LAKE OKEECHOBEE WATERSHED PROJECT

Lake Okeechobee Watershed Project Overview

Workshop
August 31, 2016

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U.S.ARMY

US Army Corps of Engineers
BUILDING STRONG®

CERP SYSTEM WIDE PERSPECTIVE

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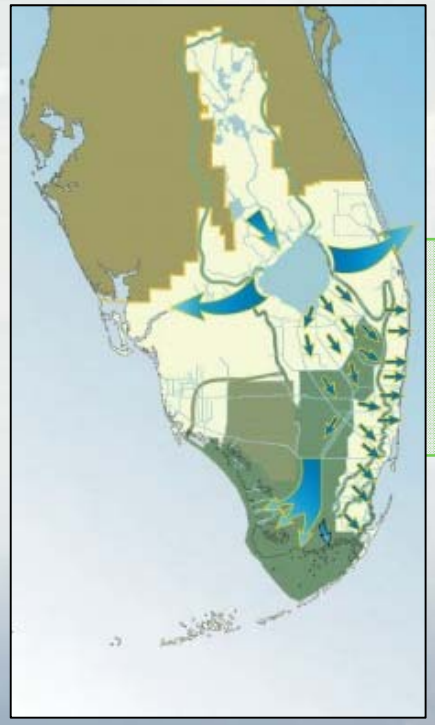
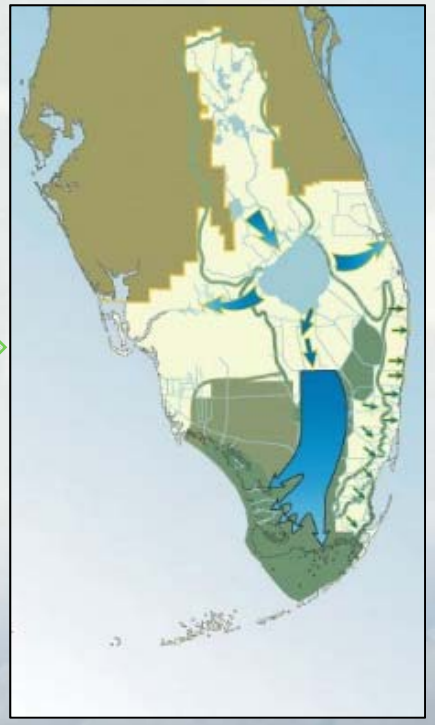
PAST FLOW

