



Everglades Restoration Strategies Key Projects

Melissa L. Meeker, SFWMD Executive Director

June 19, 2012

Technical Plan

Water Quality Based Effluent Limit

- Existing Phosphorus Criterion for Everglades Protection Area
 - 10 parts per billion (ppb) measured as a long-term geometric mean
 - Established to prevent an imbalance of flora or fauna

- WQBEL
 - Establish a phosphorus discharge limit for projects (STAs) that will achieve the 10 ppb marsh criterion
 - Derived a statistical equivalent of 10 ppb geometric mean that could be expressed as a flow weighted mean

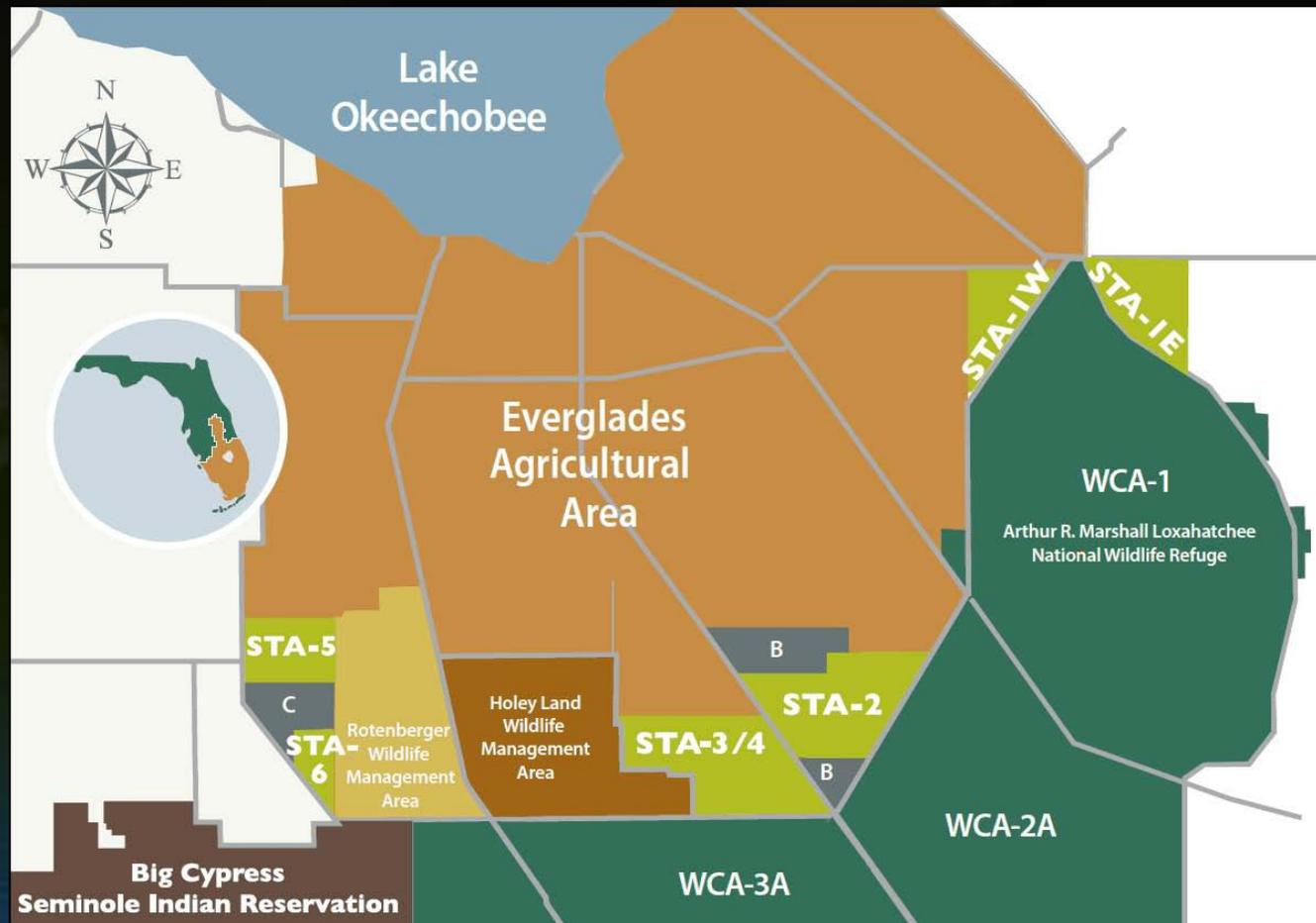
Water Quality Key Projects

- 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
 - More than 100 modeling simulations
- Project Types
 - STA expansions
 - Flow equalization basins (FEBs)
- Additional Components
 - Sub-regional source controls
 - Habitat restoration

Key Projects

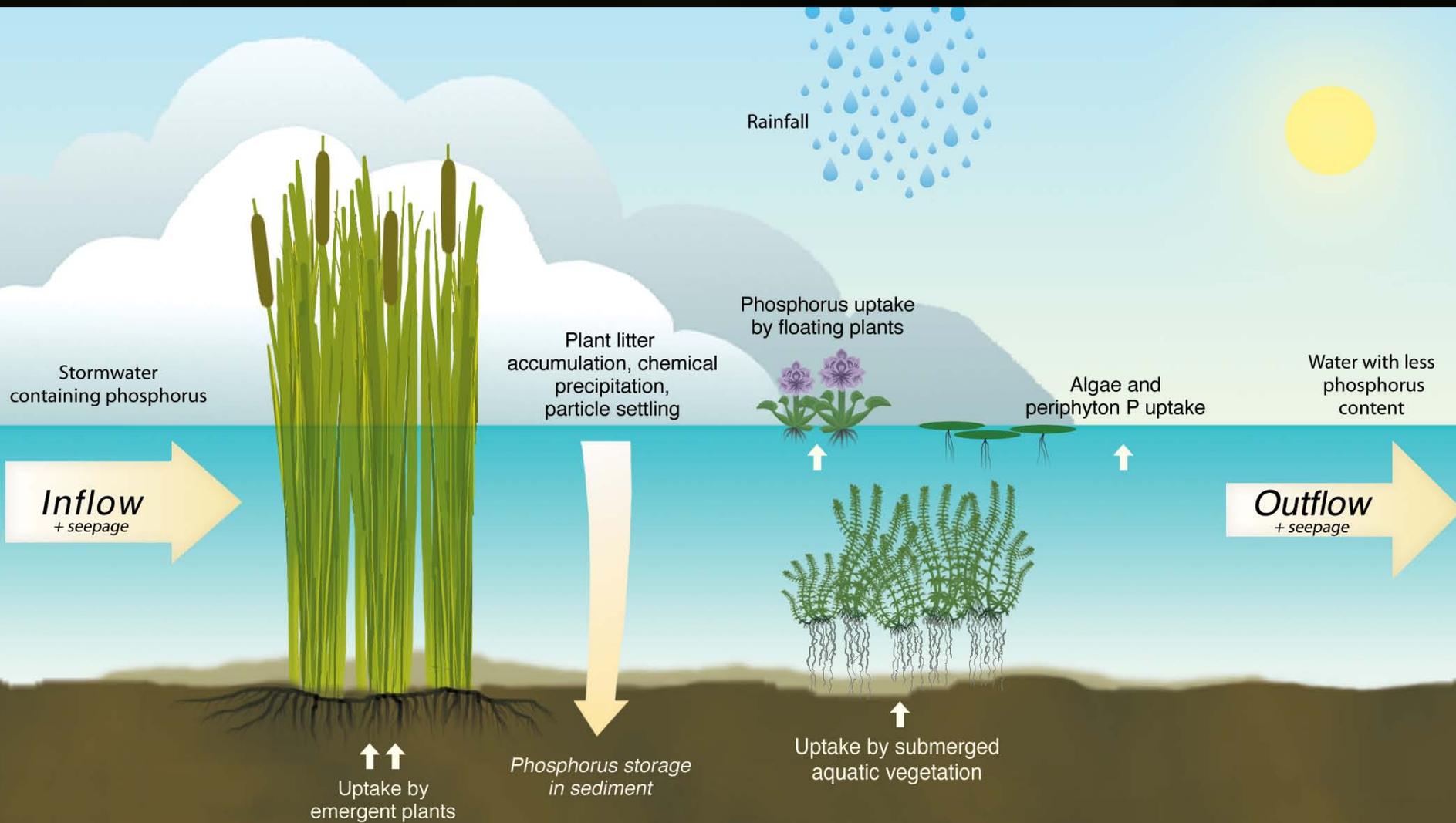
Existing Treatment

- 5 Stormwater Treatment Areas
- 57,000 acres of effective treatment
- 11,500,000 acre-feet (3.75 Trillion gallons) of water treated
- 1,470 Metric Tons of phosphorus removed
- Total phosphorus discharge concentrations for best performing STA (3/4) is 17 ppb for period of record

