

# CENTRAL EVERGLADES PLANNING PROJECT



## Water Resources Advisory Commission

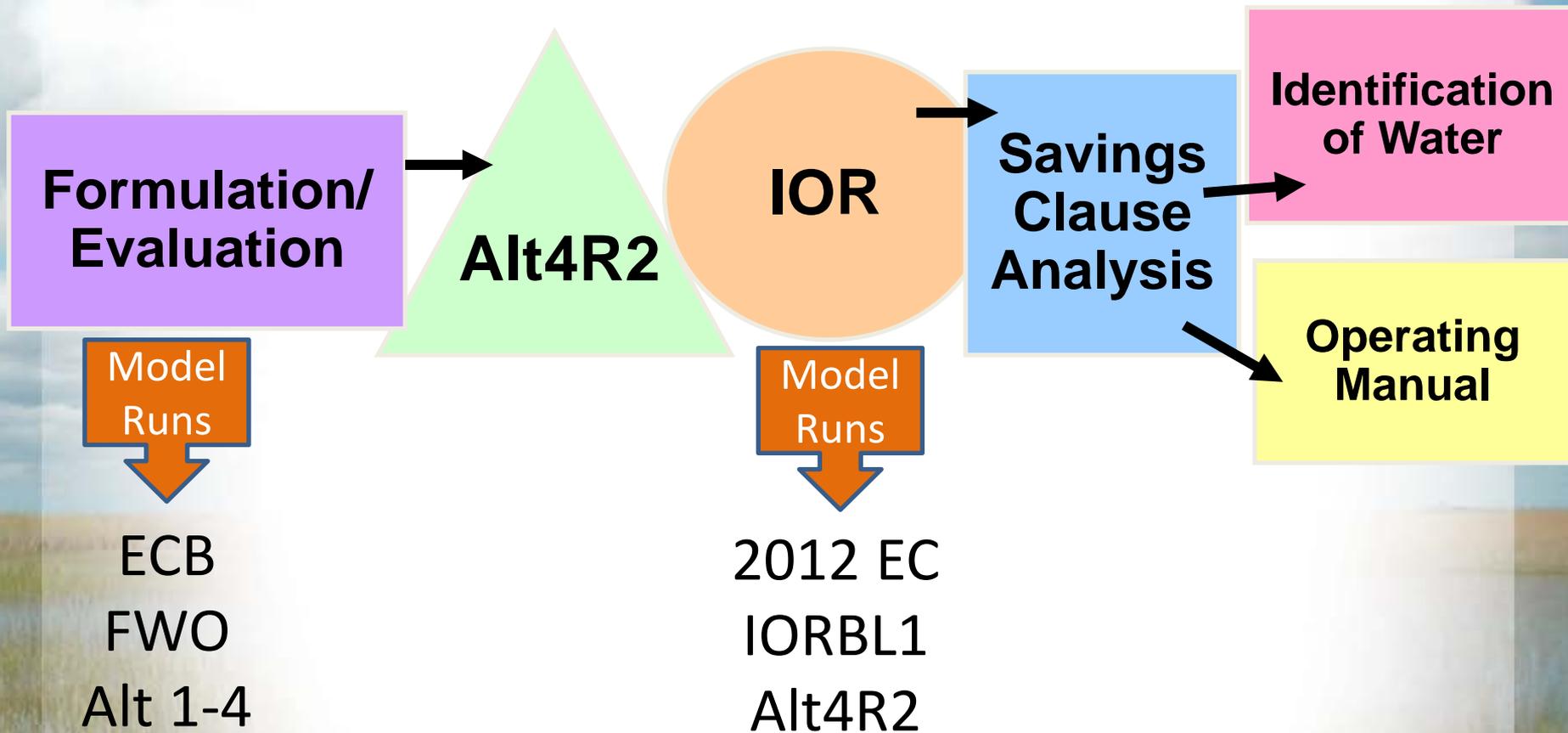
PRESENTED BY

Brenda Mills  
Principal Scientist

South Florida Water  
Management District

July 8, 2013

# Relationship Among PIR Tasks



Alt4R, R1 & R2

# Savings Clause and Project Assurance Requirements

Federal and State law require:

**Savings Clause** – WRDA 2000 Sec. 601(h)(5); Sec. 373.1501, F.S.

- Elimination or transfer of an existing legal sources of water (user) must be addresses
- Maintain existing level of flood protection

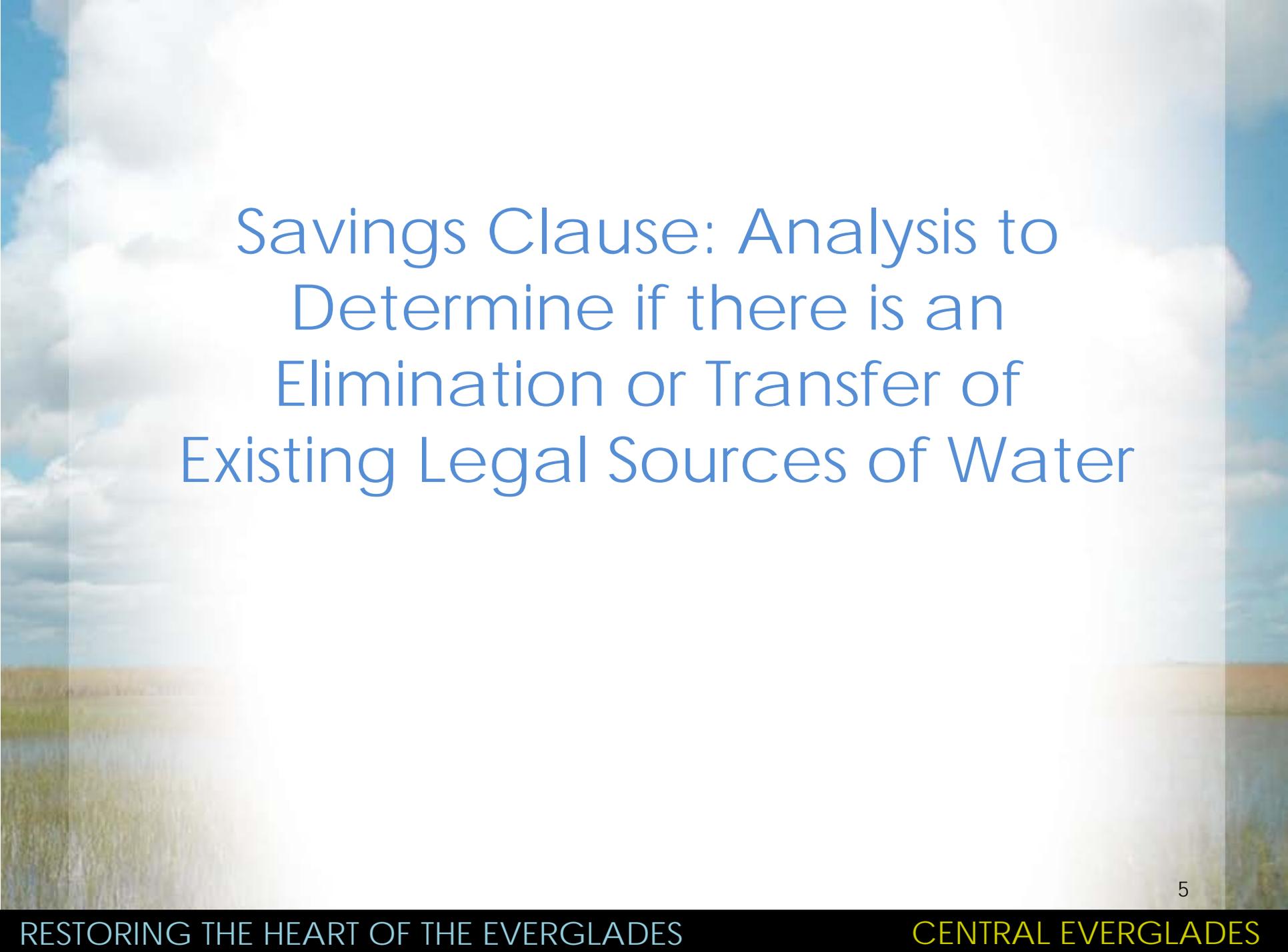
**Project Assurances** - WRDA 2000 Sec. 601(h)(4)(A); Sec. 373.470, F.S.

- Identify water for the natural system
- Identify water for other water-related needs

# CEPP Model Simulations

Steps	Base	With Project
1	Existing Conditions Baseline = 2012EC	
2	Pre-CERP Baseline = ECB	Initial Operating Regime = <b>Alt4R2</b>
3	Initial Operating Regime without project = <b>IORBL1</b>	
If <b>no significant</b> reduction, then requirements of Savings Clause have been met.		

Note- Step 1 model comparison to be used for 1501 analysis

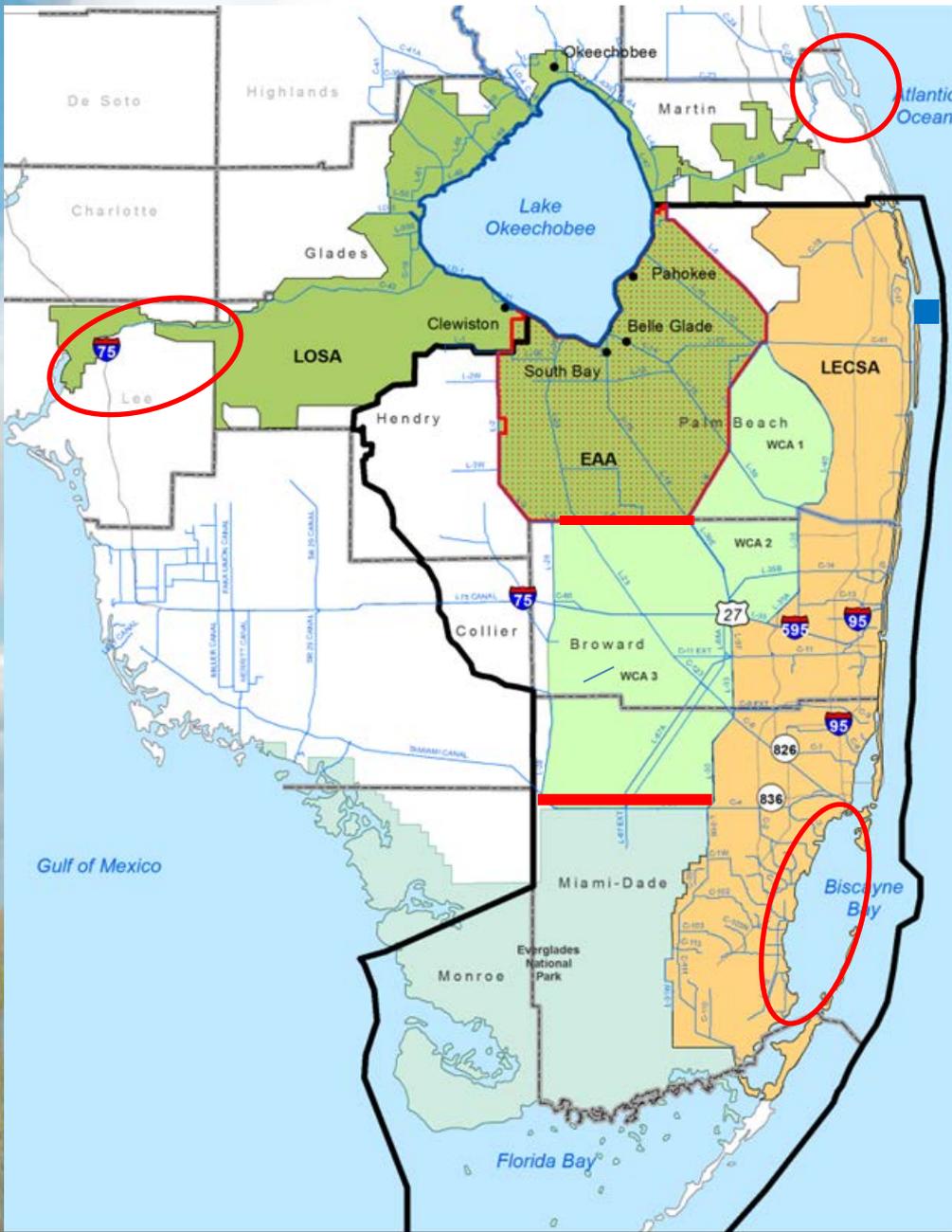


Savings Clause: Analysis to  
Determine if there is an  
Elimination or Transfer of  
Existing Legal Sources of Water

