



# SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE



LEADERSHIP • PARTNERSHIP • RESULTS

## Florida's Coral Reef Coordination Team (FCRCT)

### Next Steps

Wes Brooks, Chair

Erik Stabenau, Vice Chair

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# Next Steps - CAP<sub>1</sub>:

**Action 1. Inventory existing water quality monitoring programs along FCR and nearshore coastal waters of South Florida.**

- Survey FCRCT agencies on existing water quality monitoring efforts.
- Integrate and validate with McEachron et al. (2022).
- Identify water quality monitoring programs and methodologies that may be particularly useful for long term analysis.

# Next Steps - CAP<sub>1</sub>:

## Recommendations for Consideration:

- Expand McEachron et al. project to include methods review of water quality related abiotic (pH, chlorophyll A, temp., salinity, dissolved oxygen) data programs.
- Inventory should incorporate continuous monitoring programs (sensors, buoys, etc.)
- For data analysis, sentinel sites should be identified to narrow the scope - Use CERP/CEPP project locations at a minimum.

# Next Steps - CAP<sub>1</sub>:

## Questions for the Team:

- Should the scope of the data constraints for abiotic programs be expanded? (eg, meet NELAC certification)
- What frequency of continuous monitoring data would be preferred for inclusion (weekly, bi weekly, monthly, etc.)
- Should coastal groundwater monitoring be included?
- Should coastal construction related monitoring be included?

# Unified Monitoring Framework

**Action 2. Inventory existing biological or ecological monitoring programs related to FCR and associated resources within the South Florida ecosystem.**

- Survey FCRCT agencies on existing monitoring efforts.
- Identify biological or ecological monitoring programs and methodologies that may be particularly useful for long term analysis.

# Next Steps - CAP<sub>2</sub>:

## Recommendations for Consideration:

- Review the existing inventory from the DEP SEACAR database for all benthic habitats in SE FL
- Use CERP project (CAP<sub>4</sub>) locations and goals to determine sentinel sites & transect orientation
- Ensure inclusion of diverse habitats across transect gradient

# Next Steps - CAP<sub>2</sub>:

## Questions for the Team:

- What data constraints should the inventory work within? (eg, active regular sampling, at least 3-5 years of data, unique dataset)
- Should coastal construction monitoring data be included?
- Is methods comparability of the data something that needs to be considered at this stage? If so, conduct a project similar to McEachron et al. to do a methods review?
- Consider if water column should be treated as a habitat

# Unified Monitoring Framework

**Action 3. Develop a list of appropriate parameters for monitoring FCR and associated resources within the South Florida ecosystem.**

- Assess what data may be necessary to statistically detect changes to FCR and associated resources within the South Florida ecosystem from hydrological restoration of the Everglades and related alterations in freshwater surface and groundwater flows, specifically:
  - What should be sampled?
  - Where should sampling occur?
  - At what frequency should sampling occur?
  - What tools or methods are available to capture this information?
  - The degree to which each parameter provides critical value to evaluation and decision making?
- Prioritize appropriate parameters for FCR and associated resources monitoring according to the relative value of such information and the costs to obtain and maintain it.
- Ensure standard operating procedures from the Florida Department of Environmental Protection are met, where appropriate.



# Next Steps - CAP<sub>3</sub>:

## Recommendations for Consideration:

- FCRRP Water Quality Team and Nova Southeastern University have agreed to host a workshop(s) to bring together experts
  - Goal is to align with September FCRCCT meeting timeline
  - Educational webinars may be necessary in advance to ensure participants are all on the same page

# Next Steps - CAP<sub>3</sub>:

SCTLD Response Team + Florida's Reef Resilience Program

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## Florida's Coral Reef Resilience Program (FCRRP)

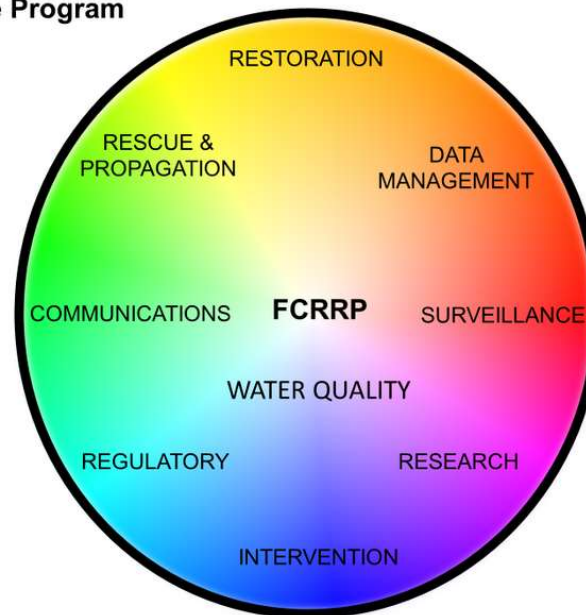


### Structure:

2 leadership bodies  
9 response teams  
80+ agency, academic,  
NGO, & private partners

### Priority Topics:

Disease & Disturbance  
Response  
Ecosystem Restoration  
Climate Adaptation  
Water Quality



## FCRRP - WQ Team:

- Broward County
- DEP - CPR (co-lead)
- DEP - CRCP
- DEP - FKNMS
- DEP - ORCP
- FWC - FWRI
- Martin County (co-lead)
- NOAA - CRCP
- NOAA - FKNMS
- NSU

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# Next Steps - CAP3: Questions from the Team?

