



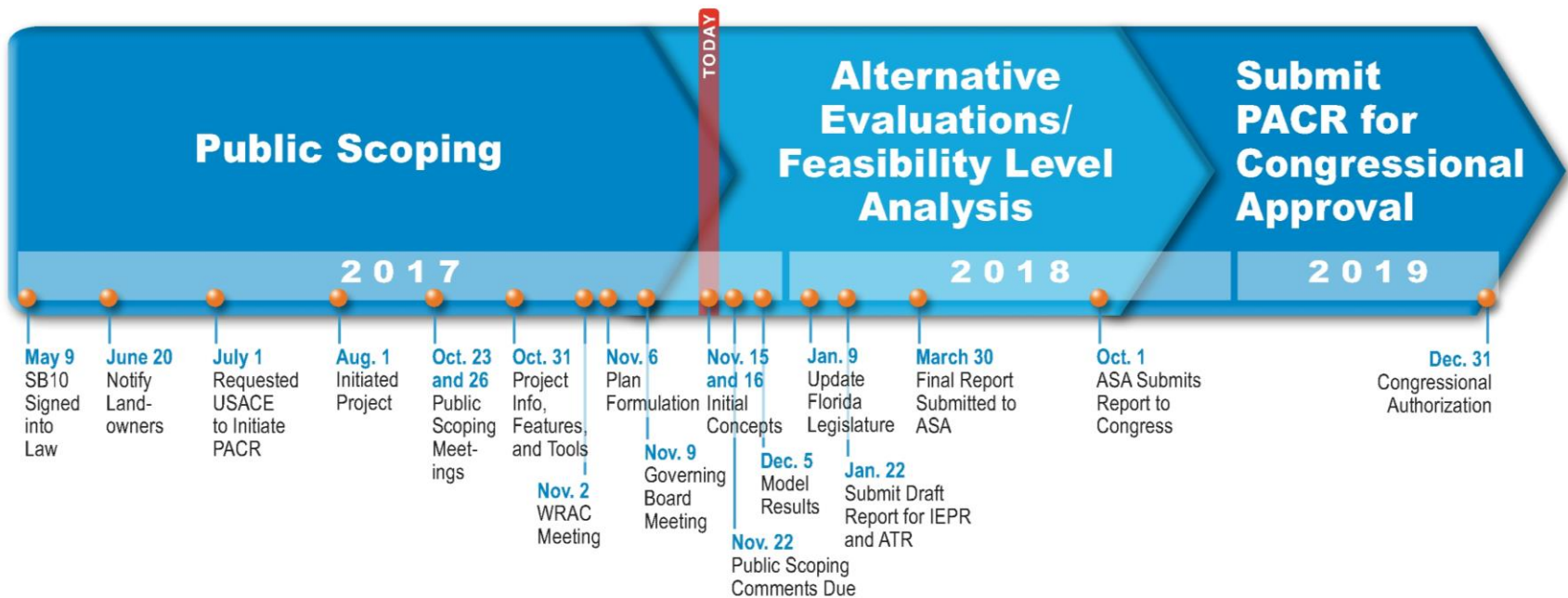
# Everglades Agricultural Area Storage Reservoir Feasibility Study

November 15, 2017

# Meeting Agenda

- Welcome and Introductions
- Project Study, Scope and Schedule
- Plan Formulation Review
- Initial Concepts
- Next Steps
- Public Comment

# EAA Storage Reservoir Feasibility Study Timeline



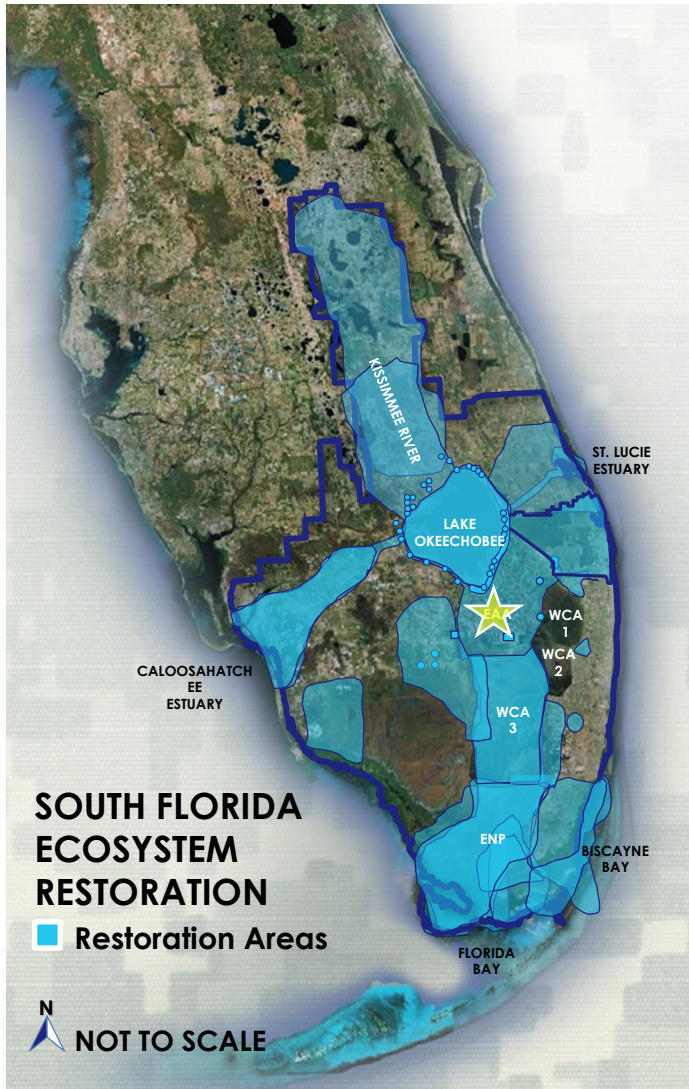




EAA Storage Reservoir Feasibility Study

# PROJECT STUDY, SCOPE AND SCHEDULE

# South Florida Ecosystem Restoration



## NON-CERP & FOUNDATION PROJECTS

- Modified Water Deliveries to Everglades National Park
- Kissimmee River Restoration
- C-111 South Dade
- C-51/Storm Water Treatment Area (STA) 1E
- Storm Water Treatment Areas/Restoration Strategies
- Tamiami Trail Bridging & Roadway Modifications
- Herbert Hoover Dike (HHD) Rehabilitation
- Seminole Big Cypress Critical Project

## CERP GENERATION 1 PROJECTS

- Indian River Lagoon (IRL) – South
- Picayune Strand
- Site 1
- Melaleuca Annex Facility

## CERP GENERATION 2 PROJECTS

- C - 43 Reservoir
- Broward County Water Preserve Areas (WPA)
- C-111 Spreader Canal Western Project
- Biscayne Bay Coastal Wetlands Phase 1

## DECEMBER 2016 AUTHORIZATION

- Central Everglades Planning Project (CEPP)

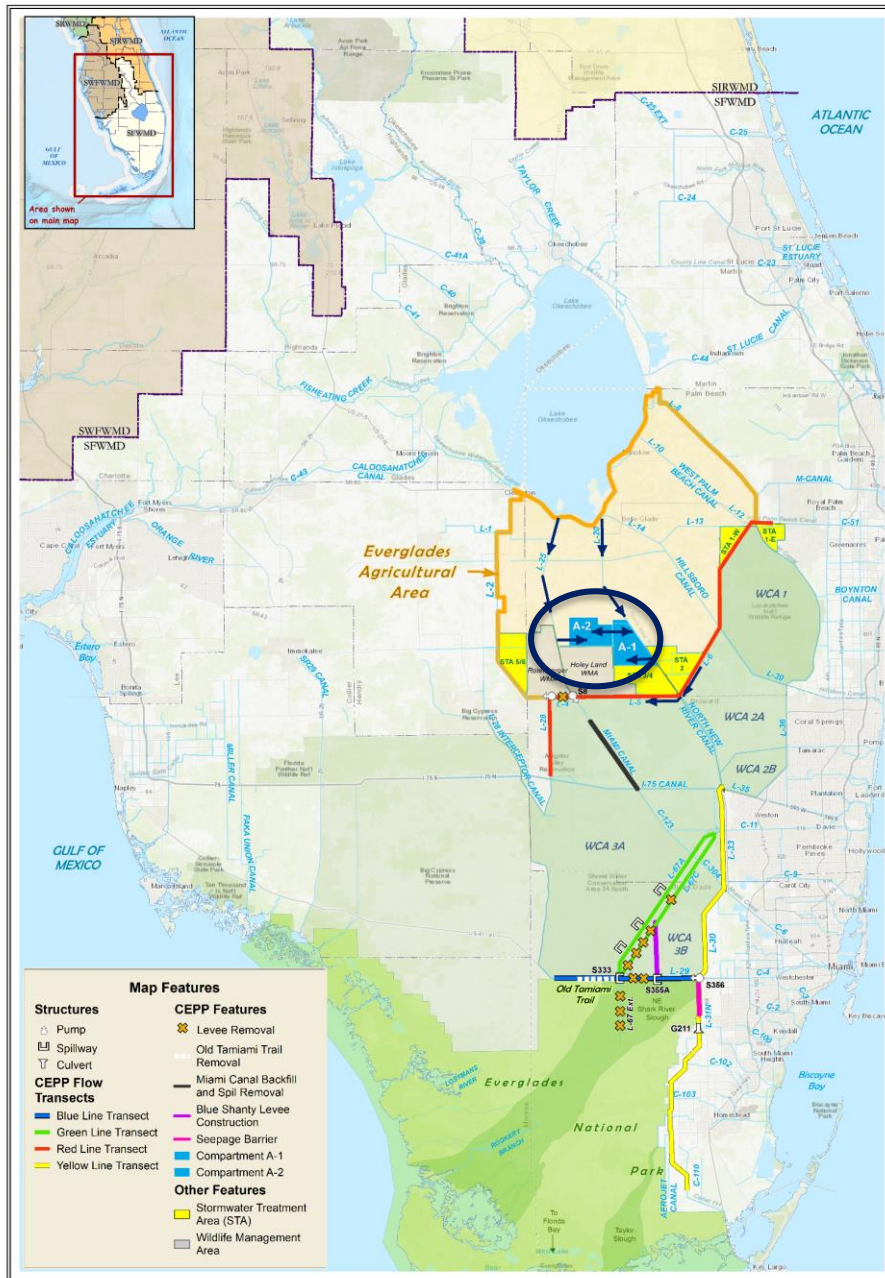
## PLANNING EFFORTS

- Loxahatchee River Watershed Restoration
- Western Everglades Restoration
- Lake Okeechobee Watershed Restoration

