Everglades Restoration Strategies

Melissa L. Meeker, SFWMD Executive Director

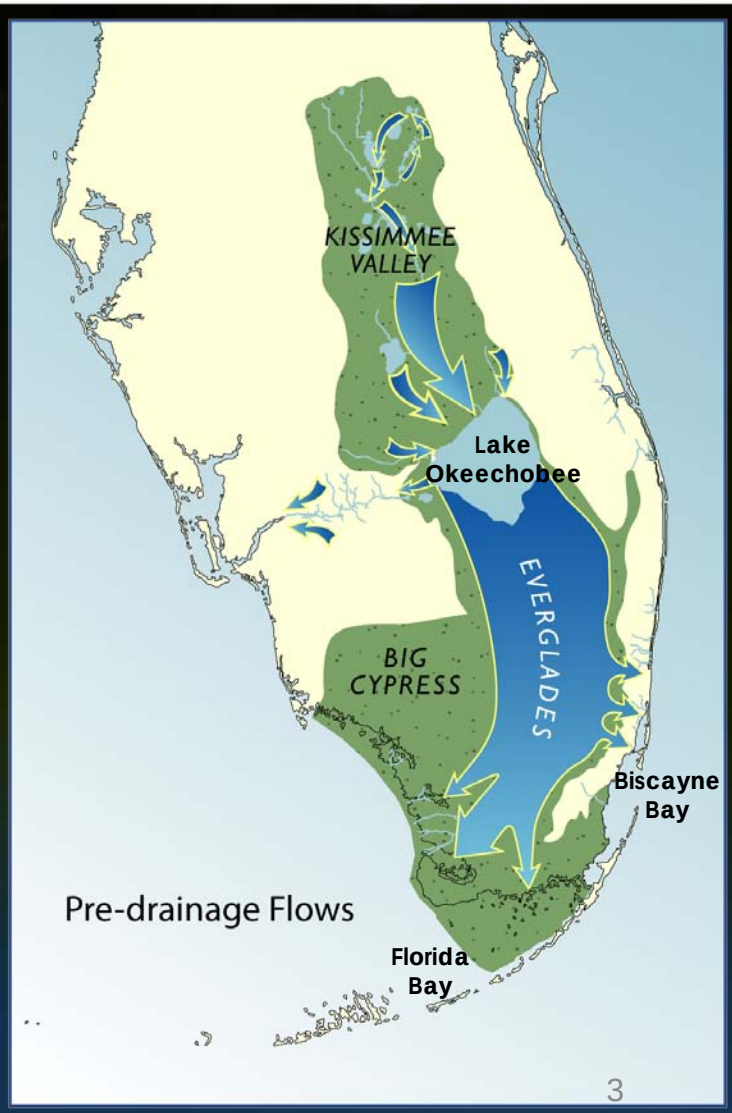
February 9, 2012

Today's Presentation

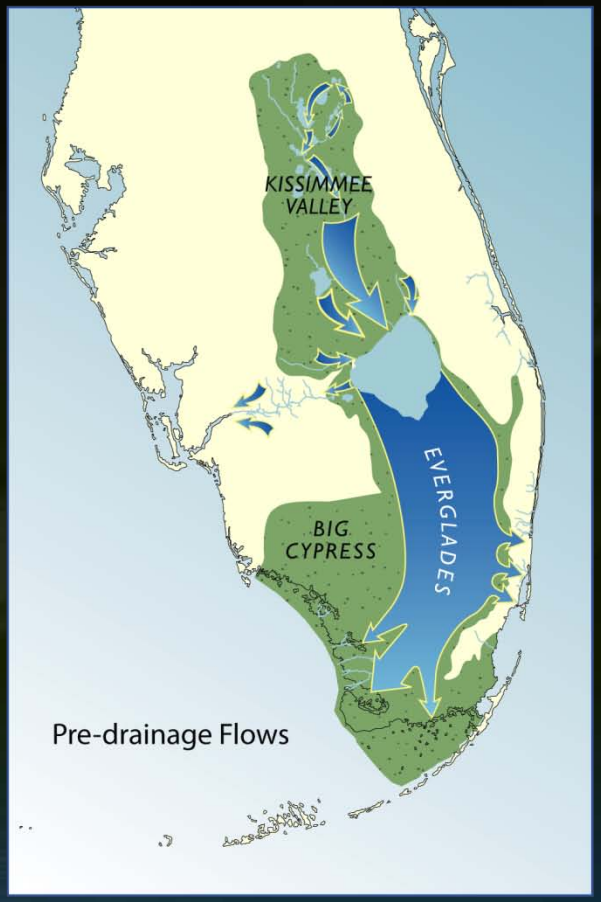
- **The Challenge**
- **The Solution: Three-Part Strategy**
  - **Everglades Water Quality**
    - Settlement Agreement
    - Amended Determination
    - Status and Next Steps
  - **State-Federal Partnership**
    - Comprehensive Everglades Restoration Plan
    - Central Everglades Planning Project
    - Status and Next Steps
  - **State Projects and Programs**
- **Governing Board Discussion**

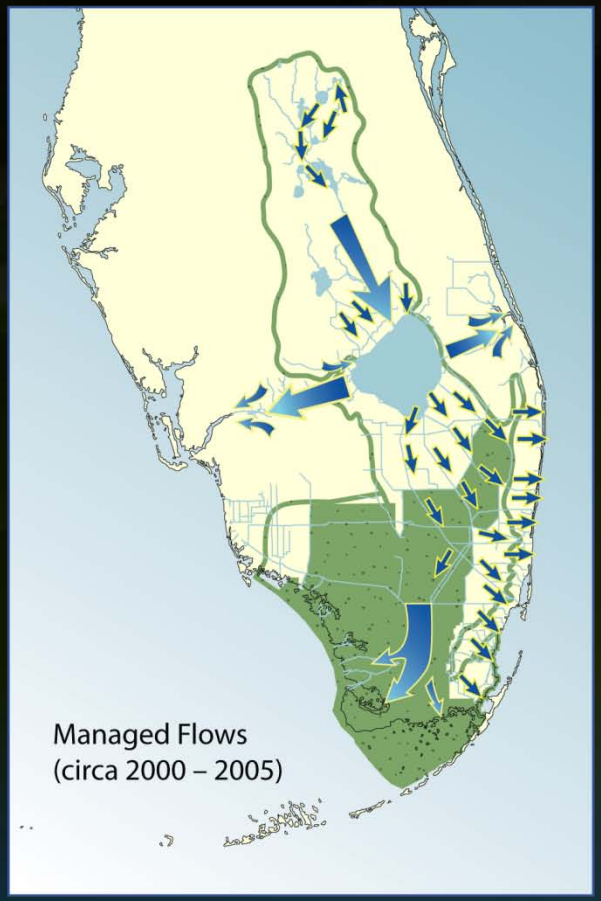
Historic Everglades

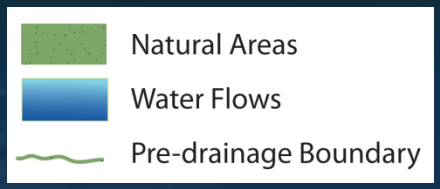
- Water flowed from central Florida through Lake Okeechobee and south into Florida Bay
- Natural system composed of over 9 million acres of lakes, rivers and wetlands
- Unique and diverse mosaic of habitat



Water Flows


KISSIMMEE VALLEY
EVERGLADES
BIG CYPRESS
Pre-drainage Flows

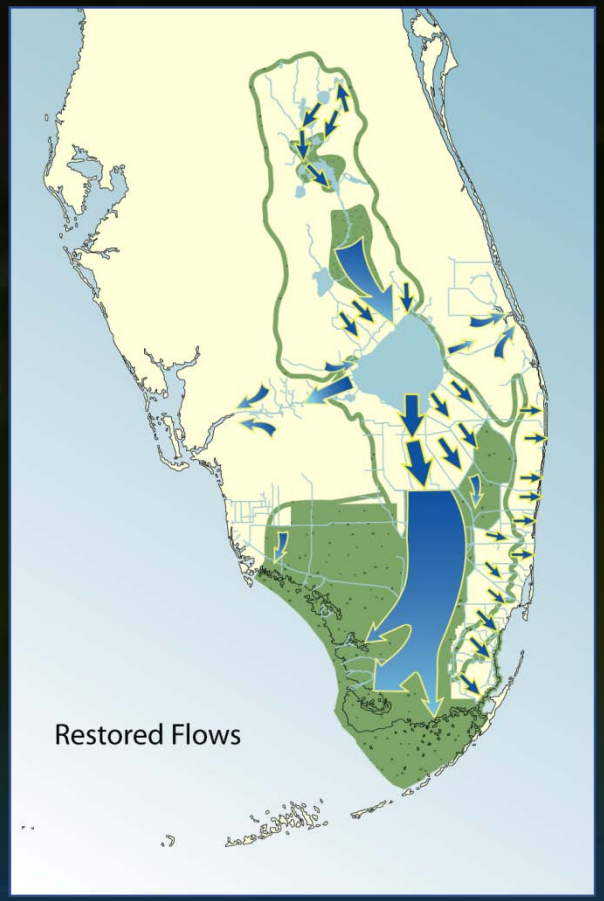

Managed Flows
(circa 2000 – 2005)


Natural Areas
Water Flows
Pre-drainage Boundary

Impacts of Alterations on the Natural System

- Disruption in timing, distribution, quality and quantity of water
  - Imbalance of natural flora and fauna
  - Extreme high and low lake levels
  - Harmful freshwater discharges to the St. Lucie and Caloosahatchee estuaries
- Compartmentalization of remnant Everglades impedes natural flow:
  - Extreme high and low water levels
  - Undesirable shifts in vegetation
  - Loss of natural ridge and slough characteristics

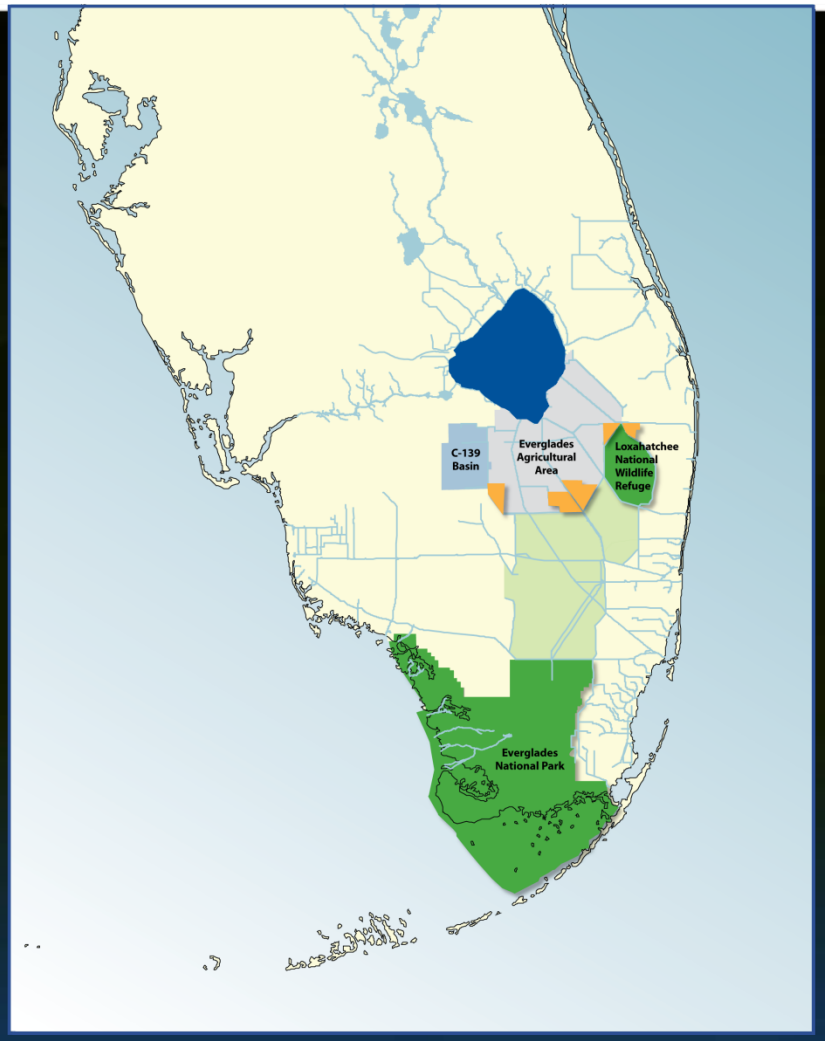
Reevaluating Water Flows



Part I
Water Quality

Water Quality Background

- **1988**: USA sues State of Florida for failure to implement and enforce state water quality laws in the Loxahatchee National Wildlife Refuge and Everglades National Park
- **1992**: State and USA enter into a Settlement Agreement, approved by federal court (Judge Hoeveler, Judge Moreno)
- **1994:** Florida Legislature adopts Everglades Forever Act with requirements to:
  - Adopt numeric criterion for phosphorus
  - Construct STAs
  - Implement source controls

