program (Non-point Sources Agricultural BMP Program/ Implementation).
- Urban turf fertilizer and animal manure application rule.

# NEEPP Projects Already Discussed

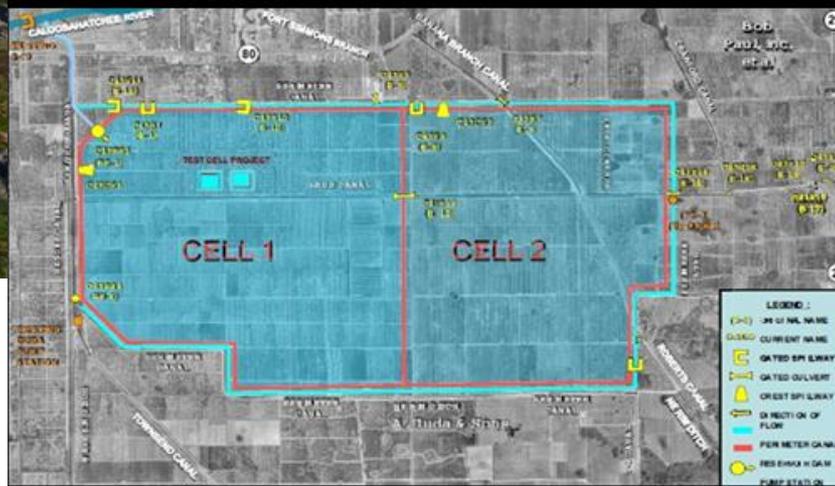
**Kissimmee River Restoration  
Lake Okeechobee Watershed**



**IRL-S Project  
St. Lucie Watershed**



**C-43 West Basin Storage Reservoir  
Caloosahatchee Watershed**



# DWM Public Private Partnerships



- Purpose
  - Shallow Water Storage, Retention and Detention
- Project Types
  - Northern Everglades Payment for Environmental Services
  - Water Farming Pilot Projects
  - Public Lands Projects
  - Private Lands Projects



# Northern Everglades Watershed ASR

- Purpose
  - Evaluate potential for ASR in the areas North of Lake Okeechobee
- Status
  - CERP Regional ASR Study - Underway
  - CERP - Lake Okeechobee Aquifer Storage and Recovery Pilot Project (a/k/a Kissimmee ASR Pilot) - successfully completed testing
  - Paradise Run ASR - Exploratory well indicated favorable conditions for a multi-well system
  - CERP C-43/Berry Groves ASR- Floridan aquifer characteristics not appropriate for ASR at this location



# Northern Everglades Watershed ASR

- Next Steps
  - CERP ASR Regional Study – To be completed September 2014
  - Determine next steps for ASR in the Lake Okeechobee Watershed
- Estimated Total Cost - TBD
  - SFWMD investment to date – \$18.6M
  - USACE investment to date – \$32M



# Lake Okeechobee Watershed

## Lakeside Ranch STA

### ■ Purpose

- Proposed 2,700-acre Stormwater Treatment Area (STA) designed to remove an estimated 19 MT/year of total phosphorus

### ■ Status

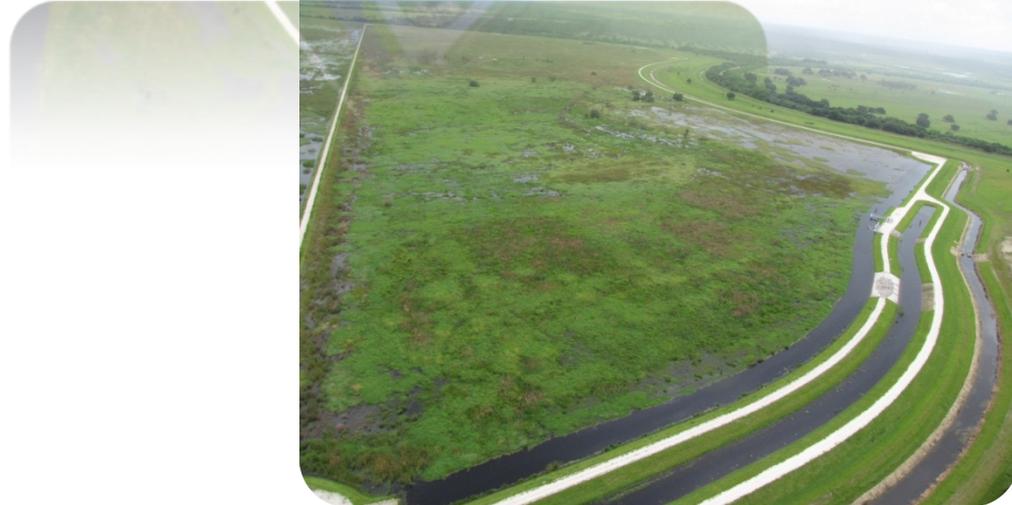
- Phase I – North STA
  - 1,200 acres
  - Constructed and Operational
- Phase II – South STA
  - 1,500 acres
  - Design Completed



