

U.S. ARMY CORPS OF ENGINEERS (USACE)
JACKSONVILLE DISTRICT

SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM

SOUTH FLORIDA RESTORATION TASK FORCE
WORKING GROUP/SCIENCE COORDINATION GROUP

Presented by: Eva B. Vélez, PE, Chief, Ecosystems Branch

07 July 2022



US Army Corps
of Engineers ®

"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

NOTE:
TANKER GATE
W/IF BRIDGE



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM AGENDA



2

FY22 EXECUTION FOCUS

▪ FY22 Budget / FY23 President's Budget

▪ Program-level Activities

- ▶ Integrated Delivery Schedule (IDS)
- ▶ RECOVER (Restoration, Coordination, VERification)
- ▶ CERP Update

▪ Planning

- ▶ Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) Project
- ▶ Indian River Lagoon – South (IRL-S)
- ▶ Lake Okeechobee Watershed Restoration Project (LOWRP)
- ▶ Western Everglades Restoration Project (WERP)

▪ Design/Construction

- ▶ C-111 South Dade (C-111SD)
- ▶ Picayune Strand Restoration (PSRP)
- ▶ Indian River Lagoon – South (IRL-S)
- ▶ Biscayne Bay Coastal Wetlands (BBCW)
- ▶ Central Everglades Planning Project (CEPP)
- ▶ Broward County Water Preserve Areas (BCWPA)
- ▶ Loxahatchee River Watershed Restoration Project (LRWRP)

▪ Operations

- ▶ Kissimmee River Restoration (KRR)
- ▶ Indian River Lagoon – South (IRL-S)
- ▶ Modified Water Deliveries, Combined Operational Plan (COP)
- ▶ Lake Okeechobee System Operating Manual (LOSOM)



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM BUDGET OVERVIEW

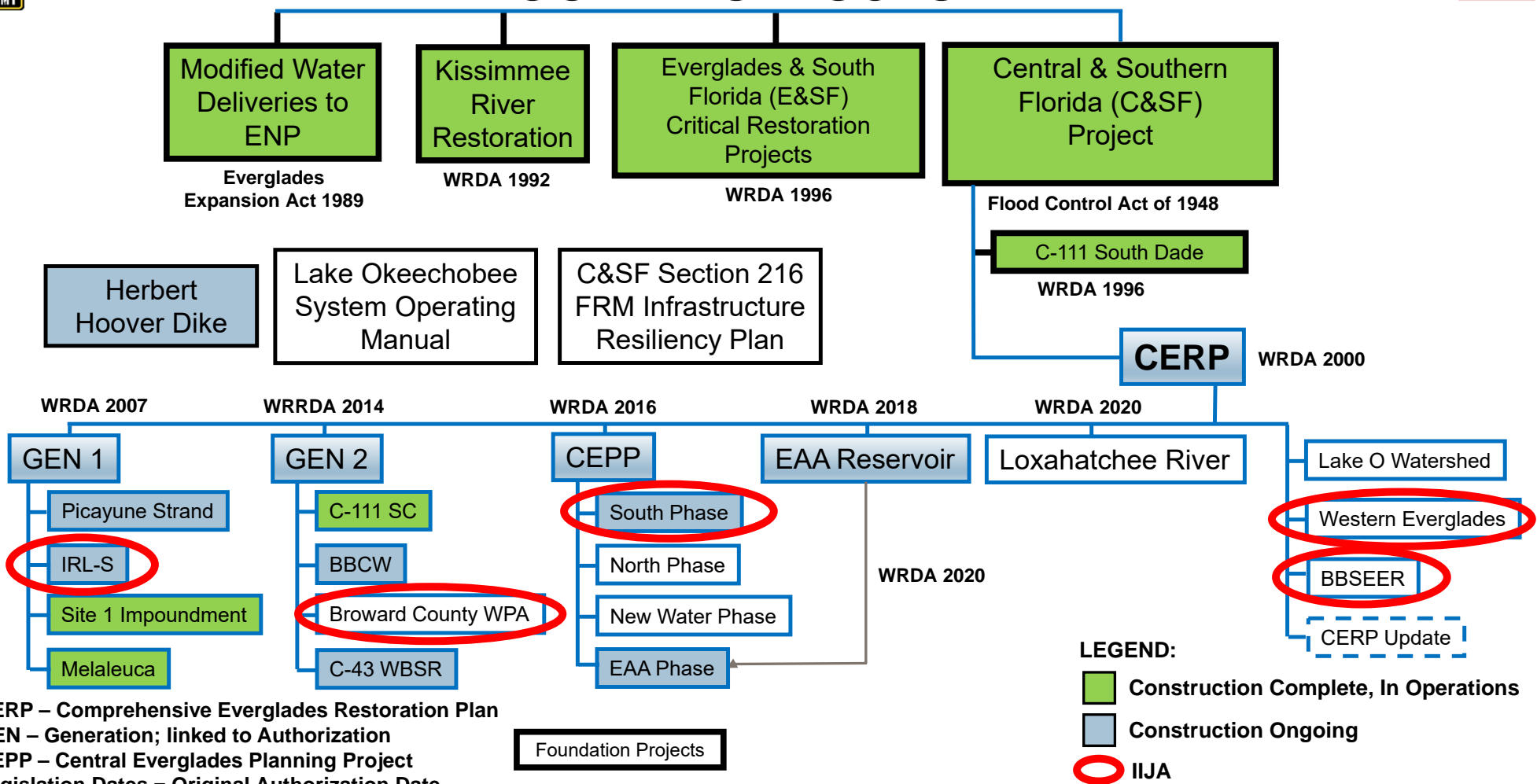


INVESTIGATIONS	CONSTRUCTION	SFER & C&SF RESILIENCE	OPERATIONS & MAINTENANCE
\$0.5M	\$352.5M	FY22 Budget	\$10.94M
\$0	\$407M	FY23 President's Budget	\$10.67
\$0	\$1.097B	Infrastructure Investments and Jobs Act (IIJA 2022)	\$0





SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM STRUCTURE



CERP – Comprehensive Everglades Restoration Plan
 GEN – Generation; linked to Authorization
 CEPP – Central Everglades Planning Project
 Legislation Dates = Original Authorization Date



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM-LEVEL ACTIVITIES

- Integrated Delivery Schedule (IDS)
- RECOVER (Restoration, Coordination, VERification)
- CERP Update



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM-LEVEL ACTIVITIES **RECOVER**



FY23 WORK PLAN OVERVIEW

Systemwide Evaluation & Assessment

- CERP Update
- 2024 Report (to include progress toward IG/IT)
- MAP Synthesis

Systemwide Review & Integration

- CEM/HC Updates
- PM Revision Reviews

Adaptive Management

- Task 1 & 2: identify & Prioritize Uncertainties

Support to Projects

- *Refer to next slide*

Science Communication

- WG/SCG Coordination
- CISRERP Coordination
- Annual Science Meeting
- Topic Workshops (1-2)
- Conferences