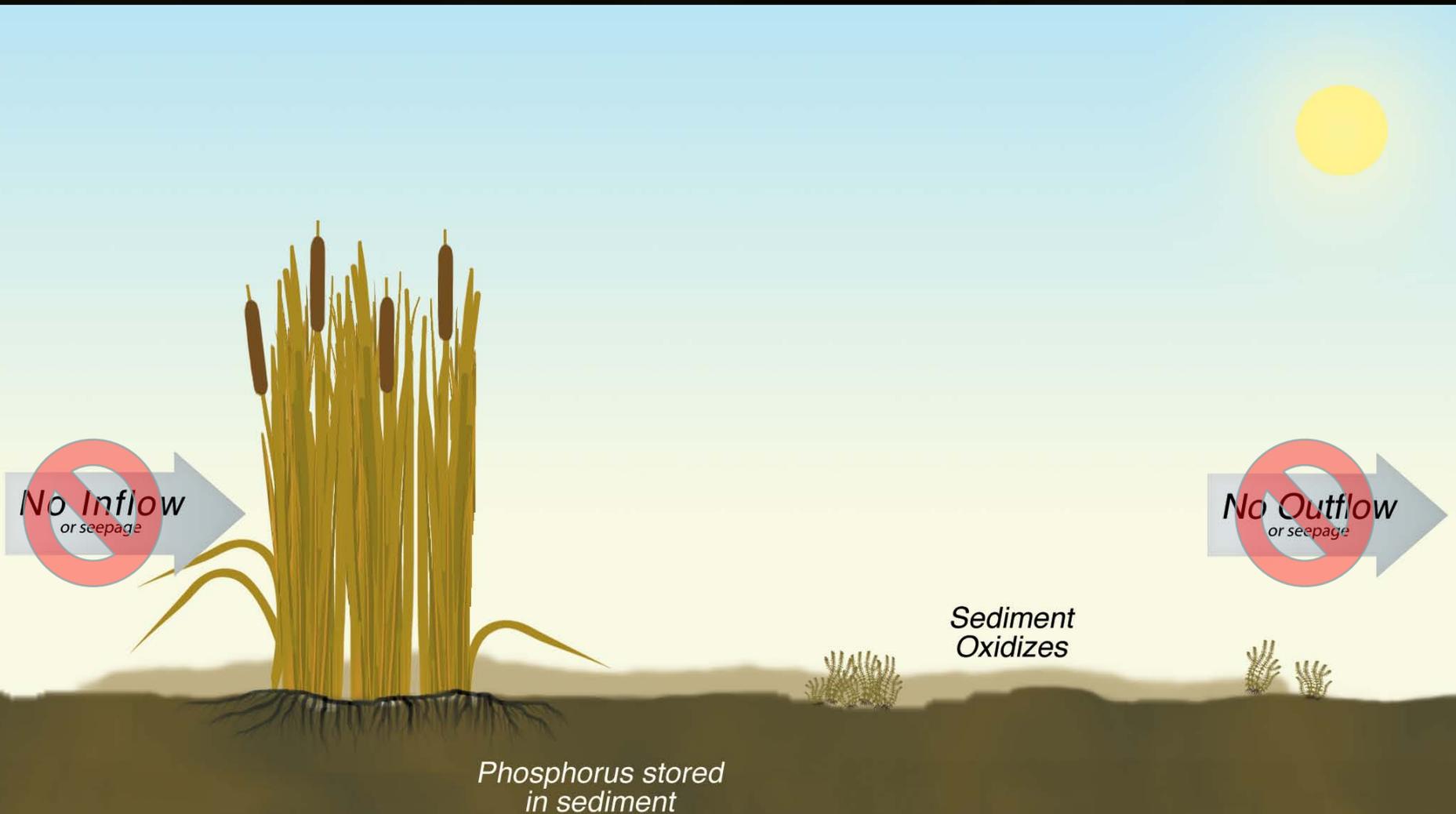


Areas in gray marked with a "B" or "C" represent the current expansion of existing Stormwater Treatment Areas

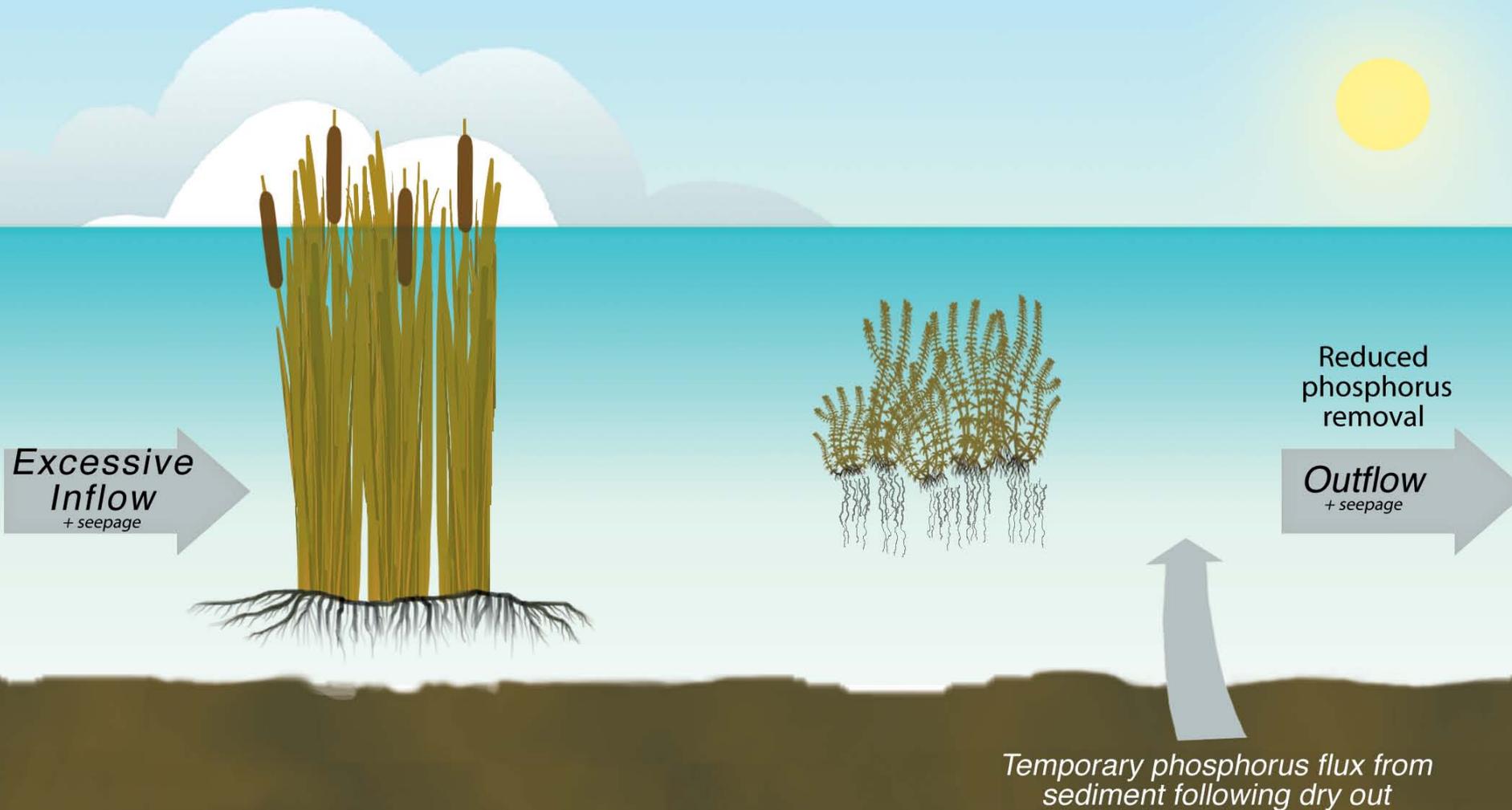
Stormwater Treatment Areas Optimized Conditions