## EVERGLADES AGRICULTURAL AREA STORAGE RESERVOIR







## CEPP Recommended Plan ALT 4R2

- PPA New Water
  - A-2 Flow Equalization Basin (FEB)
  - Seepage Barrier, L-31N Levee
- PPA North
  - L-6 Canal Flow Diversion
  - L-5 Canal Conveyance Improvements
  - S-8 Pump Station Complex Modifications
  - L-4 Levee Degrade and Pump Station
  - Miami Canal Backfill
- PPA South
  - S-333 Spillway Modification
  - L-29 Canal Gated Spillway
  - L-67A Conveyance Structures
  - L-67C Levee Gap
  - L-67C Levee Degrade
  - Blue Shanty Levee, WCA 3B
  - L-29 Levee Degrade
  - L-67 Extension Levee Degrade and Canal Backfill
  - Old Tamiami Trail Removal
  - S-356 Pump Station Modifications
  - System-wide Operations Refinements

## Project Opportunities and Objectives

- Reduce the high-volume freshwater discharges from Lake Okeechobee to the Northern Estuaries
- Identify storage, treatment and conveyance south of Lake Okeechobee to improve flows to the Everglades system
- Reduce ongoing ecological damage to the Northern Estuaries and Everglades system



St. Lucie Inlet



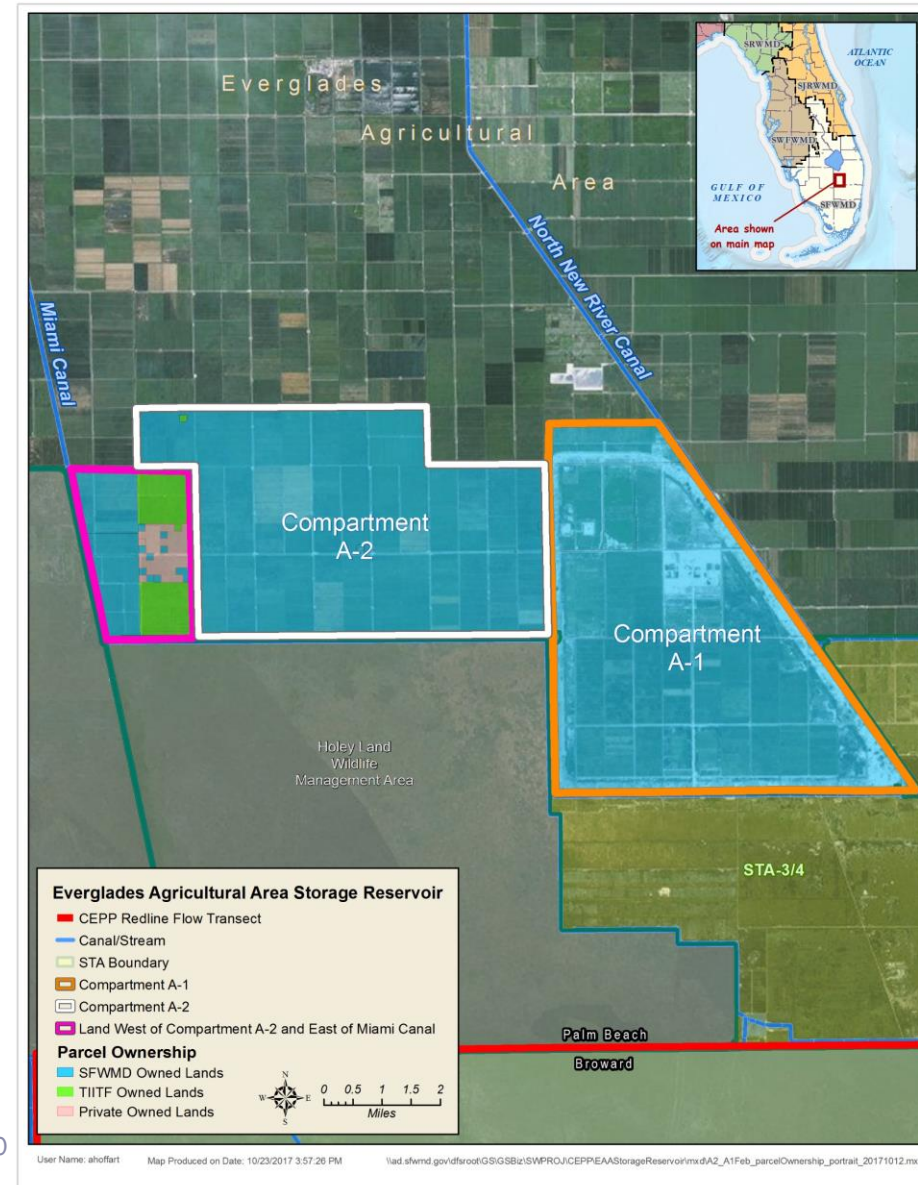
# Constraints

- **WRDA 2000 Sec. 601(h)(5); Sec. 373.1501, F.S.**
  - Elimination or transfer of existing legal sources of water must be addressed
  - Maintain existing level of flood protection
- **Meet applicable water quality standards**
  - Will not cause or contribute to a violation of state water quality standards, permit discharge limits or specific permit conditions
  - Reasonable assurances exist that adverse impacts on flora and fauna will not occur
- **Remain within federal authorities (CERP)**

# Florida State Law

## Chapter 2017-10 Requirements as it Relates to Post-Authorization Change Report

- Engage landowners on a 'willing seller' basis
- 240,000 acre-feet of storage and necessary treatment on A-2 Parcel plus conveyance improvements
- 360,000 acre-feet of storage and necessary treatment on A-1 and A-2 Parcels plus conveyance improvements
- Report to State Legislature by January 9, 2018
- Submit Post-Authorization Change Report to Congress for approval by October 1, 2018



# Planning Process & Schedule

- **Section 203 of the Water Resources Development Act (WRDA) of 1986, as amended**
- **Key Activities and Target Dates:**
  - Update to Florida State Legislature - by January 9, 2018
  - Draft Report complete – by January 30, 2018
  - Final Report and submittal to Assistant Secretary of the Army for Civil Works – March 30, 2018
  - ASA(CW) submit report to Congress – October 1, 2018
  - Anticipated Congressional authorization – by December 31, 2019





EAA Storage Reservoir Feasibility Study

# PLAN FORMULATION REVIEW

# Baseline Modeling

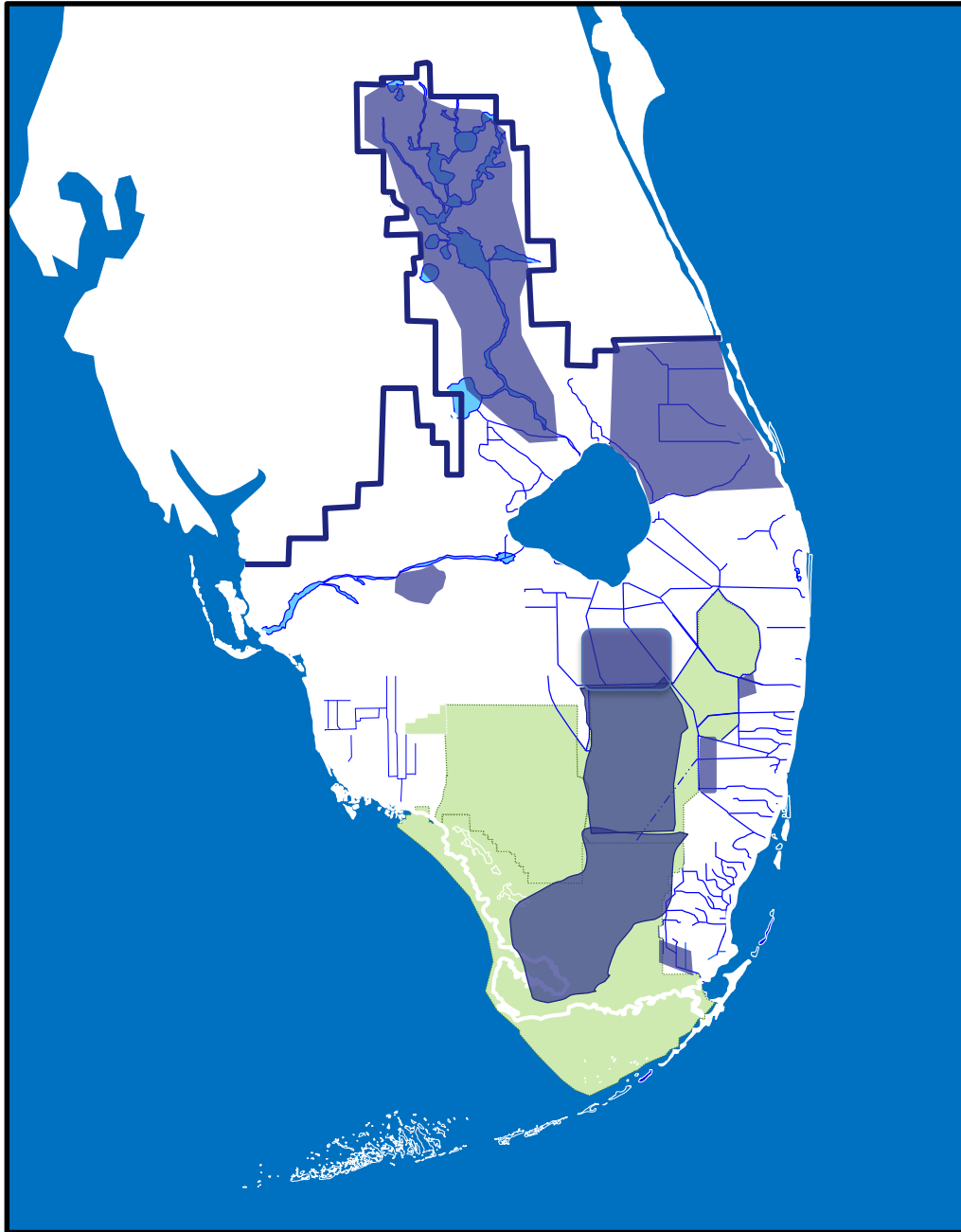
- Modeling of “Baseline” scenarios helps to provide reference points for comparison. These scenarios show how current conditions or “No Action” future conditions will perform so that the potential benefits of suggested infrastructure changes can be evaluated.
- Guiding principle in developing baseline modeling for the EAA Storage Reservoir planning effort:

**Maintain consistency with  
Central Everglades Planning (CEPP)**

## Baseline Modeling Assumptions (cont)

- Existing Condition Baseline (**EARECB**) attempts to represent on-ground conditions circa 2017
  - Assumptions per CEPP RSMBN ECB and IORBL1 simulations (depending on sub-basin) and CEPP RSMGL 2012EC (Scenarios defined in CEPP Project Implementation Report)
- Future Without Project Baseline (**EARFWO**) attempts to represent the projected future conditions circa 50 years in the future if there was no EAA Storage Reservoir Project
  - Assumptions per RSMBN ALT4R2 and RSMGL ALT4R2 (CEPP Selected Plan + Other Authorized Projects)
- Today's presentation will review a system-wide comparison of Current **EARECB** and Future **EARFWO** Baselines.

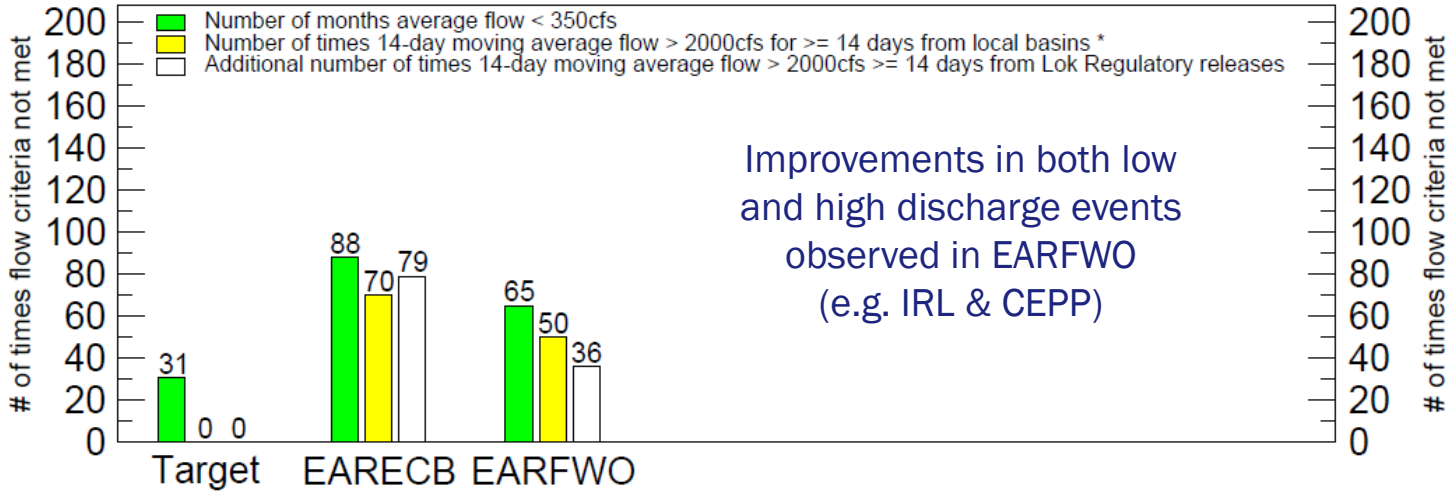




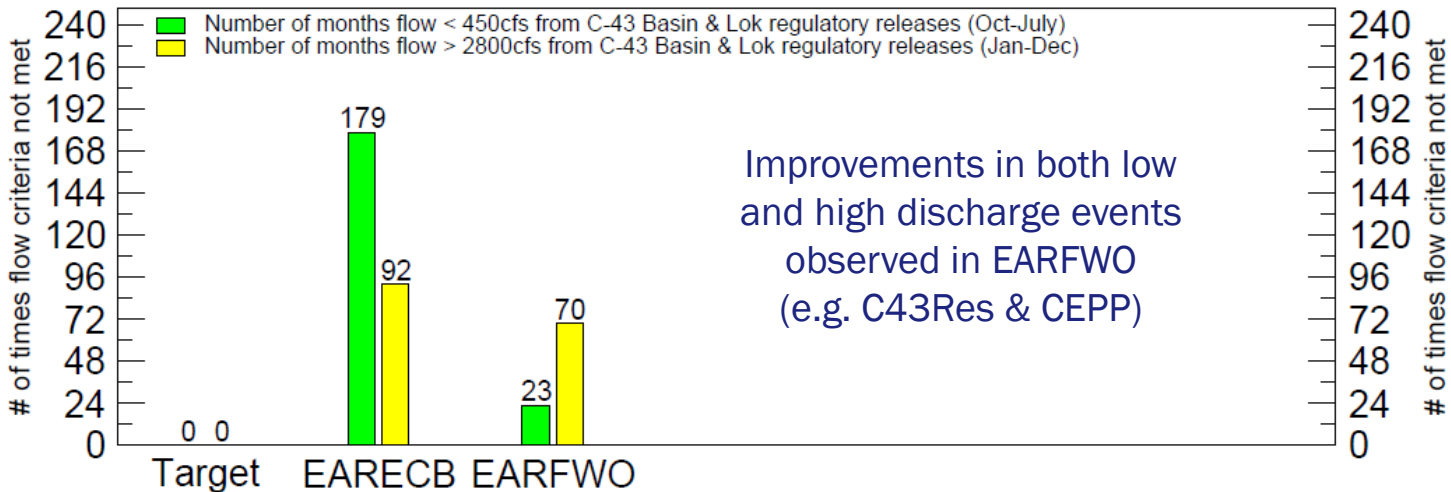
## Key System Changes From ECB to FWO

- Kissimmee Headwaters Revitalization
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- Other 1<sup>st</sup> and 2<sup>nd</sup> Generation CERP & Foundation Projects
- Restoration Strategies / Central Everglades Project Features in the Everglades Agricultural Area
- Central Everglades Project Features in the Greater Everglades