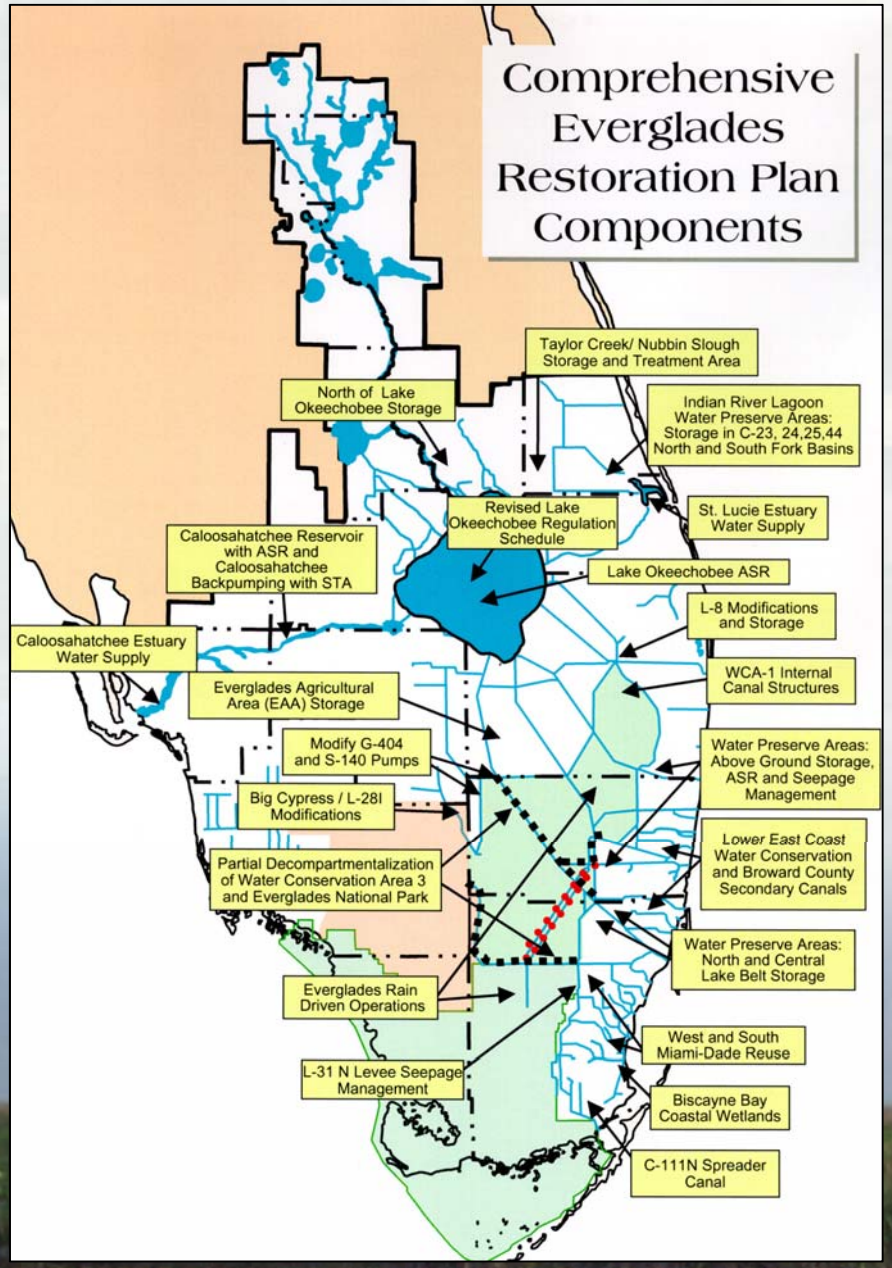


CURRENT FLOW

CERP



FUTURE FLOW



CERP Components

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- Includes 68 components to be implemented over 30+ years
  - Including water storage, ecosystem restoration, operational changes
- Pre-CERP Foundation Projects
  - Kissimmee River Restoration
  - Modified Water Deliveries
  - C-111 South Dade

Lake Okeechobee Watershed Project
CERP Components

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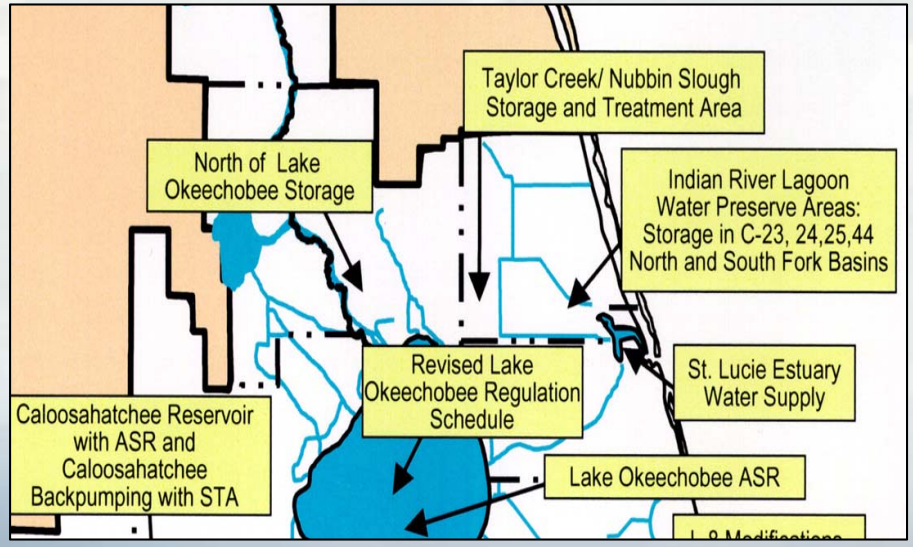

