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

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS

SOUTH FLORIDA RESTORATION TASK FORCE

Presented by: Eva B. Vélez, PE, Chief, Ecosystems Branch 01 June 2023



NOTE: TANKIEK GATE MORTHANN

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS **FY23 EXECUTION FOCUS U.S. ARMY**



FEASIBILITY



VALIDATION/PACR/OTHER

JOINT OR SFWMD-LED CONSTRUCTION

FY23 Appropriations/BIL Funds

Program-level Activities

- National Academies of Science Review (CISRERP)
- Interagency Modeling Center (IMC)
- Integrated Delivery Schedule (IDS)
- RECOVER (Restoration, Coordination, VERification)
- Adaptive Assessment and Monitoring
- ► CERP Update

Planning

- Biscayne Bay and Southeastern Everglades **Ecosystem Restoration (BBSEER)**
- Lake Okeechobee Watershed Restoration Project (LOWRP)
- Western Everglades Restoration Project (WERP)
- Indian River Lagoon South (IRL-S)
- Central Everglades Planning Project (CEPP)
- C&SF Flood Resiliency (Section 216) Study
- Lake Okeechobee Component A Reservoir (LOCAR)

Design and 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)
- C-43 West Basin Storage Reservoir
- Loxahatchee River Watershed Restoration Project (LRWRP)

Water Management and Operations and Maintenance

- Kissimmee River Restoration (KRR) ►
- Indian River Lagoon South (IRL-S)
- Modified Water Deliveries, Combined Operational Plan (COP)
- Lake Okeechobee System Operating Manual (LOSOM)
- Central Everglades Planning Project Operational Plan
- C-43/C-44 Reservoirs Operational Plan
- Operations, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R)

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS FY23 BUDGET OVERVIEW



ORIANDO		INVESTIGATIONS	CONSTRUCTION	OPERATIONS & MAINTENANCE	AUTHORIZING BILL/PRESIDENT'S BUDGET	
	South Florida Ecosystem Restoration (Annual)	\$0	\$453.84M	\$10.67M	FY23 Omnibus Bill	
SOUTH FLORIDA WATER MANAGEMENT DISTRICT BOUNDARY ULAKE OKEECHOBEE	South Florida Ecosystem Restoration (Supplemental)	\$0	\$1.097B	\$0	Bipartisan Infrastructure Law (2022)	
CALOOSAHATCHEE RIVER CALOOSAHATCHEE RIVER AGRICULTURAL AREA WCA-1	South Florida Ecosystem Restoration (Annual)	\$0	\$415M	\$12.9M	FY24 President's Budget	
NAPLES BIG CYPRESS NATIONAL PRESERVEL WCA-2 WCA-3 FT. LAUDERDALE FY24 J Sheet, Total Estimated SFER Programmed Construction Cost: \$ 23,617,006,000						
RECOVER REGIONS	Central and Southern Florida Resiliency Study (Section 216)	\$975K	\$0	\$0	FY22 + FY23 Appropriations	
Southwest (SW) Southern Coastal Systems (SC) NON-CERP PROJECTS CERP PROJECTS	Comprehensive Central and Southern Florida Resilience Study (WRDA22)	\$0	\$0	\$0	New Authority in WRDA22	



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM PROGRAM-LEVEL ACTIVITIES

Today's Highlights:

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Integrated Delivery Schedule (IDS)

SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | PROGRAM LEVEL ACTIVITIES **INTEGRATED DELIVERY SCHEDULE U.S. ARMY**





June 2023 Initiate 2023 IDS Update

Oct 2023(tentative) Release of Final 2023 IDS Update at Task Force Workshop

SAVE THE DATES

August 4, 2023 **IDS 101 and Stakeholder Listening Session**

August 18, 2023 **CERP 68 Components Overview and Listening** Session

September 6, 2023 Release of the 2023 **Draft IDS Update**

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SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCY PROGRAMS PLANNING

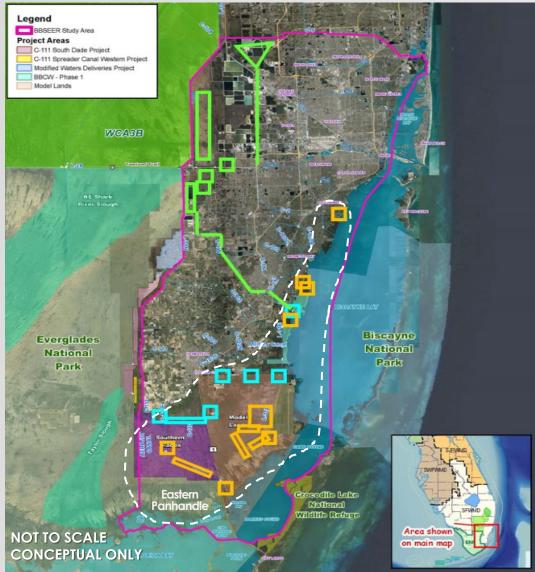
Today's Highlights:

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- Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER)
- Lake Okeechobee Watershed Restoration Project (LOWRP)
- Western Everglades Restoration Project (WERP)
- C&SF Flood Resiliency (Section 216) Study

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING BISCAYNE BAY AND SOUTHEASTERN EVERGLADES ECOSYSTEM RESTORATION (BBSEER)





Study Objectives:

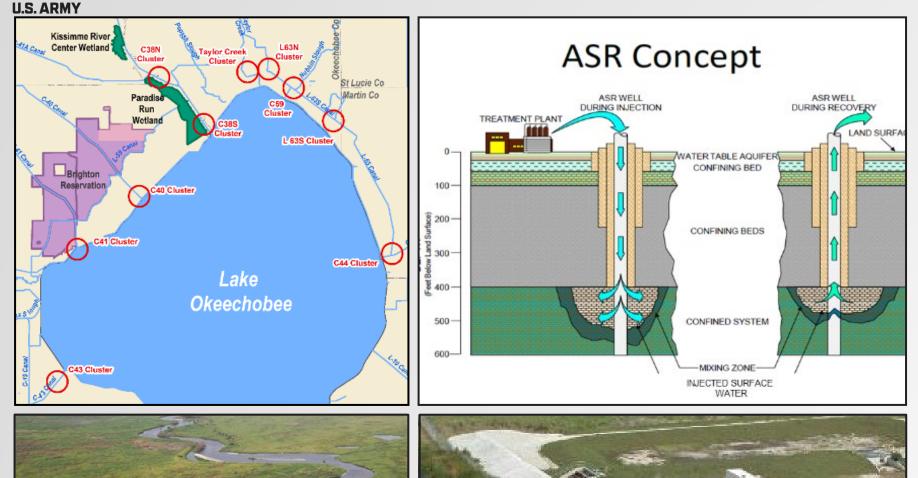
- Improve quantity, timing and distribution of freshwater to **estuarine and nearshore subtidal areas**, including mangrove and seagrass areas.
- Restore freshwater depths, hydroperiods, and flows for dry and wet seasons in terrestrial wetlands.
- Restore connectivity and habitat gradients in areas compartmentalized by the C&SF system in the Southern Everglades, Model Lands, and Biscayne Bay Coastal Wetlands.
- Increase and restore ecological resilience in coastal habitats in southeastern Miami Dade County.

Status:

- Continued Engagement with Project Delivery Team.
- Evaluation and Synthesis of Round 2 Modeling Results.
- NEXT: Development of Alternatives for Round 3.

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING LAKE OKEECHOBEE WATERSHED RESTORATION PROJECT





COMPONENTS:

AQUIFER STORAGE AND RECOVERY (ASR) WELLS

WETLAND RESTORATION SITES

- Restore hydrology of isolated, riverine wetlands
- Paradise Run: ~ 4,700 acres
- Kissimmee River Center:
 ~ 1,200 acres
- Recreational facilities

STATUS:

- Preparation of Waiver Package for updated Recommended Plan with separable elements
- First Report: LOWRP Wetlands Restoration Report – Target WRDA 2024
- Second Report: LOWRP ASR Pending additional science

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING WESTERN EVERGLADES RESTORATION PROJECT (WERP)



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Images Courtesy of Big Cypress National Preserve

WERP Study Objectives:

- Restore freshwater flow paths, flow volumes and timing, seasonal hydroperiods, and historic distributions of sheetflow to reestablish ecological connectivity and ecological resilience of the historic wetland/upland mosaic.
- Restore water levels to reduce wildfires associated with altered hydrology, which damage the underlying geomorphology and associated ecological conditions of the western Everglades.
- Restore aquatic low nutrient (oligotrophic) conditions to reestablish and sustain native flora and fauna.

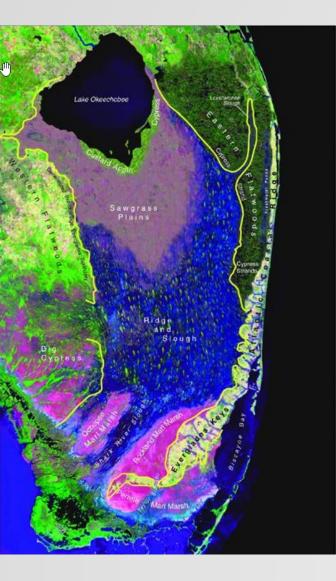
STATUS:

- Waiver package under review to revise Tentatively Selected Plan (TSP) and update project schedule.
- Wingate Mill Stormwater Treatment Area (STA) feature removed from TSP and replaced with flow way - Alternative HNF, additional modeling under review by PDT.
- Engineering, Policy and Legal review of North Feeder STA feature.
- Ongoing engagement with stakeholders and partners.

