



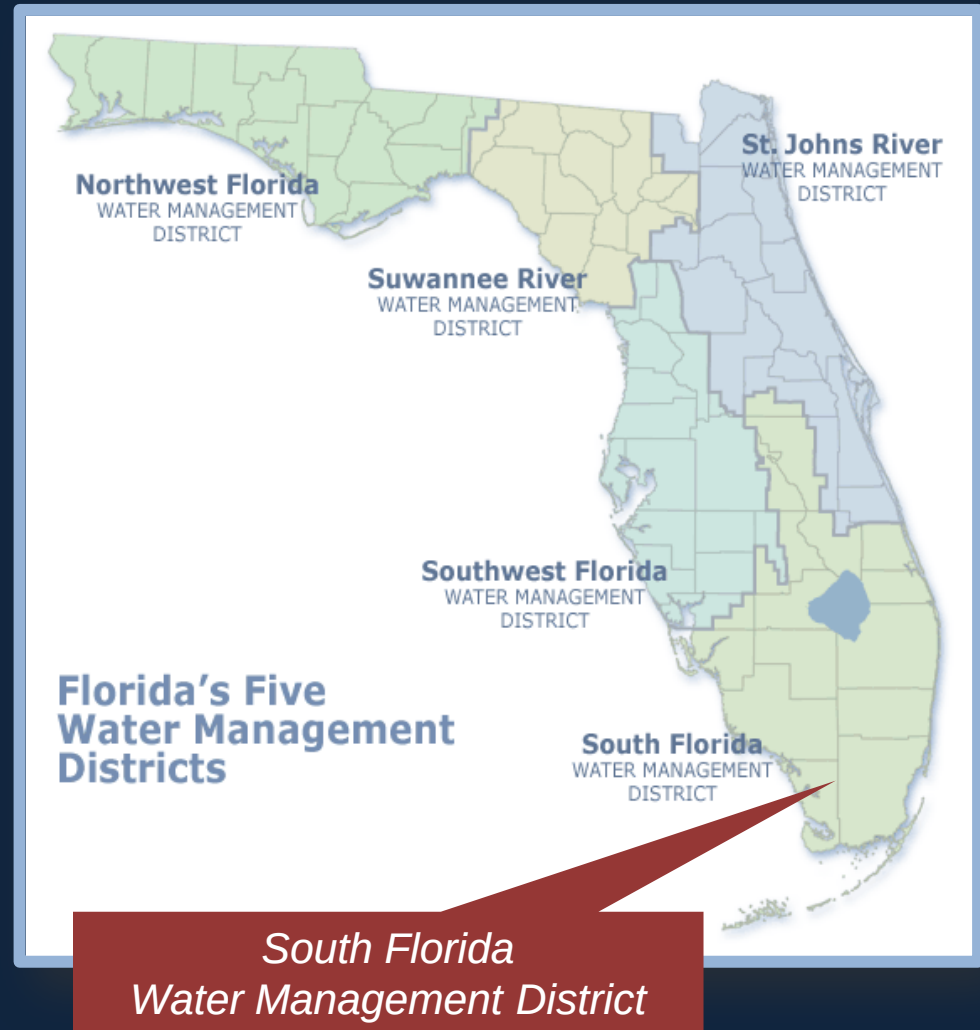
SOUTH FLORIDA WATER MANAGEMENT DISTRICT'S MONITORING NETWORKS

Linda Crean, PG
Section Administrator
Water Quality Monitoring

Florida Water Resource Monitoring Council
October 9, 2012

WHO WE ARE

- Oldest and largest of Florida's five regional water management districts
- Protecting water resources in the southern half of the state since 1949