## Number of times Salinity Envelope Criteria NOT Met for the St. Lucie Estuary (mean monthly flows 1965 - 2005)

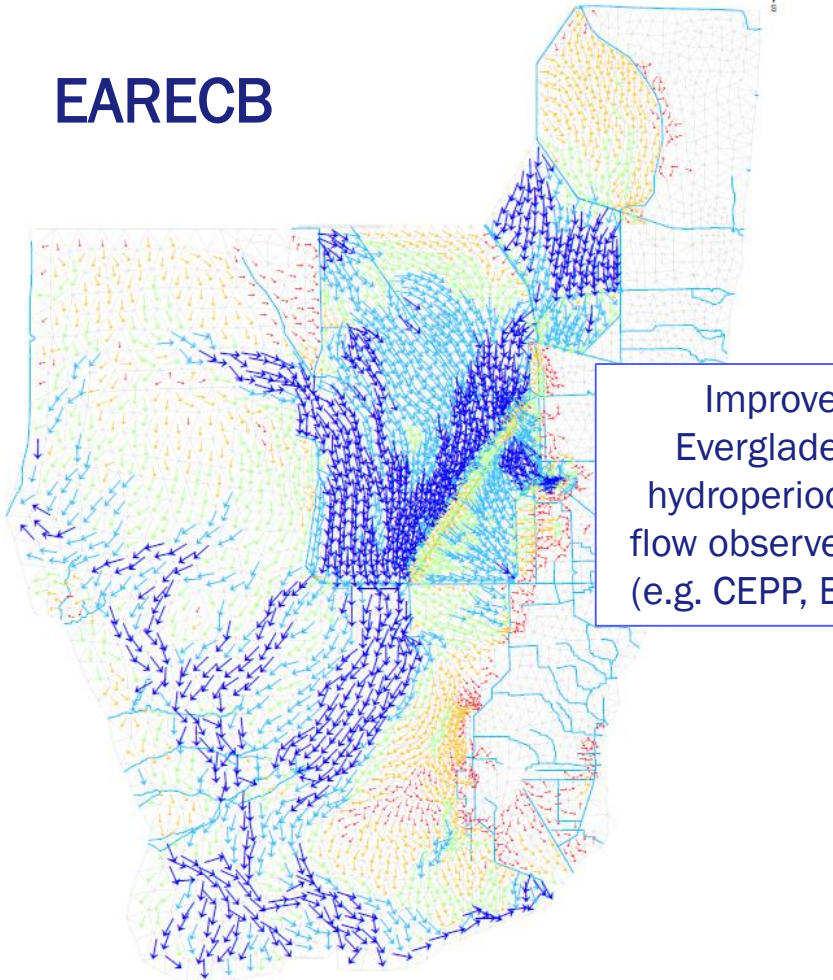


## Number of times Salinity Envelope Criteria NOT Met for the Calooshatchee Estuary (mean monthly flows 1965 - 2005)



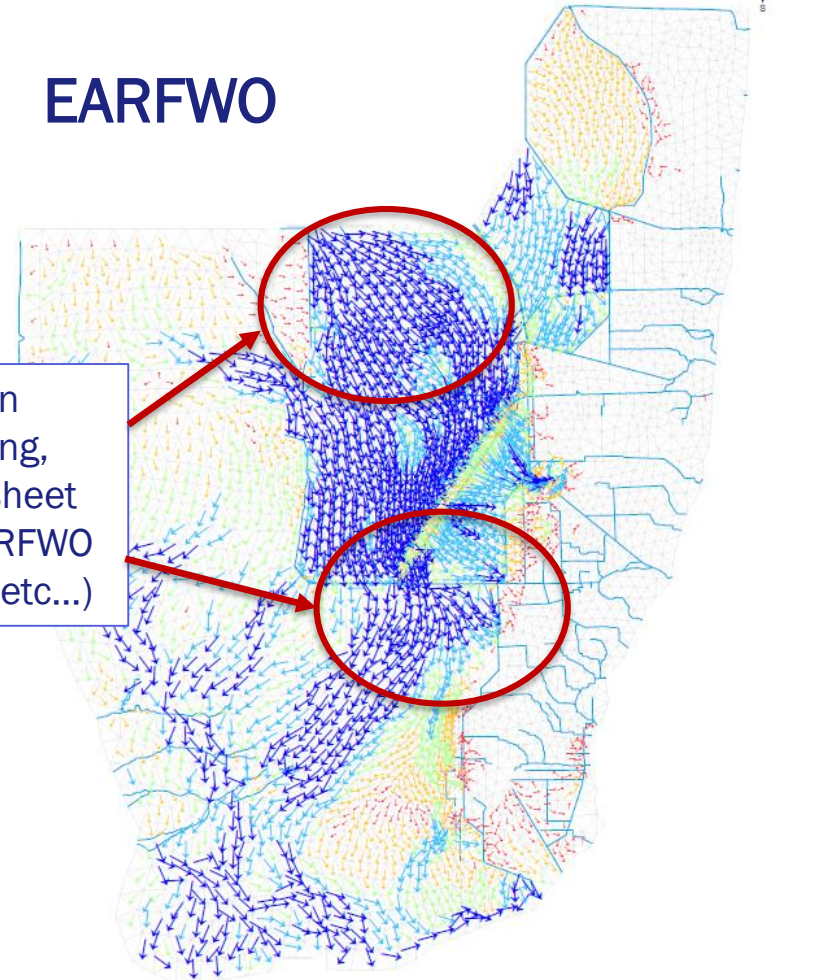
Average Annual Overland Vector  
1965-2005

**EARECB**



Average Annual Overland Vector  
1965-2005

**EARFWO**



Improvements in  
Everglades ponding,  
hydroperiods and sheet  
flow observed in EARFWO  
(e.g. CEPP, Bridges, etc...)

Run Name: ROMGL EARECB  
Run Date: 3 November 2017

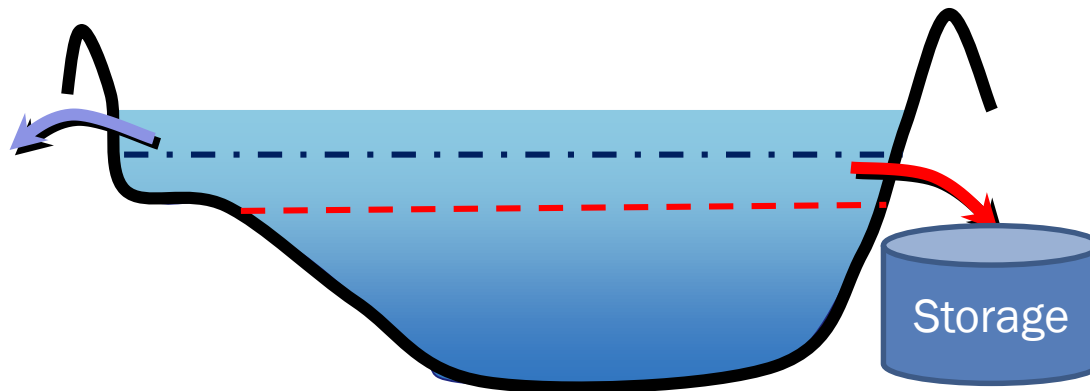


Run Name: ROMGL EARFWO  
Run Date: 2 November 2017





## Recall 10/31 Baselines Presentation: One Challenge to Consider



Existing Lake Okeechobee regulatory release protocols balance multiple objectives for Lake and system management.

Simply adding discharges to storage in addition to existing regulatory protocols may over-drain the Lake and impact system performance.

# EAA Storage Reservoir Modeling Data

- Modeling data is available via ftp at:  
<ftp://ftp.sfwmd.gov/pub/EAASR/>

The screenshot shows the website for the EAA Storage Reservoir Project. The page features a navigation menu with links for 'Careers', 'Contact Us', and 'Locations'. The main content area includes a section titled 'Modeling Results' which contains the following text:

As part of the extensive public process for the EAA Storage Reservoir Project, the District is conducting a series of computer modeling runs to inform the development of the project's features.

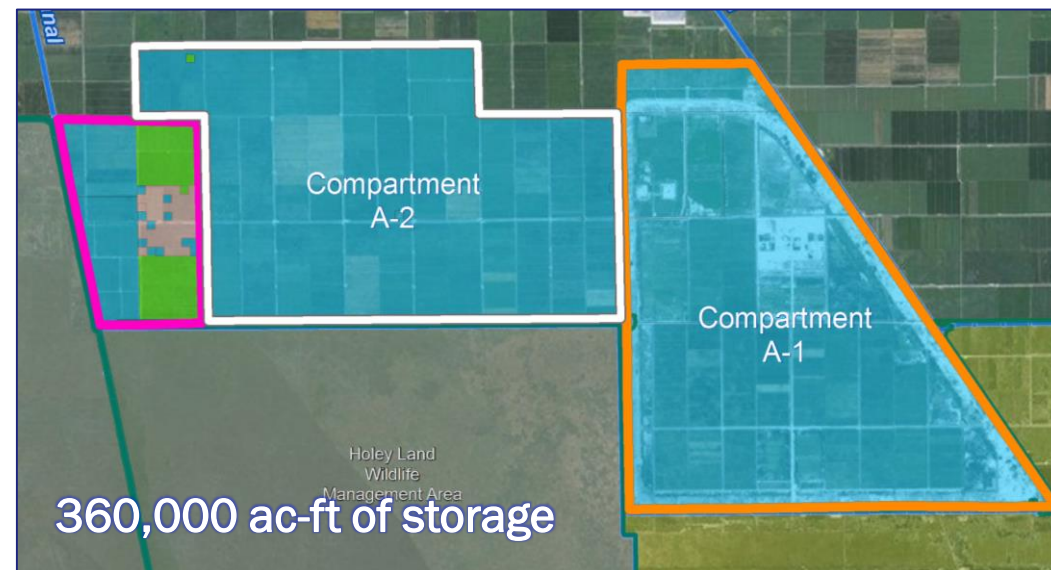
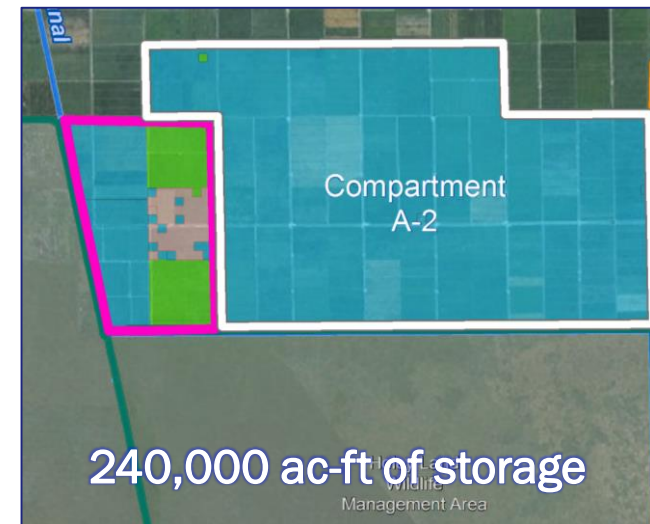
Among the initial results presented during a Nov. 6 public meeting, baseline modeling will be used to help provide reference points for comparisons of project alternatives developed during the planning process. The District also released preliminary results from the Dynamic Model for Stormwater Treatment Areas (DMSTA) model to evaluate potential sizing of the reservoir and a corresponding stormwater treatment area for water quality treatment.

