South Florida Ecosystem Restoration (SFER) Program Overview

JUNE 2018

RESTORING AMERICA'S EVERGLADES

HISTORY

1800s	Agricultural Development & Settlements
1850	Swamp Land Act
1926	Catastrophic Hurricane
1928	Catastrophic Hurricane
1930	Muck Fires
1947	Extensive Flooding
1948	Central & Southern Flood (C&SF) Project Authorized
1969	National Environmental Policy Act (NEPA)
1972	Clean Water Act (CWA)
1973	Endangered Species Act (ESA)
1986	Water Resource Development Act (WRDA)

EFFECTS

- Increase in population
- Increase in economic development
- Disruption in quantity, timing, and distribution of water
- Degradation of water quality
- Declining estuary health
- Oxidation of peat soils
- 90% decline in wading bird populations
- Impacts to 67 federally listed threatened and endangered species

LEGISLATIVE ACTION

1989	Modified Water Deliveries to ENP *First legislation targeting ecosystem restoration*
1992	Kissimmee River Restoration Project
1996	WRDA - Critical Projects Authorized C-111 South Dade Project Authorized
1999	Central & Southern Florida Comprehensive Review Study (Yellow Book)
2000	WRDA - Comprehensive Everglades Restoration Plan (CERP) Authorized
2007	WRDA - Generation 1 CERP Projects Authorized
2014	WRRDA - Generation 2 CERP Projects Authorized
2016	Water Infrastructure Improvements for the Nation (WIIN) Act - Central Everglades Planning Project (CEPP) Authorized

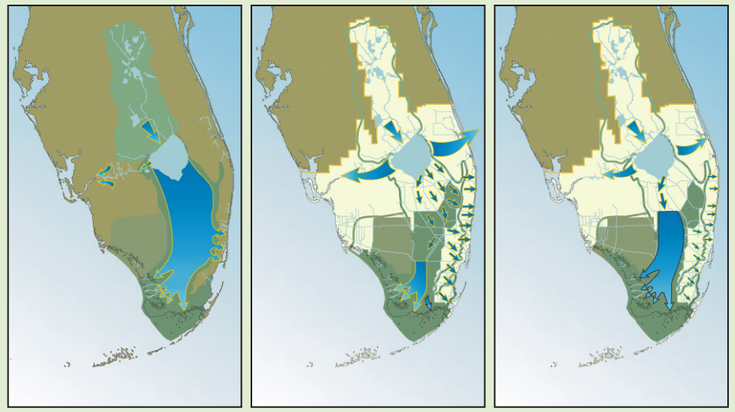
BACKGROUND

- As a result of the engineering performed as early as the 1880s to make south Florida more inhabitable, the natural flow of water to, and through, the Everglades was severely altered. The construction of roads, canals and levees created barriers that now interrupt the natural flow of water that's necessary for the Everglades to survive.
- Upon congressional authorization in 2000, the Federal Government and the State of Florida entered into a programmatic 50/50 partnership to restore, protect and preserve water resources in central and southern Florida, including the Everglades.
- The Comprehensive Everglades Restoration Plan (CERP) is the largest environmental restoration program in history.
- CERP is composed of a series of projects designed to address four major characteristics of water flow: quantity, quality, timing, and distribution.
- Ongoing CERP projects are broken down into Generation 1 and Generation 2 projects. These projects work in concert with the Foundation Projects, authorized prior to CERP.
- Together, these actions will not only provide significant lasting environmental benefits, but will also enhance water supplies and maintain flood mitigation for the region.
- Through congressional appropriations, the U.S. Army Corps of Engineers has invested $2.4 billion to date into the South Florida Ecosystem Restoration program, which includes Central and Southern Florida (C&SF) and CERP projects.
- This includes costs for planning, designing and constructing CERP and Foundation projects as part of the SFER Program, along with science and monitoring programs.

DESIRED OUTCOME

Ultimately, Everglades restoration will:

- Improve the health of over 2.4 million acres of the south Florida ecosystem, including Everglades National Park.
- Improve the health of Lake Okeechobee.
- Significantly reduce damaging freshwater releases to the estuaries.
- Improve water deliveries to Florida Bay and Biscayne Bay.
- Improve water quality.
- Enhance water supply and maintain flood mitigation.



CURRENT ENVIRONMENTAL CONDITIONS

Limited outlet capacity
Canals south of lake do not have as much capacity to move water like the St. Lucie Canal & Caloosahatchee River; limited capacity in state's stormwater treatment areas (STAs).

Declining estuary health
Estuaries receive too much or too little water, impacting salinity balance.

Soil oxidation, muck fires, loss of sawgrass ridges, tree islands & sloughs
Interior canals overdrain areas and interior levees hold water too deep for too long in southern Water Conservation Area-3A (WCA-3A).

Declining Everglades & Florida Bay habitat
Too little water sent to Everglades National Park and Florida Bay; too much water seeps out of Everglades.