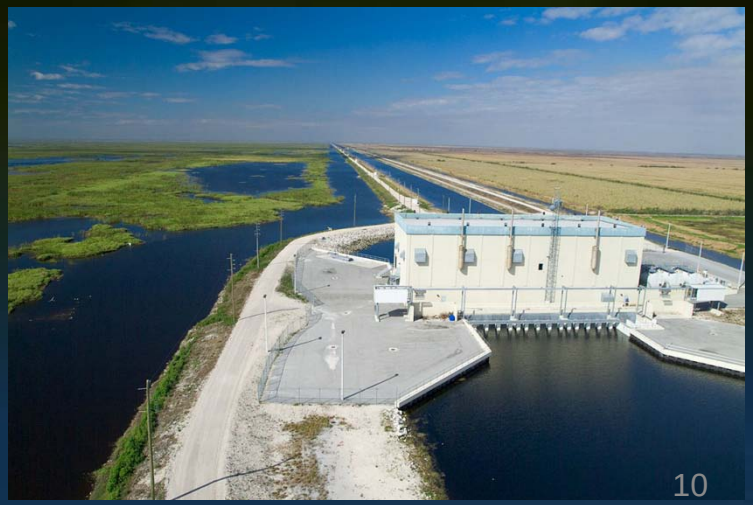


Water Quality
Background (continued)

- **2003:** State proposes Everglades water quality standard of 10 ppb geometric mean for phosphorus
- **2003:** Florida Legislature amends Everglades Forever Act to include Moderating Provisions and adopt the Long-Term Plan
- **2004**: Settlement Agreement exceedance (Refuge)
  - September 2003 (0.5 ppb)
  - August 2004 (2.1 ppb)
  - District agrees to additional suite of phosphorus control remedies

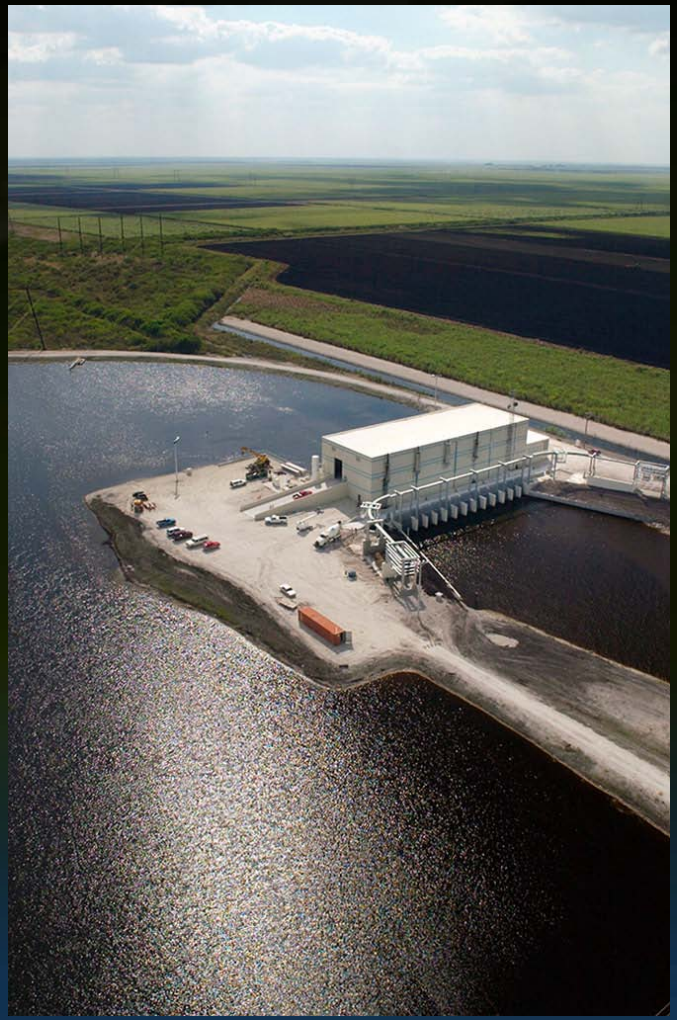
Water Quality
Background (continued)

- **2004:** Miccosukee Tribe sues U.S. Environmental Protection Agency (EPA) claiming Everglades Forever Act amendments violate Clean Water Act (Judge Gold)
- **July 2008**: Judge Alan Gold agrees with Tribe
  - Enjoins EPA and DEP from issuing new NPDES permits with moderating provisions and compliance schedules
  - Orders EPA to conduct a review of 2003 Everglades Forever Act amendments and Phosphorus Rule to determine if they comply with Clean Water Act (a "Determination Letter")



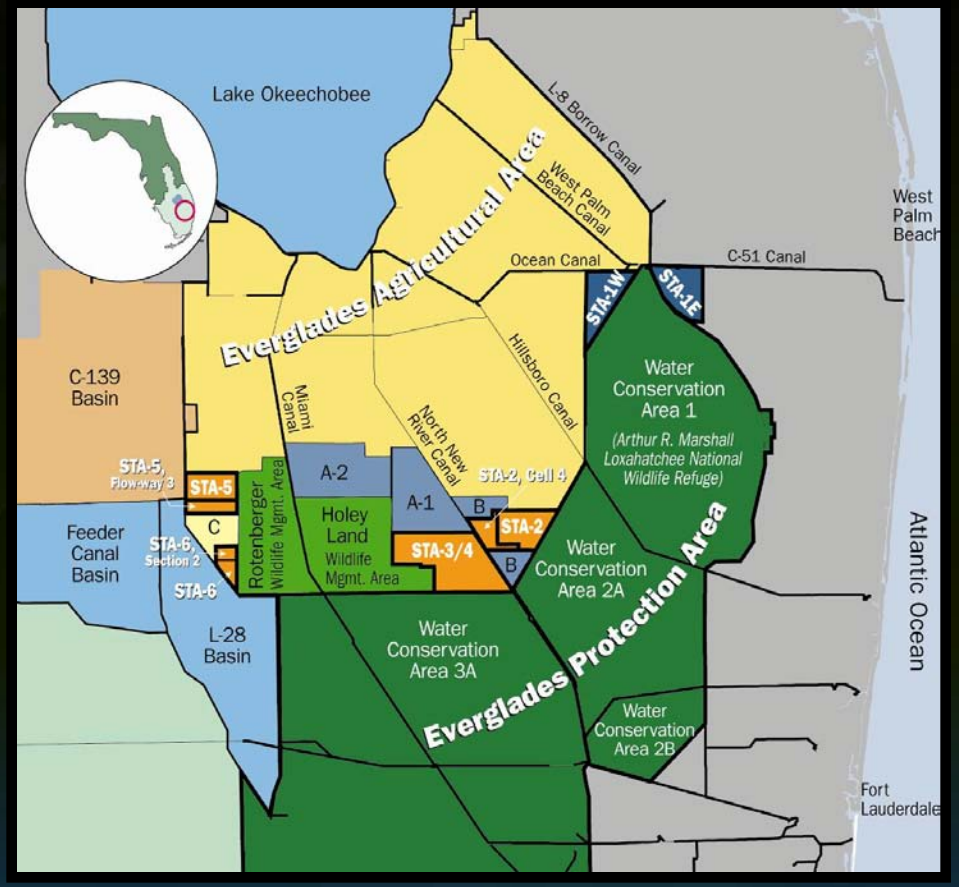
Water Quality
Background (continued)

- **2009**: Settlement Agreement exceedance (Refuge)
  - November 2008 (0.2 ppb)
  - June 09 (1.1 ppb)
    - No excursion since June 2009
    - Total Phosphorus levels in Refuge averaged 7.7 ppb for the past 12 months
- **September 3, 2010:** EPA issues "Amended Determination"
  - Proposes water quality-based effluent limits (WQBEL) for Stormwater Treatment Area discharges
  - Proposes expansion of more than 40,000 acres of treatment and storage by 2018; invites alternative proposals



Water Quality
Florida's Commitment to Date

- $1.8 billion invested to date in Stormwater Treatment Area (STA) construction
  - 45,000 acres of effective treatment area constructed
  - Additional 11,700 acres under construction (2012 completion)
  - WY2011: STAs treated 735,000 acre-feet of water; reduced total phosphorus loads to the Everglades Protection Area by 79%
- Implemented Best Management Practices on 640,000 acres of land
  - Average phosphorus reduction of 55% over program's 16-year history (more than twice the amount required by law)
  - Active BMP program with continuous evaluation



Settlement Agreement Requirements

Status

Five STAs Totaling 34,700 Acres	√	**45,000 acres constructed** P loads reduced by 79%
50 Parts Per Billion Outflow From STAs to Everglades Protection Area	√	**STA 3/4 average outflow 17 ppb** (2004– 2011)
Implement Best Management Practices (BMP) Program	√	**Program exceeding requirements**
Reduce Phosphorus from the EAA to Each STA by 25%	√	**Average reduction of 55% over the last 16 years**
Implement Research to Establish Water Quality Criterion	√	**Completed**
Adopt Numeric Water Quality Criterion (required by EFA)	√	**10 ppb geometric mean adopted**
TP limits for Park		**In compliance**
TP levels for Refuge		**Limits exceeded in 3 months since January 2007**

Water Quality
Florida's Commitment Moving Forward

Commitment to constructing the right combination of water storage and treatment projects to meet water quality goals for the Everglades

- Comprehensive and integrated plan that addresses critical areas
- Uses sound science and engineering
- Practical and feasible
- Utilizes land already in public ownership
  - Minimizes impacts to agricultural-based economy; retains jobs
- Engages willing stakeholders
- Reasonable implementation schedule

