South Florida Ecosystem Restoration (SFER) Program Overview

RESTORING AMERICA'S EVERGLADES

MAY 2016

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 & distribution of water
- Degradation of water quality
- Declining esturay health
- Oxidation of peat soils
- 90% decline in wading bird populations
- Impacts to 67-federally listed threatened & 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

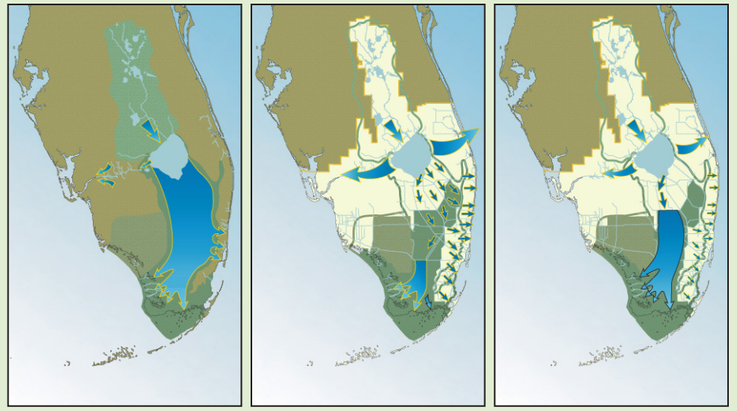
BACKGROUND

- 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 protection for the region.
- Since inception of the Central & Southern Florida (C&SF) project, the U.S. Army Corps of Engineers has invested $2.3 billion to date into ecosystem restoration in south Florida through Congressional appropriations.
- 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 and Biscayne bays
- Improve water quality
- Enhance water supply and maintain flood protection



