

Lake Okeechobee Watershed Project

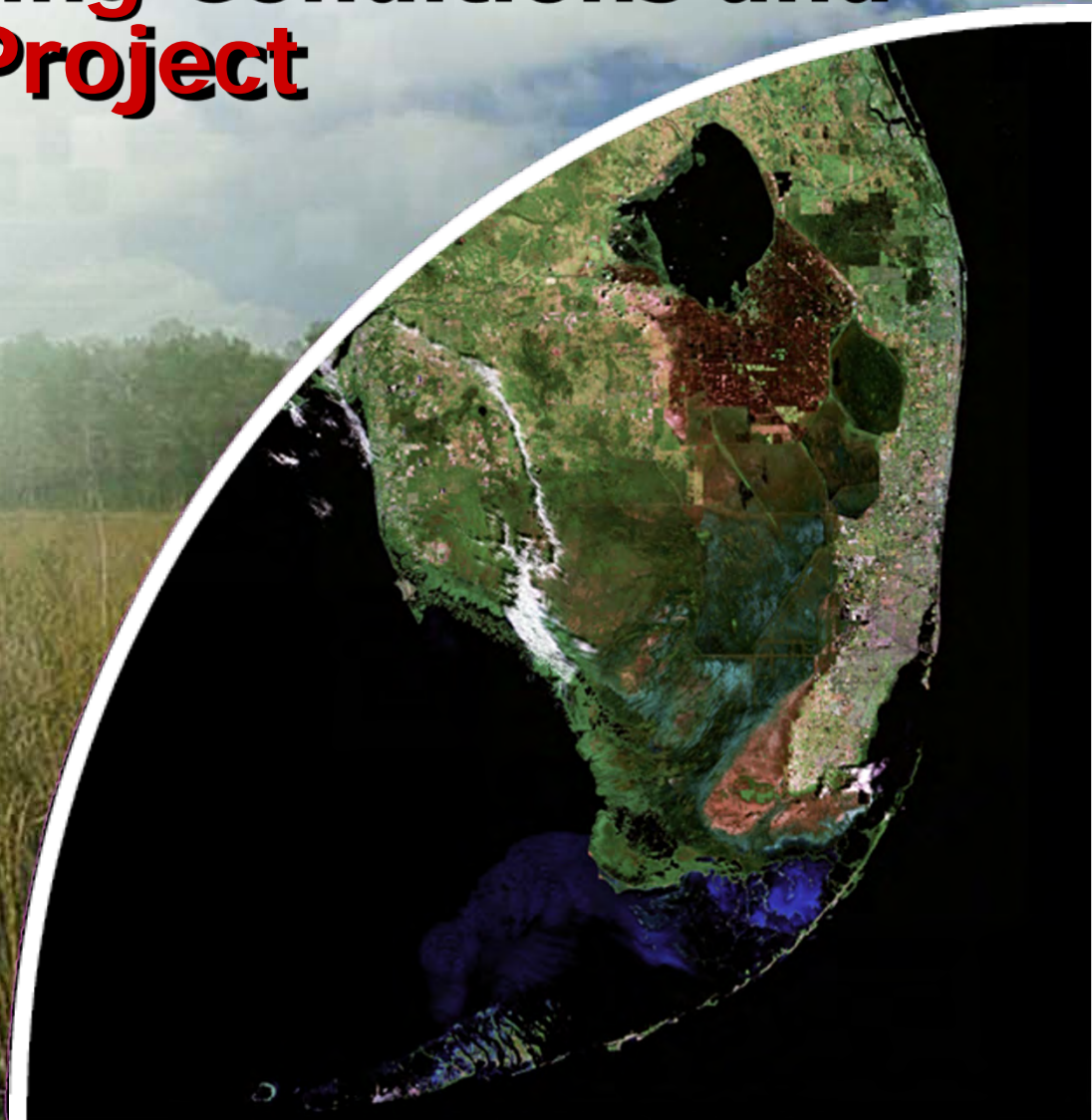
Provisional Existing Conditions and Future Without Project