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING WESTERN EVERGLADES RESTORATION PROJECT (WERP)



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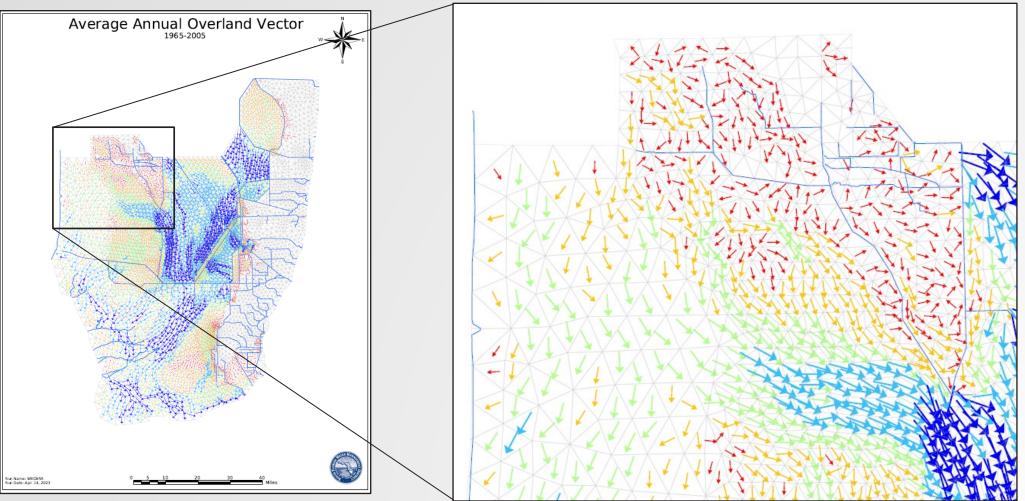
Pre-Drainage Western Everglades:

- A rain driven system of several habitats
- A historic place of refuge

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING WESTERN EVERGLADES RESTORATION PROJECT (WERP) **U.S. ARMY**



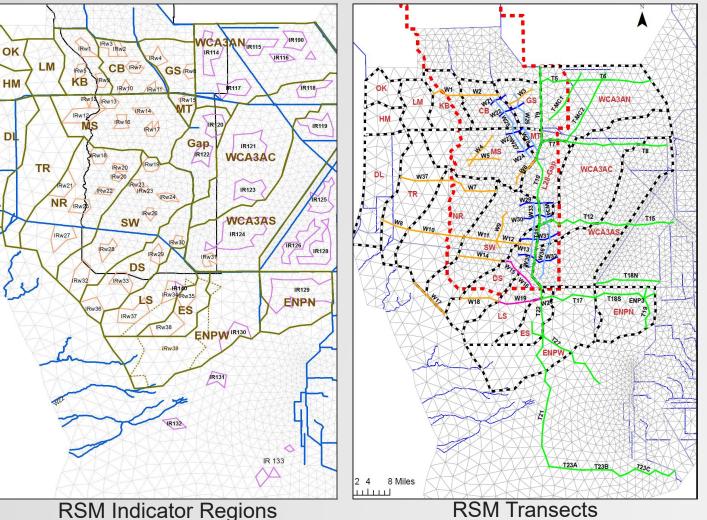
WERP MODEL OF EXISTING FLOWS



RSM Overland Flow Vector Map of Existing Conditions



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WERP – WHERE DO WE MEASURE BENEFITS?

- Indicator regions
- Transects
- Zones





WERP – HOW DO WE MEASURE BENEFITS?

Project Performance Measures (PMs) – Habitat Units (HUs)