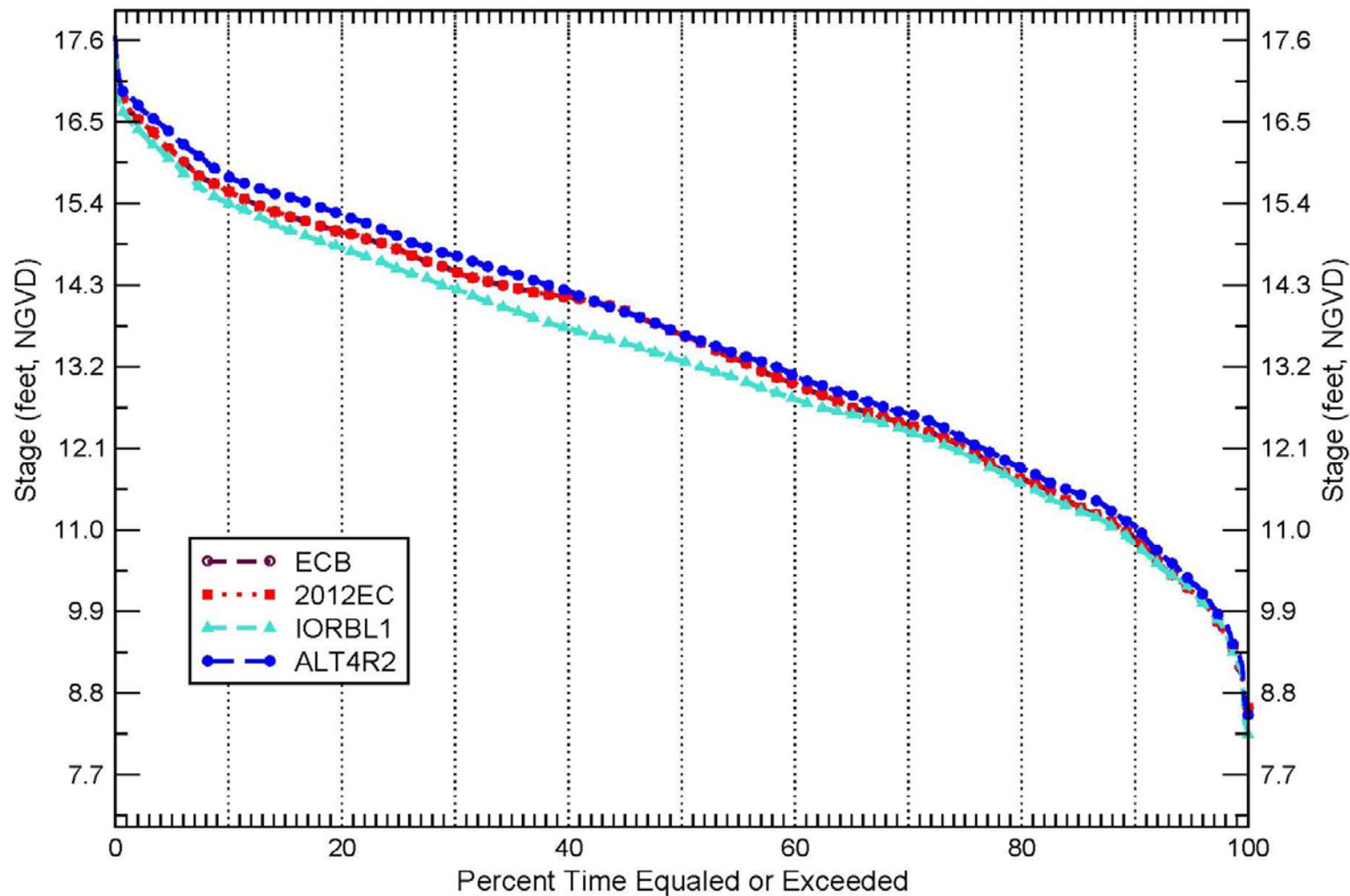
# Savings Clause

Determine if existing legal sources will be eliminated or transferred as result of project implementation

- LOSA, LECSA and Tribes – water supply cutbacks
- ENP – transect flows
- Fish and wildlife – flows to Estuaries, WCA and Biscayne Bay



# Stage Duration Curves for Lake Okeechobee

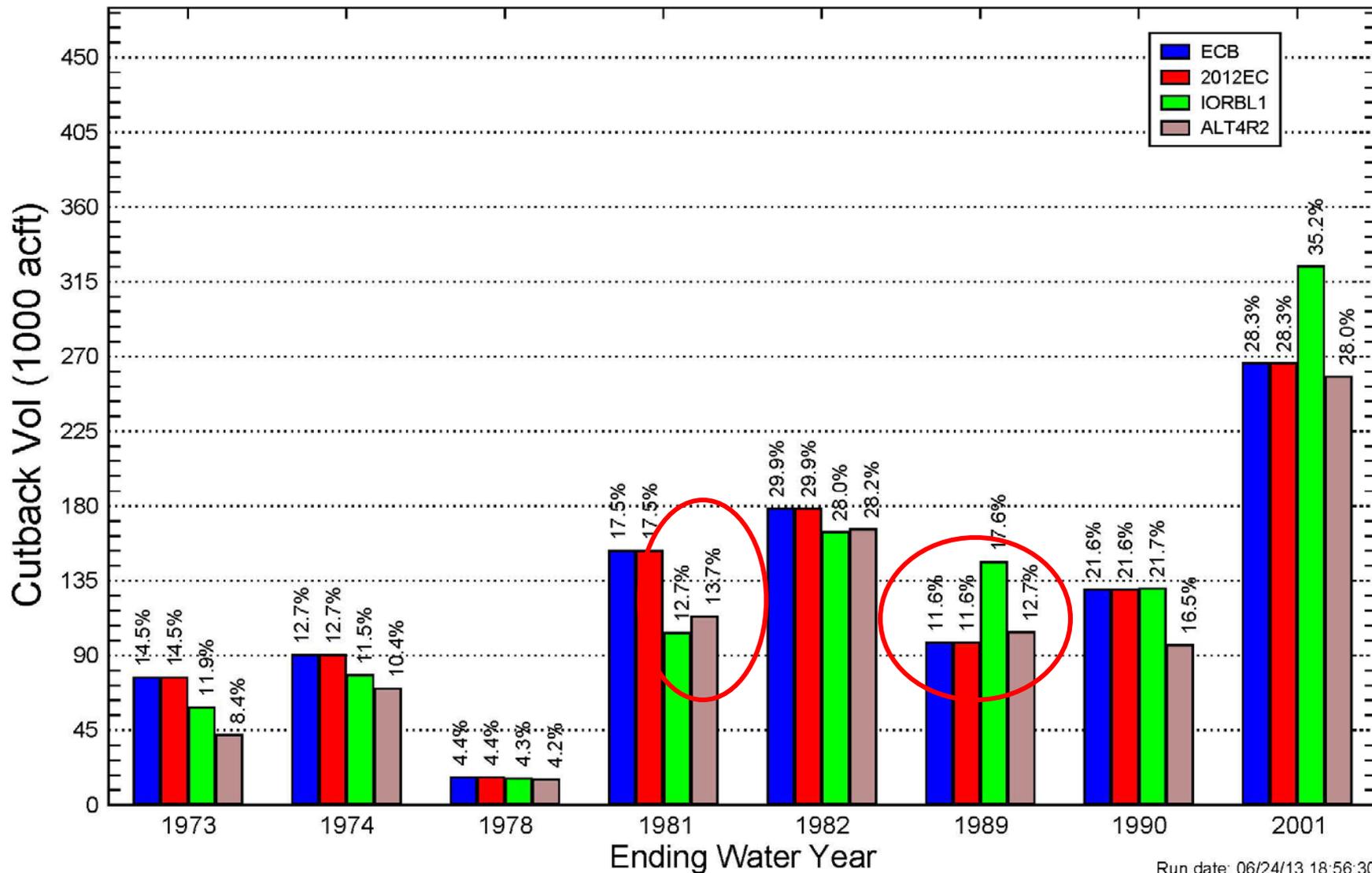


SFWMM P.O.S. 1965 - 2005

Run date: 06/21/13 16:47:00  
SFMM V5.5  
Script used: hyd\_dur.scr, ID456  
Filename: lok\_dai\_stgdur.agr

# Water Year (Oct-Sep) LOSA Demand Cutback Volumes

for the 8 Years in Simulation Period with Largest Cutbacks



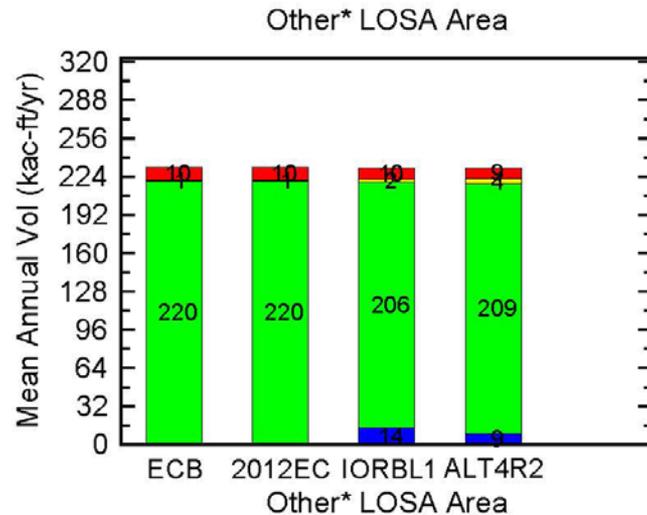
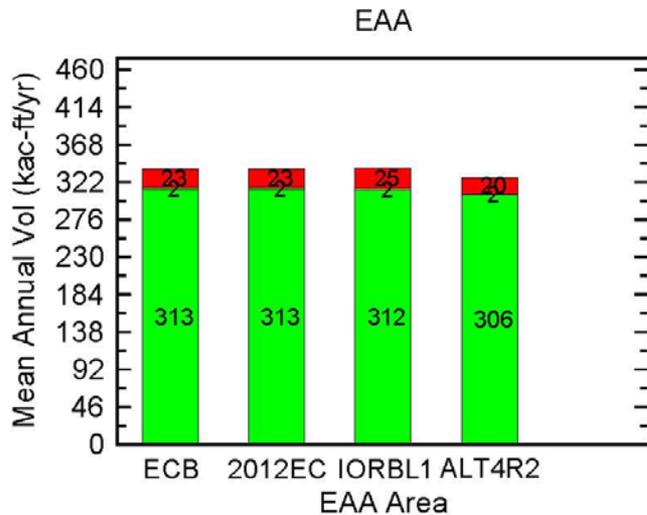
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RSMBN 2.3.5

