EAA STORAGE RESERVOIR

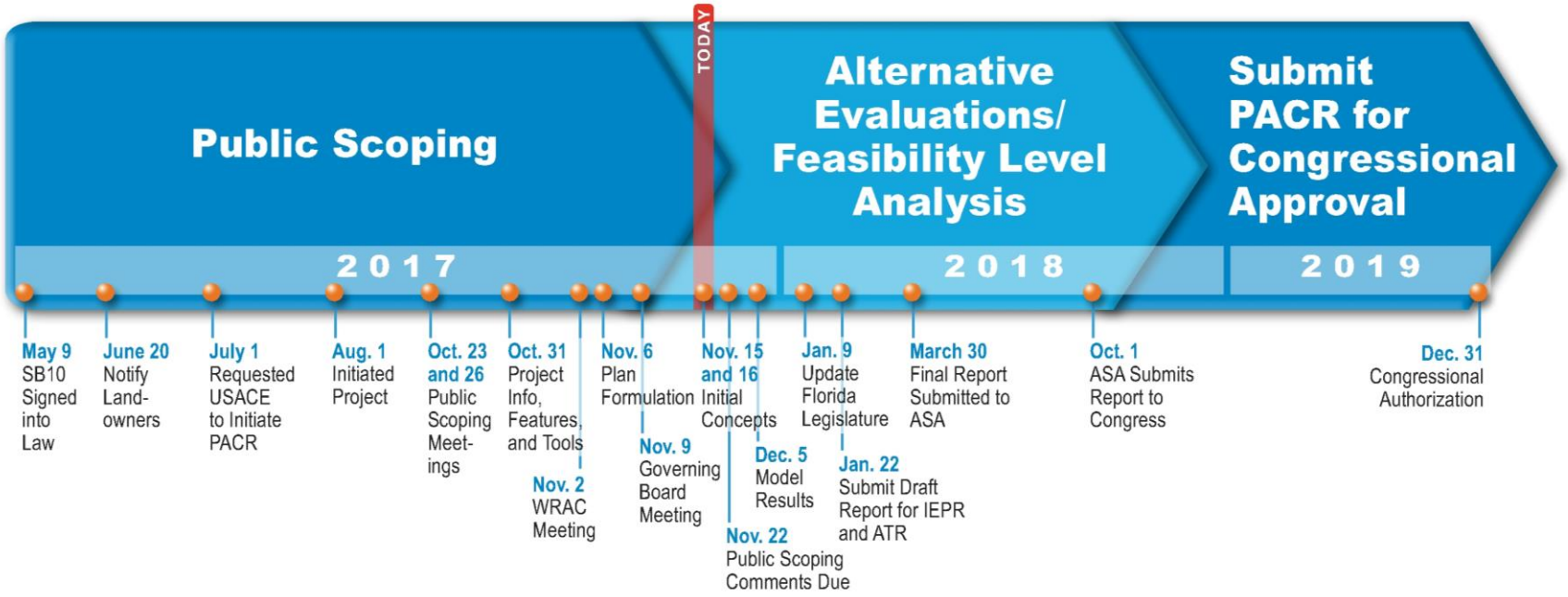
Everglades Agricultural Area Storage Reservoir Feasibility Study

November 16, 2017

Meeting Agenda

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

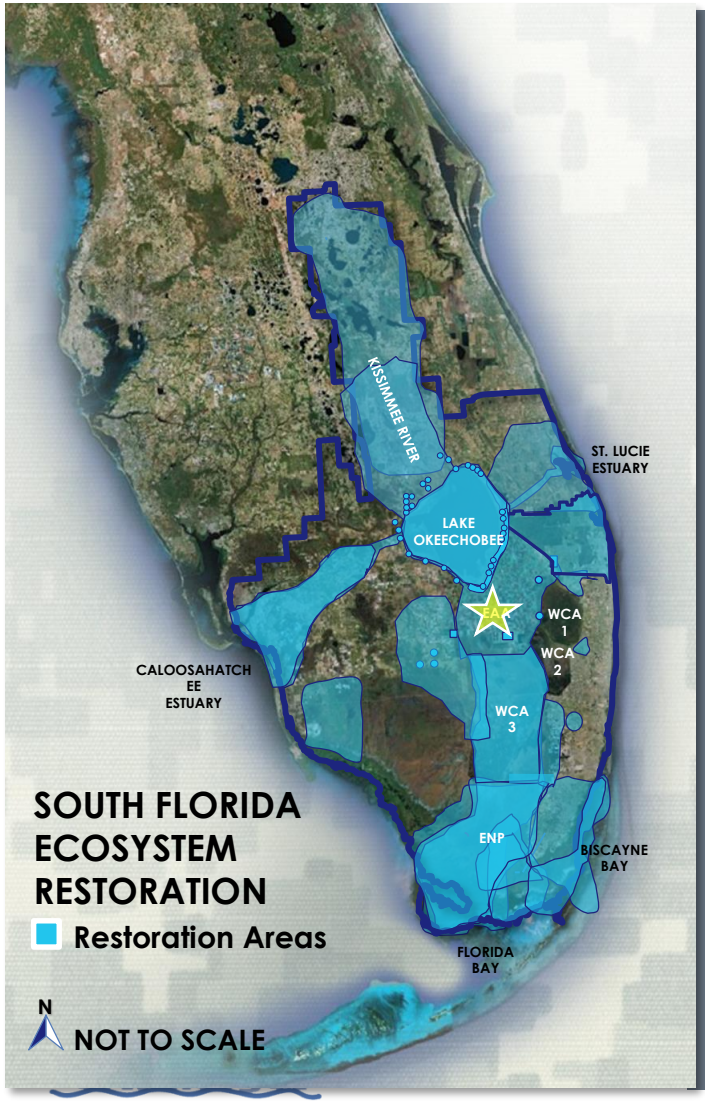
EAA Storage Reservoir Feasibility Study Timeline



