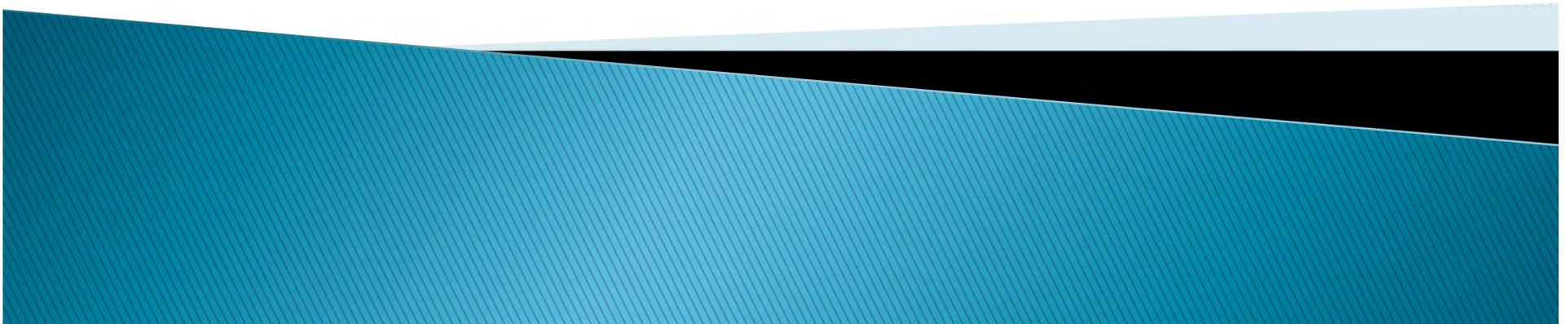


# Progress on Efforts to Restore Everglades Water Quality

Bob Sussman

Senior Policy Advisor to the Administrator, USEPA

June 19, 2012



# Recent Development

- ▶ June 13, 2012, EPA Regional Administrator letter to FDEP Secretary:

“I am pleased to inform you that the permit revisions address our objections to prior permits received by the EPA, and the State's plan meets the water quality goals in our September 3, 2010, Amended Determination (AD) and establishes an enforceable framework for ensuring compliance with the Clean Water Act (CWA) and its applicable regulations.”

- ▶ This sets the stage for FDEP to issue permits and enter consent orders for the Stormwater Treatment Areas (STAs) that authorize the SFWMD to build additional projects to meet water quality goals for the Everglades.



# Brief History

- ▶ April 14, 2010, Judge Alan Gold ordered EPA to tell the State of Florida how to correct deficiencies under the CWA for meeting water quality requirements in discharges to the Everglades.
- ▶ On September 3, 2010, under the guidance and leadership of Administrator Jackson, EPA issued the Amended Determination (AD) – a blueprint for Everglades water quality restoration that included:
  - *A water quality-based effluent limit (WQBEL), and*
  - *Projects and timeframes for achieving the WQBEL.*
- ▶ EPA invited the State to submit an alternative WQBEL and remedies that met the goals of the AD



# Permitting

- ▶ **April 14, 2010**, Judge Gold ordered the State to submit revised NPDES permits that conformed to his order
- ▶ **April 26, 2011**, the permits are submitted for EPA's review under CWA.
- ▶ **June 27, 2011**, EPA formally “objected” to certain provisions of the permits as not consistent with CWA
  - Administrative Orders granting time extensions to meet WQBEL not acceptable
  - Monitoring and reporting not adequate
  - Reporting on diversions around STAs not adequate



# State Submits Alternative Plan

- ▶ **October 6, 2011**, Governor Scott released a conceptual plan with a suite of projects to be built and implemented by the SFWMD to achieve the total phosphorus clean water standard in water delivered to the Everglades.
- ▶ Between **October 2011 and March 2012**, EPA and the State engaged in technical discussions on the State's plan.
- ▶ In **March**, EPA and the State jointly identified enhancements to the Governor's plan that provided greater confidence the WQBEL could be met.



# Permitting to Authorize Plan

- ▶ On June 6, 2012, FDEP submitted:
  - Revised NPDES permit with WQBEL
  - Consent Order between FDEP and SFWMD
  - Framework Agreement between EPA and FDEP
  - Restoration Strategies Document describing projects
- ▶ One week later EPA sends the June 13, 2012 letter to FDEP
- ▶ Next step is for FDEP to issue the notice of draft permits



# Significant and Historic Event

- ▶ First time that EPA and State have agreed on a translation of the WQS for the Everglades into a permit limit (WQBEL)
  - ▶ Includes an enforceable suite of projects with specific deadlines for each phase of each project
  - ▶ Requires project construction to begin now with completion by 2025
  - ▶ Will result in significant water quality improvements as projects are implemented especially in eastern and central flowpaths
  - ▶ Includes a robust plan of monitoring and scientific research to confirm that the restoration is moving forward
  - ▶ Commits SFWMD to develop and implement a Science Plan
  - ▶ Commits SFWMD to meet and consult with science representatives (named by EPA and State) on new science and ongoing performance of STAs on a regular basis
  - ▶ Commits the EPA Regional Administrator, FDEP Secretary and SFWMD Executive Director to meet every 6 months to review progress of projects and pursue resolution of any issues
  - ▶ Establishes an enforceable framework to serve as a backstop to ensure progress moves forward appropriately
- 