Presented by:
LOW Modeling Team

August 10, 2016

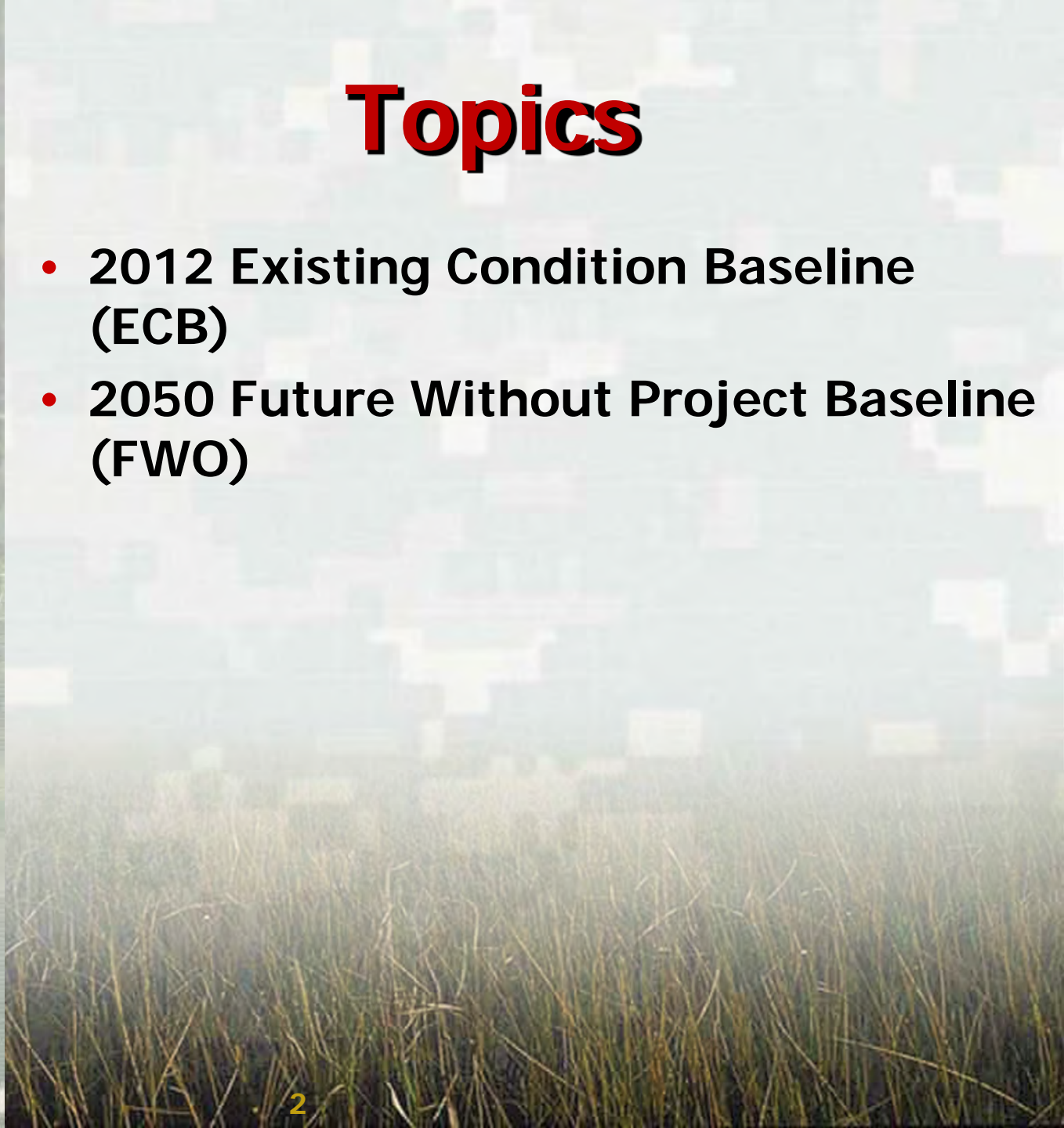


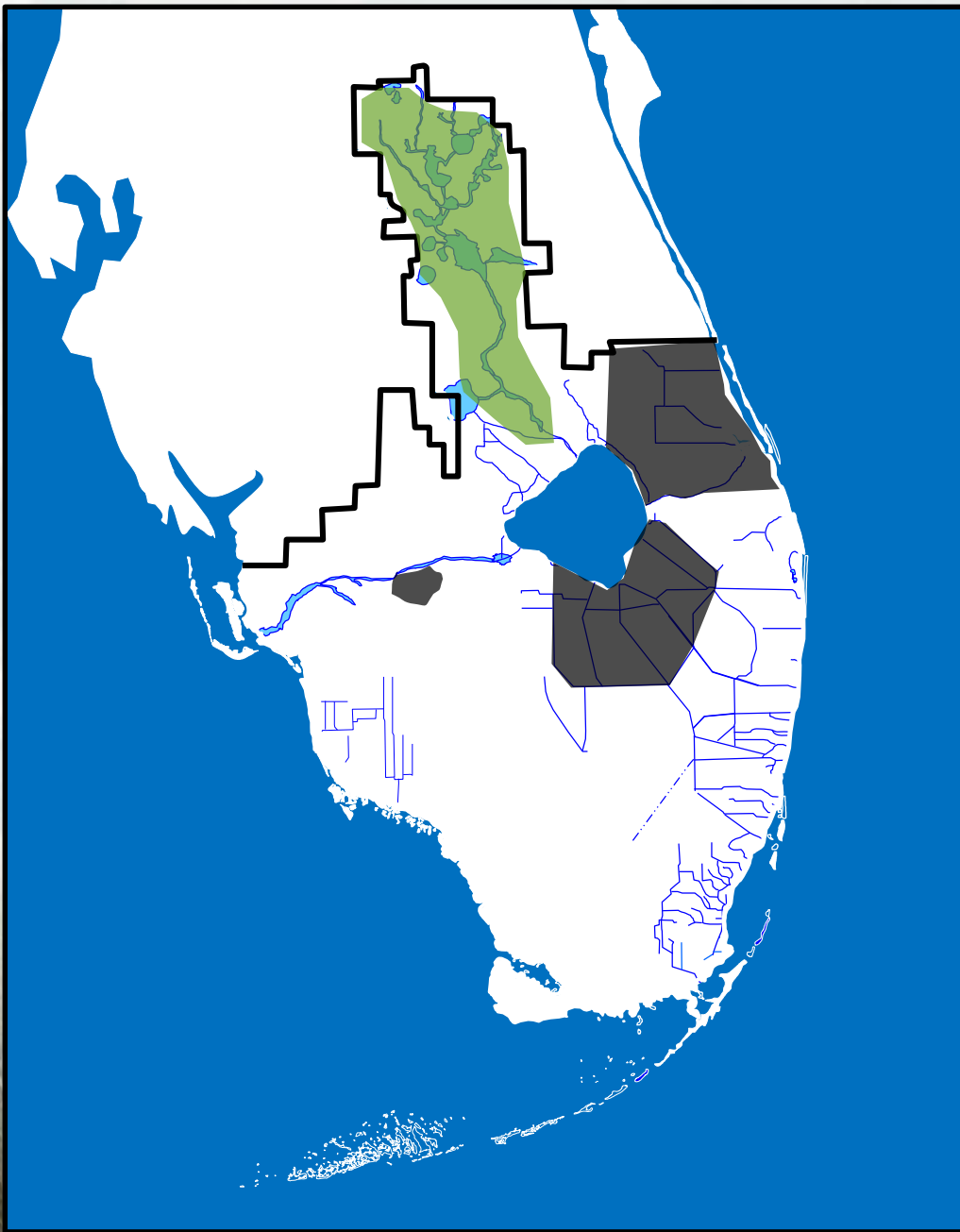
®



Topics

- 2012 Existing Condition Baseline (ECB)
- 2050 Future Without Project Baseline (FWO)





