



Restoration Projects Prioritization - Part 2

WRAC Meeting

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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

Regulatory Framework

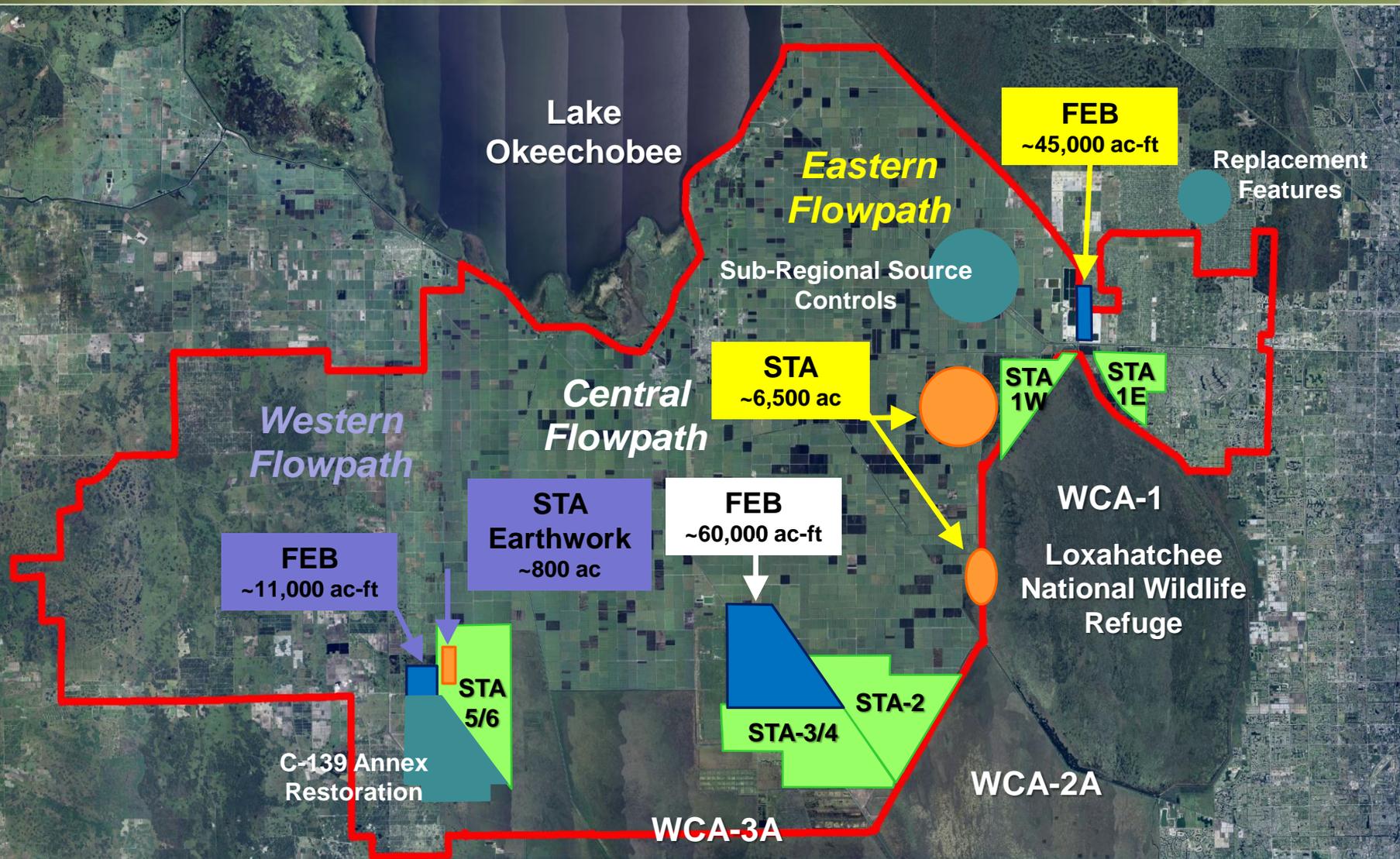
- State-Issued Permits and Consent Orders:
 - Everglades Forever Act (EFA) Permit
 - EFA Consent Order
 - National Pollutant Discharge Elimination System (NPDES) Permit
 - NPDES Consent Order
- Each document covers the entire watershed including eastern, central, and western flow-paths
- Contain a series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