# 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

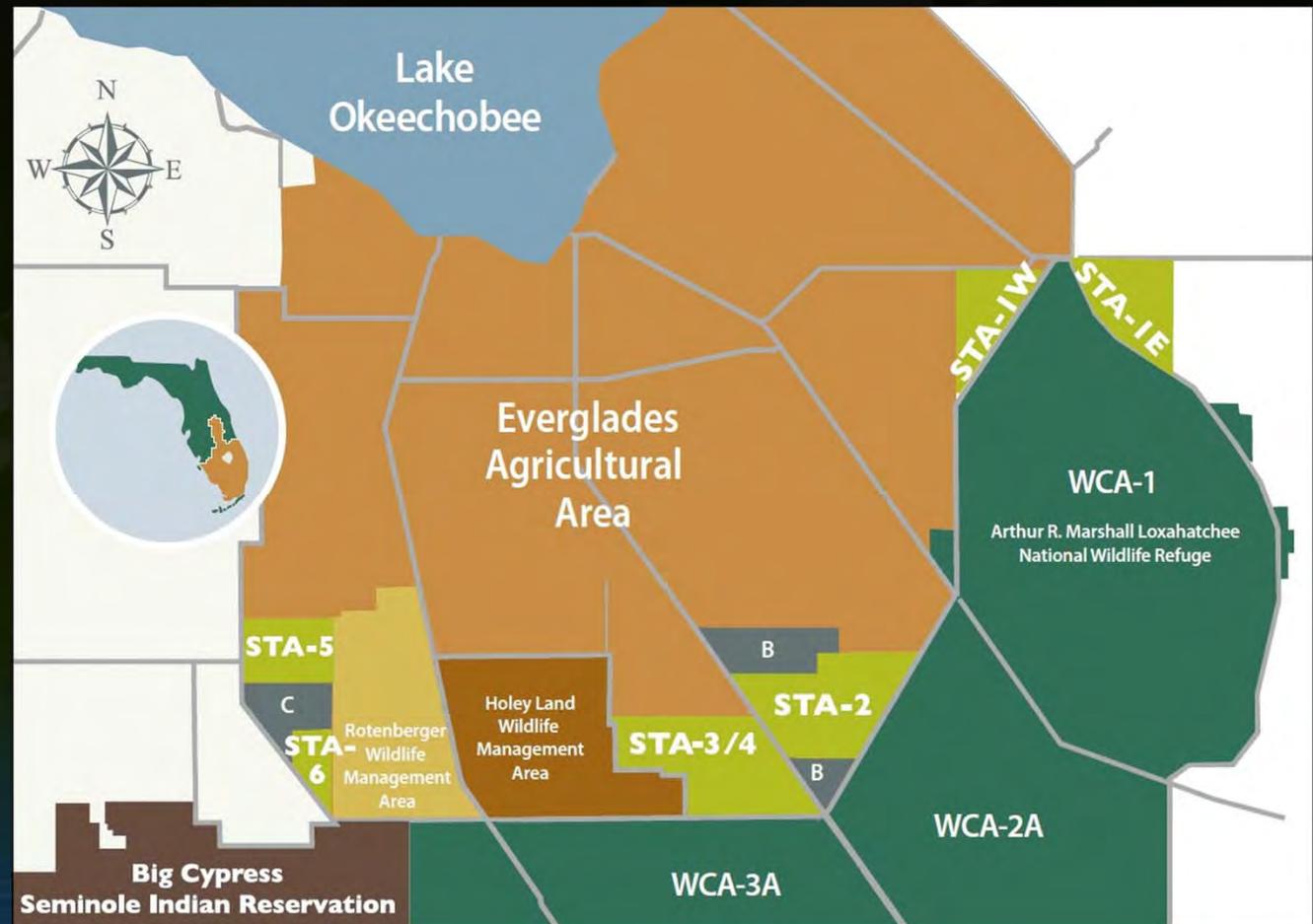
## Water Quality Key Projects

- 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

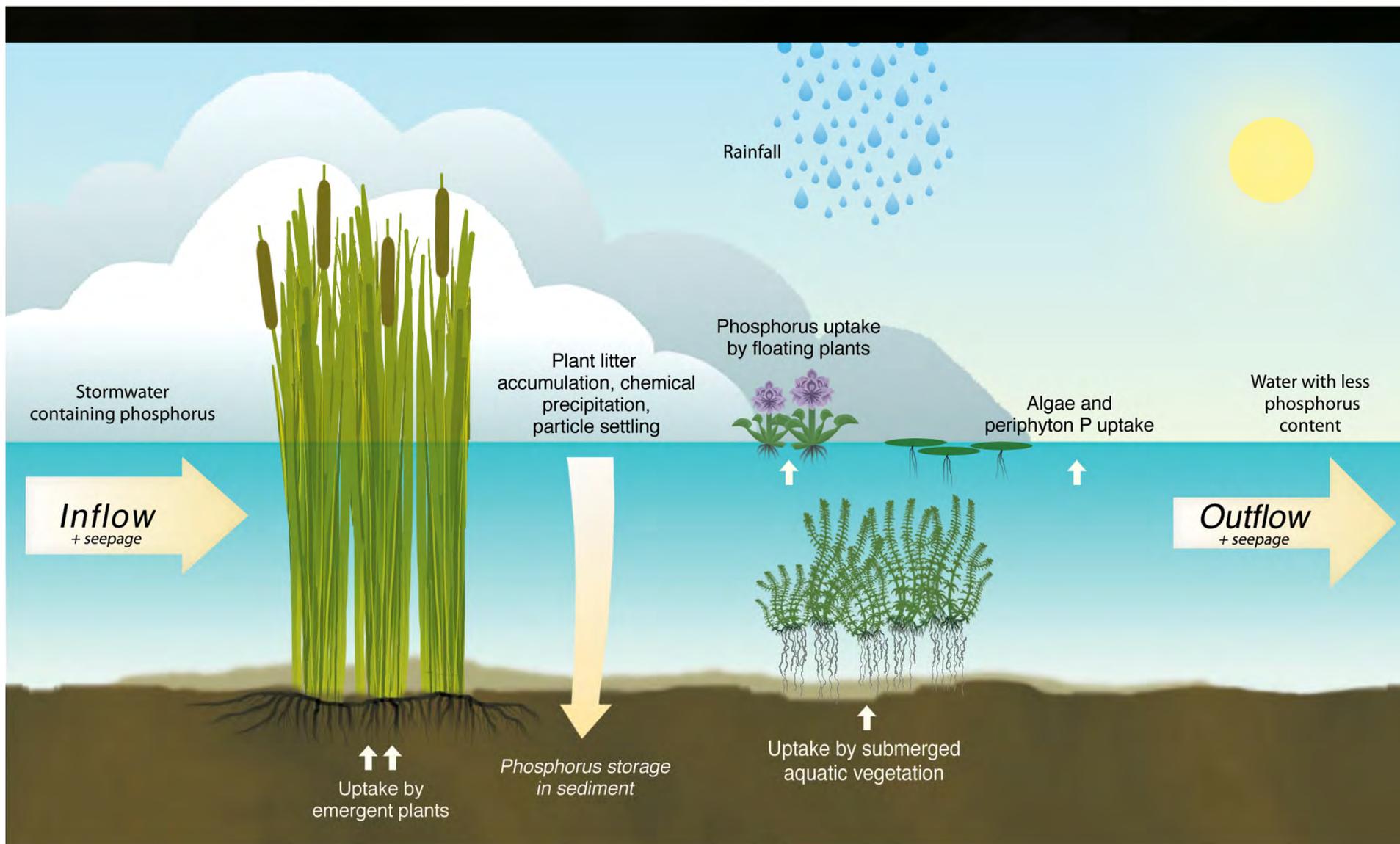
## Existing Treatment

- 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

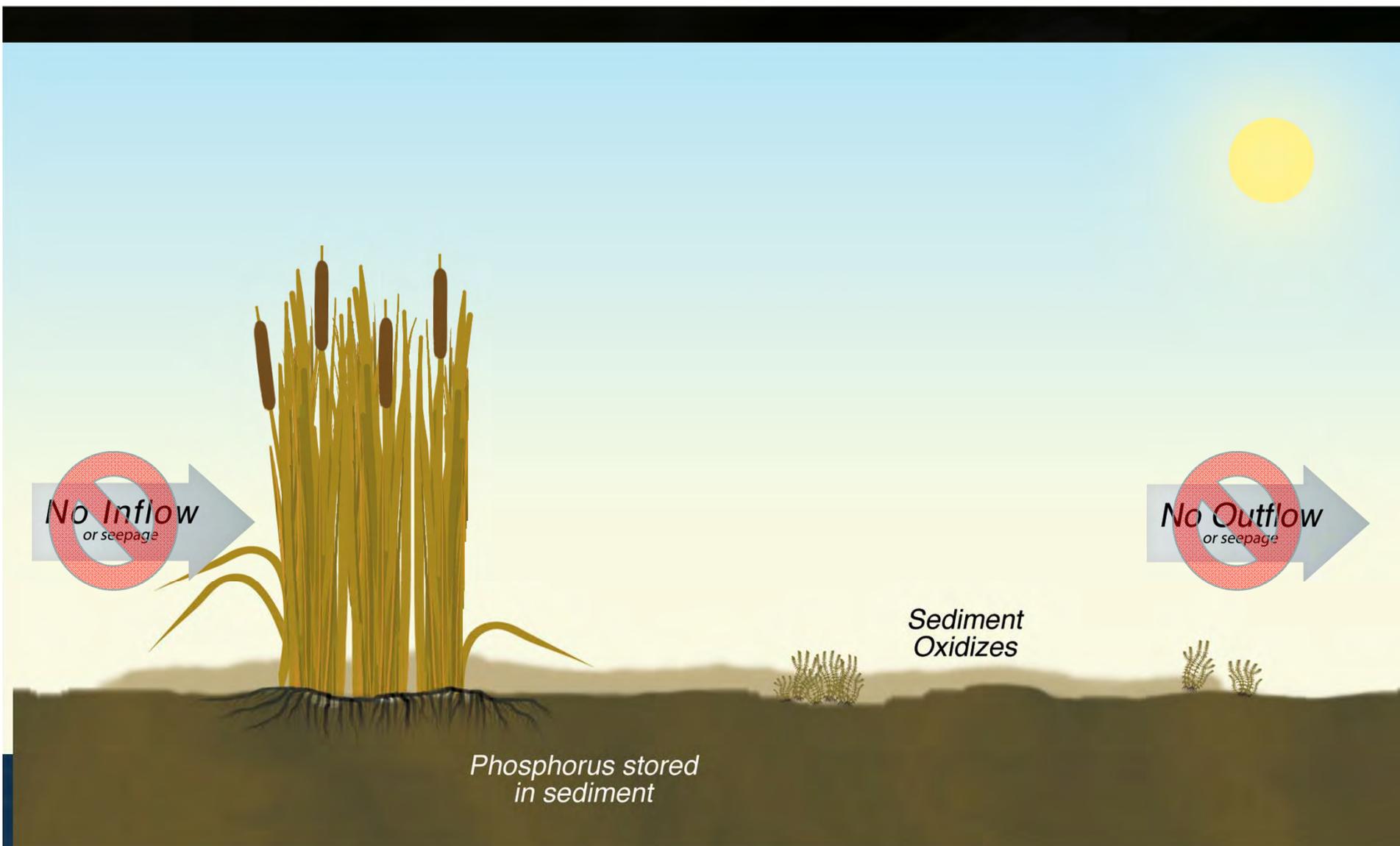


Areas in gray marked with a "B" or "C" represent the current expansion of existing Stormwater Treatment Areas