# Lake Okeechobee Watershed

## Lakeside Ranch STA

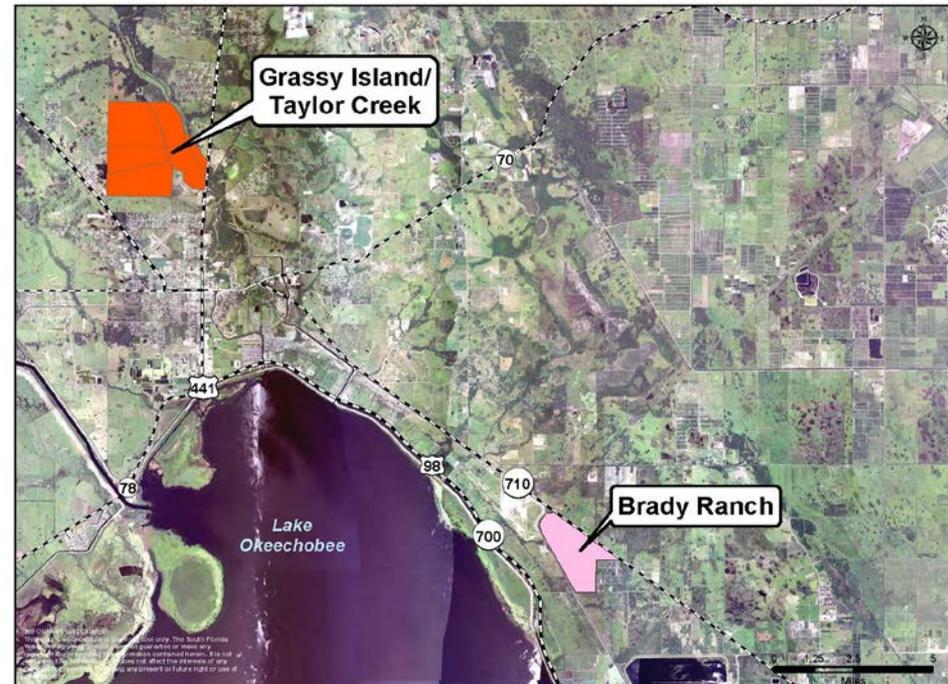
- Next Steps
  - Evaluate effectiveness of Phase I
  - Phase II construction contingent upon additional funding
- Estimated Total Cost - \$106.6M
  - SFWMD/State investment to date - \$55.2M



# Lake Okeechobee Watershed

## Grassy Island and Brady Ranch Properties North of Lake Okeechobee

- Purpose
  - Anticipated site of water quality/storage features for the CERP Lake Okeechobee Watershed Project
  - Grassy Island purchased under CERP
  - Brady Ranch purchased under Lake Okeechobee and Estuary Recovery (LOER) Plan
- Status
  - CERP LO Watershed Project is pending resolution of the cost share issues