Base Operations

- FY23 Synopsis



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM

PROGRAM-LEVEL ACTIVITIES

RECOVER



FY23 WORK PLAN OVERVIEW: SUPPORT TO PROJECTS

- PSRP
- IRL-S
- C-43
- BCWPA
- BBCW
- C-111 SC WP
- CEPP-S
- CEPP-N
- CEPP-NW
- LRWRP
- LOWRP
- WERP
- BBSEER
- SOM Volume 3: LO/EAA (C-43 Reservoir POM)
- SOM Volume 4: WCAs- ENP-SDCS- CEPP and EAA Reservoir (TTNS, Phase 2/CEPP-S)





SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM

PROGRAM-LEVEL ACTIVITIES

SECOND PERIODIC CERP UPDATE



9

BACKGROUND:

- The SPCU is intended to provide a basis for evaluating whether the goals and purposes of CERP are being achieved, to ensure that new information is regularly considered and incorporated, and to update the total quantity of water expected to be generated by implementation of CERP, including the quantity generated for the environment and the quantity generated for water supply.
- To conduct the SPCU, the model needs updated from the South Florida Water Management Model (SFWMM) to the Regional Simulation Model (RSM)
- RECOVER will perform an evaluation of the SPCU

STATUS:

- The Corps and SFWMD are reviewing the CERP, the Initial CERP Update, Foundation Projects, and CERP Projects model assumptions to update the model for the evaluation.
- By April 2023, the IMC will update RSM to model all CERP components.



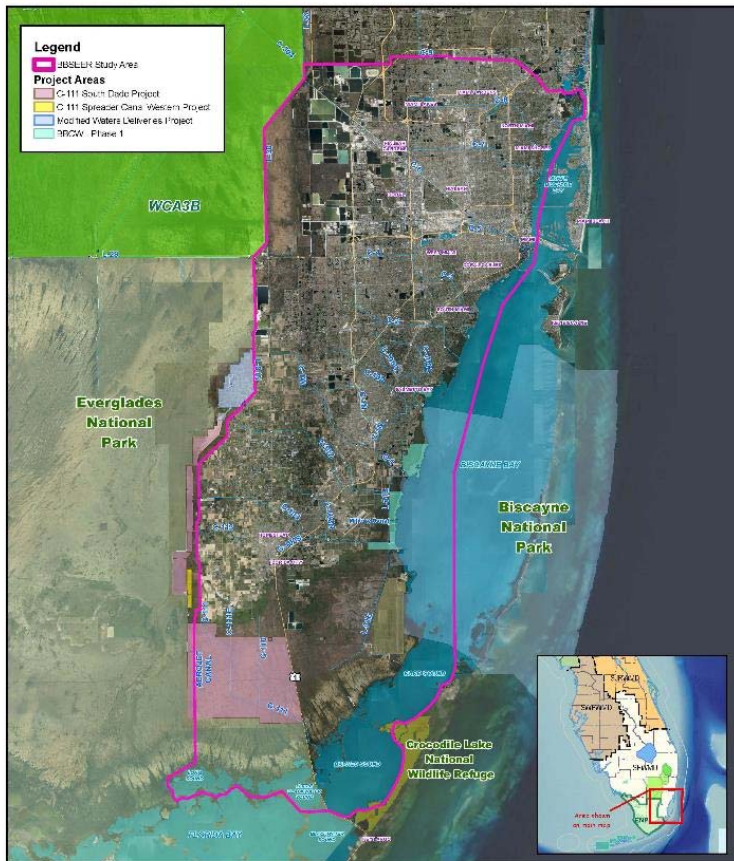
SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING

- Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) Project
- Indian River Lagoon – South (IRL-S)
- Lake Okeechobee Watershed Restoration Project (LOWRP)
- Western Everglades Restoration Project (WERP)



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING

BISCAYNE BAY AND SOUTHEASTERN EVERGLADES ECOSYSTEM RESTORATION (BBSEER)



The goals and objectives of the project:

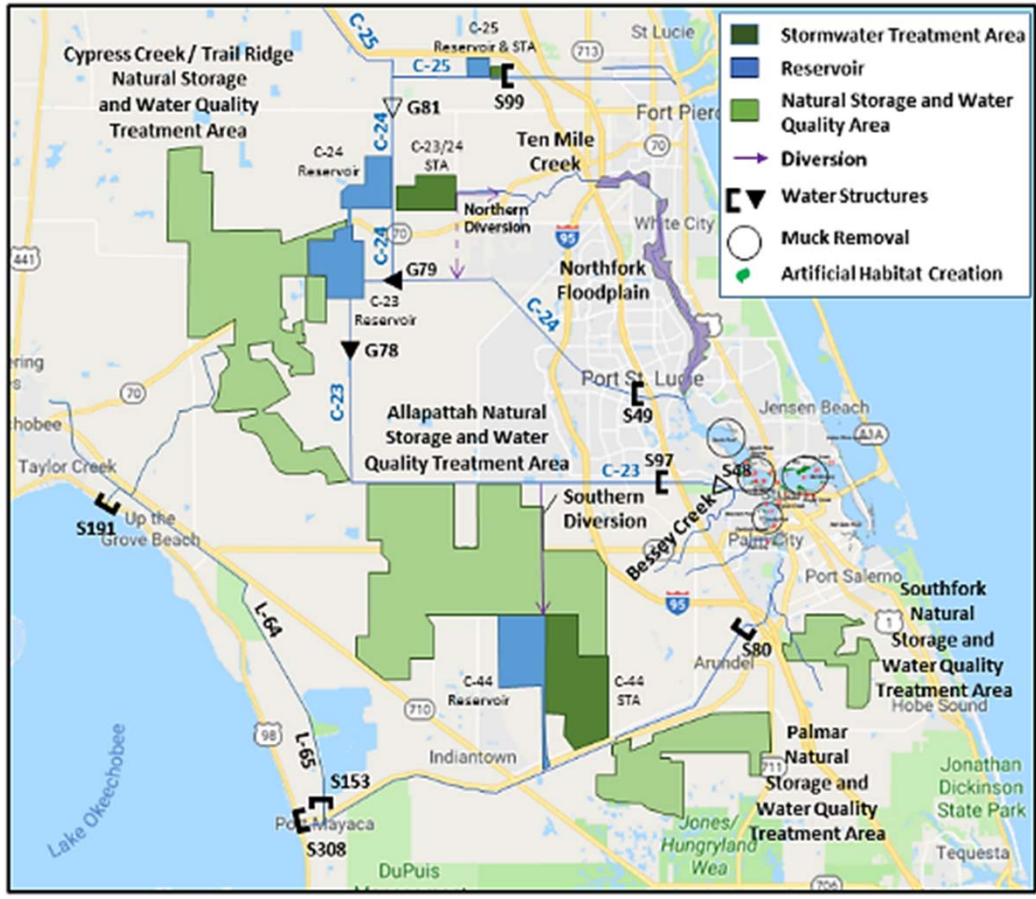
- Restore ecological conditions in the Model Lands, Southern Glades, and coastal wetlands
- Restore conditions in the nearshore zones of Biscayne Bay, Card Sound, Barnes Sound, and Manatee Bay
- Improve ecological and hydrological connectivity between Biscayne Bay coastal wetlands, the Model Lands, and Southern Glades
- Increase resiliency of coastal habitats in southeastern Miami-Dade County to sea level change

Status:

- Engagement with Project Delivery Team
- Development of alternatives and modeling



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING INDIAN RIVER LAGOON - SOUTH



The Indian River Lagoon and St. Lucie Estuary are two of the country's most productive and most threatened estuaries; the project will reconnect and restore natural areas in the headwaters and improve water flow to the river.

