

# USACE Programs and Projects Update

## Ecosystem Restoration, Herbert Hoover Dike, Operations

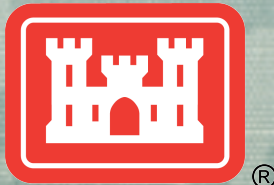
**Lt. Col. Thomas Greco**

Deputy District Commander, South  
Florida

Jacksonville District

U.S. Army Corps of Engineers

March 26, 2014



US Army Corps of Engineers  
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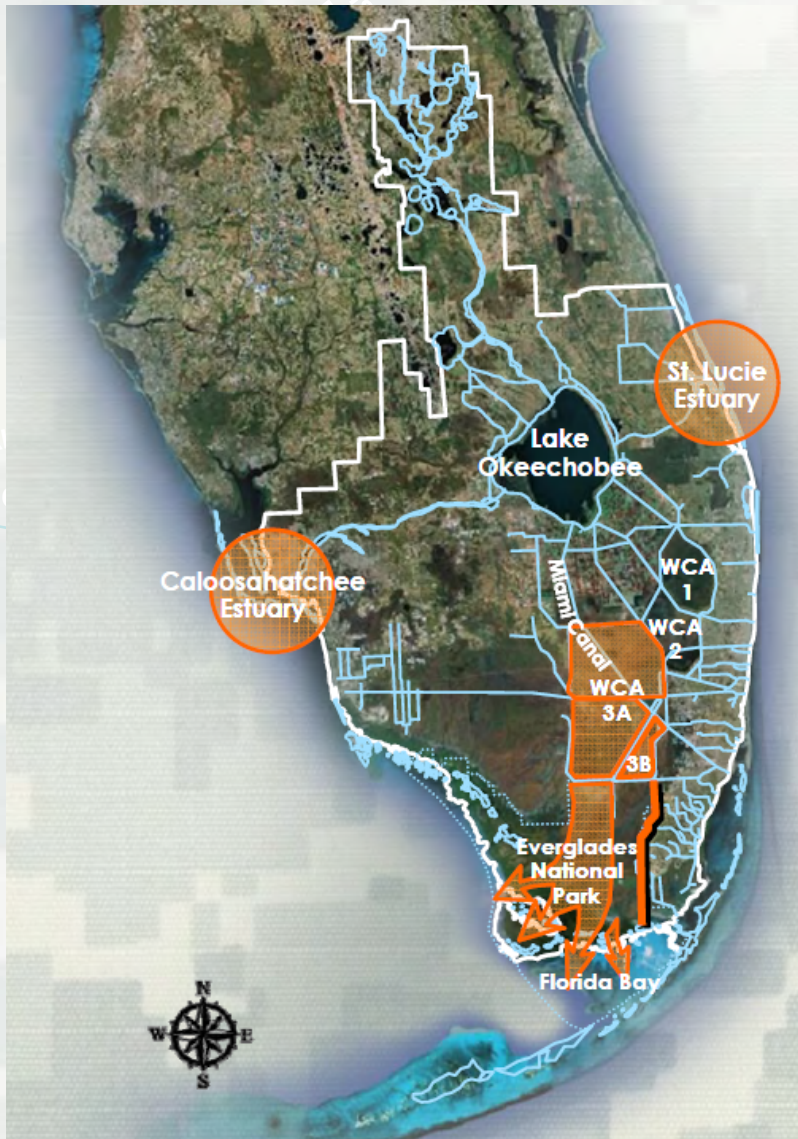


# Presentation Overview

- Programs & Projects
  - ▶ Ecosystem Restoration
  - ▶ Herbert Hoover Dike
  - ▶ Operations
- Upcoming Milestones & Events



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**DECLINING ESTUARY HEALTH**  
TOO MUCH WATER



**SOIL OXIDATION, MUCK FIRES, LOSS OF SAWGRASS RIDGES, TREE ISLANDS & SLOUGHS**  
INTERIOR CANALS OVERDRAIN AREAS



**LOSS OF TREE ISLANDS & SAWGRASS RIDGES**  
INTERIOR LEVEES POND WATER TOO DEEP FOR TOO LONG



**SUBSIDENCE**  
DISCONNECTED FROM WATER FLOW



**DECLINING EVERGLADES AND FLORIDA BAY HABITAT**  
TOO LITTLE WATER SENT TO EVERGLADES NATIONAL PARK AND FLORIDA BAY; TOO MUCH WATER SEEPS OUT OF EVERGLADES