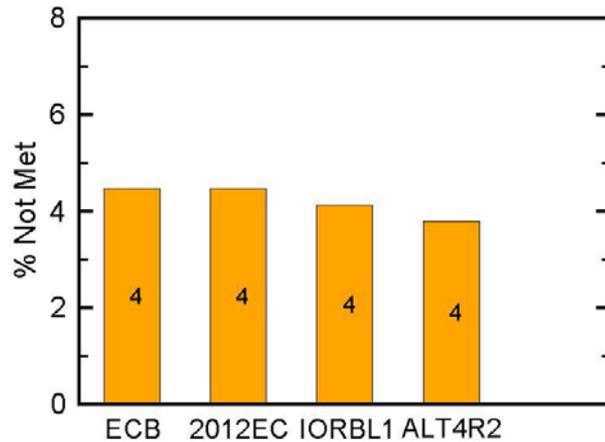
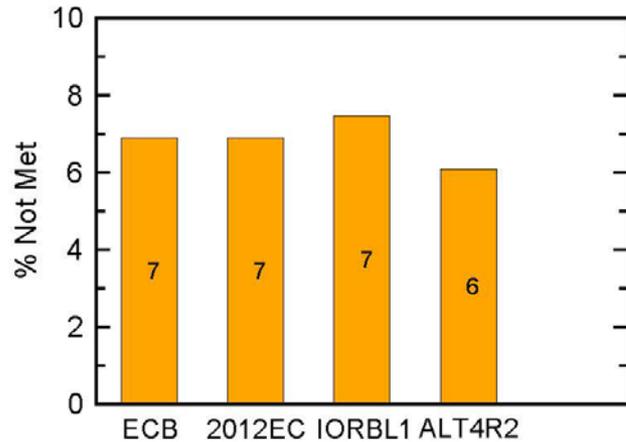
Script used: losa\_cutback\_yrs.scr

Filename: losa\_cutback\_yrs\_bar\_ECB\_2012EC\_IORBL1\_ALT4R2.agr

# Mean Annual EAA/LOSA Supplemental Irrigation: Demands & Demands Not Met for 1965 - 2005



■ DMD met by RES/ASR  
■ DMD met by LOK  
■ DMD met by OTHERS  
■ DMD NOT MET



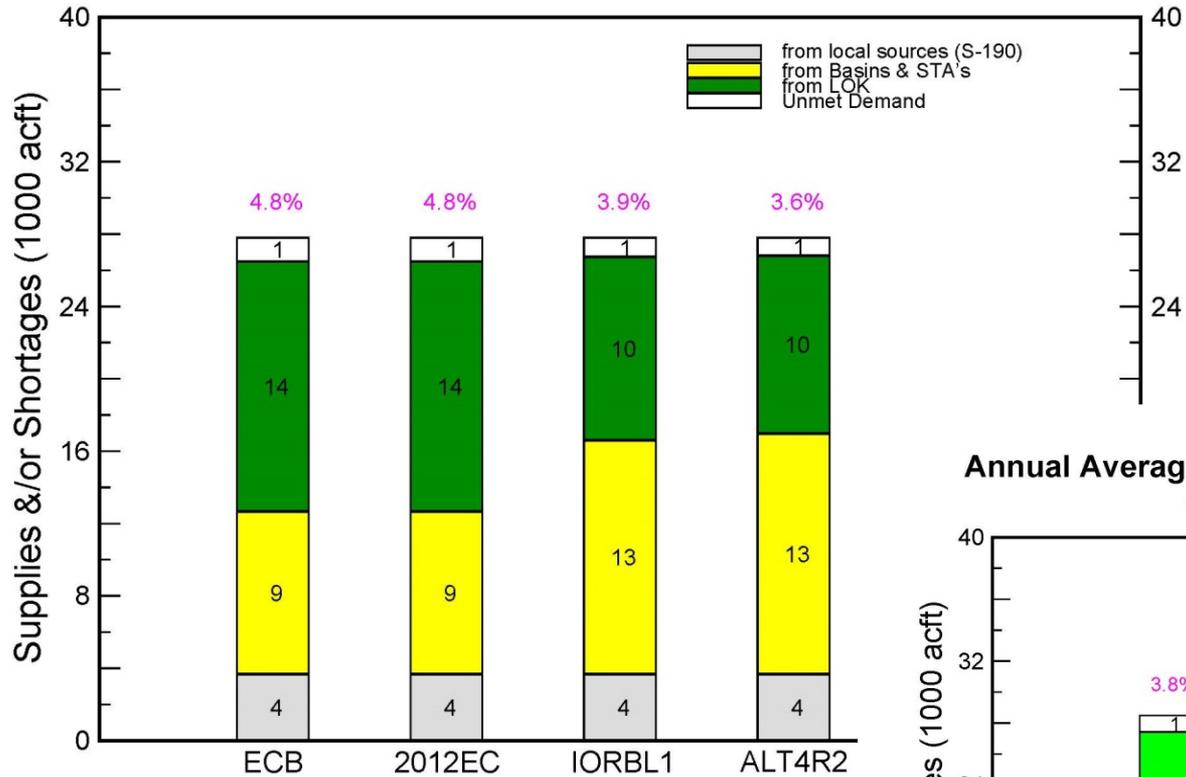
■ TOTAL CUTBACK %

Other LOSA Areas: 298-Districts, S4, L8, C43, C44, North & Northeast Lakeshore, & Lower Istokpoga

Run date: 06/24/13 13:57:52  
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# Annual Average (1965 - 2005) Irrigation Supplies and Shortages

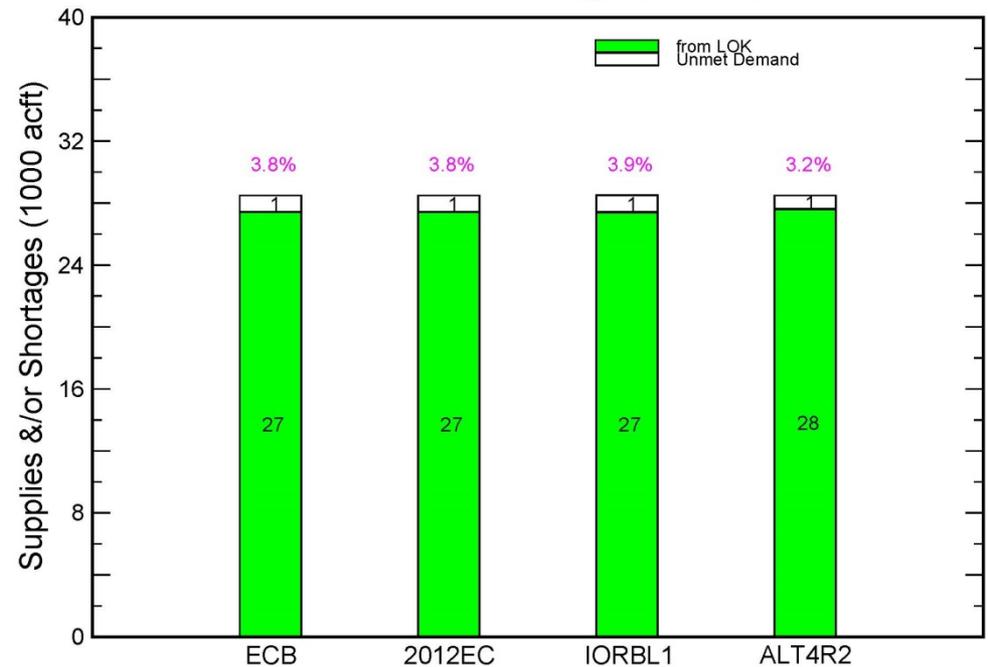
for the Seminole Tribe - Big Cypress Reservation



Note: The data on top of each bar represents the percentage of Demand Not Met

# Annual Average (1965 - 2005) Irrigation Supplies and Shortages

for the Seminole Tribe - Brighton Reservation



Note: The data on top of each bar represents the percentage of Demand Not Met.

Run date: 06/11/11

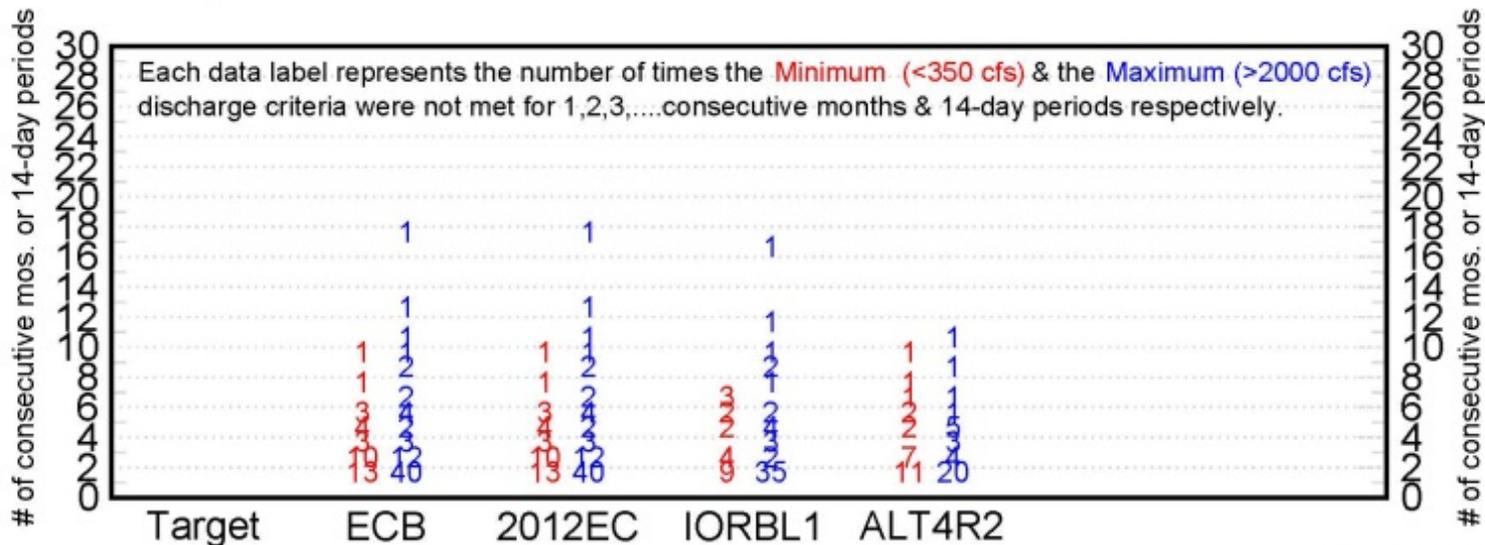
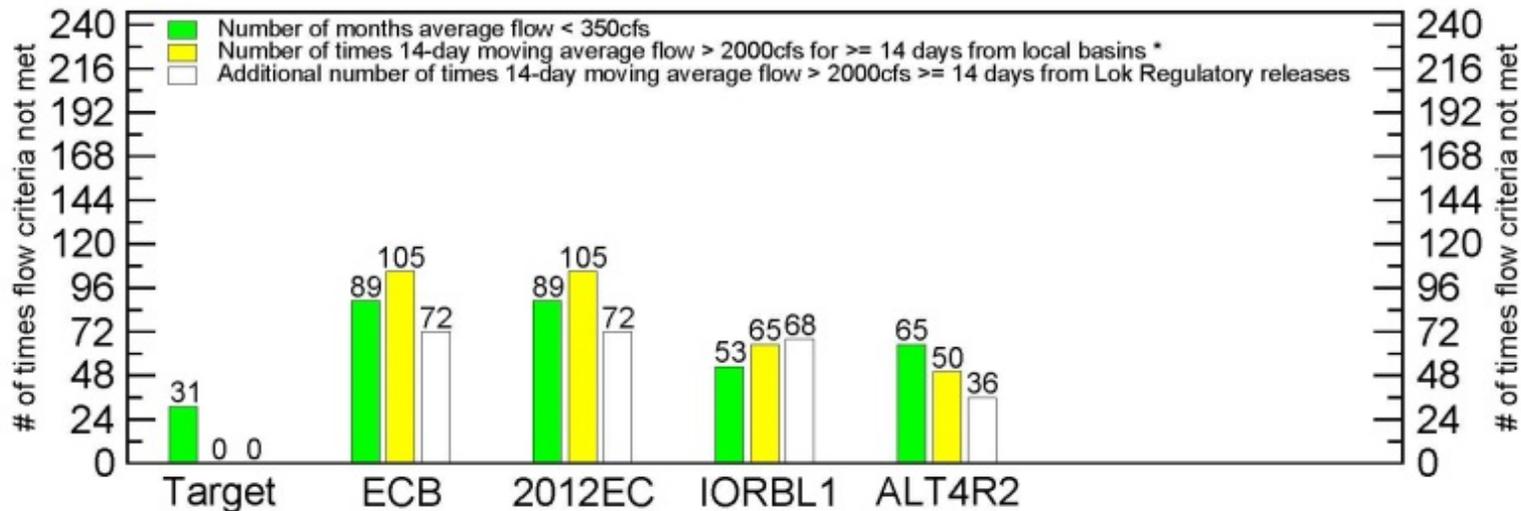
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Filename: sem\_bright