	AREA APPLIED	PERFORMANCE MEASURE	DESCRIPTION	
PM: ECOLOGIC CONNECTIVITY	Western Everglades, WCA 3A and ENP	Ecologic Connectivity	Connectivity Across Landscape - Measures improvements in connecting historic hydrologic linkages, removing physical barriers, expanding habitat to support fish and wildlife, and improvements in water quality through enhanced sheetflow (uptake of marsh) within project area.	
PM:SEASONAL TIMING/UNIFORMITY OF SHEETFLOW		Inundation Patterns	Above Ground Water Levels - Measure of the duration of inundation over the period of record within project area.	
		Sheet flow	Sheet flow - Measure of the timing and distribution of sheet flow across the landscape within project area.	
PM: CONDITIONS FOR VEGETATION	Western Everglades Only	Fire Risk	Below Ground Water Levels - Measure of cumulative drought intensity below a given threshold (foot days below -0.5 feet and - 1.5 feet to represent moderate and severe fire risk) within western Everglades.	
		Hydrologic Regimes of Major Plant Communities	Above & Below Ground Water Levels - Measure to evaluate the hydrologic suitability for vegetation communities within western Everglades. Utilizes existing vegetation to determine upper and lower bounds and targets.	
PM:FIRE RISK PM:PHOSPHORUS DYNAMICS	WCA 3A and ENP Only	Slough Vegetation Suitability	Above & Below Ground Water Levels - Measure to evaluate the hydrologic suitability for vegetation communities within WCA 3A and ENP. Utilizes existing vegetation to determine upper and lower bounds and targets.	
		Hydrologic Surrogate for Soil Oxidation	Below Ground Water Levels - Measure of cumulative drought intensity below ground to reduce exposure to peat within WCA 3A and ENP.	
	WCA 3A Only	Downstream Benefits of Reduced Phosphorus Loading	Total Phosphorous Concentrations (TP) - Measures spatial extent of water column TP concentrations in marsh areas downstream in Miccosukee Reservation. Halt expansion of nutrient enriched areas.	

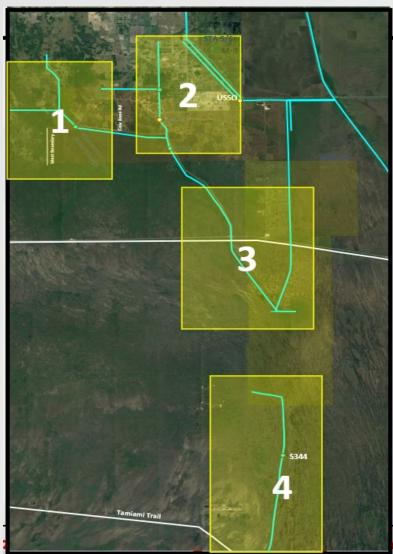
SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING WESTERN EVERGLADES RESTORATION PROJECT (WERP)



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WERP FOCUS AREAS:

- 1. WESTERN AREA
- 2. EASTERN AREA
- 3. CENTRAL AREA
- 4. SOUTHERN AREA



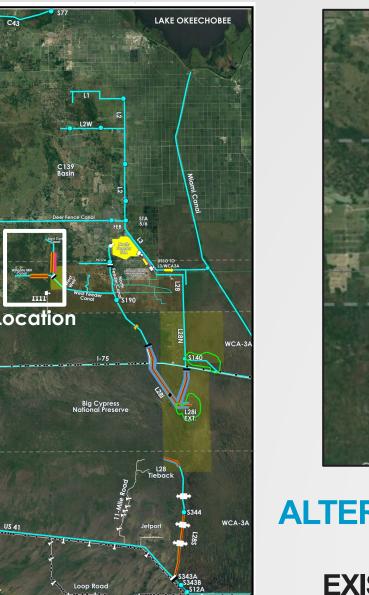
- When we say "Focus Areas", we are referring to the 4 blocks of areas, as shown to the right
 - Used to communicate groupings of where features are located
- Often used when discussing:
 - Specific structural and nonstructural management measures at specific locations

WERP Focus Areas – Area 3 is Dependent on Areas 1 and 2

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING WESTERN EVERGLADES RESTORATION PROJECT (WERP)



U.S. ARMY LEGEND Seminole Tribe of Florida Reservation Miccosukee Tribe of Indians of Florida Reservations **Existing Culverts Existing Structures Existing Canals Existing Roads** Features* Water Treatment Inline Weir Embankment Pump Location **Bi-Directional** Control Structure Gated Culvert 1-75 Culvert Plug Big Cypress Plug with Levee Tie-In **Treated Water Canal Backfill** Canal Backfill/ Degrade Levee Vegetation Restoration McCormack's Landina Restoration REGIOI eatures are not to scale and do 0-1-0-a NOT TO SCALE