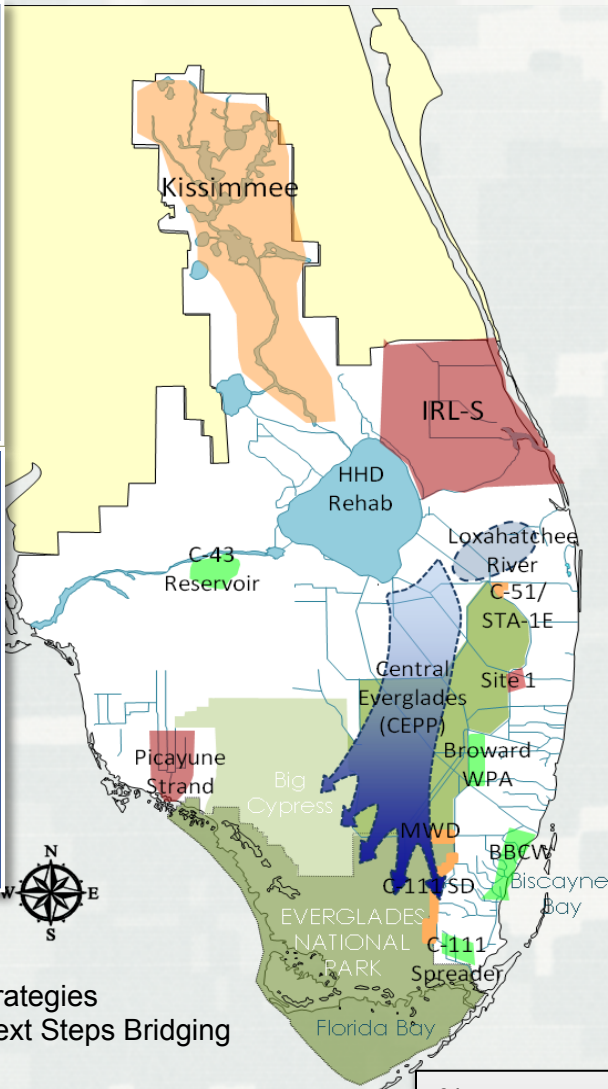


# Ecosystem Restoration



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# Projects



## Foundation Projects (Construction)

- ▶ Kissimmee River
- ▶ C-111 South Dade
- ▶ C-51/STA-1E
- ▶ Critical Projects
- ▶ Modified Water Deliveries (MWD)

## 1<sup>st</sup> Generation CERP (Construction)

- ▶ Site 1 Impoundment
- ▶ IRL-South
- ▶ Picayune Strand

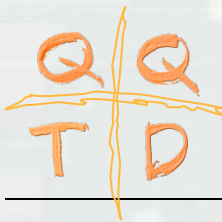
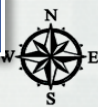
## 2<sup>nd</sup> Generation CERP (Completed Chief's Reports but require Congressional authorization)

- ▶ C-43 Reservoir
- ▶ Broward County WPA
- ▶ C-111 Spreader Canal
- ▶ Biscayne Bay Coastal Wetlands (BBCW)

## 3<sup>rd</sup> Generation CERP (Planning)

- ▶ Central Everglades Planning Project (CEPP)
- ▶ Loxahatchee River Watershed Restoration Project

Herbert Hoover Dike  
 State Restoration Strategies  
 DOI Tamiami Trail Next Steps Bridging



Quantity  
 Quality  
 Timing  
 Distribution



Storage  
 Treatment  
 Seepage Management  
 Remove Barriers to Sheetflow  
 Operational Changes



# Completed Construction (2013)



**Melaleuca Eradication Facility**



**Tamiami Trail Modifications Project**



**Decomp Physical Model**

# Scheduled Construction Completion (2014)



**Merritt Pump Station  
(Picayune Strand Restoration Project)**



**S-65EX1 Structure  
(KRR)**



**Contract 1 – Intake & C-133/133A canals  
(IRL-S C-44 RSTA)**

# KISSIMMEE RIVER RESTORATION

**Purpose.** Restoration of more than 40 sq. mi. of river-floodplain ecosystem, including 20,000 acres of wetlands and 44 miles of historic river channel.