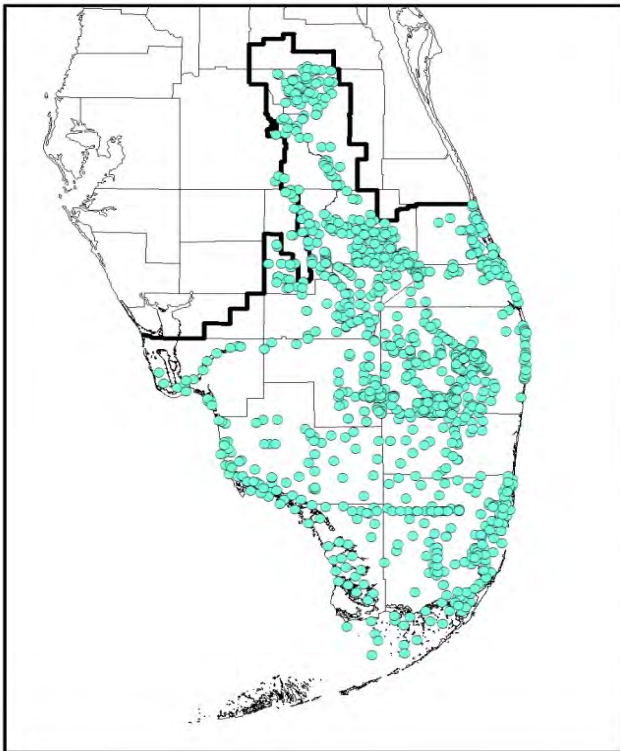


WHO WE ARE

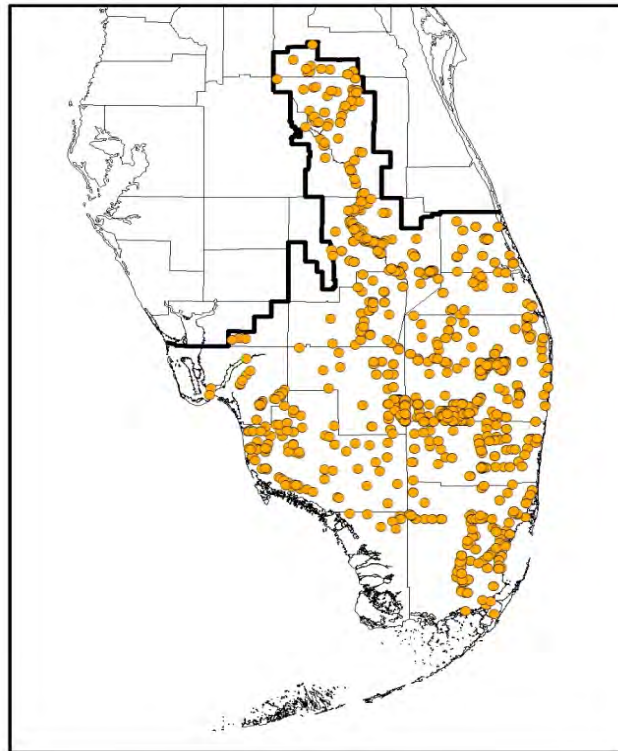
- Encompasses 18,000 square-mile region
- Serves 16 counties and 7.7 million residents