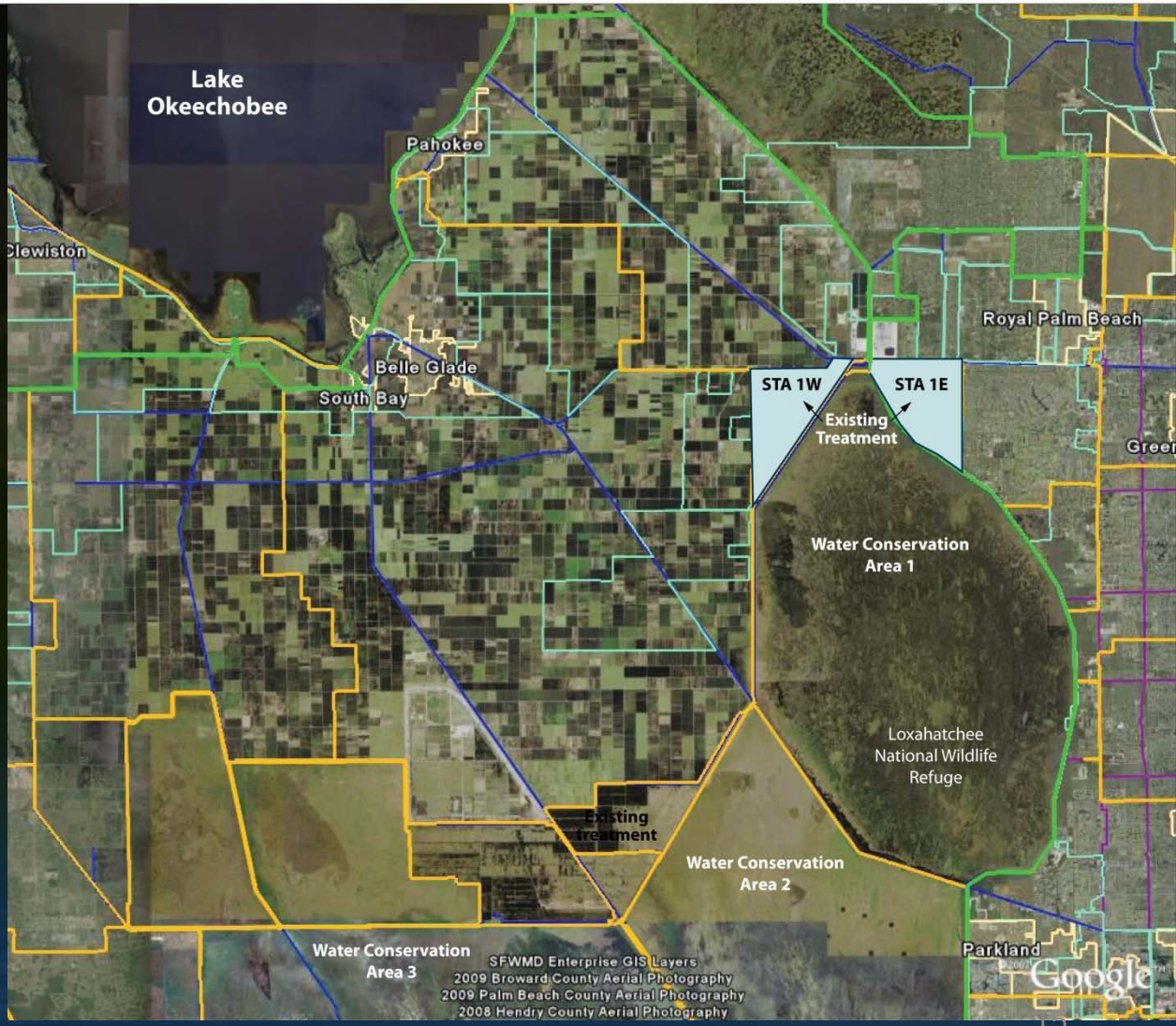
State Proposal
Eastern, Central and Western Flow-Paths

Assumptions:

- Treat existing flows of water to Everglades Protection Area to achieve phosphorus criterion (10 ppb geometric mean)

Scenarios:

- Eastern, Central and Western Flow Paths



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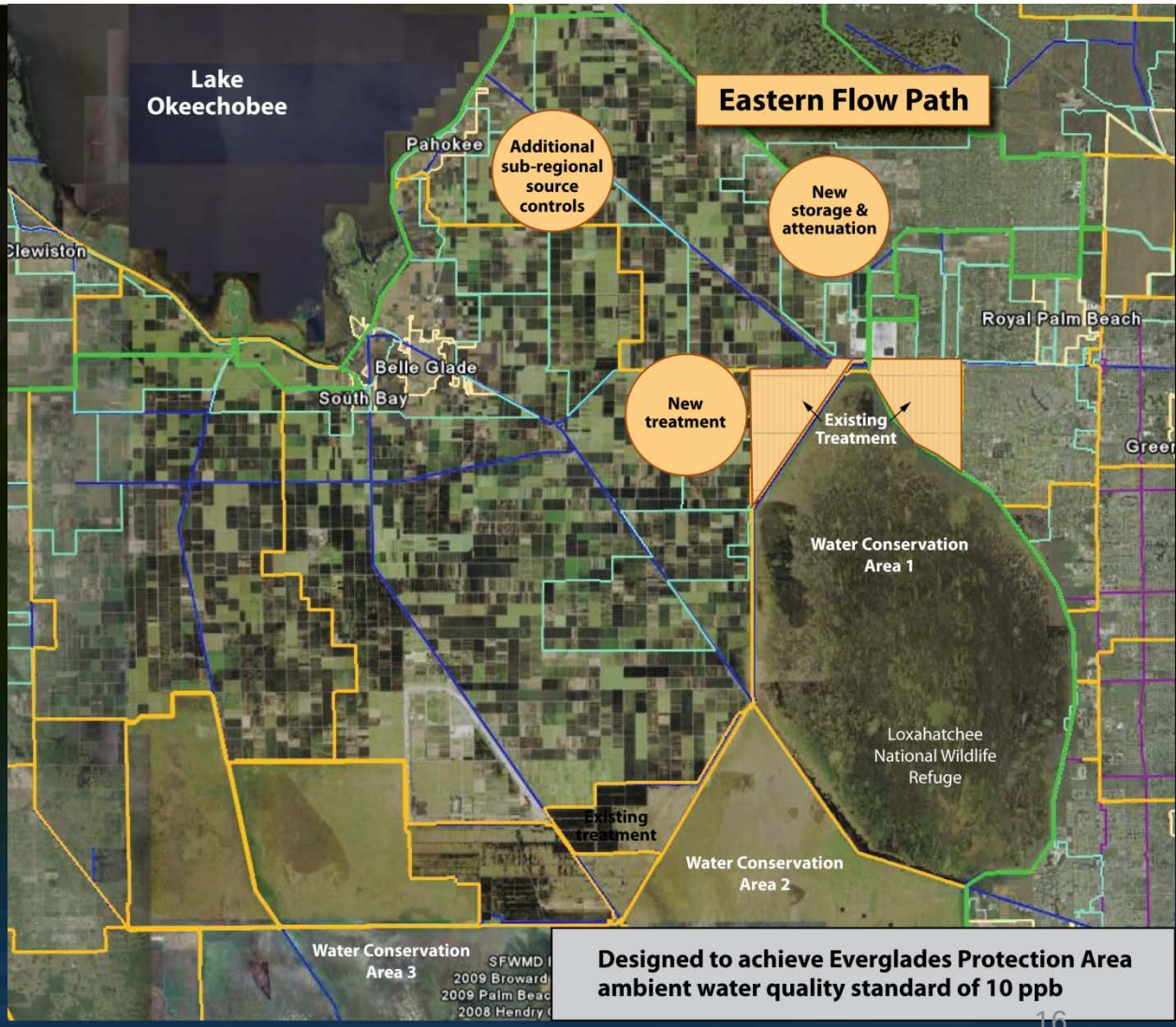
  - **Stormwater Treatment Area**
  - **Flow Equalization Basins (shallow storage)**
  - Earthwork within existing STAs to maximize effective treatment area
- **Sub-Regional Source Controls**



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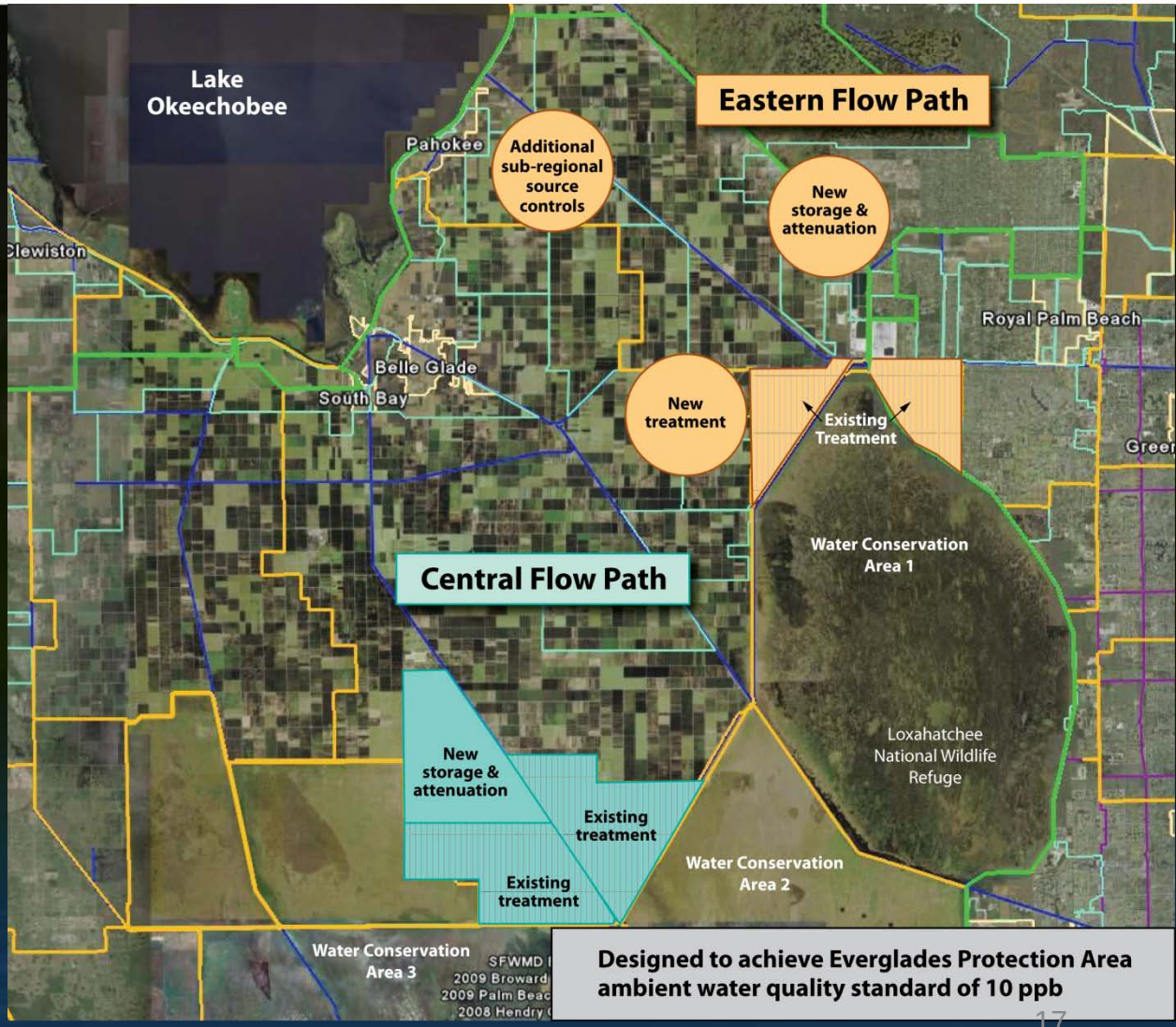