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

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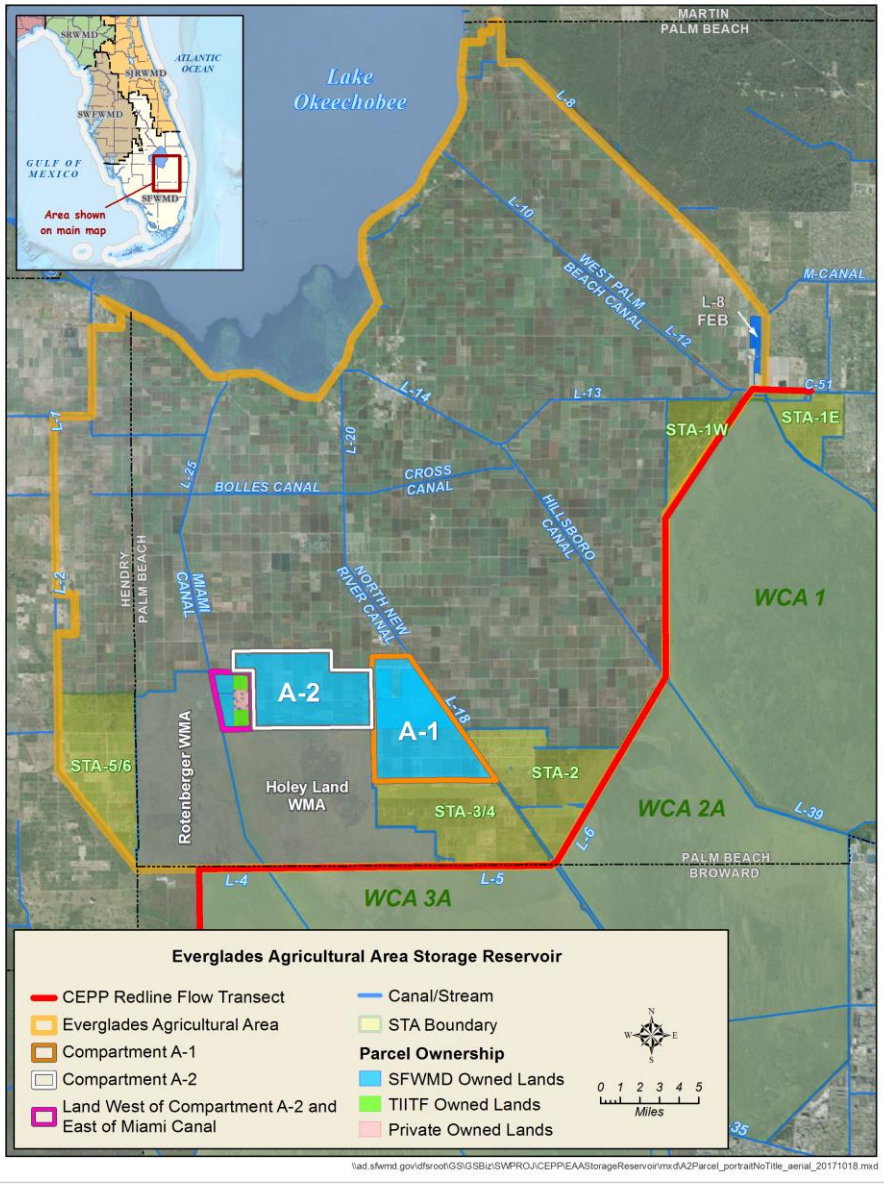
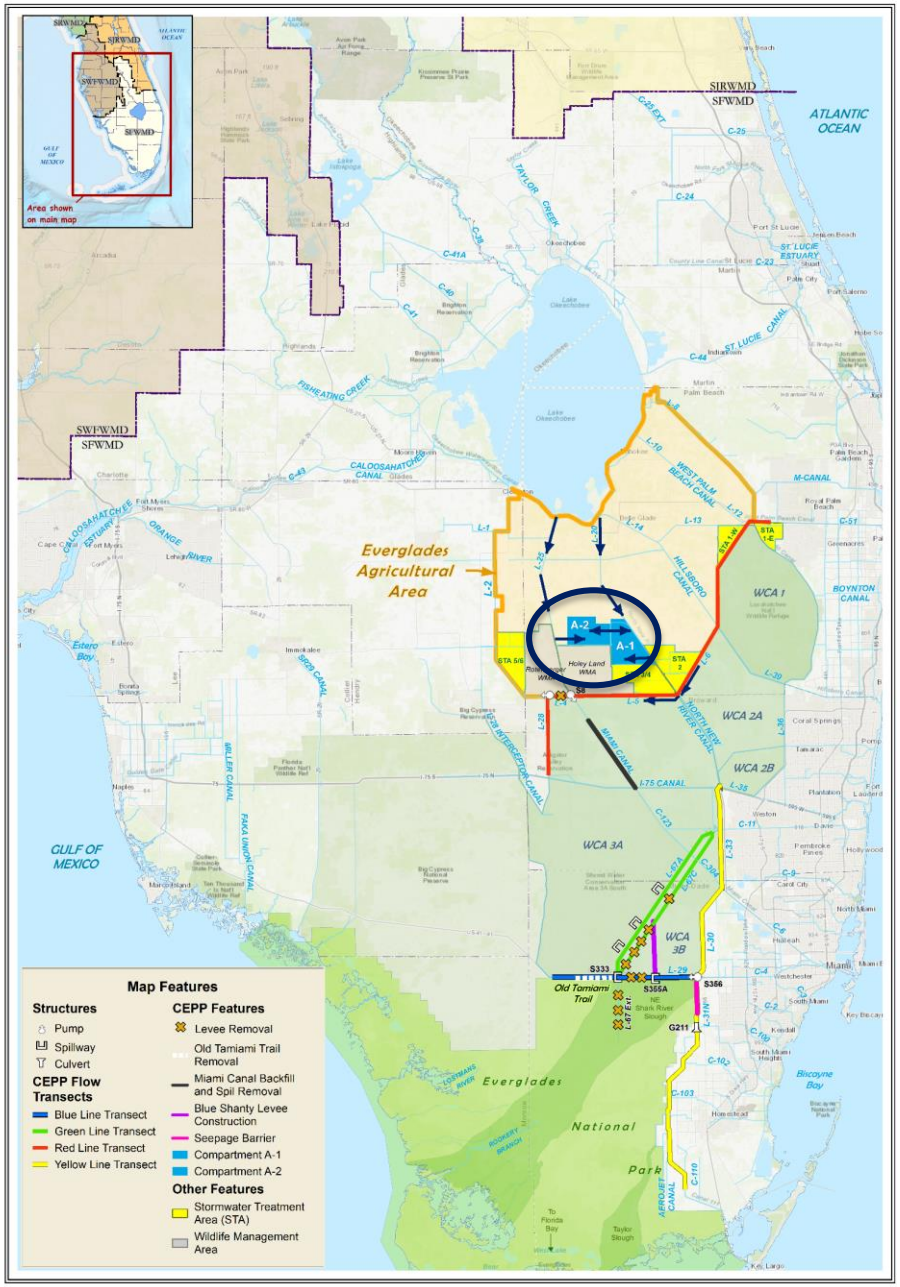
Moving Water South- Existing Conditions

- Water flows out of Lake Okeechobee to the south through the lake outlet structures to the major canals
  - L-8 Canal
  - West Palm Beach Canal
  - Hillsboro Canal
  - North New River Canal
  - Miami Canal





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

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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