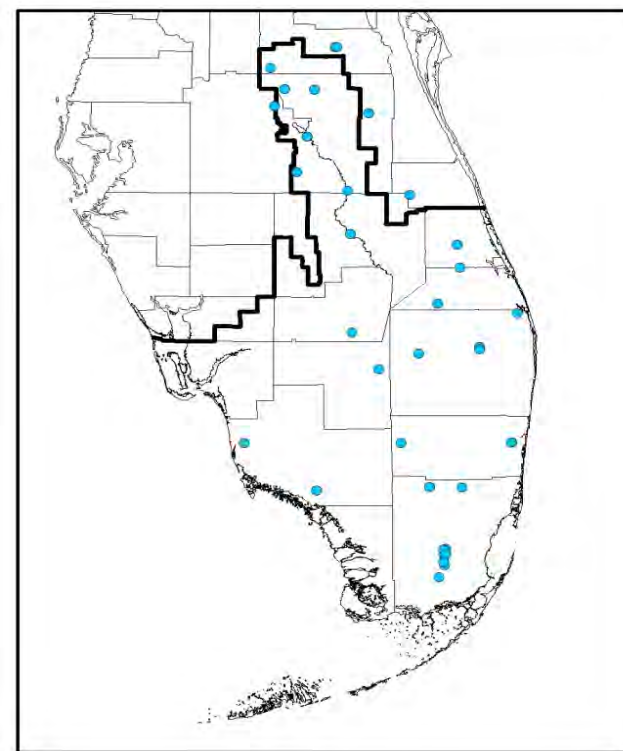
WHAT WE MONITOR - WATER



Surface water



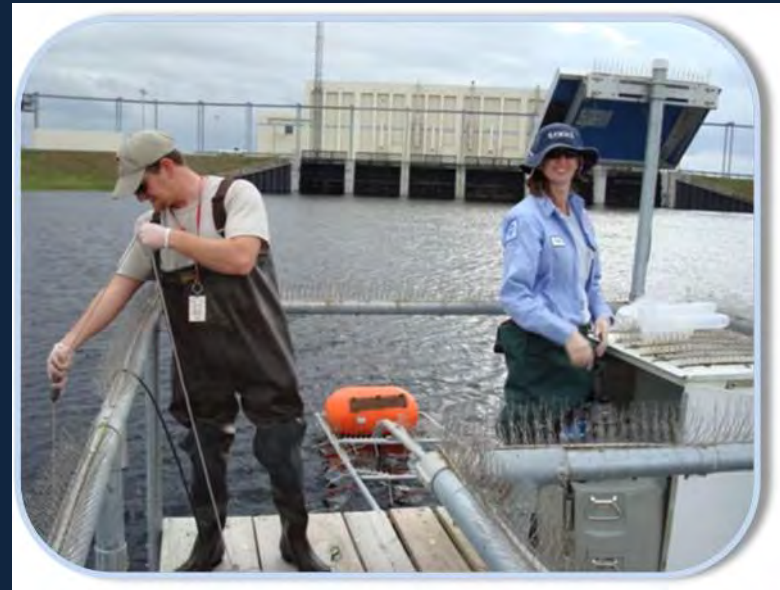
Hydrologic



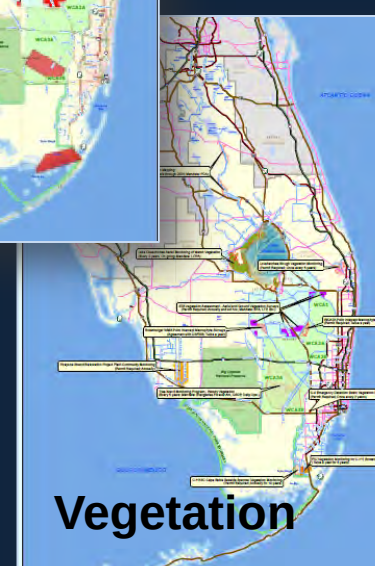
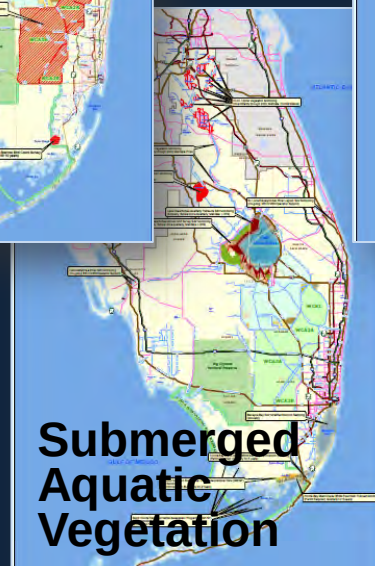
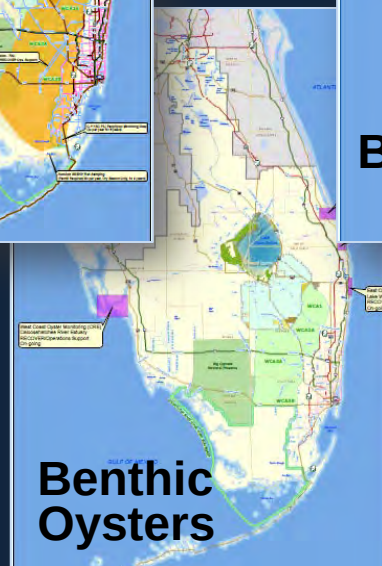
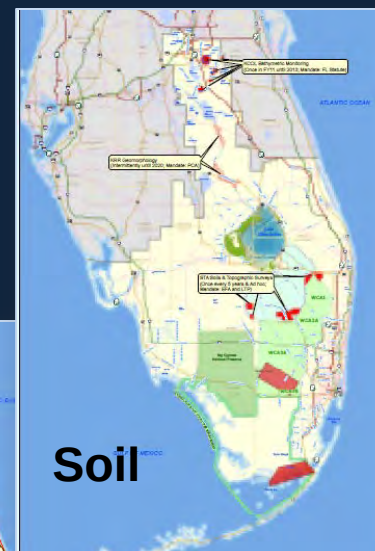
Groundwater