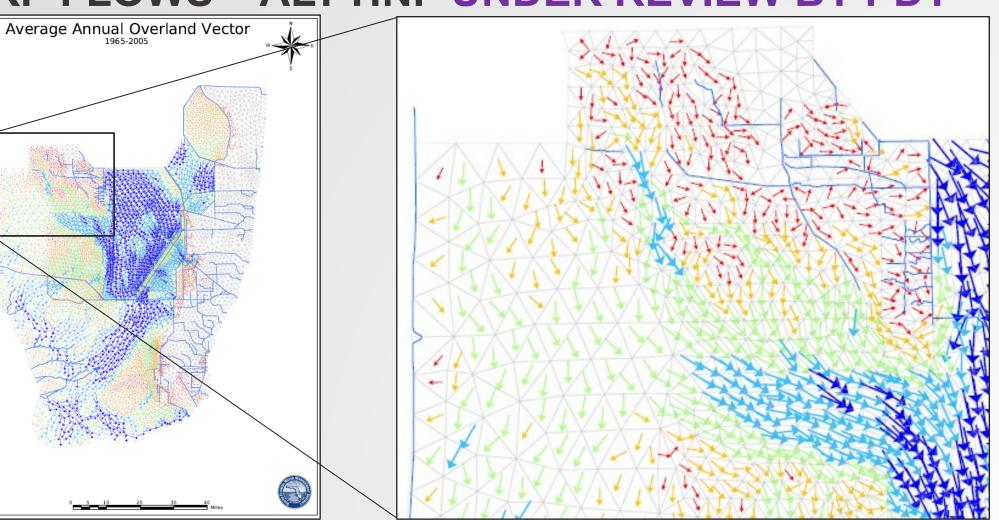




ALTERNATIVE HYBRID NATURAL FLOW (HNF) RESTORE RAIN-DRIVEN SYSTEM WITH EXISTING WATER/OPERATIONAL FLEXIBILITY *Under review by the Project Delivery Team*

dated: 24-MAR-202

SOUTH FLORIDA ECOSYSTEM RESTORATION AND C&SF RESILIENCE PROGRAMS | PLANNING WESTERN EVERGLADES RESTORATION PROJECT (WERP) WERP FLOWS – ALT HNF UNDER REVIEW BY PDT



RSM Overland Flow Vector Map of ALT HNF





WESTERN EVERGLADES RESTORATION PROJECT (WERP) **TENTATIVE SCHEDULE – UNDER REVIEW**

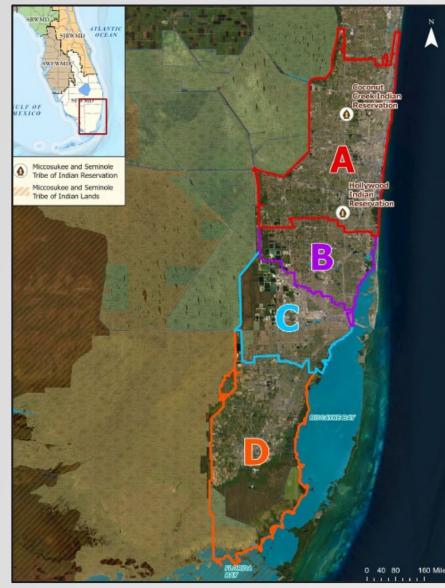
Milestone	Approved 2 ND Exception	Targets (Under Review)
Tentatively Selected Plan	22 Aug 22	30 Oct 23
Release Draft Project Implementation Report (PIR)	21 Sep 22	30 Dec 23
Agency Decision Milestone	24 Jan 23	29 Mar 24
Final PIR	18 Aug 23	30 Sep 24
Chief's Report	30 Nov 23	20 Dec 24

3x3x3 Exception Request for Additional Time/Budget Under Review





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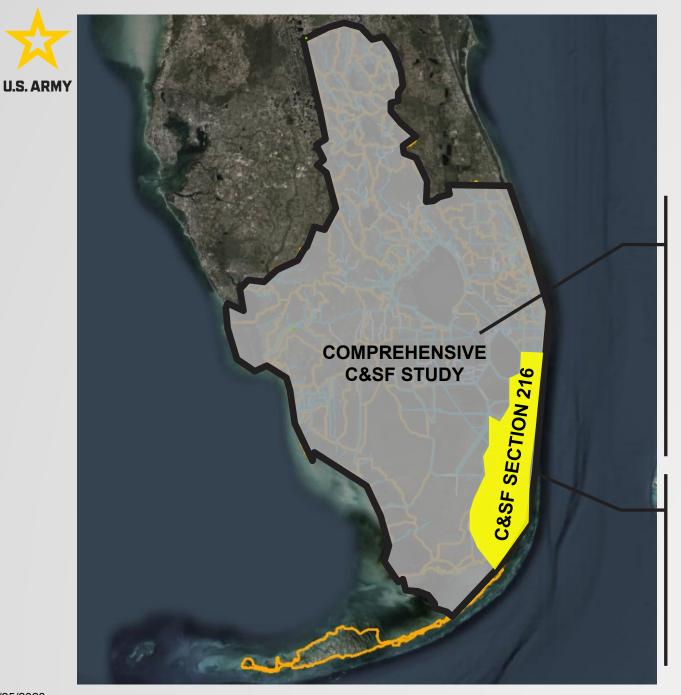


Study Objectives:

- Reduce flood risks and damages in Palm Beach, Broward, and Miami-Dade counties resulting from the combination of rainfall runoff, storm surge, high tide and/or high-water table to residences, businesses, and critical infrastructure.
- Reduce potential life safety risk in Palm Beach, Broward, and Miami-Dade counties due to flooding as a result of the combination of rainfall runoff, storm surge, high tides and/or water table.

