

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

SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM

SOUTH FLORIDA RESTORATION TASK FORCE

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

03 May 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 BRIGADE



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM AGENDA



FY22 EXECUTION FOCUS

▪ FY22 Budget / FY23 President's Budget

▪ Program-level Activities

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

▪ 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)

▪ Operations

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



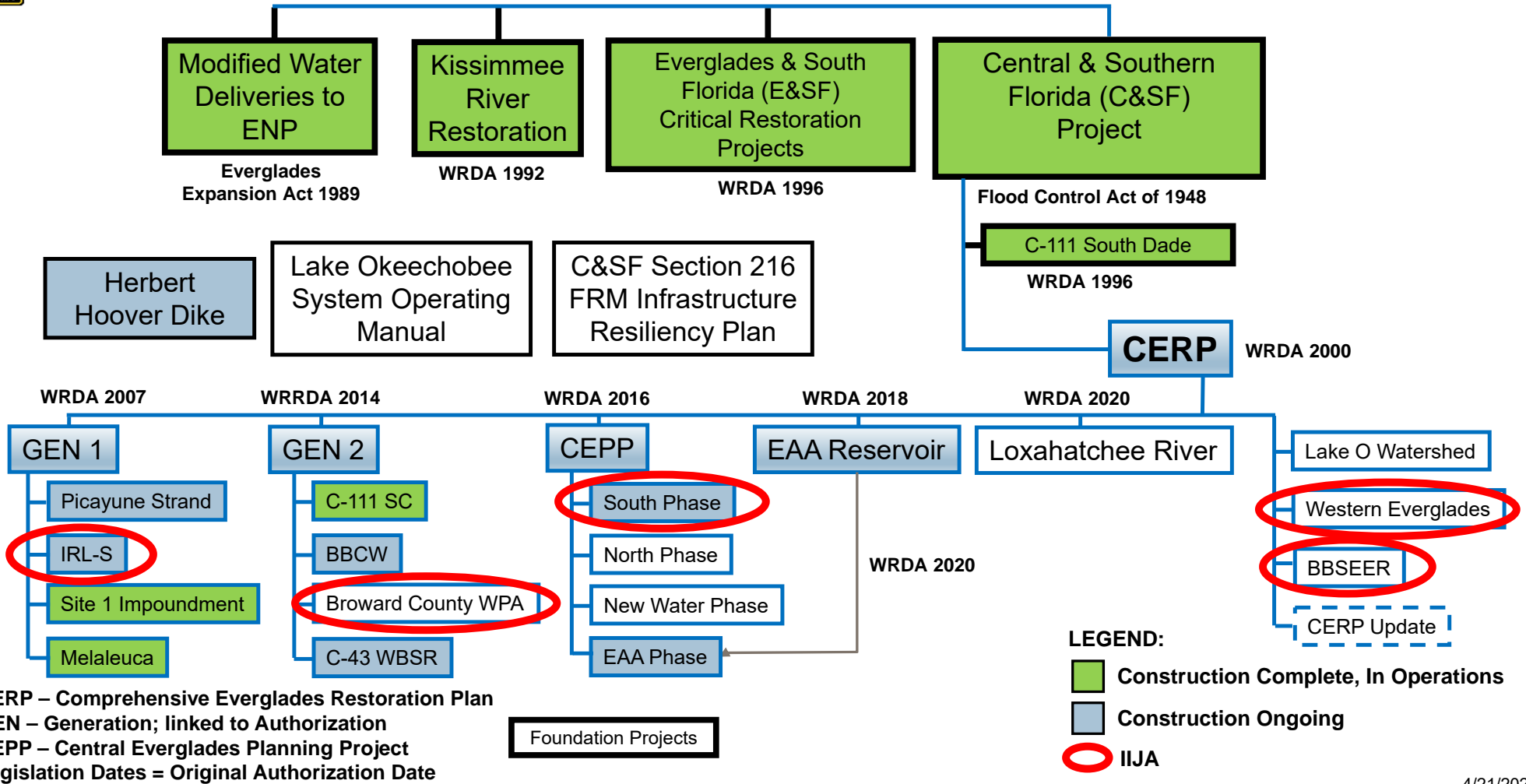
SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM BUDGET OVERVIEW



CONSTRUCTION	SFER	OPERATIONS & MAINTENANCE
\$2.5M	FY21 Carryover	\$1.99M
\$350M	FY22 President's Budget	\$8.95M
\$0	FY22 Workplan	\$0
\$352.5M	FY22 Omnibus	\$10.94M
\$407M	FY23 President's Budget	\$10.67M
\$1.097B	Infrastructure Investments and Jobs Act (IIJA 2022)	\$0



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM STRUCTURE





SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM-LEVEL ACTIVITIES

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



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM-LEVEL ACTIVITIES



INTEGRATED DELIVERY SCHEDULE

INTEGRATED DELIVERY SCHEDULE 2021 UPDATE FINAL DRAFT
SOUTH FLORIDA ECOSYSTEM RESTORATION | CENTRAL AND SOUTH FLORIDA RESTORATION

The Comprehensive Ecosystem Restoration Plan (CERP) is the largest water resource initiative ever in the United States. It is a multi-agency effort to restore and protect the South Florida ecosystem. The CERP includes the restoration of water quality, habitat, and wildlife. The CERP also includes the restoration of water quantity, water quality, and wildlife. The CERP is a multi-agency effort to restore and protect the South Florida ecosystem. The CERP includes the restoration of water quality, habitat, and wildlife. The CERP also includes the restoration of water quantity, water quality, and wildlife.

