



Northern Everglades and Estuaries Protection Program Update

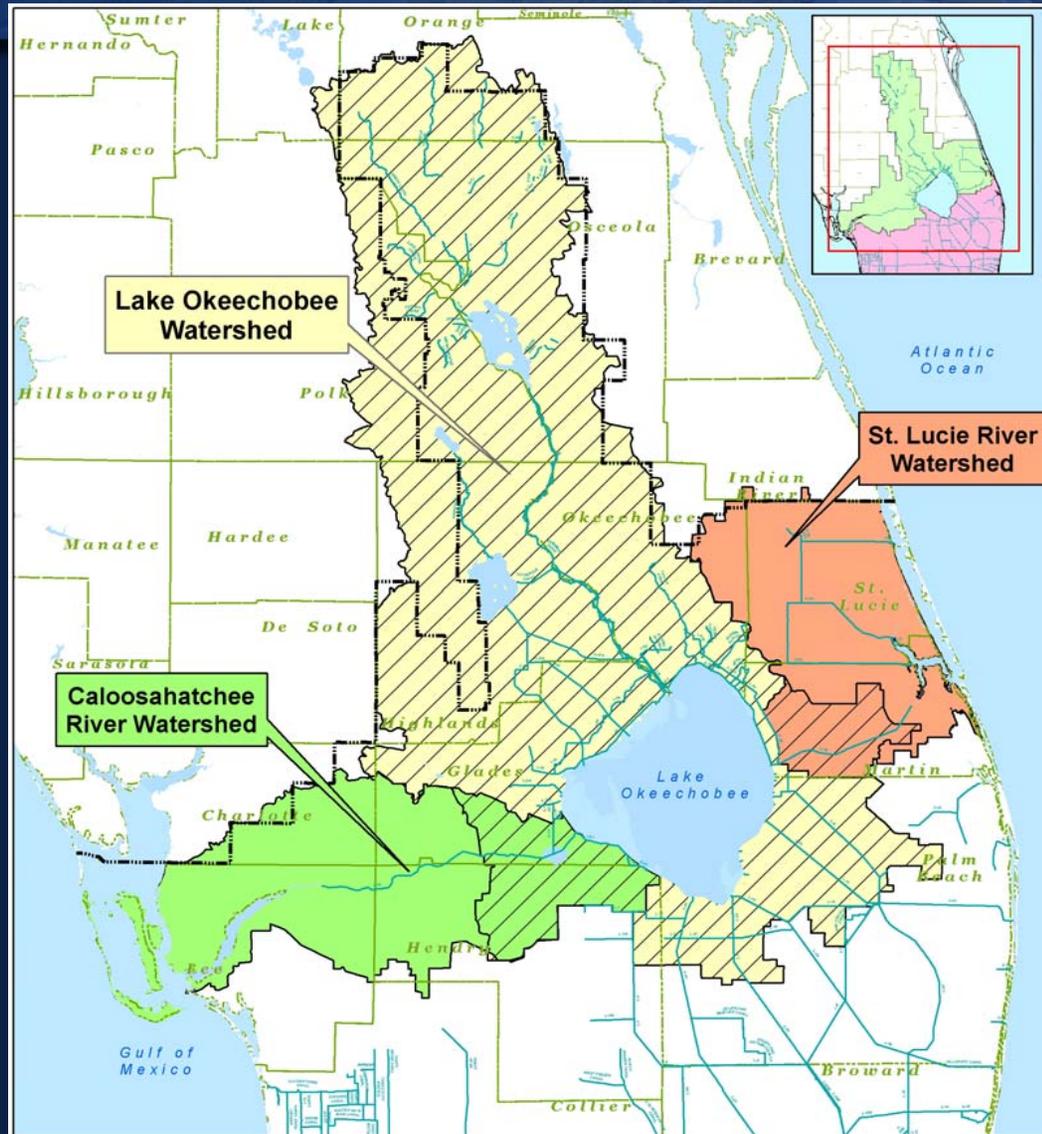


Ten County Coalition - 08/29/08

Temperince Morgan – Northern Everglades Program Manager



The Northern Everglades Watershed





Northern Everglades and Estuaries 2007 Legislation

- **Requires development of Caloosahatchee and St. Lucie River Watershed Protection Plans to identify water quality and storage projects**
 - **Due by January 1, 2009**
 - **Developed by SFWMD, in cooperation with**
 - **Coordinating Agencies (FDEP and FDACS)**
 - **Lee, Martin, and other affected counties and municipalities**