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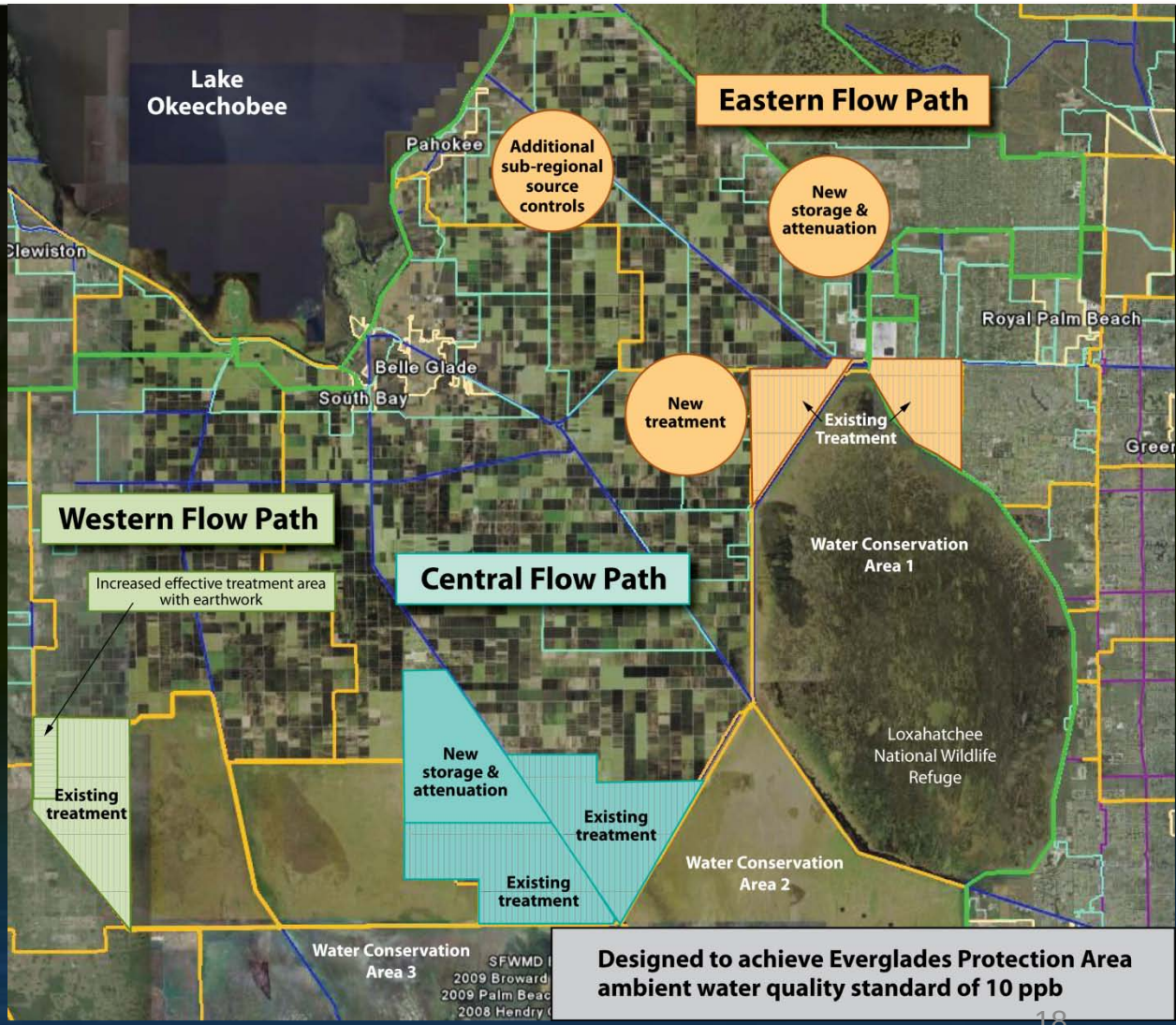
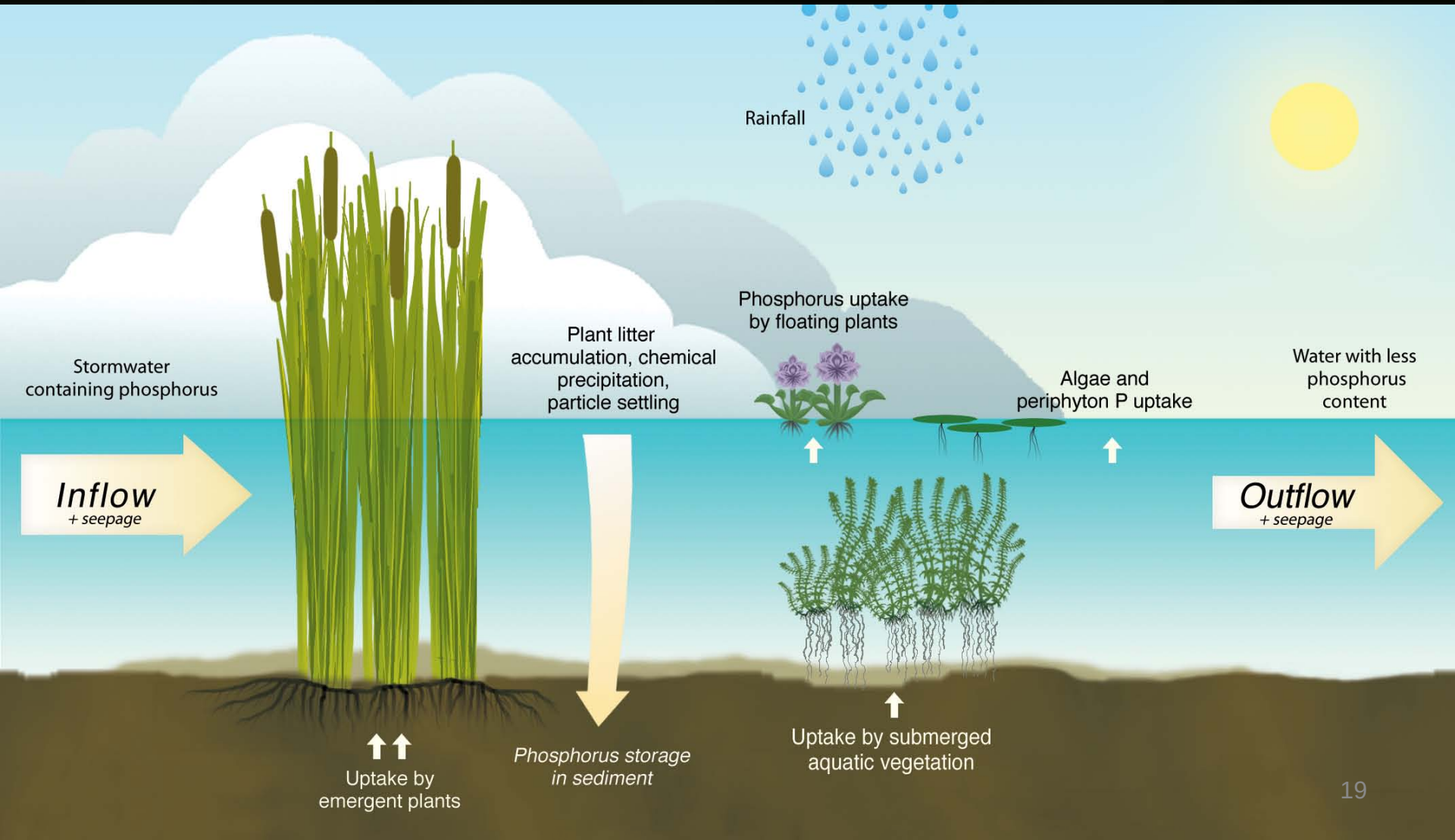
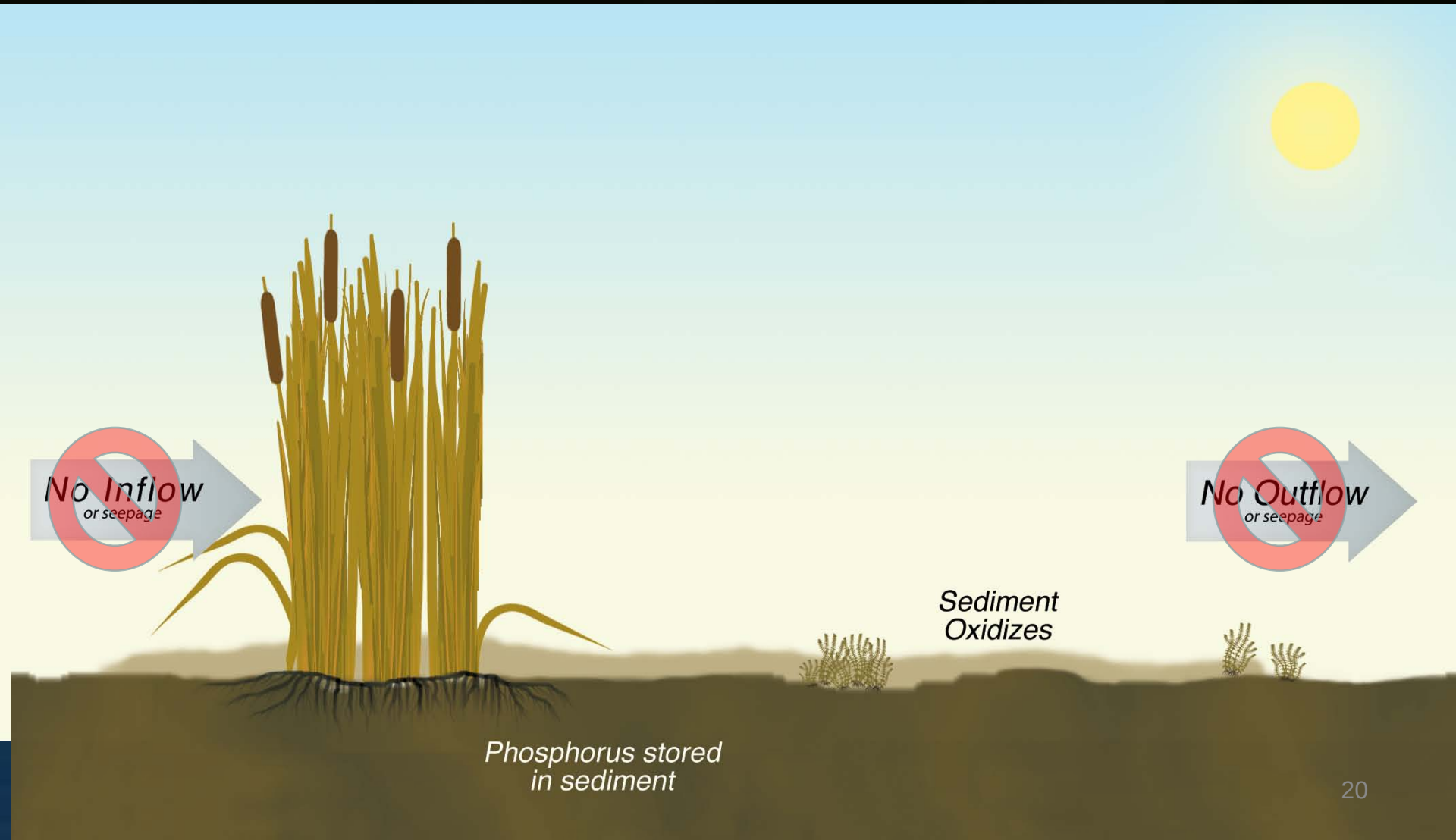