Status:

- Four (4) planning focus areas were identified for the study:
 - Reach A: Broward and Hillsboro Basins
 - Reach B: Little River and Nearby Basins
 - Reach C: Miami River and Nearby Basins
 - Reach D: South Miami Basins
- Initial Array of Alternatives and Alternatives Milestone Meeting in March 2023.
- Updating Project Management Plan, scope, schedule, and funding.
- Ongoing engagement with stakeholders.





C&SF RESILIENCE PROGRAM PLANNING

WRDA22, Section 8214 Comprehensive C&SF Study

- Multipurpose project focus on short-term and long-term solutions for community resiliency
- Focus on: Flood Risk Management; Water Supply; Ecosystem Restoration; Saltwater Intrusion; Recreation
- 18 counties, inland and coastal areas
- ~9 million population
- ~18,000 square miles
- Multiple Federal projects including CERP

(Section 216)

- **C&SF Flood Resiliency Study**
- Focus on <u>coastal salinity structures for flood resilience</u>
- 4 Planning Reaches / 3 Counties
- Many municipalities
- > 5 million population
- > 1,100 square miles



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM DESIGN AND CONSTRUCTION

Today's Highlights:

U.S. ARM

- 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 AND CONSTRUCTION PICAYUNE STRAND RESTORATION PROJECT





Levee Construction – Southwest Protection Feature May 2023

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.

Under Construction:

- Miller Tram and Road Removal
- Southwest Conveyance Feature
- Southwest Protection Feature
- Miller Canal Clearing

SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | DESIGN AND CONSTRUCTION INDIAN RIVER LAGOON – SOUTH PROJECT





C-23/C-24 Stormwater Treatment Area Construction, April 2023

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 award of the first increment of C-23/24 North Reservoir FY24

Under Construction:

C-23/C-24 Stormwater Treatment Area

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





S-705 Construction Site

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.
- Anticipated Ribbon Cutting, S-709, Summer 2023.

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





Everglades Agricultural Area (EAA) Reservoir, Construction of Inflow-Outflow and Seepage Canals Underway, May 2023 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:

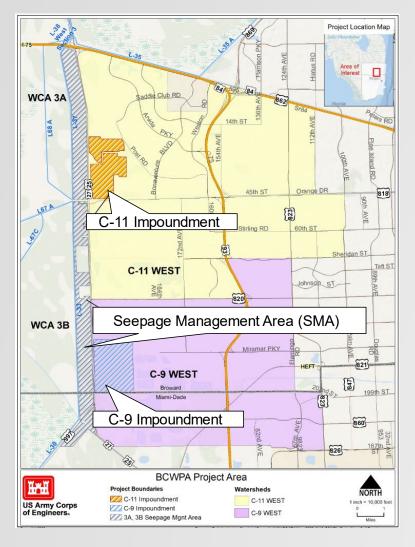
- CEPP South:
 - ► L-67A structures, *under construction*.
 - Pump Station S-356, final design ongoing, anticipated contract award FY24.
 - Gated Spillway S-355W, final design ongoing, anticipated contract award FY23.
- CEPP EAA:
 - ► Seepage and Inflow/Outflow Canal, *under construction*.
 - ► Reservoir Foundation and Cut-off Wall, *under construction*.
 - Reservoir Embankment, design ongoing, anticipated contract award FY24.

*

SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | DESIGN AND CONSTRUCTION BROWARD COUNTY WATER PRESERVE AREAS | C-11 IMPOUNDMENT



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Purpose:

- Reduce 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 award of first increment of construction of C-11 feature in FY24.



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM OPERATIONS

Today's Highlights:

U.S. ARM)

- Kissimmee River Restoration (KRR)
- Indian River Lagoon South (IRL-S)
- Lake Okeechobee System Operating Manual (LOSOM)
- Central Everglades Planning Project (CEPP) Operational Plan



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | OPERATIONS KISSIMMEE RIVER RESTORATION





Restored Kissimmee River



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.
- S-69 Weir repairs.
- Navigation signage starting.