SOLUTION

Everglades restoration will enable the right quantity of water, at the right quality, to be distributed to the right place, at the right time throughout south Florida.

This will be accomplished through the implementation of multiple projects that will work together to provide:

- Water Storage
- Water Treatment
- Water Conveyance
- Water Distribution

The Kissimmee River Restoration project will restore the channelized river back to its natural meandering flow pattern. This will provide natural floodplain storage and slow down the flow of water from the Kissimmee Basin into Lake Okeechobee, thereby slowing down the rise in the lake that often results in high-volume discharges to the Caloosahatchee and St. Lucie estuaries.

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Foundation Projects	QQTD	Federal Investment through FY2017	Construction Completion	Benefits To Date	Total Benefits
1 - Seminole Big Cypress	Quantity	$30 million	FY 2017	• Approximately 1,500 acres of wetlands restored in Basins 1, 2, and 4. • East conveyance system completed.	**Storage** *47,000 acre-feet of storage provides water to Big Cypress Basin Reservation to rehydrate wetlands, improve water quality, and provide stormwater protection for agriculture.*
2 - C-51/Stormwater Treatment Area (STA)-1E	Quantity Quality	$338.9 million	FY 2017	• 6,000 acres of storage and treatment.	**Storage & Treatment** *6,000 acres of storage detains and treats stormwater runoff from the C-51 canal. Treated water discharges into Water Conservation Area (WCA) -1.*
3 - Modified Water Deliveries (Everglades National Park)	Quantity Distribution	$398.5 million	FY 2018	• Increment 1 of G-3273 and S-356 Pump Station Field Test began 15 October 2015. • Gage-3273 Relaxation and S-356 Pump Station under Increment 1 and Increment 1.1 operations have produced a small increase in the net flow of water into Northeast Shark River Slough.	**Storage, Conveyance, and Seepage Management** *Improve natural water flow to Everglades National Park (ENP), provide flood mitigation for residential areas, reconnect freshwater flows, reduce seepage losses out of ENP, and develop an integrated water control plan to refine operations.*
4 - Kissimmee River Restoration	Timing Distribution	$347.2 million	FY 2020	• Continuous flow restored to 22 miles of the Kissimmee River. • The area of wetland vegetation in the Phase I area has surpassed the predicted 80% of floodplain area (up from 37% prior to restoration). • Aquatic wading bird population in restored river and floodplain region is more than five times greater than before restoration.	**Conveyance** *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 & Caloosahatchee estuaries. Return flow to 44 miles of historic river channel. Restore 25,000 acres of wetland.*
5 - C-111 South Dade	Quantity	$153.9 million	FY 2018	• C-111 South Dade combined with Interim Operations Plan operations moved 70% of flow at S-176 into South Dade detention areas. • Hydroperiods in ENP are on average 60 days longer near detention areas.	**Storage and Seepage Management** *9,500 acre-feet of storage will reduce damaging canal discharges to Barnes Sound, reduce seepage losses from ENP, and maintain flood protection for commercial, residential, and agricultural properties located east of the project.*
Generation 1 Projects	**QQTD**	**Federal Investment through FY2017**	**Construction Completion**	**Benefits To Date**	**Total Benefits**
6 - Melaleuca Eradication	Invasive Species Control	$4.4 million	Complete	• As of March 2018, more than 5 million biocontrol agents have been released: 0.3 million air potato beetles, 1.99 million water hyacinth plant hoppers, 1.88 million Lygodium moths, and 0.87 million Lygodium mites. All agents are proving effective.	**Invasive Species Control** *Facility constructed to rear insects that will serve as a biocontrol agent for invasive plants. The introduction of biocontrol agents to the mix of traditional methodologies (i.e., chemical herbicides and physical removal) is proving successful.*
7 - Site 1 Impoundment	Distribution	$75 million	FY 2016 (Phase 1)	• L-40 Levee Rehabilitation (Phase 1) provided approximately 16% reduction in seepage loss.	**Seepage Management** **Phase 2 -** *1,660 acres of storage will provide groundwater recharge and reduce seepage losses from WCA-1, enabling additional water to remain in the natural system.*
8 - Picayune Strand Restoration	Timing Distribution	$330.8 million	FY 2023	• Approximately 20,000 acres restored with Merritt Canal project phase. • Approximately 600 acres restored with Faka Union Canal project phase. • Manatee Refugia feature will provide manatees a connection to the warm groundwater in the winter months.	**Conveyance** *Restore more than 55,000 acres of natural habitat and the region's historic sheetflow, while maintaining flood protection for neighboring communities.*
9 - Indian River Lagoon-South C-44 Reservoir & STA	Quantity Quality	$226.9 million	FY 2020	• Intake canal completed to provide the water supply source for the reservoir.	**Storage & Treatment** *60,500 acre-feet of new water storage to capture, store, and treat local basin runoff prior to it flowing into the St. Lucie Estuary; 3,600 acres of new wetlands.*
Generation 2 Projects	**QQTD**	**Federal Investment through FY2017**	**Construction Completion**	**Benefits To Date**	**Total Benefits**
10 - C-111 Spreader Canal Western Project	Timing Distribution	$12.7 million	Complete	• State of Florida completed most project features to adjust water flow into Frog Pond Detention Areas containing 590 acres of storage. • Early results indicate flow has increased by 25% into Taylor Slough.	**Conveyance & Storage** *590 acres of storage will reduce seepage losses from ENP, provide increased flows to Florida Bay, and restore near-shore habitat conditions for colonies of wading birds.*
11 - Biscayne Bay Coastal Wetlands - Phase One	Timing Distribution	$15.3 million	FY 2022	• State of Florida completed Deering Estate and portions of the L-31 East culverts that distribute freshwater flow to coastal wetlands. • Sawgrass has expanded eastward toward the bay near L-31 culverts, which indicates more consistent freshwater flows.	**Conveyance & Distribution** *Rehydrate coastal wetlands, reduce point-source discharges, and redistribute surface water to improve the ecology of Biscayne Bay.*
12 - C-43 Western Basin Storage Reservoir	Quantity Timing Distribution	$9.2 million	FY 2022	• Design and construction by SFWMD on Phase 1 began in 2015. • Site has been used to test reservoir designs and store 14,000 acre-feet of water that would have entered the Caloosahatchee River Estuary.	**Storage** *170,000 acre-feet of storage will capture and store basin stormwater runoff, along with a portion of water discharged from Lake Okeechobee, and release water into the Caloosahatchee River and Estuary, as needed.*
13 - Broward County Water Preserve Areas	Quantity	$22.6 million	Beyond FY 2023	• C-11 Impoundment design has begun, with scheduled completion in 2021.	**Storage & Seepage Management** *10,800 acre-feet of storage will reduce seepage losses from WCA- 3 and capture stormwater that would be lost to tide and redistribute it for urban and natural system water deliveries.*
Planning Studies	**QQTD**	**Federal Investment through FY2017**	**Construction Completion**	**Benefits To Date**	**Total Benefits**
14 - Central Everglades Planning Project	Quantity Quality Timing Distribution	$9.8 million	TBD	• Project authorized in WIIN 2016. • Validation Report on southern components initiated in October 2017.	**Storage, Treatment, Conveyance & Seepage Management** *Convey 200,000 acre-feet of water south from Lake Okeechobee using new infrastructure & state water treatment facilities.*
15 - Loxahatchee River Watershed Restoration	Distribution	$8.3 million	TBD	• Planning efforts have resulted in tools and assessments to help focus the new SMART planning effort to be implemented in 2016-2019.	**Conveyance** *Improve water deliveries to National Wild and Scenic Northwest Fork of Loxahatchee River, restoring and reconnect hydrology in 8 major natural areas covering 146,000 acres.*
16 - Lake Okeechobee Watershed	Quantity Timing Distribution	$1.8 million	TBD	• Study initated in summer 2016.	**Storage, Conveyance & Distribution** *Improve conditions north of Lake Okeechobee and enhance system-wide operational flexibility.*
17 - Western Everglades Restoration	Quantity Quality Timing Distribution	$1.2 million	TBD	• Study initated in summer 2016.	**Storage, Treatment, Conveyance & Distribution** *Restore the quantity, quality, timing, and distribution of water within the western Everglades.*