Water Quality Key Projects

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



Governor's Restoration Strategies Plan



Key Projects Construction Schedule

2012-2016

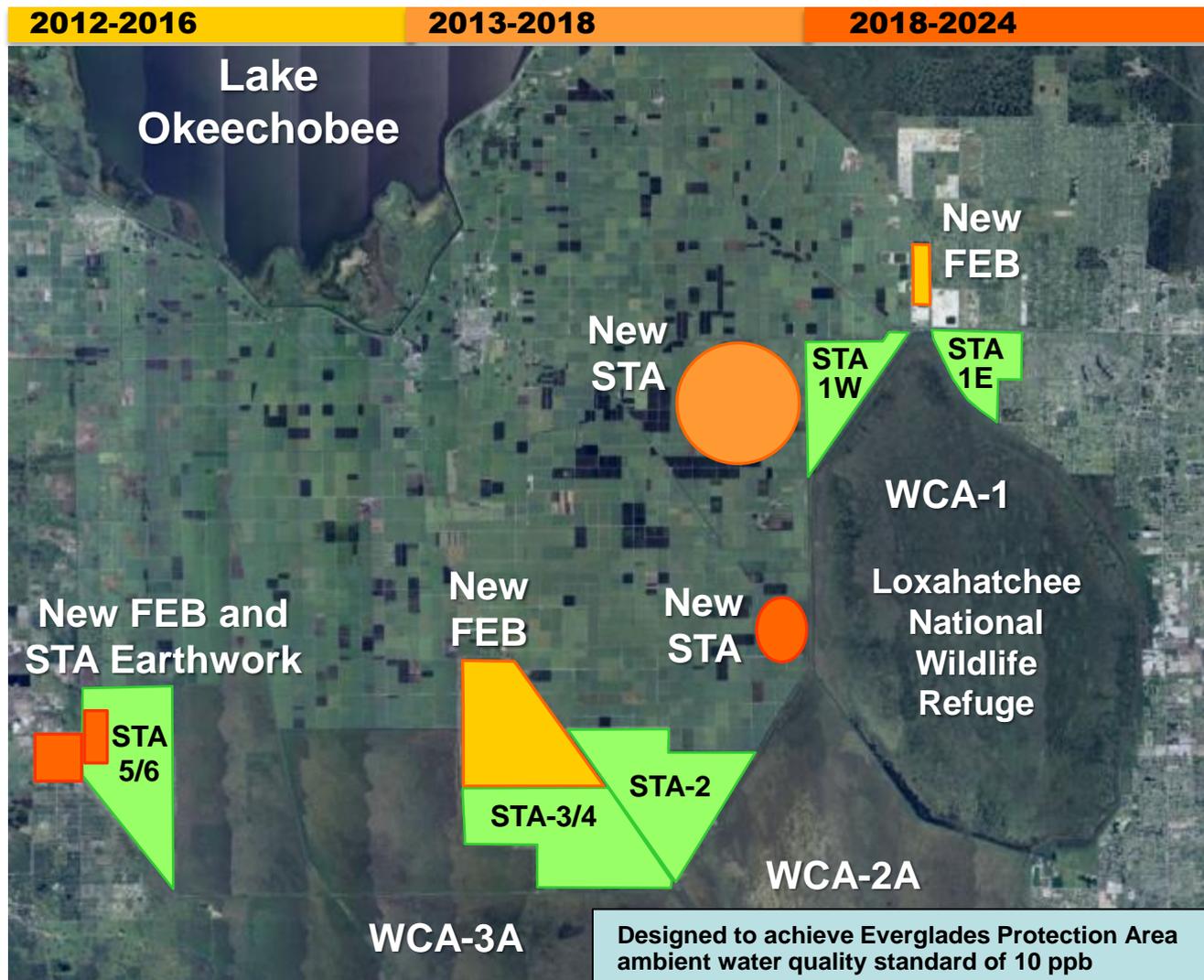
- Eastern Flow-Path: 45,000 acre-foot Flow Equalization Basin
- Central Flow-Path: 54,000 acre-foot Flow Equalization Basin