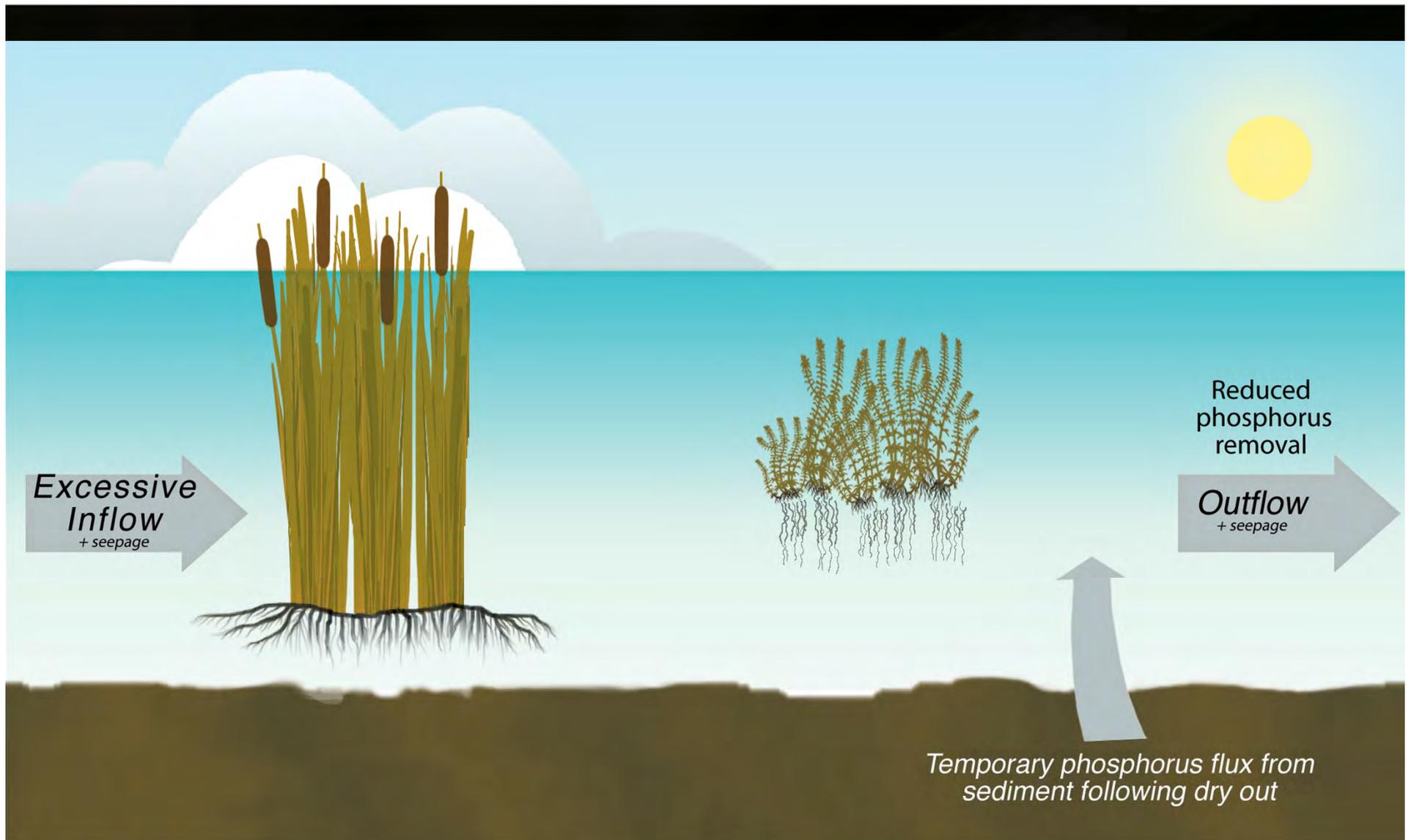
# Stormwater Treatment Areas Optimized Conditions



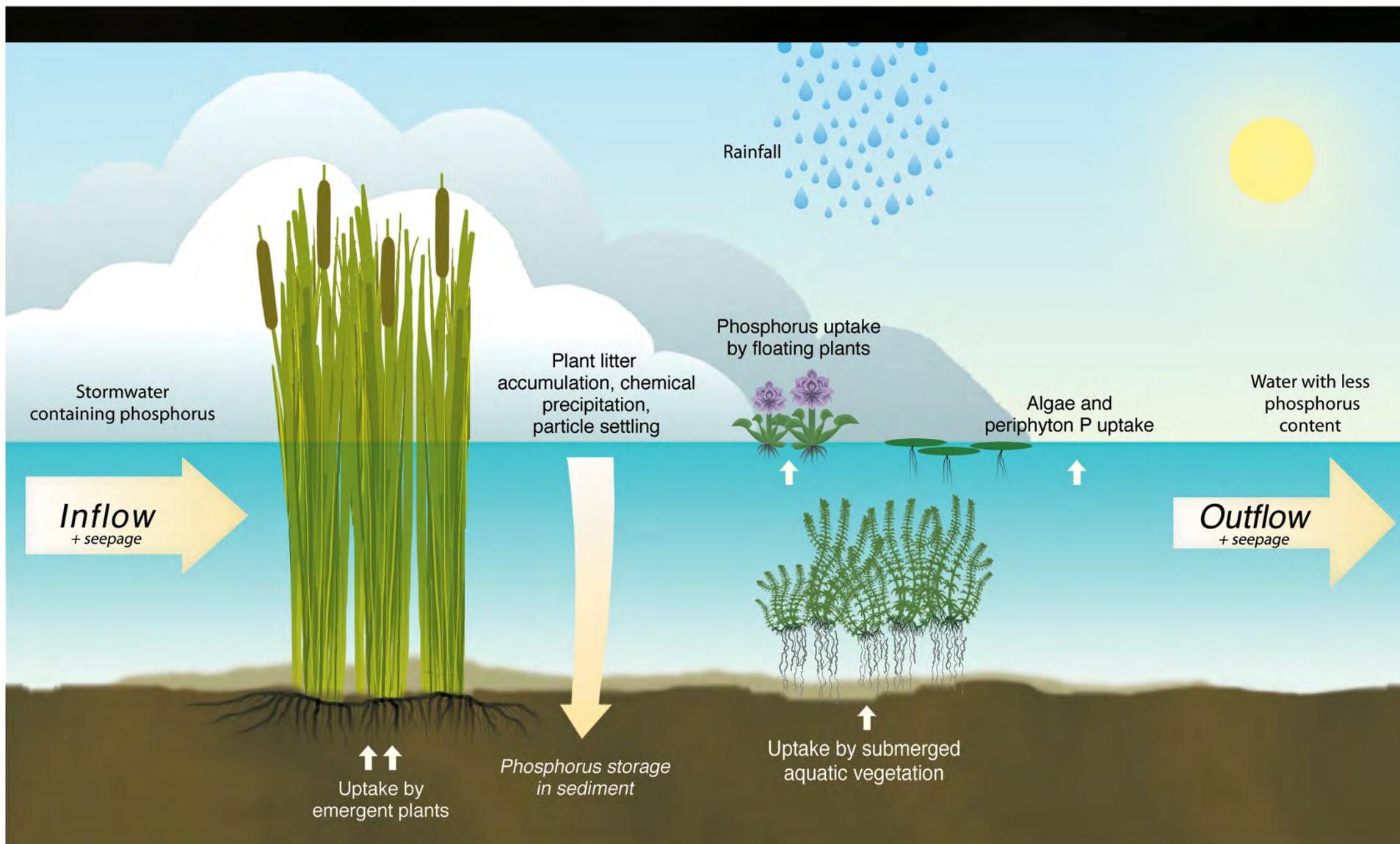
# Stormwater Treatment Areas Dry Out - No Flow Conditions