WHAT WE MONITOR

- Surface Water Grabs
- Flow and Time Proportional Autosamplers
- Atmospheric Deposition
- National Atmospheric Deposition Program, Mercury Deposition Network
- Pesticides/Ultra-Trace Mercury
 - Surface Water
 - Fish Tissue
 - Sediment
- Continuous Data Probes
- Downstream Transects
 - Vegetation
 - Sediments



WHAT WE MONITOR - BIOLOGICAL



SURFACE WATER MONITORING NETWORKS

- Kissimmee River and Upper Chain of Lakes
- Lake Okeechobee Inflows, Outflows, Interior, and Littoral Zone
- St. Lucie, Indian River Lagoon, St. Lucie Tributaries, Estuarine Inflow Structures
- Caloosahatchee River Freshwater and Estuarine
- Biscayne Bay, Florida Bay, Ten Thousand Islands
- Okeechobee and Southern Everglades Storm Water Treatment Areas
- Everglades Agricultural Area
- Everglades Water Conservation Areas Interior Stations
- Everglades Protection Area Inflows
- C111 Detention Area
- Everglades National Park Inflows/Interior
- C111 Western Features Project



WHERE WE MONITOR



WHY WE MONITOR

- Operating Permits
 - Lake Okeechobee
 - Storm Water Treatment Areas
 - Non-Everglades Construction Project
 - CERP Projects (Biscayne Bay Coastal Wetlands, C111 Western Features)
- Everglades Settlement Agreement
 - Inflows and Within the Water Conservation Areas
 - Everglades National Park
- Rules
 - Total Phosphorus
 - Everglades Agricultural Area
- Optimize Operations
 - Storm Water Treatment Areas
- Ambient Water Conditions
 - Source Control
 - Coastal Waters