2013-2018

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

2018-2024

- Eastern Flow-Path: 1,800 acres of STA (2018-2022)
- Western Flow-Path: 11,000 acre-foot Flow Equalization Basin (2018-2023)
- Western Flow-Path: 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 - \$70 M



Restoration Strategies Projects

STA-1W Expansion

■ Purpose

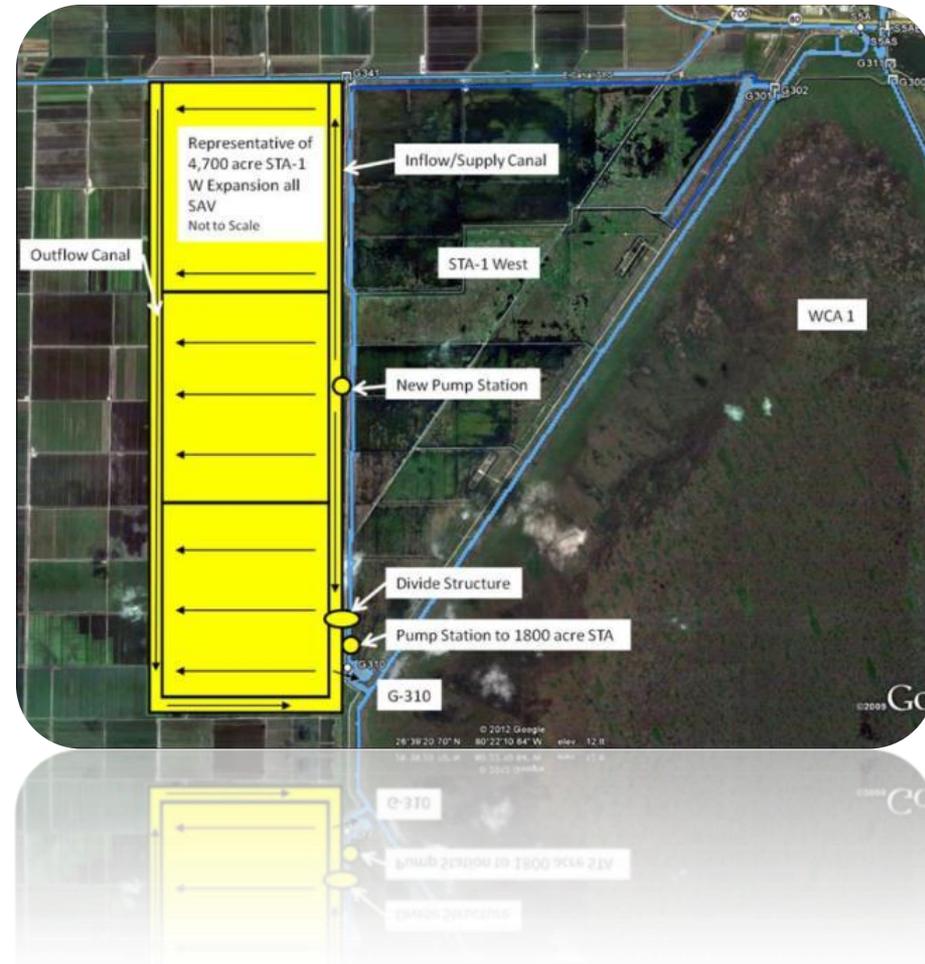
- Expansion of STA-1 West will double its effective treatment area, further reducing phosphorus concentrations
- The expansion will take place in two phases, with the total STA area of approximately 6,500 acres