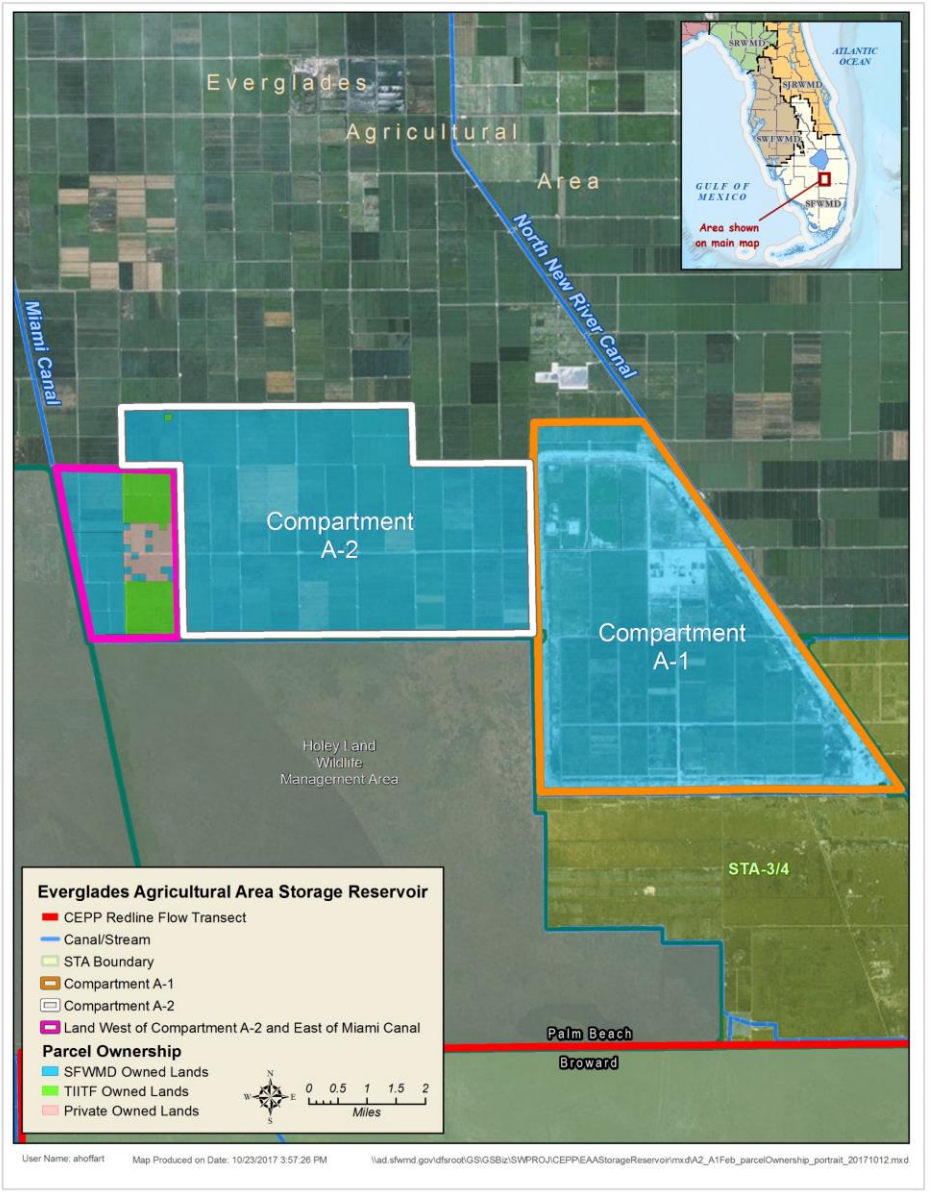
Constraints

- **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

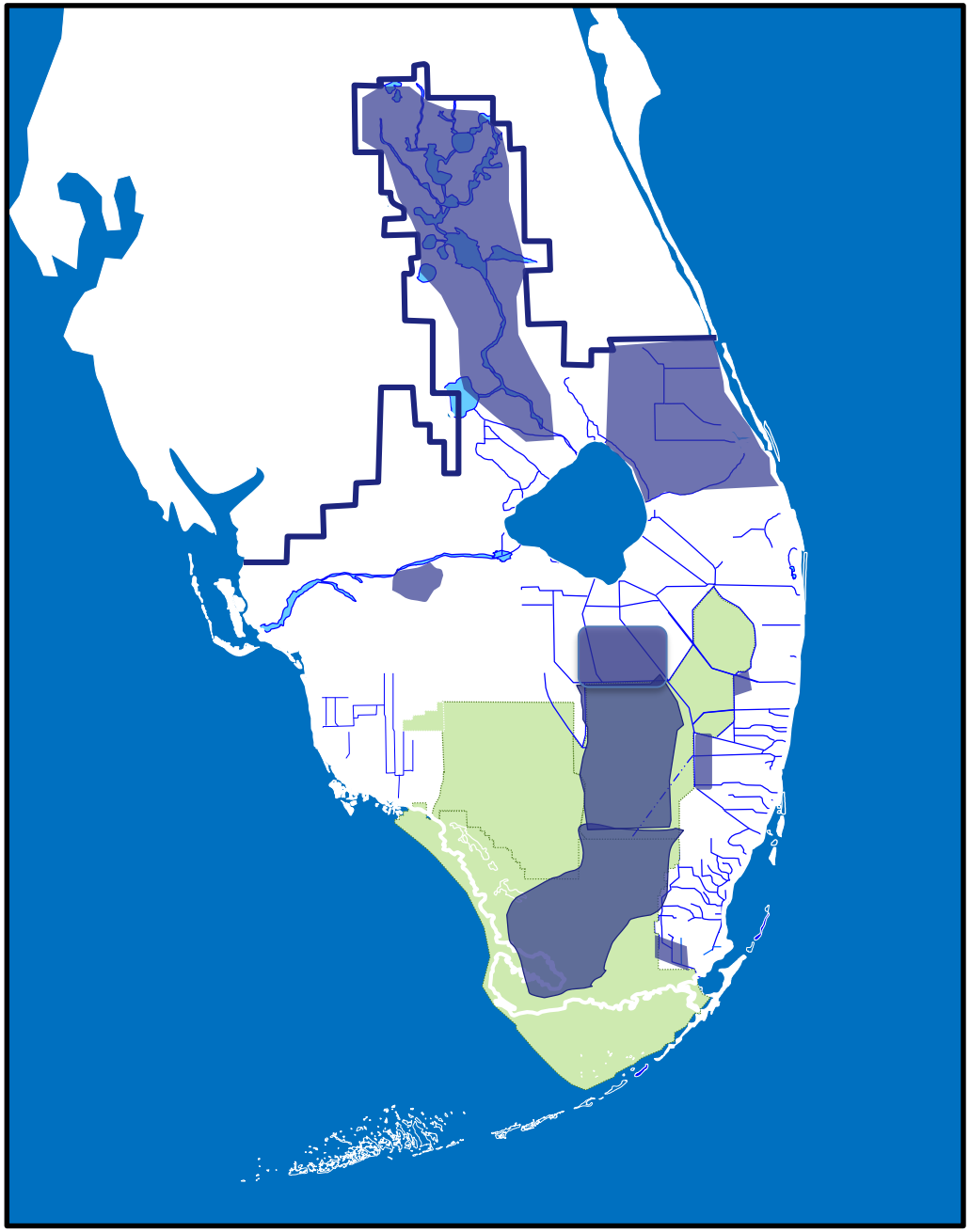
Baseline Modeling

- 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)

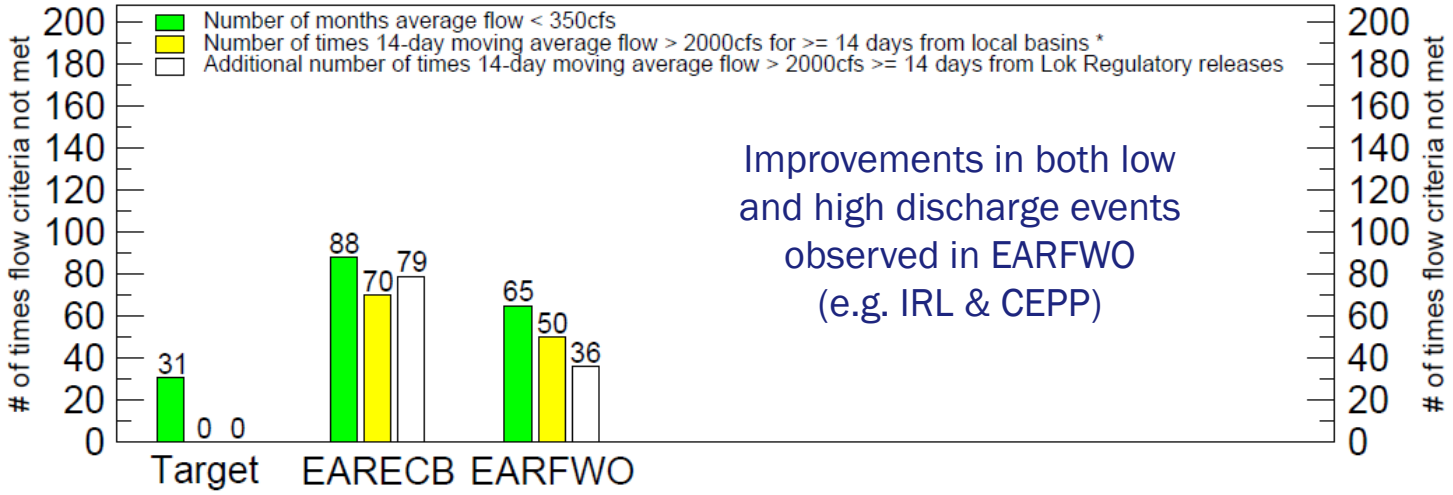
- Existing Condition Baseline (EARECB) attempts to represent on-ground conditions circa 2017
  - Assumptions per CEPP RSMBN ECB and IORBL1 simulations (depending on sub-basin) and CEPP RSMGL 2012EC (Scenarios defined in CEPP Project Implementation Report)
- Future Without Project Baseline (EARFWO) attempts 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

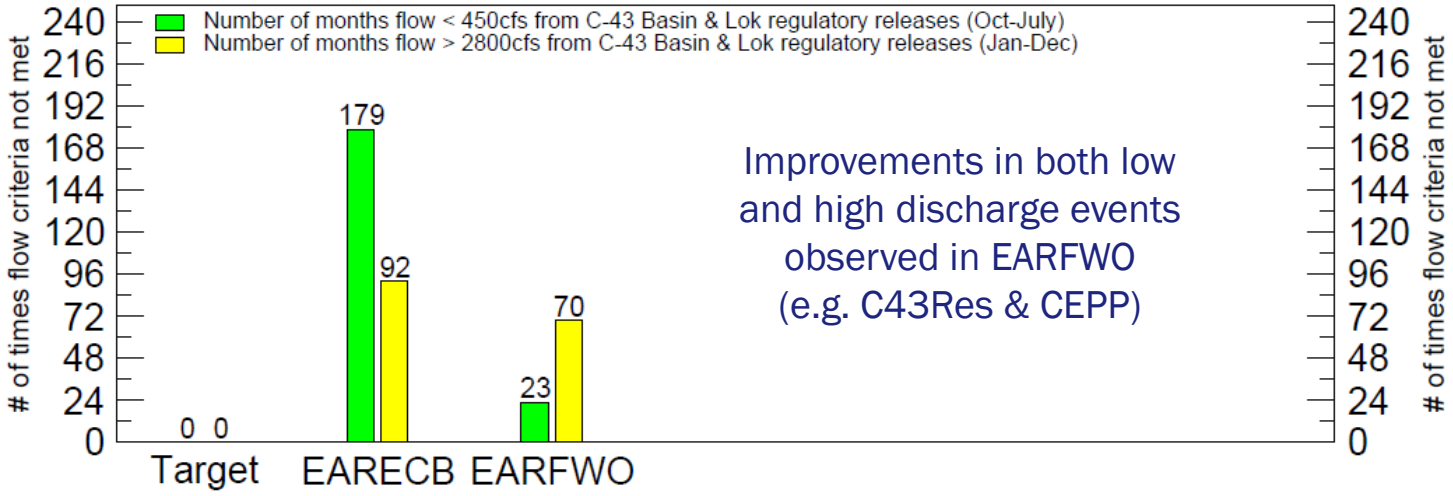
- Kissimmee Headwaters Revitalization
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- Other 1st and 2nd Generation CERP & Foundation Projects
- Restoration Strategies / Central Everglades Project Features in the Everglades Agricultural Area
- Central Everglades Project Features in the Greater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