## Observed Benefits.

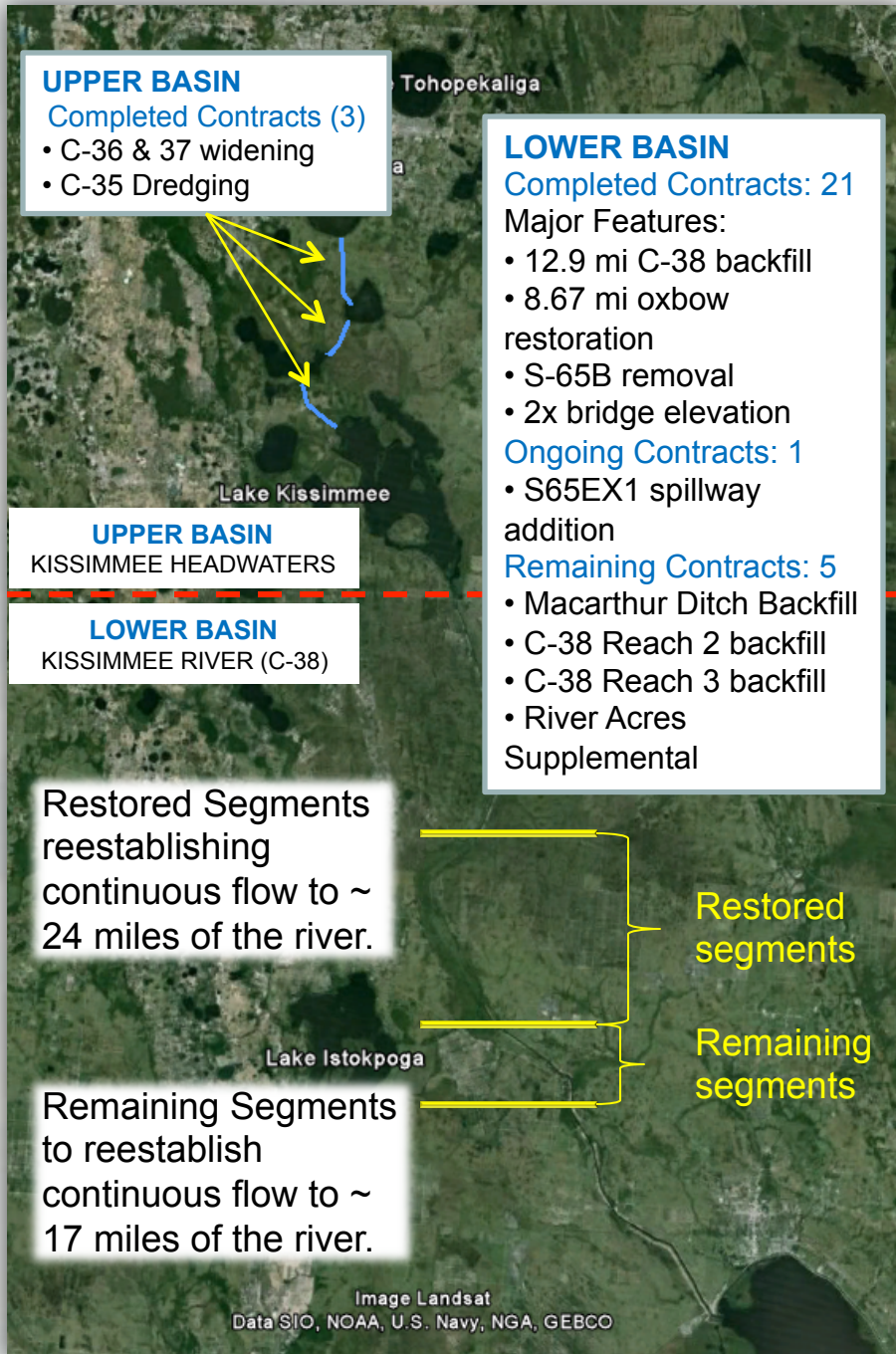
- Undesirable floating and mat-forming plants have been replaced by emergent plants native to the historic river;
- Organic deposits on the river bottom decreased 70%, reestablishing sand bars and providing new habitat;
- Dissolved oxygen, which is critical to for the long-term survival of fish and other aquatic organisms, has increased up to six-fold;
- Largemouth bass and sunfishes now comprise 63% of the fish community—up from 38%;
- Increase/ return of wading birds, ducks, and shorebird species.

## Path Forward:

- Complete construction by 2019;
- Implement Regulation Schedule upon completion of all segments;
- Ecological Monitoring



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### UPPER BASIN

#### Completed Contracts (3)

- C-36 & 37 widening
- C-35 Dredging

### LOWER BASIN

#### Completed Contracts: 21

#### Major Features:

- 12.9 mi C-38 backfill
- 8.67 mi oxbow restoration

- S-65B removal
- 2x bridge elevation

#### Ongoing Contracts: 1

- S65EX1 spillway addition

#### Remaining Contracts: 5

- Macarthur Ditch Backfill
- C-38 Reach 2 backfill
- C-38 Reach 3 backfill
- River Acres Supplemental

### UPPER BASIN

KISSIMMEE HEADWATERS

### LOWER BASIN

KISSIMMEE RIVER (C-38)

Restored Segments reestablishing continuous flow to ~ 24 miles of the river.