CERP Components in the LOW Project

- North of Lake Okeechobee Storage Area
- Taylor Creek/Nubbin Slough Storage and Treatment Area
- LOW Water Quality Treatment Facilities
- Lake Istokpoga Regulation Schedule
- Lake Okeechobee Tributary Sediment Dredging
- Lake Okeechobee Aquifer Storage and Recovery

LOW Estimated Benefits in CERP:

- Estimated Storage: 250,000 ac-ft
- Estimated Wetland Restoration: 3500-ac
- Estimated P-Load Reduction: 68 mtons/yr

BACKGROUND
Previous Tentatively Selected Plan

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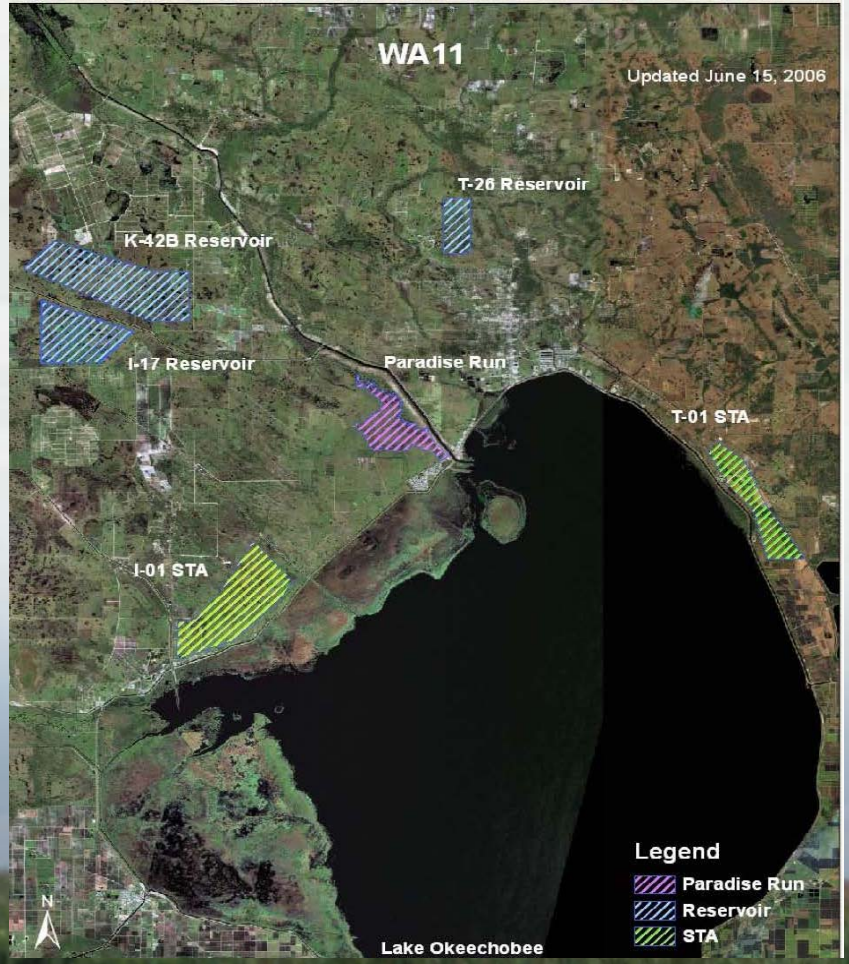

- Reservoirs
- Stormwater Treatment Areas
- Istokpoga Regulation Schedule
- Paradise Run Wetland Restoration
- Recreation Features