■ 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

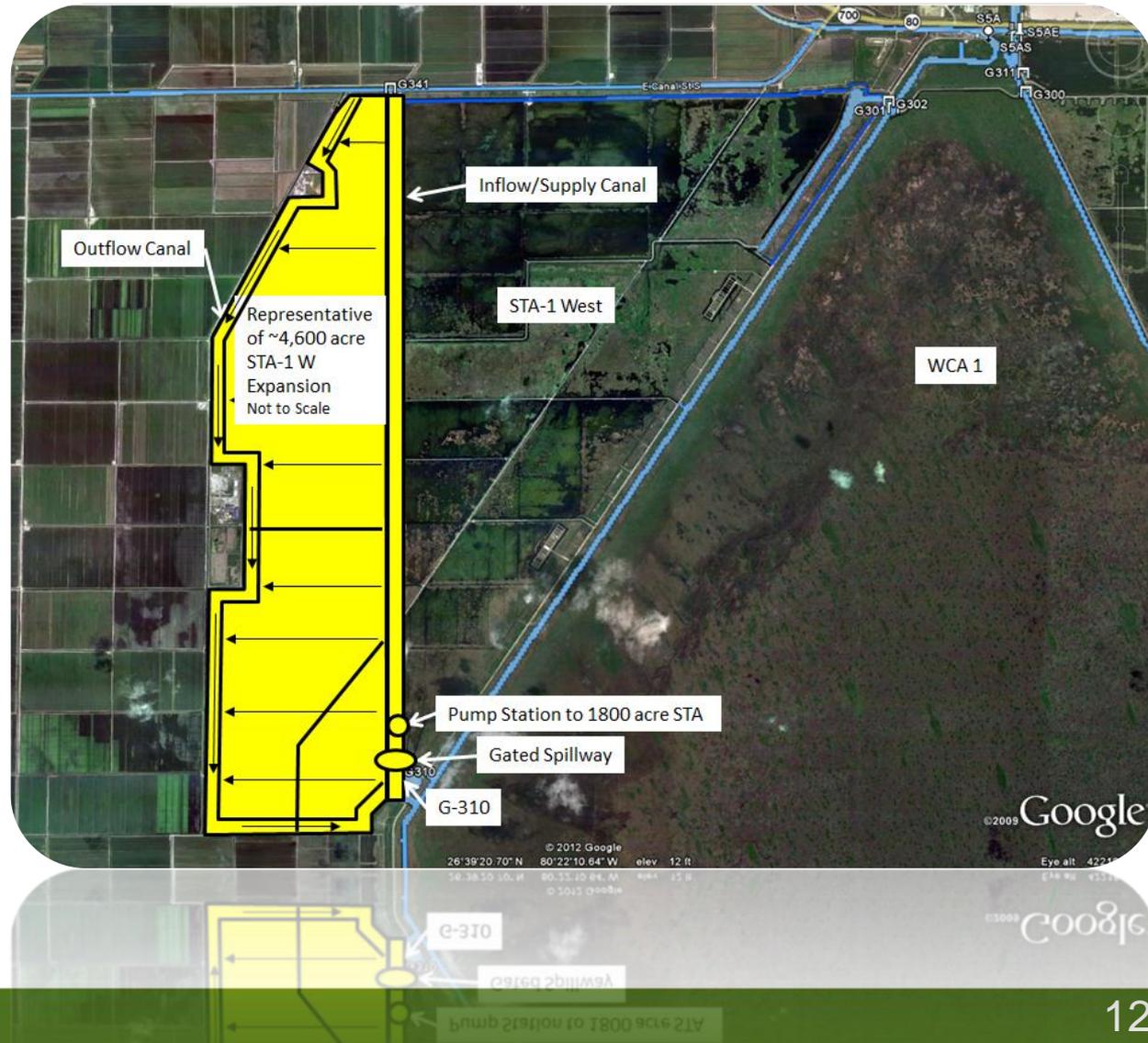


Restoration Strategies Projects

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 September 2018	\$5.2M	\$177K
S-5AS Divide	In design	Construction complete September 2016	\$3.0M	\$0
S-375 Structure Expansion	In design	Construction complete December 2018	\$5.3M	\$0
G-341 Related Improvements	Not active	Initiate design 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