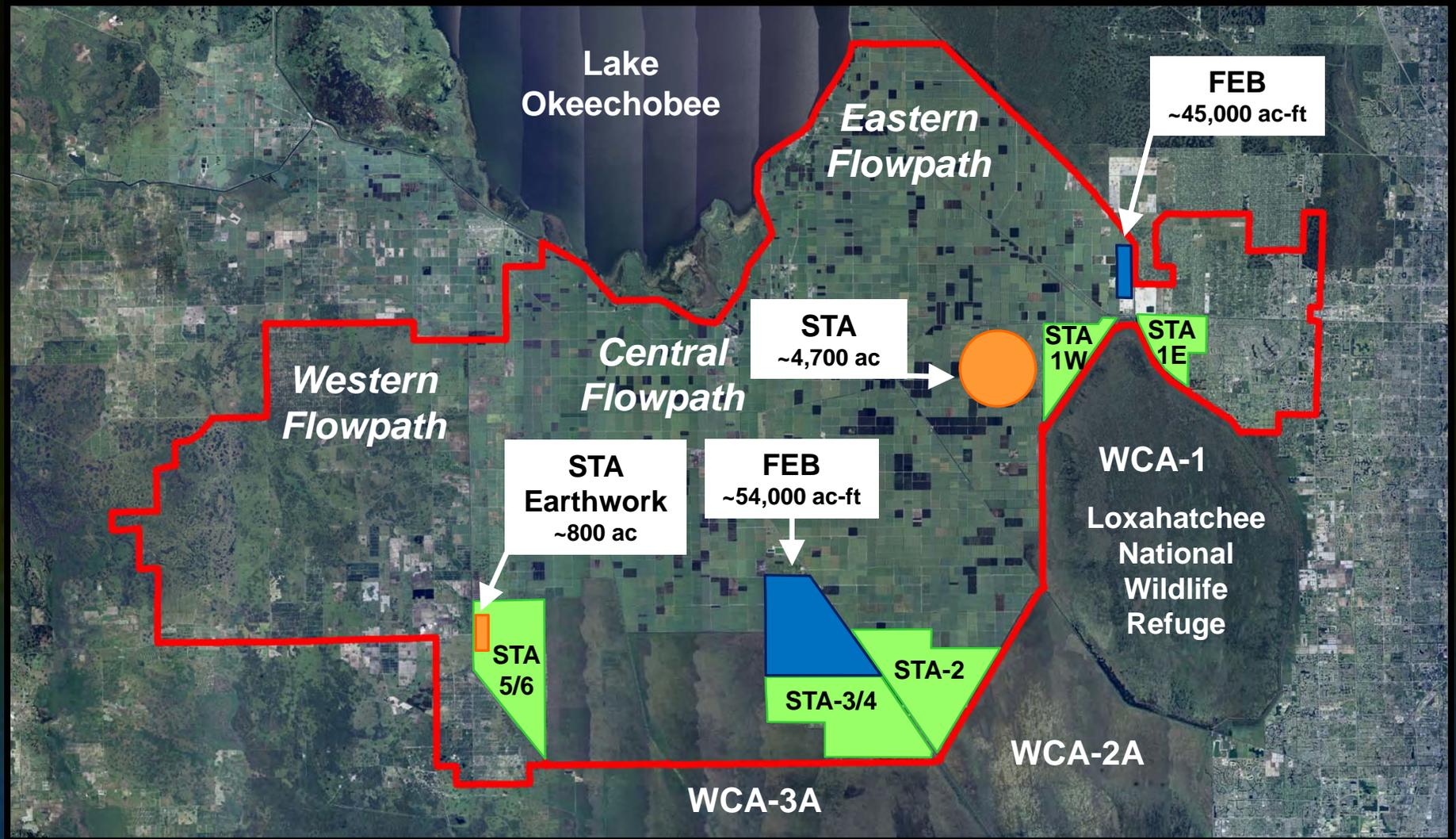
# Stormwater Treatment Areas Deep Water or Rewetting after Dry Conditions



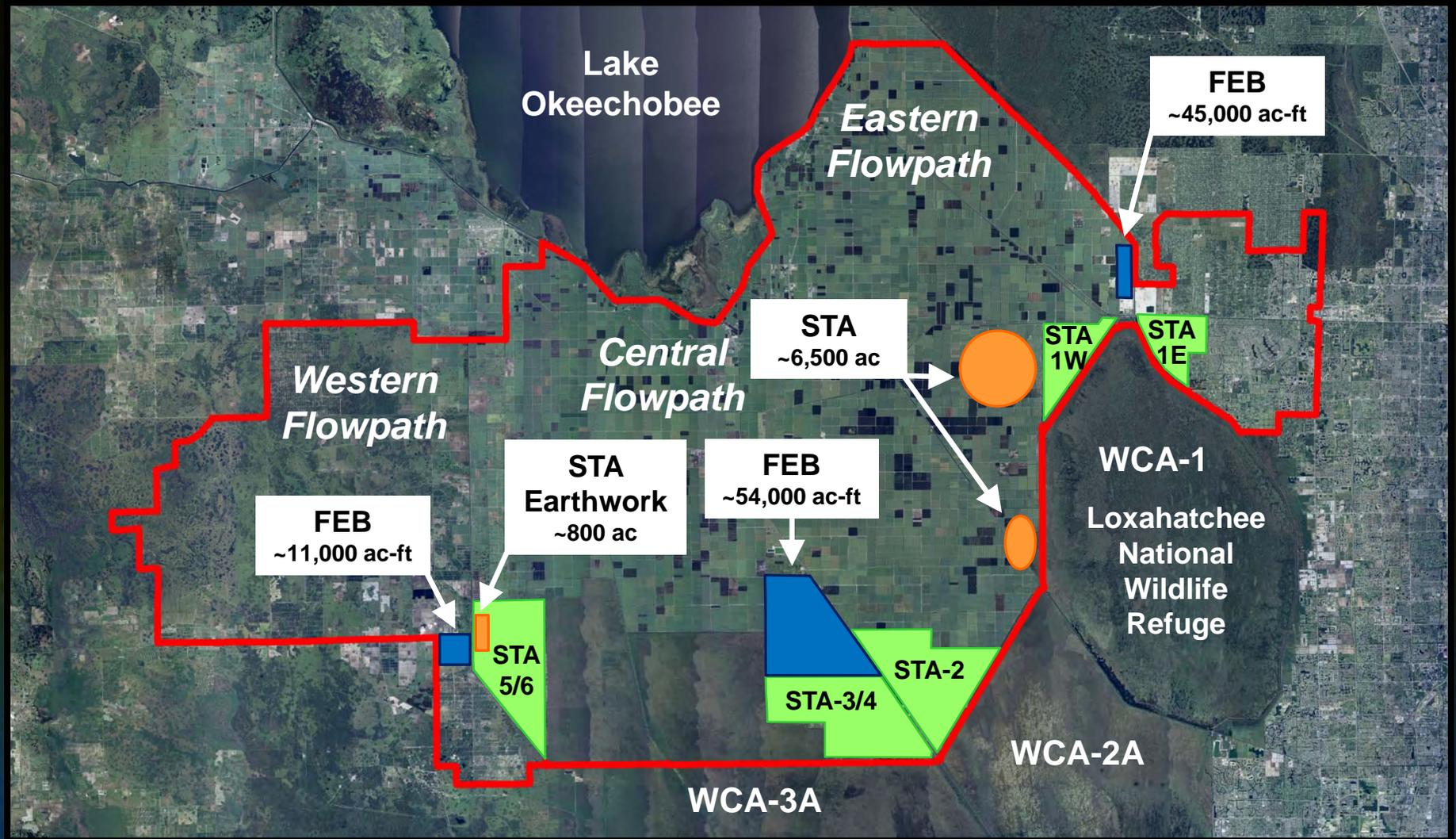
# Stormwater Treatment Areas Optimized Conditions