# Unified Monitoring Framework

**Action 4. Identify Everglades restoration projects, water management activities, and operational schedules that may influence nearshore water quality and the biological or ecological characteristics of FCR and associated resources within the South Florida ecosystem.**

- Categorize the potential for CERP and non-CERP projects and operations to impact FCR individually and cumulatively.
- Understand the timing of potential impacts based on the Integrated Delivery Schedule.

# Next Steps - CAP<sub>4</sub>:

## Recommendations for Consideration:

- Conduct a review of projects for “watchlist”
- Reference the IDS for project formulation and delivery timing
- Assign FCRCT members as formal representatives on the PDT
- Formalize a process for PDT engagement on behalf of FCRCT



CERP projects with potential to “directly influence” WQ and B/E characteristics of FCR and associated marine habitats:

- Biscayne Bay Coastal Wetlands
- Biscayne Bay and Southeastern Everglades Restoration
- Central Everglades Planning Project
- Picayune Strand
- Southern Everglades



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# Biscayne Bay Coastal Wetlands

## PROJECT BENEFITS

- 190 acres of freshwater wetlands will benefit from freshwater rehydration.
- Hydroperiods in the target freshwater wetlands will increase from approximately 70 to 200 days per year.
- Improved oyster bars, submerged aquatic vegetation, wetland vegetation, and associated biota.
- Increased abundance of fish and abundance and diversity of seagrasses.
- Improved habitat for alligators and juvenile crocodiles.
- Produce high-functioning grassy wetlands that will serve as critical habitat to prey fish and wading birds.
- Out of the total available 22,500 acres of saltwater wetlands, this project will increase saltwater wetland function from 1,002 habitat units to 7,398 habitat units (net of 6,396 acres of functionality).





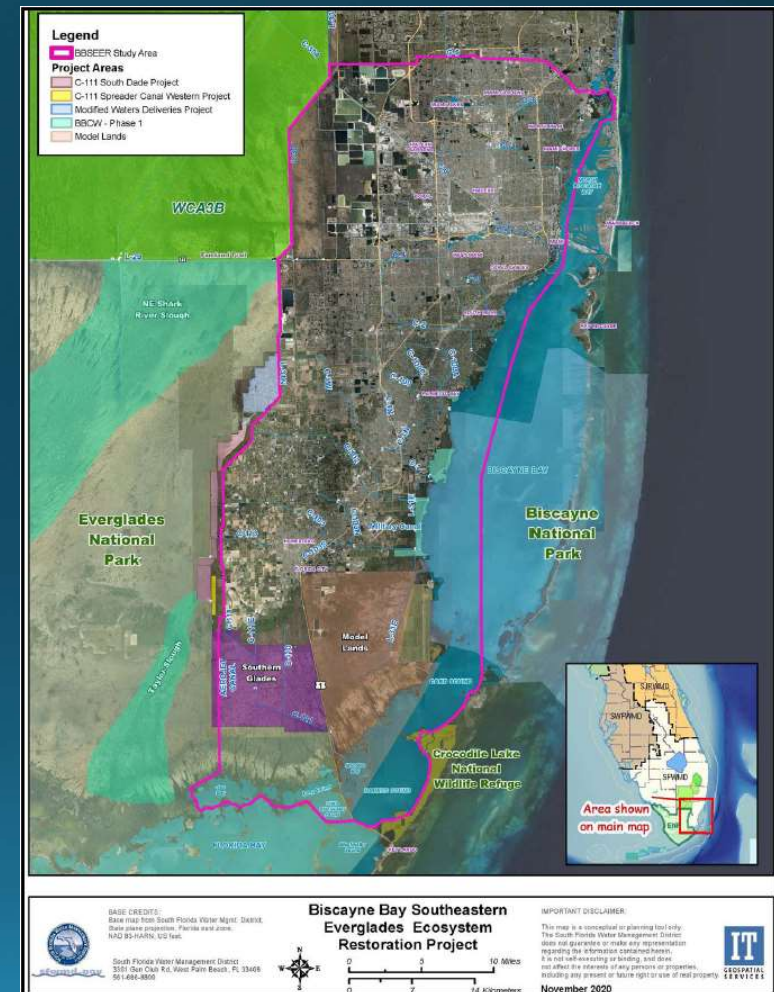
# Biscayne Bay and Southeastern Everglades Restoration

## PROJECT OVERVIEW

BBSEER will evaluate opportunities to incorporate water storage, active and passive water management features, and water quality features, and make alterations to existing canals and levees.