Total Project Benefits:

- Storage and treatment of 60,500 acre-feet local basin runoff prior to it flowing into the St. Lucie Estuary
- 12,000 acres of above ground storage
- 9,000 acres of man-made wetlands
- 889 acres of restored oyster habitat
- 922 acres of submerged aquatic vegetation restored

Planning Status:

- Director's Report to update total project cost signed!
- WRDA 2022 consideration



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING



LAKE OKEECHOBEE WATERSHED RESTORATION PROJECT

- Removal of the wetland attenuation feature (WAF) and 25 co-located ASR wells
- Expanded information on potential effects
- Draft Revised Project Implementation Report and Environmental Impact Statement (PIR/EIS) which includes:
 - ✓ Description of Revised Recommended Plan
 - ✓ ASR Science plan
 - ✓ Cost for ASR treatment
 - ✓ Cost to implement ASR Science Plan

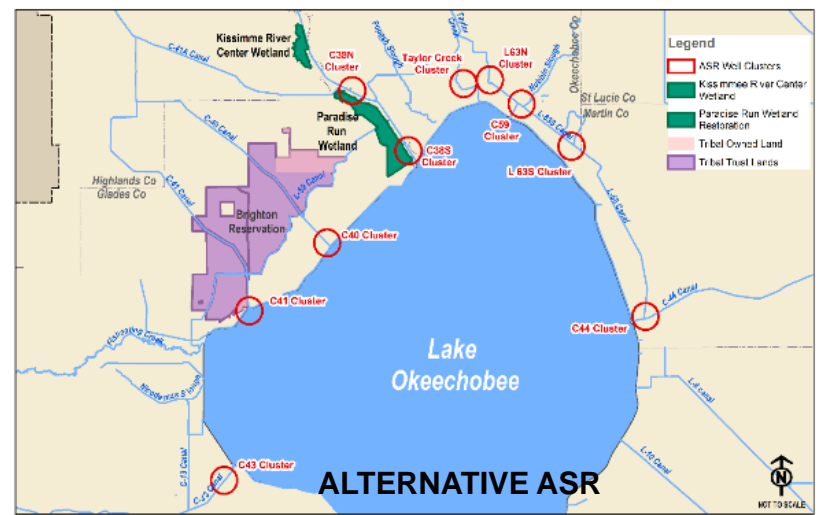
Note: Removal of the wetland attenuation feature (WAF) does not preclude us from evaluating above ground storage in the future.

Aquifer Storage and Recovery (ASR)

- 55 ASR wells
- ~308,000 acre-feet of storage per year

Wetland Restoration

- Paradise Run: Approx. 4,700 acres
- Kissimmee River Center: Approx. 1,200 acres
- Recreational facilities



**Project Cost Estimate: \$1.19 billion
(includes 40% contingency)**

Planning Status:

- Public and Agency Review of Third Revised Draft PIR/EIS, ongoing through 01 August



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING WESTERN EVERGLADES RESTORATION PROJECT

ALTERNATIVE H: RESTORE RAIN-DRIVEN SYSTEM WITH EXISTING WATER / PASSIVE MANAGEMENT

LEGEND

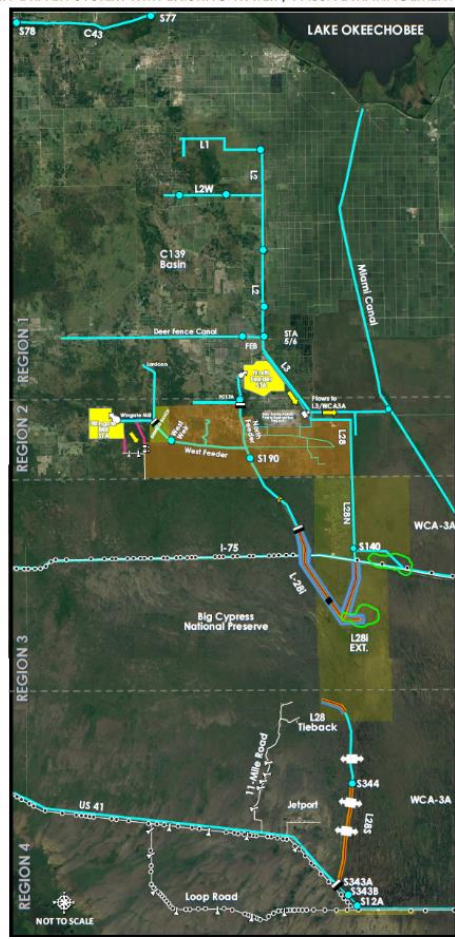
- Seminole Tribe of Florida Reservation
- Miccosukee Tribe of Indians of Florida Reservations
- Existing Culverts
- Existing Structures
- Existing Canals
- Existing Roads

Measures*

- Tree Island Restoration
- Water Treatment
- Weir
- Inline Weir
- Adjustable Control Structure
- Gated Structure
- Pump
- Culvert
- Plug
- Treated Water
- Canal Backfill
- Canal Backfill/Degrade Levee
- Vegetation Restoration
- Embankment

*Features are not to scale and do not represent final placement. Features are subject to change based on conceptual design.

Last Updated: 28-MAR-2022



WERP Study Objectives:

Restoring freshwater flow paths, flow volumes & timing, seasonal hydroperiods, & historic distributions of sheetflow, to re-establish ecological connectivity and ecological resilience of the historic wetland/upland mosaic.

Restoring water levels to reduce wildfires associated with altered hydrology, which damage the underlying geomorphology and associated ecological conditions of the western Everglades.

Restoring aquatic low nutrient (oligotrophic) conditions to reestablish and sustain native flora & fauna.