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

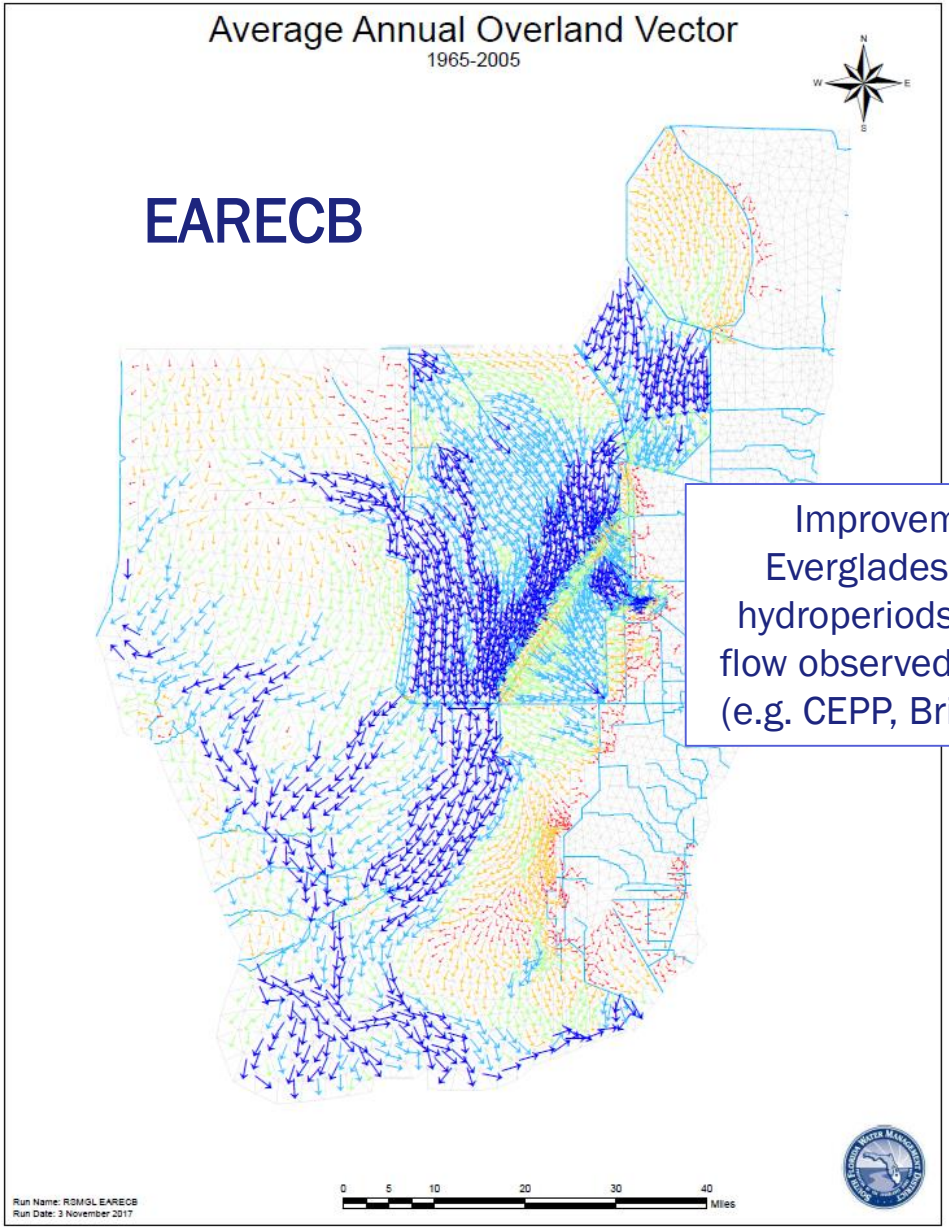


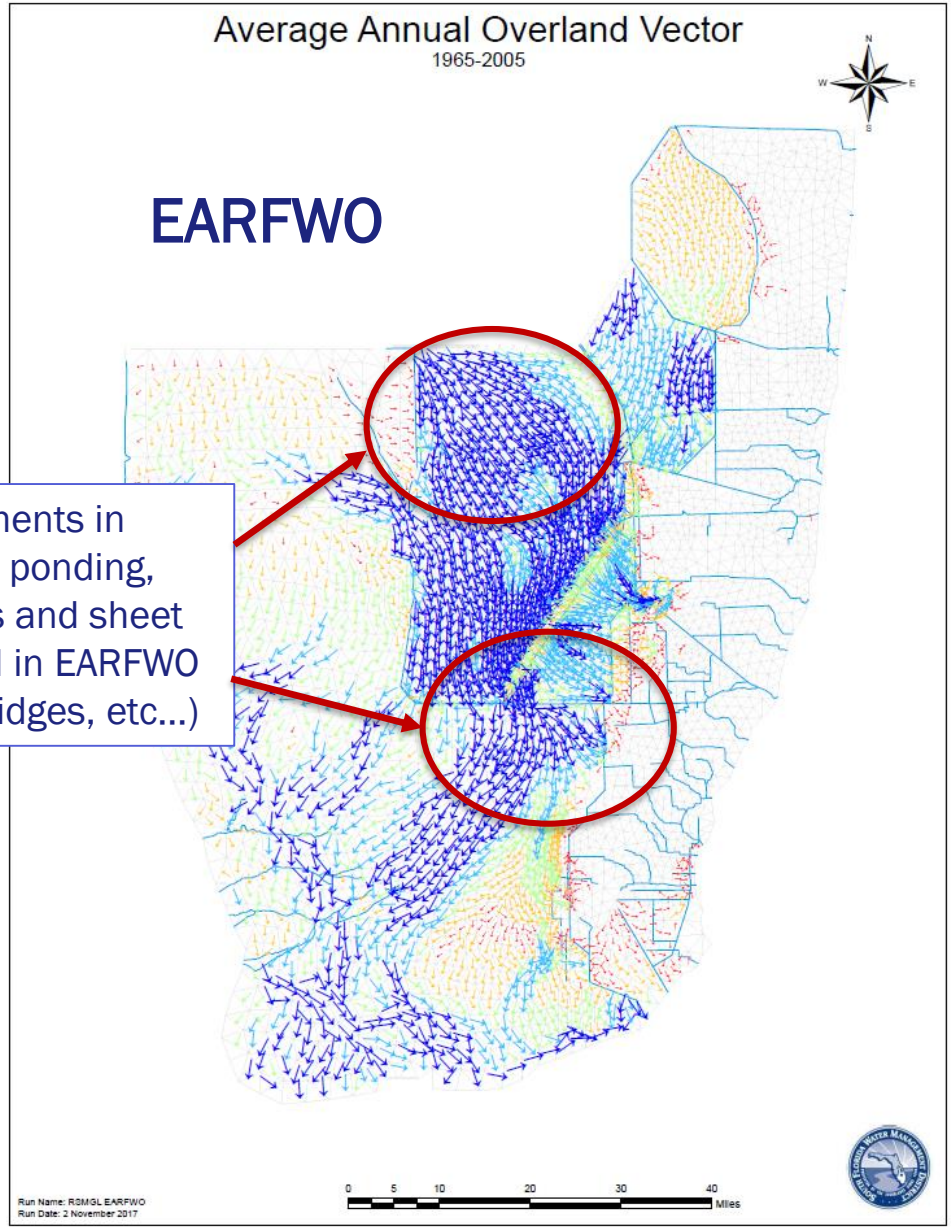
Improvements in both low and high discharge events observed in EARFWO (e.g. IRL & CEPP)

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



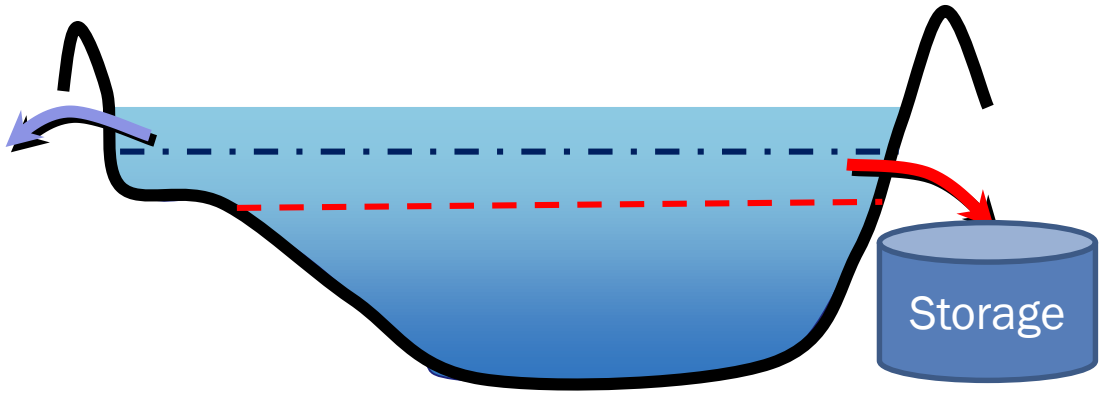
Improvements in both low and high discharge events observed in EARFWO (e.g. C43Res & CEPP)





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

Recall 10/31 Baselines Presentation: One Challenge to Consider

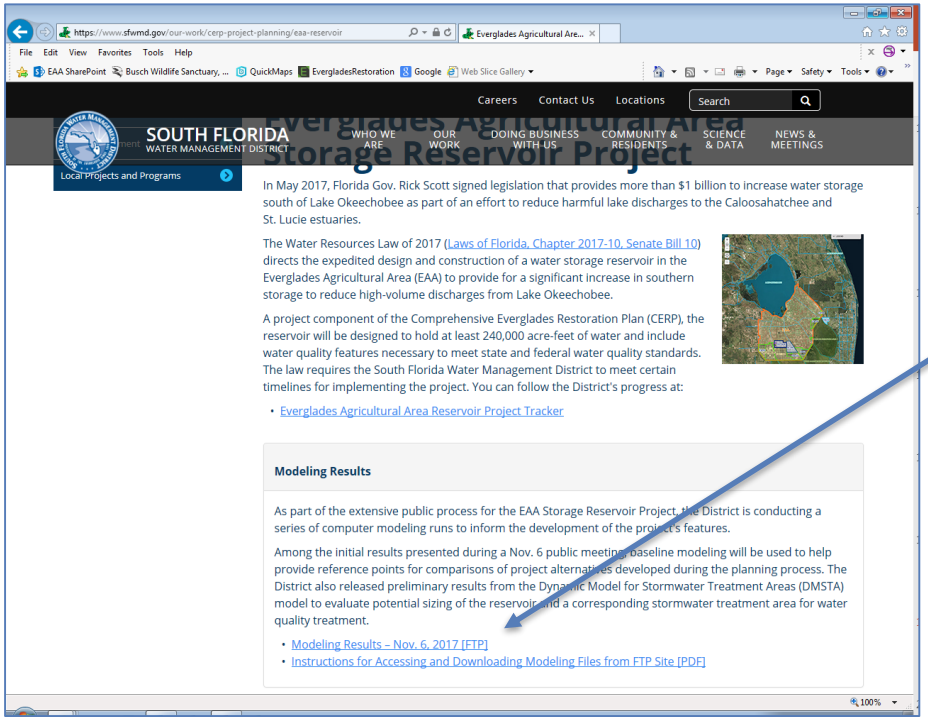


Existing Lake Okeechobee regulatory release protocols balance multiple objectives for Lake and system management.