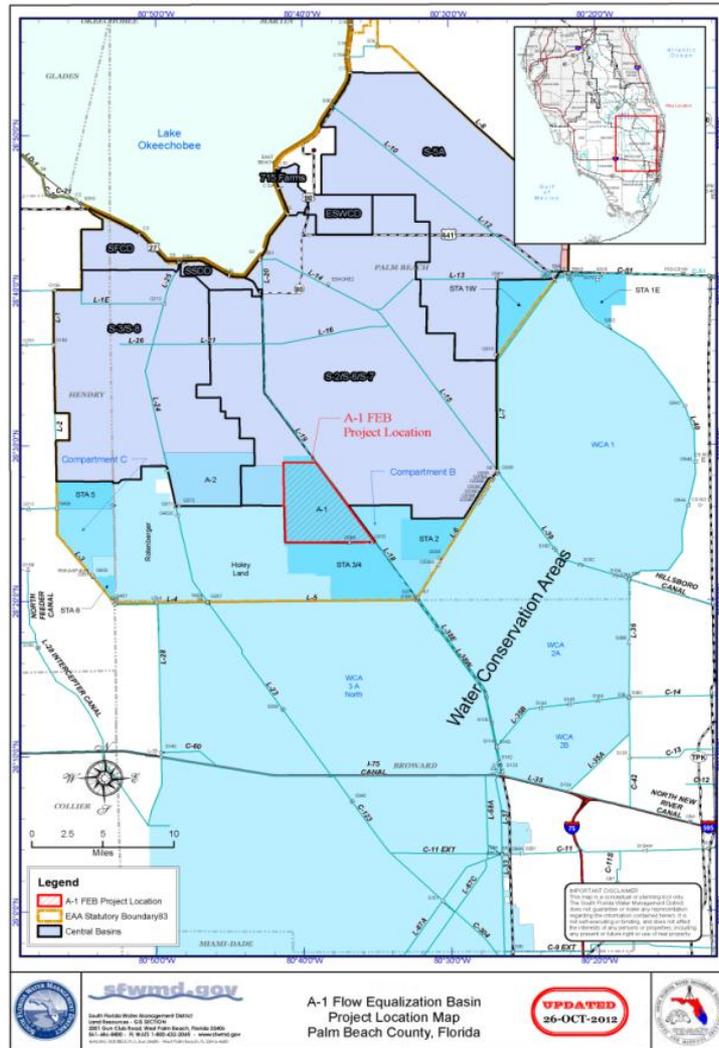
■ Status

- 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

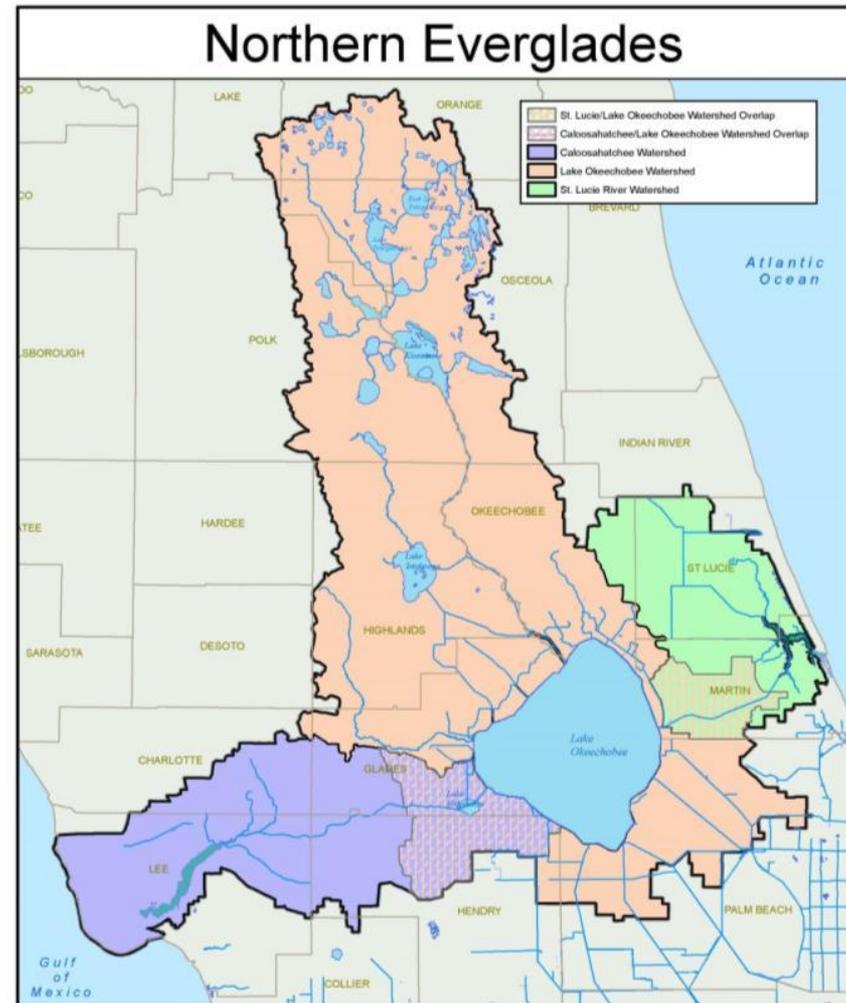
- Purpose - 11,000 acre-feet to attenuate peak storm water flows to improve STA-5/6 treatment performance
- Status - Not active
- Next Steps -Initiate design by December 2019