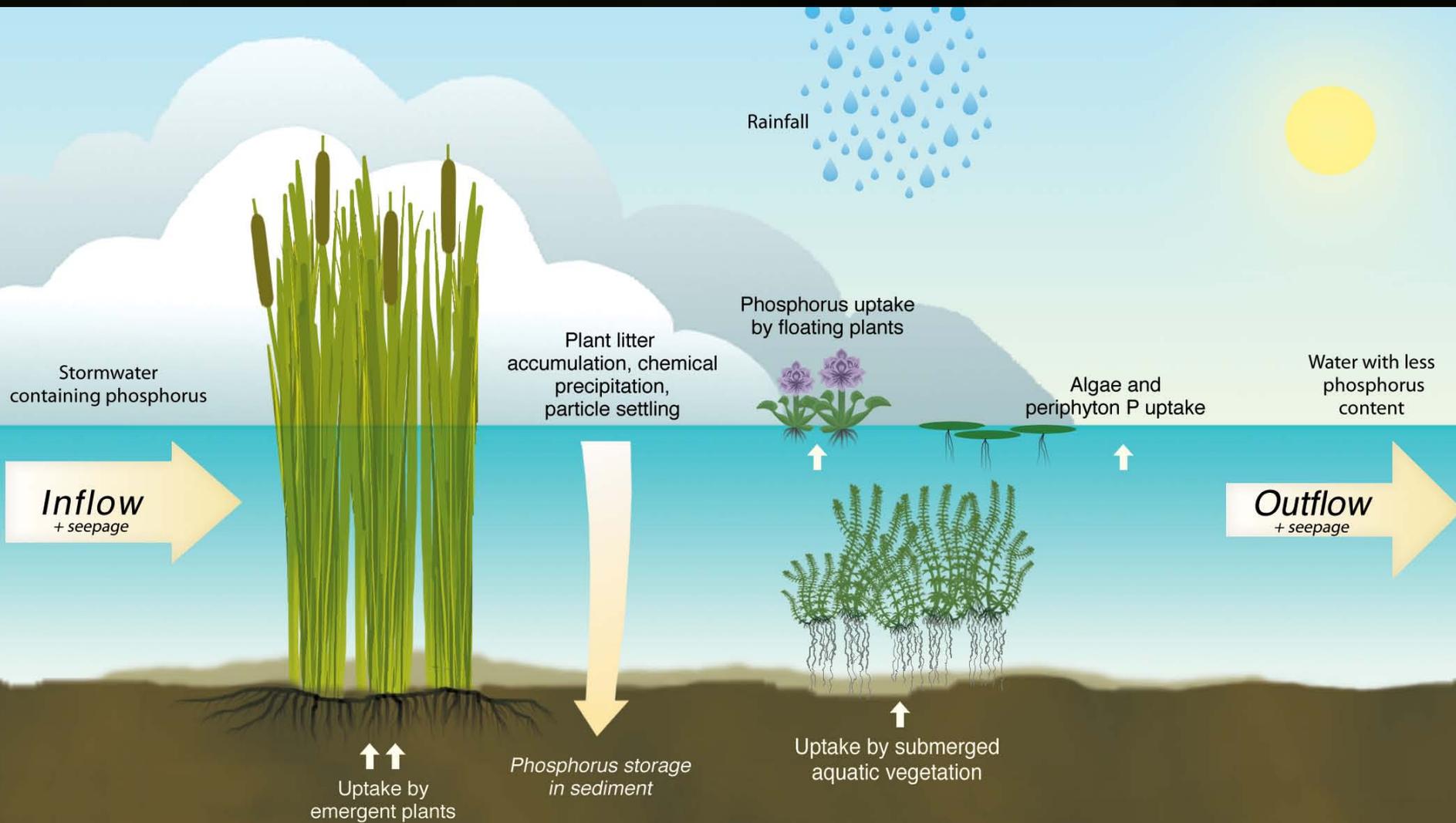
Stormwater Treatment Areas Dry Out - No Flow Conditions



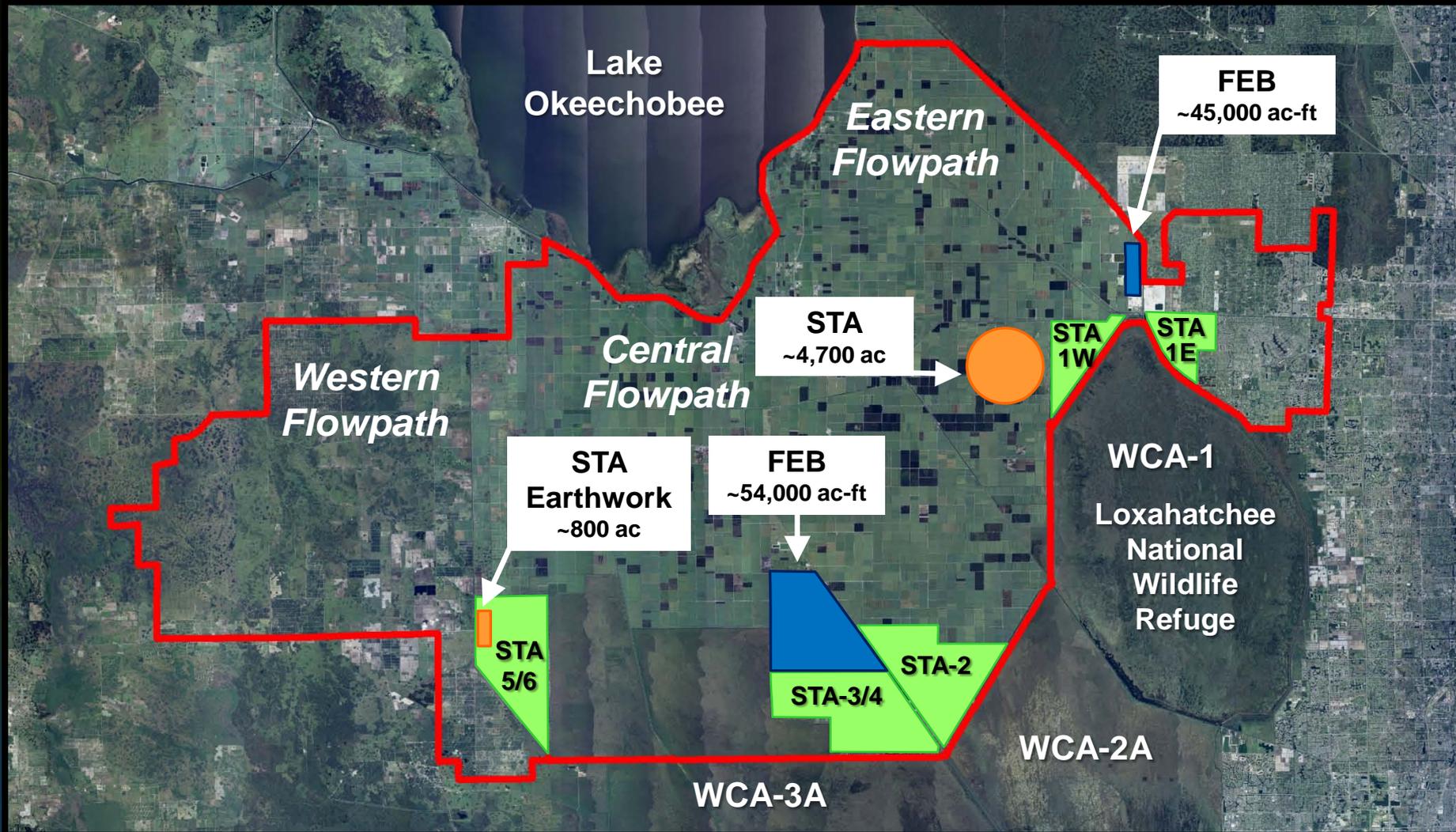
Stormwater Treatment Areas Deep Water or Rewetting after Dry Conditions