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

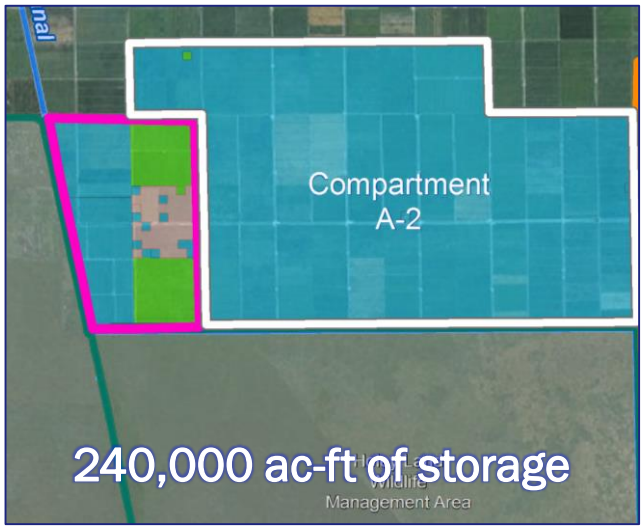
- Modeling data is available via ftp at:
  ftp://ftp.sfwmd.gov/pub/EAASR/

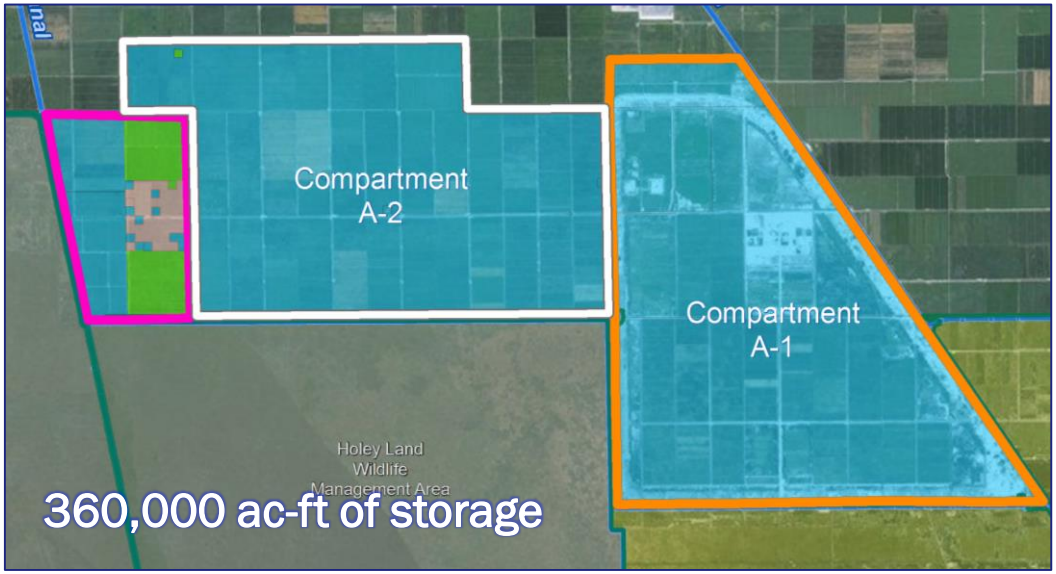


Link can also be found on
www.sfwmd.gov/EAAreservoir

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

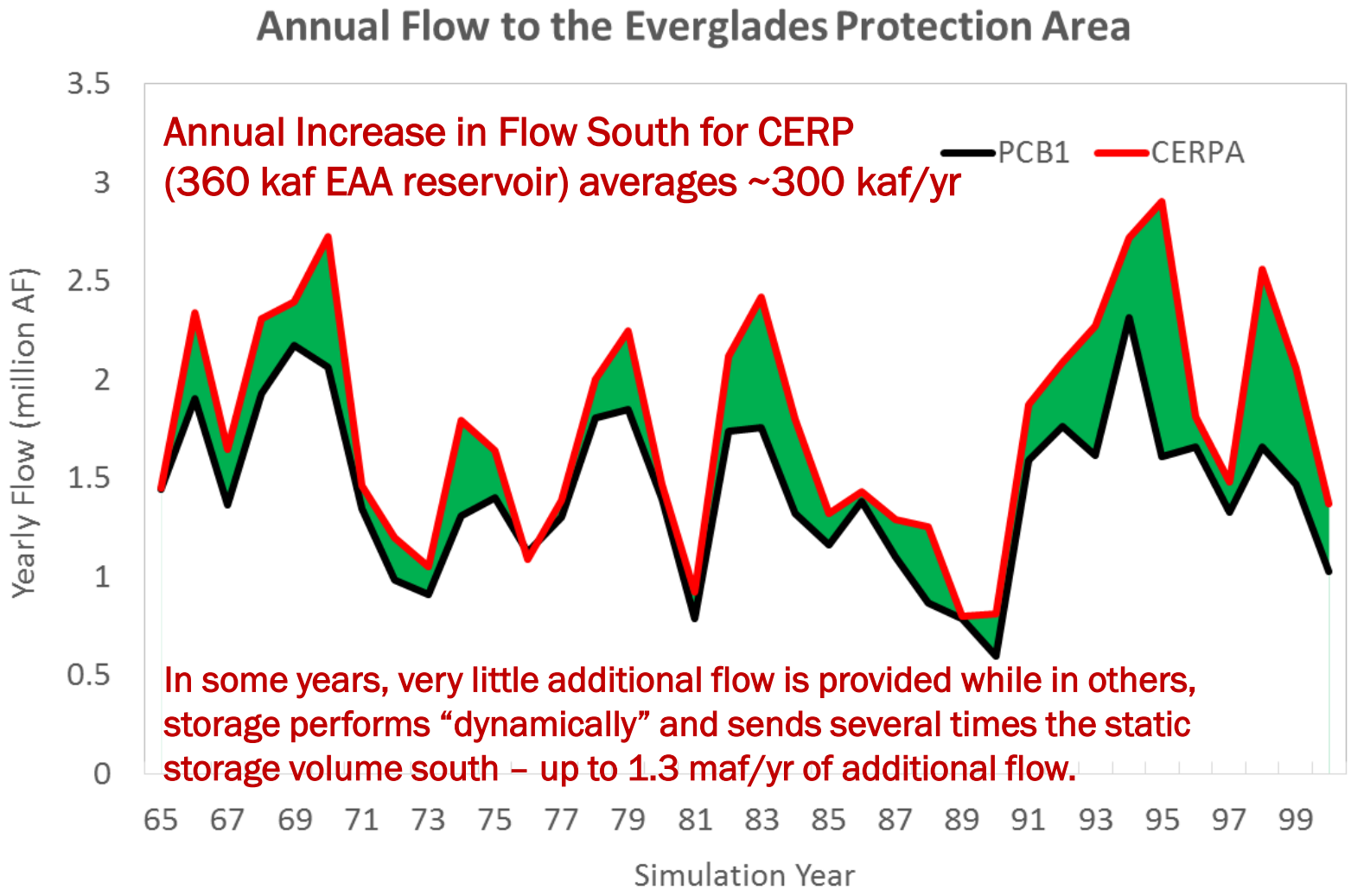




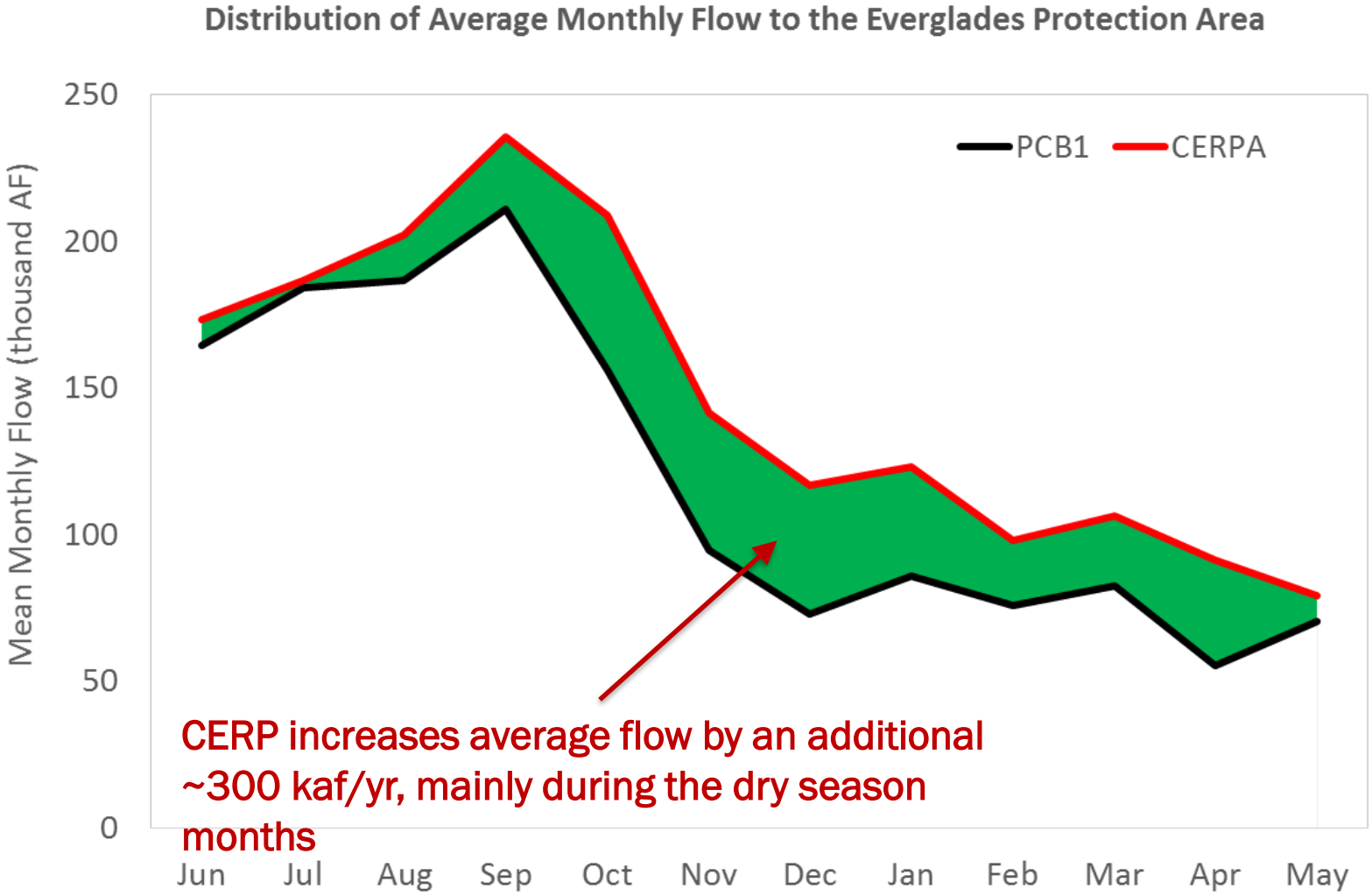
CERP Vision for EAA Storage Reservoir

- 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