- [Modeling Results - Nov. 6, 2017 \[FTP\]](#)
- [Instructions for Accessing and Downloading Modeling Files from FTP Site \[PDF\]](#)

Link can also be found on  
[www.sfwmd.gov/EAareservoir](http://www.sfwmd.gov/EAareservoir)

# Important Considerations

- Initial analyses to identify performance potential for the facility (Reservoir, STA and associated infrastructure)
- Project alternatives will be modeled to honor physical and legal constraints
  - Potential for reduced performance
  - Other CERP components may enhance performance
- Detailed modeling of alternatives will identify reduction in undesirable discharges and additional flow south
- Must meet State and Federal laws





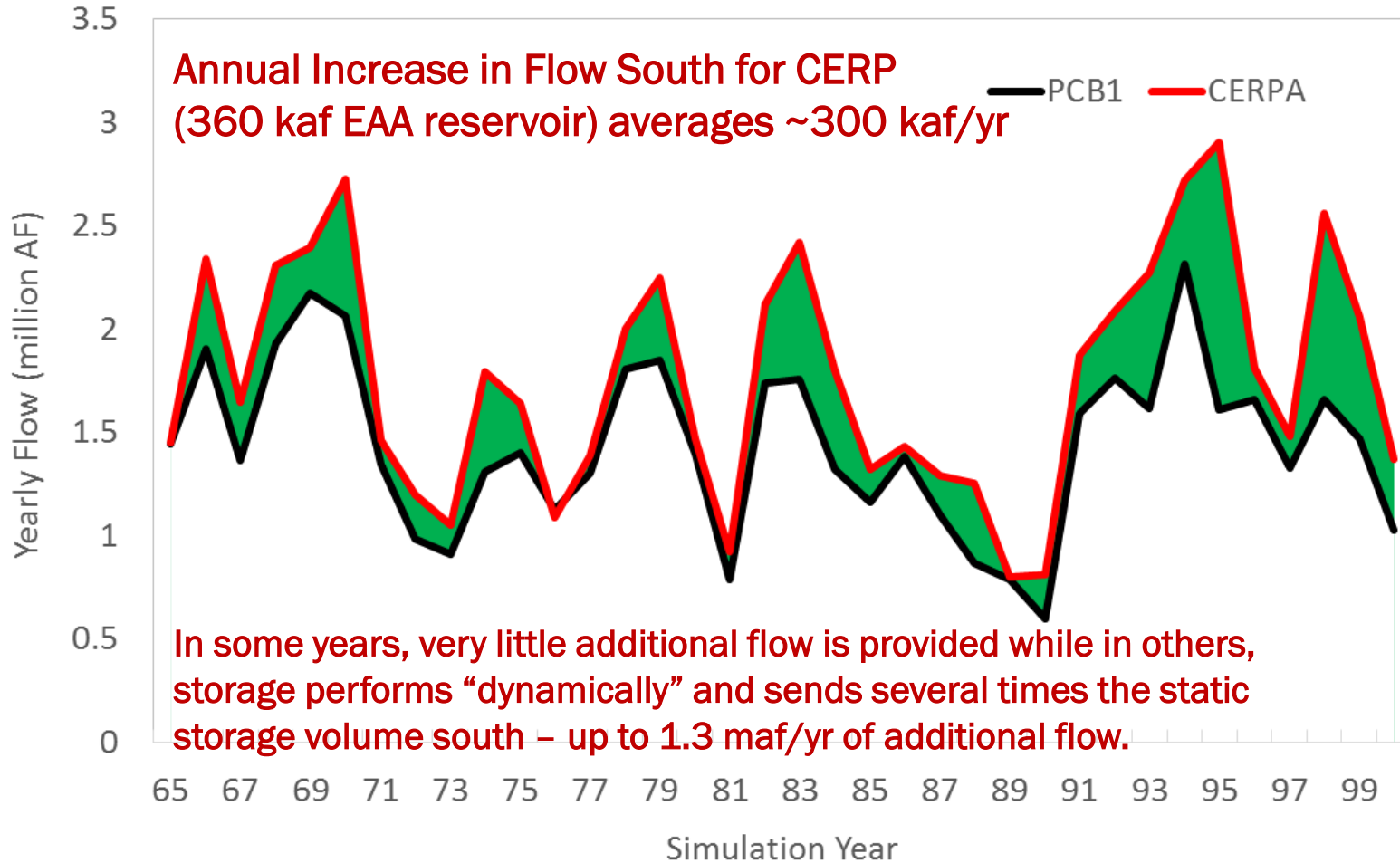
# CERP Vision for EAA Storage Reservoir



- CERP defined a 360 k-acft, multi-purpose storage reservoir in the EAA
  - Received both Lake Okeechobee discharge and EAA runoff
  - Supplied Flow to both the Greater Everglades and EAA Agriculture
- CERP also contemplated improvements to the Miami and North New River Canals in the EAA to help convey Lake water south.
- EAA Storage worked with other CERP storage (also North, East and West of Lake O.) to reduce damaging discharges to the Northern Estuaries

# Characteristics of Additional Flow South in CERP

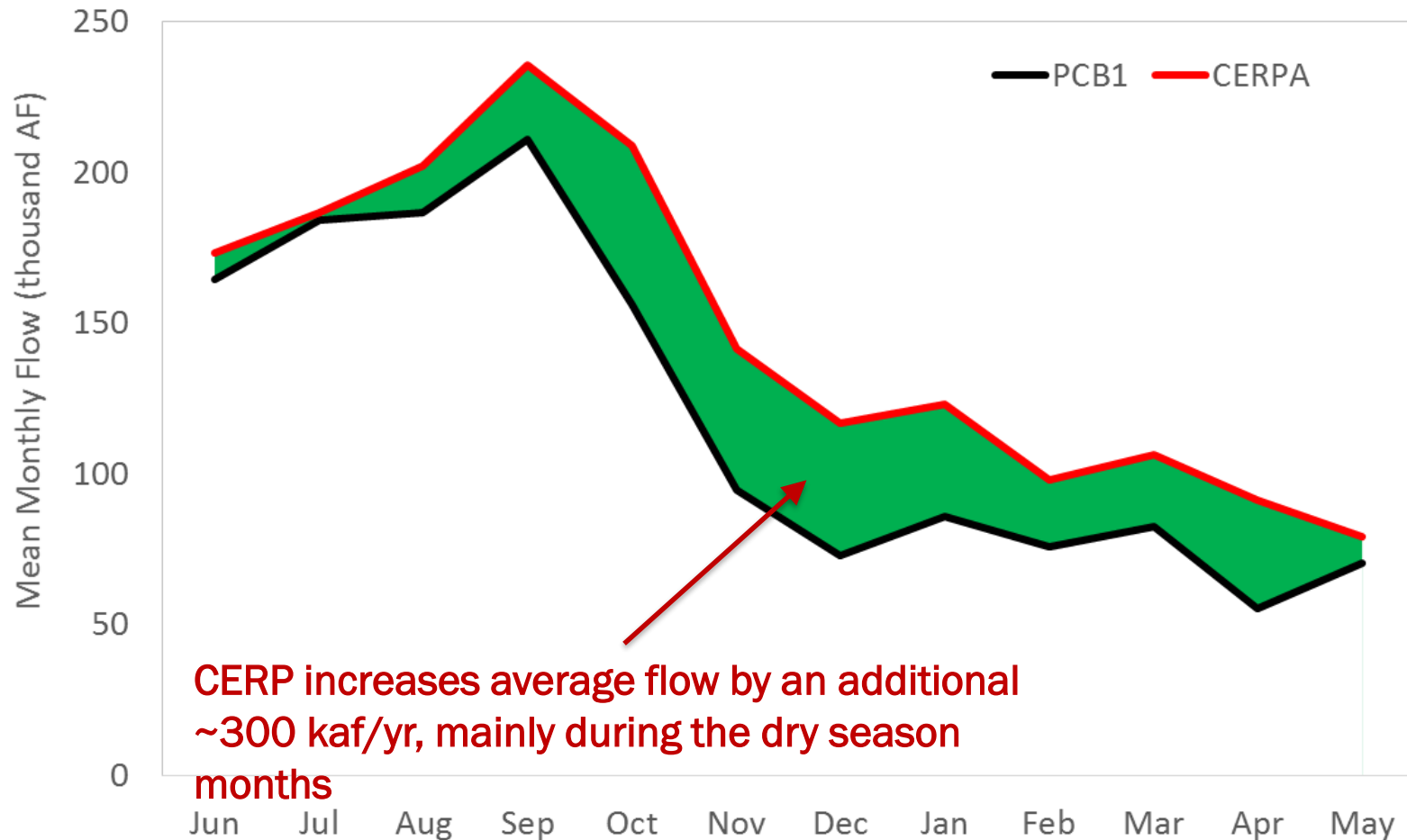
## Annual Flow to the Everglades Protection Area