- Costs- \$69.4M; Investment to Date- none

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

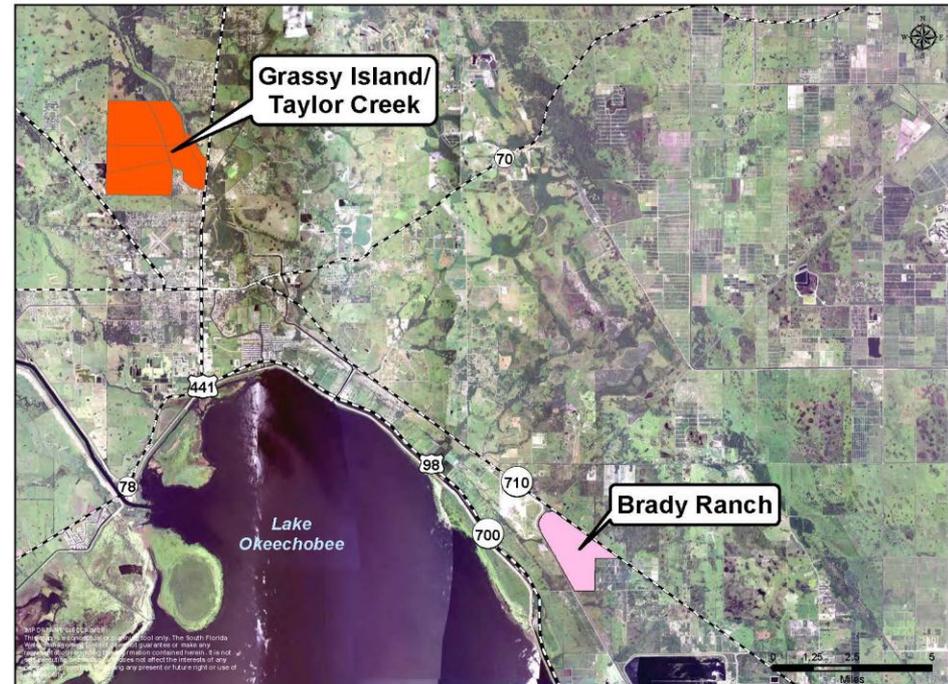
- Next Steps
 - Evaluate effectiveness of Phase I
 - Phase II construction contingent upon additional funding
- Estimated Total Cost - \$106.6M
 - SFWMD/State investment to date - \$55.2M