Key System Changes From ECB to FWO

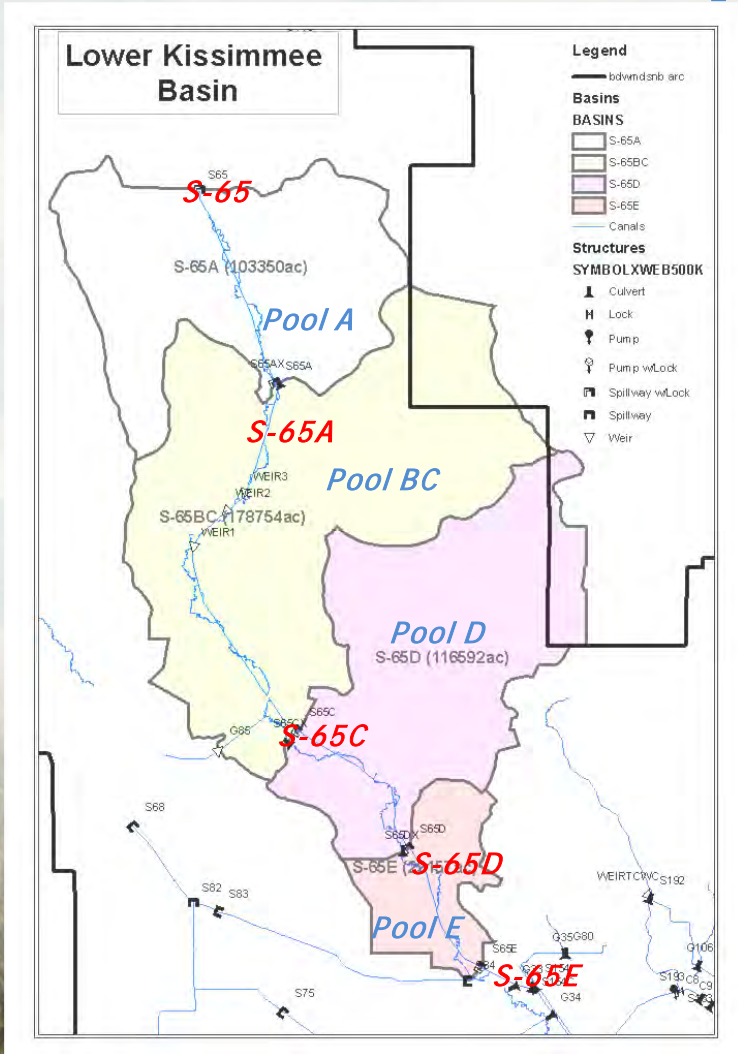
- **Kissimmee River Restoration**
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- EAA

