



Northern Everglades and Estuaries Protection Program Update

Water Resources Advisory Commission Meeting 10/08/09
**Temperince Morgan– Northern Everglades Program
Implementation Manager/River of Grass Project Liaison**



Lake Okeechobee Protection Plan Update



- I. Pollutant Control Program**
- II. Construction Project**
- III. Research and Water Quality Monitoring Program**



Pollutant Control Program

- **Implementation of agricultural and urban Best Management Practices (BMPs)**
- **Revisions to regulatory programs**
 - **Environmental Resource Permit (ERP) Program**
 - **Statewide Stormwater Rule - Water Quality (FDEP)**
 - **Northern Everglades ERP Basin Rule - Water Quantity (SFWMD)**
 - **District's Source Control Program Regulatory Rule (Chapter 40E-61)**
 - **Works of the District Regulatory Phosphorus Source Control Program**



Pollutant Control Program

SFWMD Phosphorus Control Program

Eckerd Youth Center



Lemkin Creek Wetland Restoration



Lamb Island Dairy Remediation





Construction Project Lakeside Ranch STA

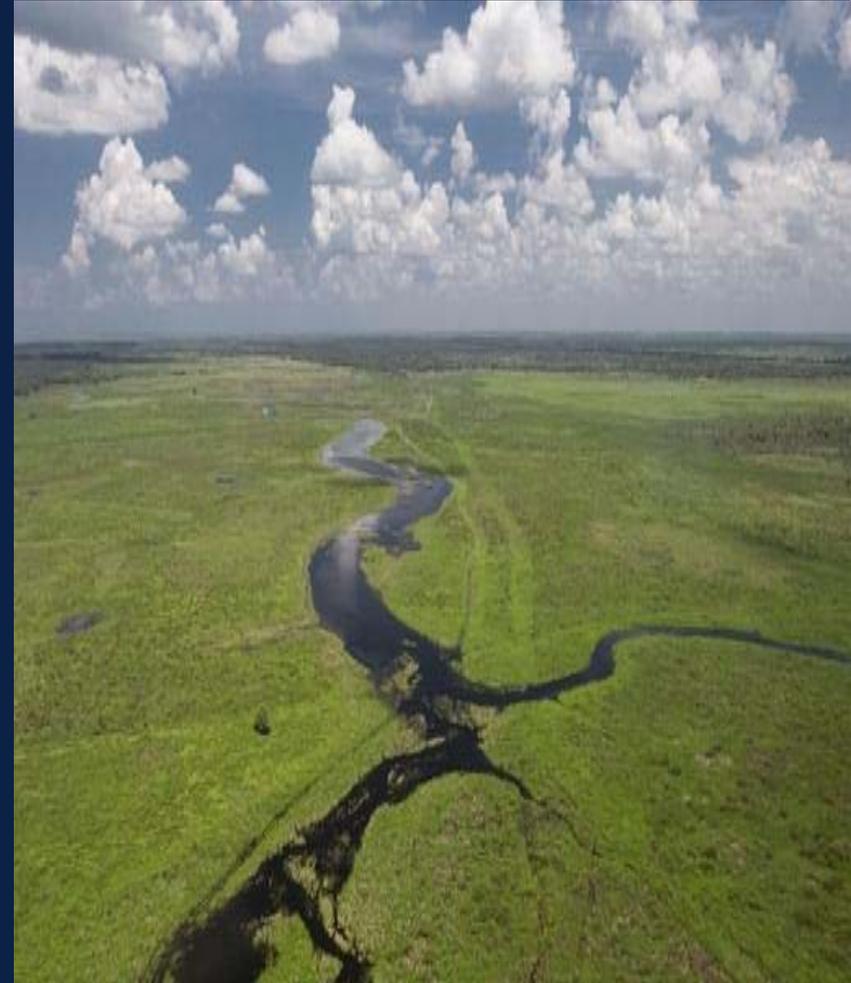
- Project is designed in two phases:
 - Phase 1: STA-North, S-650 pump station and canal improvements
 - Phase 2: STA-South and S-191A pump station
- Phase I construction is under way
- Phase II design is under way; Construction is contingent on additional funding