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

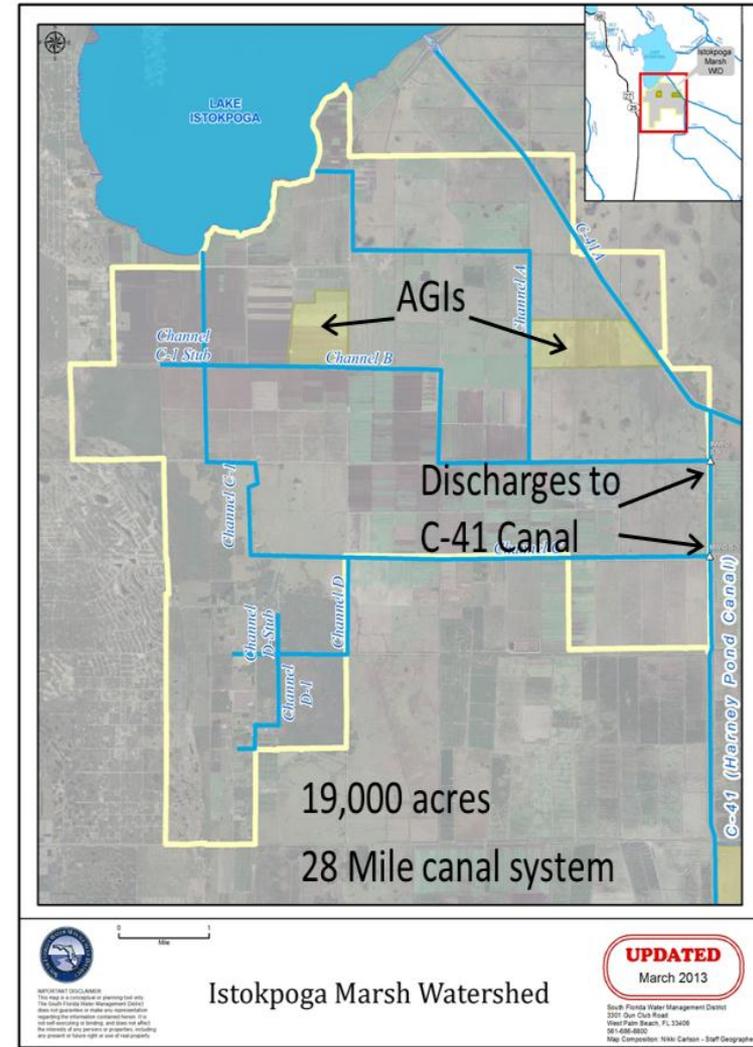
Grassy Island and Brady Ranch Properties North of Lake Okeechobee