SOUTH FLORIDA ECOSYSTEM RESTORATION AND GETTING THE WATER RIGHT – 2021 WORKING DRAFT

THE RESTORATION FRAMEWORK

OPERATIONS IN SYNC WITH PROJECT DELIVERY

COMPONENTS AND PROJECTS

SOM VOLUMES BY REGION

TRACKING RESTORATION SUCCESS

CERP COMPONENTS STATUS AND LOCATIONS BY RECOVER REGIONS

The CERP identified all components that can contribute significantly to getting the water right, increasing the health of the ecosystem. Through rigorous planning processes, the comprehensive CERP Yellow Book now contains all the implementable projects that are part of the integrated delivery schedule (IDS).

The CERP consists of 17 volumes, organized according to geographical region that collectively address the restoration of the South Florida ecosystem. The CERP includes the restoration of water quality, habitat, and wildlife. The CERP also includes the restoration of water quantity, water quality, and wildlife.

Component ID	Component Name	Region	Phase	Start Date	End Date	Status
1	Water Quality Improvement	Central	Construction	2021	2023	Active
2	Habitat Restoration	South	Planning	2022	2024	Planned
3	Wildlife Conservation	Central	Monitoring	2021	Ongoing	Active
4	Water Quantity Management	South	Construction	2021	2023	Active
5	Wetland Restoration	Central	Planning	2022	2024	Planned
6	Water Quality Improvement	South	Construction	2021	2023	Active
7	Habitat Restoration	Central	Monitoring	2021	Ongoing	Active
8	Wildlife Conservation	South	Planning	2022	2024	Planned
9	Water Quantity Management	Central	Construction	2021	2023	Active
10	Wetland Restoration	South	Planning	2022	2024	Planned

05 Aug 2021

Integrated Delivery Schedule 101 and Stakeholder Listening Session

19 Aug 2021

Integrated Delivery Schedule 101, 68 CERP Components Overview, and Listening Session with Stakeholders

September 2021

Working Draft 2021 IDS Update

October 2021

Release of Final Draft 2021 IDS Update



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



- RECOVER (Restoration, Coordination, VERification)
- Promotes an integrated view to CERP implementation to ensure CERP goals and purposes are achieved
- Multi-agency team of scientists, modelers, planners, and resource specialists
- Conducts scientific and technical evaluations and assessments
- Communicates and coordinates the results of technical evaluations to managers, decision makers, and the public
- Three major missions:
 - ▶ Assessment – Performance measurement through research and monitoring
 - ▶ Evaluation – Forecast of project performance through predictive modeling and performance measures
 - ▶ Planning – Integrates RECOVER with planning and operation of the system



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING

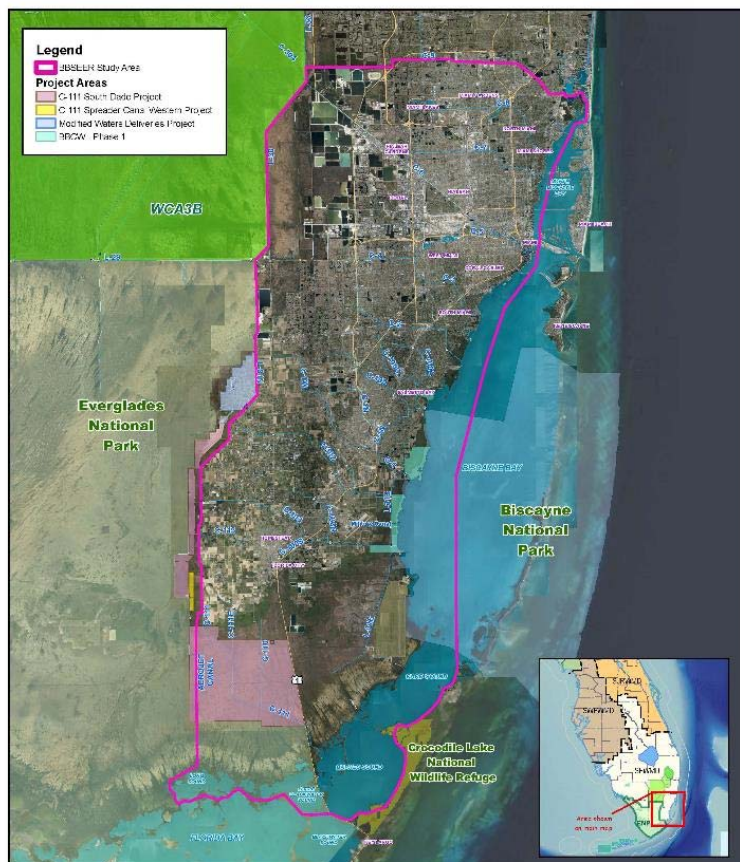
- Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) Project
- Indian River Lagoon – South (IRL-S)
- Lake Okeechobee Watershed Restoration Project (LOWRP)
- Western Everglades Restoration Project (WERP)



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING



BISCAYNE BAY AND SOUTHEASTERN EVERGLADES ECOSYSTEM RESTORATION (BBSEER)



The goals and objectives of the project:

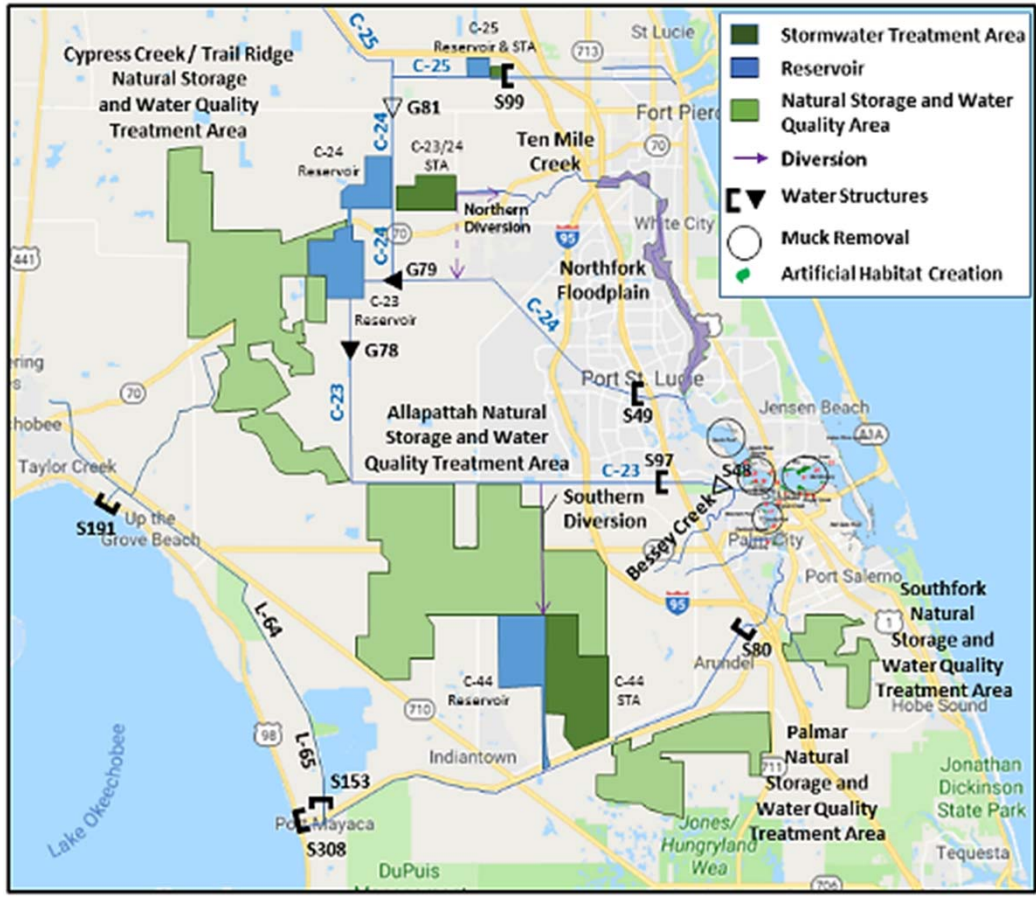
- Restore ecological conditions in the Model Lands, Southern Glades, and coastal wetlands
- Restore conditions in the nearshore zones of Biscayne Bay, Card Sound, Barnes Sound, and Manatee Bay
- Improve ecological and hydrological connectivity between Biscayne Bay coastal wetlands, the Model Lands, and 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:

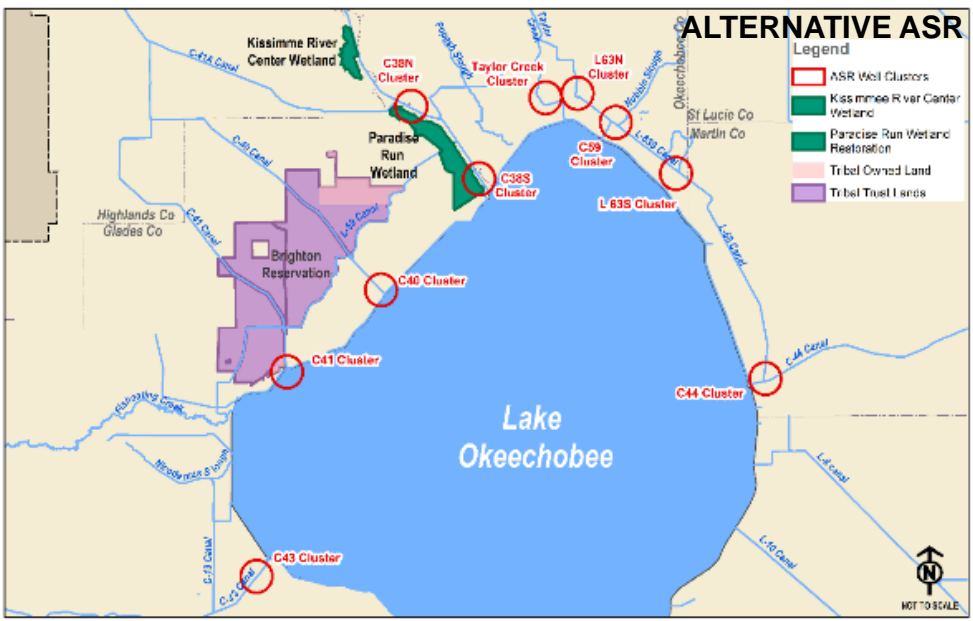
- Storage and treatment of 60,500 acre-feet local basin runoff prior to it flowing into the St. Lucie Estuary
- 12,000 acres of above ground storage
- 9,000 acres of man-made wetlands
- 889 acres of restored oyster habitat
- 922 acres of submerged aquatic vegetation restored

Planning Status:

- Director's Report under review
- WRDA 2022 consideration



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING LAKE OKEECHOBEE WATERSHED RESTORATION PROJECT



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)

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

- Removal of the wetland attenuation feature (WAF) and 25 co-located ASR wells
- 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

Planning Status:

- Public and Agency Review of Revised Draft PIR/EIS complete
- WRDA 2022 consideration