STATUS

Engagement with Project Delivery Team
Tentatively Selected Plan milestone in July/August 2022



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION

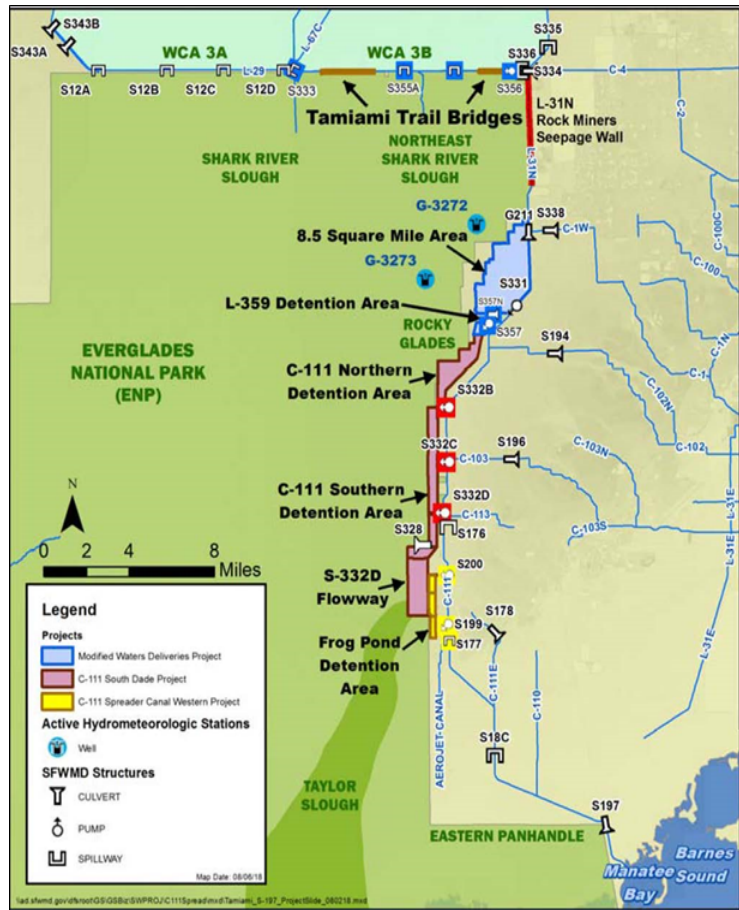
- C-111 South Dade (C-111SD)
- Picayune Strand Restoration (PSRP)
- Indian River Lagoon – South (IRL-S)
- Biscayne Bay Coastal Wetlands (BBCW)
- Central Everglades Planning Project (CEPP)
- Broward County Water Preserve Areas (BCWPA)
- Loxahatchee River Watershed Restoration Project (LRWRP)



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM

DESIGN | CONSTRUCTION

CANAL 111 (C-111) SOUTH DADE



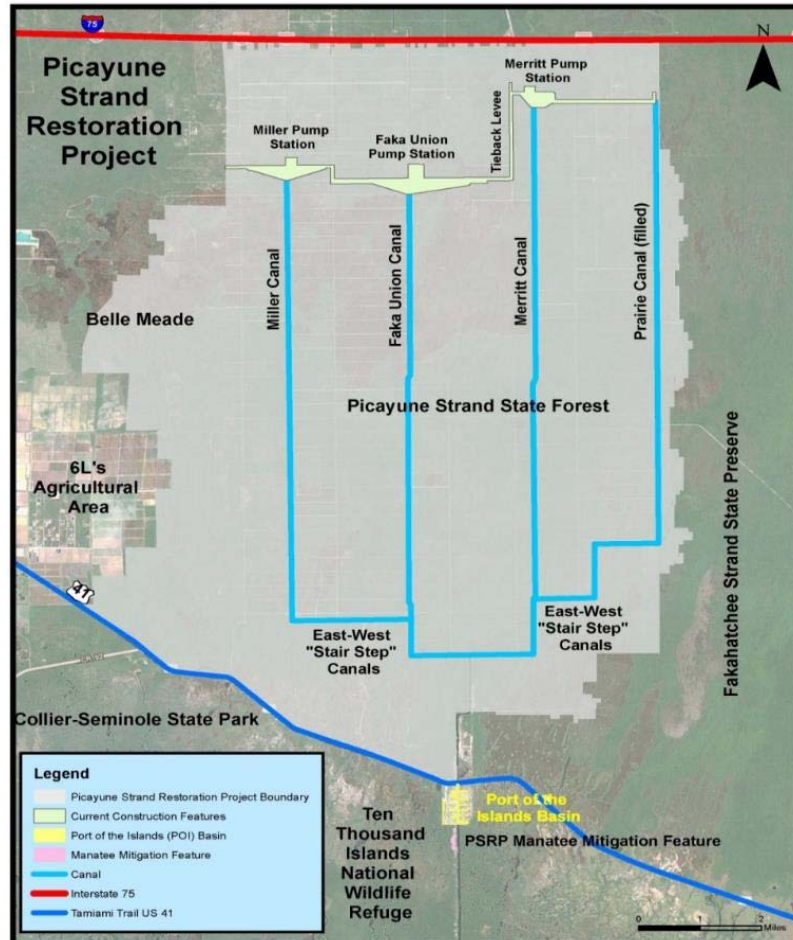
Reduces water losses from Everglades National Park and improves freshwater flow to Taylor Slough and Florida Bay. Provides for 9,500 acre-feet of storage & seepage that reduces damaging canal discharges to Barnes Sound, reduces seepage losses from ENP, and maintains flood protection for commercial, residential, and agricultural properties to the east.

Status:

- Collaborating with SFWMD on engineering design to replace S-332B and S-332C pump stations



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION PICAYUNE STRAND RESTORATION PROJECT



The project will restore 55,000 acres of native Florida wetlands and uplands.

Total Project Benefits:

- Conveyance of water will restore natural habitat
- Three pump stations: Merritt, Faka Union, and Miller
- Plugging 48 miles of canals and removing/degrading 260 miles of roads

Status:

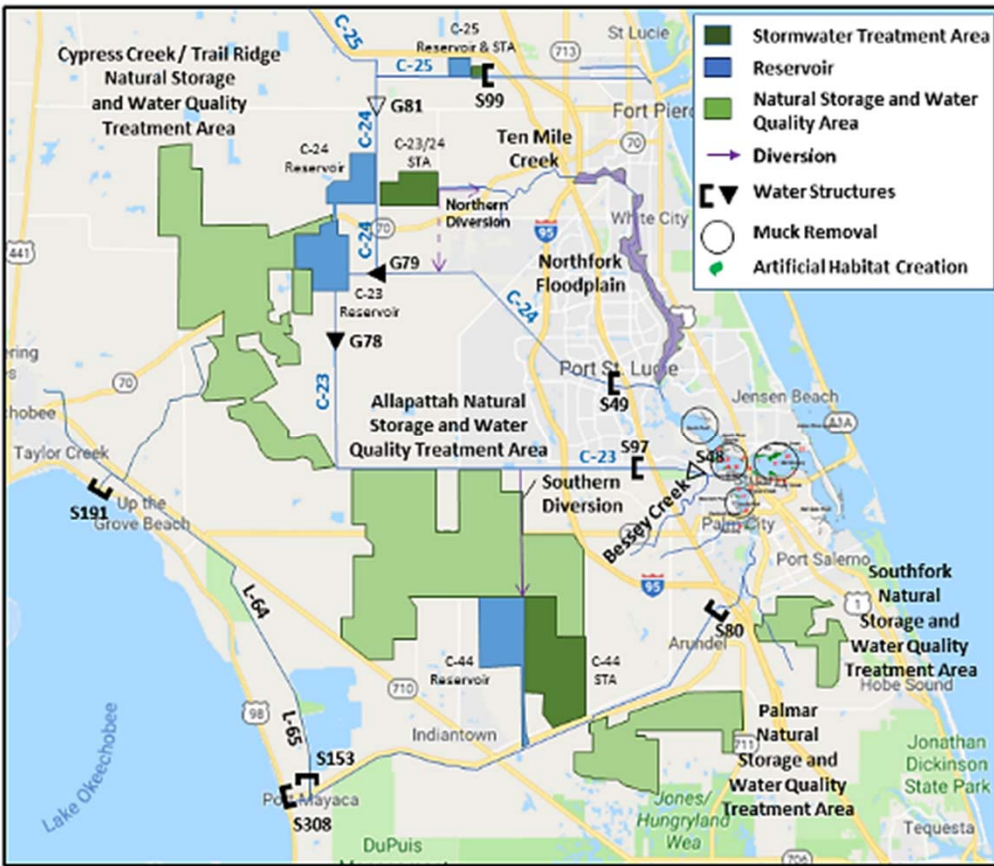
- Construction contracts underway for Miller Tram and Road Removal and Southwest Conveyance Features



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM

DESIGN | CONSTRUCTION

INDIAN RIVER LAGOON - SOUTH PROJECT



The Indian River Lagoon and St. Lucie Estuary are two of the country’s most productive and most threatened estuaries; the project will reconnect and restore natural areas in the headwaters and improve water flow to the river.

In Design:

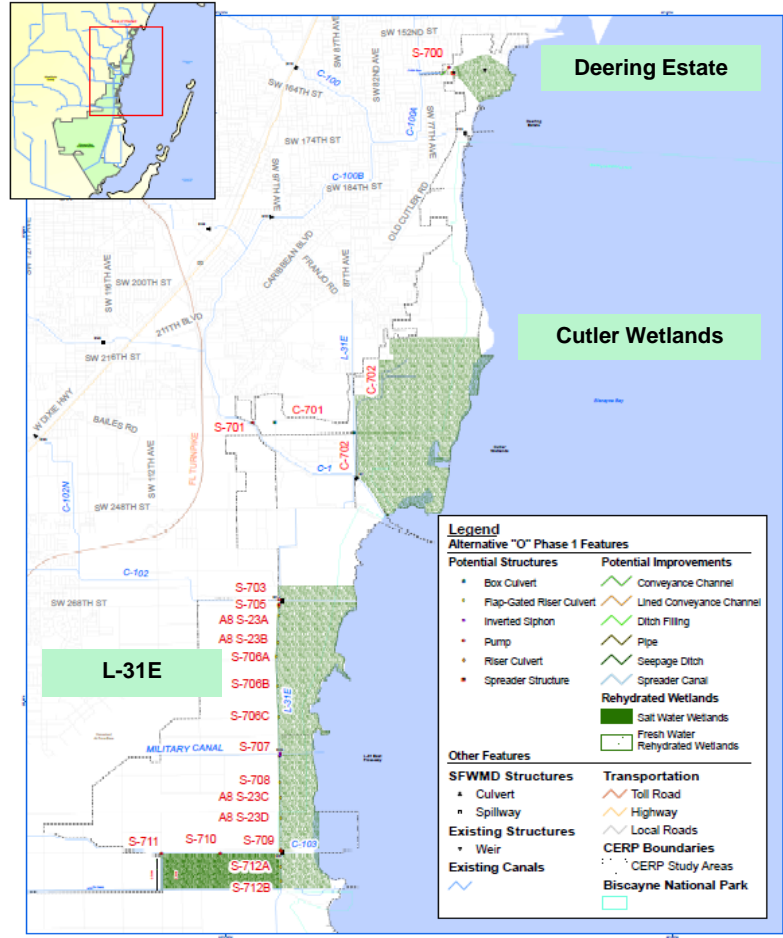
- C-23/C-24 North Reservoir, anticipated FY23 award, IIJA funds
- C-23/C-24 South Reservoir

Under Construction:

- C-44 bank stabilization
- C-23/C-24 Stormwater and Treatment Area



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION BISCAYNE BAY COASTAL WETLANDS PROJECT



The project will restore the natural pattern of freshwater inflows to Biscayne Bay.

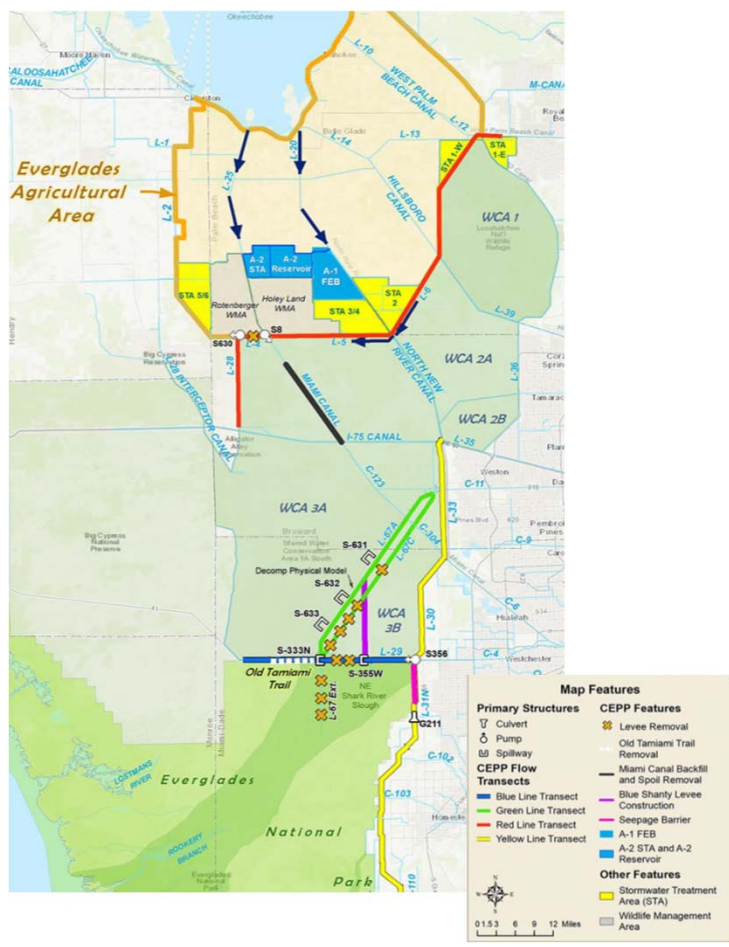
Total Project Benefits:
Conveyance and distribution of flows to rehydrate coastal wetlands, reduce point source discharges, and redistribute surface water; improve the ecology of Biscayne Bay.