PROJECT PURPOSE

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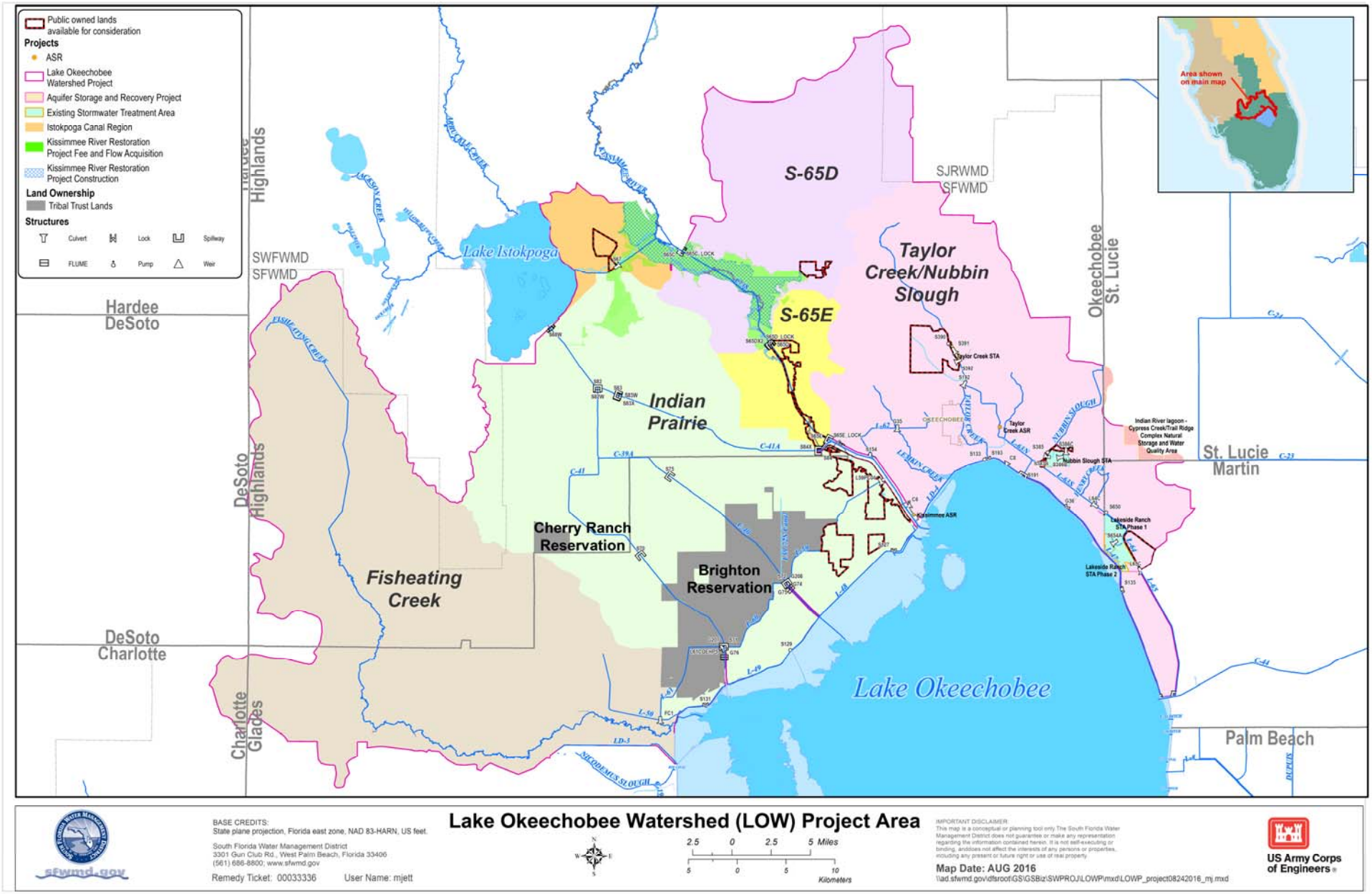
- To improve the quantity and timing of water entering Lake Okeechobee and the northern estuaries;
- To improve regional water management operational flexibility in context of the overall Everglades ecosystem restoration; and
- To restore wetland habitat within the project area and Lake Okeechobee.