Restored segments

Remaining segments

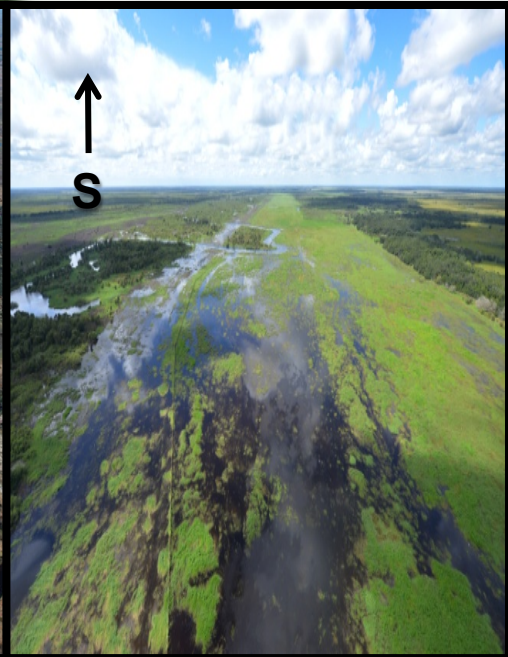
Remaining Segments to reestablish continuous flow to ~ 17 miles of the river.

Image Landsat

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

# KISSIMMEE RIVER RESTORATION. PHASE IVB

IVB Restoration Area



A group of young roseate spoonbills forage along the Avon Park Air Force Range fence line in the Phase IVB restoration area.



Nearly 2000 birds were observed in a massive foraging flock of wading birds (ibis, egret, herons, woodstorks, spoonbill, etc.) were observed in the Phase IVB restoration area in the Avon Park Air Force range area.

Photos: SFWMD, 9/2013

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# IRL-S C-44 RSTA

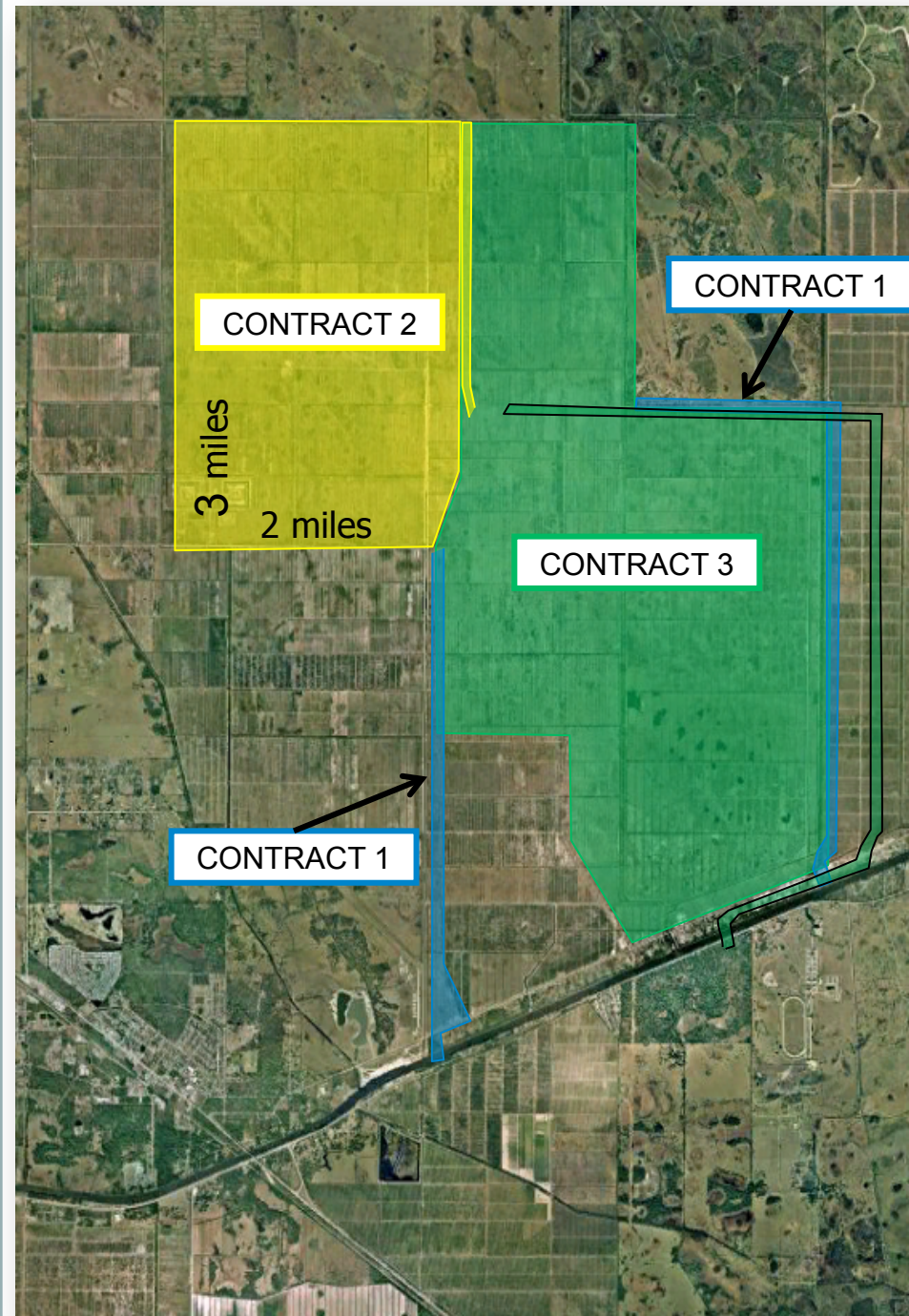
**Purpose:** Capture local run-off from the C-44 basin, reducing average annual total nutrient loads and improving salinity regimen for the St. Lucie Estuary and southern portion of the Indian River Lagoon.