PATH FORWARD

Restoration progress is contingent on maintaining momentum and continuing to work alongside partnering agencies and stakeholders to align project priorities and move restoration efforts forward. There are many ongoing efforts, including:

- **Completing construction on Foundation & Generation 1 projects:** Construction of Foundation and Generation 1 projects are nearing completion.
- **Making construction progress on Generation 2 projects**: Following execution of partnership agreements in 2016, construction is ongoing for 3 Generation 2 projects. The fourth (C-111 Spreader Canal) was constructed by the State of Florida.
- **Synchronizing priorities:** The IDS provides the sequencing strategy for planning, designing, and constructing federal projects cost-shared with local sponsors as part of the South Florida Ecosystem Restoration Program, based on ecosystem needs, benefits, costs, and available funding.
- **Refining operations to achieve operational & ecological benefits:** Increment 1 of the G-3273 & S-356 Pump Station Field Test began 15 October 2015; Increment 1 Plus began in spring 2017. Increment 2 is under development and was implemented 1 March 2018. Increment 3, the Combined Operational Plan, is also under development and will be implemented 31 December 2019. The results of this field test will be used to develop a comprehensive, integrated water control plan for the operations of infrastructure associated with the Modified Water Deliveries to Everglades National Park and C-111 South Dade projects, while balancing the ecological restoration objectives for these projects.