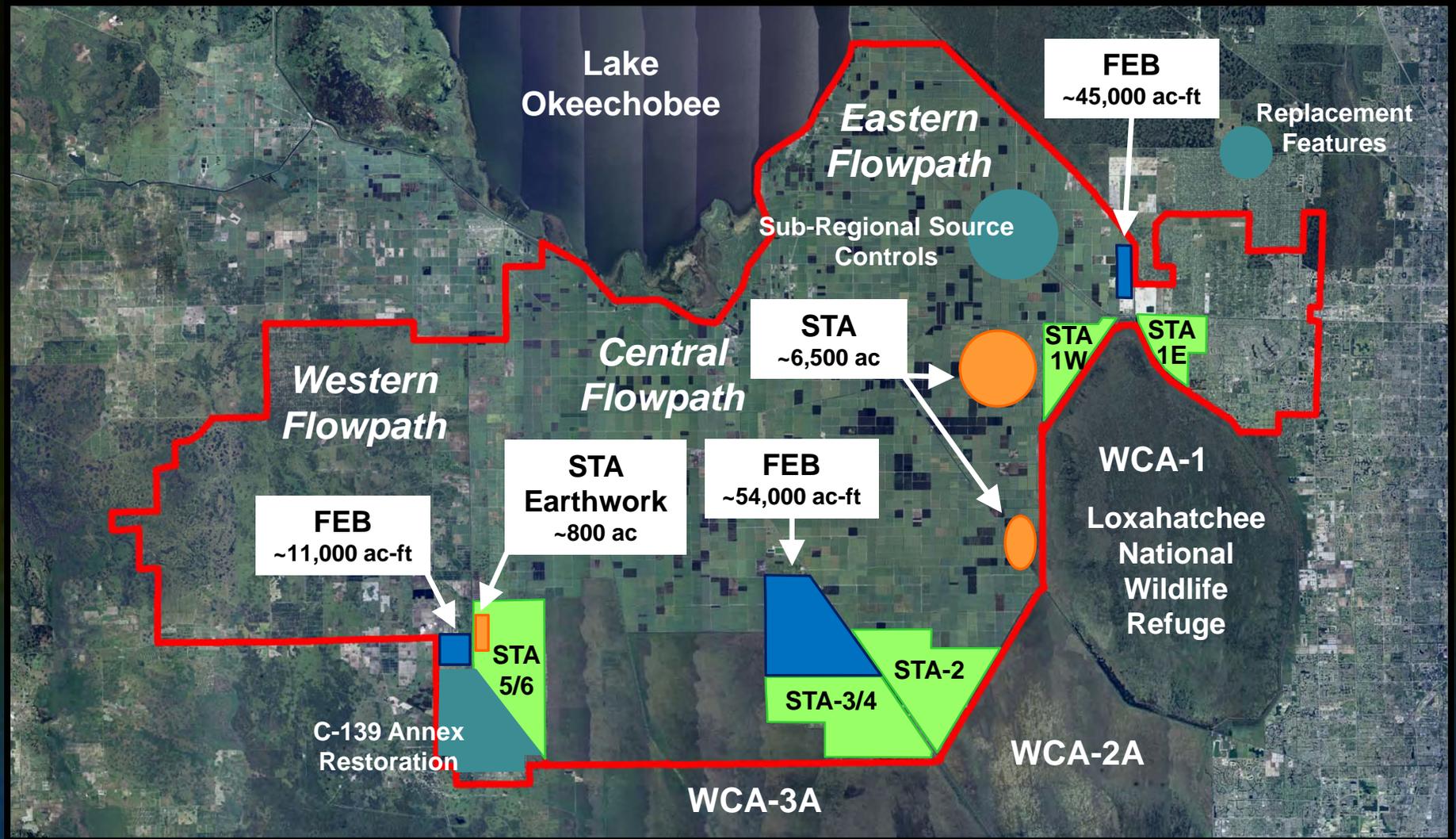
# Key Projects State Proposal – October 2011



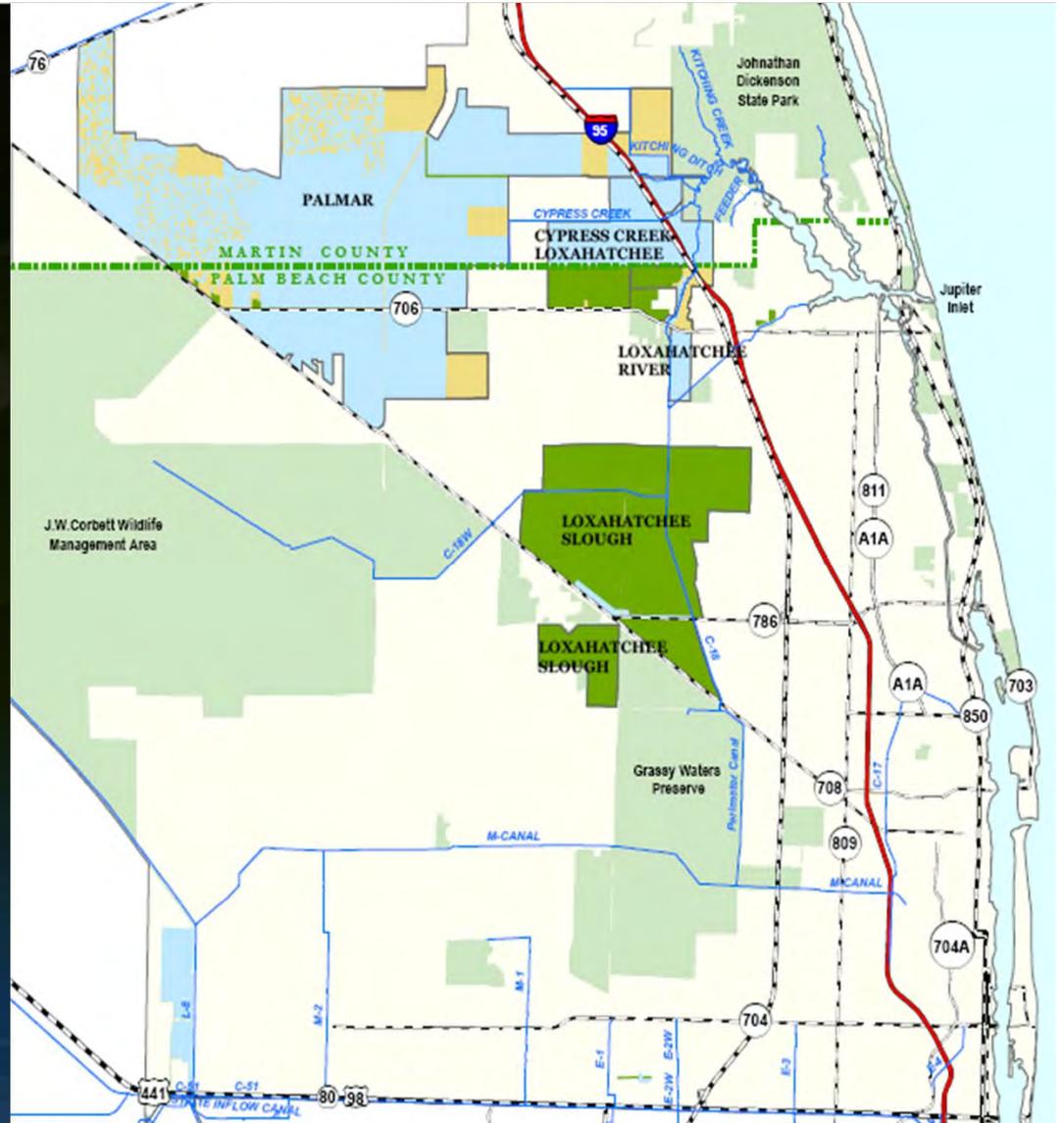
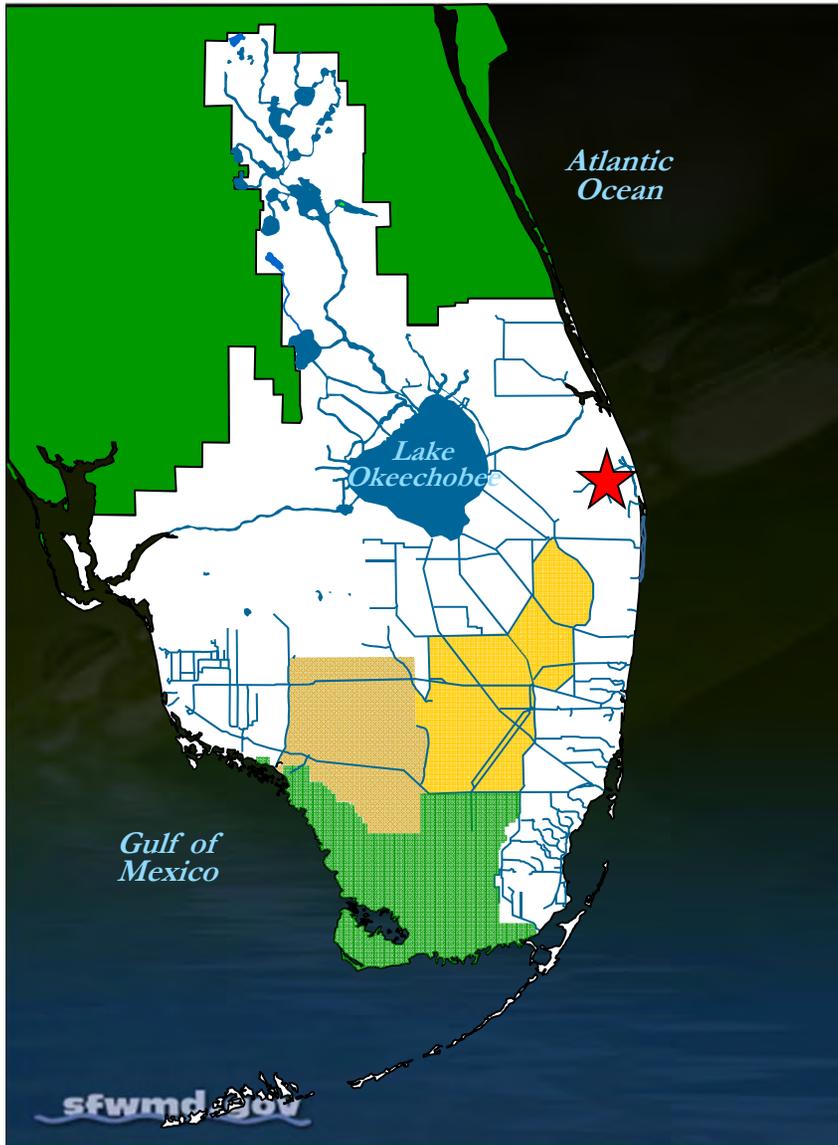
# Key Projects Proposed Projects – May 2012