Stormwater Treatment Areas
Optimized Conditions

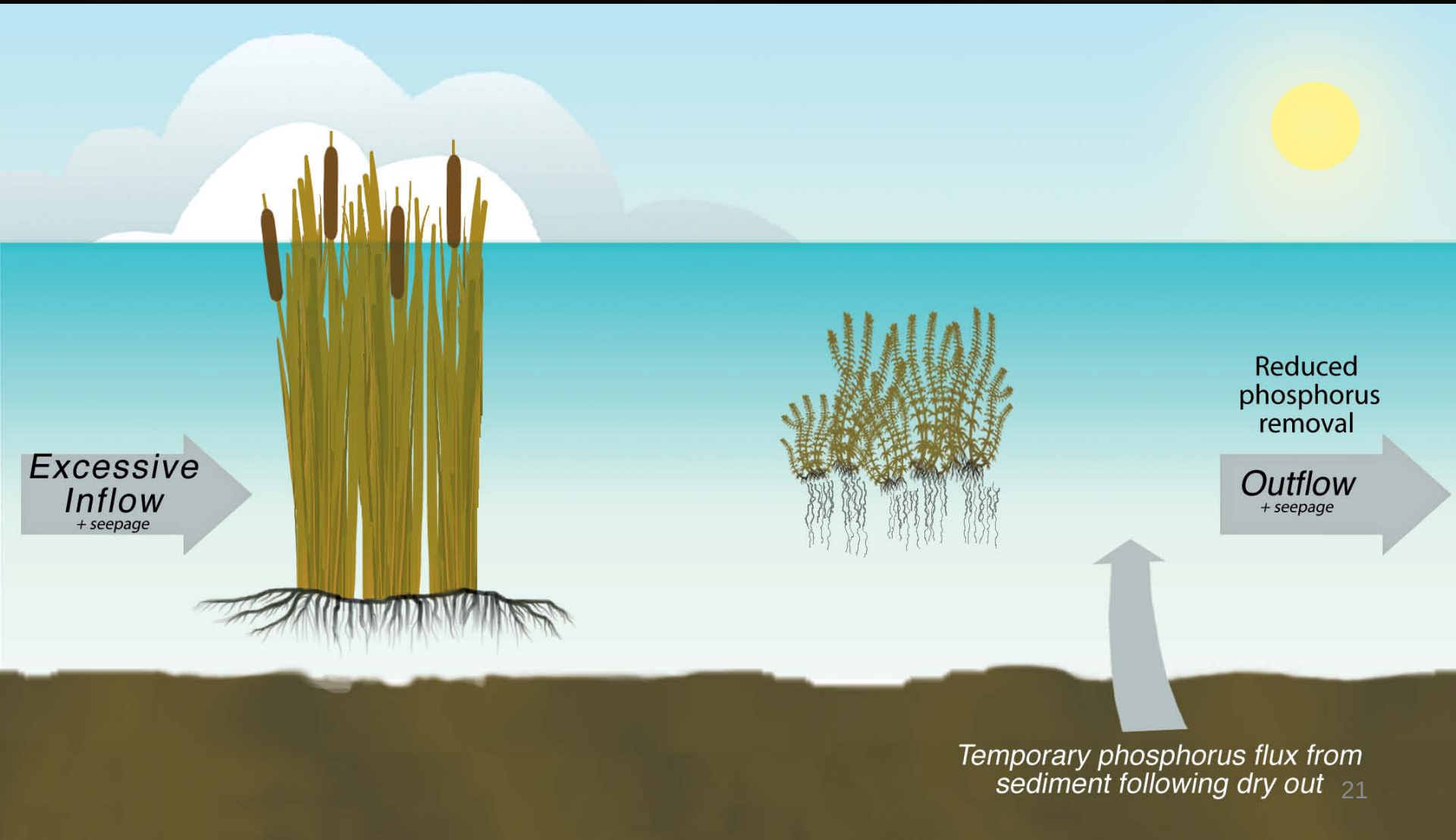


Stormwater Treatment Areas
Dry Out - No Flow Conditions



Stormwater Treatment Areas

Deep Water or Rewetting after Dry Conditions



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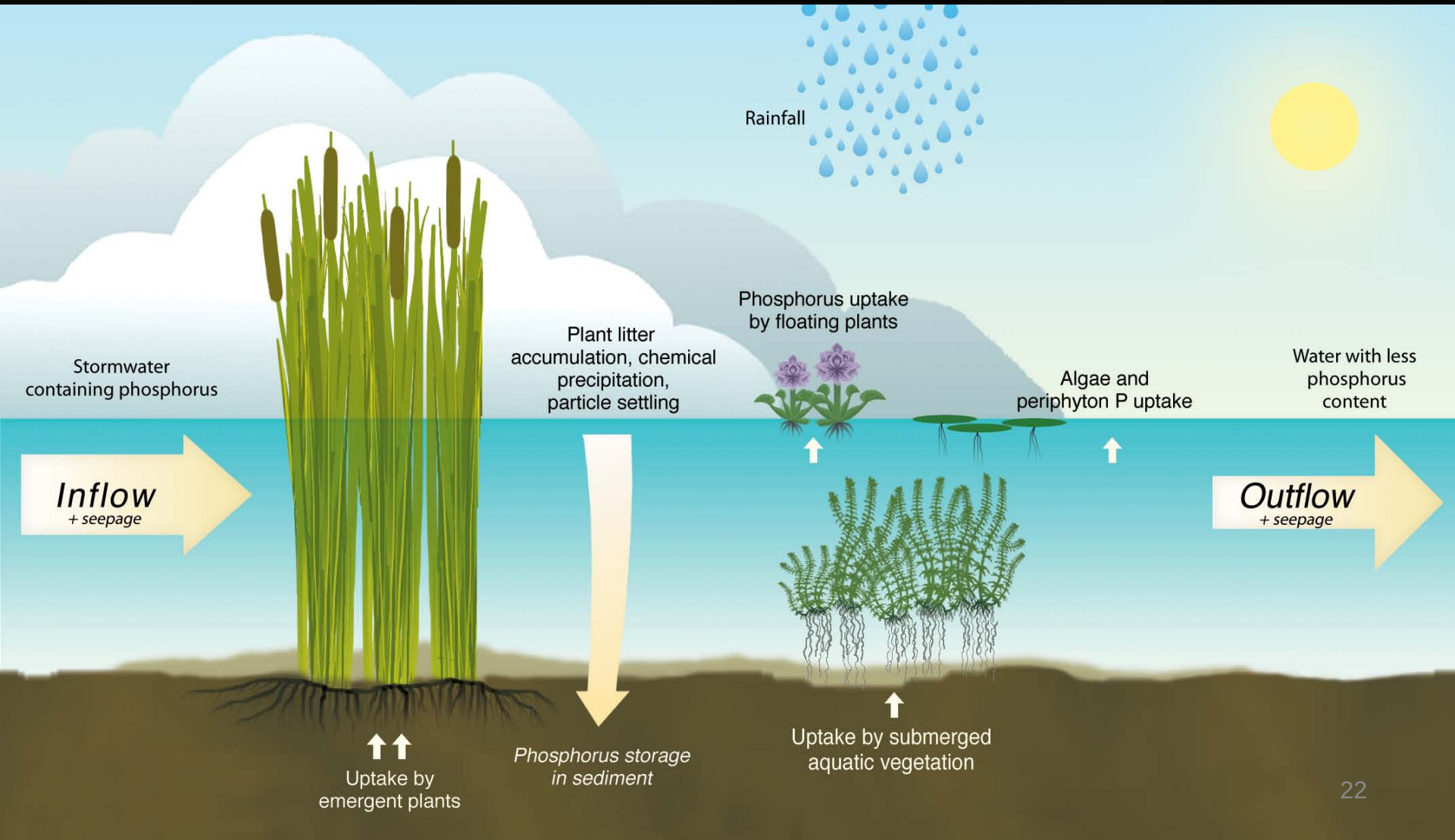


Water Quality
Status and Path Forward

Status

- Ongoing exchange of technical information and dialogue between U.S. Environmental Protection Agency, Department of Environmental Protection and District

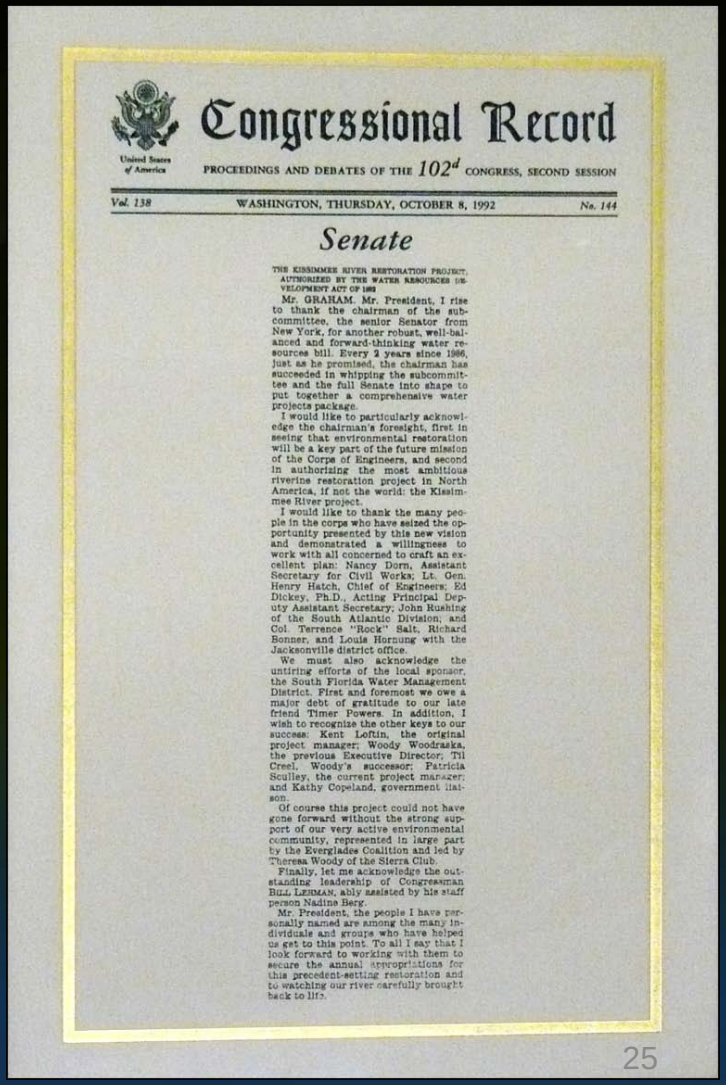
Path Forward

- Finalize plan, implementation schedule and funding
- Focus on implementation of projects

Part II
State-Federal Partnership

State-Federal Partnership
Background

- **1989**: Congress passes Everglades National Park Expansion and Protection Act; authorizes Modified Water Deliveries Project
  - 100% federal responsibility for design and construction; SFWMD responsible for O&M with 75% of costs reimbursed by Corps
- **1992**: Congress passes Water Resources Development Act (WRDA) authorizing the “Restudy” and construction of Kissimmee River Restoration
  - Provides for 50/50 cost share between Corps and SFWMD



Congressional Record

United States of America

PROCEEDINGS AND DEBATES OF THE 102d CONGRESS, SECOND SESSION

Vol. 138 WASHINGTON, THURSDAY, OCTOBER 8, 1992 No. 144

Senate

THE KISSIMMEE RIVER RESTORATION PROJECT, AUTHORIZED BY THE WATER RESOURCES DEVELOPMENT ACT OF 1992

Mr. GRAHAM. Mr. President, I rise to thank the chairman of the subcommittee, the senior Senator from New York, for another robust, well-balanced and forward-thinking water resources bill. Every 2 years since 1986, just as he promised, the chairman has succeeded in whipping the subcommittee and the full Senate into shape to put together a comprehensive water projects package.

I would like to particularly acknowledge the chairman's foresight, first in seeing that environmental restoration will be a key part of the future mission of the Corps of Engineers, and second in authorizing the most ambitious riverine restoration project in North America, if not the world: the Kissimmee River project.

I would like to thank the many people in the corps who have seized the opportunity presented by this new vision and demonstrated a willingness to work with all concerned to craft an excellent plan: Nancy Dorn, Assistant Secretary for Civil Works; Lt. Gen. Henry Hatch, Chief of Engineers; Ed Dickey, Ph.D., Acting Principal Deputy Assistant Secretary; John Rushing of the South Atlantic Division; and Col. Terrence "Rock" Salt, Richard Bonner, and Louis Hornung with the Jacksonville district office.

We must also acknowledge the untiring efforts of the local sponsor, the South Florida Water Management District. First and foremost we owe a major debt of gratitude to our late friend Timer Powers. In addition, I wish to recognize the other keys to our success: Kent Loftin, the original project manager; Woody Woodraska, the previous Executive Director; Tal Creel, Woody's successor; Patricia Sculley, the current project manager; and Kathy Copeland, government liaison.