Construction Project Fisheating Creek Feasibility Study

- Feasibility Study has two phases:
 - Phase I: investigation of available information and work plan development completed
 - Phase II: alternative formulation, evaluation and selection; compilation of results and write-up of report started in May 2009
- Current activities:
 - Refinement of Phase II Technical Plan targets for storage and water quality
 - Modeling: Refining Watershed Assessment Model simulations for pre-drainage and existing
 - Outreach program development: Greater landowner participation





Construction Project Chemical Treatment Study

- Designed to investigate available information on chemical treatment technologies that have been tested to reduce total phosphorus (TP) loads in stormwater runoff and identify technologies appropriate for use in the Northern Everglades
- Phase I: Literature review was completed in July 2009
 - Summarizes latest information on chemical treatment methods and potential Northern Everglades applications
- Phase II: Site identification and potential implementation



Construction Project

Hybrid Wetland Treatment Technology

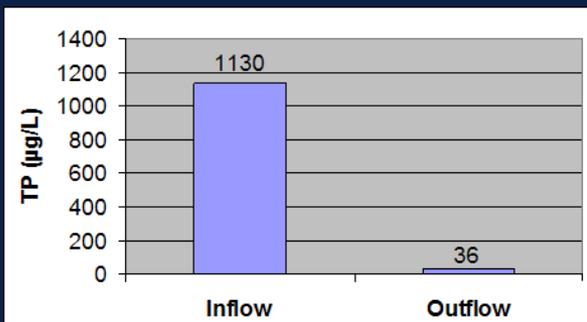
Mosquito Creek



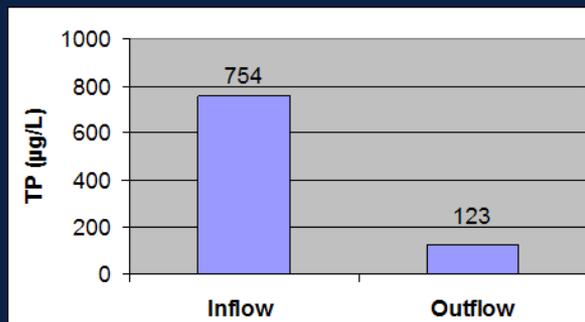
Nubbin Slough



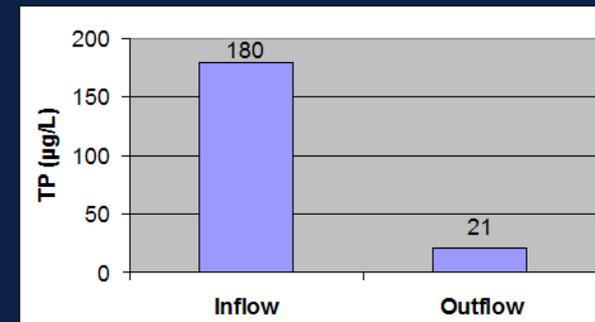
Ideal 2 Grove



Mean P removal performance,
Feb – July 2008



Mean P removal performance,
Feb – July 2008



Mean P removal performance,
March – July 2008



Research and Water Quality Monitoring Projects

- Lake Okeechobee (LO) in-Lake Assessment Projects
- Sub-basin Monitoring Network (USGS)
- Exotics and Nuisance Species Control
- LO Water Quality Model
- LO Environment Model





Caloosahatchee and St. Lucie River Watershed Protection Plans Update



- I. Pollutant Control Program**
- II. Construction Project**
- III. Research and Water Quality Monitoring Program**