Kissimmee River Restoration in

ECB

RSMBN

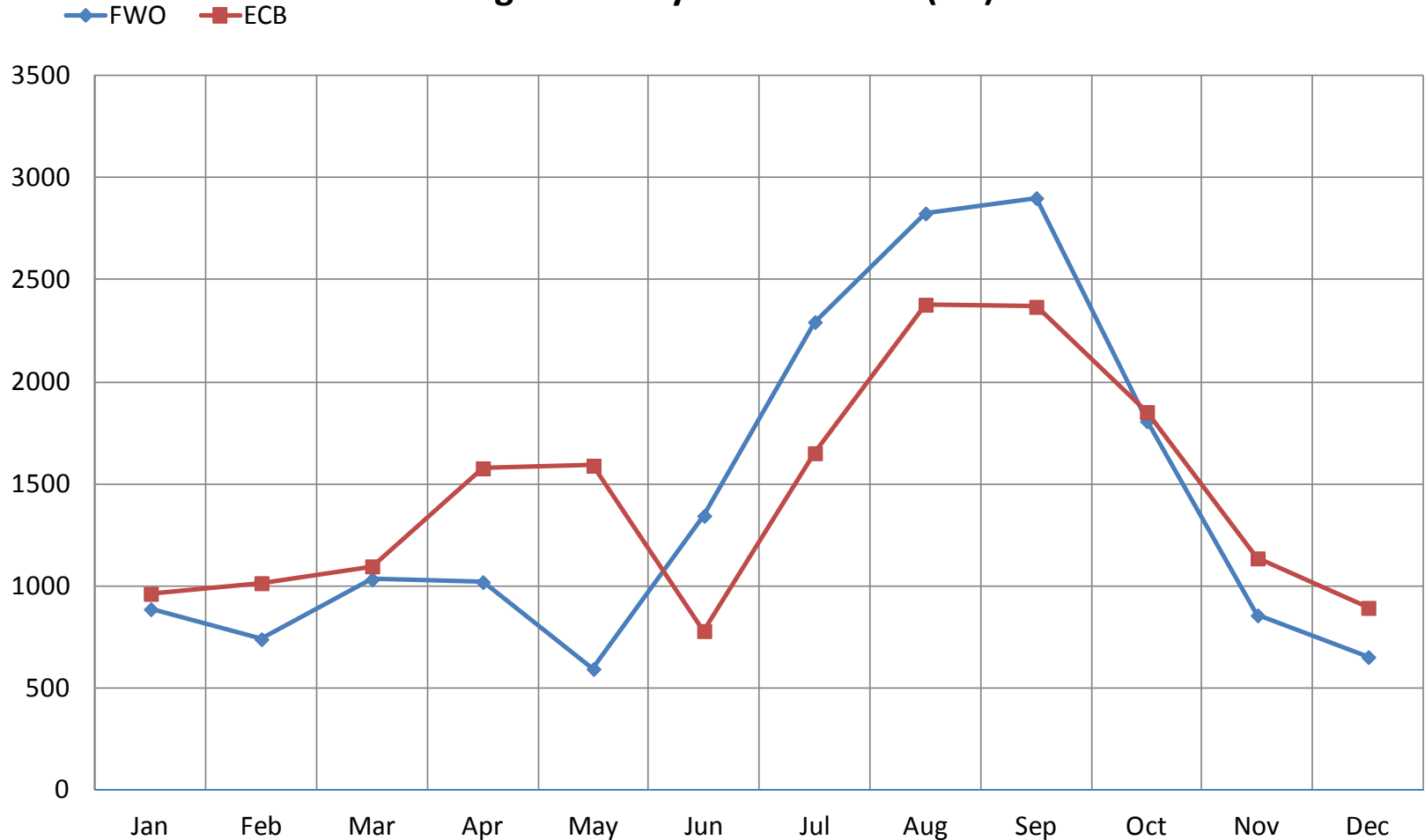
FWO

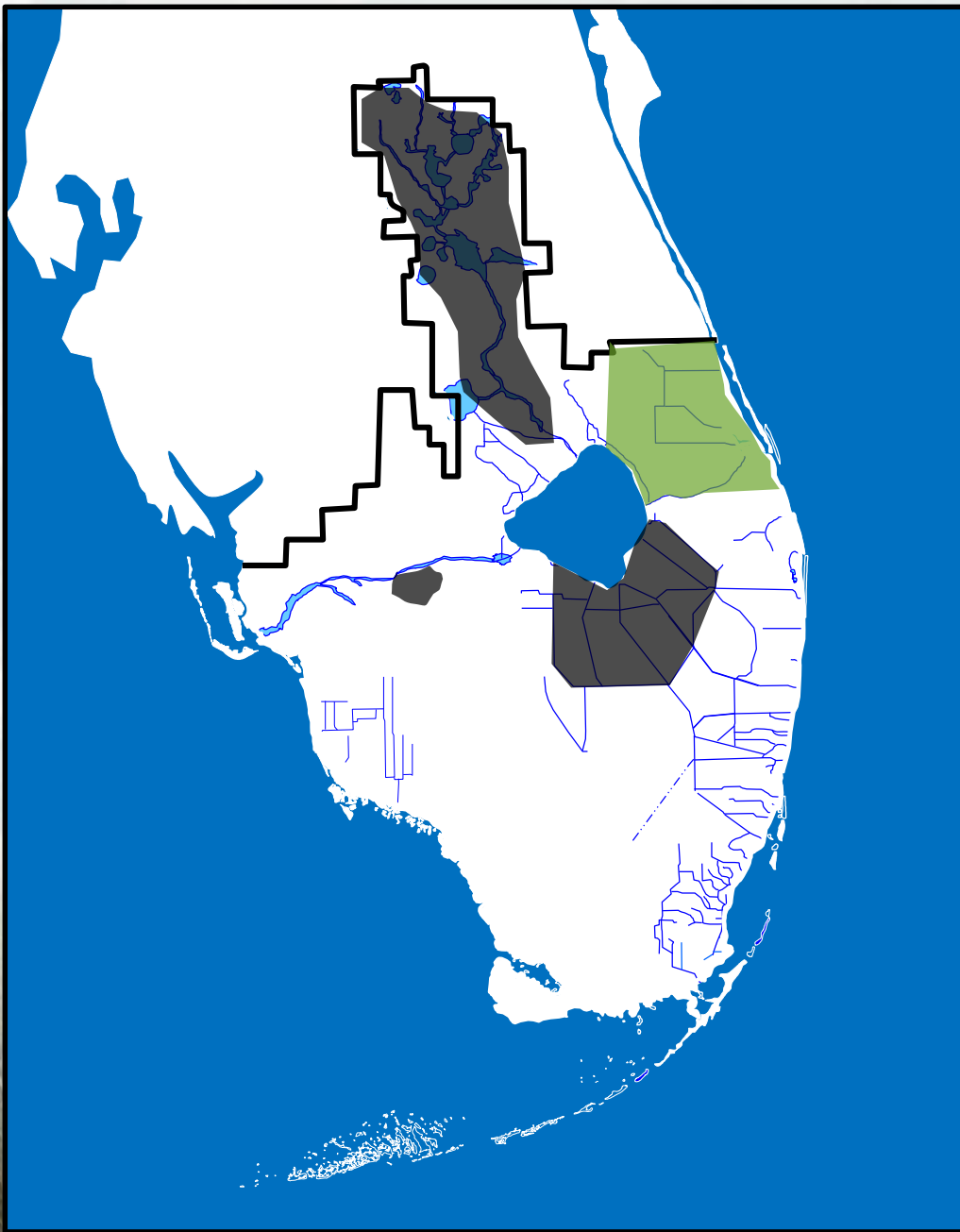


- The Lower Kissimmee Basin is partitioned into three major sub-watersheds: Pools A, BCD (Pool BC & Pool D combined into Pool BCD), and E
- Stage-volume and stage-area relationships updated for Pool BCD
- Structure S-65C is removed

Kissimmee Basin Inflows to Lake Okeechobee

Average Monthly Flows at S65E (cfs)





Key System Changes From ECB to FWO

- Kissimmee River Restoration
- **Indian River Lagoon-South**
- C-43 Phase 1 Reservoir
- EAA

Indian River Lagoon ECB in RSMBN

C44 Basin

- **S-80 discharges into the St. Lucie Estuary.**
- **C44 Basin runoff has potential to backflow into Lake Okeechobee when Lake stage is below 14.5 feet NGVD.**
- **C44 Basin supplemental demands for surface water irrigation are met by Lake Okeechobee.**

C23, C24, TMC and NF-SF-B456 (NSF) Sub-watersheds

- **Three outlet structures discharge from each of the basins into the St. Lucie Estuary.**
- **Structure capacity is assumed to be limited only by available basin runoff.**
- **No regional deliveries to meet demands.**