# Lower East Coast Service Area

Number of Years with Water Restrictions in LECSA  
Triggered by Lake and Local Wells

	<b>IORBL1</b>	<b>Alt4R</b>
Lower East Coast Service Area 2	16 + 16 = 32	13 + 19 = 32
Lower East Coast Service Area 3	16 + 0 = 16	13 + 0 = 13

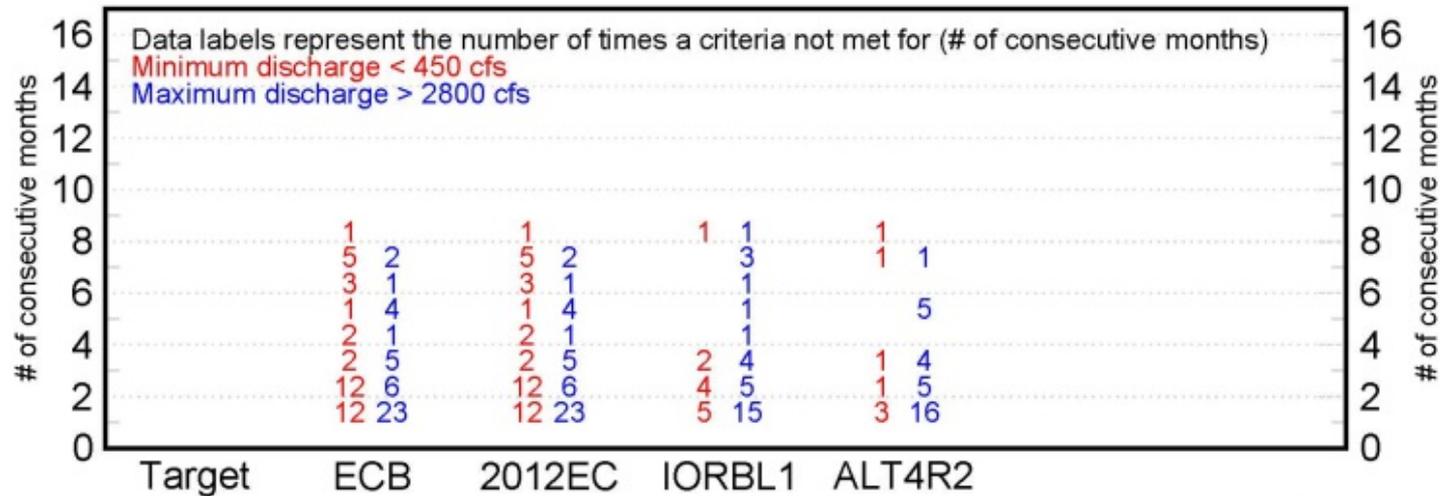
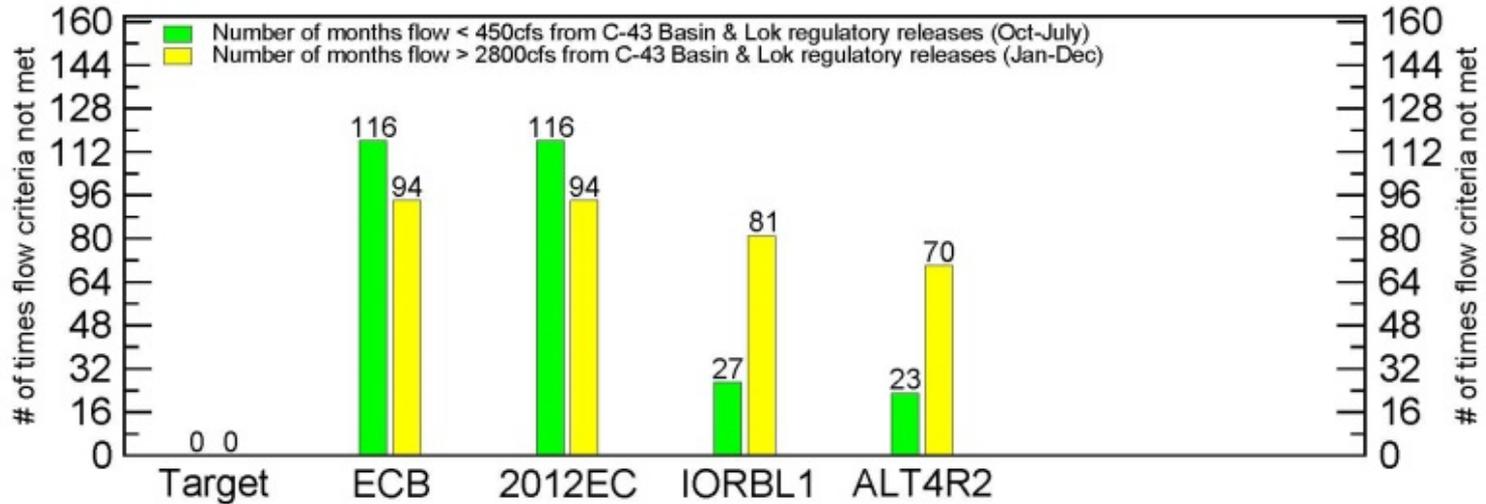
# Number of times Salinity Envelope Criteria NOT Met for the St. Lucie Estuary (mean monthly flows 1965 - 2005)



RECOVER Performance Measure

Run date: 06/24/13 15:13:36  
 SFWMM VRSMBN V2.3.5  
 Script used: estuary\_scr\_ID496  
 Filename: stluc\_salinity\_flow\_bar\_out.grd

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

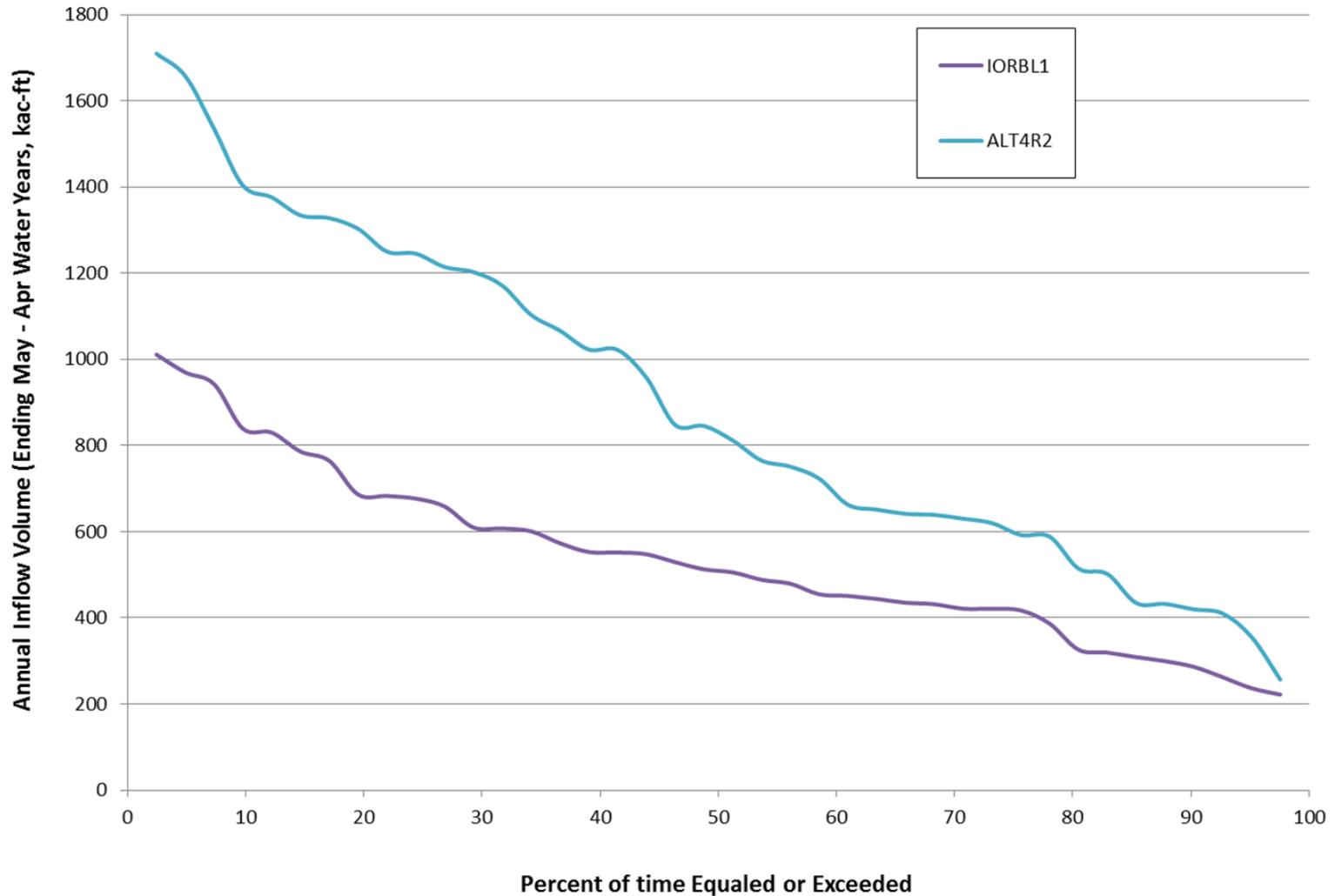


RECOVER Performance Measure

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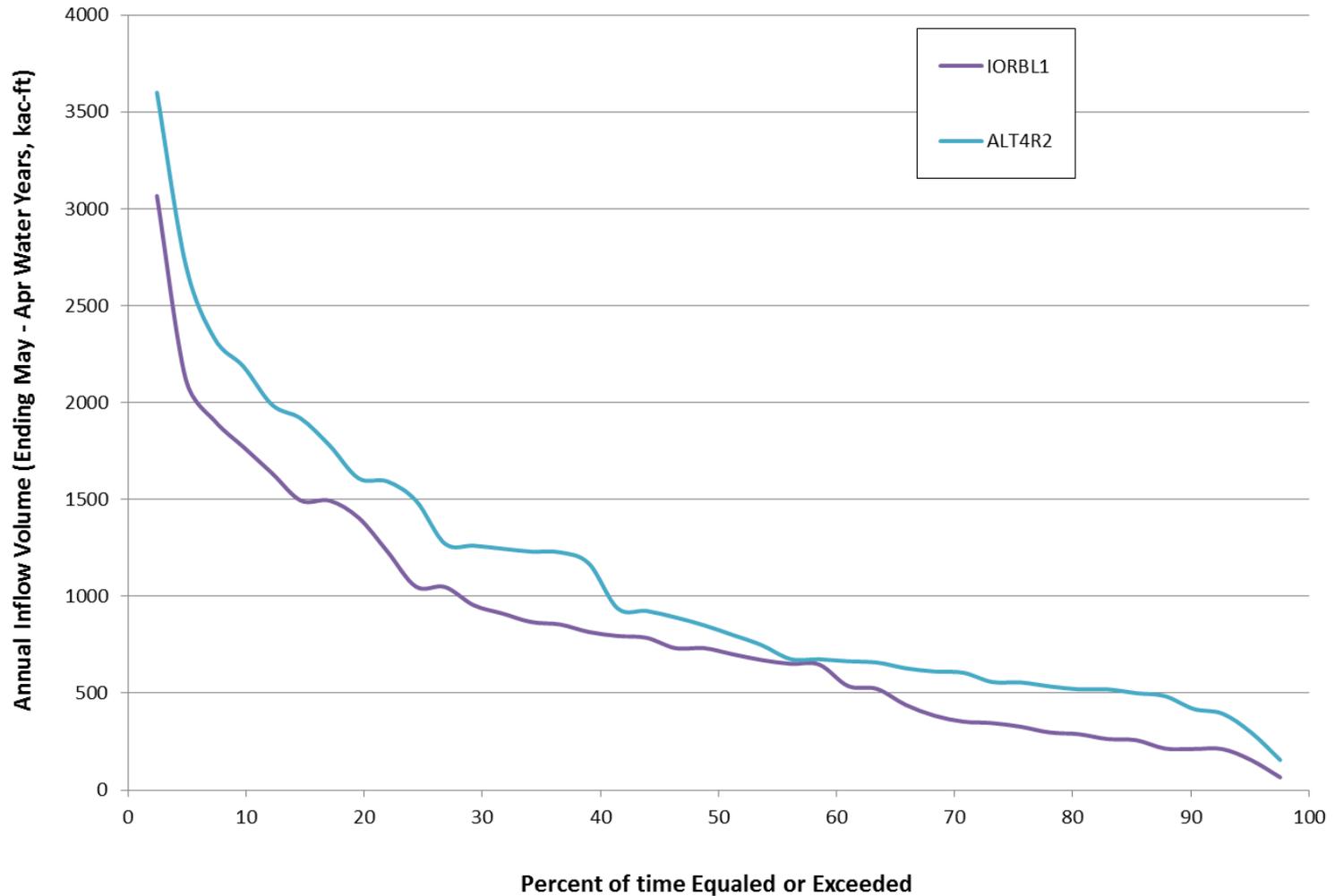
# WCA 3A