Pollutant Control Program

- Implementation of agricultural and urban BMPs
- Revisions to regulatory programs
 - Environmental Resource Permit (ERP) Program
 - Statewide Stormwater Rule - Water Quality (FDEP)
 - Northern Everglades ERP Basin Rule - Water Quantity (SFWMD)
 - District's Source Control Program Regulatory Rule (Chapter 40E-61)
 - Establishment of River Watershed Nutrient Source Control Programs



Construction Project – Caloosahatchee River Watershed Protection Plan (CRWPP) C-43 Water Quality Treatment and Testing Facility

- Objective: Develop, design and build a testing facility to provide total nitrogen treatment
- Several major tasks completed:
 - Cultural resources assessment survey; phase I/II environmental site assessments; total nitrogen reduction technologies review; topographic survey
- Others under way:
 - C-43 water quality project plan development and design
- Next Step: Complete design of test cells





Construction Project - CRWPP

County Line Ditch/Four Corners Phase I

- Completed:
 - Installation of monitoring wells and staff gages
 - County Line Ditch (CLD) clearance south of CR-78 and associated gopher tortoise relocation
 - Topographic surveys to obtain cross sections of CLD and associated infrastructure
- Ongoing efforts:
 - Gathering data from monitoring wells
- Next Steps:
 - Modeling of alternatives with the new survey data





Construction Project- CRWPP Powell Creek Algal Turf Scrubber

- Pilot construction completed and operation begun in October 2008
- Data collection under way
 - Pilot unit is growing algae and generally working as expected
- Next steps - Completion of monitoring and final report by January 2010





Construction Project- St. Lucie River Watershed Protection Plan 5/5/5 projects with Martin County

- **Manatee Pocket Dredging:** Removes accumulated muck for water quality and habitat improvement
- **Manatee Creek Basin Water Quality Retrofit:** Provides treatment of uncontrolled discharges to the Manatee Pocket from the Manatee Creek
- **North River Shores Vacuum Sewer System:** Enhances water quality in the North Fork of the St. Lucie River by eliminating nutrient loading from septic systems
- **Old Palm City Phase III Water Quality Retrofit:** Improves water quality through developing a neighborhood stormwater quality management system



C-44 Project- St. Lucie River Watershed Protection Plan

- Design completed; land acquired
- USACE intends to construct C-44 Project in multiple contracts
 - Break apart existing plans and convert specifications to USACE format
- Contract 1
 - Construct intake and C-132/C-133/C-133A canals, Citrus Boulevard improvements, Bar B Ranch access, and Troup Indiantown Water Control District features
 - Construction start scheduled for September 2010 and last two years
- Two additional contracts for Reservoir/Pump Station and Stormwater Treatment Areas
 - All construction complete 2017



Research and Water Quality (WQ) Monitoring Program

Research Projects

Research Topics	Project	CRE	SLE
Nutrient Budget	Measurements of Primary Production in Caloosahatchee River Estuary (CRE) and St. Lucie Estuary (SLE) (Contract)	✓	✓
	Groundwater Seepage Studies in SLE and CRE (Contracts)*	✓	✓
Dissolved Oxygen Dynamics	SLE DO Data Analyses (In-House)		✓
	CRE DO Data Collection (In-House)	✓	
Low Salinity Zone	CRE Oligohaline Zone Study (Contract)	✓	
Light Attenuation in San Carlos Bay	CRE Measurements of Colored Organic Matter (In-House)	✓	
Integrated Modeling	SLE Water Quality Model update (In-House)		✓
	SLE Opti6 Model Reconfiguration (In-House)		✓