HOW WE GET THERE



HOW WE MONITOR



How We Monitor



FIELD OPERATIONS CENTER ENVIRONMENTAL SERVICES LABORATORY

Gold Certified LEEDs building

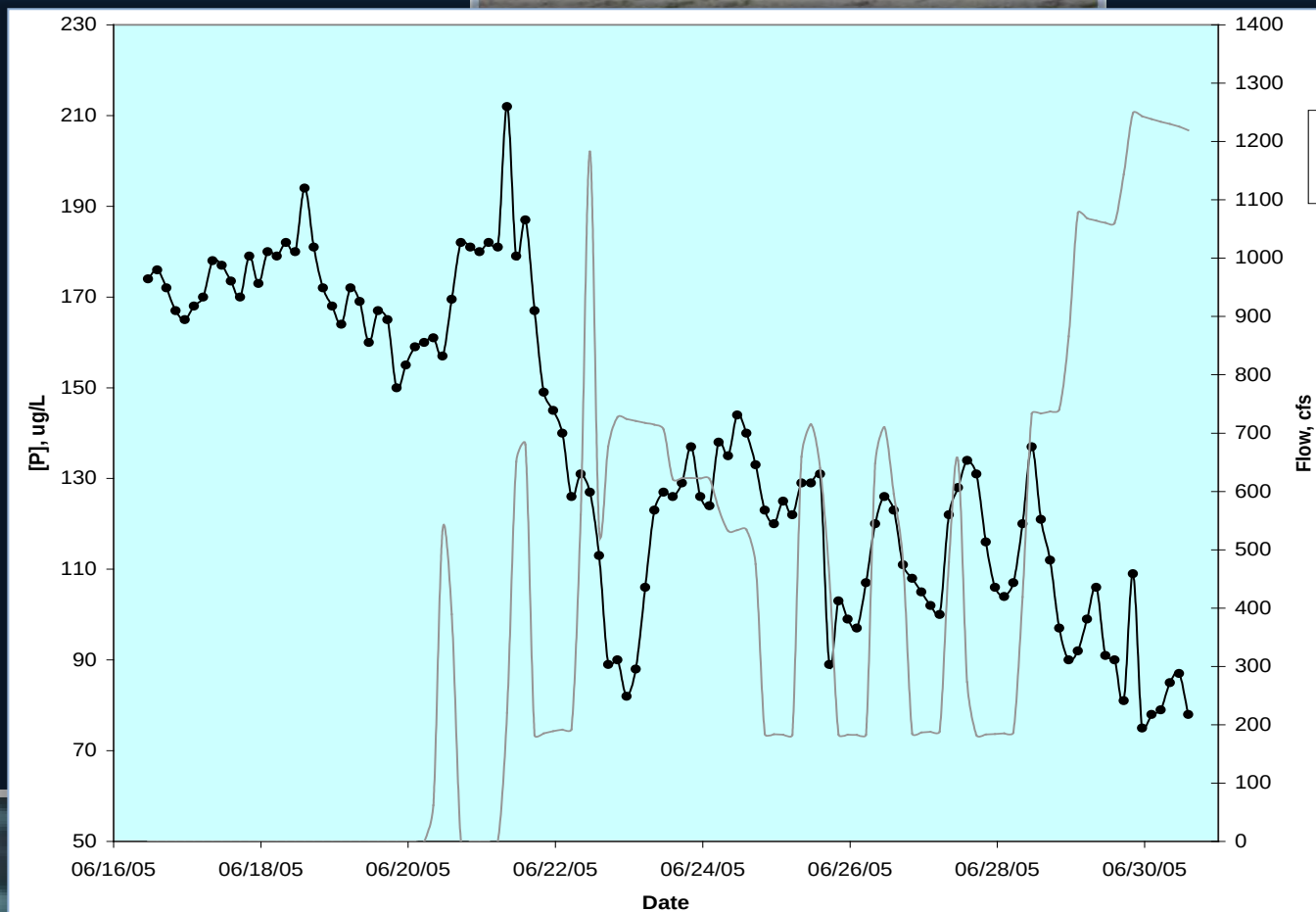


STATE-OF-THE-ART ANALYTICAL LABORATORY

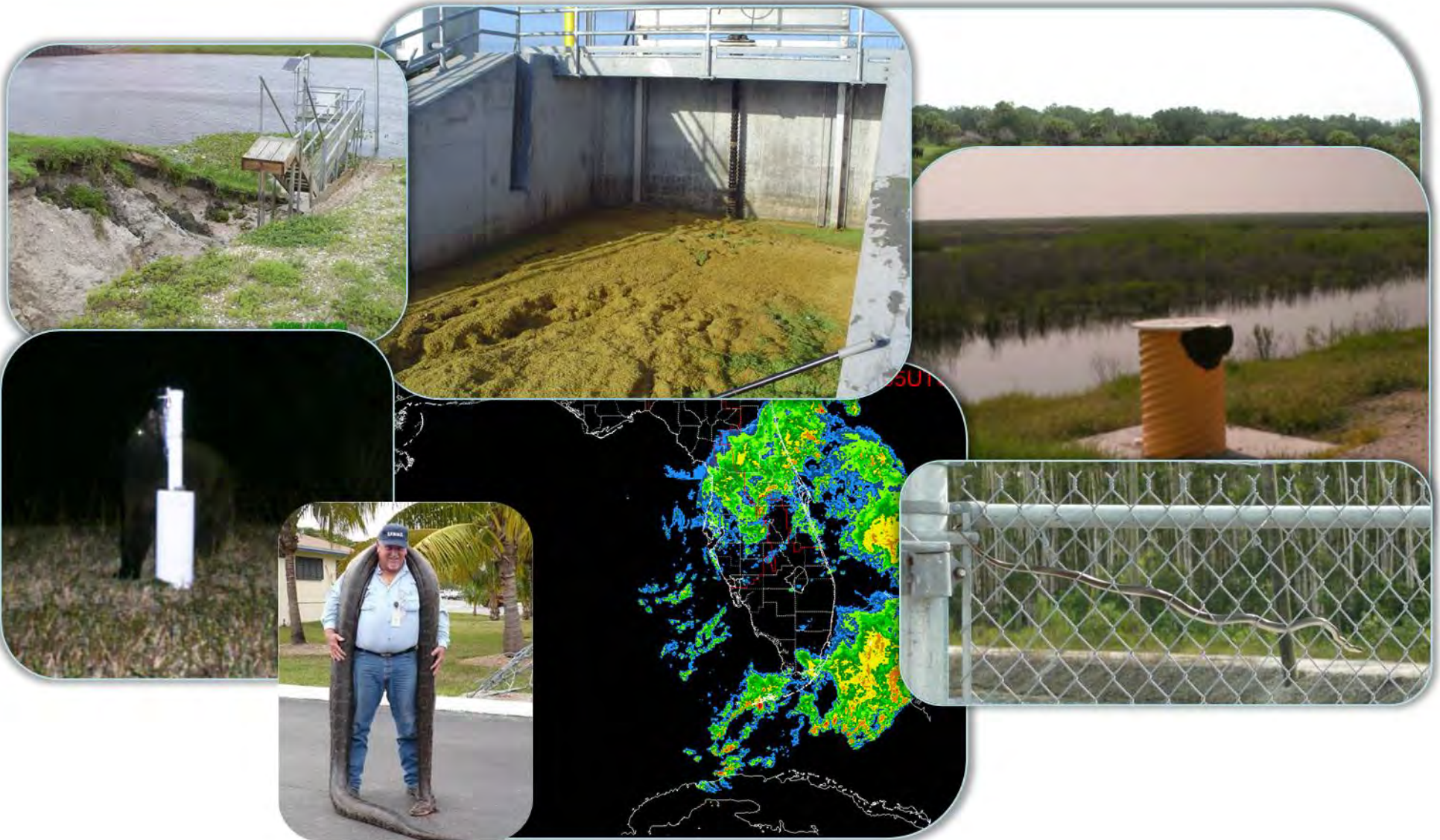


REMOTE PHOSPHORUS ANALYZER