Under Construction:

- Pump stations S-703, S-705, S-709, S-710, and S-711



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION CENTRAL EVERGLADES PLANNING PROJECT



The Central Everglades Planning Project (CEPP) focuses restoration on more natural flows into and through the central and southern Everglades by increasing storage, treatment and conveyance of water south of Lake Okeechobee; removing canals and levees within the central Everglades and retaining water within Everglades National Park.

Status:

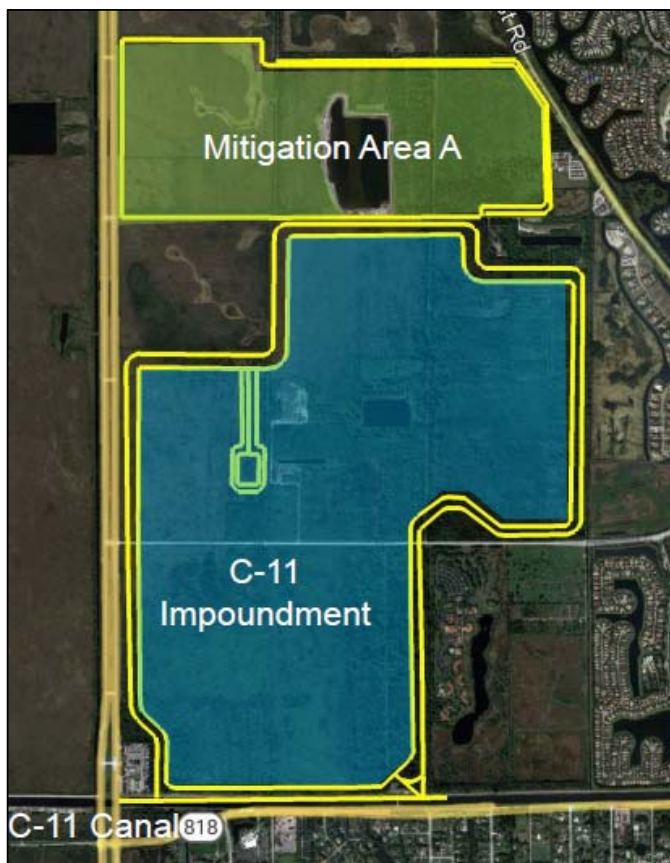
- CEPP – South:
 - ▶ L-67A structures, anticipated construction restart in 2022
 - ▶ Pump Station S-356, Final design ongoing, anticipated contract award FY23 (IIJA)
 - ▶ Gated Spillway S-355W, Preliminary design ongoing, anticipated contract award FY23
- CEPP – EAA:
 - ▶ Seepage and Inflow/Outflow Canal, anticipated start mid 2022
 - ▶ Reservoir Foundation and Cut-off Wall, in advertisement period, anticipated contract award FY22
 - ▶ Reservoir Embankment, Final Design ongoing, anticipated contract award FY23



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION



BROWARD COUNTY WATER PRESERVE AREAS | C-11 IMPOUNDMENT



Purpose

- Reduce discharges of runoff from developed areas in western Broward County into Water Conservation Area 3 which flows to the Everglades National Park
- C-11 Impoundment is key to full operation of CEPP South
- Reduce seepage of water out of the Everglades to developed areas in western Broward County
- The project will improve fish and wildlife habitat including that of 5 federally listed species
- 563,000 acres in Water Conservation Area 3 and 200,000 acres in the greater Everglades will benefit from project implementation

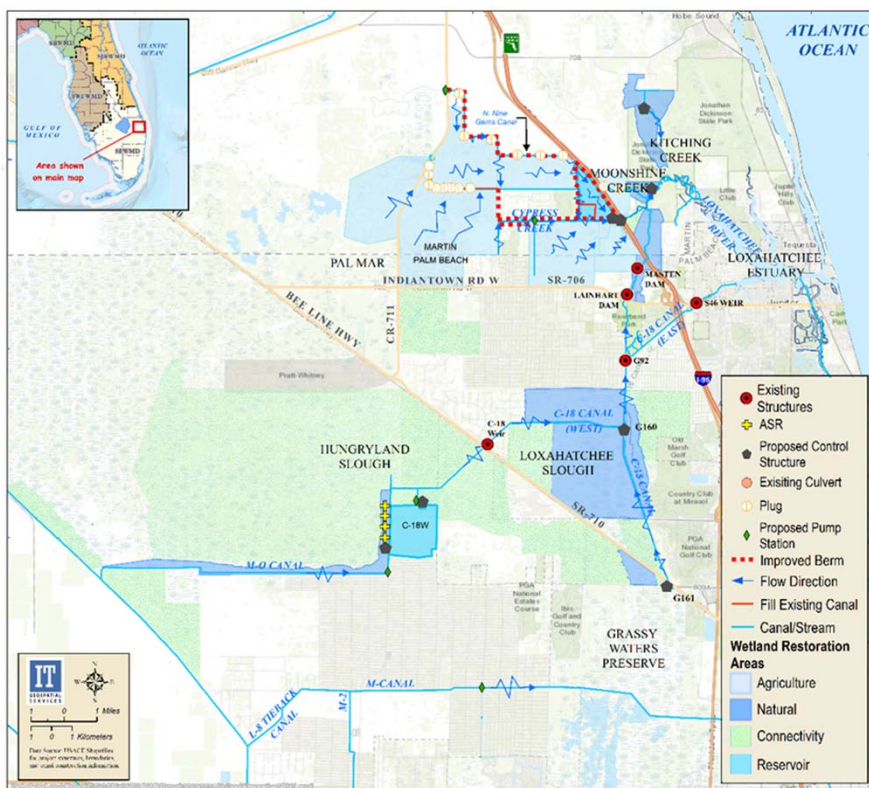
Features

- Final Design of C-11 Impoundment underway
- Anticipated FY23 award
- IIJA funding



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION

LOXAHATCHEE RIVER WATERSHED RESTORATION PROJECT



This project's purpose is 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. This project also seeks to restore, sustain, and reconnect the area's wetlands and watersheds that form the historic headwaters for the river.

Project Benefits:

- Restores water flows to the Northwest Fork of the Loxahatchee River.
- Restores 27,000 acres of wetlands and reconnects an additional 51,000 acres of wetlands.
- Increases habitat available for native wildlife and vegetation, including listed species.