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PLANNING WESTERN EVERGLADES RESTORATION PROJECT

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

LEGEND

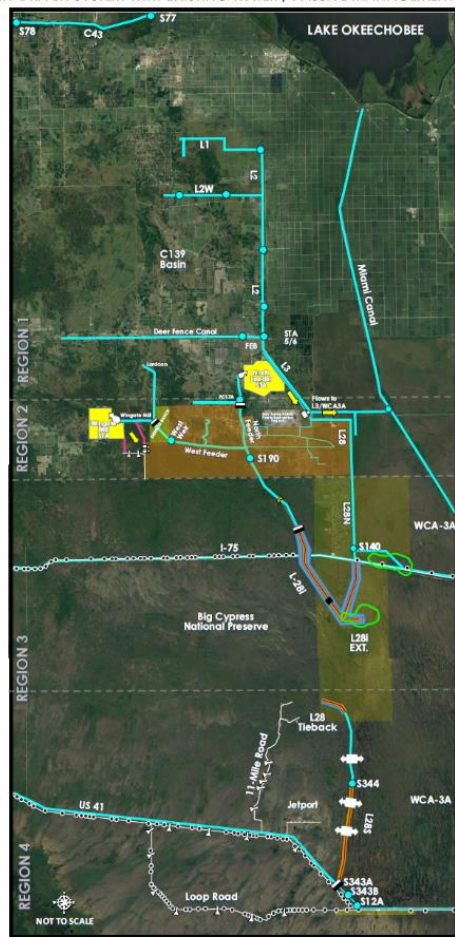
- Seminole Tribe of Florida Reservation
- Miccosukee Tribe of Indians of Florida Reservations
- Existing Culverts
- Existing Structures
- Existing Canals
- Existing Roads

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 Summer 2022

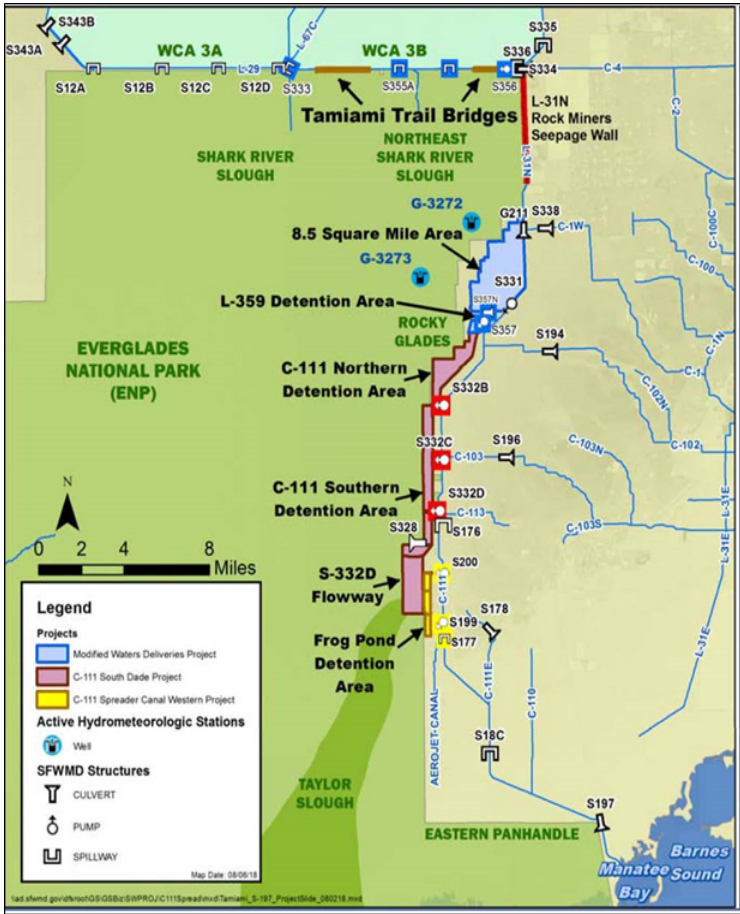


SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION

- 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)



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN | CONSTRUCTION CANAL 111 (C-111) SOUTH DADE



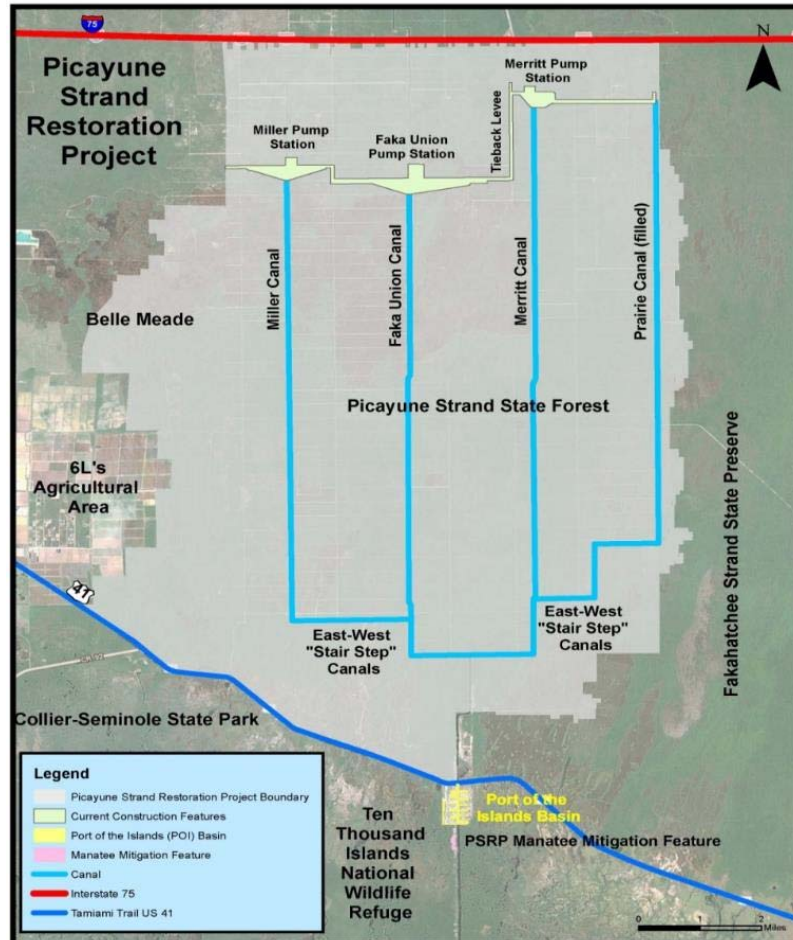
Reduces water losses from Everglades National Park and improves freshwater flow to Taylor Slough and Florida Bay. Provides for 9,500 acre-feet of storage & seepage that reduces damaging canal discharges to Barnes Sound, reduces seepage losses from ENP, and maintains flood protection for commercial, residential,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