Total Phosphorus samples are collected by autosampler and **analyzed in the field** by a remote analyzer every 3 hours.



MONITORING CHALLENGES



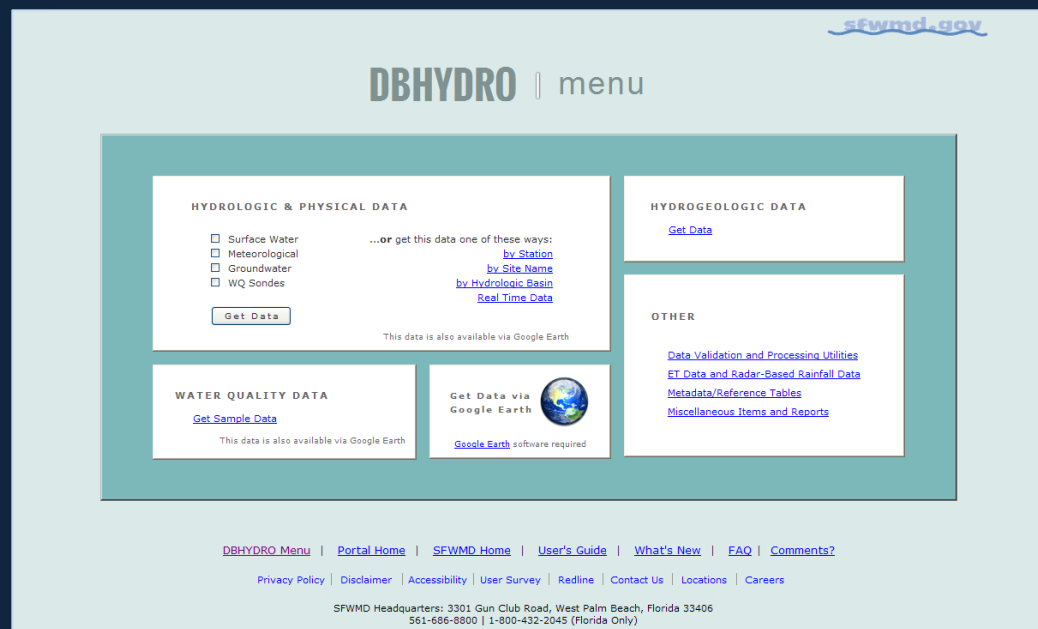
OTHER CHALLENGES

- Litigation
- New project mandates and permit requirements
- Monitoring programs developed by multiple stakeholders/agencies
- Mission creep