Status:

- PPCA Signed!
- Drafting Project Partnership Agreement



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS

- Kissimmee River Restoration (KRR)
- Indian River Lagoon – South (IRL-S)
- Lake Okeechobee System Operating Manual (LOSOM)
- Combined Operations Plan (COP)



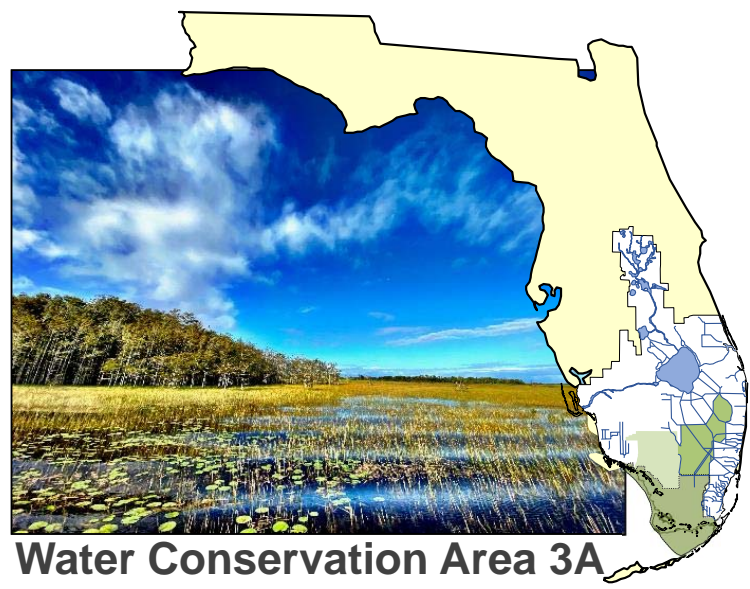
SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS



Kissimmee River



Lake Okeechobee



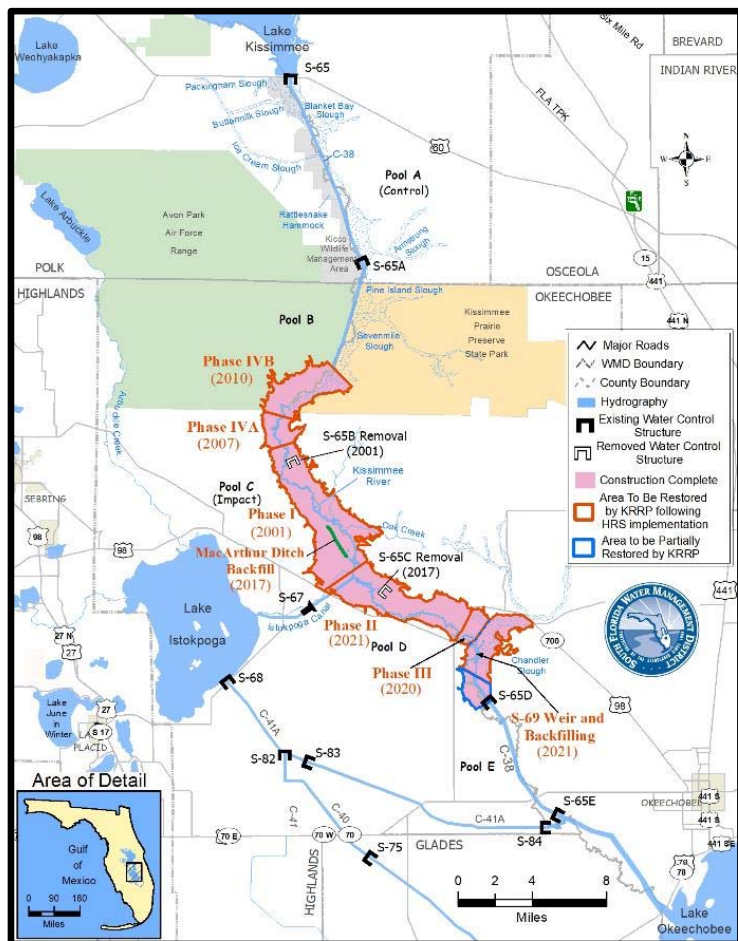
Water Conservation Area 3A

The C&SF System Connects Us



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS

KISSIMMEE RIVER RESTORATION



The Kissimmee River Restoration (KRR) restores critical floodplain habitat and timing of flows to Lake Okeechobee.

Total Project Benefits:

- Conveyance of 130,000 acre-feet of natural floodplain storage to slow the flow of water into Lake Okeechobee and reduce the impacts of high-volume discharges into the St. Lucie and Caloosahatchee estuaries.

Status:

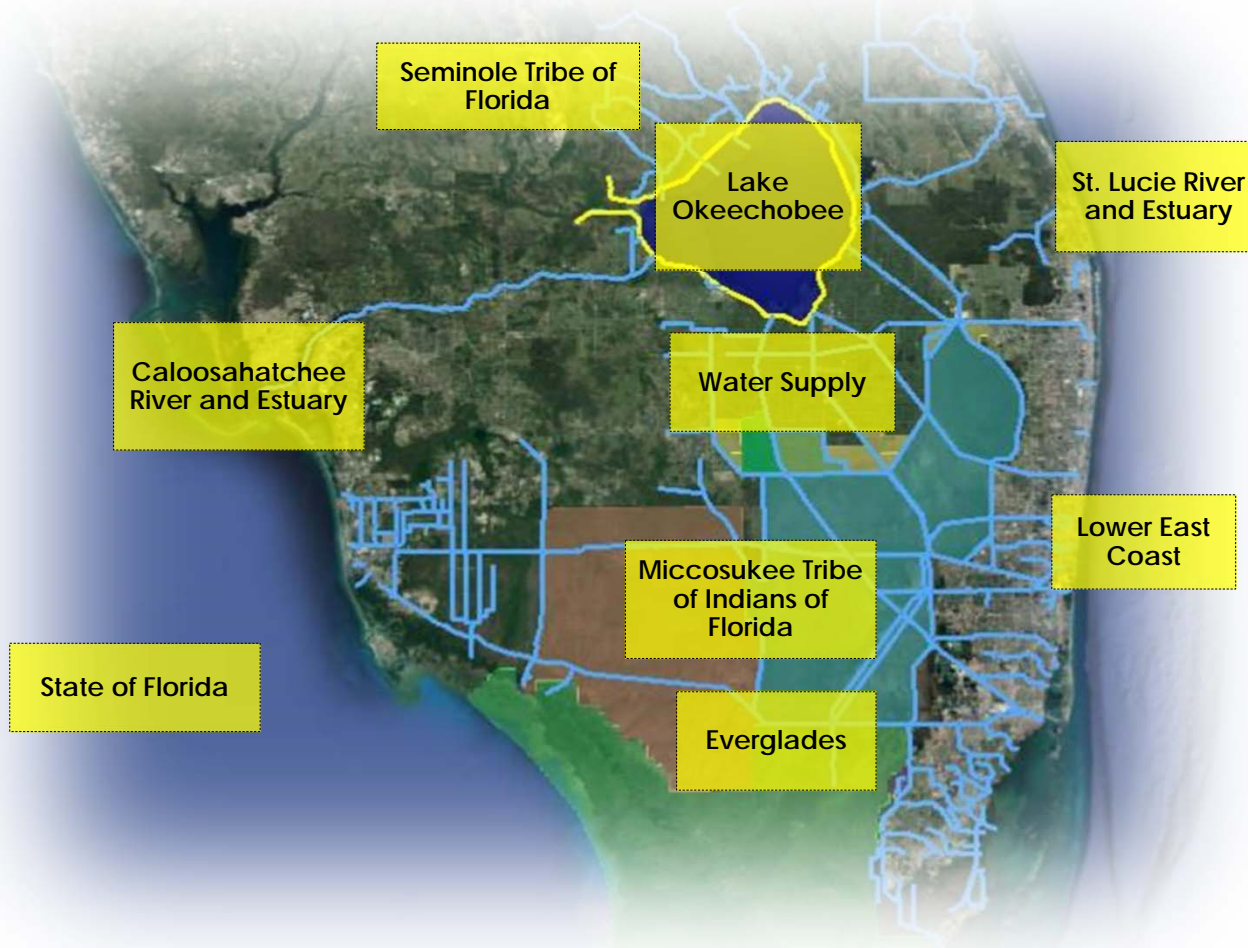
- KRR Headwaters Revitalization: Increment 1 development ongoing