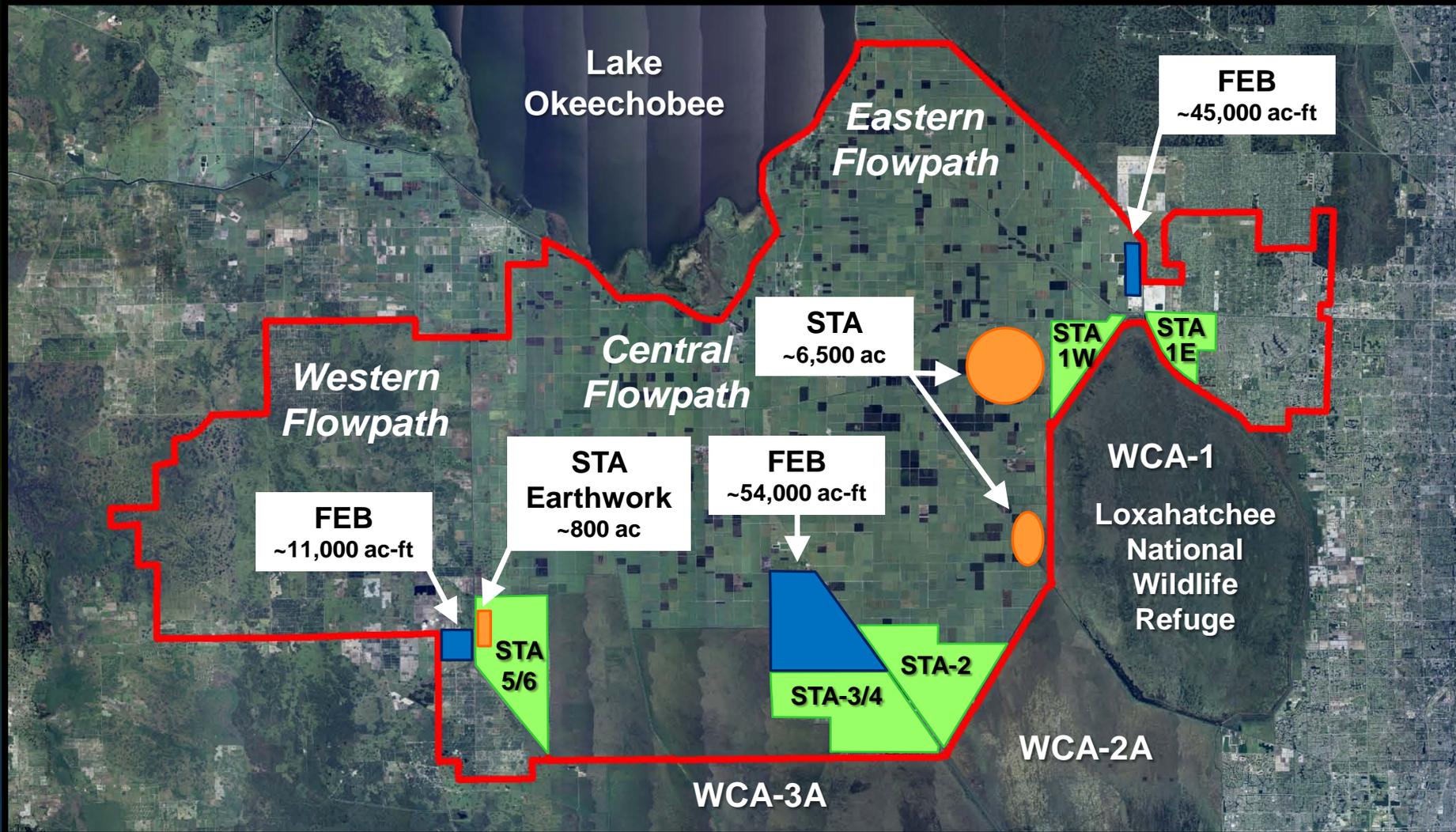
Stormwater Treatment Areas Optimized Conditions



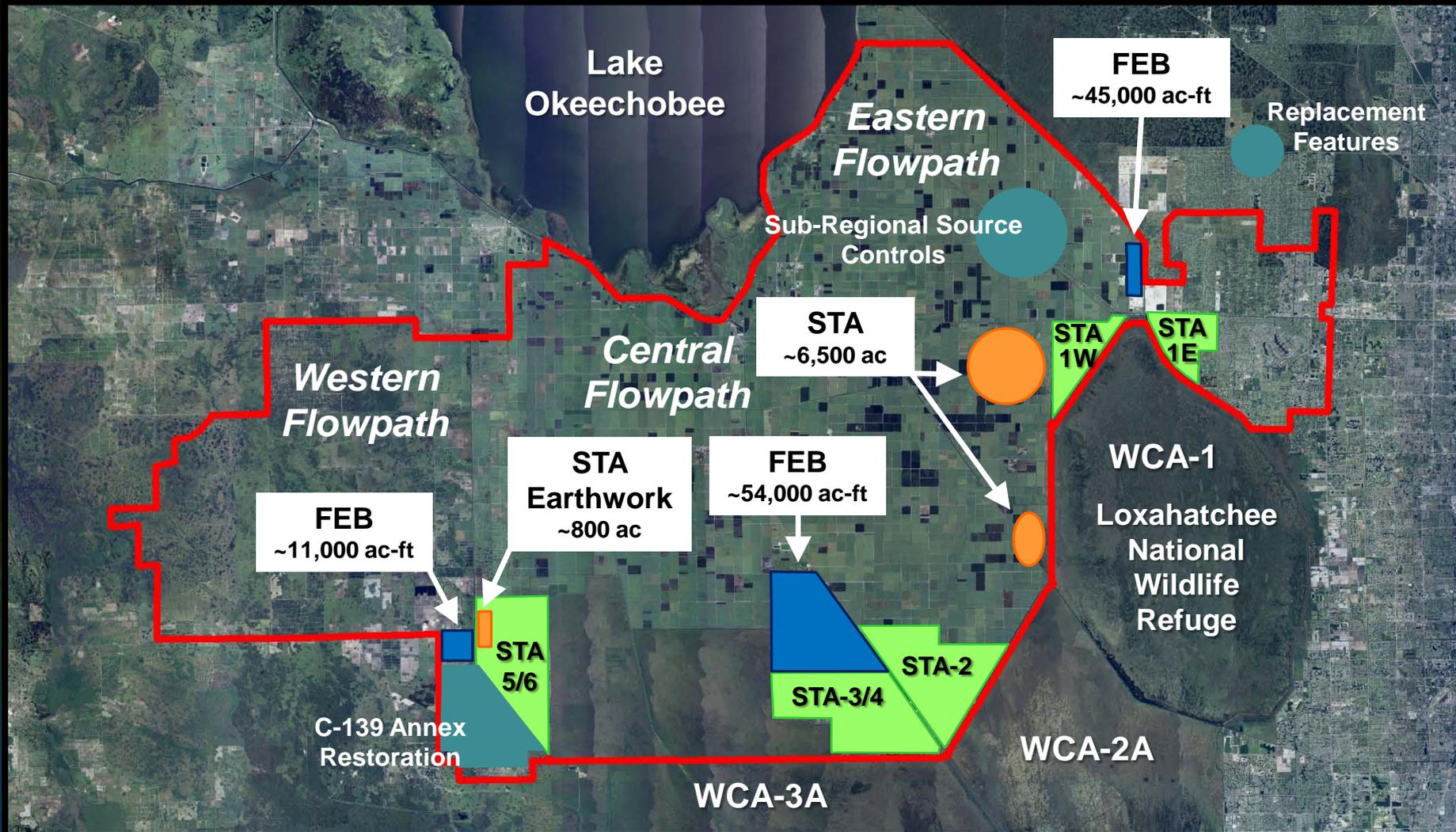
Key Projects State Proposal – October 2011