## **Major Components:**

- Construction of intake canal and access roads
- Construction of above-ground reservoir
- Construction of storm-water treatment area

## **Schedule:**

Contract	Award	Completion
CNT-1 (USACE)	JUL 11	JUL 14
CNT-2 (USACE)	JUN 15	Winter 18
CNT-3 (SFWMD)		
System Discharge	JUN 14	Summer 15
STA	AUG 14	Spring 16
Pump Station	MAR 15	Spring 17



# CENTRAL EVERGLADES PLANNING PROJECT

## Purpose

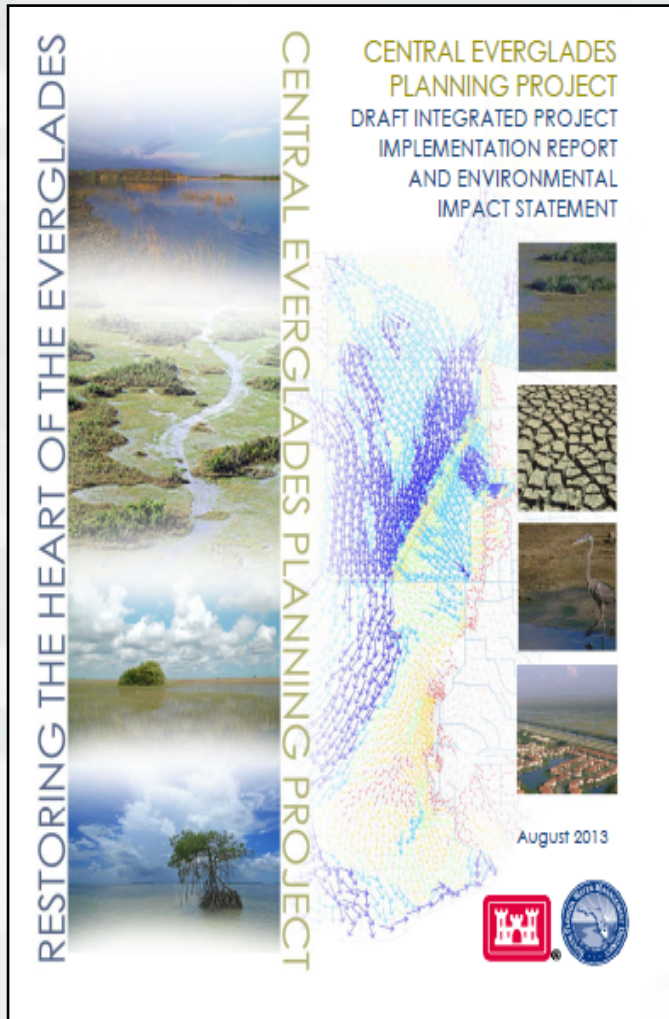
- Restore habitat conditions within WCA-3A, 3B, ENP and Florida Bay and more natural water flow throughout the central Everglades ecosystem