Public owned lands available for consideration
Projects
ASR
Lake Okeechobee Watershed Project
Aquifer Storage and Recovery Project
Existing Stormwater Treatment Area
Istokpoga Canal Region
Kissimmee River Restoration Project Fee and Flow Acquisition
Kissimmee River Restoration Project Construction
Land Ownership
Tribal Trust Lands
Structures
Culvert
Lock
Spillway
FLUME
Pump
Weir
Area shown on main map
Lake Istokpoga
S-65D
S-65E
Taylor Creek/Nubbin Slough
Indian Prairie
Cherry Ranch Reservation
Brighton Reservation
Fisheating Creek
Lake Okeechobee
Taylor Creek STA
Nubbin Slough STA
Taylor Creek ASR
Kissimmee ASR
Lakeside Ranch STA Phase 1
Lakeside Ranch STA Phase 2
Indian River lagoon - Cypress Creek/Trail Ridge Complex Natural Storage and Water Quality Area
Highlands
SWFWMD
SFWMD
SJRWMD
SFWMD
Okeechobee
St. Lucie
Hardee
DeSoto
DeSoto
Highlands
St. Lucie
Martin
DeSoto
Charlotte
Charlotte
Glades
Palm Beach
BASE CREDITS:
State plane projection, Florida east zone, NAD 83-HARN, US feet.
South Florida Water Management District
3301 Gun Club Rd., West Palm Beach, Florida 33406
(561) 686-8800; www.sfwmd.gov
Remedy Ticket: 00033336
User Name: mjett
Lake Okeechobee Watershed (LOW) Project Area
2.5 0 2.5 5 Miles
5 0 5 10 Kilometers
IMPORTANT DISCLAIMER:
This map is a conceptual or planning tool only. The South Florida Water Management District does not guarantee or make any representation regarding the information contained herein. It is not self-executing or binding, and does not affect the interests of any persons or properties, including any present or future right or use of real property.
Map Date: AUG 2016
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sfwmd.gov
US Army Corps of Engineers

PROBLEM STATEMENTS

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Lake Okeechobee and Northern Estuaries

- Decreased aquatic and wildlife habitat within Lake Okeechobee due to extreme high and low water levels
- Changes in quantity, quality, timing and distribution of freshwater flows to estuaries lead to abnormal salinity fluctuations
  - Decline or stress to SAVs caused by salinity fluctuations, turbidity, sedimentation, nutrient enrichment, and algal blooms
  - Lowered distribution of oysters in estuaries due to freshwater pulses affecting salinity conditions
  - Negative impacts to location, abundance, and species richness of fisheries in the estuary.
  - Both Northern Estuaries can suffer from insufficient dry season flows, but chronic issue in the Caloosahatchee Estuary

PROBLEM STATEMENTS

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Watershed

- Substantial reduction in the spatial extent and functionality of wetlands
  - Conversion of natural areas for urban and agricultural land uses ha caused shifts in vegetative communities
  - Loss of natural storage and nutrient filtration capabilities
  - Degraded water quality
  - Shift in hydrology- fragmented, over-inundated and over-drained marshes
- Degraded habitat for fish and wildlife throughout the study area- smaller and less diverse wildlife populations

OPPORTUNITIES

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- Increase system-wide water management operational flexibility
- Reduce high volume discharges from Lake Okeechobee to improve the salinity regime and quality of oyster and SAV habitat in the northern estuaries
- Reconnect and restore functionality of fragmented wetlands
  - Improve natural storage and filtration capabilities
  - Improve wildlife habitat
- Improve water supply and flood control benefits (ancillary)
- Improve water quality (ancillary)
- Increase/improve recreational opportunities within the watershed (ancillary)
- Coordinate with ongoing restoration activities in watershed

PROJECT OBJECTIVES

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1. Improve quantity and timing of discharges from Lake Okeechobee to benefit the salinity regime and the quality of oyster and SAV habitat in the northern estuaries