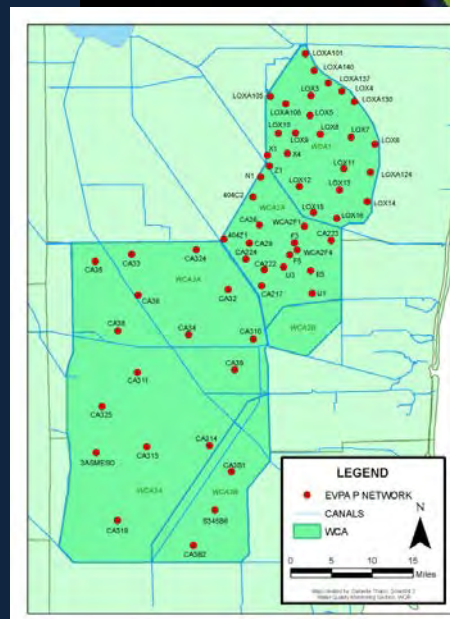
WHO LEVERAGES OUR DATA

- DBHYDRO
- Everglades Research and Data Production (ERDP)
- STORET



How Much We Monitor (WATER YEAR 2011)

- 77 Projects
- 22,000+ Site Visits
- 313,000 Analytical Tests
 - 271,000 analyzed by District Lab
 - 23,000 analyzed by FDEP
 - 17,000 analyzed by Dade County
- Nutrients – 102,000 tests
- General Chemistry – 37,000 tests
- Metals/Ions – 27,000 tests
- 2.2% data in DBHydro qualified



QUALITY SYSTEM

- Florida Department of Environmental Protection Quality Assurance Rule
- Quality Management Plan – Water Quality & Applied Sciences Bureaus
- Quality Manuals (Field Sampling & Laboratory)
- FDEP Field Sampling Standard Operating Procedures (001/01)
- District Standard Operating Procedures
- Operational & Compliance Monitoring Plans
- Data Quality Objectives
- Quality Control Samples
- Data Validation
- Field Sampling Certification
- Field and Laboratory Audits



Operational Project Monitoring Plan

For

Downstream STA1W, STA1E, and STA2 Transects

Project Code: STAT

Document Preparation Date: March 26 2012

Revision Date: June 11, 2012

Water Quality Monitoring Section
Water Quality Bureau, Water Resources Division
South Florida Water Management District

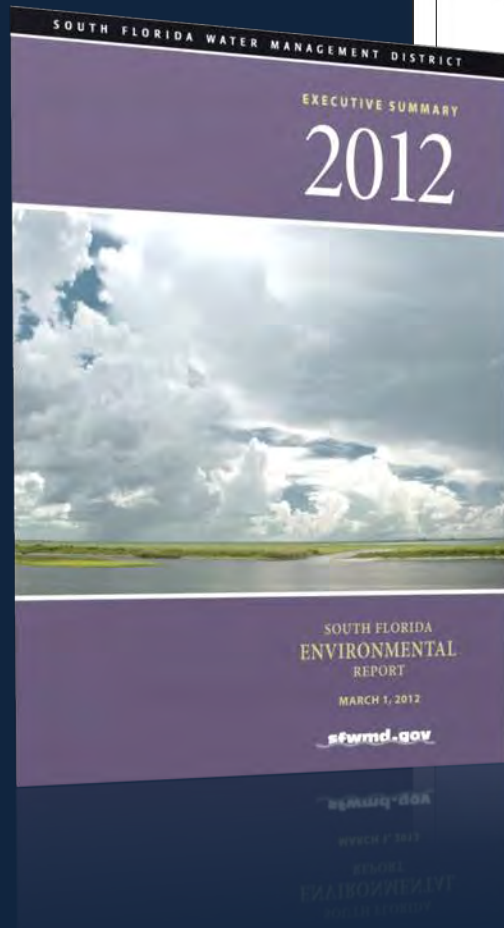
SFWMD-FIELD-MP-478-01

QUALITY ASSURANCE AND DATA VALIDATION

- Field data validation
- Verification of compliance monitoring
- Lab data validation
- ADAPT
- Data stewardship
- Customer service