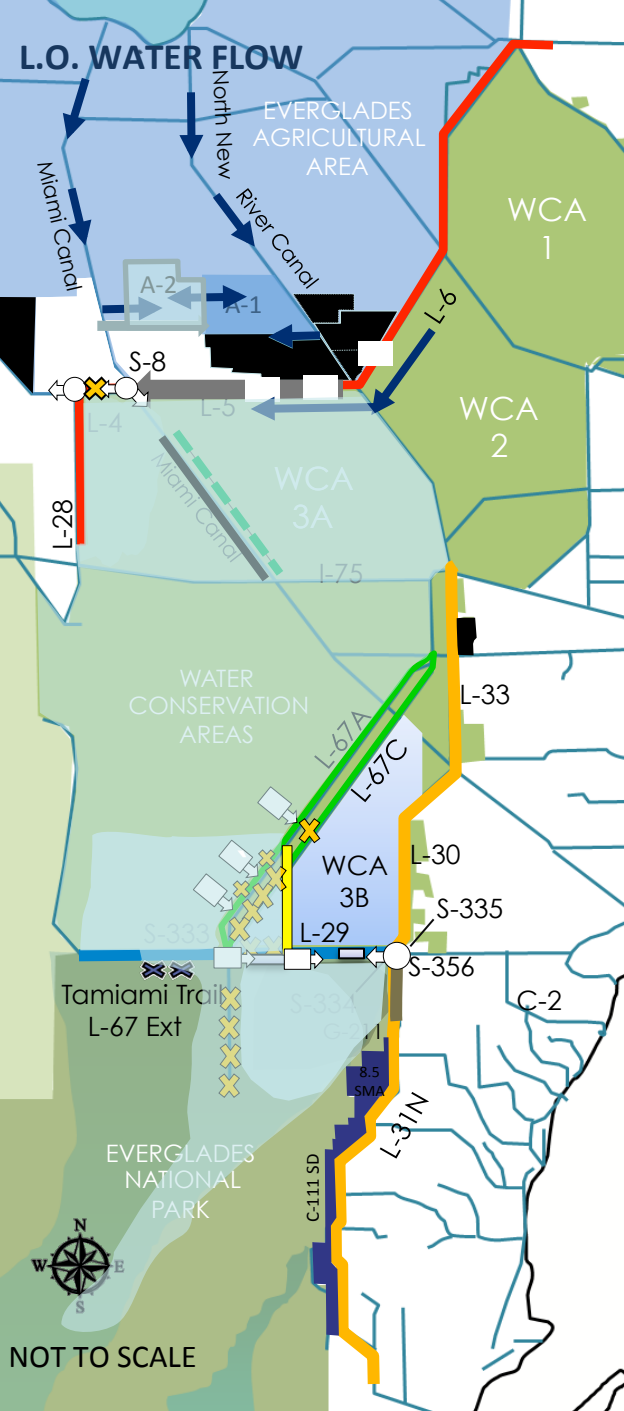
## Status

- Draft Project Implementation Report (PIR) released for Public and Agency Review August 30, 2013
- Comment period closed November 1, 2013

## Next Steps

- SFWMD Governing Board provide Letter of Support and Financial Capability
- Civil Works Review Board (USACE) and approval to release Final PIR
- 30-Day Public & Agency review of Final PIR
- Address comments on Final PIR and prepare Chief of Engineers Report





# RECOMMENDED PLAN (AIt 4R2)

## STORAGE AND TREATMENT

- A flow equalization basin, or shallow reservoir, that will be integrated with the state's water quality treatment facilities to increase the amount of clean water flow to the Everglades from Lake Okeechobee

## DISTRIBUTION/CONVEYANCE

- Increasing the L-5 canal capacity and modification to the S-8 pump station to convey water west
- Construction of a 360 cfs pump station to maintain water supply to the Seminole Tribe and western basin
- Removal of 2.9 miles of the L-4 levee to distribute inflow to WCA-3A and backfilling 13.5 miles of the Miami Canal

## DISTRIBUTION/CONVEYANCE

- Construction of 8 miles of new levee and removal of 12 miles of existing levees to create a flowway through WCA-3B;
- Two 500 cfs gated culvert structures and an 1150 cfs spillway will provide inflow to the flowway
- A 1,230 cfs spillway will maintain flow to the east of the flowway
- Additional 500 cfs gated culvert structure outside of the flowway to rehydrate the eastern portions of WCA-3B
- Removal of 5.5 miles of the L-67 extension levee and 6 miles of the Old Tamiami Trail within ENP

## SEEPAGE MANAGEMENT

- A 1,000 cfs pump station and a seepage barrier wall along the protective levee south of Tamiami Trail

*Note: System wide operational changes and adaptive management considerations will be included in project*

FEB	STA	Pump	Old Tamiami Trail Removal
Backfill	Levee Removal	Gated Structure	
Seepage Barrier	Canal Improvement	Levee	

# Herbert Hoover Dike Rehab

**Purpose:** To improve public safety by reducing risk of catastrophic failure when Lake Okeechobee reaches high levels



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# Herbert Hoover Dike Rehabilitation Strategy

- **Interim Risk Reduction Measures**
  - ▶ Structural measures complete
  - ▶ Non-structural measures developed and being implemented
- **Reach 1 cut-off wall emplacement**
  - ▶ Port Mayaca to Belle Glade
  - ▶ Completed Oct '12
- **Culvert Replacement / Abandonment**
  - ▶ 32 Federal Culverts
  - ▶ Ongoing through Fiscal Year 2018
- **Dam Safety Modification Study**
  - ▶ Planning effort to identify and recommend remaining risk reduction features
  - ▶ NEPA public review Summer 2014
  - ▶ Report complete in Summer 2015
  - ▶ First construction contract expected to be awarded FY2017



- Culverts under contract (15)
- Award by 30 Sep 14 (4)
- Seepage Management Test

Remaining culverts awarded and complete by end of FY 2018



# Completed & Ongoing Rehabilitation

## Reach 1 Cut-off Wall

- 21.4 miles of installation completed in Reach 1 for \$220M (Port Mayaca – Belle Glade)

## Water Control Structures (16 of 32 Culverts)

- Culvert 14 removal - \$4.7M completed in May 2012
- S-269 (C-11) & S-270 (C-16) - \$44M, completion in Feb 2015
- S-279 (C-1A) & S-280 (C-1) - \$49M, completion in Jul 2015
- S-276 (C-4A) & S-277 (C-3) - \$25M, completion in Dec 2015
- Culverts 7, 9 and TCC Abandonments - \$4.7M
- S-281 (C-5A) & S-282 (C-5) - \$31.8M, completion in Winter 2017
- S-273 (C-10) & S-275 (C-12) - \$36.3M, completion in Winter 2017
- S-268 (C-8) & S-272 (C-13) - \$36M, Completion in Winter 2017

Seepage Management Test Facility - \$10.8M

FY 2014 - Contract awards for 4 additional culverts

Values reflect construction contract awards.