# Characteristics of Additional Flow South in CERP (cont)

Distribution of Average Monthly Flow to the Everglades Protection Area



**CERP increases average flow by an additional ~300 kaf/yr, mainly during the dry season months**





EAA Storage Reservoir Feasibility Study  
**INITIAL CONCEPTS**

## Project Features

- Reservoirs
- Stormwater Treatment Areas (STAs)
- Conveyance Improvements



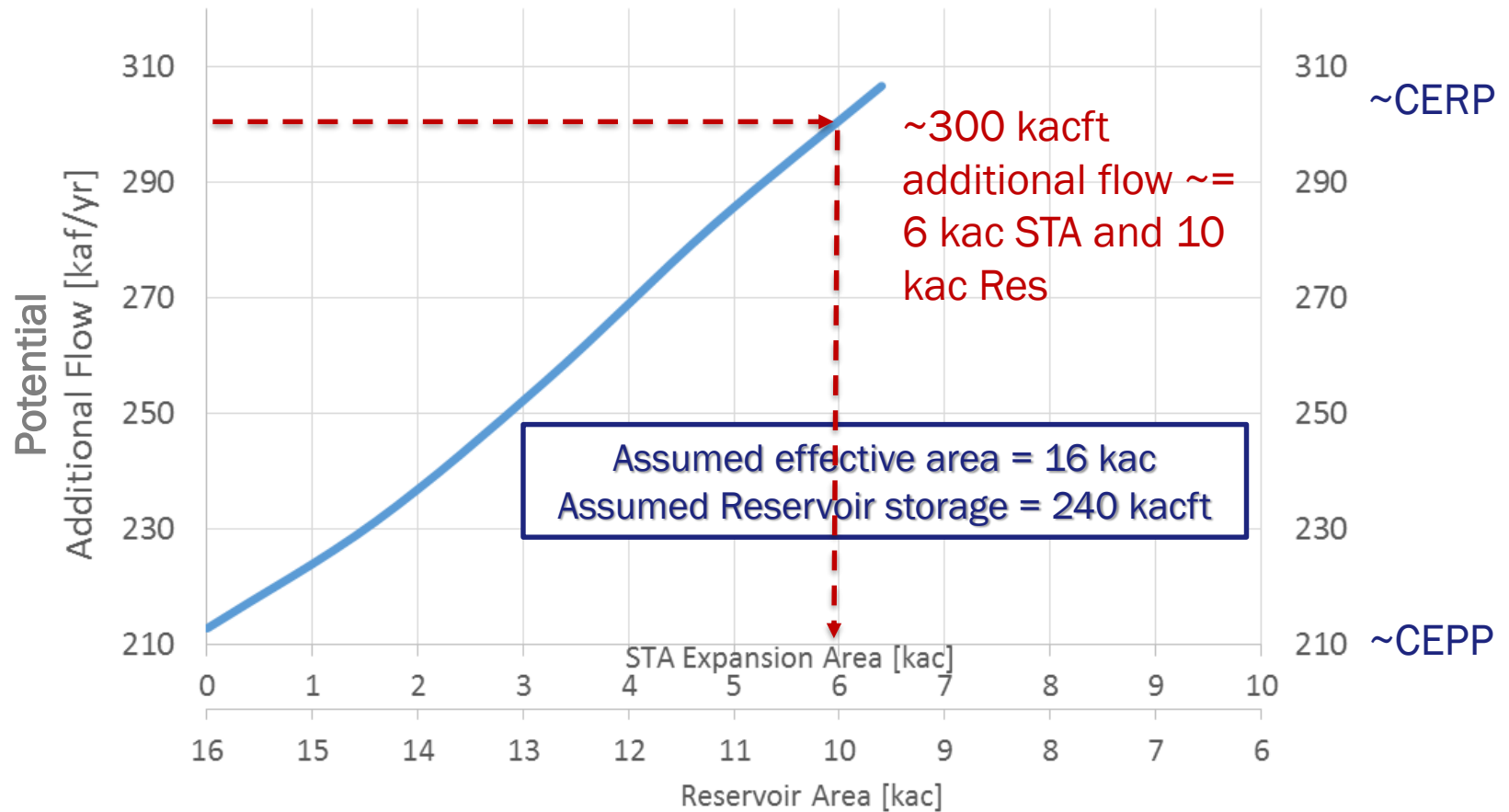
# Screening Process Strategy

- Use the DMSTA model (as used in CEPP and Restoration Strategies) to evaluate potential sizing of reservoir and stormwater treatment area (STA) footprints that meet water quality standards
- Provide DMSTA evaluation for the range of flows observed between CEPP and CERP
- Public input used to identify initial concepts



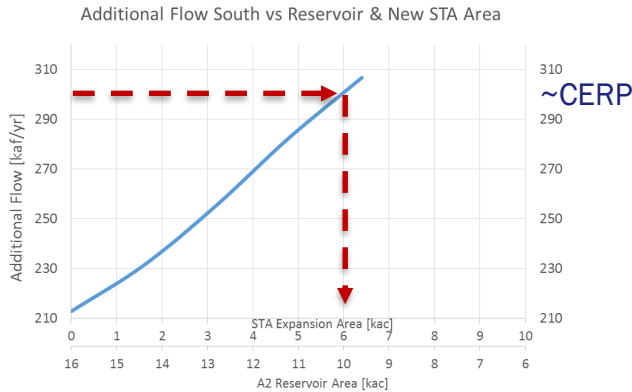


# Initial DMSTA Modeling Results: Potential Additional Flow South vs Reservoir & STA Acreage for 240,000 ac-ft of Storage



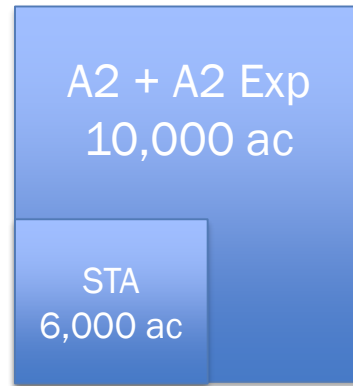
Note: Any point on the line can meet water quality standards

# 240,000 ac-ft of Storage Initial Concept



~300 kacft add flow ~=  
6 kac STA and 10 kac Res

Miami Canal

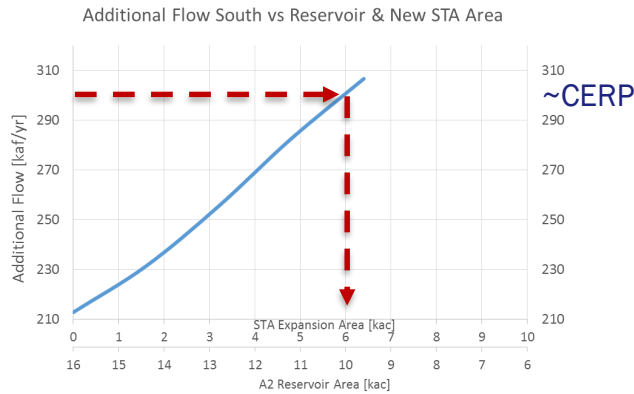


North New River Canal



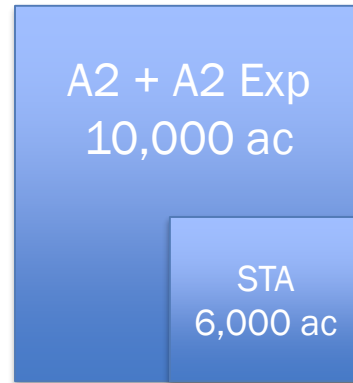
Additional ~300,000 ac-ft  
of average annual flow  
to the Everglades