Problems, Objectives, & Constraints

Problems	Objectives	Constraints
<ul style="list-style-type: none"> ▪ Excess regulatory discharges from Lake Okeechobee ▪ Excess discharges resulting from watershed runoff ▪ Excess nutrient loads to estuary ▪ Undesirable low flows to estuary ▪ Impacts to aquatic habitats ▪ Muck accumulation in St. Lucie Estuary 	<ul style="list-style-type: none"> ▪ Meet Total Maximum Daily Loads ▪ Manage Lake Okeechobee flows to meet desirable salinity ranges for estuary ▪ Manage watershed discharges to meet desirable salinity ranges for estuary ▪ Reduce pollutant loads by improving management of pollutant sources throughout the watershed ▪ Establish Research and Water Quality Monitoring Program sufficient to implement the program and projects 	<ul style="list-style-type: none"> ▪ Maintain existing levels of flood protection ▪ Maintain water supply for affected water user basins ▪ Minimum flows and levels



Alternative Formulation and Evaluation

- **Formulated alternatives using management measures**

Alternative	Objective
1	Common elements (current, on-going and planned projects)
2	Maximizes water storage capacity
3	Maximizes load reduction- Phosphorus and Nitrogen
4	Optimizes both storage capacity and phosphorus and nitrogen load reductions

- **Evaluated each alternative for nitrogen and phosphorus load removal and water quantity performance**



Summary of Water Quality Base Condition- CLRWPP

Total Nitrogen	Current Base Condition	RWPP Base Condition	Load Reduction (percent)
Annual Load for Lake Okeechobee (Mton)	1,951	1,215	38%
Annual Load for CRWPP (Mton)	2,900	2,806	3%
Annual Load for CRWPP and Lake Okeechobee combined (Mton)	4,851	4,021	17%

Total Phosphorus	Current Base Condition	RWPP Base Condition	Load Reduction (percent)
Annual Load for Lake Okeechobee (Mton)	104	67	36%
Annual Load for CRWPP (Mton)	326	319	2%
Annual Load for CRWPP and Lake Okeechobee combined (Mton)	431	385	10%



Summary of Alternatives- CRWPP

Total Nitrogen	RWPP Base Condition	Alt 1	Alt 2	Alt 3	Preferred Plan Alt 4
Annual Load (Mton)	2,806	2,122	2,004	1,856	1,796
Concentration (ppm)	1.42	1.07	1.02	0.94	0.91
Load Reduction (percent)	NA	24%	29%	34%	36%

* Results for TN and TP include totals for CRWPP only

Total Phosphorus	RWPP Base Condition	Alt 1	Alt 2	Alt 3	Preferred Plan Alt 4
Annual Load (Mton)	319	234	222	204	198
Concentration (ppm)	0.161	0.118	0.113	0.103	0.101
Load Reduction (percent)	NA	27%	30%	36%	38%



Summary of Water Quality Base Condition- SLRWPP

Total Nitrogen	Current Base Condition	RWPP Base Condition	Load Reduction (percent)
Annual Load for Lake Okeechobee only (Mton)	922	298	68%
Annual Load for SLRWPP only (Mton)	1,296	1,193	8%
Annual Load for SLRWPP and Lake Okeechobee combined (Mton)	2,218	1,491	33%

Total Phosphorus	Current Base Condition	RWPP Base Condition	Load Reduction (percent)
Annual Load for Lake Okeechobee only (Mton)	96	29	70%
Annual Load for SLRWPP only (Mton)	276	248	10%
Annual Load for SLRWPP and Lake Okeechobee combined (Mton)	373	277	26%



Summary of Alternatives- SLRWPP

Total Nitrogen	RWPP Base Condition	Alt 1	Alt 2	Alt 3	Preferred Plan Alt 4
Annual Load (Mton)	1,193	811	811	710	710
Concentration (ppm)	1.38	0.94	0.94	0.82	0.82
Load Reduction (percent)	NA	32%	32%	40%	40%