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM
OPERATIONS



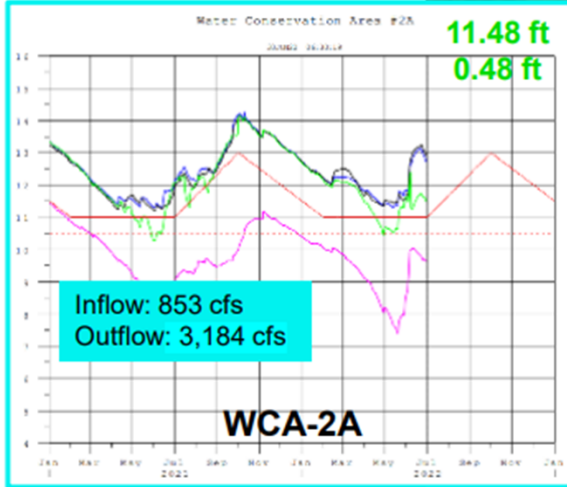
LAKE OKEECHOBEE SYSTEM OPERATIONS MANUAL



- **Benefits-focused**
- **System with holistic perspective**
- **Will use real time knowledge of climate conditions, weather data, climate projections, and system needs to make educated decisions about how releases are made**
- **Key seasonal assessment points to analyze the past, the present, and the anticipated/desired future**



WCAS



STAs to WCA-2A:
G-436/G-335: 141
S-7: 317

WCA-1
S-10s = 213 cfs

WCA-2A
S-11s = 3,184 cfs

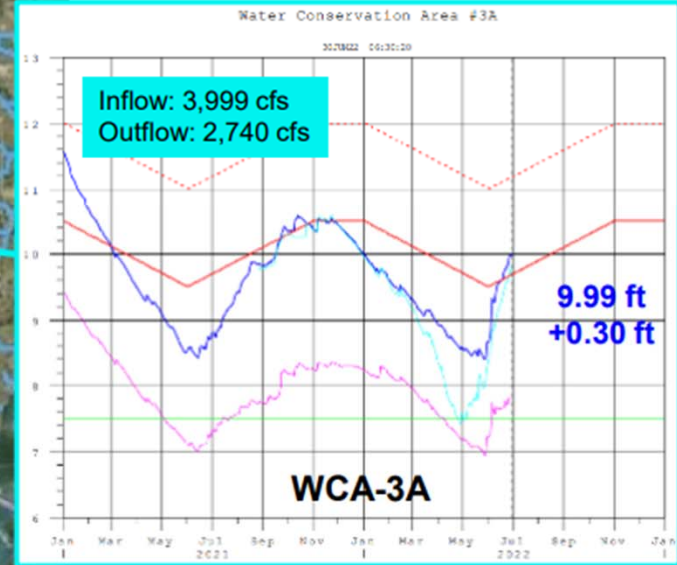
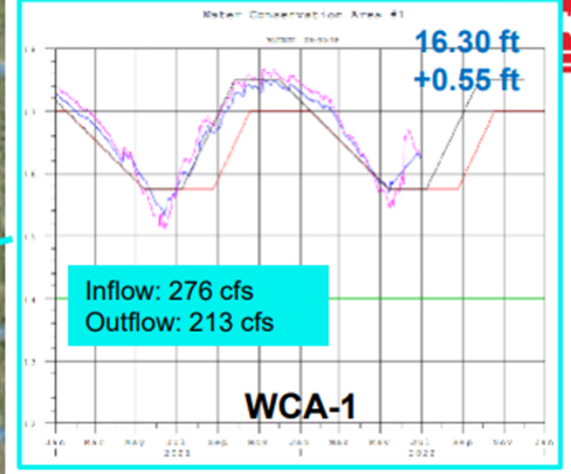
WCA-2B

WCA-3A

WCA-3B

TTFF = Max
Observed Flow = 2,740 cfs

S-12A and S-12B are closed from 10/1 through 7/14 for the marl prairie and CSSS subpopulation A.





COP UPDATE



WATER DELIVERIES (AC-FT) TO L-29 CANAL (S-333 + S-333N + S-356 - S-334)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2012	16,400	7,700	1,400	300	15,000	14,000	700	3,400	-200	-300	400	8,200	67,000
2013	18,900	8,200	2,200	500	26,400	18,200	3,500	1,000	-1,500	-700	0	0	76,700
2014	800	29,300	30,700	400	100	9,800	44,000	15,800	16,300	0	31,800	12,400	191,400
2015	1,700	0	5,700	0	0	0	0	0	6,400	36,700	26,300	8,600	85,400
2016	8,100	28,700	74,400	65,700	25,900	11,100	30,600	10,800	500	100	0	7,700	263,600
2017	2,700	5,200	1,300	300	100	33,300	10,500	0	20,300	700	4,100	45,500	124,000
2018	9,700	21,600	3,100	900	14,600	31,600	60,400	72,000	52,400	74,800	1,400	900	343,400
2019	1,000	21,100	21,700	16,300	24,700	49,400	80,000	74,400	86,400	69,700	25,800	100	470,600
2020	160	250	360	410	9,740	69,000	101,300	93,100	72,400	48,200	24,900	5,500	425,320
2021	43,360	81,360	94,560	60,390	21,220	30,300	58,900	71,000	80,700	82,700	68,124	103,645	796,259
2022	94,326	67,357	56,166	25,411	6,761								250,021

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

Note: All data is provisional.



USACE | JACKSONVILLE DISTRICT

**SOUTH FLORIDA ECOSYSTEM
RESTORATION PROGRAM**



THANK YOU!