# 240,000 ac-ft of Storage Initial Concept



~300 kacft add flow ~=  
6 kac STA and 10 kac Res

Miami Canal



North New River Canal

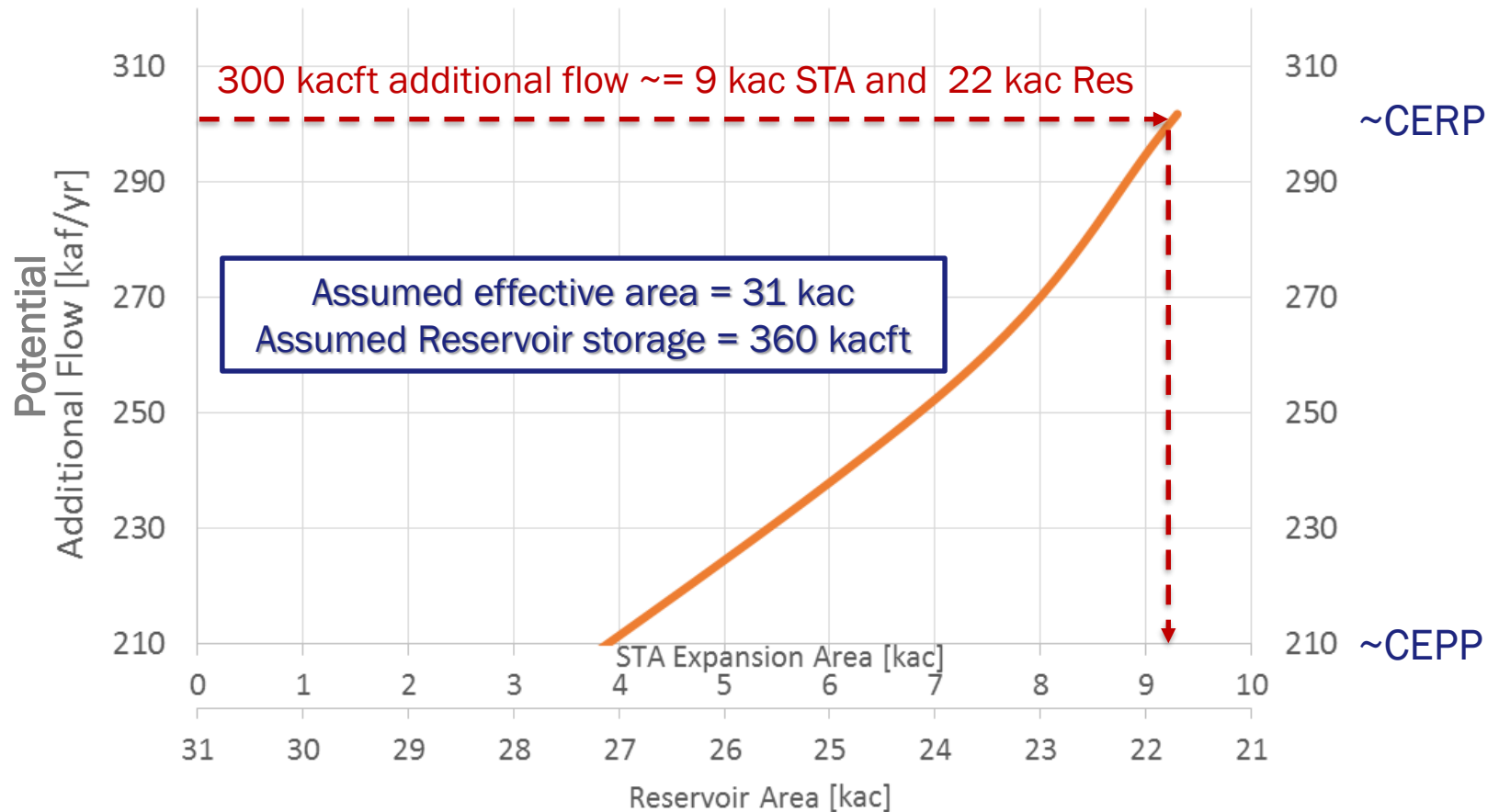


Additional ~300,000 ac-ft  
of average annual flow  
to the Everglades



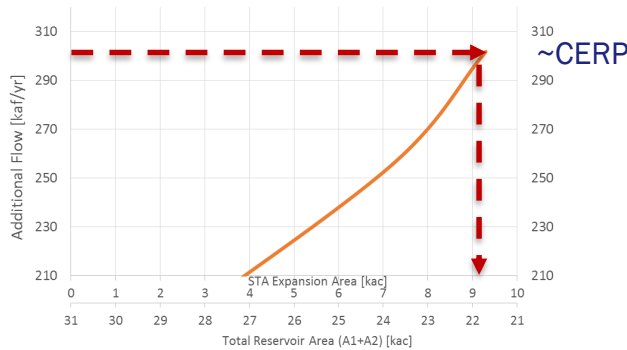


# Initial DMSTA Modeling Results: Potential Additional Flow South vs Reservoir & STA Acreage for 360,000 ac-ft of Storage



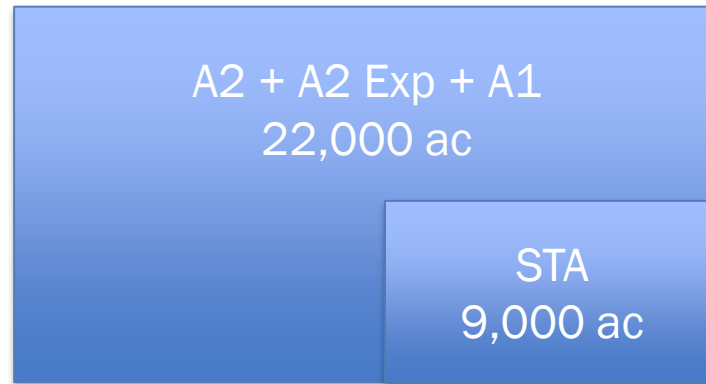
Note: Any point on the line can meet water quality standards

# 360,000 ac-ft of Storage Initial Concept



~300 kacft add flow ~=  
9 kac STA and 22 kac Res

Miami Canal

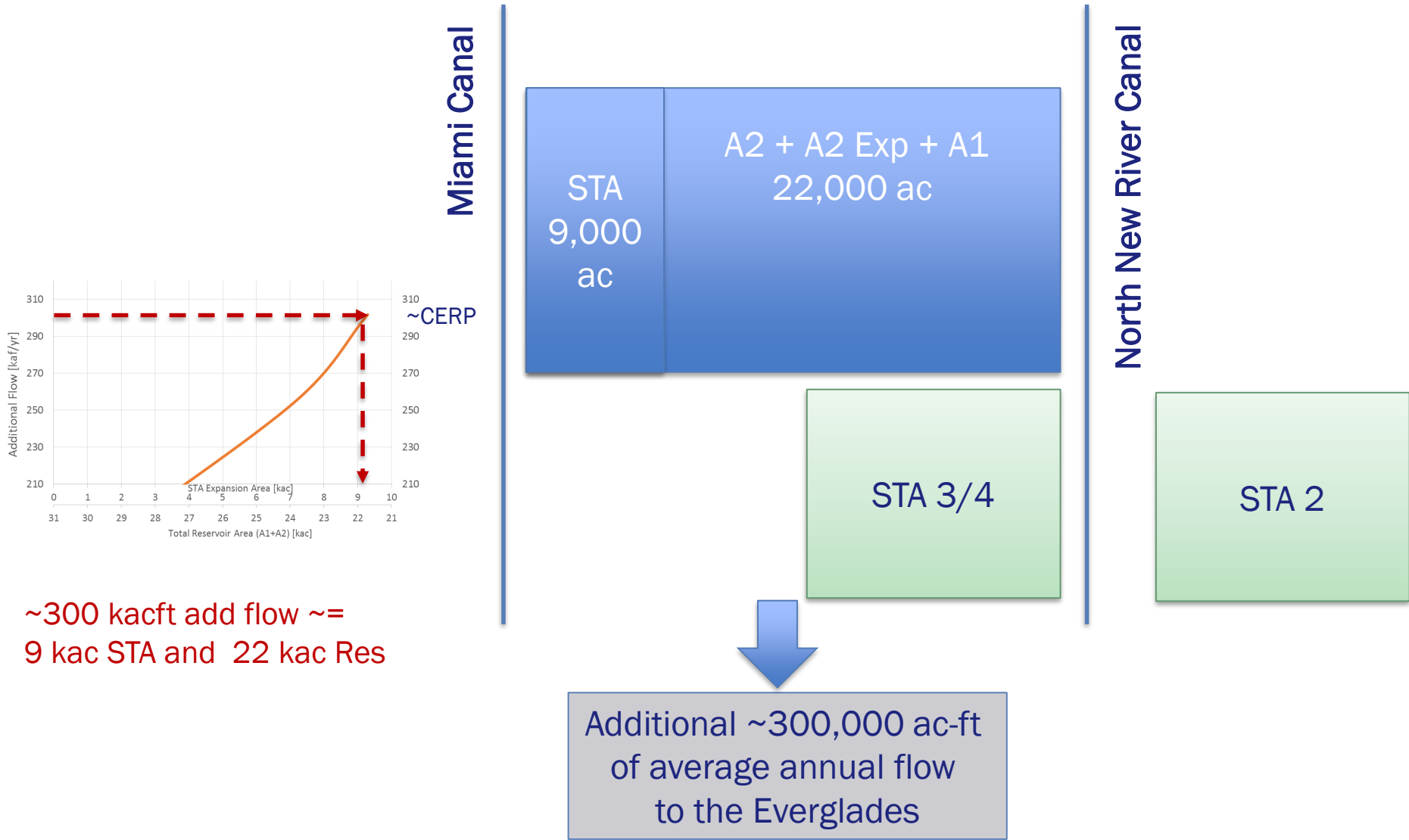


North New River Canal



Additional ~300,000 ac-ft  
of average annual flow  
to the Everglades

# 360,000 ac-ft of Storage Initial Concept



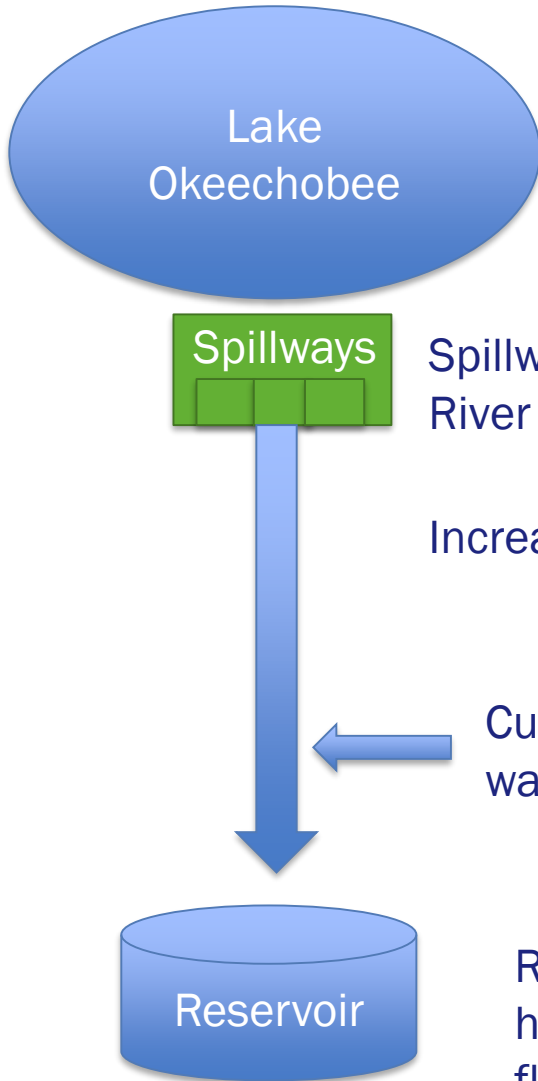
~300 kacft add flow ~=  
9 kac STA and 22 kac Res



# Project Features: Initial Concepts

- Storage reservoir
  - 240,000 ac-ft of storage
  - 360,000 ac-ft of storage
- STAs
  - 6,000-6,500 acres (associated with 240,000 ac-ft storage)
  - 9,000-9,500 acres (associated with 360,000 ac-ft storage)
- Conveyance improvements
  - Canal and structure improvements in Miami and North New River Canals





# Informing the Canal Capacity Discussion

Spillways from Lake Okeechobee into Miami and North New River Canals have capacity limits.