* Results for TN and TP include totals for SRWPP only

Total Phosphorus	RWPP Base Condition	Alt 1	Alt 2	Alt 3	Preferred Plan Alt 4
Annual Load (Mton)	248	165	165	135	135
Concentration (ppm)	0.285	0.191	0.191	0.157	0.157
Load Reduction (percent)	NA	33%	33%	46%	46%



Preferred Plan Storage Capacity (ac-ft/yr)

		Total Storage
CRWPP	<ul style="list-style-type: none"> ▪ Includes C-43 West Reservoir ▪ Includes 214,500 ac-ft additional storage 	~392,500 ac-ft/yr
SLRWPP	<ul style="list-style-type: none"> ▪ Includes IRL-S (C-44 Reservoir and C-23/24 Reservoir/STA) and Ten Mile Creek Critical Project ▪ No additional storage 	~200,000 ac-ft/yr

- This table reflects total watershed storage provided by the Preferred Plan
- This watershed storage is in addition to the storage that was identified in the Lake Okeechobee Phase II Technical Plan (~900,000 ac-ft/yr)



Research and Water Quality Monitoring Program

CRWPP

- Existing estuarine monitoring programs are sufficient
- Additional watershed monitoring (water quality and flow) is needed
- 5 research projects identified

SLRWPP

- Existing estuarine and watershed monitoring programs are sufficient
- 4 research projects identified



Preferred Plan Summary

St. Lucie	Caloosahatchee
<ul style="list-style-type: none"> • IRL-S • BMPS/Regulatory Programs • Additional regional phosphorus treatment in C-23/24 basin • Local quality/quantity projects (e.g., stormwater retrofits; septic conversions; AWSF) 	<ul style="list-style-type: none"> • C-43 West Reservoir • BMPs/Regulatory Programs • Additional storage in eastern basins • Regional water quality projects- emphasis on nitrogen • Local quality/quantity projects (e.g., stormwater retrofits; septic conversions- Lehigh, Cape Coral; AWSF) • Additional watershed monitoring in watershed
Summary	Summary
<ul style="list-style-type: none"> • ~200,000 ac-ft/yr storage (IRL and Ten Mile Creek) • Nutrient treatment- primarily phosphorus treatment 	<ul style="list-style-type: none"> • ~392,000 ac-ft/yr storage (including C-43 West Reservoir) • Nutrient treatment- primarily nitrogen treatment



Plan Implementation Strategy

- **Multiple Phases**
 - **Phase I- projects initiated 2009-2012**
 - **Phase II- projects initiated 2013-2018**
 - **Long Term Implementation Phase- projects initiated beyond 2018**



Caloosahatchee RWPP- Phase I

		Initiated	Completed
Construction Project	Powell Creek Algal Turf Scrubber		√
	Alternative Water Storage Facilities- Barron Water Control District		√
	Caloosahatchee Area Lakes Restoration (Lake Hicpochee)	√	
	C-43 Water Quality Treatment Demonstration Project (BOMA)	√	
	Spanish Creek/Four Corners Environmental Restoration Phase I	√	
	C-43 West Reservoir	√	
	Local-Stormwater Projects (e.g., treatment wetlands, conveyance and structural improvements, and stormwater recovery projects)	√	√
	Florida Ranchlands and Environmental Services Projects	√	
	Farm and Ranchland Protection Program Partnership	√	
Pollutant Control Program	Agricultural and Urban BMPS	√	
	Revisions to Regulatory Programs (40E-61 Source Control Regulatory Program, ERP Basin Rule, Statewide Stormwater Rule)		√
	Comprehensive Planning and Growth Management	√	
Research and Water Quality Monitoring	Monitoring, Research, and Modeling	√	√