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | OPERATIONS INDIAN RIVER LAGOON - SOUTH





C-44 Reservoir

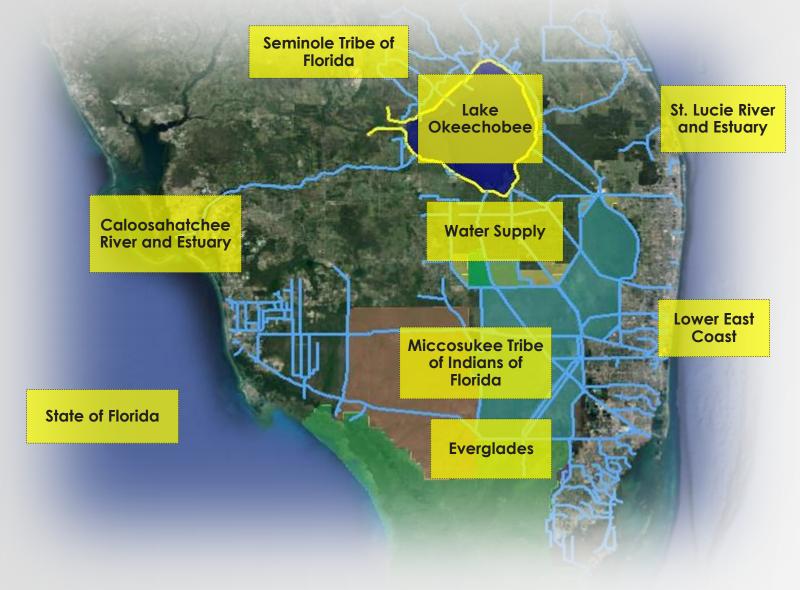
C-44 Reservoir Status

- Operational monitoring and testing period, extended.
- Up to 10-feet now, target is a 15-foot holding pool.
- Current operations in accordance with Preliminary Project Operating Manual.
- Addressing seepage in outside canal bank on southwest corner.
- Overall conditions remain normal with no dam safety concerns.



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | OPERATIONS LAKE OKEECHOBEE SYSTEM OPERATIONS MANUAL (LOSOM)

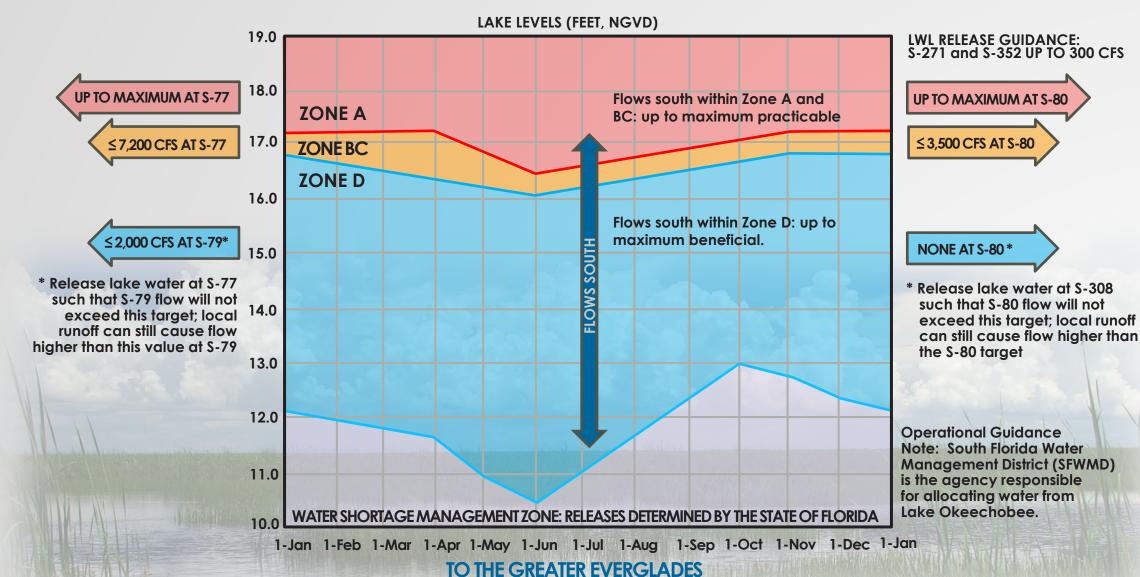




- Benefits-focused.
- System with holistic perspective.
- Will use real time knowledge of climate conditions, weather data, climate projections, and system needs to make educated decisions about how releases are made.
- Key seasonal assessment points to analyze the past, the present, and the anticipated/desired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

SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | OPERATIONS LOSOM REGULATION SCHEDULE