If implemented, these actions will:

- Improve quantity, timing, and distribution of freshwater to estuarine and nearshore subtidal areas—including mangrove and seagrass areas—of Biscayne National Park, Card Sound, and Barnes Sound to improve salinity regimes and reduce unnatural pulse releases.
- Improve freshwater wetland water depth, ponding duration, and flow timing within the Model Lands, Southern Glades, and eastern panhandle of Everglades National Park to maintain and improve habitat value.
- Improve ecological and hydrological connectivity between Biscayne Bay coastal wetlands, the Model Lands, and Southern Glades.
- Increase resiliency of coastal habitats in southeastern Miami-Dade County to sea level change.







# Central Everglades Planning Project

## PROJECT OVERVIEW

The Central Everglades Planning Project encompasses a vast majority of the remaining natural area of the Everglades, which continues to decline in ecological health. The project is designed to send an additional annual average of approximately 370,000 acre-feet of new water south to the Everglades.

CEPP develops the next increment of project components that focus restoration on more natural flows into and through the central and southern Everglades, restoring more natural water flow, depth, and durations into and within the central Everglades by:

- Increasing storage, treatment and conveyance of water south of Lake Okeechobee.
- Removing canals and levees within the central Everglades.
- Retaining water within Everglades National Park (ENP) and protect urban and agricultural areas to the east from flooding.

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## Central Everglades Planning Project | CEPP



### STORAGE AND TREATMENT

- Construct 240,000 acre-foot EAA reservoir and 6,500 acre-foot stormwater treatment area, and integrate with A-1 FEB operations.
- Lake Okeechobee operational refinements.

### DISTRIBUTION/CONVEYANCE

- Conveyance improvements to Miami and North New River canals.
- Diversion of L-6 flows, infrastructure, and L-5 canal improvements.
- Remove western approximately 2.9 miles of L-4 levee west of S-8 [3,000 cubic feet per second (cfs) capacity].
- Construct 360 cfs pump station (S-630) at western terminus of L-4 levee removal.
- Backfill Miami Canal and Spoil Mound Removal from approx. 1.5 miles south of S-8 to I-75.

### DISTRIBUTION/CONVEYANCE

- Increase S-333N capacity to 2,500 cfs (completed).
- One 500 cfs gated structure (S-631) in the L-67A levee, north of the Blue Shanty levee, and 6,000-foot gap in the adjacent L-67C levee.
- Two 500 cfs gated structures in the L-67A levee (S-632, S-633); spoil removal west of L-67A canal north and south of structures.
- Remove approximately 8 miles of L-67C levee in Blue Shanty flow-way (no canal backfill).
- Construct approximately 8.5 mile levee (Blue Shanty levee) in WCA-3B, connecting L-67A to L-29.
- Remove approximately 4.3 miles of L-29 levee in Blue Shanty flow-way; divide structure (S-333W) to the east of Tamiami Trail Next Steps western bridge.
- Remove entire 5.5 miles of L-67 Extension levee; backfill L-67 Extension canal.
- Remove approximately 6 miles of Old Tamiami Trail road (south of L-29 western levee from L-67 Extension to ENP tram road).

### SEEPAGE MANAGEMENT

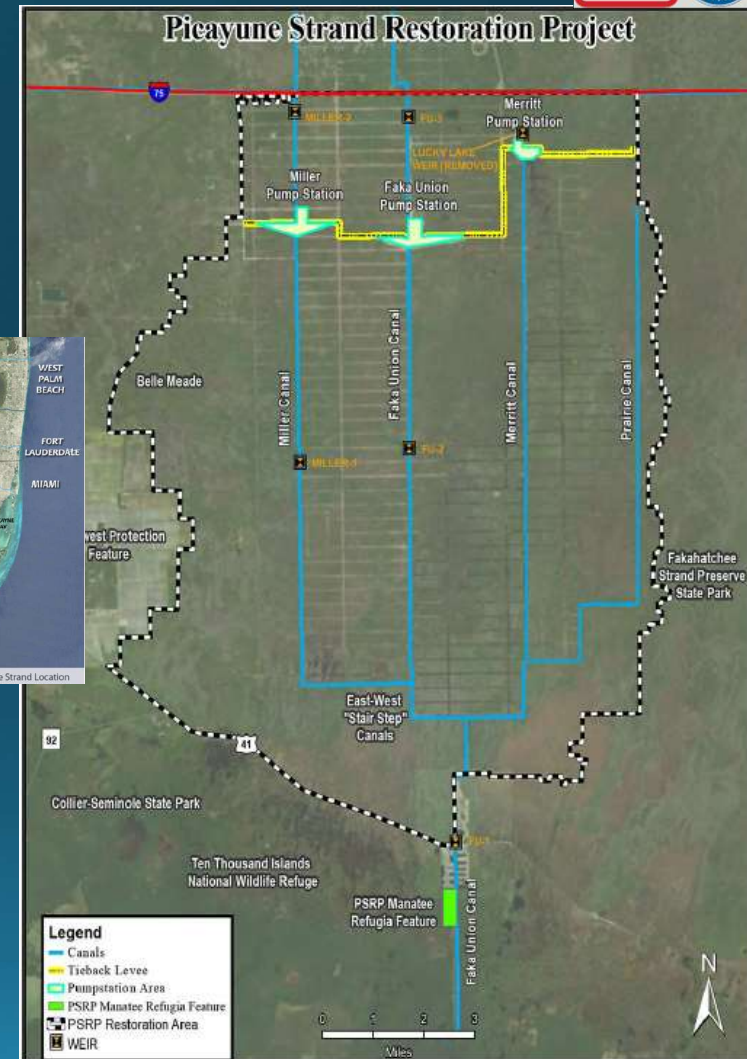
- Construct S-356E pump station capacity to approximately 1,000 cfs.
- Construct 4.2-mile partial-depth seepage barrier south of Tamiami Trail (along L-31N).
- G-211 operational refinements; use coastal canals to convey seepage.