## CEPP Northern WCA3A Redline Inflow Volume Probability Curve



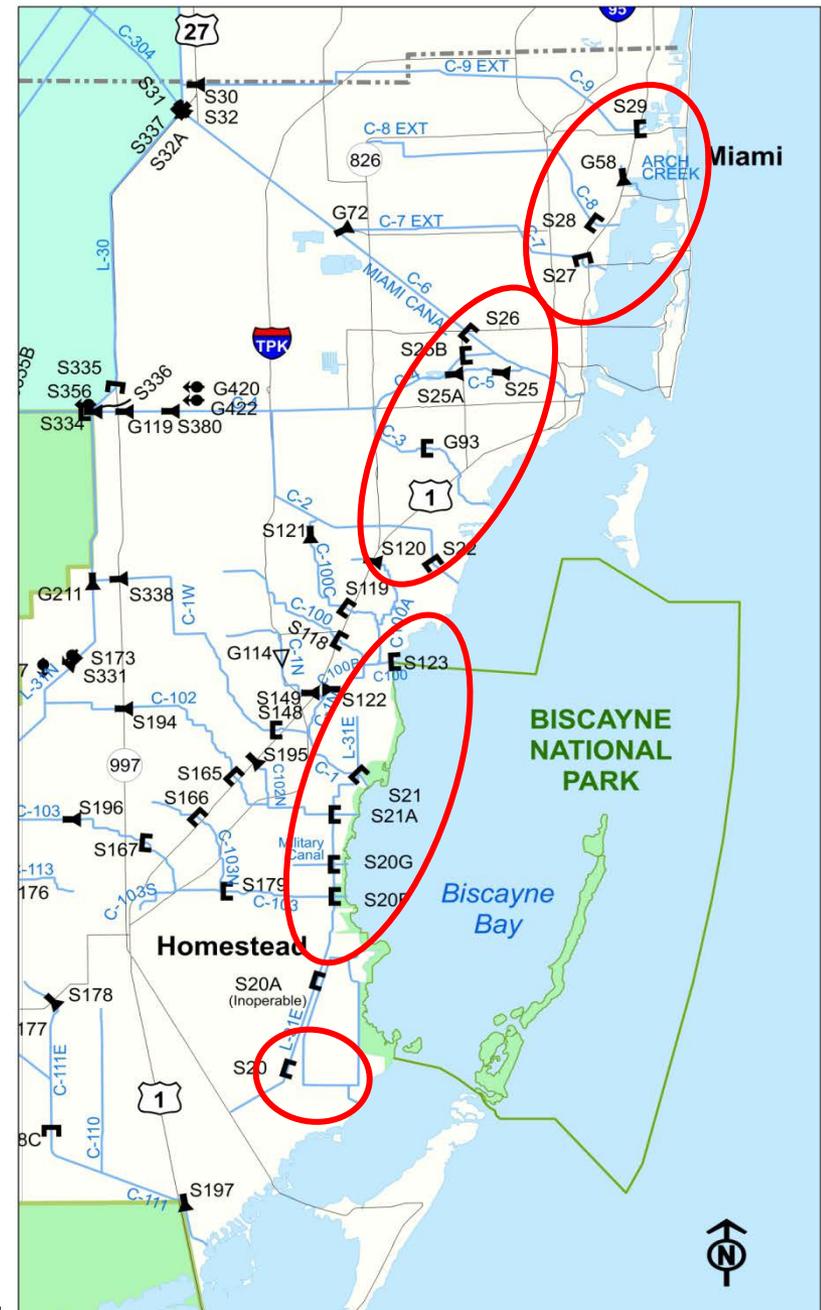
# Everglades National Park

## CEPP Tamiami Trail Inflow Volume Probability Curve



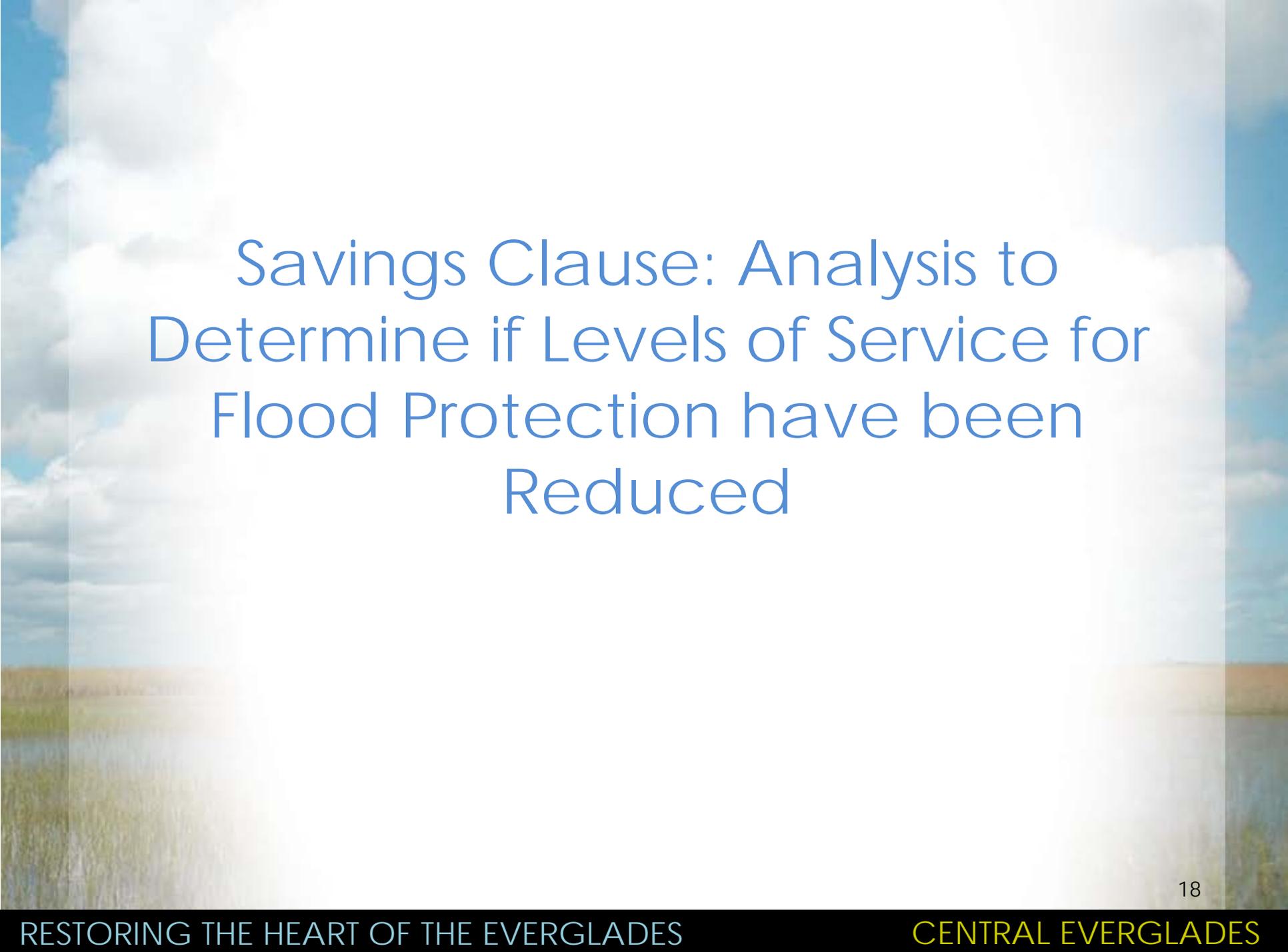
# Biscayne Bay

	IORBL1 (ac-ft)	Alt4R2 (ac-ft)
North	522	517
Central	388	386
South-Central	337	351
South	7	7
<b>Total</b>	<b>1,254</b>	<b>1,261</b>





QUESTIONS?



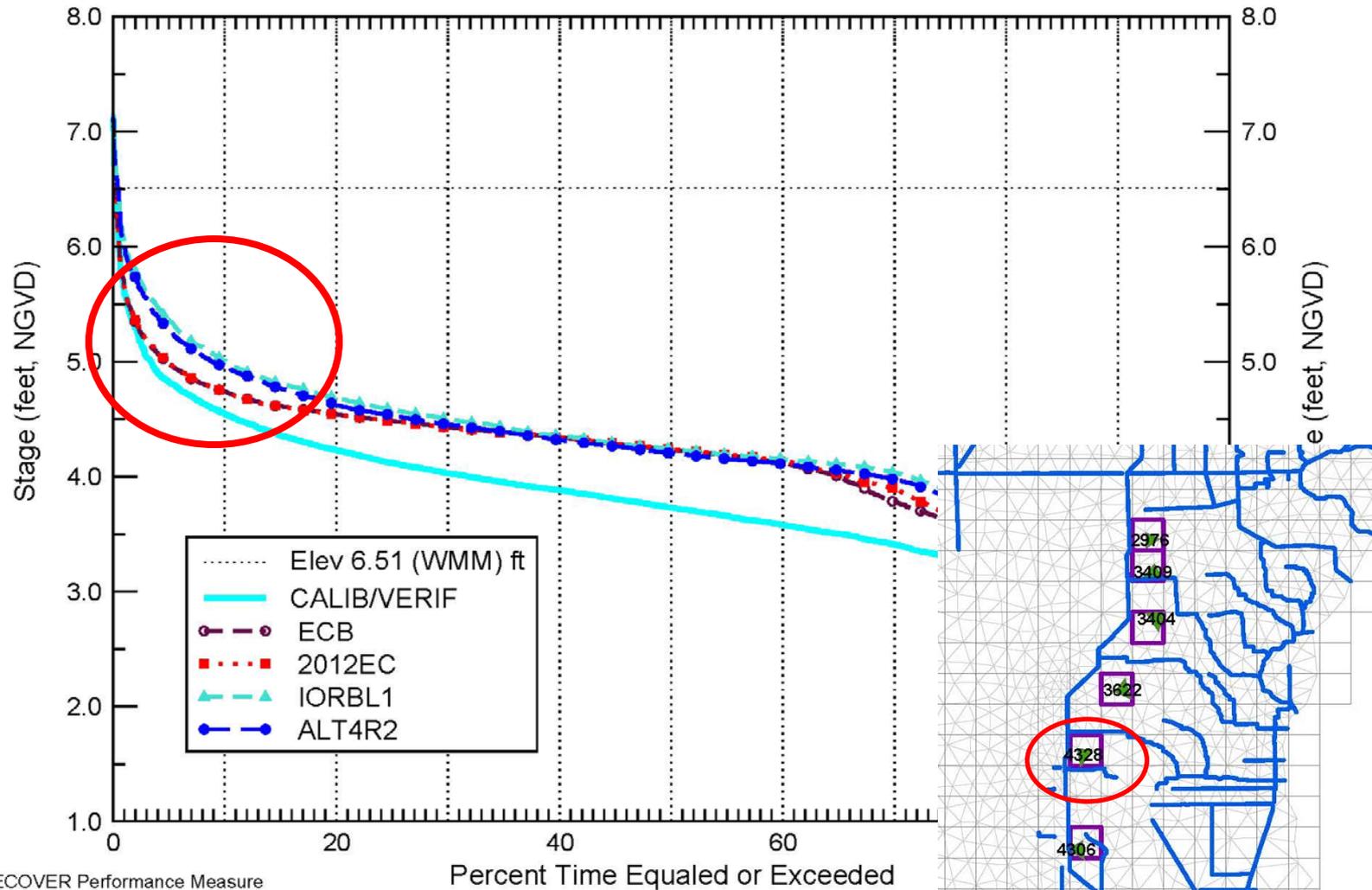
# Savings Clause: Analysis to Determine if Levels of Service for Flood Protection have been Reduced