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

Lake Okeechobee Watershed

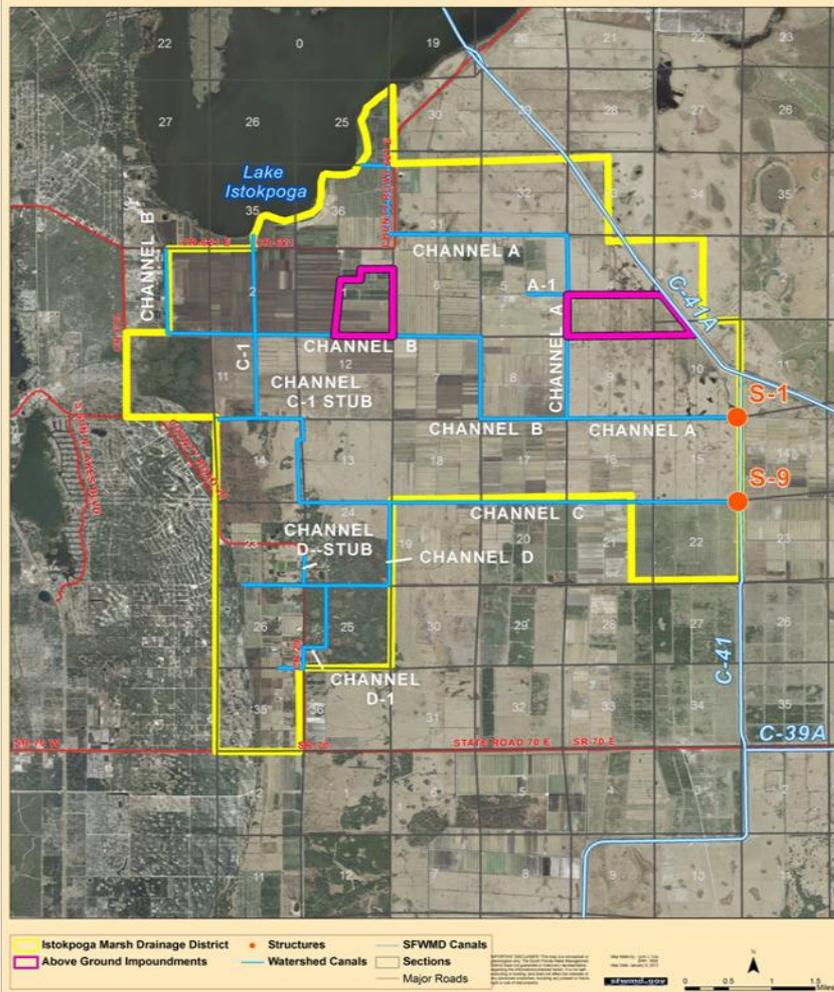
Istokpoga Marsh Improvement District Water Quality Project

- 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

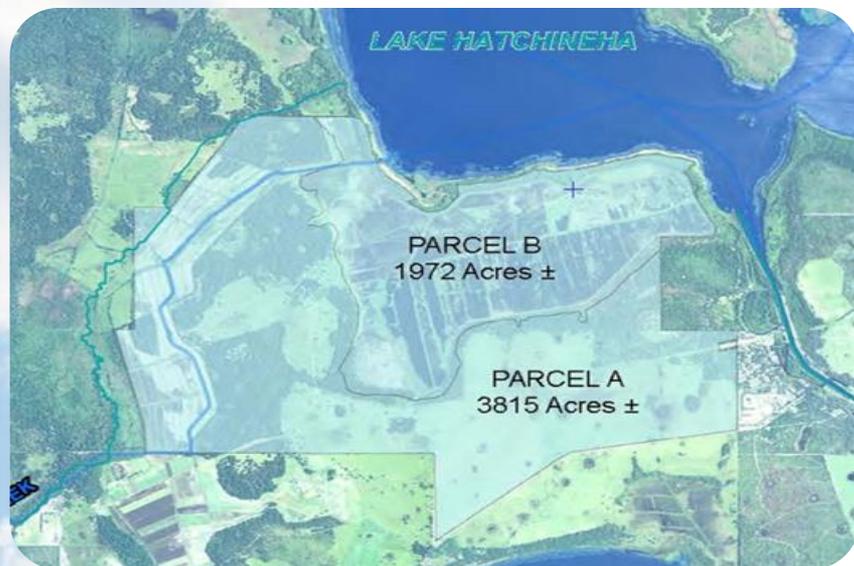
Lake Okeechobee Watershed Rolling Meadows Wetland Restoration

- 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 - \$38 M



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



Questions?

www.sfwmd.gov/restorationstrategies