Note: System-wide operational changes and adaptive management considerations will be included in project.

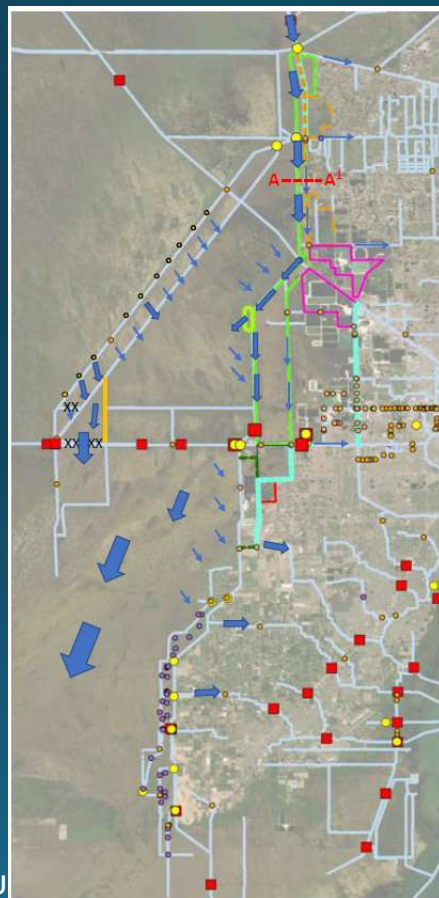
# Picayune Strand

## PROJECT PURPOSE & BENEFITS

- Improve aquifer recharge to protect water supply and prevent saltwater intrusion.
- Restore and enhance habitat for fish and wildlife resources, including threatened and endangered species.
- Maintain existing level of flood protection for Northern Golden Gate Estates and adjacent private properties.
- Reduce drainage of the adjacent Fakahatchee Strand State Preserve.
- Reduce or eliminate over-drainage of adjacent sensitive ecosystems.
- Reduce freshwater releases (point discharges) to improve the health and productivity of downstream estuaries.
- Preserve upland habitat.
- Control invasive exotic plants.
- Provide resource-based recreational opportunities.
- Provide comprehensive habitat conservation for the greater Everglades ecosystem, including the Florida Panther National Wildlife Refuge, Fakahatchee Strand State Preserve, 10,000 Islands National Wildlife Refuge, Collier Seminole State Park, and the Belle Meade Conservation and Recreation Lands.



# Southern Everglades



## Southern Everglades Study Conceptual Design

### Water Management Goals:

1. Capture excess water in the Lake Okeechobee region, WCA-2B, and increased seepage from WCA-3A/3B (expanded Decomp.) and convey water southward through the WPAs.
2. The WPAs step-down water levels, creating transitional wetlands between the WCAs and Lower East Coast developed area.
3. Conveyance canals along the western edge of the WPAs route this water southward into the Pennsuco Wetlands and Bird Drive Basin.

### Increasing Resilience to Climate Change

This new water could supplement urban water supply, reduce saltwater intrusion, and address peat loss due to dry season shortfalls in water flows to coastal wetlands along Biscayne and Florida Bay.





CERP projects with potential to “indirectly influence” WQ and B/E characteristics of FCR and associated marine habitats.

- Broward County Water Preserve Area
- C-111 Spreader Canal Western Project
- Indian River Lagoon-South
- Loxahatchee River Watershed Restoration Project
- Western Everglades Restoration Project

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# Broward County Water Preserve Areas