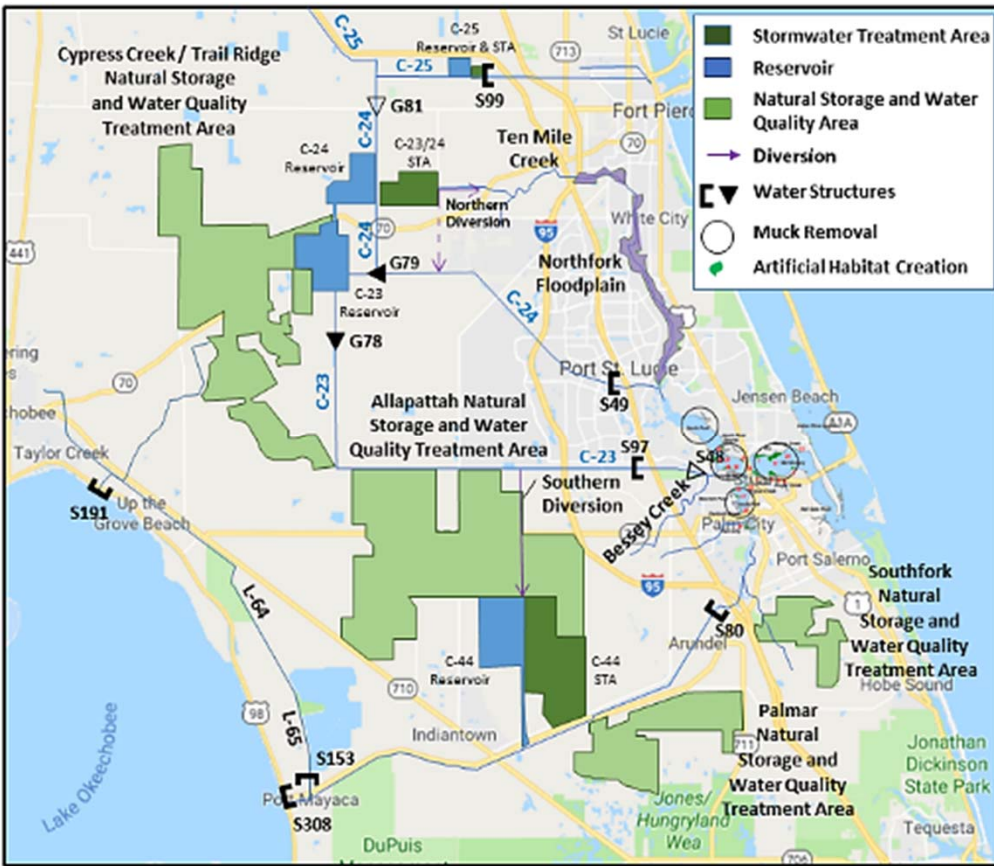
- Construction contracts underway for Miller Tram and Road Removal and Southwest Conveyance Features



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:

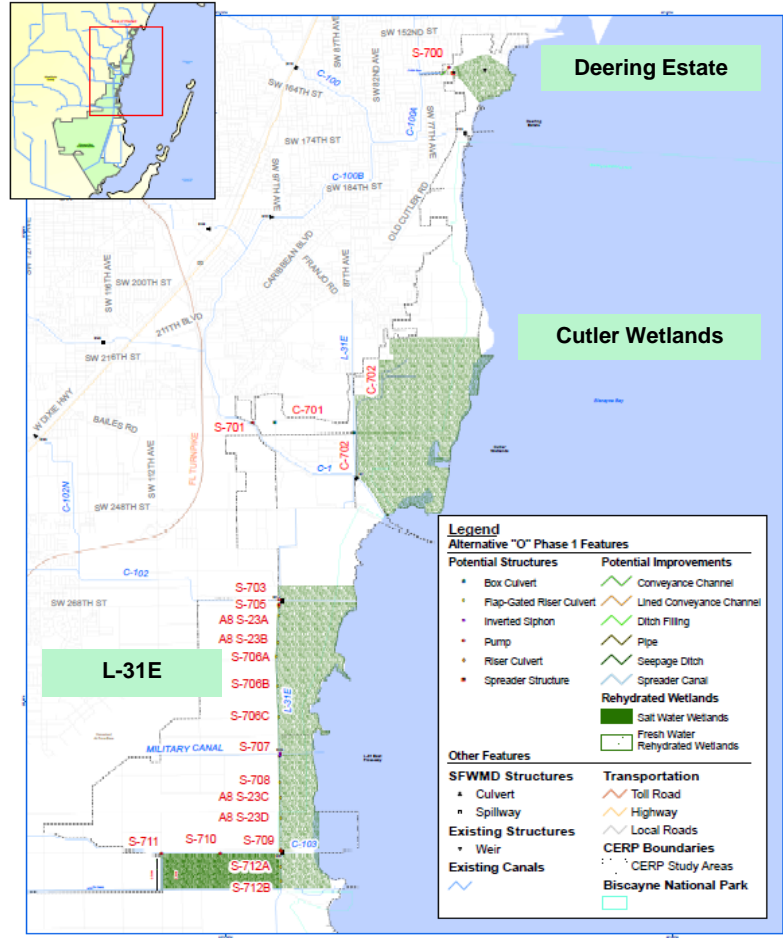
- C-23/C-24 North Reservoir, anticipated FY23 award, IIJA funds
- C-23/C-24 South Reservoir

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.