# Lake Okeechobee Watershed

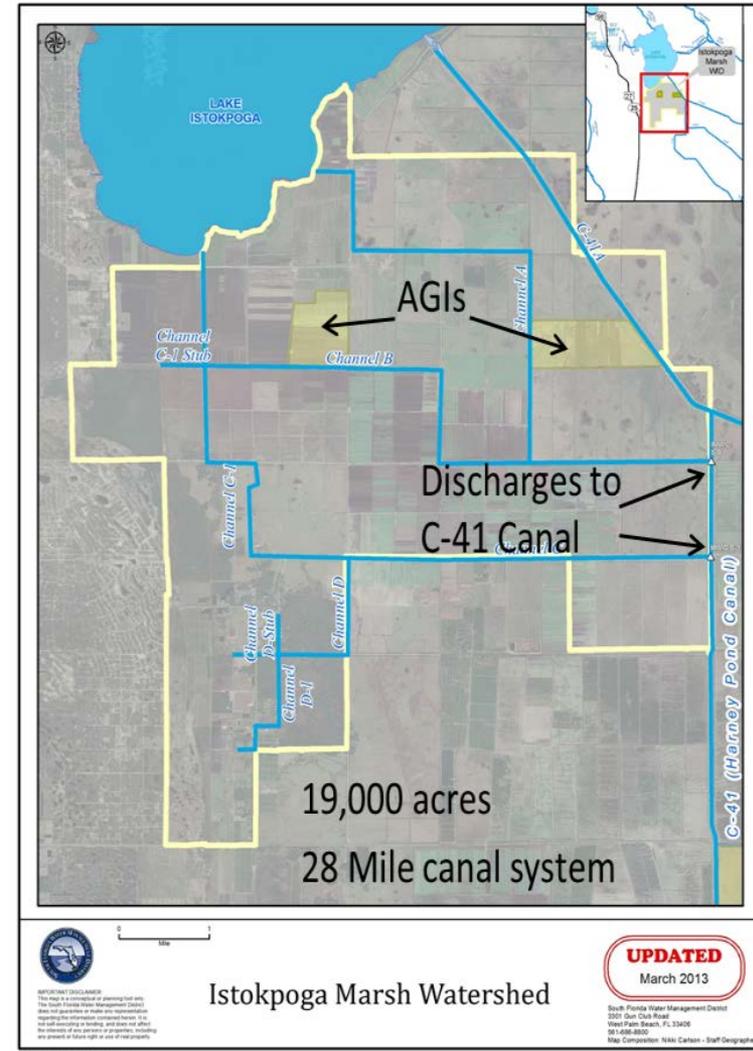
Grassy Island and Brady Ranch Properties North of Lake Okeechobee

- Next Steps
  - SFWMD evaluation of water storage and quality alternatives for the sites
- Estimated Total Cost - TBD
  - State/SFWMD investment to date - \$43.3M
  - USACE investment to date - \$3.9M

# Lake Okeechobee Watershed

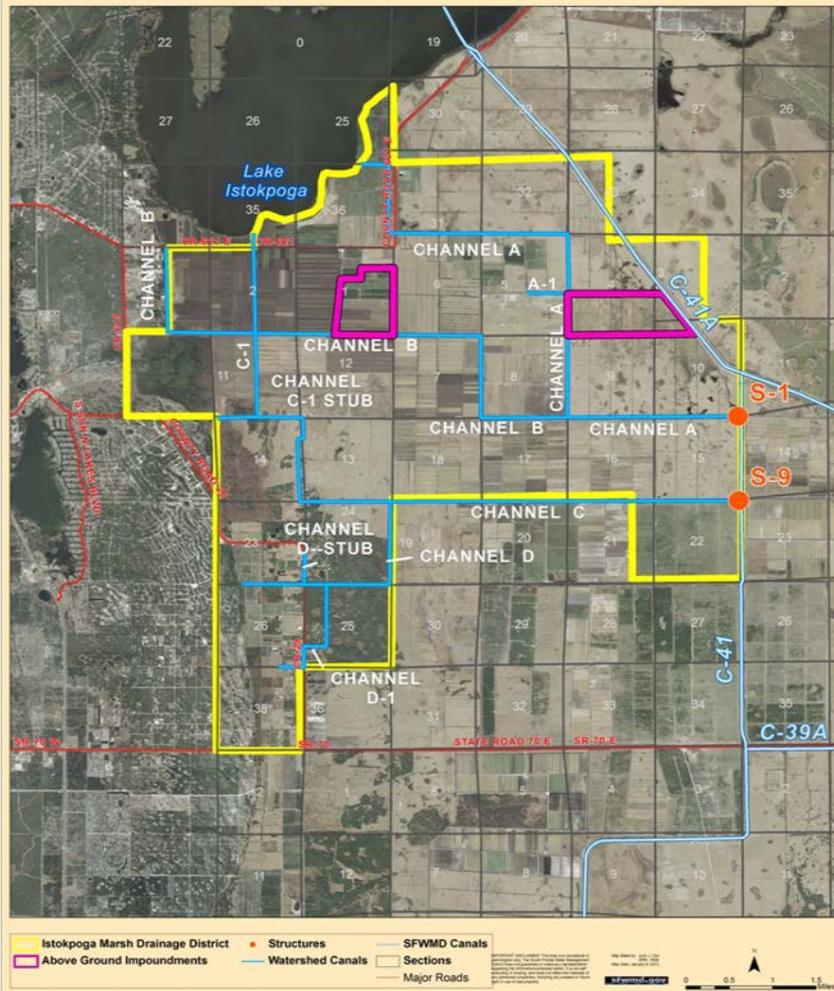
## Istokpoga Marsh Improvement District Water Quality Project