# Additional Components Proposed Projects – May 2012



# Replacement Features Loxahatchee River Watershed Restoration



# Replacement Features Loxahatchee River Watershed Restoration

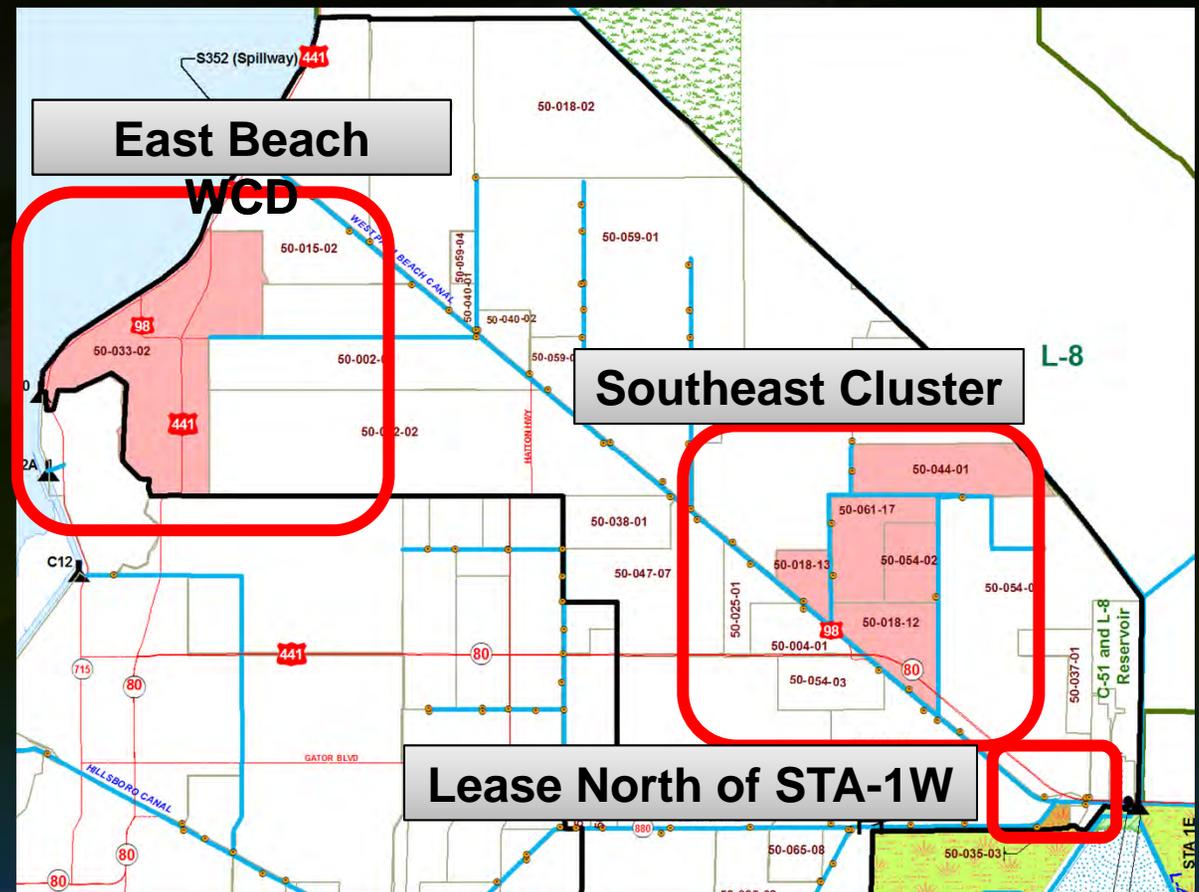
- Comprehensive Everglades Restoration Plan (CERP) Project
- Designed to capture, store and treat excess water that is currently discharged to the Lake Worth Lagoon and use that water to enhance the Loxahatchee River and Slough
- CERP project is the MFL recovery plan for the Loxahatchee River





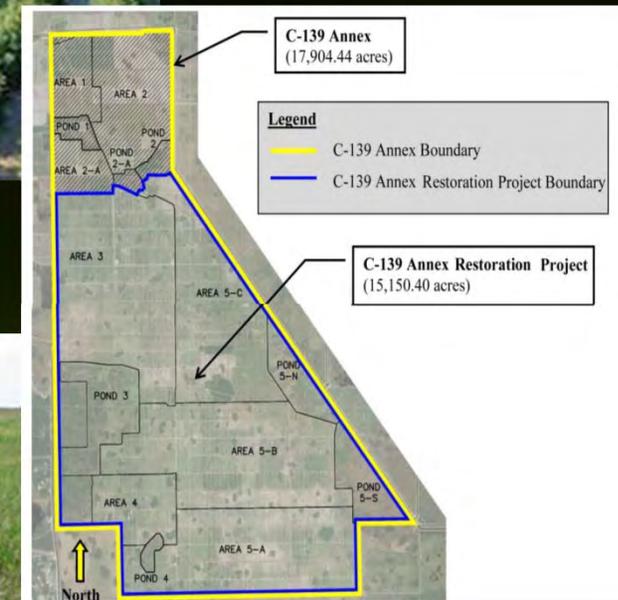
# Additional Components Sub-regional Source Controls