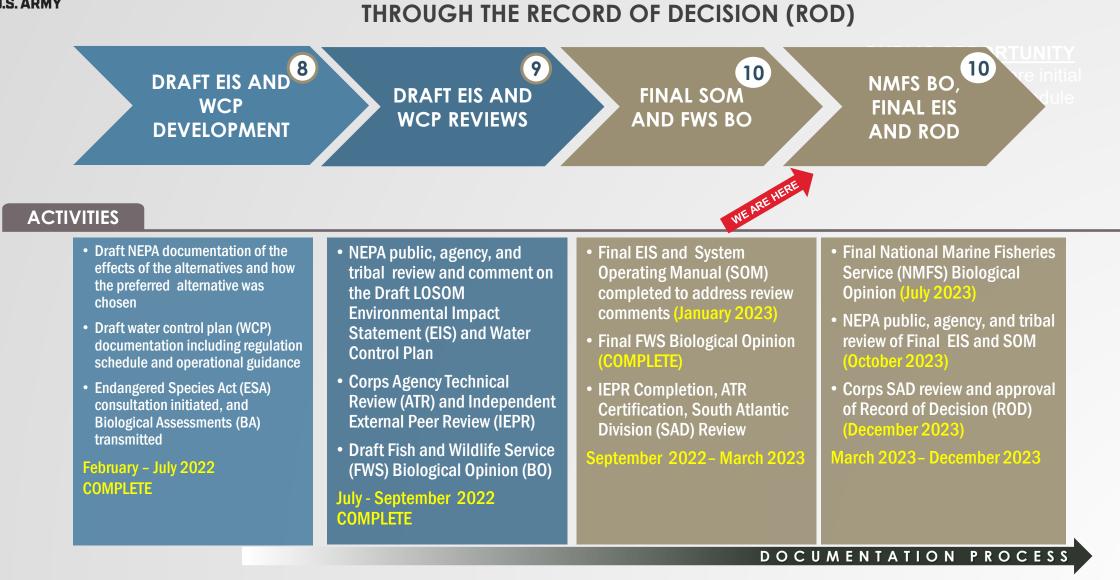
TO THE ST. LUCIE ESTUARY (SLE) AND LAKE WORTH LAGOON (LWL)



SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | OPERATIONS

LOSOM SCHEDULE OVERVIEW







SOUTH FLORIDA ECOSYSTEM RESTORATION PROGRAM | OPERATIONS CENTRAL EVERGLADES PLANNING PROJECT OPERATIONAL PLAN (INCREMENTAL)



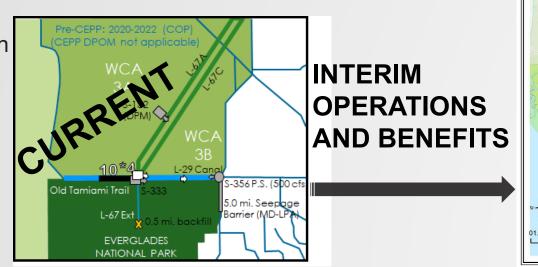
Project Purpose:

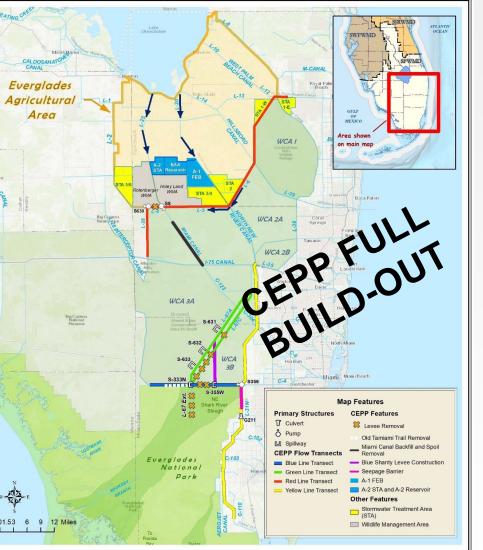
- The Central Everglades Planning Project (CEPP) Operations Plan aims to redistribute Water Conservation Area (WCA) 3A inflows to enhance flows into Everglades National Park (ENP).
- Incremental changes to the Combined Operations Plan (COP) to include Central Everglades Restoration Projects (CERP) and non-CERP implementation.

Status:

- Public scoping meetings held in April 2023. Scoping period concluded in mid May 2023.
- NEXT: Set up sub-

teams, plan formulation strategy with PDT







We're Hiring!

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JOIN THE JACKSONVILLE DISTRICT TEAM

SEEKING TO FILL MULTIPLE POSITIONS !

Biologists, Physical Scientists, Program Analysts, Engineers, Geologists, Hydrologists, Administrative and many more.

Submit Resumes To: HRJAX@USACE.ARMY.MIL

Scan the QR code for job information or visit https://www.saj.usace.army.mil/NowHiring/







SUPPORTING INFORMATION