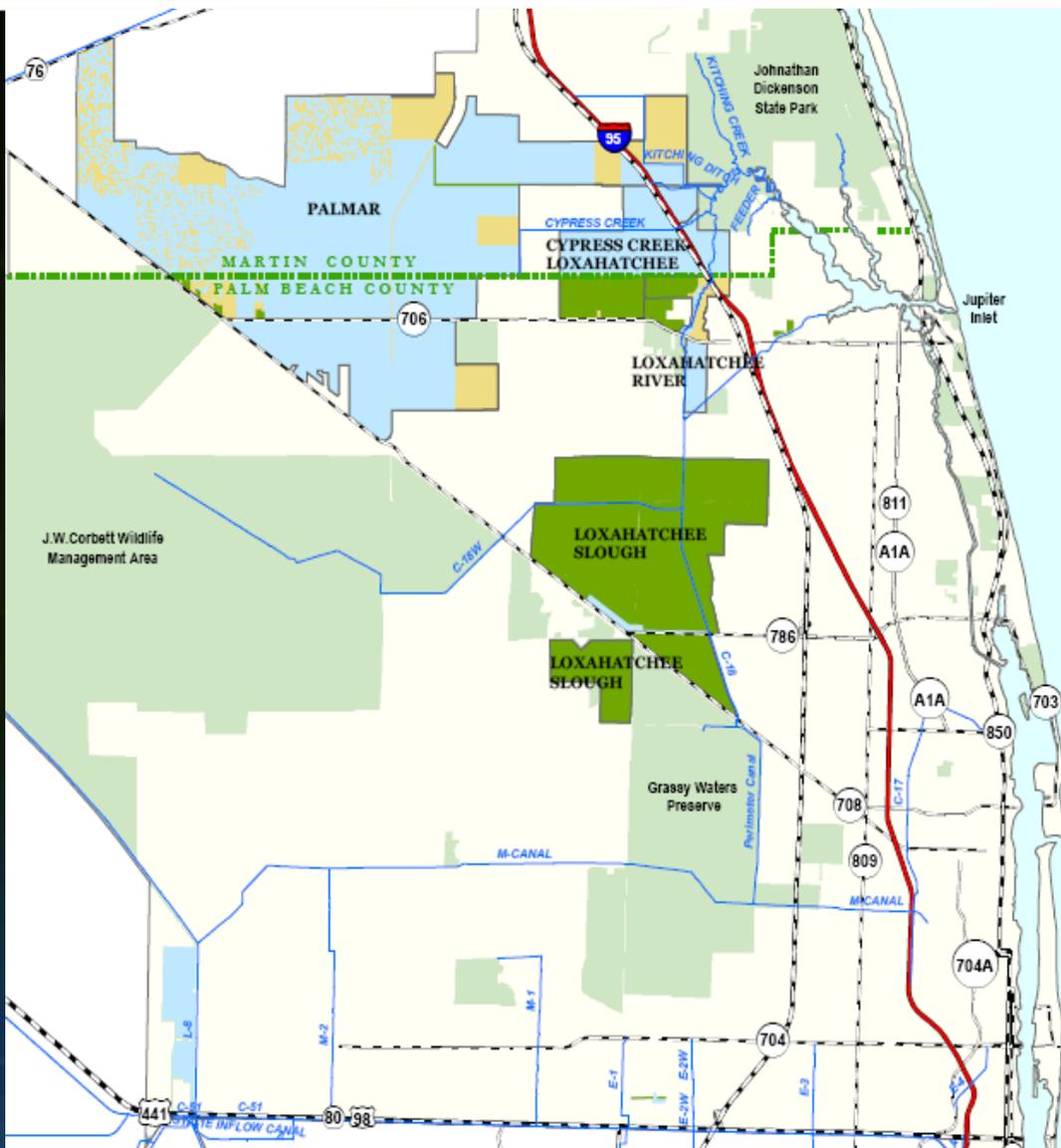
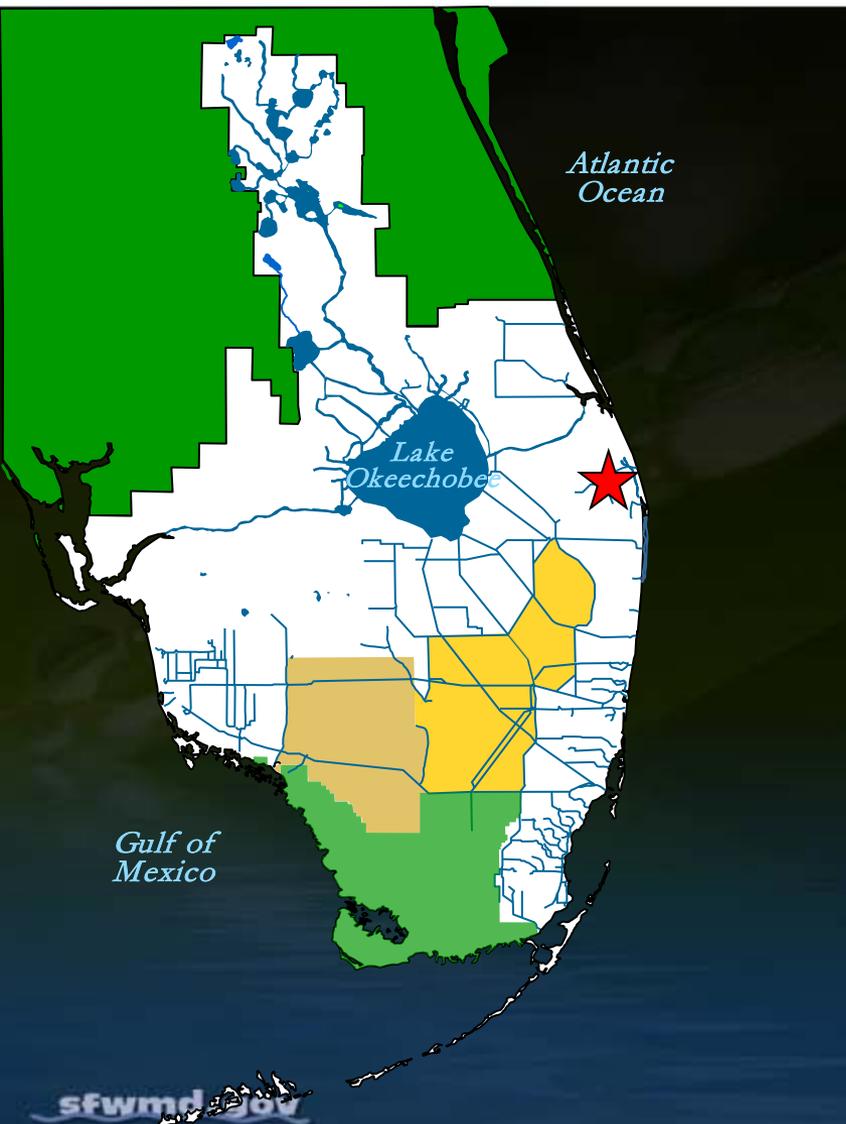
Key Projects Proposed Projects – May 2012



Additional Components Proposed Projects – May 2012



Replacement Features Loxahatchee River Watershed Restoration



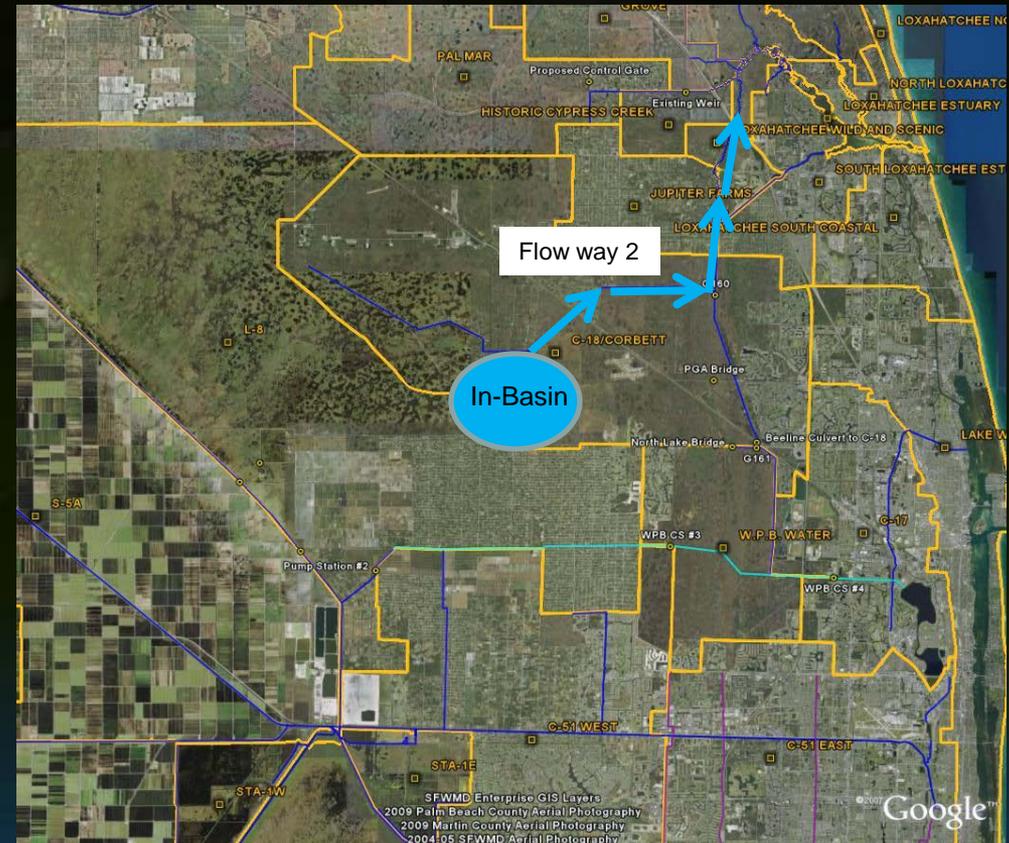
Replacement Features Loxahatchee River Watershed Restoration