Photos (Top to Bottom): C-4A, C-1A, C-16; 4/14

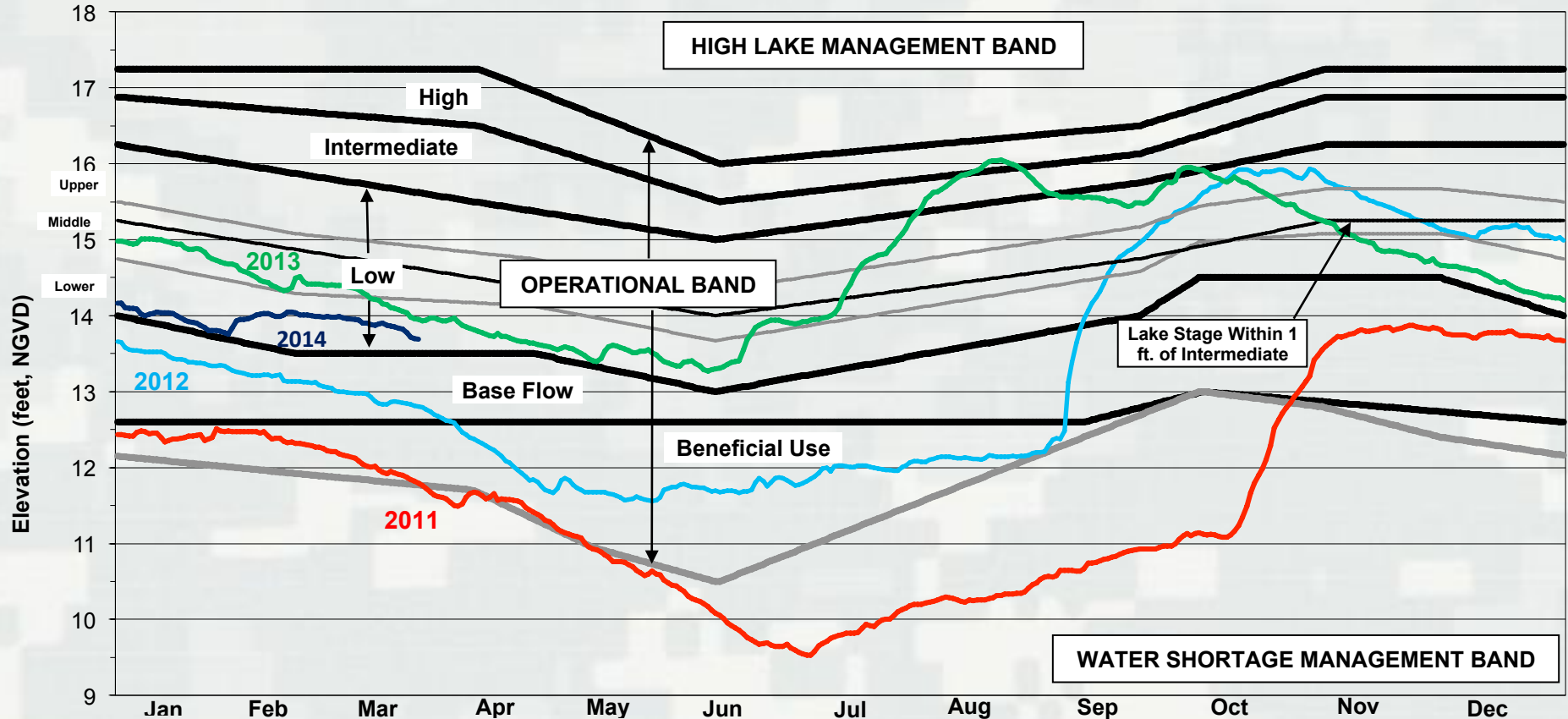
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# Dam Safety Modification Study

- Finalizing comprehensive risk analysis of entire HHD system
- Identifying potential risk-reduction measures and formulating into alternatives for consideration
- Multiple public meetings expected this summer on alternatives and environmental impacts
- Final report in 2015 for consideration of recommended measures in 2017 budget cycle



# Lake Okeechobee Water Levels



**NOTES:**

- High Lake Management Band:** Outlet canals may be maintained above their optimum water management elevations.
- Operational Band:** Outlet canals should be maintained within their optimum water management elevations.
- Water Shortage Management Band:** Outlet canals may be maintained below optimum water management elevations.