# Determining if Levels of Service for Flood Protection Have Been Reduced

- Levels of service for flood protection based on performance modeled against a range of weather conditions
- Differences due to implementation of CERP project must be **significant** and **adverse** to determine that levels of service have been reduced

# Stage Duration Curves for Cell 4328 in the LEC

for the 1983 to 1993 Time Window



Note: The simulated groundwater and surface water stages represent areally AVERAGED values over a model cell; the values DO NOT represent specific stages, or surface water depths and durations, for specific locations within the cell. Land elevation values also represent areally AVERAGED values over the cell.



Belen & Sweetwater

Serena Lakes & Country Walk

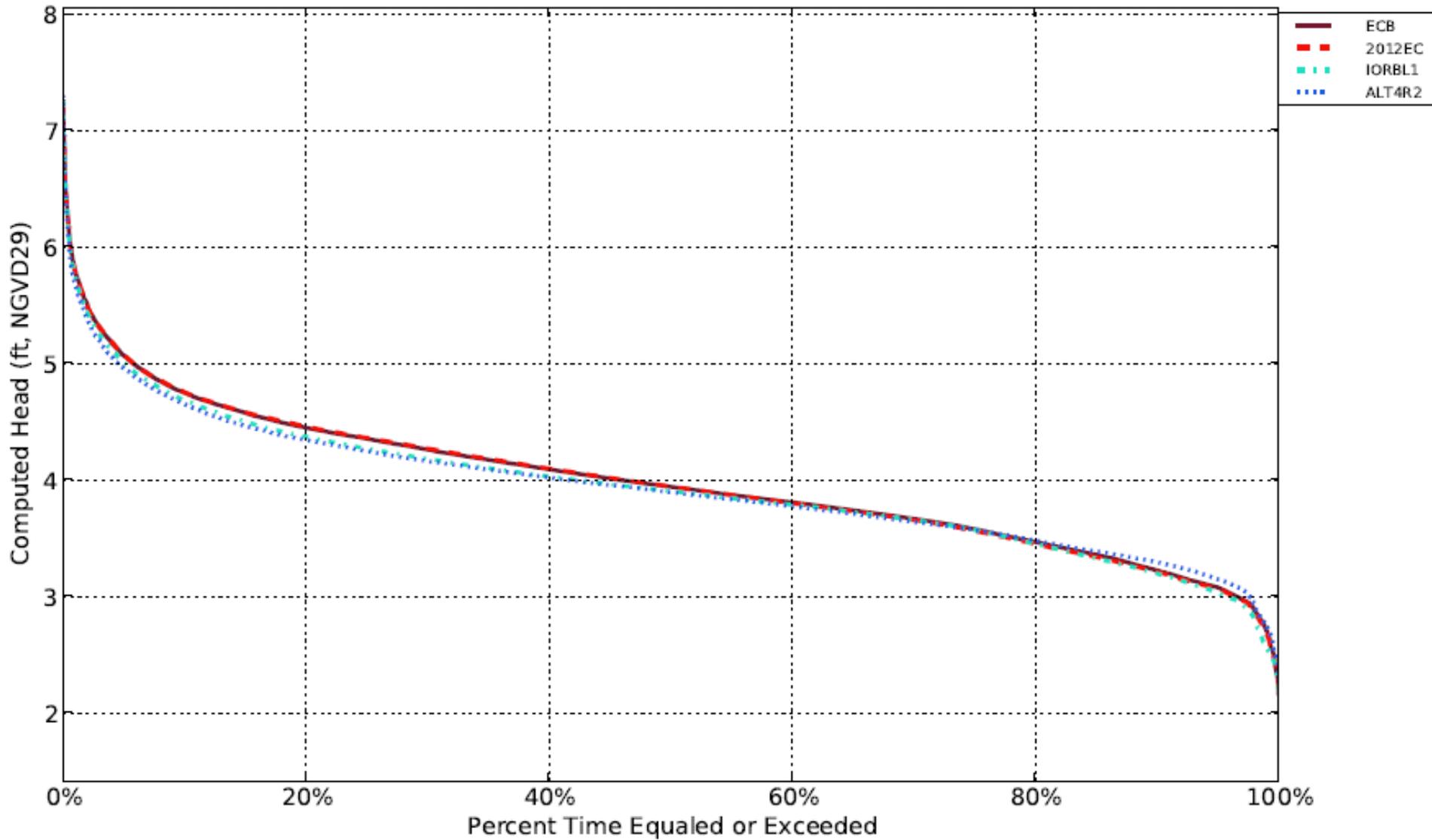
©2009 Google

Imagery Date: Dec 15, 2008

25°43'59.33" N 80°24'54.70" W elev 0 ft

Eye alt 22.23 mi

Duration Curves for G3439  
Elev: 6.96 ft, NGVD29; Cell ID: 3424



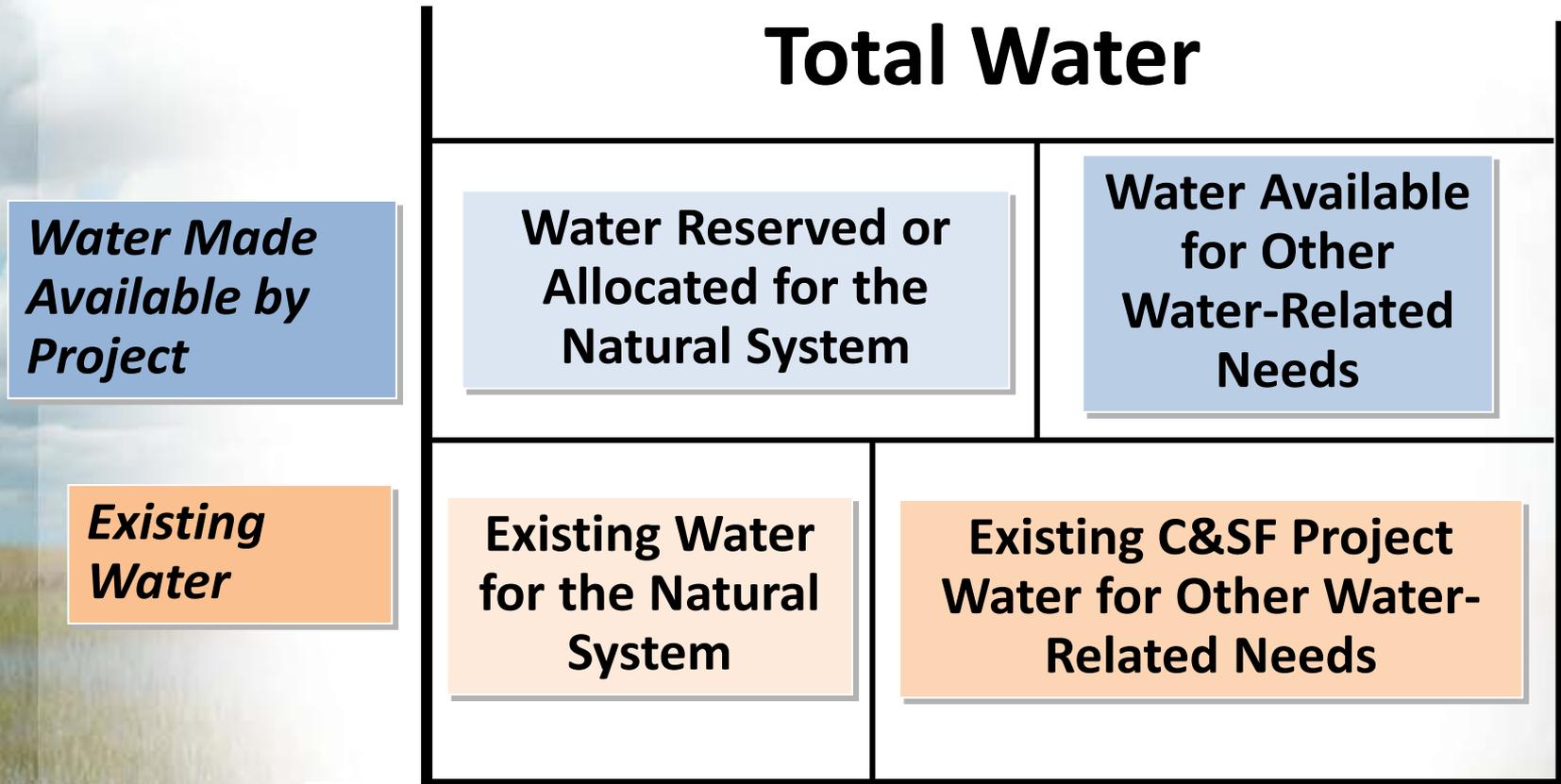
# Savings Clause Conclusions

- No elimination or transfer of existing legal sources of water to agricultural, urban, Tribes or fish and wildlife
- No reduction in level of service for flood protection
- No effect on Seminole Tribal water compact or Miccosukee Tribe

# Project Assurances:

- Identify water for the natural system
- Identify water for other water-related needs

# Water Needed to Achieve the Benefits of the Plan



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## Total Water – Alt4R2

*Water Made Available by Project - Difference*

*Existing Water – IORBL1*

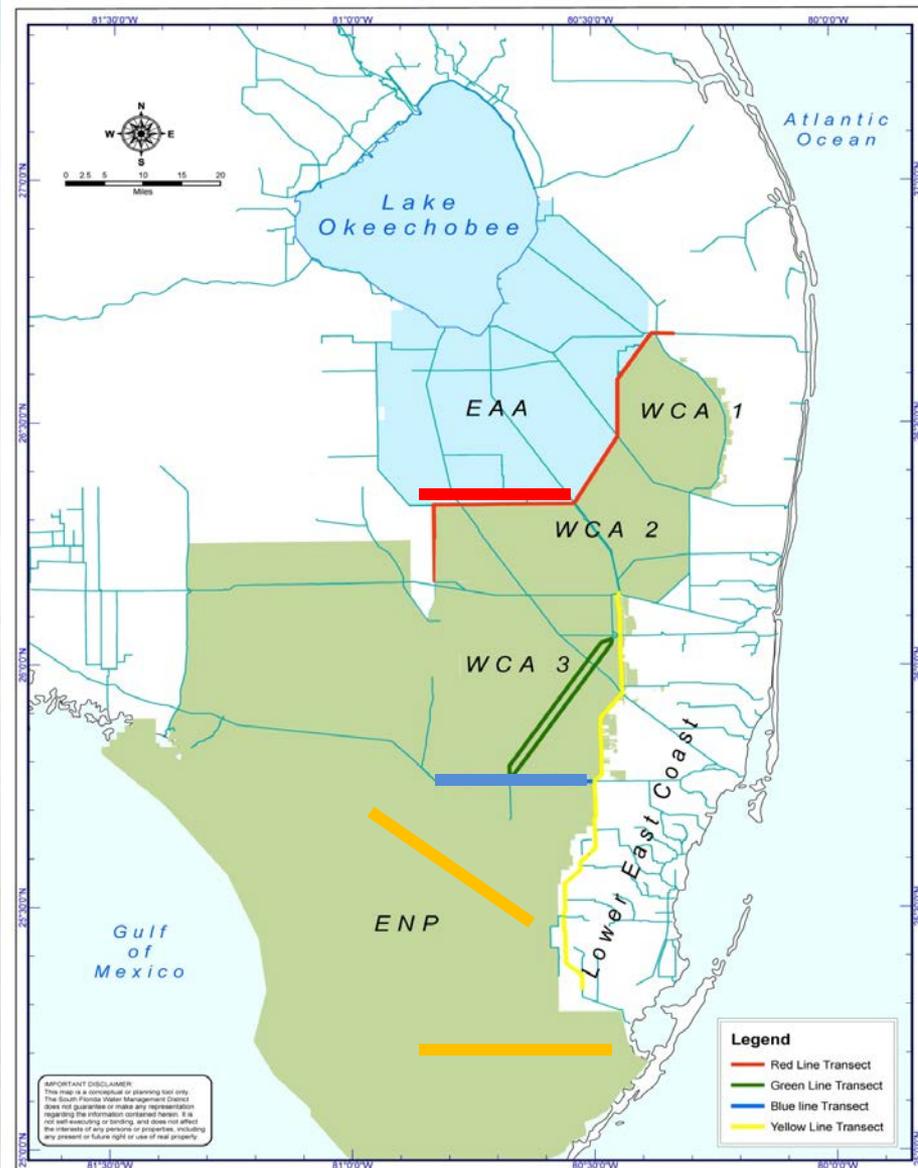
**Water Reserved or Allocated for the Natural System**