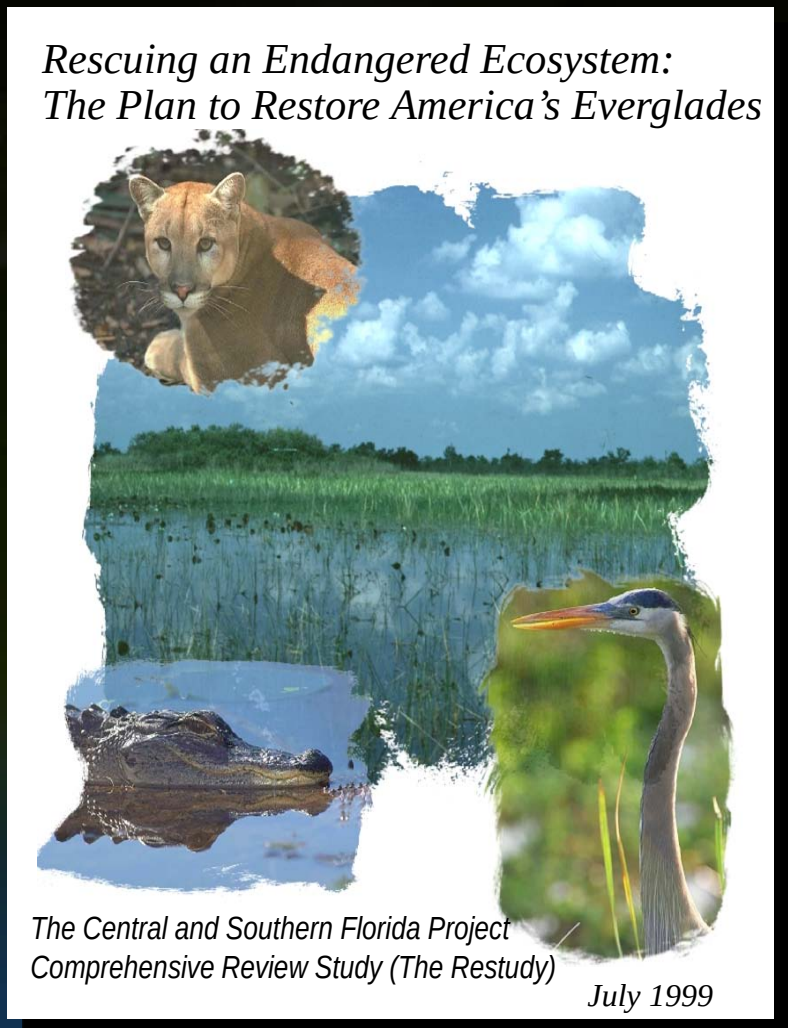
Of course this project could not have gone forward without the strong support of our very active environmental community, represented in large part by the Everglades Coalition and led by Theresa Woody of the Sierra Club.

Finally, let me acknowledge the outstanding leadership of Congressman BILL LEHMAN, ably assisted by his staff person Nadine Berg.

Mr. President, the people I have personally named are among the many individuals and groups who have helped us get to this point. To all I say that I look forward to working with them to secure the annual appropriations for this precedent-setting restoration and to watching our river carefully brought back to life.

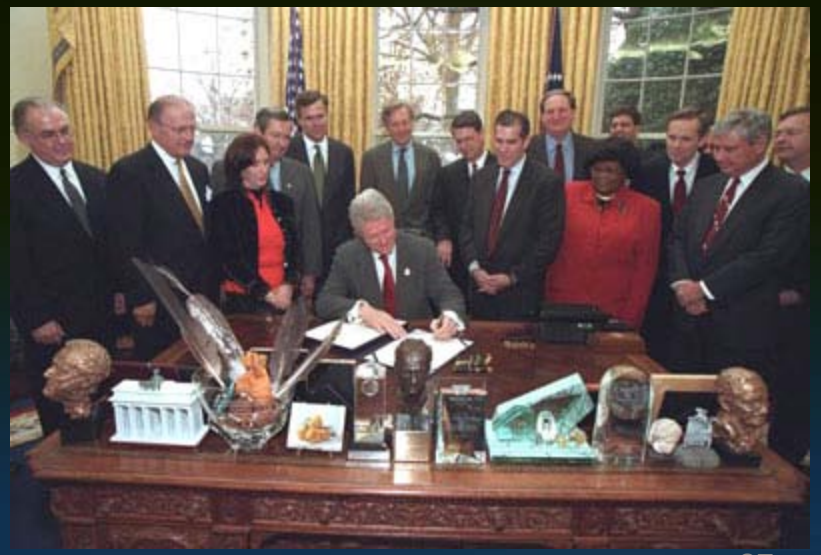
State-Federal Partnership
Background

- **1996**: WRDA 1996 further authorizes comprehensive review study for restoring south Florida's hydrology; establishes deadline for submittal to Congress
- **1999** – Florida Legislature gives SFWMD authority to act as local sponsor for all portions of the C&SF Project (F.S. 373.1501)
  - Authorizes SFWMD to participate in the Restudy; directs DEP and SFWMD to implement Everglades Construction Project and other previously authorized modifications to the C&SF Project
- **1999:** "Yellow Book" submitted to Congress; recommends comprehensive plan with more than 60 components designed to "get the water right"



State-Federal Partnership
Background

- **2000:** Florida Legislature passes Everglades Restoration Investment Act to fund the state's 50% cost-share for the Comprehensive Everglades Restoration Plan (CERP).
- **2000:** WRDA 2000
  - Approves CERP as a framework for modifying the C&SF project needed to restore the south Florida ecosystem and to provide for the other regional water-related needs
  - Authorizes 50-50 cost-share for CERP implementation and O&M
  - Requires approval of Project Implementation Report (PIR) for each project



State-Federal Partnership
Background (continued)

- **2000:** CERP Design Agreement executed
  - Provides for 50/50 cost share for design activities including PIRs, detailed design, and programmatic activities
- **2001:** PIR development begins on 13 CERP projects
- **2002**: President & Governor sign agreement to protect water for CERP projects under state law as condition for federal dollars
- **2003**: Florida initiates early start on Picayune Strand Restoration
- **2004**: Florida unveils *Acceler8* to begin early construction on CERP projects prior to authorization

State-Federal Partnership
Background (continued)

- **2007**: WRDA 2007 authorizes three projects for construction:
  - Indian River Lagoon – South
  - Picayune Strand Restoration
  - Site 1 Impoundment
  - Authorizes Corps to credit SFWMD for construction performed prior to signing a Project Partnership Agreement (PPA)

State-Federal Partnership
Background (continued)

- **2009**: SFWMD and Corps execute CERP Master Agreement
  - Provides uniform set of terms and conditions for all future Project Partnership Agreements (PPAs) under CERP
- **2009-2010**: SFWMD and Corps execute PPAs
  - Picayune Strand Restoration
  - Site 1 Impoundment
  - Indian River Lagoon South Phase 1
  - Melaleuca Eradication and Other Exotic Plants – Implement Biological Controls Project

State-Federal Partnership
CERP Process & Governing Board Actions

Project Implementation Reports *(project specific)*

Governing Board Approval of Letter of Support

Congressional Authorization *(project specific)*

Congressional Appropriation

Governing Board Authorization of Partnership Agreement

Construction

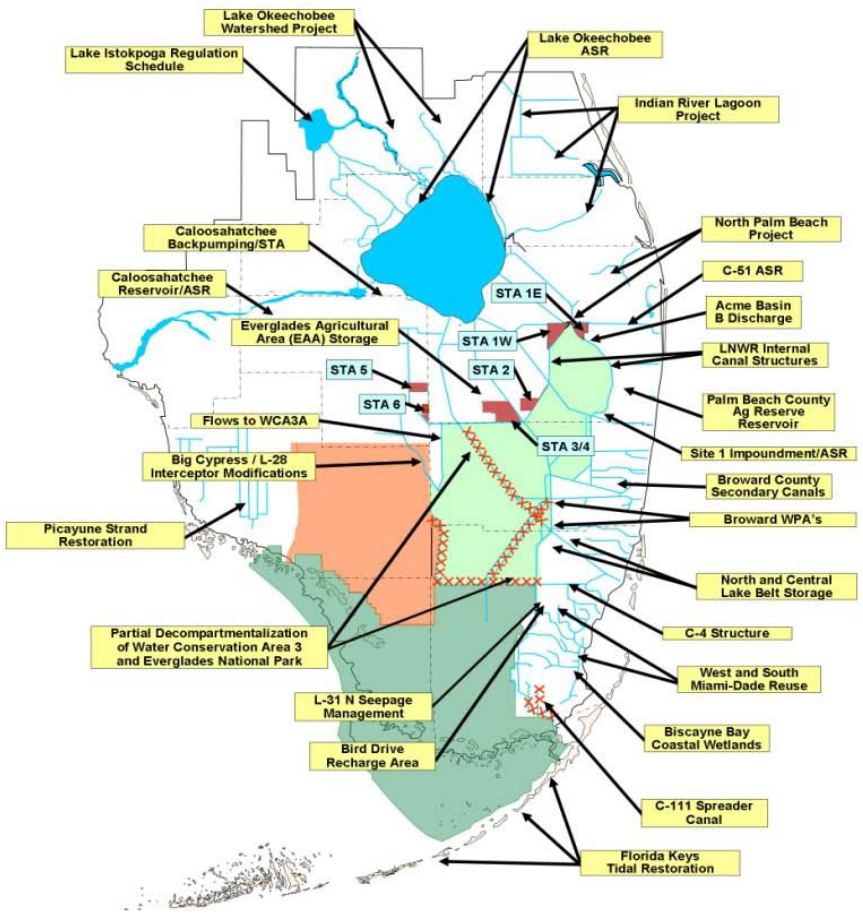
State-Federal Partnership
Florida's Commitment to Date

- Kissimmee River Restoration
  - Acquired 103,000 acres for Kissimmee River Restoration
- Comprehensive Everglades Restoration Plan (CERP)
  - Invested $2.4 billion
  - Acquired 243,194 acres of land ($1.68 billion investment)
  - Kick-started construction on six restoration projects ($377 million investment)
  - Invested $54 million in science, research and monitoring
  - 6 PIRs completed; 4 PPAs executed

State-Federal Partnership
CERP Cost-Share Crediting

- CERP Cost-Share = Design Funding + Executed PPAs
- CERP Master Agreement
  - Only costs for projects with executed PPAs considered
- Corps cannot get ahead of SFWMD in 50-50 cost-share balance
- SFWMD receives credit for the following costs:
  - Design
  - Value of all lands acquired or to be acquired for the project
  - Cost of construction completed prior to or after PPA signing
    - Upon execution of an SFWMD contract for construction, entire amount obligated by the contract is creditable