**WATER SHORTAGE MANAGEMENT BAND**

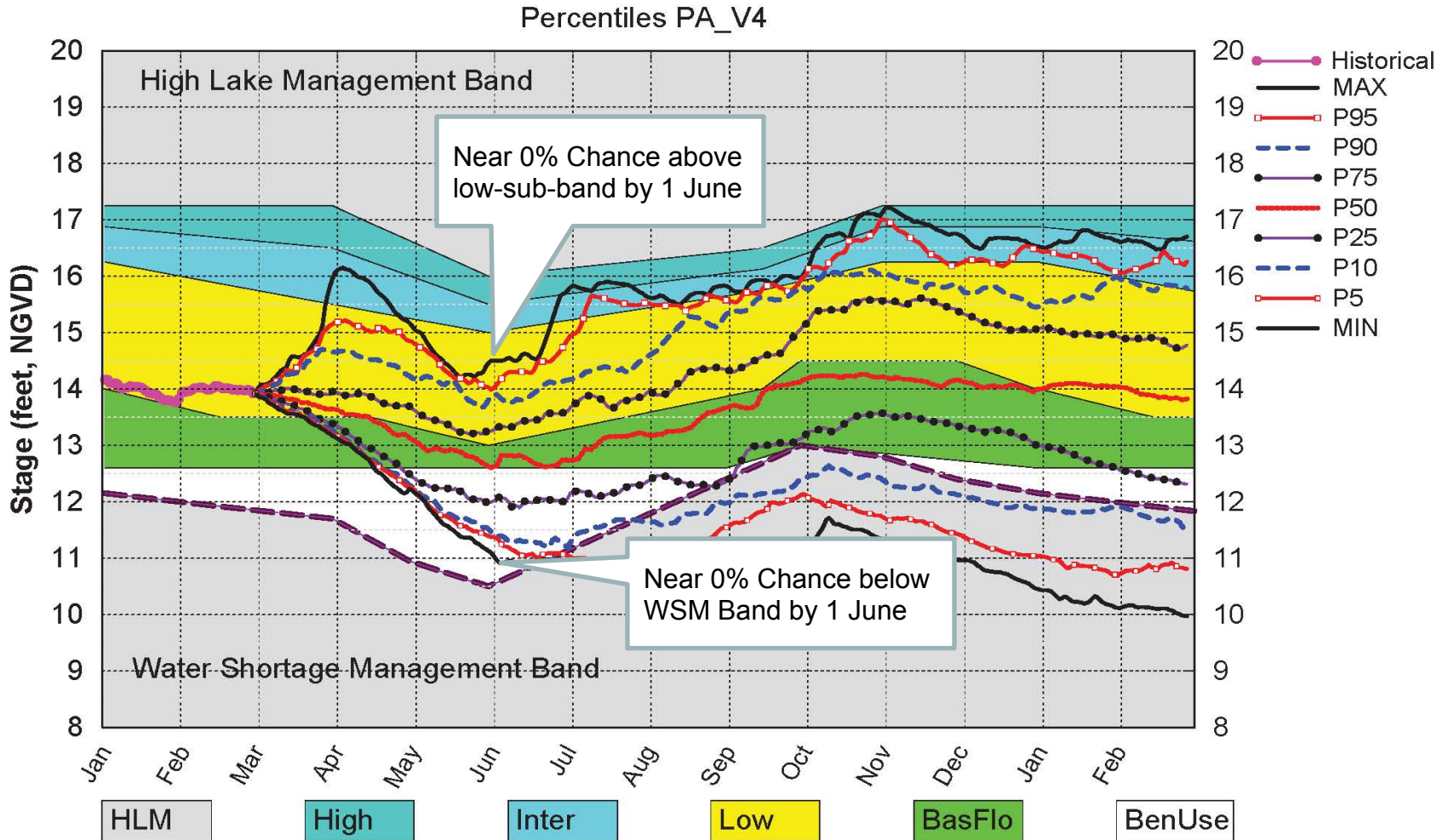
CENTRAL AND SOUTHERN FLORIDA PROJECT  
 2008 LAKE OKEECHOBEE  
 INTERIM REGULATION SCHEDULE  
 PART B  
 DATED: March 2008  
 DEPARTMENT OF THE ARMY, JACKSONVILLE DISTRICT  
 CORPS OF ENGINEERS, JACKSONVILLE, FLORIDA



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# Lake Okeechobee SFWMM March 2014 Position Analysis



(See assumptions on the Position Analysis Results website)

# Upcoming Milestones & Events

- **31 March:** Draft 2014 System Status Report will be available for public review
- **Spring 2014:** Loxahatchee River Watershed Restoration Project planning
- **Summer 2014:** CEPP Chief's Report
- **Summer 2014:** Dam Safety Modification Study public review period and public meetings



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