- Comprehensive Everglades Restoration Plan (CERP) Project
- Designed to capture, store and treat excess water that is currently discharged to the Lake Worth Lagoon and use that water to enhance the Loxahatchee River and Slough
- CERP project is the MFL recovery plan for the Loxahatchee River



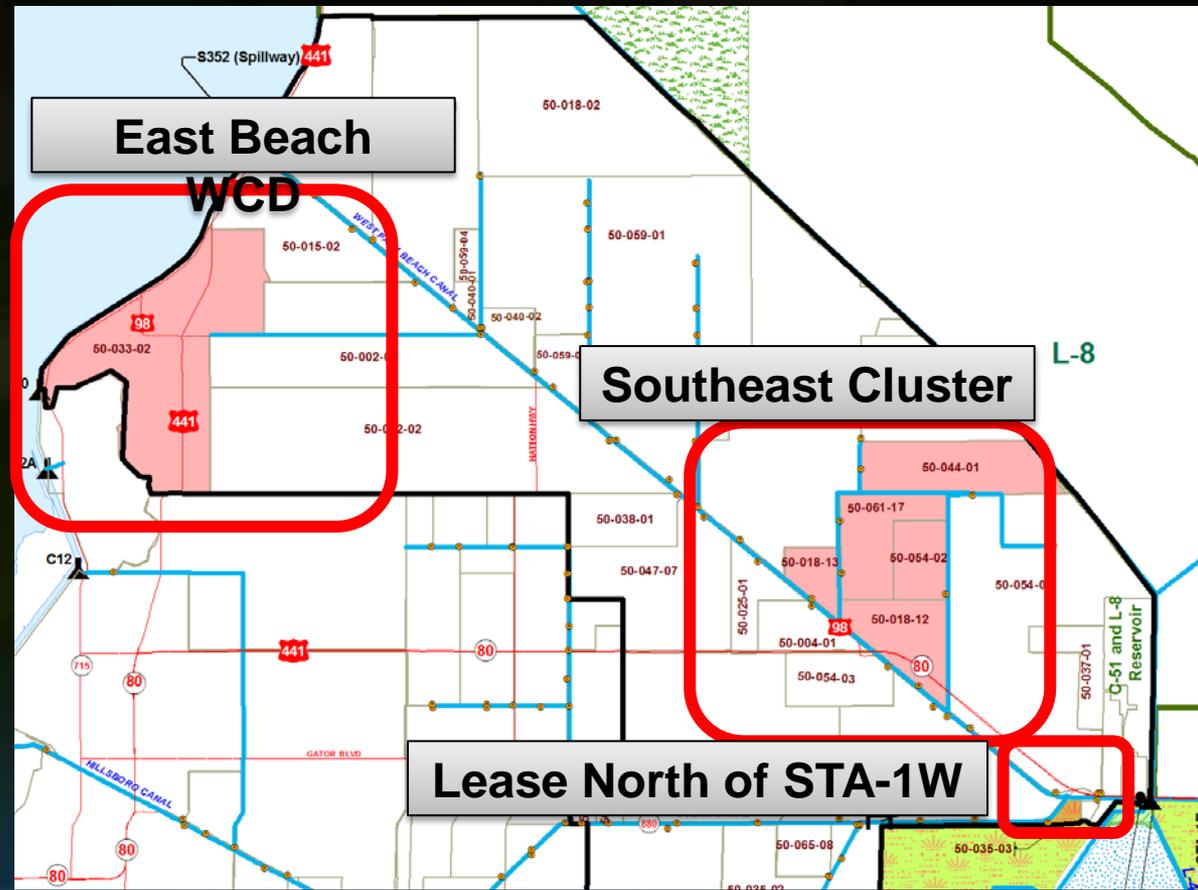
Additional Components Replacement Features

- Acquire and construct replacement storage to capture flows from C-18 western basin and then discharge those flows down Flow-way 2 to the Loxahatchee River
- Non-binding letter of Intent to Negotiate submitted to Palm Beach County
- Initiate discussions regarding Mecca property
- Utilize L-8 reservoir as Flow Equalization Basin



Additional Components Sub-regional Source Controls

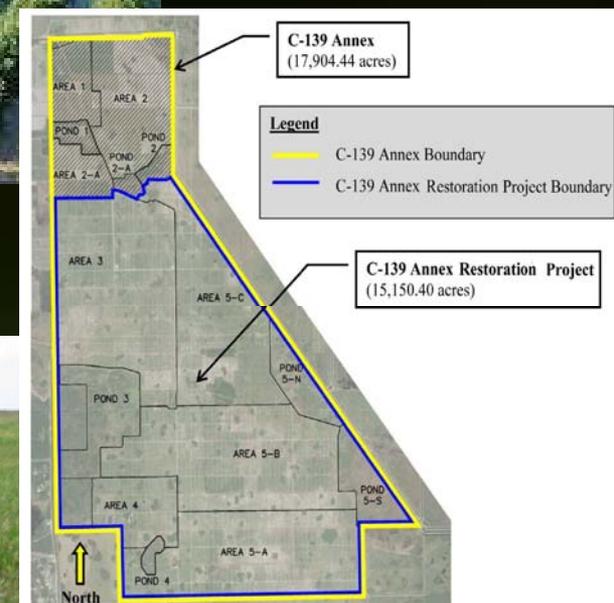
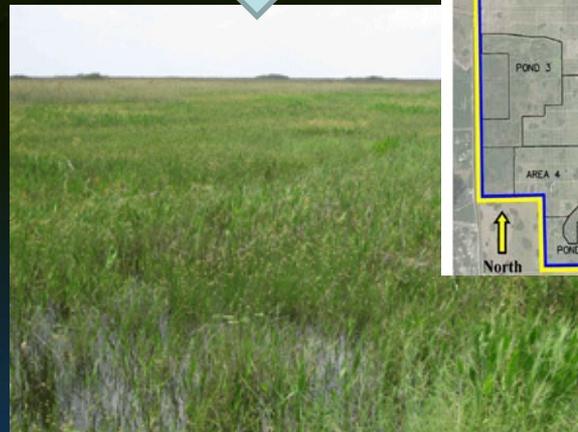
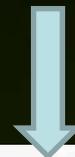
- Identify opportunities for additional cost effective sub-regional source control projects in S5A Sub-Basin to reduce total phosphorus inputs to STA-1 West & 1 East
- Considerations - water quality, willing participants, proximity/impact on STAs
- Three conceptual projects
 - Increase retention
 - Reduce runoff rates
 - Improve canal bank stabilization
 - Sediment sumps
 - Aquatic vegetation control



Additional Components

C-139 Annex Restoration Mitigation Project

- Restore historic Everglades hydrologic conditions to 15,000 acres of former citrus grove
- Contribute to the improvement of water quality in the Everglades
- Restore historic wetlands and upland habitat
- Expand habitat area for listed plant and animal species
- Promote the restoration of a self-sustaining ecosystem
- Maintain the current level of flood protection for surrounding properties



Key Projects Science Plan

■ Objectives:

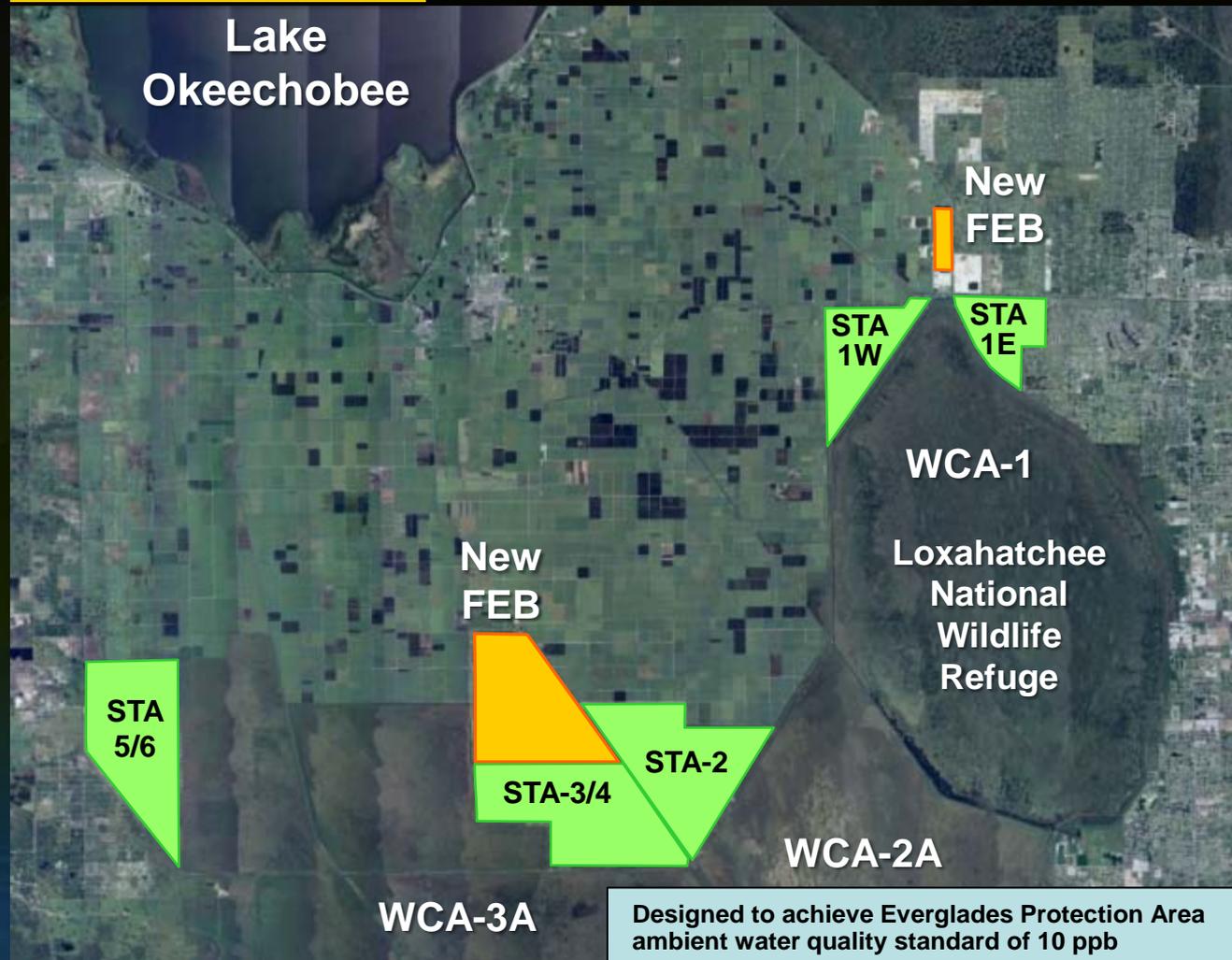
- Requires research regarding STA and FEB performance
- Evaluate factors influencing phosphorus treatment performance
 - Investigate factors such as hydraulic loading rates, phosphorus and vegetation speciation, microbial activity, soil flux
 - Gain a better understanding of design and operations that sustain low phosphorus outflow concentrations (< 20 ppb)
- Determine how information from the science plan can be implemented to improve treatment performance of existing projects

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

2012-2016



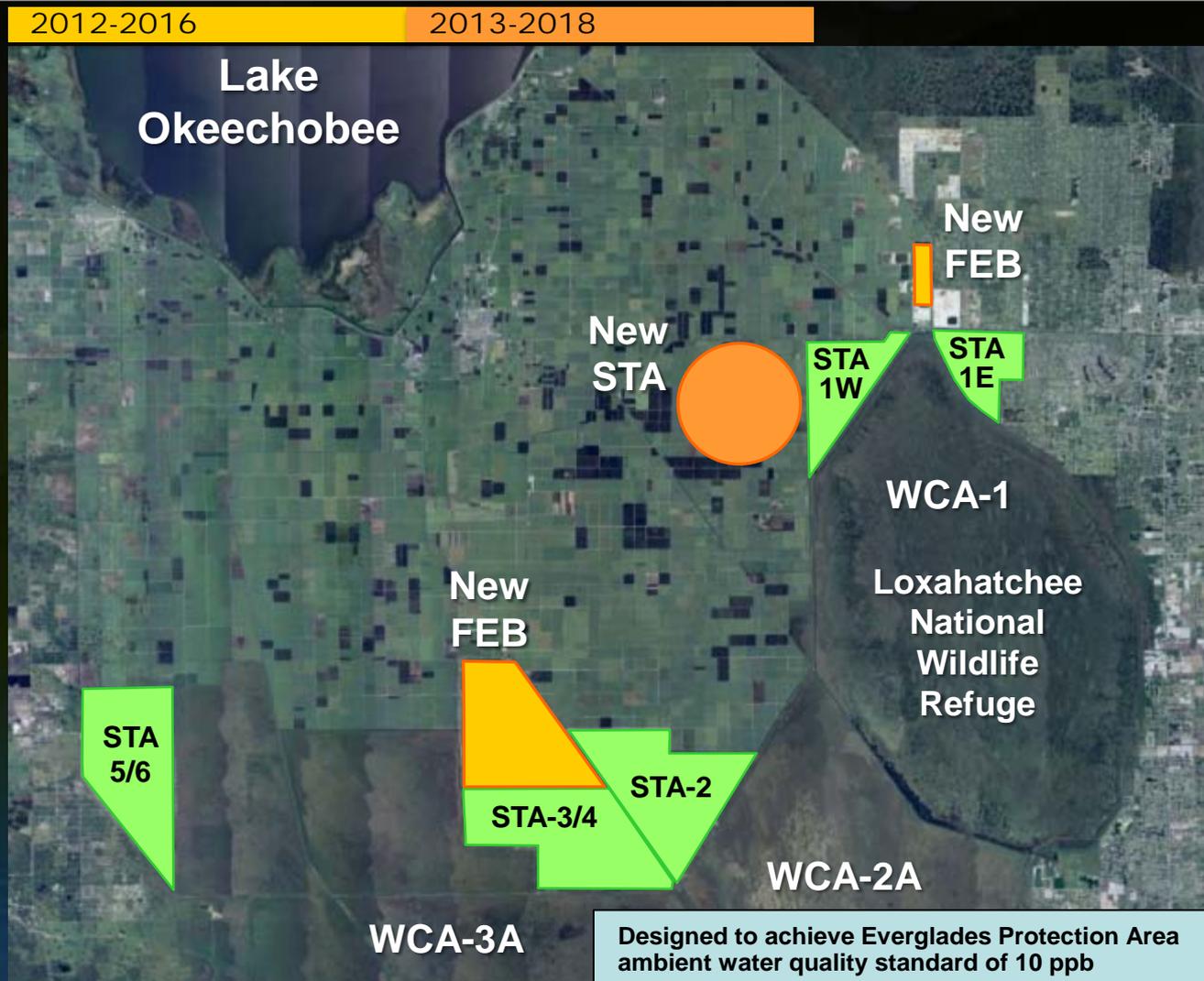
Key Projects Construction Schedule

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)