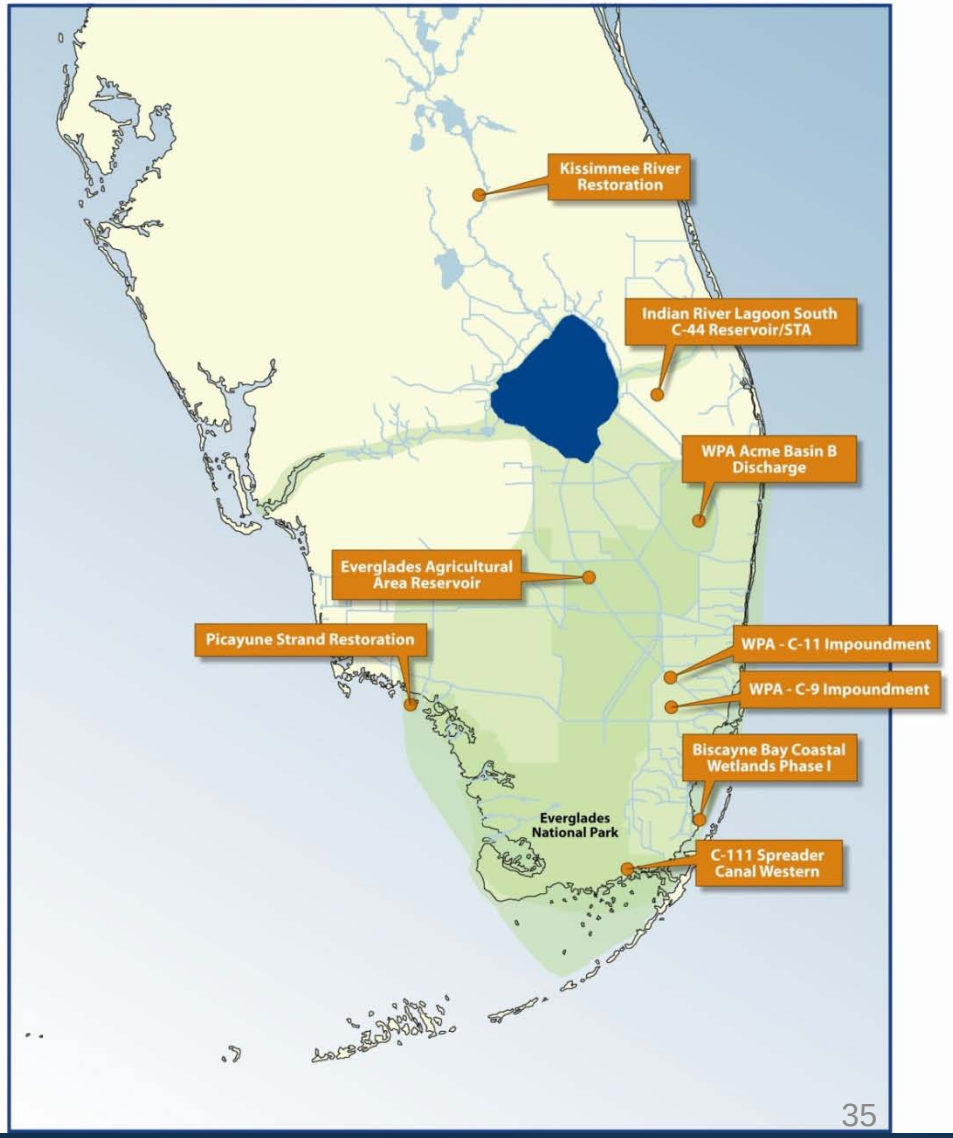
Everglades Restoration



State-Federal Partnership
State Credits

SFWMD has existing credit

- Foundation Projects:
  - Kissimmee River Restoration
- CERP:
  - Indian River Lagoon South (authorized)
  - Picayune Strand Restoration (authorized)
  - Broward Water Preserve Areas
  - Biscayne Bay Coastal Wetlands
  - C-111 Spreader Canal
  - Everglades Agricultural Area Reservoir



State-Federal Partnership
CERP Implementation

- Foundation Projects
  - Kissimmee River
  - C-111 South Dade
  - C-51/STA-1E
  - Modified Water Deliveries
- 1st Generation CERP
  - Site 1 Impoundment
  - IRL-South
  - Picayune Strand
- 2nd Generation CERP
  - C-43 Reservoir
  - Broward County WPA
  - C-111 Spreader Canal
  - Biscayne Bay Coastal Wetlands

Comprehensive Everglades Restoration Plan
Moving Forward

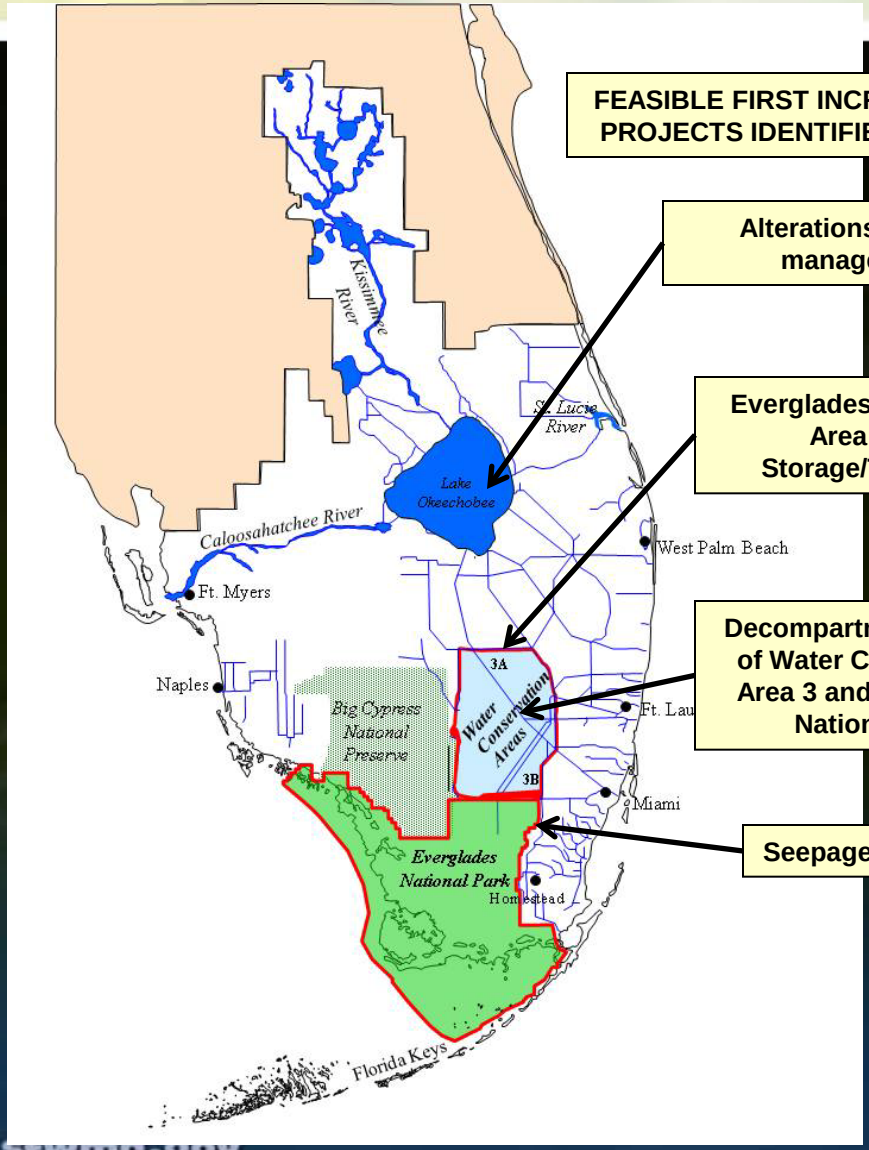
Central Everglades Planning Project

- Streamlined planning effort to get projects in the heart of the Everglades system readied for Congressional authorization and appropriation within 2 years

SFWMD Commitment

- Provide technical expertise
- Modeling
- Plan formulation
- Facilitate public participation
- Serve as local sponsor

State-Federal Partnership
Central Everglades Projects



Objectives

- Move water south
- Use land in District ownership
- Increase water storage and water deliveries in the Central Everglades
- Improve water quality
- Restore sheetflow and improve water deliveries through historic Everglades to Everglades National Park and Florida Bay

State-Federal Partnership
Central Everglades - Scope Definition

- Scoping Phase completed January 2012
- SFWMD Scoping Comments:
  - Water quality
  - Project formulation on District-owned lands
  - Cost-share commitment for incorporated Modified Water Deliveries project components
  - Significant stakeholder input regarding Lake levels/water supply
- Decision Point 1 – January 27 meeting with Corps Headquarters and Assistant Secretary's staff
  - Establish federal interest
  - Tools for analysis

State-Federal Partnership
Central Everglades – Challenges

- Cost-Share
  - Certain degree of plan formulation needed to determine federal/district cost share responsibilities
- Leveraging Existing Credits
  - PIR that maximizes our existing credits
  - Limits financial exposure to O&M costs
- Right-sizing Projects
  - Incremental approach
- Federal Process

State-Federal Partnership
Central Everglades – Next Steps

- Monthly Governing Board/WRAC Meetings
  - Status updates
  - Policy input and direction prior to formal Governing Board actions
- Plan Formulation Phase
  - Begins February 2012
  - Ongoing updates on screening and formulation of alternatives
  - Identification of Preferred Alternative expected by October 2012
  - Focus will be on identifying the initial increment of Central Everglades restoration

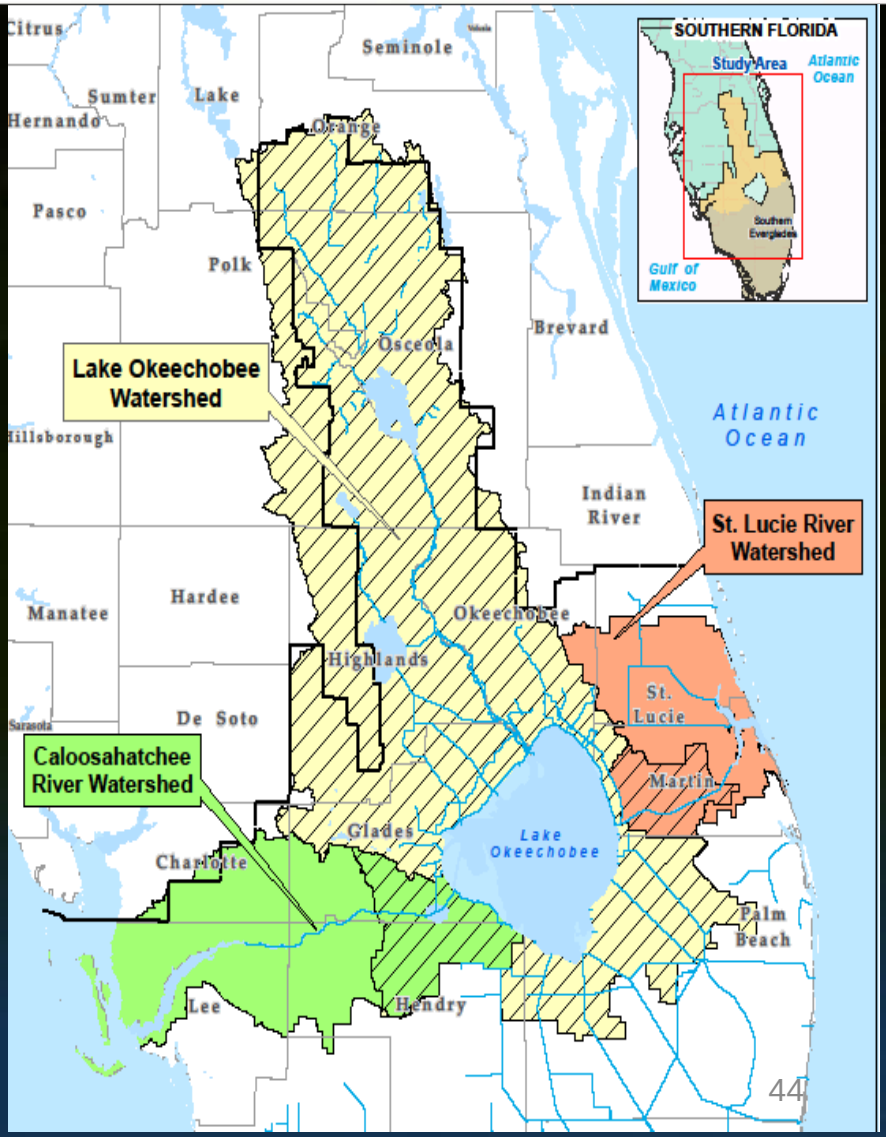
Part III
State Projects and Programs

Part III
State Projects and Programs

- Northern Everglades and Estuaries Protection Program
  - Source Controls
  - Dispersed Water Management
  - Construction Projects
  - Alternative Treatment Technologies
- Habitat Restoration

State Projects and Programs
Northern Everglades

- **Northern Everglades and Estuaries Protection Program**
  - 2007 expansion of the Lake Okeechobee Protection Act to include St. Lucie and Caloosahatchee watersheds
  - Requires watershed protection plans
  - Objective is to meet Total Maximum Daily Loads and increase storage