Research and WQ Monitoring Program

Synoptic Flow and WQ Monitoring – Caloosahatchee River Watershed

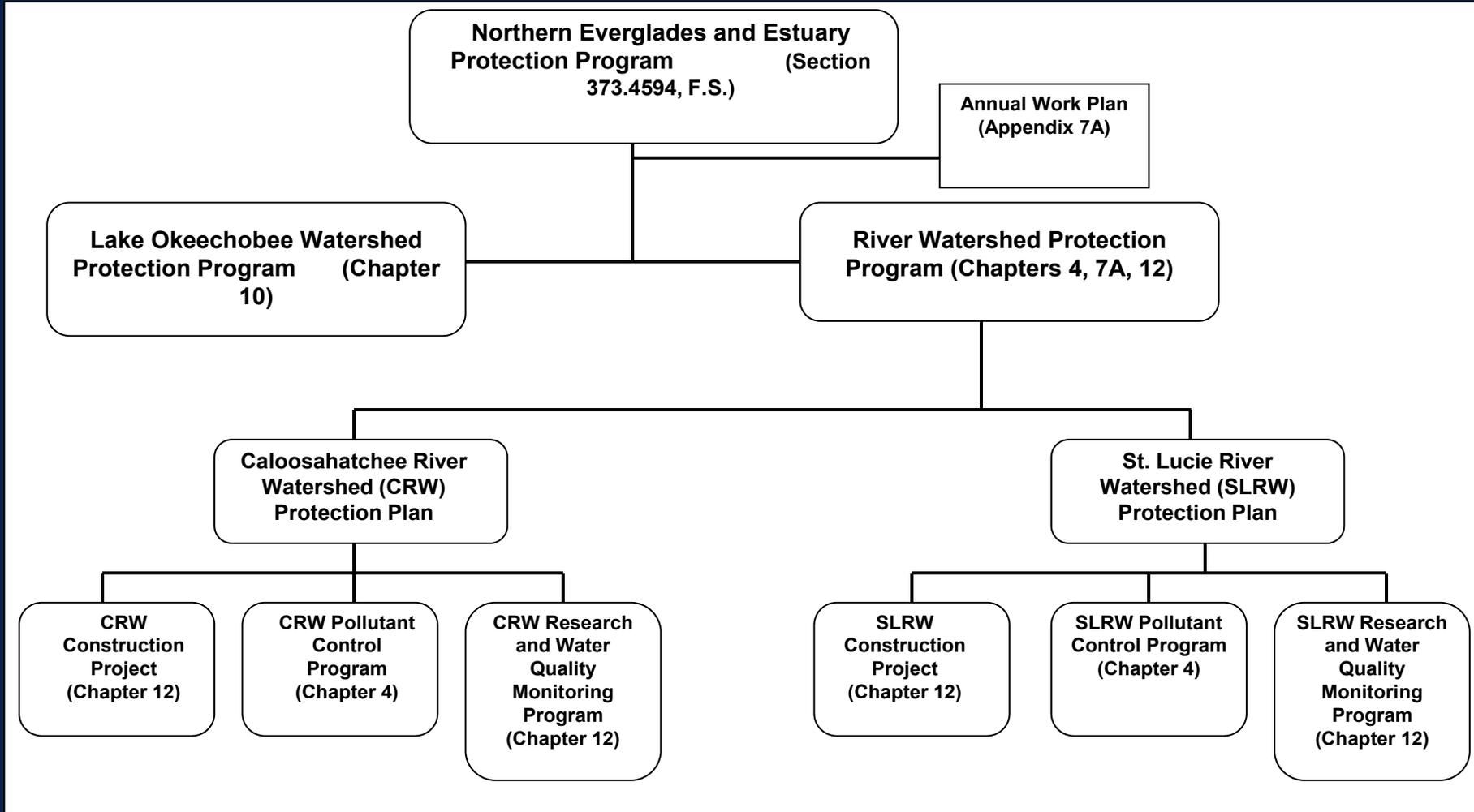
- Objectives:
 - Estimate the flow contribution from the tributaries, east of S-79, to the Caloosahatchee River's main stem; validate the location of proposed long-term monitoring sites under CRWPP
 - Support source control program development for the freshwater portion of the watershed
- Wet season (May–September 2009) water quality and flow data collection
- Bi-weekly measurements at 16 sites





Annual Reporting

South Florida Environmental Report



<https://my.sfwmd.gov/northerneverglades>



Questions