Key Projects Construction Schedule

2012-2016

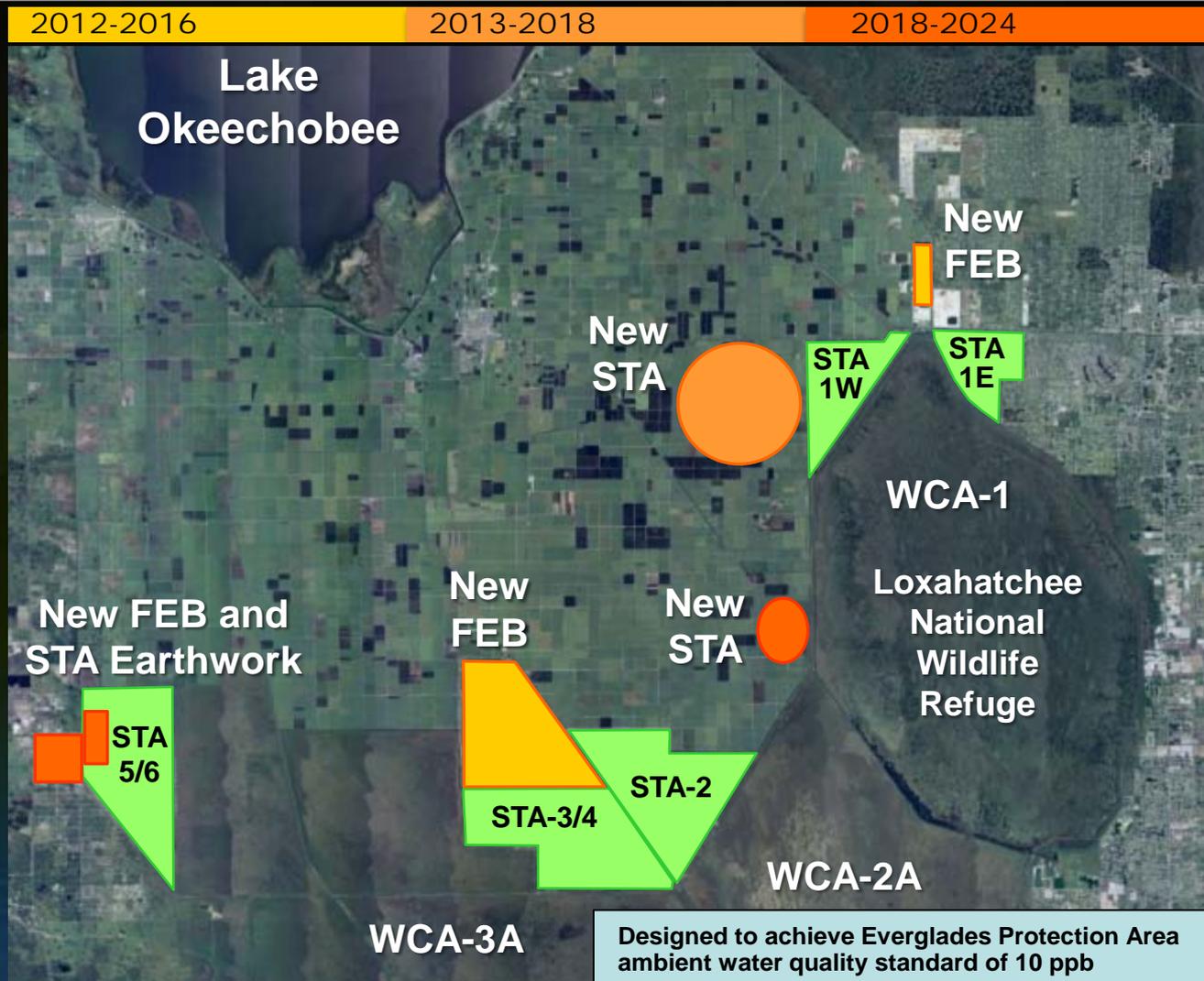
- Eastern Flow-Path: 45,000 acre-foot Flow Equalization Basin
- Central Flow-Path: 54,000 acre-foot Flow Equalization Basin

2013-2018

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

2018-2024

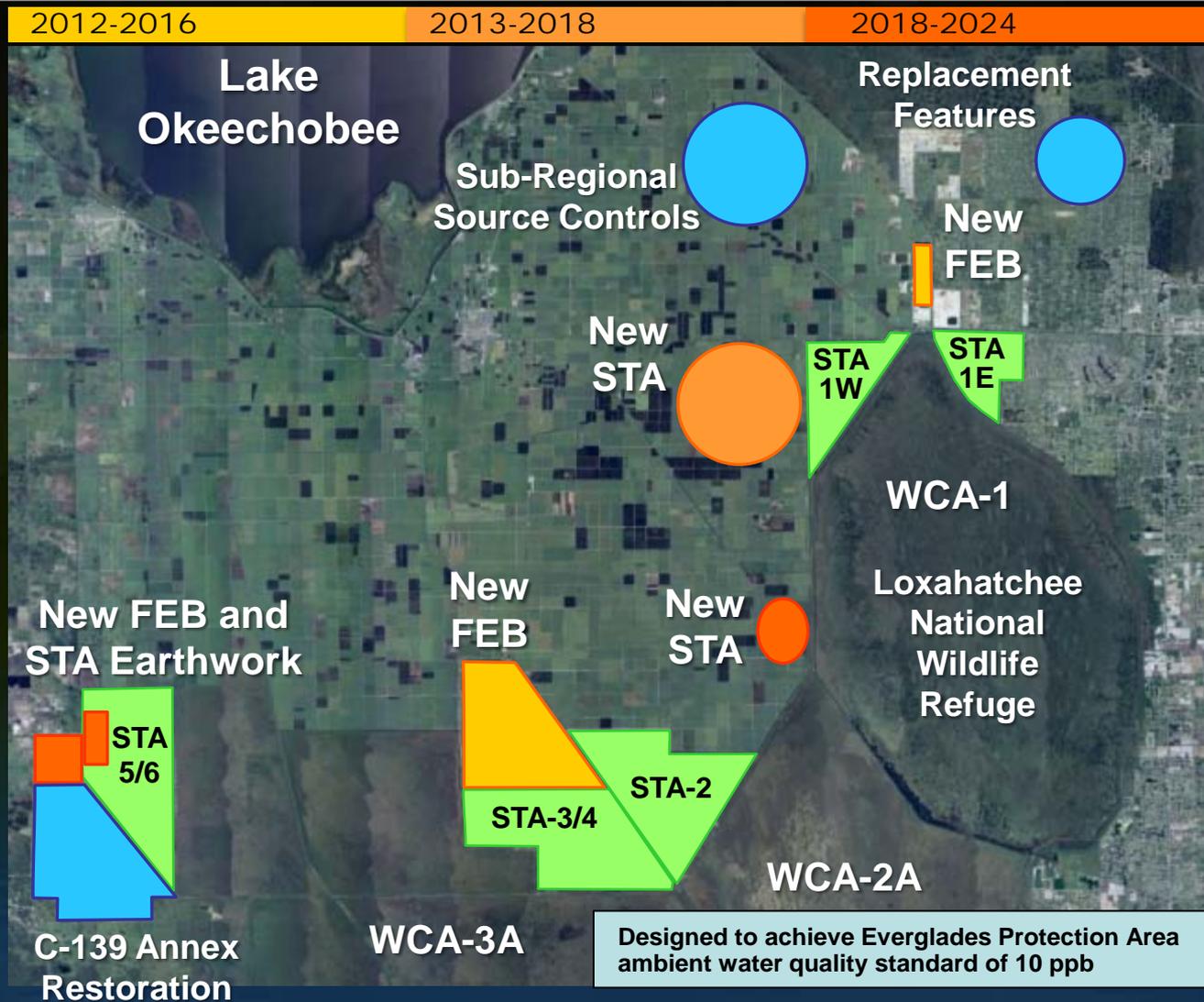
- Eastern Flow-Path: 1,800 acres of STA (2018-2022)
- Western Flow-Path: 11,000 acre-foot Flow Equalization Basin (2018-2023)
- Western Flow-Path: 800 acres of earthwork within existing STAs to maximize effective treatment area (2019-2024)



Key Projects Construction Schedule

Summary

- **Storage and Treatment Facilities (2012-2024)**
 - 6,500 acres of Stormwater Treatment Area (STA)
 - 110,000 acre-feet of shallow storage (Flow Equalization Basins)
 - 800 acres of earthwork within existing STAs to maximize effective treatment area
- **Sub-Regional Source Controls (2015 – 2020)**
- **Replacement Features**
 - Phase 1 (2015 – 2020)
 - Phase 2 (2019 – 2024)
- **C-139 Annex Restoration Mitigation Project (2014-2018)**



Funding Estimated Project Costs

Flow Path	Projects	Cost
Eastern Flow Path	FEB & STAs	\$365M
Central Flow Path	FEB	\$120M
Western Flow Path	FEB & Earthwork	\$130M
	Replacement Features	\$180M
	Science Plan	\$ 55M
	Source Controls	\$ 30M
	Total	\$880M



Questions