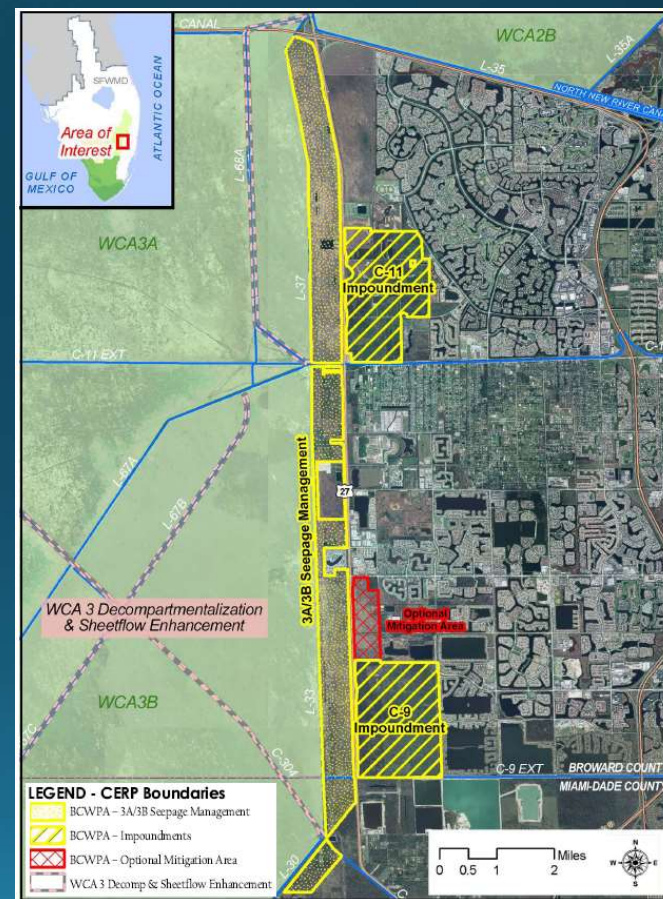
## PROJECT PURPOSE

The project is designed to perform two primary functions:

- Reduce seepage loss from Water Conservation Area (WCA) 3A/3B to the C-11 and C-9 basins.
- Capture, store, and distribute surface water runoff from the western C-11 Basin that has been discharged into WCA 3A/3B.

Additional project functions include maintaining existing level of service for flood mitigation, groundwater recharge, increasing spatial extent of wetlands, and improving hydroperiods and hydropatterns in WCA 3A/3B.

Existing water reservations will not be affected. Approximately 563,000 acres in WCA 3 and 200,000 acres in the greater Everglades will benefit from the project's implementation. The project will also benefit federally listed threatened and endangered species and many wading birds.



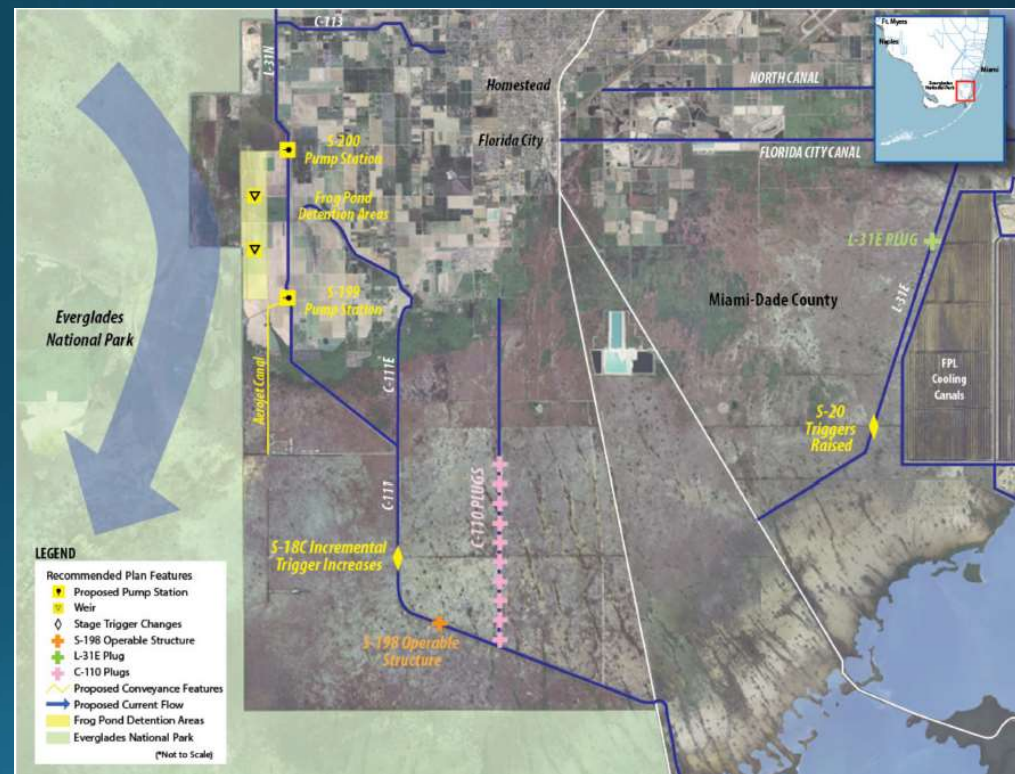




# C-111 Spreader Canal Western Project

## PROJECT PURPOSE

The C-111 Spreader Canal Western Project is an enhancement to the 1994 C-111 General Reevaluation Report. Its goal is to improve Everglades National Park conditions by establishing more natural water flows in Taylor Slough. This, in turn, will improve the timing, distribution, and quantity of water in Florida Bay. Both the slough and bay are within ENP. The western project also begins features that will jumpstart environmental restoration in the Southern Glades and Model Lands. These areas form a contiguous habitat corridor with ENP, Biscayne National Park, Crocodile Lakes National Wildlife Refuge, the north Key Largo Conservation and Recreational Lands (CARL) purchases, John Pennekamp State Park, and the National Marine Sanctuary. About 252,000 acres of wetlands and coastal habitat are affected by the proposed project.