2. Increase aquatic and wildlife habitat within Lake Okeechobee (attenuate extreme high and low water levels)

3. Increase the spatial extent and functionality of wetland habitat in the watershed

CONSTRAINTS

- **Comply with all Federal, state and local laws, regulations and policies.**
  - **Maintain levels of service for flood protection to agricultural and urban lands (Savings Clause [Section 601 (h)(5)(B) of WRDA 2000]).**
  - **Maintain levels of water supply service for legal users (Savings Clause [Section 601 (h)(5)(A) of WRDA 2000]).**
- **Maintain navigability to the lake and within the watershed**
- **Operating within the existing flexibility of Lake Okeechobee Regulation Schedule (LORS)**

Focus Areas

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1. Water Storage

- Increase aquatic and wildlife habitat
- Increase storage and Lake Okeechobee operational flexibility

2. Wetland Restoration

- Increase the spatial extent of aquatic and wildlife habitat
- Improve natural storage and filtration capabilities

MANAGEMENT MEASURES

Above Ground Reservoirs

- Total storage capacity ~250,000 ac-ft in Yellow Book

Aquifer Recharge Storage and Recovery (ASR)

- Involves injection of water into an aquifer for later recovery and use

Wetland/Floodplain Restoration

- 3,500 acres of wetland restoration identified in Yellow Book

RESERVOIR OVERVIEW

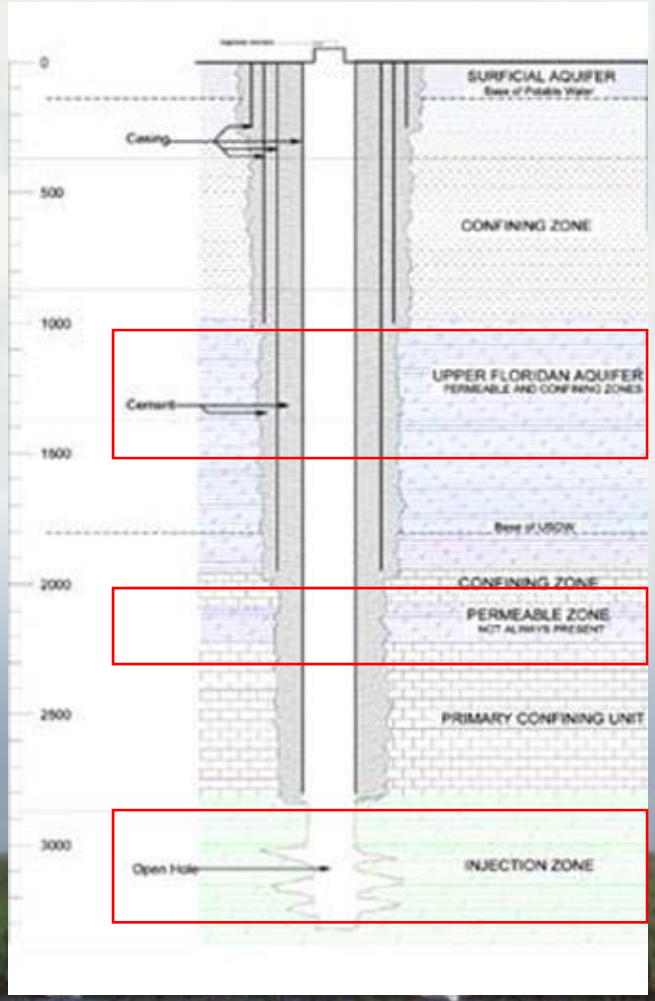
Above Ground Reservoirs

- Total storage capacity ~250,000 ac-ft in Yellow Book
- Intermediate to Deep

Considerations

- Water availability
- Operational flexibility
- SFWMD land ownership
- Rough costs

Aquifer Storage and Recovery (ASR) Overview



- Upper Floridan; Middle Floridan; Boulder Zone ASR
- 80 ASR wells (640cfs) (1,200ac-ft/day) associated with LOW within SFWMD right-of way
- ~150,000 ac-ft of storage during 4 months of a wet season