Characteristics of Additional Flow South in CERP (cont)



EAA Storage Reservoir Feasibility Study

INITIAL CONCEPTS

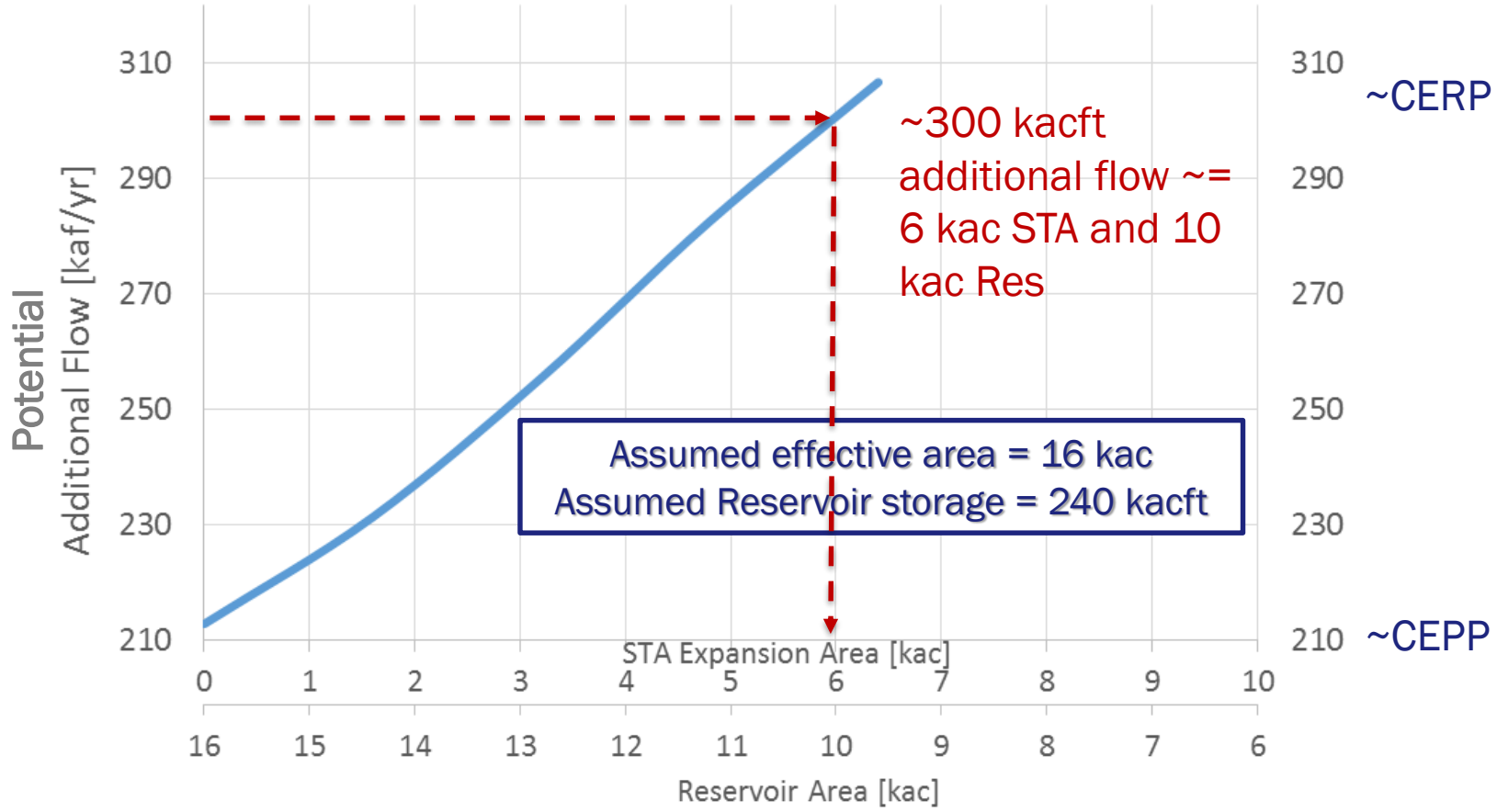
Project Features

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

Screening Process Strategy

- Used 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

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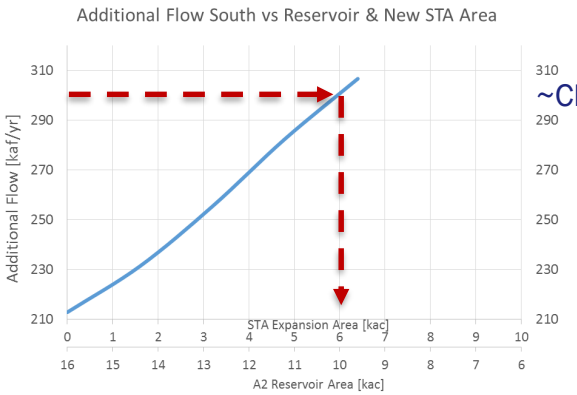
240,000 ac-ft of Storage Initial Concept