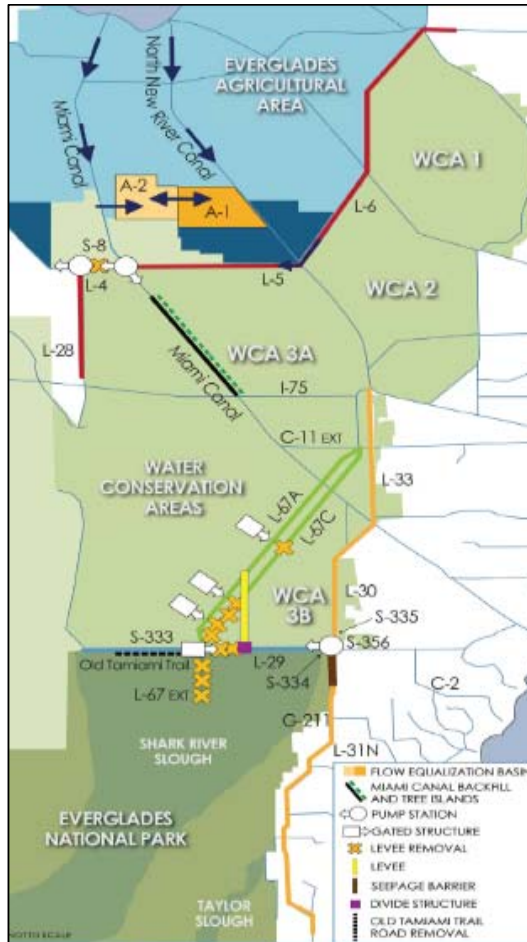
Total Project Benefits:
Conveyance and distribution of flows to rehydrate coastal wetlands, reduce point source discharges, and redistribute surface water; improve the ecology of Biscayne Bay.

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:

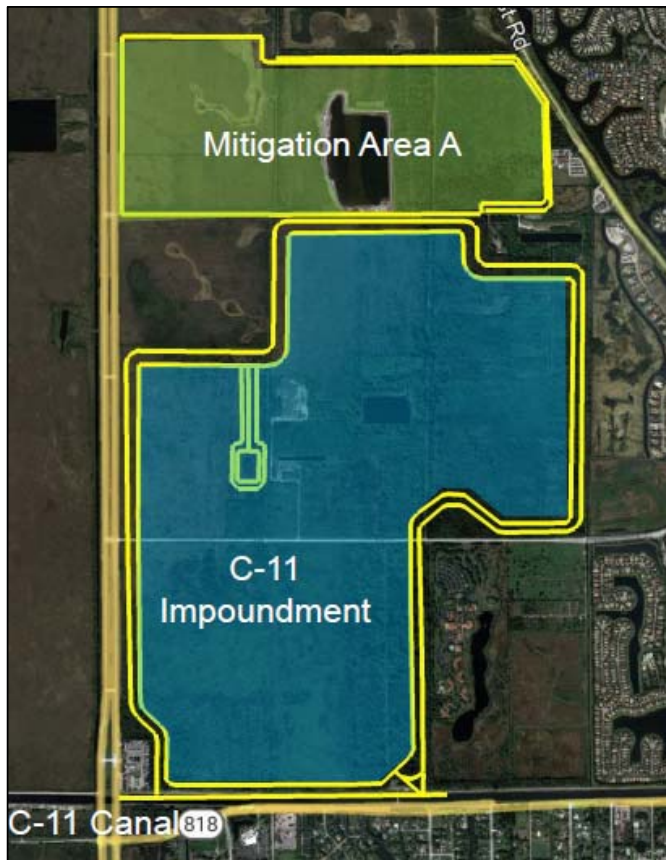
- CEPP – South:
 - ▶ L-67A structures, anticipated construction restart in 2022
 - ▶ Pump Station S-356, Final design ongoing, anticipated contract award FY23 (IIJA)
 - ▶ Gated Spillway S-355W, Preliminary design ongoing, anticipated contract award FY23
- CEPP – EAA:
 - ▶ Seepage and Inflow/Outflow Canal,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

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



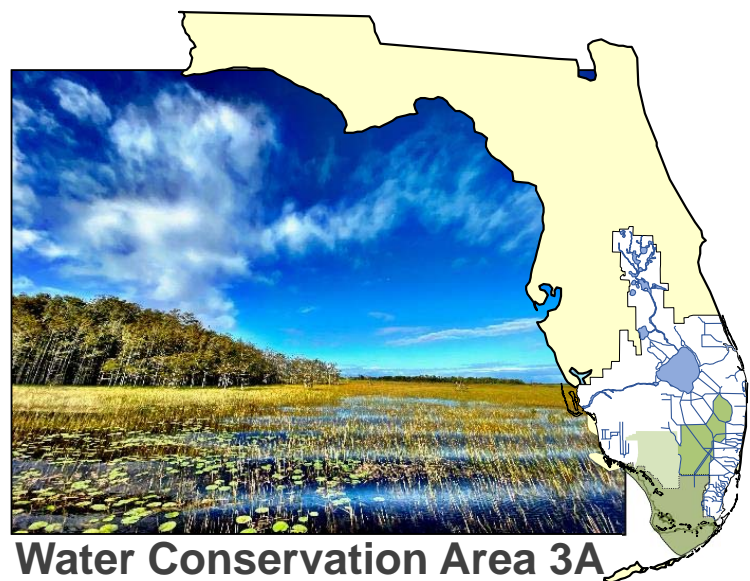
SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS



Kissimmee River



Lake Okeechobee



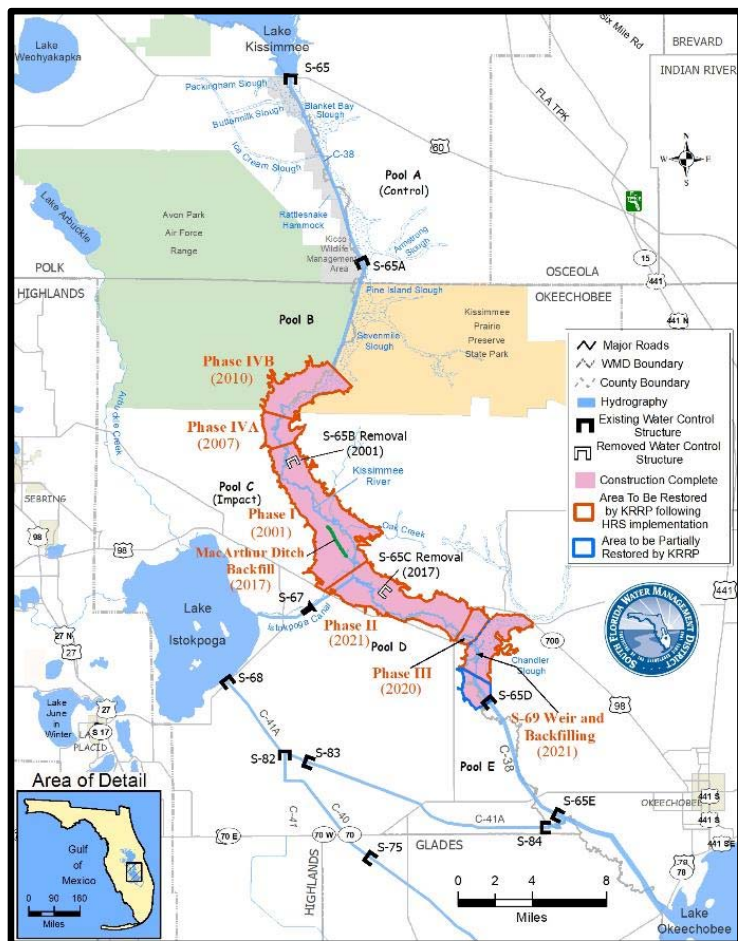
Water Conservation Area 3A

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 INDIAN RIVER LAGOON - SOUTH



C-44 Reservoir Filling

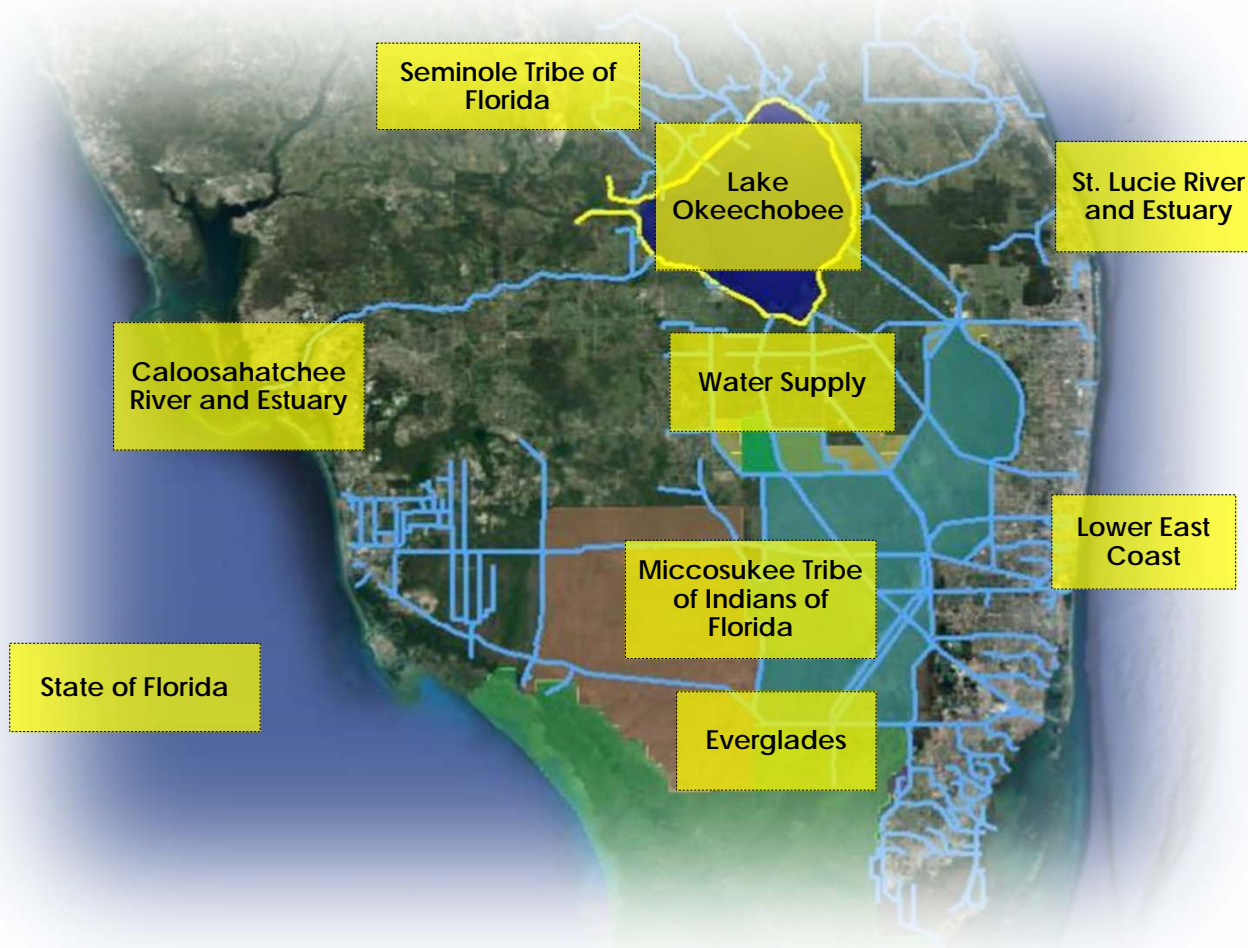
- Initial filling operations underway
- Target is a 15-foot holding pool
- Current water depth is 10.4 feet on average across the reservoir
- Overall conditions remain normal with no dam safety concerns