- 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

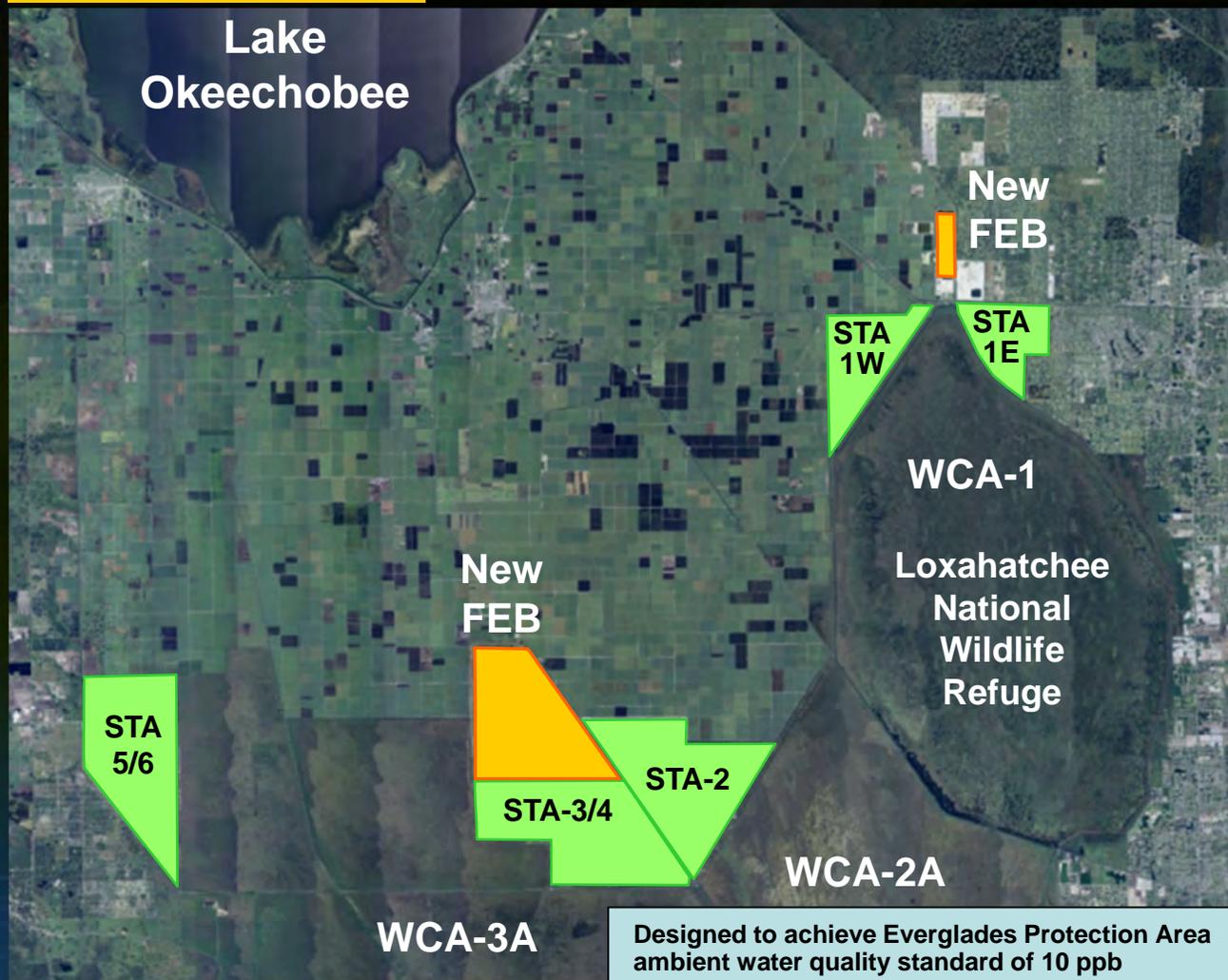
- Objectives:
  - Requires research regarding STA and FEB performance
  - Evaluate factors influencing phosphorus treatment performance
    - Investigate factors such as hydraulic loading rates, phosphorus and vegetation speciation, microbial activity, soil flux
    - Gain a better understanding of design 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