Aquifer Storage and Recovery (ASR) Overview

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Wetland Restoration Overview

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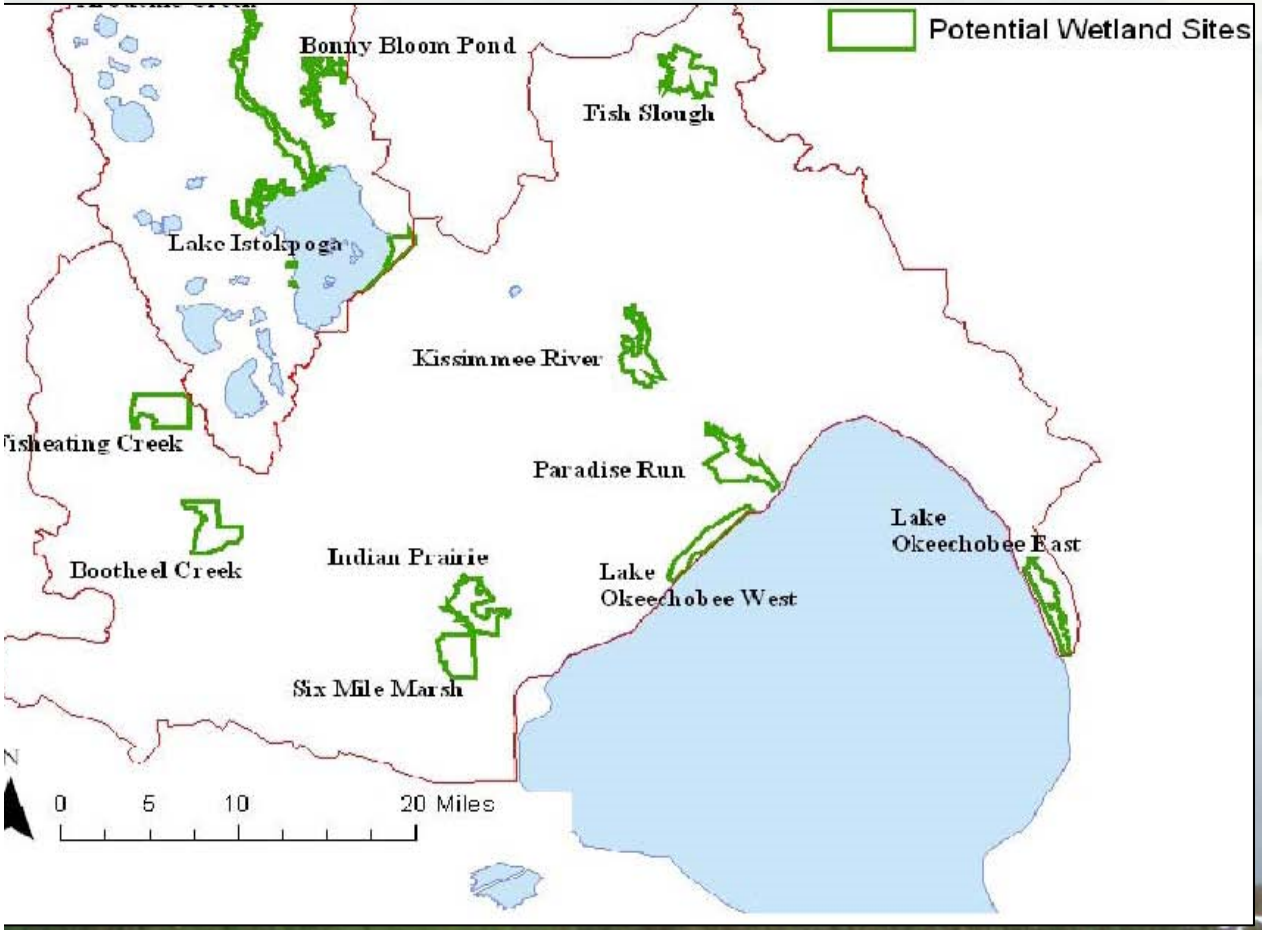