**Water Available for Other Water-Related Needs**

**Existing Water for the Natural System**

**Existing C&SF Project Water for Other Water-Related Needs**

# SPATIAL PERSPECTIVE



Water Needed to Achieve the Benefits of the Plan:

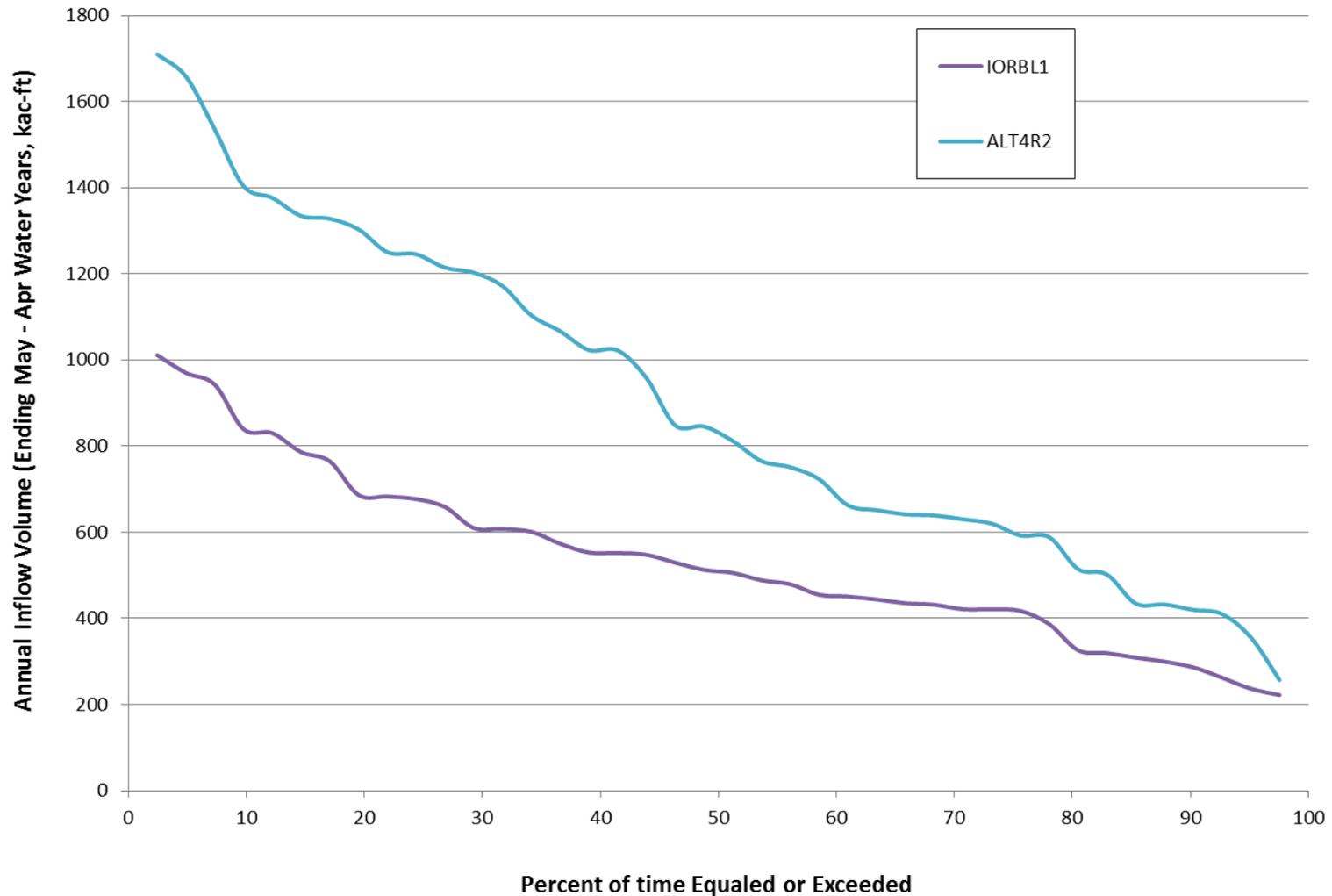
**REDLINE** Along WCA 3A

**BLUELINE** into ENP

**ORANGELINE** overland flows to Florida Bay

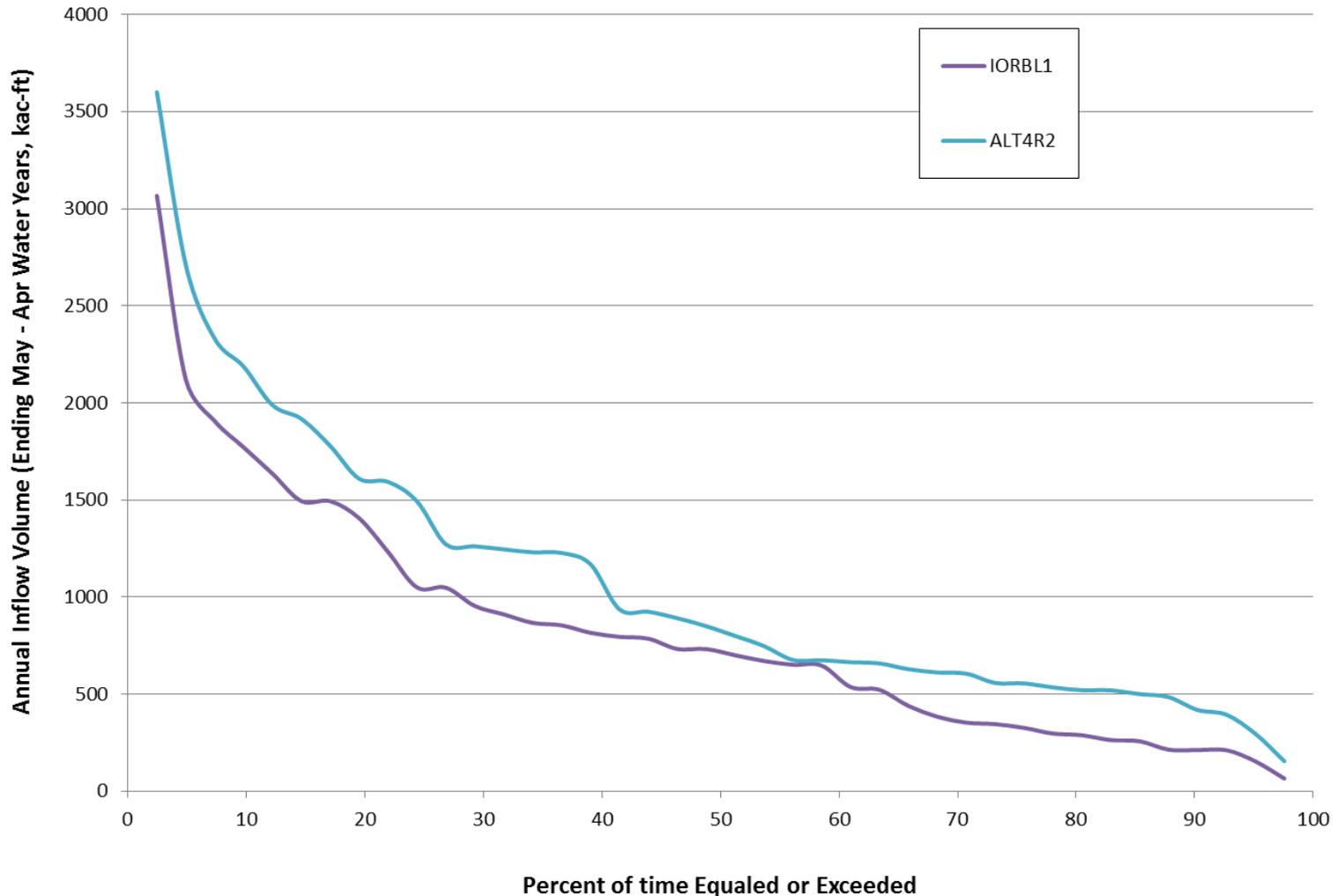
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## CEPP Northern WCA3A Redline Inflow Volume Probability Curve