- Cooperative project between IMWID, SFWMD, FDEP and FDACS
- Purpose
  - Pump stormwater into Above Ground Impoundments (AGIs) for water quality improvement and recycling water for irrigation
- Status
  - Phase 1: 308 acre AGI
    - Land acquired, design under way and agreements in place for construction
  - Phase II: 401 acre AGI
    - Land acquired; design not started
  - Phase III: ~500 acre AGI/water quality feature
    - Land not acquired; design not started



# Lake Okeechobee Watershed Istokpoga Marsh Improvement District

ISTOKPOGA MARSH WATERSHED



## Next Steps

- Complete design and construct Phase 1 AGI
- Contingent upon additional funding:
  - Design and construct Phase 2 AGI
  - Acquire land (+/- 500 ac), design, and construct Phase 3 AGI (future activity)

## Estimated Total Cost

- Phase I = \$8.4M
- Phase II & III = \$TBD
- SFWMD/State investment to date – \$12.2M

# Lake Okeechobee Watershed

## Rolling Meadows Wetland Restoration

- FDEP and SFWMD land purchase of approximately 5,787 acres as part of the Kissimmee Headwaters Revitalization Project
- Purpose
  - To restore the natural littoral habitat of floodplain within the property
- Status
  - Phase I: Parcel B approximately 1,970 acres
    - Environmental contamination cleanup has been completed
    - Conceptual planning efforts have been completed
    - Detailed design is under way (60% completed)
  - Phases II: Parcel A approximately 3,815 acres
    - Land Acquired



# Lake Okeechobee Watershed Rolling Meadows Wetland Restoration

- Next Steps
  - Complete design (FY14) and construct (FY15) Phase I
  - Remaining funds will be applied to Phase II
- Estimated Total Cost: \$43.2M
  - SFWMD/State Investment to date - \$38M



# Caloosahatchee River Watershed

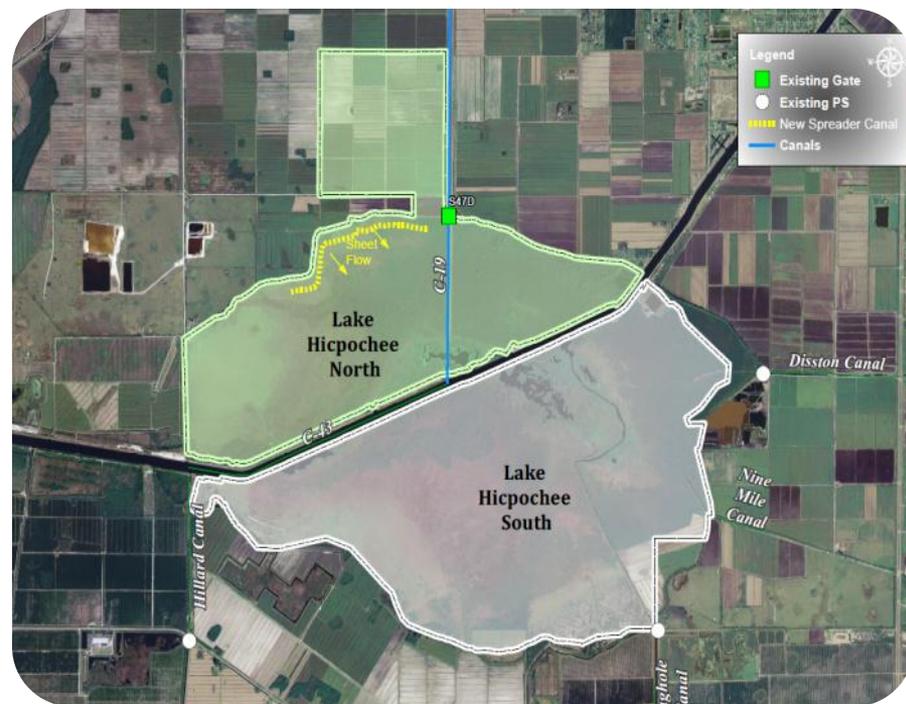
## Lake Hicpochee North Hydrologic Enhancement Project