DATA SYNTHESIS AND REPORTING



Settlement Agreement Report

Second Quarter
April - June 2012

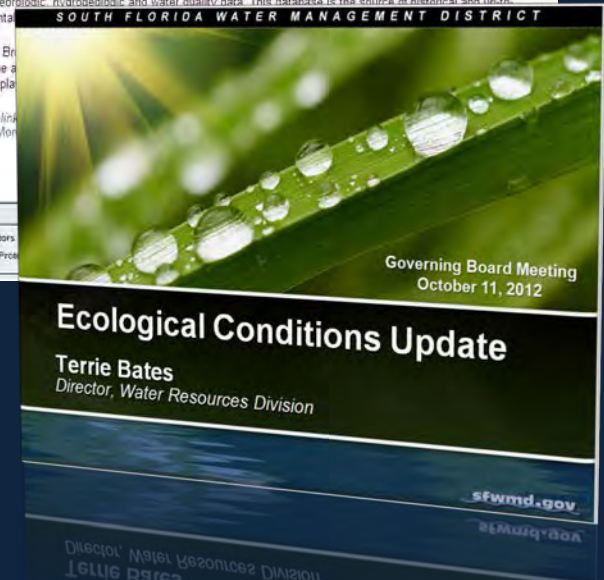
Prepared for the
Technical Oversight Committee

August 10, 2012



Prepared by:

Cheol Mo, Violeta Ciucu, and Stuart Van Horn
Compliance Assessment and Reporting Section
Water Quality Bureau
South Florida Water Management District
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MONITORING DESIGN



MONITORING/DATA IMPROVEMENTS

- Implementation of Compliance Monitoring Tracking System
- Environmental Monitoring Review Process Team
- Automation of data entry and documentation
- Recorded flow monitoring – targeted based on actual flow
- Consolidated reporting
- Continual fine-tuning



MONITORING REDUCTION PROJECT

- Do more with less...
 - Increased STA and Downstream Monitoring for Restoration Strategies
 - Increased project compliance monitoring
 - No budget increase
- Reviewed existing networks
 - Project objectives
 - Redundancy
 - Frequencies
 - Use of surrogate stations
 - Methodologies
 - Parameters
 - Implemented recorded flow monitoring scheme

Elements of District Monitoring (FY12)

Hydrometeorology + Water Quality + Biology/Ecology = SFWMD Environmental Monitoring Program



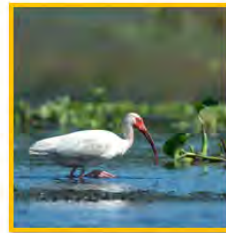
**4500 Sensors/
500+ Flow Sites**

- Flow
- Stage
- Groundwater levels
- Rainfall, ET, Other weather parameters
- Real-time water quality data



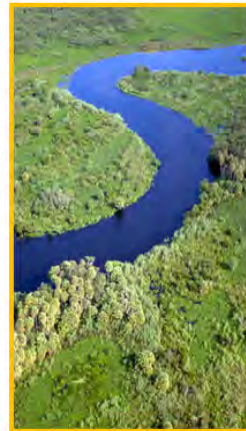
**1,980 Stations/
339,600 Lab Tests:**

- Nutrients
- Physical Parameters
- Inorganics
- Pesticides
- Mercury



Key Ecological Indicators

- Vegetation/SAV
- Wading Birds & Prey
- Aquatic Fauna – (Fish/ Crayfish)
- Oysters
- Soil/Topography



\$13.5 Million + \$12.5 Million + \$6.7 Million = \$32.7 Million

SFWMD POINTS OF CONTACT

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Rainy Season Readiness

Managing Flood Water Before and After the Storm

[LEARN MORE ▶](#)

LAKE OKEECHOBEE LEVEL	LAKE ISTOKPOGA LEVEL
Oct 08, 2012 15.84 ft.	Oct 08, 2012 38.28 ft.



Rainy Season Readiness ▶



Permitting Services ▶



Restoring the Everglades ▶

In the News



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Strategies for Improving the Caloosahatchee River and Estuary
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Restoration Strategies for Clean Water for the Everglades
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SFWMD Approves Pump Construction for Everglades Restoration Reservoir
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September's Average Rainfall Increases Wet Season Totals
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QUESTIONS?