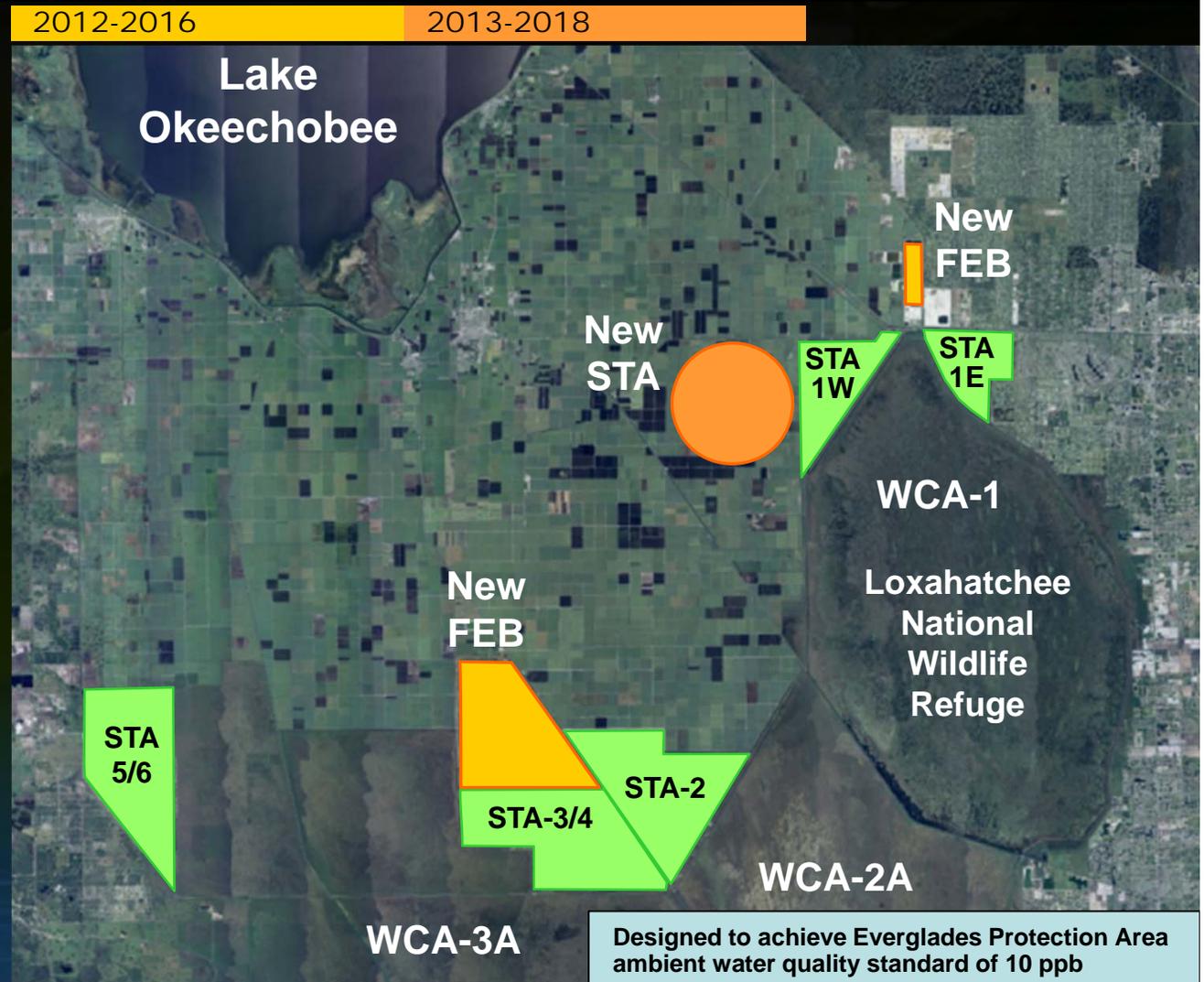
# Key Projects Construction Schedule

## 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

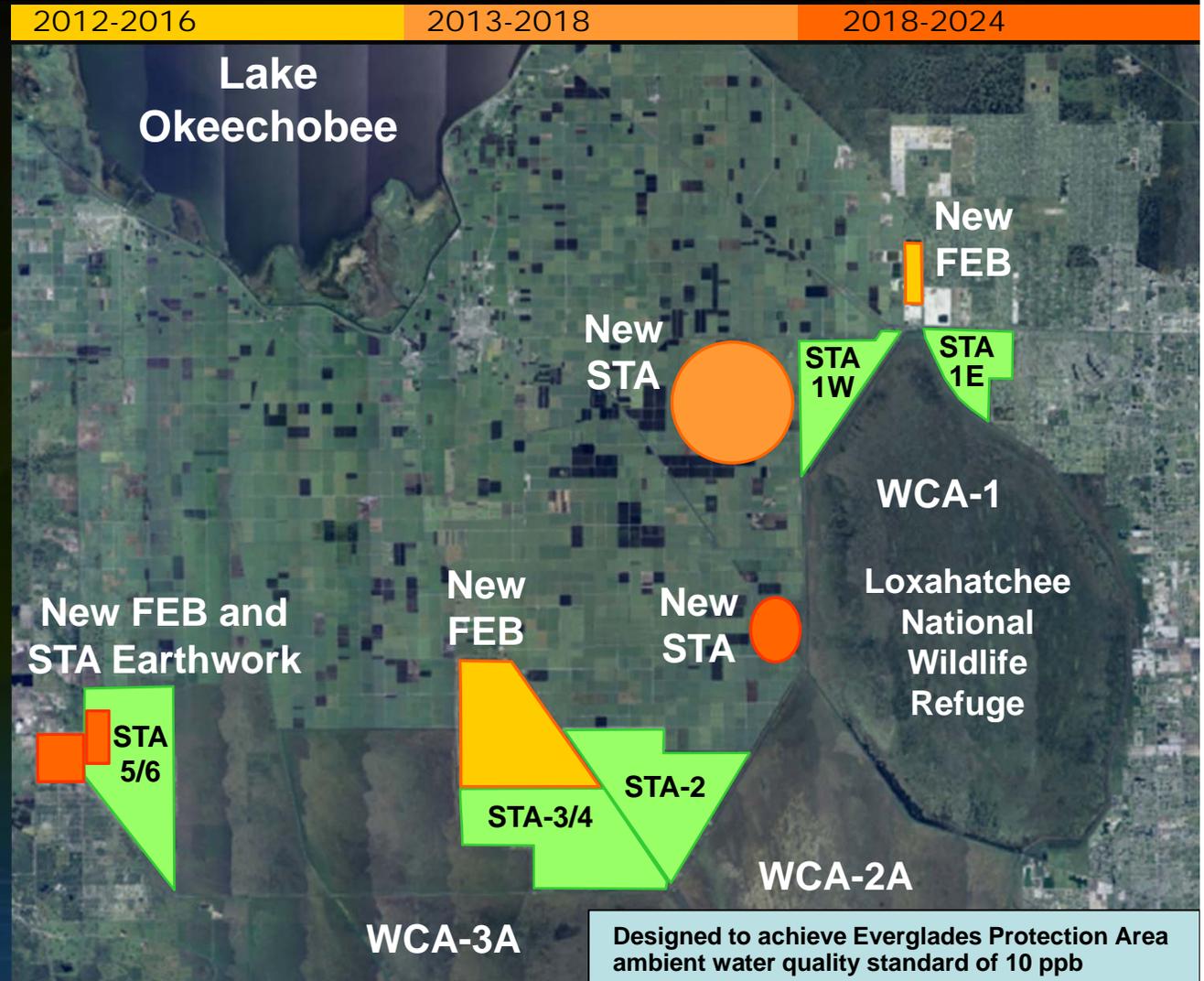
- Eastern Flow-Path: 45,000 acre-foot Flow Equalization Basin
- Central Flow-Path: 54,000 acre-foot Flow Equalization Basin

## 2013-2018

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

## 2018-2024

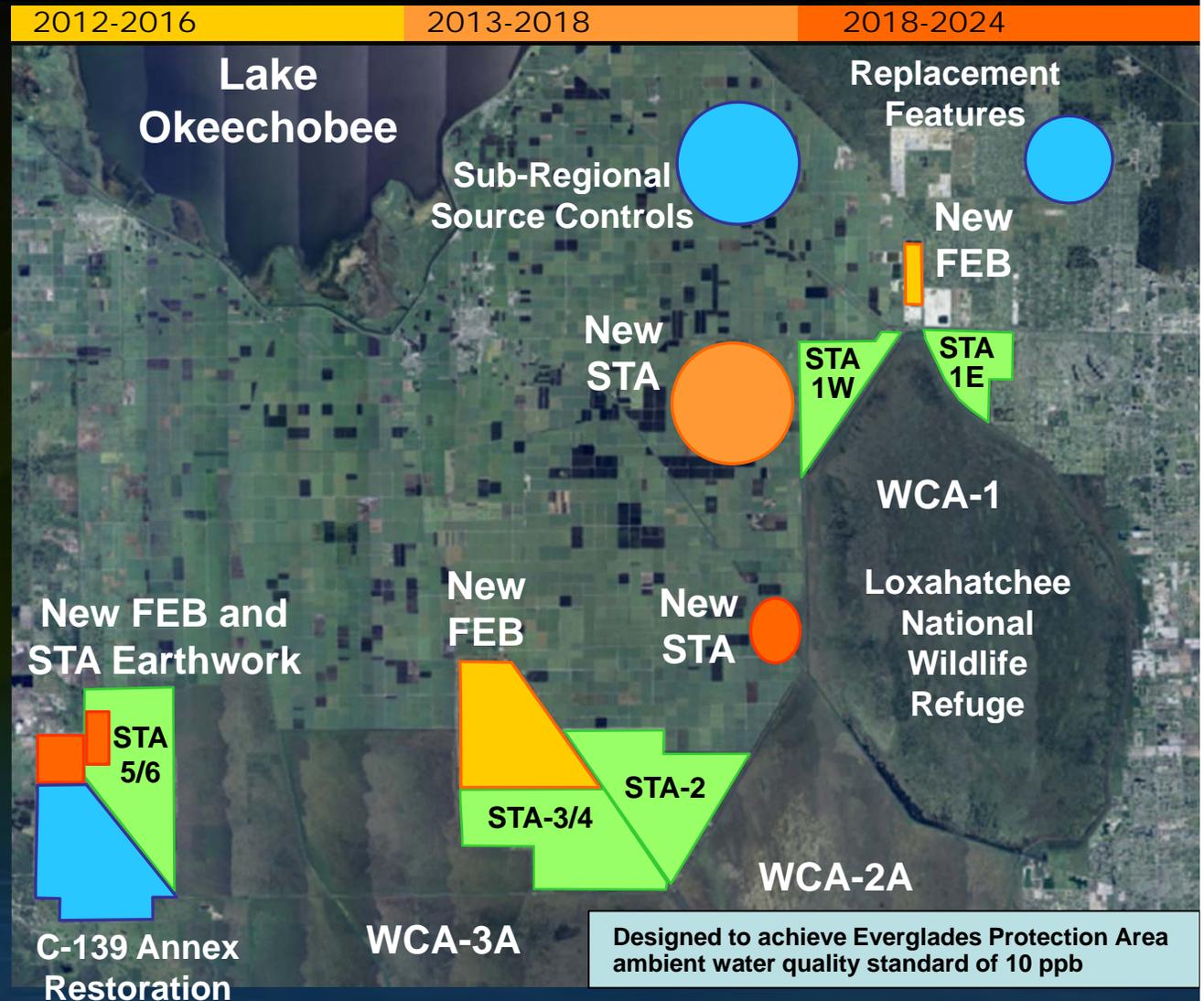
- Eastern Flow-Path: 1,800 acres of STA (2018-2022)
- Western Flow-Path: 11,000 acre-foot Flow Equalization Basin (2018-2023)
- Western Flow-Path: 800 acres of earthwork within existing STAs to maximize effective treatment area (2019-2024)



# 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
	<b>Total</b>	<b>\$880M</b>



# Questions



*Florida Department of  
Environmental Protection*

# *Everglades Restoration Strategies Next Steps*

Greg Munson

Deputy Secretary

Water Policy and Ecosystem Projects

*June 19, 2012*



## *Permit/Consent Order Highlights*

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- ***Science-based protective water quality based effluent limitation (WQBEL)***  
***“Shall not exceed:***
  - ***13 ppb as an annual flow weighted mean (FWM) in more than 3 out of 5 water years on a rolling basis; and***
  - ***19 ppb as an annual flow-weighted mean (AFWM) in any water year. “***
- ***Detailed project descriptions***
- ***Science Plan & Monitoring***



June 19, 2012



## *Next Steps*

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- ***Publish Notice of Draft Permit and provide draft permits to EPA for their review***
- ***30 Day period for public comment and EPA review***
- ***Hold Public Hearing – Scheduled for July 25, 2012***
- ***FDEP Address Public Comments***
- ***Publish Notice of Intent to Issue – apx. 14 days after public hearing***
- ***If no request for DOAH hearing, final permit issued 21 days later.***



*June 19, 2012*