### ■ Purpose

- Shallow water storage and hydrologic enhancement of northwest portions of the lake
- Store and distribute C-19 flows

### ■ Status

- Preliminary surveying and geotechnical investigations - Completed
- Engineering Design – Initiated March 2013
- Purchased additional 638 acres north of the Lake for shallow storage feature



# Caloosahatchee River Watershed

## Lake Hicpochee North Hydrologic Enhancement Project

- Next Steps
  - Design – To be completed early 2015
  - Commence construction
- Estimated Total Cost (Phase I North) - \$18.4M
  - SFWMD/State investment to date - \$2.5M



# Caloosahatchee River Watershed

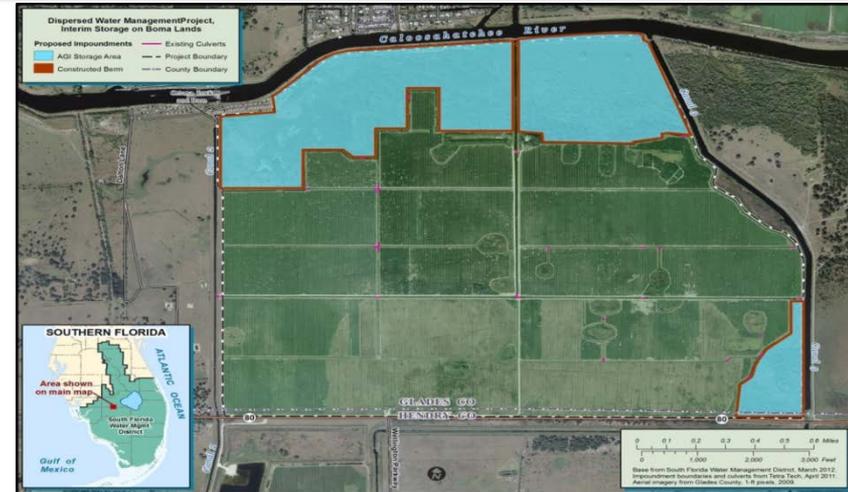
## C-43 Water Quality Treatment & Testing

### ■ Purpose

- Investigate processes for reducing nutrients, particularly nitrogen, from the C-43 Canal
- Test wetland technologies with the highest potential to remove nitrogen in a large scale facility

### ■ Status

- Conceptual design for a testing facility was completed in 2013
- Site being utilized for interim dispersed water management project



# Caloosahatchee River Watershed

## C-43 Water Quality Treatment & Testing

### ■ Next Steps

- Construct testing facility - subject to funding
- Evaluate other cost effective technologies for use at the site

### ■ Costs

- Estimated Total Cost - \$48M (for land and testing facility)
- SFWMD/State investment to date - \$29M
- Lee County investment to date - \$10M



# St. Lucie River Watershed

## Ten Mile Creek

### ■ Purpose

- Control the quantity, quality and timing of stormwater flow from Ten Mile Creek

### ■ Status

- USACE litigation underway
- Identifying cost effective approaches to optimize water management at the site



# Summary of WRAC Member Comments

- Requested additional information for the project summary table including
  - Include non-CERP projects and their relationship to the 68 CERP components in the Yellowbook
  - Cost-benefit analysis, economic impact and funding streams of projects
- Concerned that no projects benefit the Kissimmee Chain of Lakes

# Questions?

[www.sfwmd.gov/restorationstrategies](http://www.sfwmd.gov/restorationstrategies)