# Indian River Lagoon - South



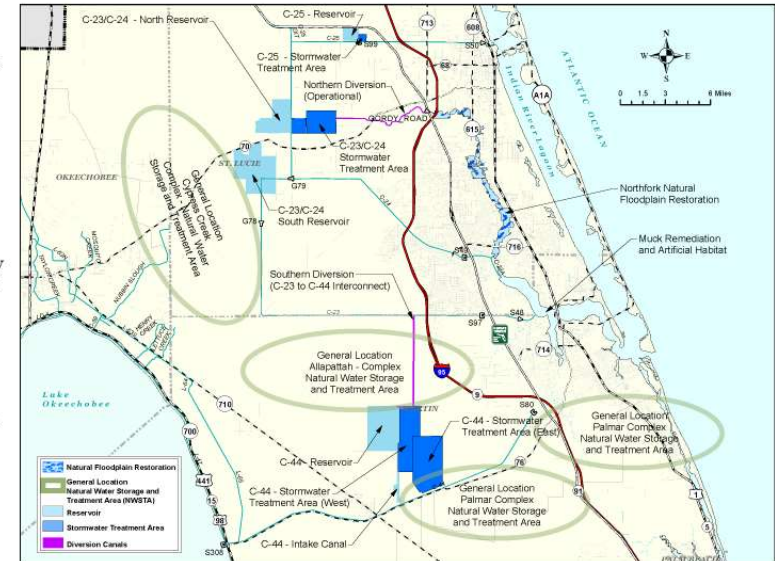
## FEATURES AND BENEFITS

- 12,000 acres of aboveground reservoir storage
- 9,000 acres of manmade wetlands from stormwater treatment areas
- 90,000 acres of natural areas, including 53,000 acres of restored wetlands providing additional water storage
- 90 acres of artificial submerged habitat created for aquatic vegetation
- 922 acres of submerged aquatic vegetation restored
- 7.9 million cubic yards of muck removed
- 41 percent long-term reduction in phosphorus
- 26 percent long-term reduction in nitrogen
- 2,650 acres of benthic habitat created in St. Lucie River and Estuary
- 889 acres of restored oyster habitat
- \$6.1 million in improved agricultural productivity through improved freshwater supplies and \$6 billion in regional economic benefit (based on 2007 price levels)

## PROJECT COMPONENTS LOCATION MAP

The IRL-S Project employs a regional approach to restoring the St. Lucie Estuary and the southern portion of the lagoon. Based on the Project Implementation Report approved by Congress in 2007, the IRL-S Project is expected to include the following components that will work together to protect and restore the lagoon and estuary:

- Construction and operation of four new aboveground reservoirs and their connecting canals; control structures; levees; and pumps to capture water from the C-44, C-23, C-24 and C-25 canals for storage of water runoff.
- Construction and operation of three new stormwater treatment areas (STA) to reduce sediment, phosphorus, and nitrogen going to the St. Lucie River Estuary and the southern portion of the Indian River Lagoon. STAs are planned for each of the C-44, C-23/24, and C-25 basins.
- Restoration of the upland/wetland mosaic and habitat with ditch plugging, berm construction, and periodic fire maintenance.
- Redirection of water from the C-23/24 basin to the north fork of the St. Lucie River, attenuating freshwater flows to the estuary.
- Muck removal from the north and south forks of the St. Lucie River and the middle estuary.
- Addition of oyster shell, reef balls, and artificial submerged aquatic vegetation near muck removal sites for habitat improvement.
- In total, approximately 130,000 acre-feet of new water storage provided by project's reservoirs and STAs, and an additional 30,000 acre-feet provided by the natural areas.
- Total phosphorous and nitrogen nutrient load reductions of 597 metric tons/year.







# Loxahatchee River Watershed Restoration Project

## PROJECT PURPOSE

The Loxahatchee River Watershed Restoration Project aims to restore and sustain the overall quantity, quality, timing, and distribution of fresh waters to the federally designated "National Wild and Scenic" Northwest Fork of the Loxahatchee River.

## PROJECT OBJECTIVES

- Objective 1: Restore wet & dry season flows of water to the Northwest Fork of the Loxahatchee River and the river floodplain.
- Objective 2: Restore oysters, seagrass, and other estuarine communities in the Loxahatchee River Estuary.
- Objective 3: Increase natural area extent of wetlands.
- Objective 4: Restore connections between J.W. Corbett Water Management Area, Pal-Mar/Cypress Creek basin, Loxahatchee Slough, Grassy Waters Preserve, and the Loxahatchee River to improve hydrology, sheetflow, hydroperiods, natural storage, and vegetation communities.
- Objective 5: Restore native plant & animal species abundance & diversity in the Loxahatchee River watershed natural areas, river, and estuary.







# Western Everglades Restoration Project

## PROJECT OVERVIEW

The WERP seeks to use a series of active and passive water management features and water quality features, and make alterations to existing canals and levees to:

- Reestablish sheetflow across the Big Cypress Seminole Indian Reservation and into Big Cypress National Preserve.
- Maintain existing levels of flood protection.
- Ensure that inflows to the North and West Feeder canals meet applicable water quality standards.