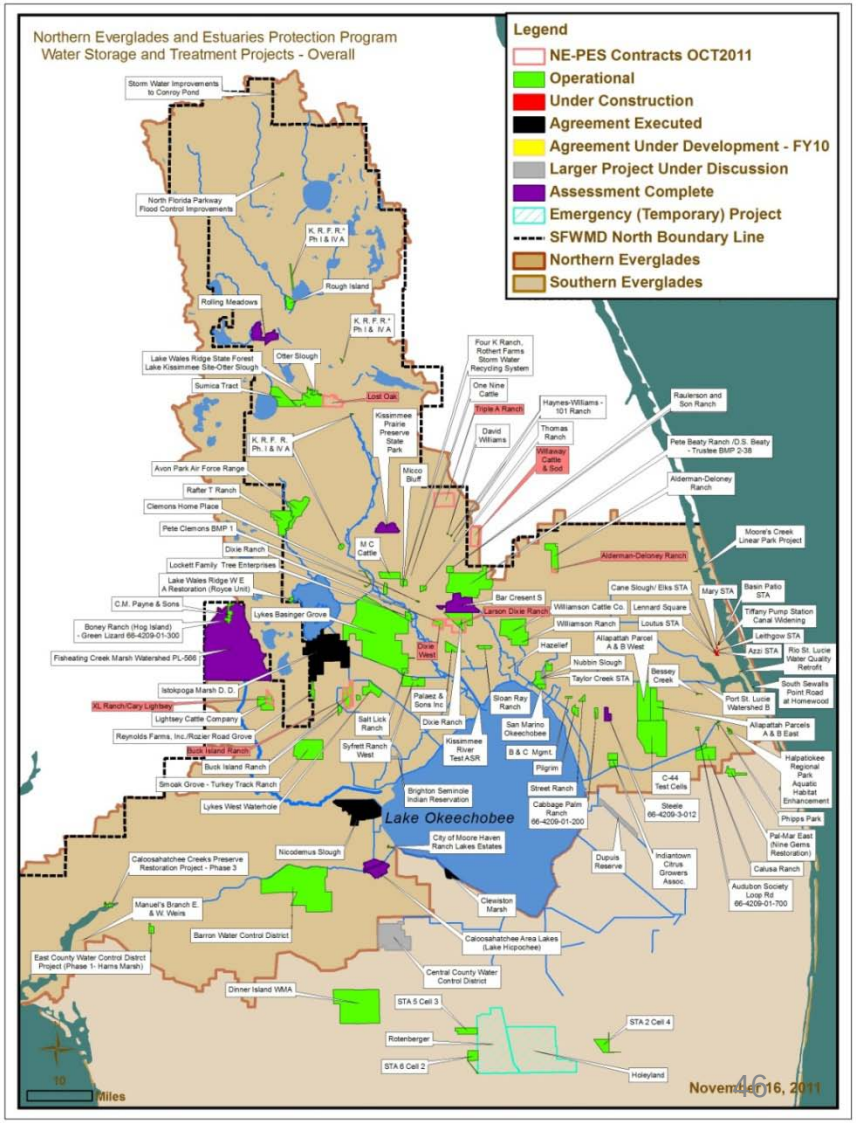


State Projects and Programs
Northern Everglades

- Northern Everglades and Estuaries Protection Program
  - **Source Controls**
    - Agricultural & Urban BMPs
    - Regulatory Programs
    - BMP effectiveness and sustainable agricultural research, demonstration and assessment projects

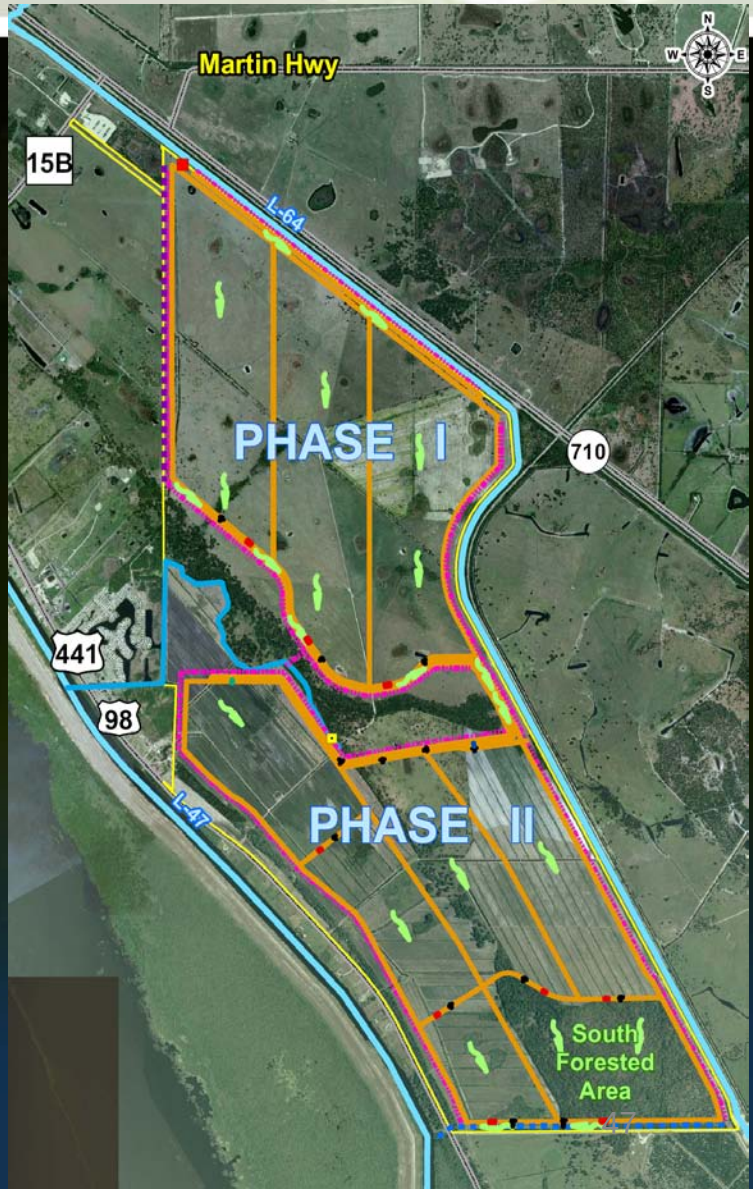
State Projects and Programs
Northern Everglades

- Northern Everglades and Estuaries Protection Program
  - Source Controls
  - **Dispersed Water Management**
    - Public-private partnerships
    - More than 100 Dispersed Water Management Projects
    - $46 million investment in dispersed water management over next 5 years



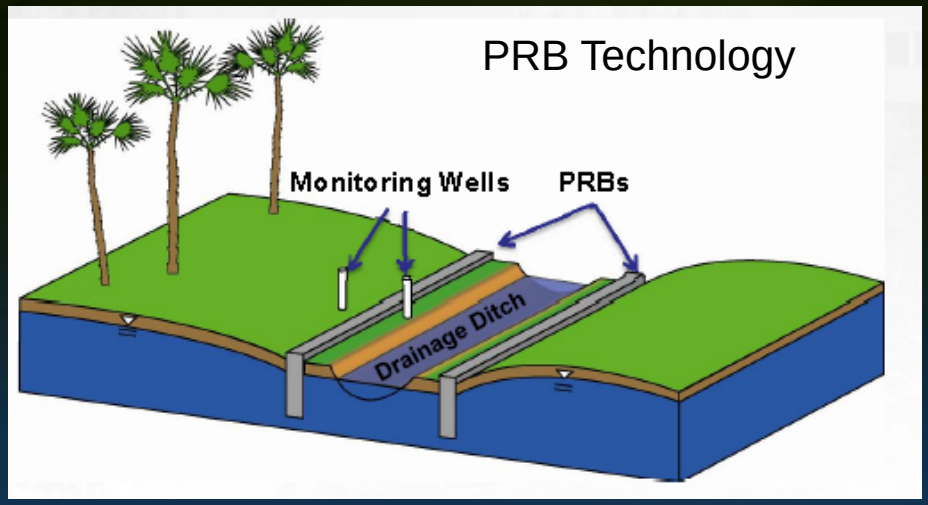
State Projects and Programs
Northern Everglades

- Northern Everglades and Estuaries Protection Program
  - Source Controls
  - Dispersed Water Management
  - **Construction Projects**
    - Lakeside Ranch STA
    - Remove phosphorus from stormwater runoff in Taylor Creek-Nubbin Slough Basin before discharge into lake
    - Remove up to 19 metric tons P/year
    - March 2012 completion for northern STA



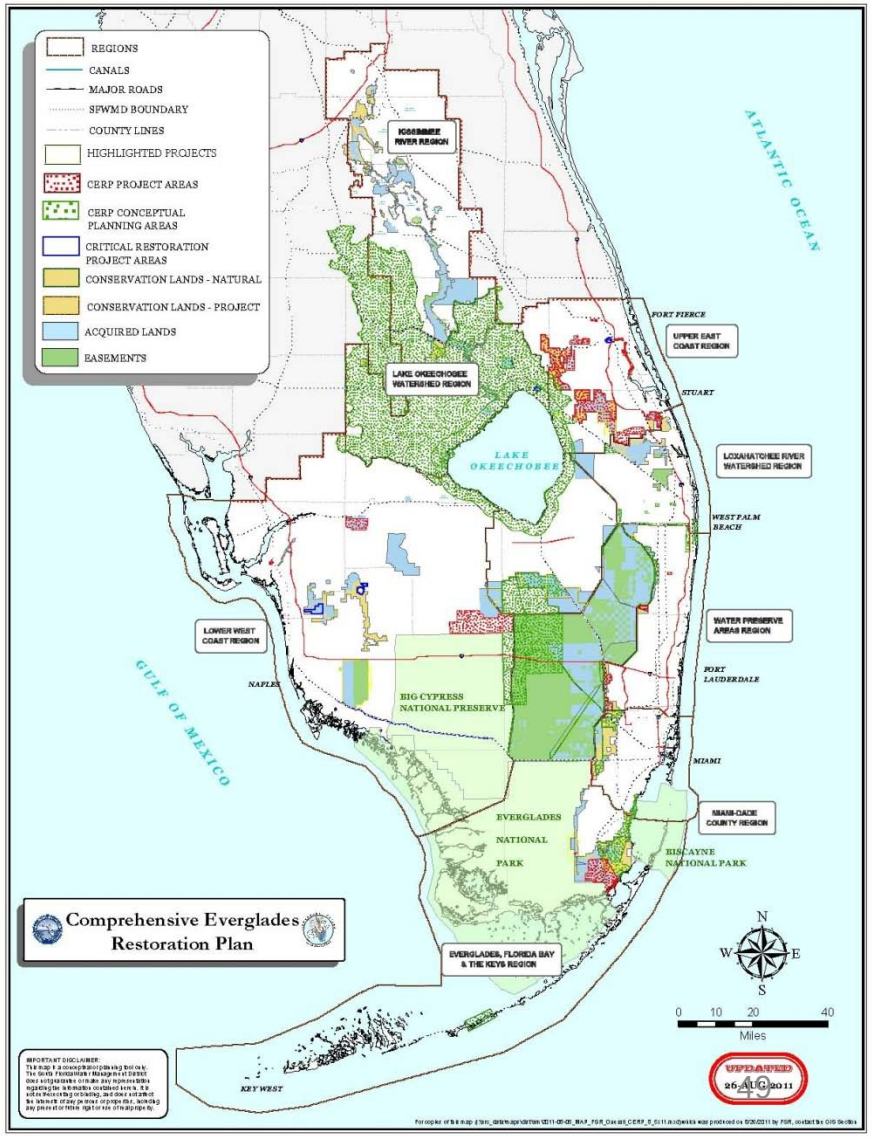
State Projects and Programs
Northern Everglades

- Northern Everglades and Estuaries Protection Program
  - Source Controls
  - Dispersed Water Management
  - Construction Projects
  - **Alternative Treatment Technologies**
    - Hybrid Treatment Wetland
    - Permeable Reactive Barrier
    - Nutrient Binding Materials
    - Nitrogen Technology Testing



State Projects and Programs
Habitat Restoration

- Northern Everglades and Estuaries Protection Program
  - Source Controls
  - Dispersed Water Management
  - Construction Projects
  - Alternative Treatment Technologies
- **Habitat Restoration**



State Projects and Programs
Next Steps

- Implement Dispersed Water Management
- Continue BMP implementation in all watersheds
- Complete feasibility studies and sub-watershed assessments in northern Everglades
- Complete conceptual design for C-43 Water Quality Treatment and Demonstration project
- Implement additional Alternative Nutrient Reduction Pilot Projects
- Identify habitat restoration opportunities

Governing Board Discussion