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

Miami Canal

A2 + A2 Exp
10,000 ac

STA
6,000 ac

A1 FEB
15,000 ac

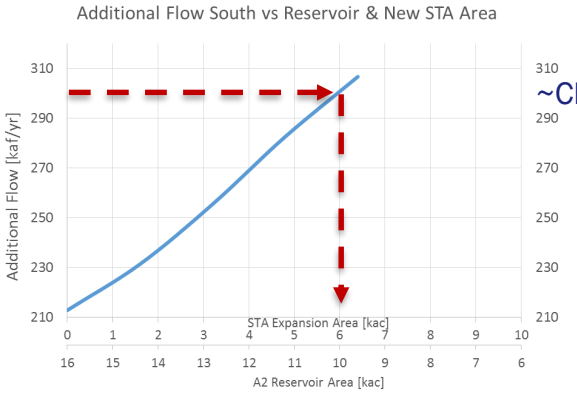
STA 3/4

North New River Canal

STA 2

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

240,000 ac-ft of Storage Initial Concept



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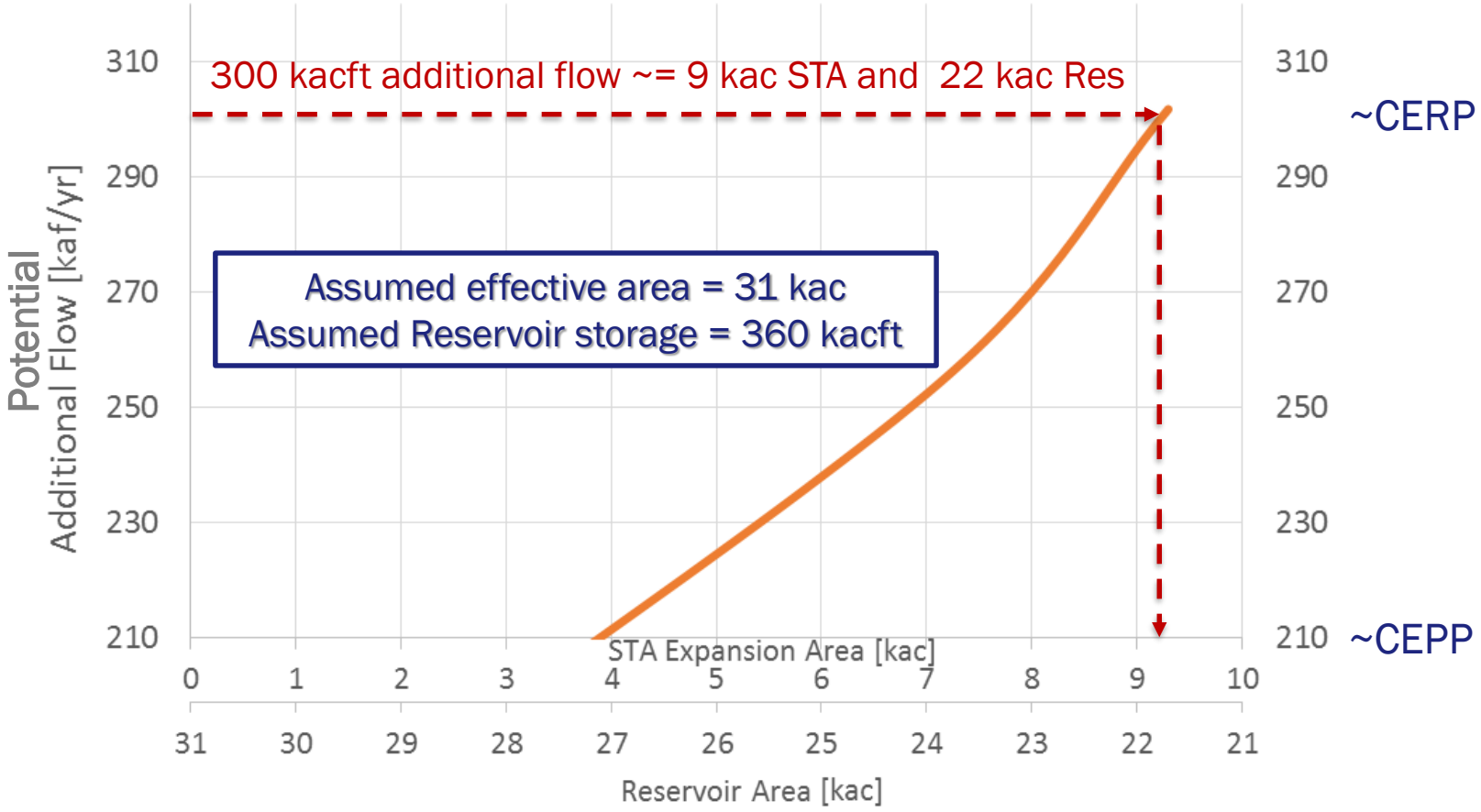
Initial DMSTA Modeling Results: Potential Additional Flow South vs Reservoir & STA Acreage for 360,000 ac-ft of Storage



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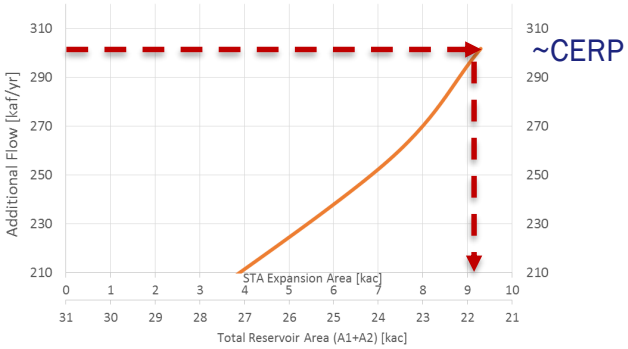
EAA STORAGE RESERVOIR

360,000 ac-ft of Storage Initial Concept



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

Miami Canal

A2 + A2 Exp + A1
22,000 ac

STA
9,000 ac

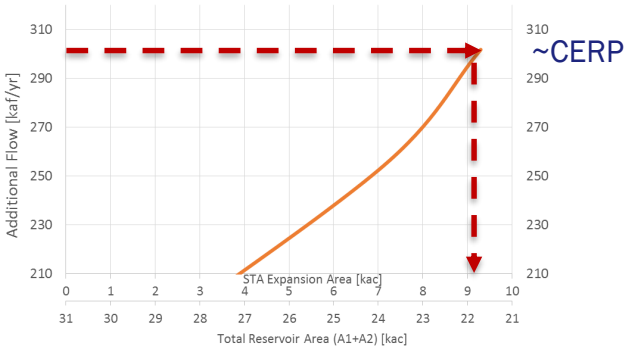
STA 3/4

North New River Canal

STA 2

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

360,000 ac-ft of Storage Initial Concept



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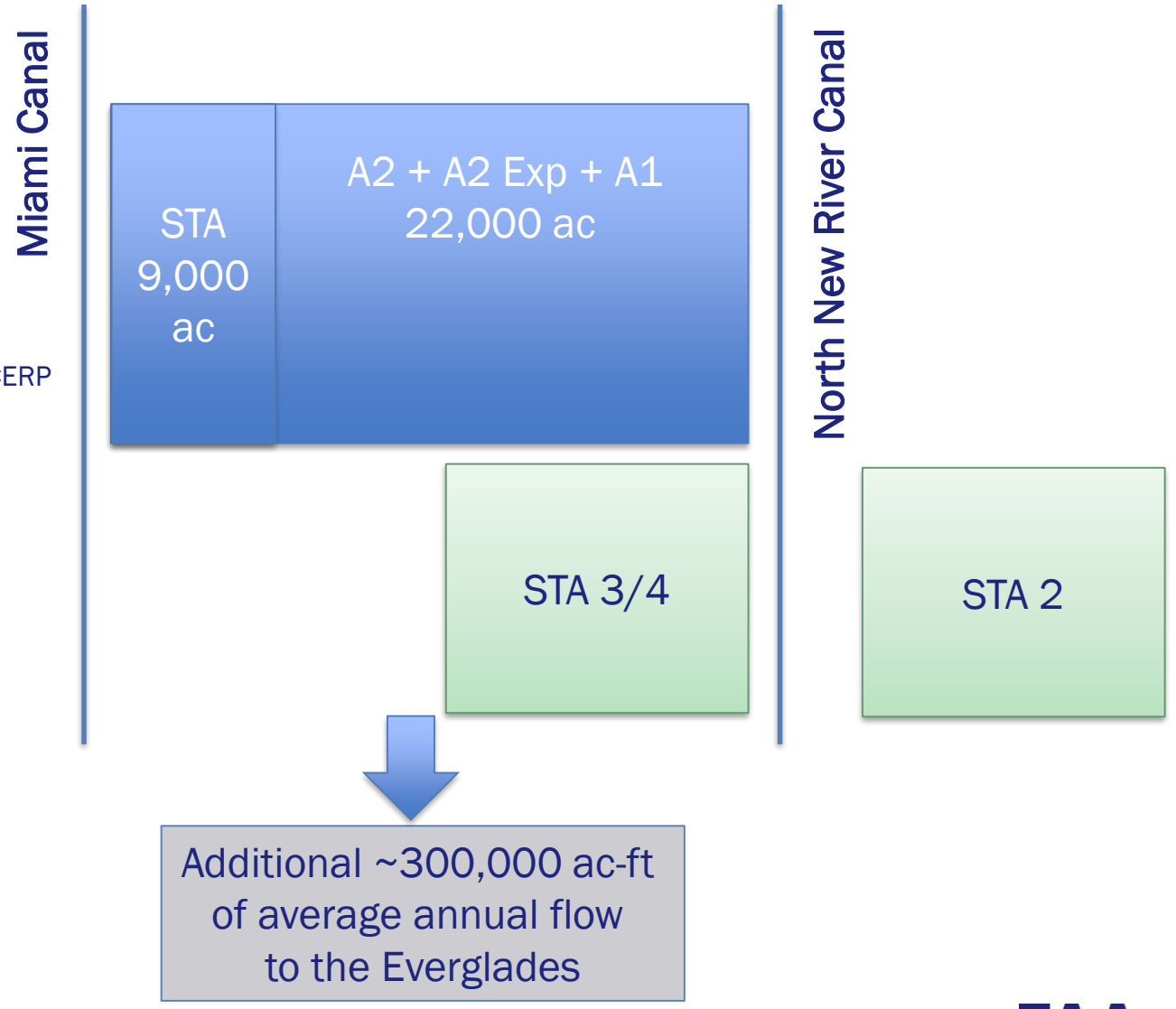
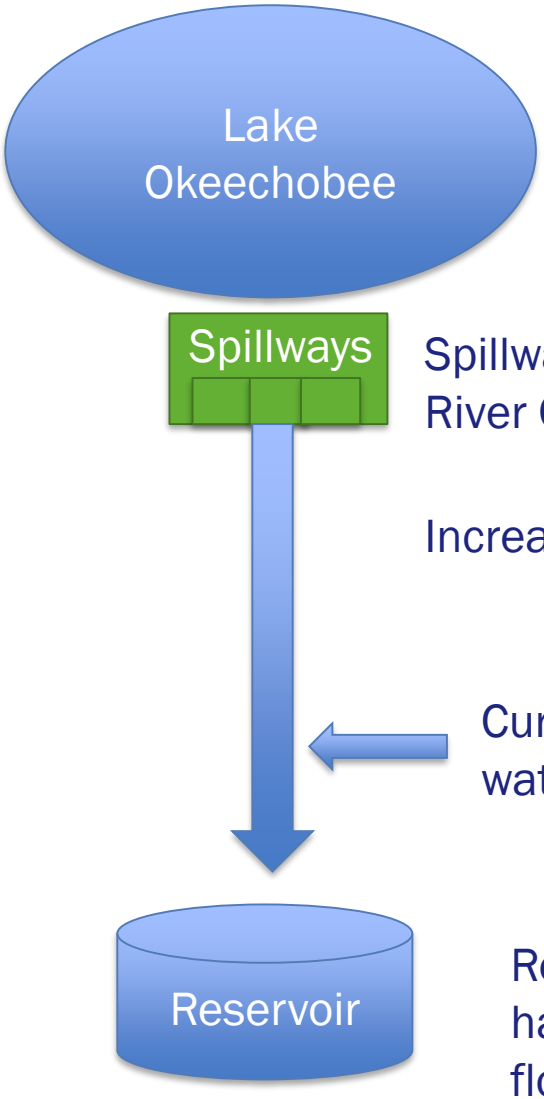


Project Features: Initial Concepts

- 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.