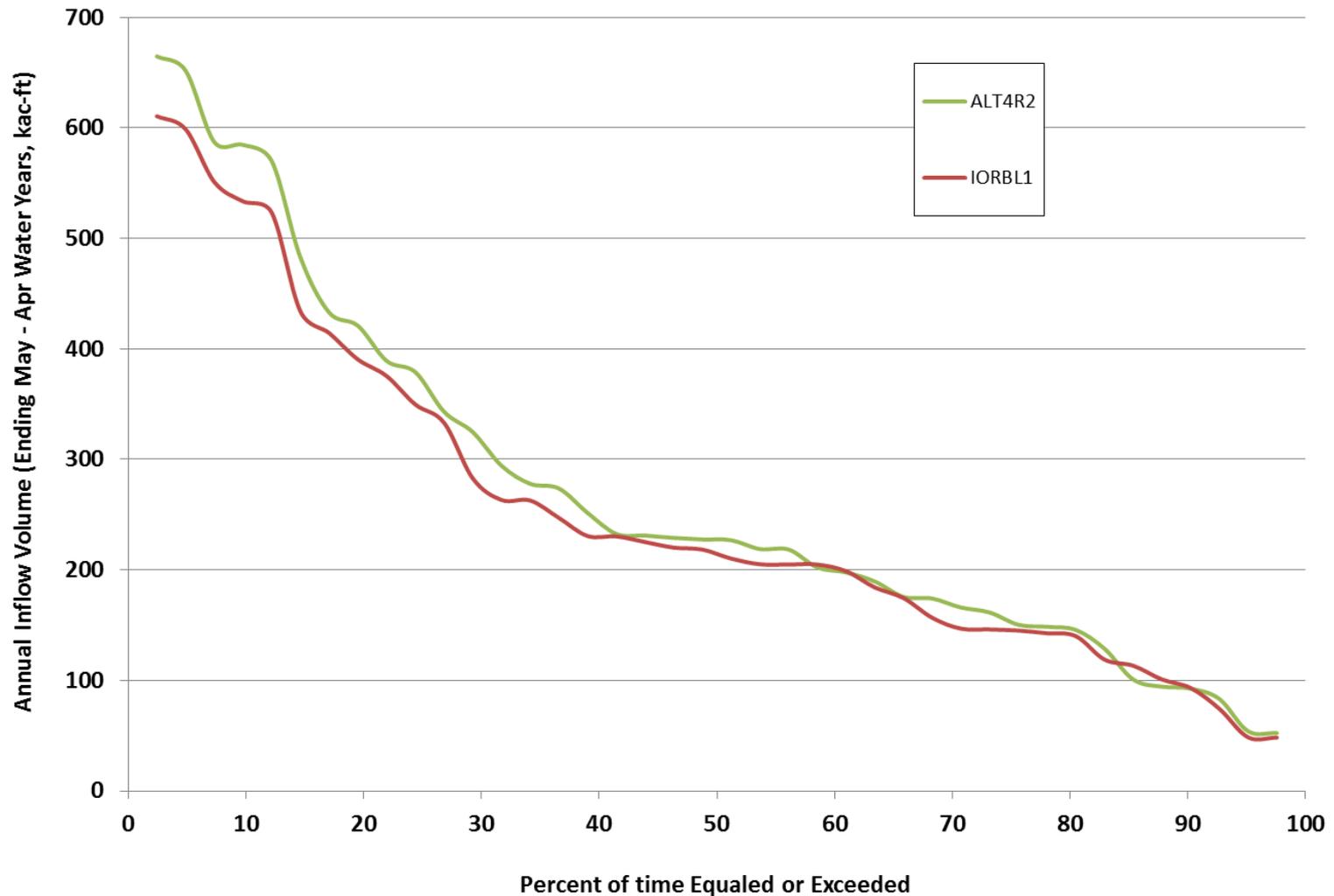
# Everglades National Park

## CEPP Tamiami Trail Inflow Volume Probability Curve



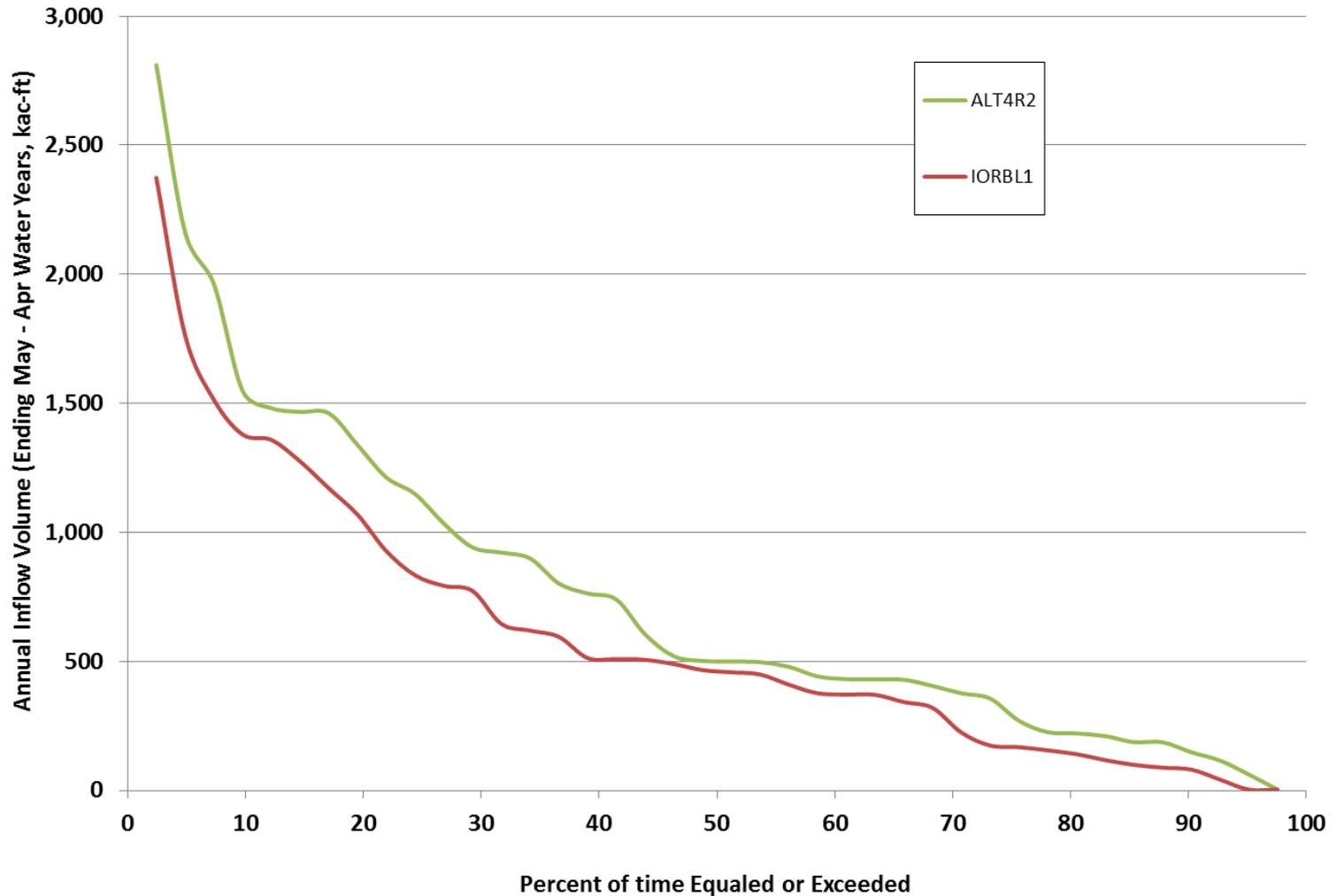
# Florida Bay

## CEPP Transect 23 Volume Probability Curve



# Florida Bay

## CEPP Transect 27 Volume Probability Curve



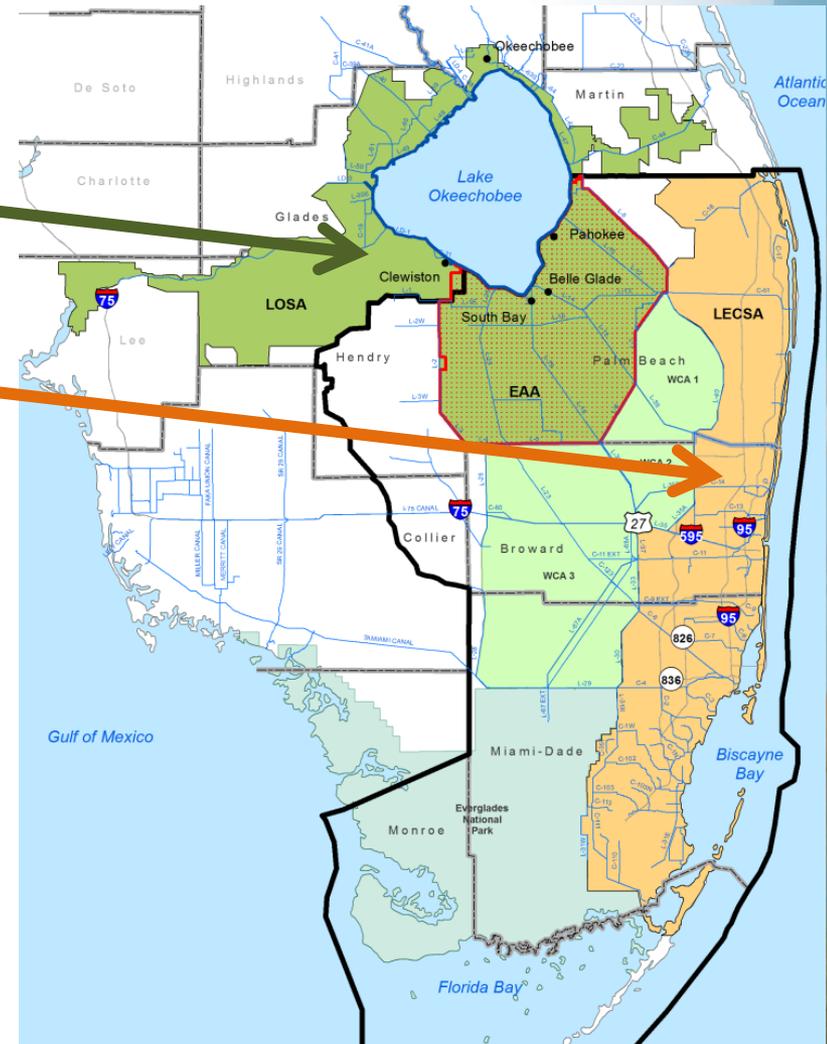
# Water Made Available by the Project for the Natural System

Water Made Available by the Project (ac-ft/year)  
(difference between Alt4R2 and IORBL1)

	10 <sup>th</sup> percentile	50 <sup>th</sup> percentile	90 <sup>th</sup> percentile
WCA 3	564,400	332,977	133,714
ENP	415,817	118,150	206,581
Florida Bay	220,346	44,864	66,771

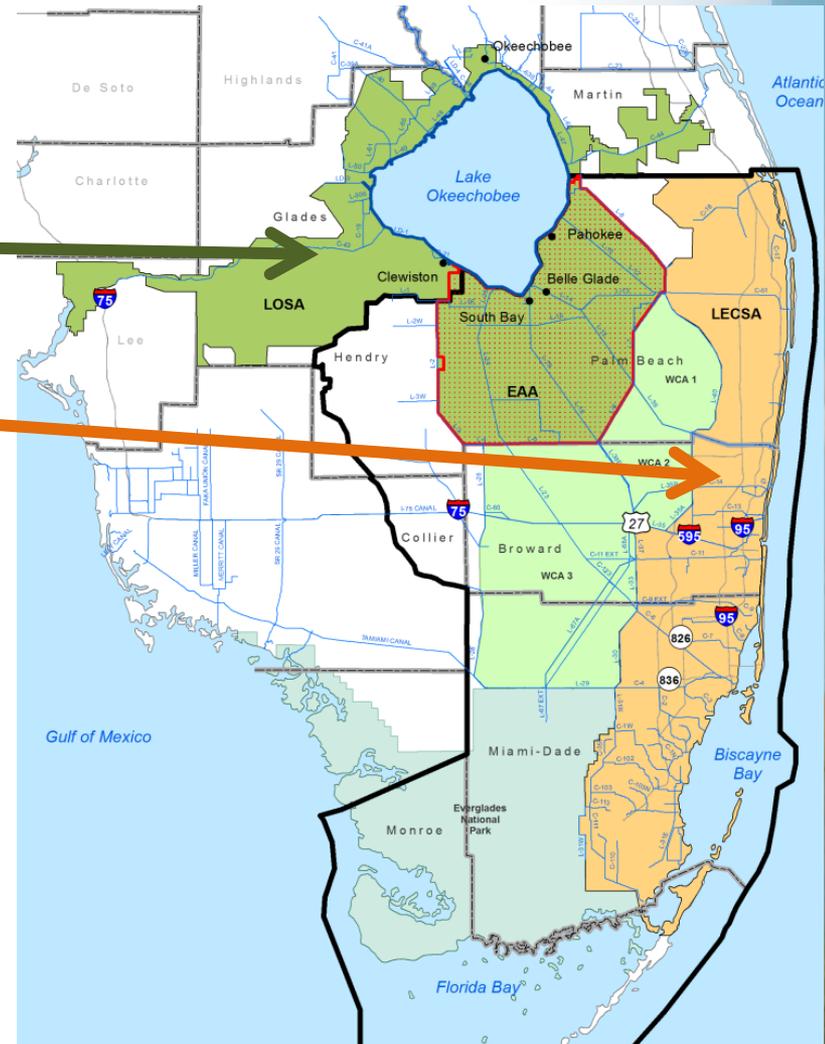
# Water for Other Water-Related Needs

- Supplemental water for agricultural in LOSA
- LECSA
  - Consider demand on surficial aquifer system
  - Dependent on seepage/groundwater flow east



# Water for Other Water-Related Needs

- LOSA – no significant increase
- LECSA
  - 12 MGD in LECSA2
  - 5 MGD in LECSA3





QUESTIONS?