If implemented, these actions will:

- Reestablish ecological connectivity of wetland and upland habitats in the western Everglades with restored freshwater flow paths, flow volumes and timing, seasonal hydroperiods, and historic distributions of sheetflow.
- Restore oligotrophic (low nutrient) conditions to reestablish and sustain native flora and fauna.
- Reduce wildfires that damage the underlying geomorphic condition of the western Everglades.
- Promote system-wide resilience in light of future change, such as sea level rise and climate change.





Non-CERP operation plans that affect flows to the SLE and Florida Bay:

- Combined Operations Plan
- Lake Okeechobee System Operating Manual

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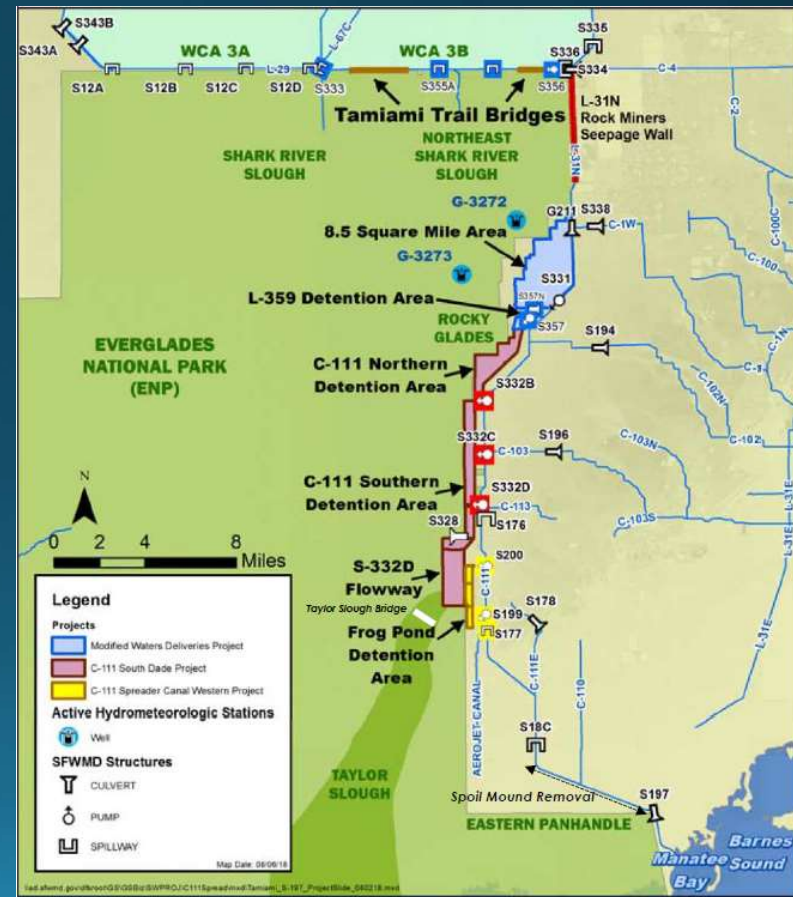