CURRENT ENVIRONMENTAL CONDITIONS

Limited outlet capacity
Canals south of Lake Okecchobee 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 & 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 the 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
- Treatment
- Conveyance; and
- 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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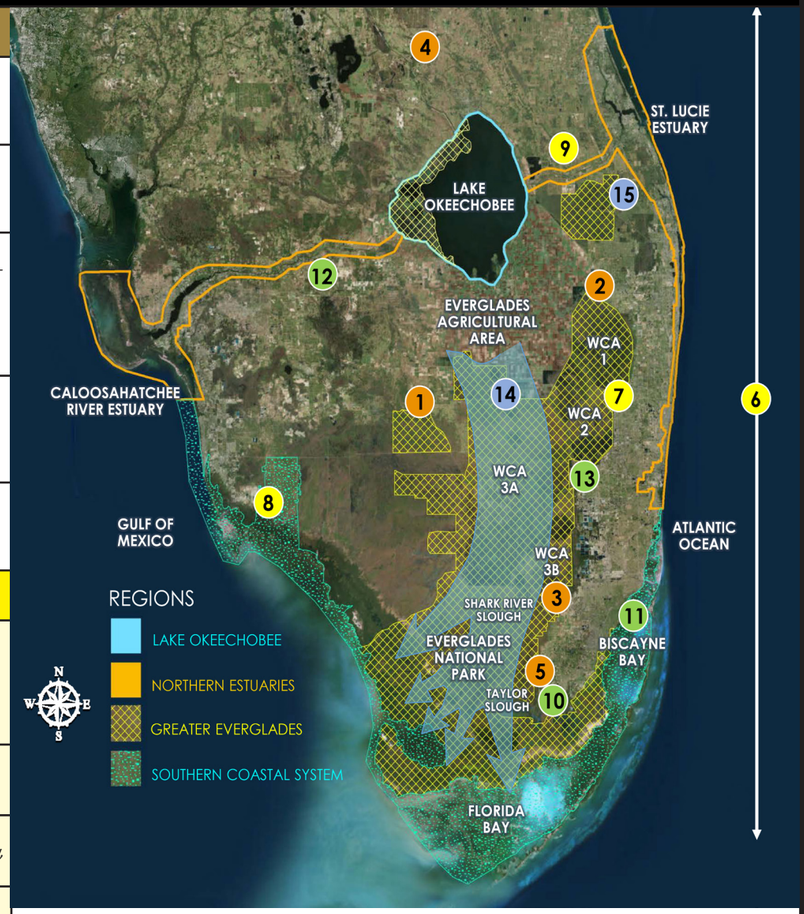
Foundation Projects	QQTD	Federal Investment through FY2015	Construction Completion	Benefits To Date	Total Benefits
1 - Seminole Big Cypress	Quantity	$29.5 million	FY 2016	• Approx. 1,500 acres of wetlands restored in Basins 1, 2 & 4. • East conveyance system completed.	**Storage** *47,000 acre-feet of storage that provides water to Big Cypress Basin Reservation to rehydrate wetlands, improve water quality & provide stormwater protection for agriculture.*
2 - C-51/Stormwater Treatment Area (STA)-1E	Quantity Quality	$336.1 million	FY 2018	• 6,000 acres of storage & treatment. • Ongoing repair/renovation of structures to ensure continued attainment of benefits.	**Storage & Treatment** *6,000 acres of storage that detains & treats stromwater runoff from the C-51 Canal. The treated water is discharged into Water Conservation Area (WCA) -1, also known as the Arthur R. Marshall Loxahatchee National Wildlife Refuge.*
3 - Modified Water Deliveries (Everglades National Park)	Quantity Distribution	$398.5 million	FY 2018	• Increment 1 of G-3273 & S-356 Pump Station Field Test began October 15, 2015. • Increment 1 relaxes constraints on gage G-3273 & tests seepage control pump S-356 while maintaining the L-29 Canal at 7.5 feet. • These two operations produce a small increase in the net flow of water into Northeast Shark River Slough. Extensive data is being collected to use in designing Increments 2 & 3 to maximize ecological restoration objectives. Benefits will be calculated based upon data collection during Increment 1.	**Storage,Conveyance & Seepage Management** *Improve natural water flows to Everglades National Park (ENP), provide flood mitigation for residential areas, re-connect freshwater flows & reduce seepage losses out of ENP & develop an integrated water control plan to refine operations using new infrastructure that will come online.*
4 - Kissimmee River Restoration	Timing Distribution	$315.7 million	FY 2019	• Continuous flow restored to 28 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). • The aquatic wading bird population in the 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 & reduce the impacts of high-volume discharges into the St. Lucie & Caloosahatchee estuaries.*
5 - C-111 South Dade	Quantity	$123.5 million	FY 2019	• 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 & Seepage Management** *9,500 acre-feet of storage that will reduce damaging canal discharges to Barnes Sound, reduce seepage losses from ENP & maintain flood protection for commercial, residential & agricultural properties located east of the project.*
Generation 1 Projects	**QQTD**	**Federal Investment through FY2015**	**Construction Completion**	**Benefits To Date**	**Total Benefits**
6 - Melaleuca Eradication	Invasive Species Control	$4.4 million	Complete	• During 2015, over 227,000 mites were released at 6 sites to target Lygodium, the most invasive vine in the Everglades; • Over 349,000 moths were released at 15 sites to target Lygodium; • Over 392,000 planthoppers were cultured and released at 24 locations across 10 counties to target water hyacinth; and • Over 43,000 adult beetles were released to control air potato.	**Invasive Species Control** *Facility constructed to rear insects that will serve as a biocontrol agent for invasive plants.*
7 - Site 1 Impoundment - Phase One	Distribution	$74.6 million	FY 2016	• L-40 Levee Rehabilitation (Phase 1) provided approx. 16% reduction in seepage loss.	**Seepage Management** *Will reduce seepage losses from WCA-1, enabling additional water to remain in the natural system.*
8 - Picayune Strand Restoration	Timing Distribution	$322 million	FY 2020	• Approx. 20,000 acres restored with Merritt Canal project phase • Approx. 600 acres restored with Faka Union Canal project phase.	**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 Timing Distribution	$119.8 million	FY 2021	• 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 & treat local basin runoff prior to it flowing into the St. Lucie Estuary.*
Generation 2 Projects	**QQTD**	**Federal Investment through FY2015**	**Construction Completion**	**Benefits To Date**	**Total Benefits**
10 - C-111 Spreader Canal Western Project	Timing Distribution	$12.6 million	FY 2016	• State 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 that will reduce seepage losses from ENP, provide increased flows to Florida Bay & restore near-shore habitat conditions for colonies of wading birds.*
11 - Biscayne Bay Coastal Wetlands - Phase One	Timing Distribution	$12.4 million	FY 2020	• State completed Deering Estate and portions of the L-31 East culverts that distribute freshwater flow to coastal wetlands. • Sawgrass has expanded eastward towards the bay near L-31 East culverts, which indicates more consistent freshwater flows.	**Conveyance & Distribution** *Rehydrate coastal wetlands, reduce point source discharges & redistribute surface water to improve the ecology of Biscayne Bay.*
12 - C-43 Western Basin Storage Reservoir	Quantity Timing Distribution	$8.4 million	Beyond 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 that will capture & 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	$14.7 million	Beyond FY 2022	• C-11 Impoundment design has begun with scheduled completion in 2021.	**Storage & Seepage Management** *10,800 acre-feet of storage that will reduce seepage losses from WCA- 3 & capture stormwater that would be lost to tide and redistribute for urban & natural system water deliveries.*
Planning Studies	**QQTD**	**Federal Investment through FY2015**	**Construction Completion**	**Benefits To Date**	**Total Benefits**
14 - Central Everglades Planning Project	Quantity Quality Timing Distribution	$9.8 million	TBD	• Record of Decision signed August 31, 2015. • Report transmitted to Congress for authorization and appropriations.	**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	Quantity Timing Distribution	$6.5 million	TBD	• Planning efforts have resulted in tools & assessments to help focus the new SMART planning effort to be implemented in 2016-2018.	**Conveyance** *Improve water deliveries to National Wild & Scenic Northwest Fork of Loxahatchee River; restore & reconnect hydrology in 8 major natural areas covering 146,000 acres.*



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 continues on Foundation & Generation 1 projects.
- **Breaking ground on Generation 2 projects**: While getting WRRDA authorization for the Generation 2 projects was the necessary first step, appropriations are needed to finalize Project Partnership Agreements (PPAs) prior to being able to receive construction appropriations for these projects.
- **Synchronizing priorities:** A formal re-evaluation of the Integrated Delivery Schedule (IDS) was completed in 2015. The IDS provides the sequencing strategy for planning, designing & 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:** The first increment of a water operations field test, the G-3273 & S-356 Pump Station Field Test, began October 15, 2015. The results 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 (ENP) and C-111 South Dade projects, while balancing the ecological restoration objectives for these projects.