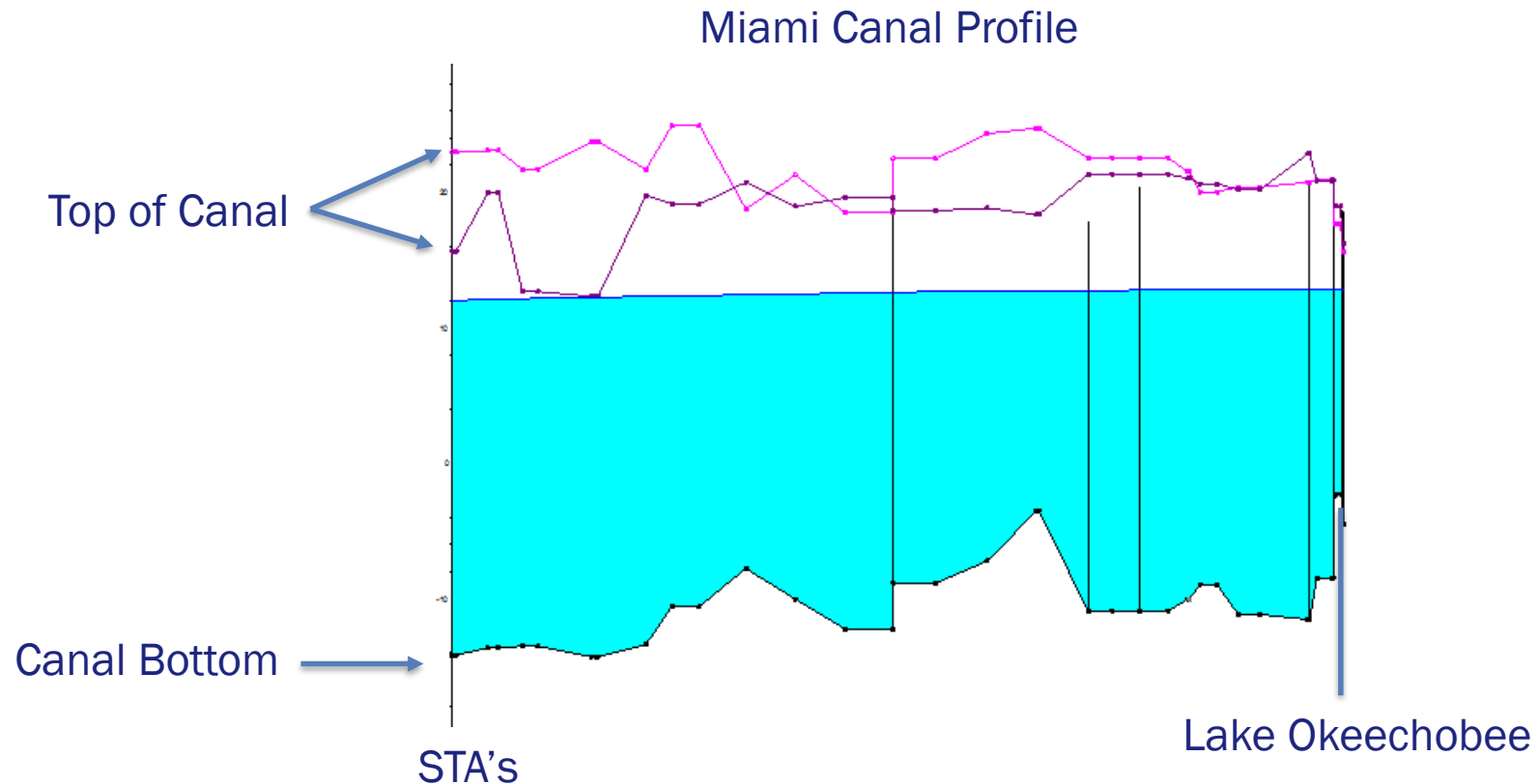
Increase conveyance to meet project objectives.

Current level of service for EAA flood protection and water supply will continue.

Reservoir operations will be used to reduce harmful discharges to the estuaries and improve flows to the Everglades.

# Conveyance

- Goal is to capture additional harmful discharges to the estuaries above what CEPP was able to achieve





EAA Storage Reservoir Feasibility Study  
**NEXT STEPS**

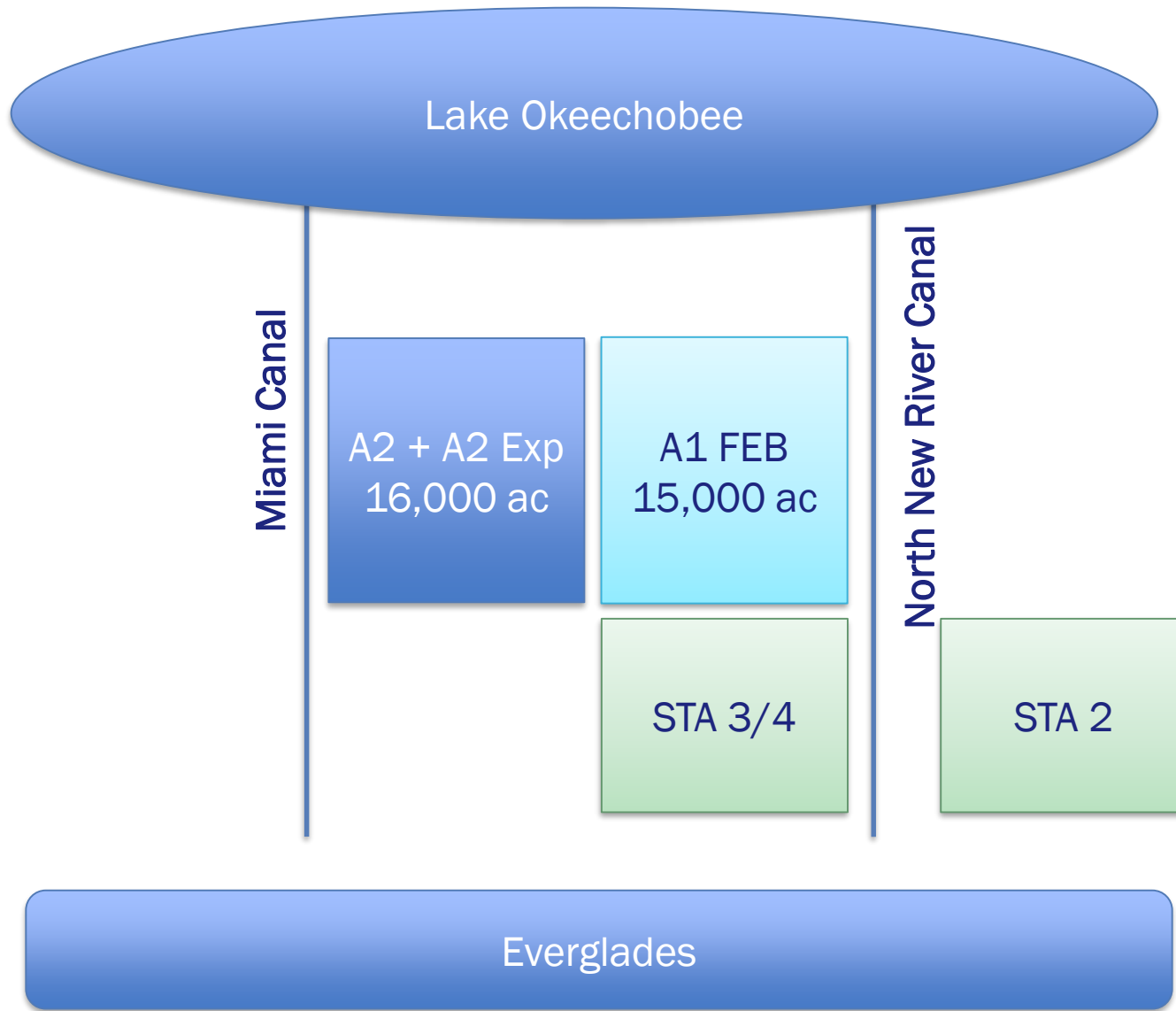
# Development of Alternative Configurations from Initial Concepts

For each reservoir size, configurations will be developed to optimize performance by considering:

- STA location and operation
- Pump Station(s)
- Water Control Structures
- Canal conveyance
- Cost



# Concepts → Alternatives



# Public Meetings

## ■ Project Meetings:

- November 16<sup>th</sup> – Initial Concepts – West Palm Beach
- November 29<sup>th</sup> – Government Agency Coordination Meeting (virtual)
- December 5<sup>th</sup> – Modeling Results - West Palm Beach

## ■ Other Public Meetings:

- December 7<sup>th</sup> – Water Resources Analysis Coalition (WRAC) Meeting - West Palm Beach
- December 14<sup>th</sup> – Governing Board Meeting - West Palm Beach

# Public Comment Opportunities

- Public Comments Cards
- Email Address [EAAreservoir@sfwmd.gov](mailto:EAAreservoir@sfwmd.gov)
- Mailing address:
  - Mike Albert, Project Manager
  - South Florida Water Management District
  - 3301 Gun Club Road, MSC 8312
  - West Palm Beach, FL 33406
- Scoping comment period ends **November 22, 2017**
- Additional information available at [www.sfwmd.gov/EAAreservoir](http://www.sfwmd.gov/EAAreservoir)

# DISCUSSION

[www.sfwmd.gov/EAAreservoir](http://www.sfwmd.gov/EAAreservoir)