# Combined Operations Plan

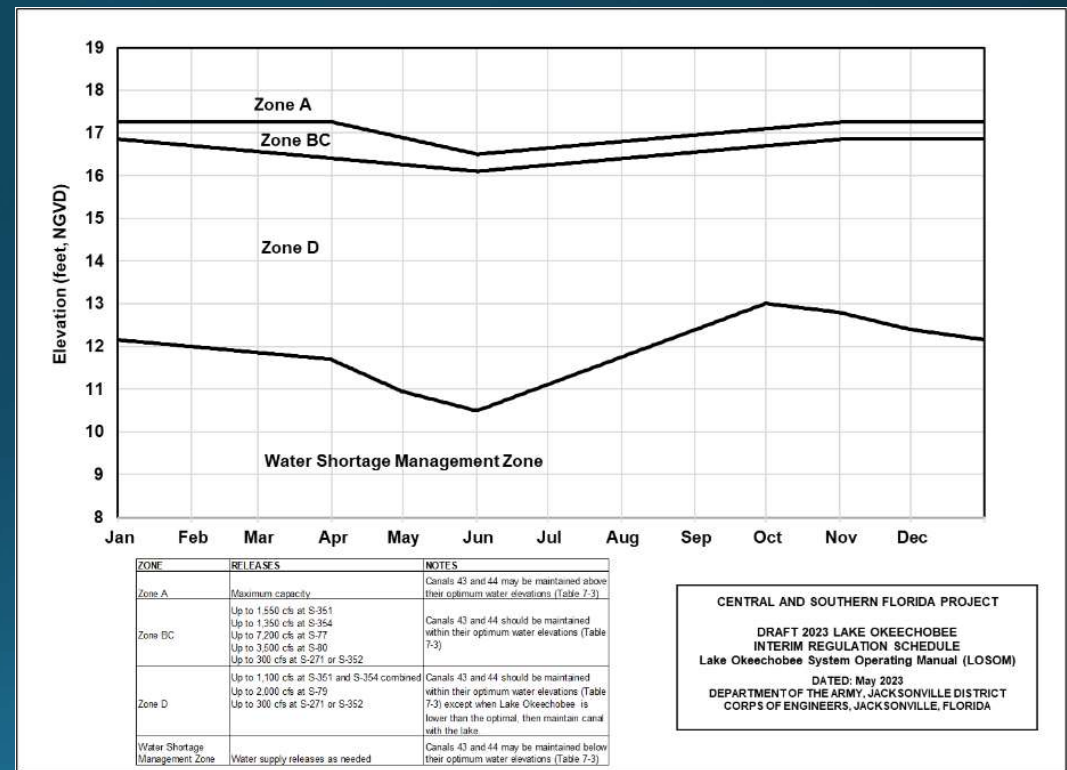
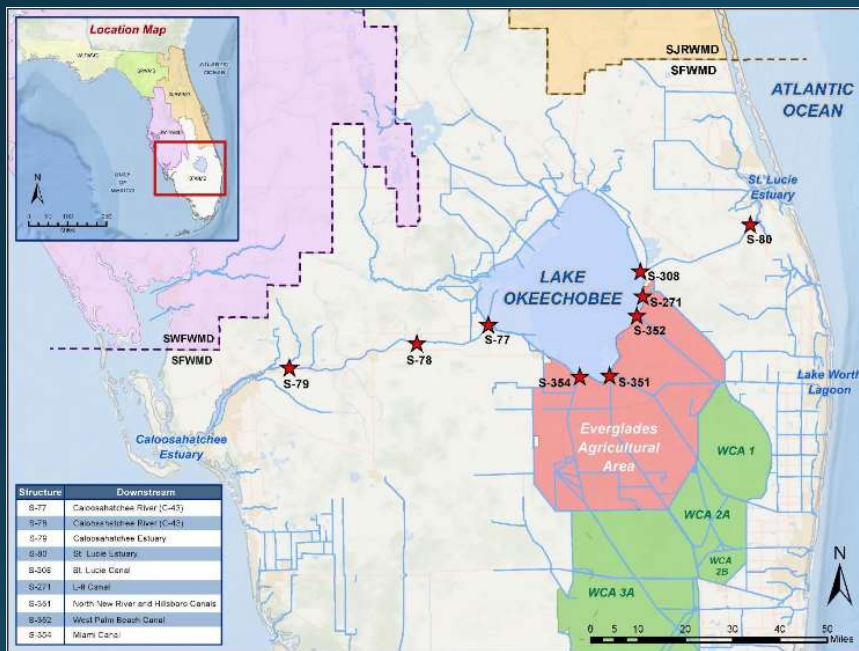
WATER DELIVERIES (AC-FT) ACROSS TAMIAMI TRAIL (S-12s + S-333 + S-333N + S-356 - S-334)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Min. Del. Thru S-12s (PL 91-282 June 1978)	22,000	9,000	4,000	1,700	1,700	5,000	7,400	12,200	39,000	67,000	59,000	32,000	260,000
2012	32,700	13,300	5,900	700	25,600	44,900	71,500	87,000	115,000	177,900	123,900	105,600	804,000
2013	40,200	14,600	3,900	700	47,900	63,800	112,600	149,300	133,800	122,700	88,000	40,800	818,300
2014	6,400	43,000	55,200	600	100	12,300	61,700	75,500	101,600	100,500	91,200	23,700	571,800
2015	13,100	15,100	8,900	0	0	0	0	0	14,500	122,500	56,700	108,900	339,700
2016	108,500	180,800	203,100	127,400	61,600	44,300	66,900	79,400	110,700	120,100	76,100	8,000	1,186,900
2017	2,900	5,300	1,400	400	200	109,700	191,400	183,200	240,700	323,400	253,800	198,800	1,509,200
2018	97,000	37,400	3,100	900	31,100	105,700	149,300	157,600	163,100	127,100	1,400	900	874,500
2019	1,000	21,100	27,900	16,300	24,700	53,600	104,000	127,200	147,600	109,400	25,800	100	658,700
2020	160	250	360	410	9,700	113,600	181,700	198,900	159,600	181,200	360,800	366,300	1,572,980
2021	233,860	140,070	120,630	70,970	23,000	31,200	70,600	100,700	116,600	186,400	150,032	145,993	1,390,055
2022	119,286	85,296	68,924	26,614									300,120

LEGEND	
Minimum Water Delivery	
IOP	
ERTP	
Increment 1	
2016 Emergency Deviation	
Increment 1.1/1.2	
2017 Temporary Deviations	
Increment 2	
COP	



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# Lake Okeechobee System Operating Manual



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Non-CERP operation plans that affect flows to the SLE and Florida Bay:

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# Next Steps - CAP4:

## Questions for the Team:

- What do we intend by direct vs. indirect impacts? Is this an important distinction for this purpose?
- Any FCRCT members already participating on any relevant PDT meetings?
- Informal volunteers (*for now*) for PDT report-outs?

# Assignments before July meeting:

- Establish July meeting schedule / venue + field tour
- Finalize drafting and review of Nutrient WQM Programs Inventory (CAP<sub>1</sub>)
- Interagency review of reported BEM programs (CAP<sub>2</sub>)
- Draft FCRCT “project watchlist” and impacts timeline (CAP<sub>4</sub>)

# Questions?



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