Wetland Considerations

- Soils
- Wading bird support
- Connectivity to natural lands
- Surface water connection
- Restoration potential
- Public access.
- Cultural resources
- Environmental justice

IN-LAKE WETLANDS

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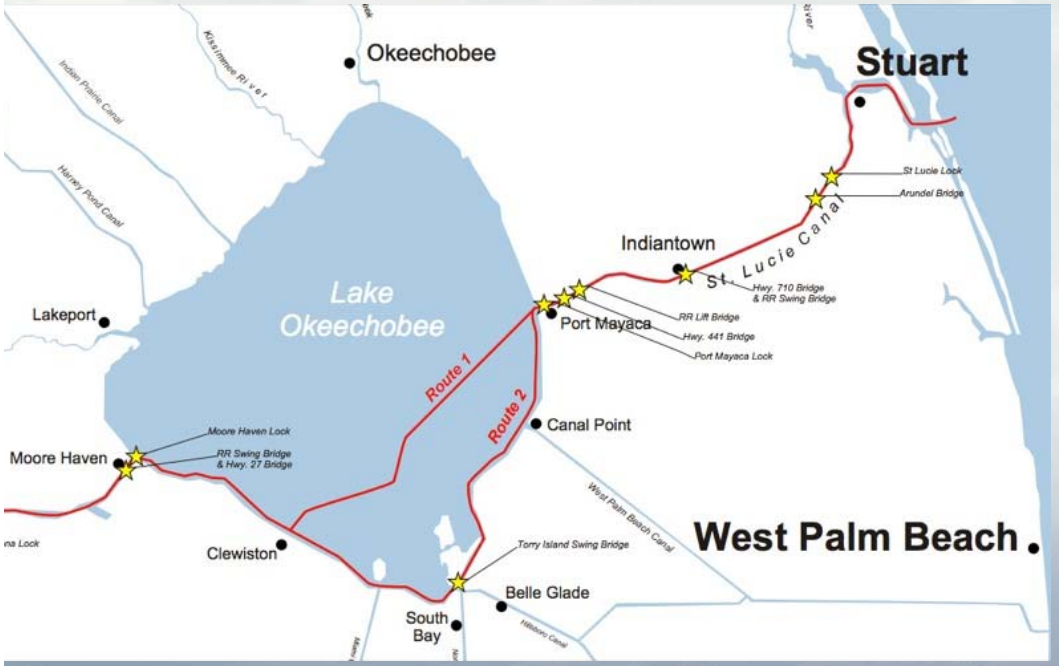

Littoral zone restoration opportunities

- Glades County (Moore Haven Canal Improvement Project)
- Eastern side of Lake Okeechobee
  - Beneficial use of dredged material from dredging of Okeechobee Waterway

LAKE OKEECHOBEE WATERSHED RESTORATION
FEASIBILITY STUDY SCHEDULE (UP TO 36 MONTHS)

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SCOPING (1) → **ALTERNATIVE FORMULATION & ANALYSIS** (2) → **FEASIBILITY-LEVEL ANALYSIS** (3, 4) → **CHIEF'S REPORT** (5)

ALTERNATIVES MILESTONE
Vertical Team concurrence on Array of Alternatives
October 18, 2016

TENTATIVELY SELECTED PLAN (TSP) MILESTONE
Vertical Team concurrence on TSP

AGENCY DECISION MILESTONE
Agency Endorses Recommended Plan

CIVIL WORKS REVIEW BOARD
Release for State & agency Review

CHIEF'S REPORT

WITHIN 90 DAYS

PROBLEMS & OPPORTUNITIES	EXISTING CONDITIONS	FUTURE WITHOUT-PROJECT CONDITIONS	OBJECTIVES & CONSTRAINTS	INITIAL ARRAY OF ALTERNATIVES