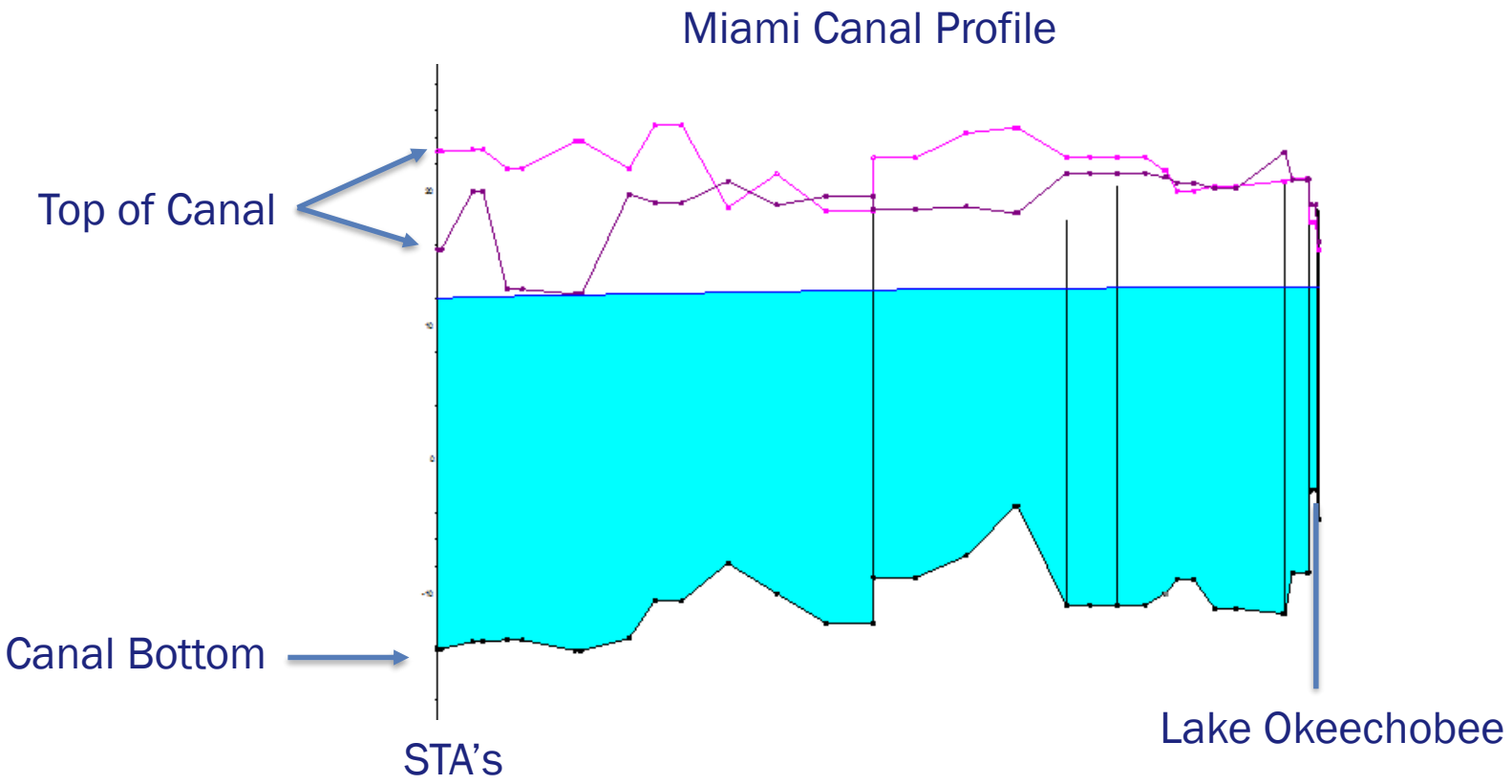
Increase conveyance to meet project objectives.

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

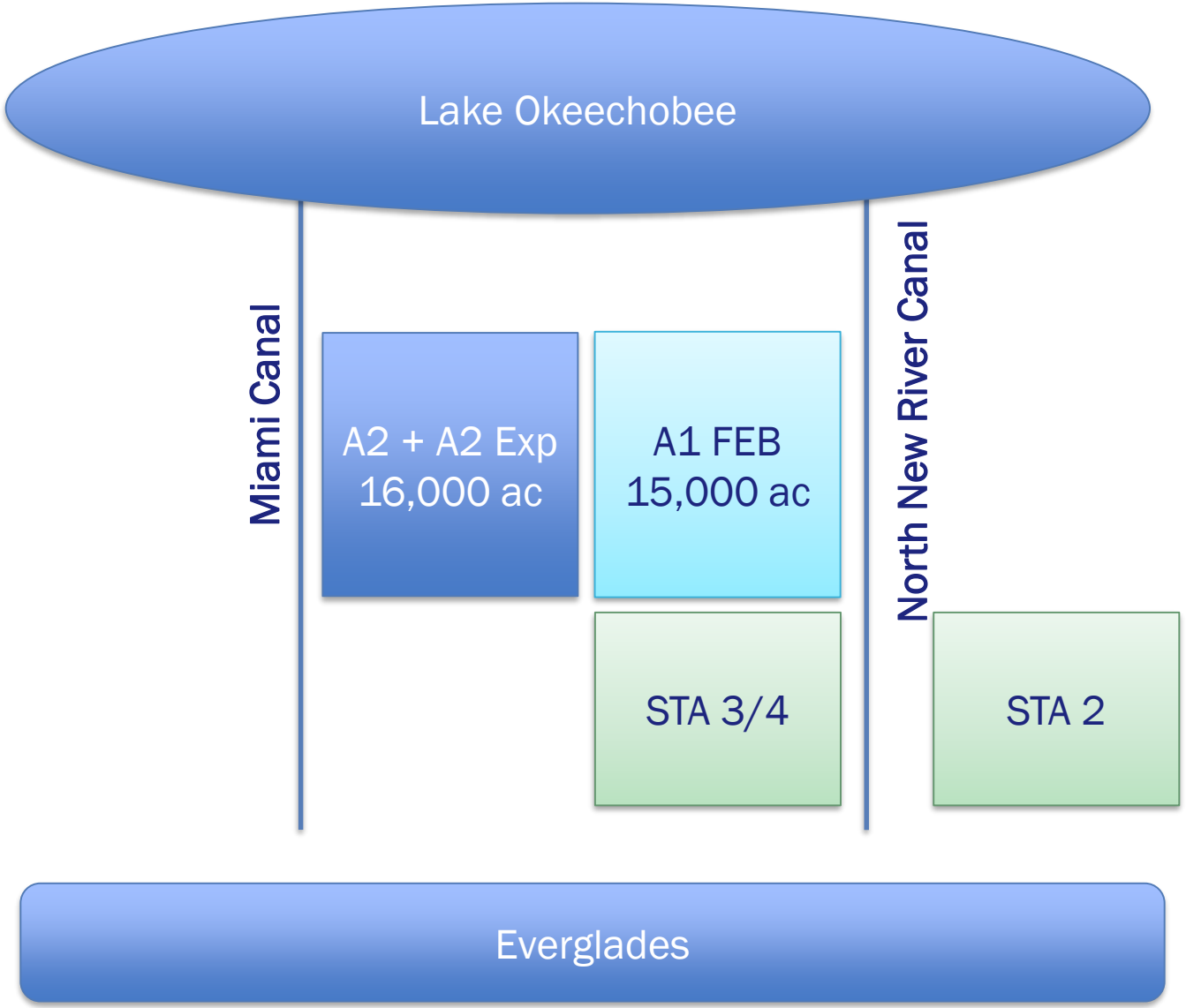
NEXT STEPS

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 16th – Initial Concepts – West Palm Beach
  - November 29th – Government Agency Coordination Meeting (virtual)
  - December 5th – Modeling Results - West Palm Beach
- **Other Public Meetings:**
  - December 7th – Water Resources Analysis Coalition (WRAC) Meeting - West Palm Beach
  - December 14th – Governing Board Meeting - West Palm Beach

Public Comment Opportunities

- Public Comments Cards
- Email Address 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

DISCUSSION

www.sfwmd.gov/EAAreservoir