St. Lucie RWPP- Phase I

		Initiated	Completed
Construction Project	Alternative Water Storage Facilities- Indiantown Citrus Growers Association Phase I and II		✓
	Florida Ranchlands and Environmental Services Projects (Alderman-Deloney complete)	✓	✓
	CERP-IRL South: C-44 Reservoir/STA	✓	
	CERP-IRL South: Allapattah Complex- Natural Storage and Water Quality Area	✓	
	Alternative Water Storage Facilities-Indiantown Citrus Growers Association- Phase III, Dupuis, Waste Management St Lucie Site, Caulkins	✓	
	Hybrid Wetland Treatment Technology Pilot Project	✓	
	Local-Stormwater Projects (e.g., retention/detention ponds, treatment wetlands, conveyance and structural improvements)	✓	✓
	Local-Wastewater Projects (e.g., sludge disposal management, sewage treatment and disposal systems)		✓
	Local- Habitat Restoration (e.g., muck removal, oyster balls)	✓	✓
	Florida Ranchlands and Environmental Services Projects	✓	
	Farm and Ranchland Protection Program Partnership	✓	
Pollutant Control Program	Agricultural and Urban BMPS	✓	
	Revisions to Regulatory Programs (40E-61 Source Control Regulatory Program, ERP Basin Rule, Statewide Stormwater Rule)		✓
	Comprehensive Planning and Growth Management	✓	
Research and Water Quality Monitoring	Monitoring, Research, and Modeling	✓	✓



Cost Categories

- **Non-CERP Cost**
 - Costs to be paid from State, SFWMD, and/or local sources
- **CERP Cost**
 - State CERP costs are eligible for 50 percent cost share with the federal government; may also include local cost share
- **Local Cost**
 - Costs that will be covered entirely by local government or may be cost shared with local government and State or SFWMD sources
 - \$5M per River Watershed per year was used for Phase I estimates (covers local projects and Alternative Water Storage Facilities)



Caloosahatchee RWPP- Phase I Costs

		CERP	Non-CERP	Local
Construction Project		\$524-781M	\$117-175M	\$15M*
Pollutant Control Program	Agricultural		\$3.3-4.0M	
	Urban		\$663-809M	
Research and Water Quality Monitoring			\$5.2M	

- **Ag BMPS-** assumes 50% state contribution for capital costs only; all owner implemented bmps by 2012 and cost-share bmps by 2015
 - **Urban BMPs-** reflects total capital costs; no cost share assumptions included but most costs will be borne by local and state programs and only a fraction of these costs will likely be borne by RWPPs; no phasing assumptions included
 - **Research and Water Quality Monitoring-** monitoring costs only reflect additional monitoring not ongoing monitoring
- * \$15M reflects state's contribution



St. Lucie RWPP- Phase I Costs

		CERP	Non-CERP	Local
Construction Project		\$504-694M		\$15M*
Pollutant Control Program	Agricultural		\$1.64-2.0M	
	Urban		\$393-479M	
Research and Water Quality Monitoring			\$2.7M	

- **Ag BMPS-** assumes 50% state contribution for capital costs only; all owner implemented bmps by 2012 and cost-share bmps by 2015
 - **Urban BMPs-** reflects total capital costs; no cost share assumptions included but most costs will be borne by local and state programs and only a fraction of these costs will likely be borne by RWPPs; no phasing assumptions included
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- * \$15M reflects state's contribution



River Watershed Protection Plans- Remaining Steps

Lake O WRAC/WRAC	Sept 3-4
GB Workshop	Sept 10
Release Draft Plan	End of Sept/Early Oct
Public Comment period/public mtgs/outreach	Oct
Lake O WRAC/WRAC	Dec 3
Ten County Coalition	Dec 5
Final Plan to GB	Dec 11
Final Plan to Legislature	Jan 1



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



Water

Protecting the Northern
Everglades
& *Estuaries*

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Northern Everglades

Underscoring the state's commitment to Greater Everglades Ecosystem restoration, the Florida Legislature in 2007 expanded the Lake Okeechobee Protection Act to strengthen protection for the Northern Everglades by restoring and preserving the Lake Okeechobee watershed and the Caloosahatchee and St. Lucie estuaries.

For a calendar of [Public Meetings](#) intended to involve and inform all of the interested public and stakeholders in this region, click the tab at the top of this page.

General Information

- » [Northern Everglades Legislation](#) [PDF]
- » [Just the Facts](#) [1 page PDF]
- » [Northern Everglades Presentation](#) [5.6 mb PPT]
- » [Everglades Ecosystem Map](#) [PDF]
- » [Northern Everglades Glossary & Acronyms](#) [PDF]





Questions?