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS



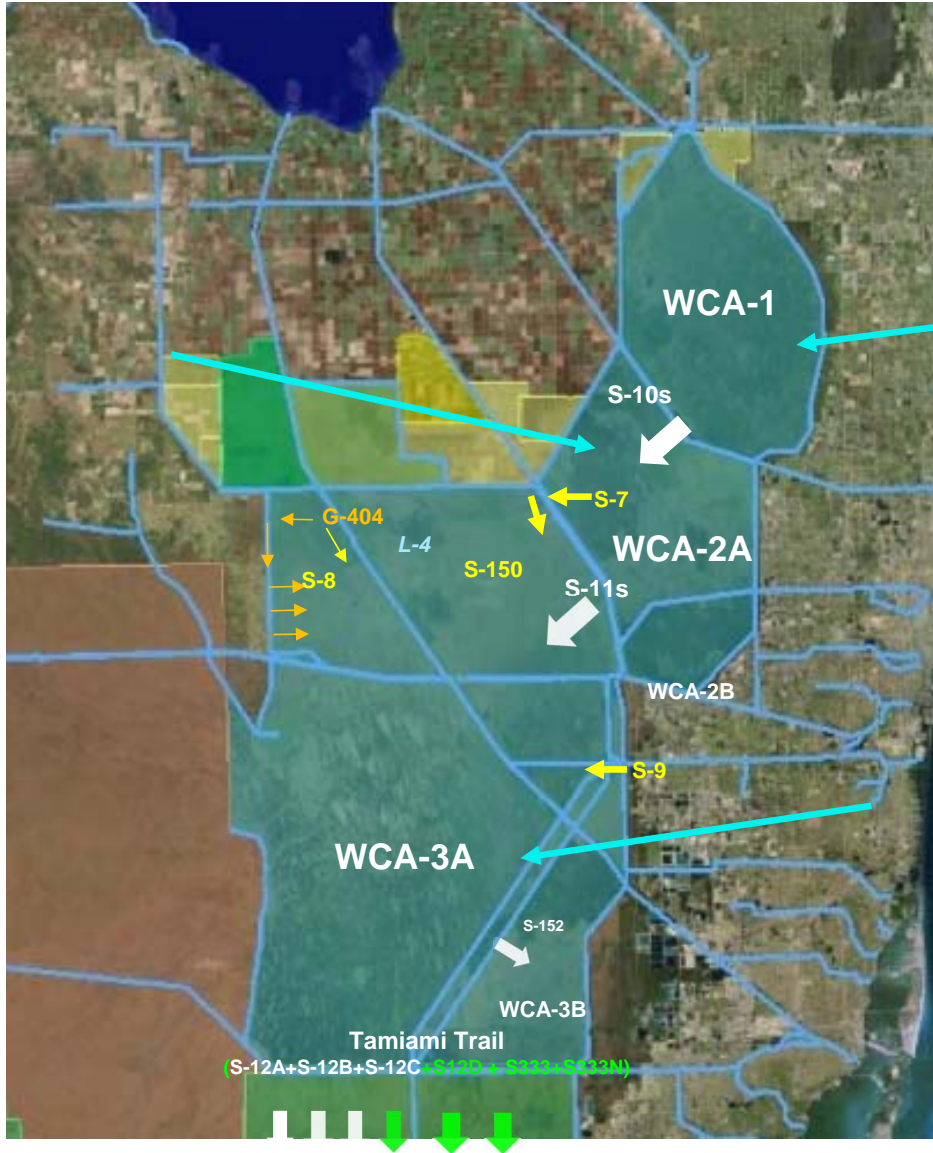
LAKE OKEECHOBEE SYSTEM OPERATIONS MANUAL



- **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**



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS COMBINED OPERATIONAL PLAN





SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS COMBINED OPERATIONAL 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 1970)	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	196,800	1,509,200
2018	97,000	37,400	3,100	900	31,100	105,700	149,300	157,500	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										

LEGEND

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



USACE | JACKSONVILLE DISTRICT

**SOUTH FLORIDA ECOSYSTEM
RESTORATION PROGRAM**



THANK YOU!