Indian River Lagoon FWO in RSMBN

FWO Project Features

- **Consistent with latest CERP Indian River Lagoon – South DDRs that update the authorized 2004 PIR.**
- **Includes latest operational intent (Opti6) per St Lucie River Watershed Protection Plan (January 2009).**
- **Basin demands can be met by project features.**

C44 Reservoir and STA

- **Storage capacity: 50,246 acre-feet**
- **Footprint: 12,125 acres (assumed 9700 effective acres / 80%)**
- **Inlet: 1060 cfs capacity, modeled as pump; source: C44 Basin**
- **Inlet: 250 cfs capacity, modeled as pump; source: C23 Basin**
- **Outlet: 550 cfs capacity, modeled as pump; destination: C44 Basin**

Indian River Lagoon FWO in RSMBN

C23/24 Reservoir

- Storage capacity: 92,094 acre-feet
- Footprint: 8675 acres (assumed 6940 effective acres / 80%)
- Inlet: 900 cfs capacity, modeled as pump; source: C23 Bas
- Inlet: 900 cfs capacity, modeled as pump; source: C24 Basin
- Outlet: 300 cfs capacity, modeled as pump; destination: C23 Basin
- Outlet: 300 cfs capacity, modeled as pump; destination: C24 Basin
- Outlet: 200 cfs capacity, modeled as pump; destination: C23/C24 STA

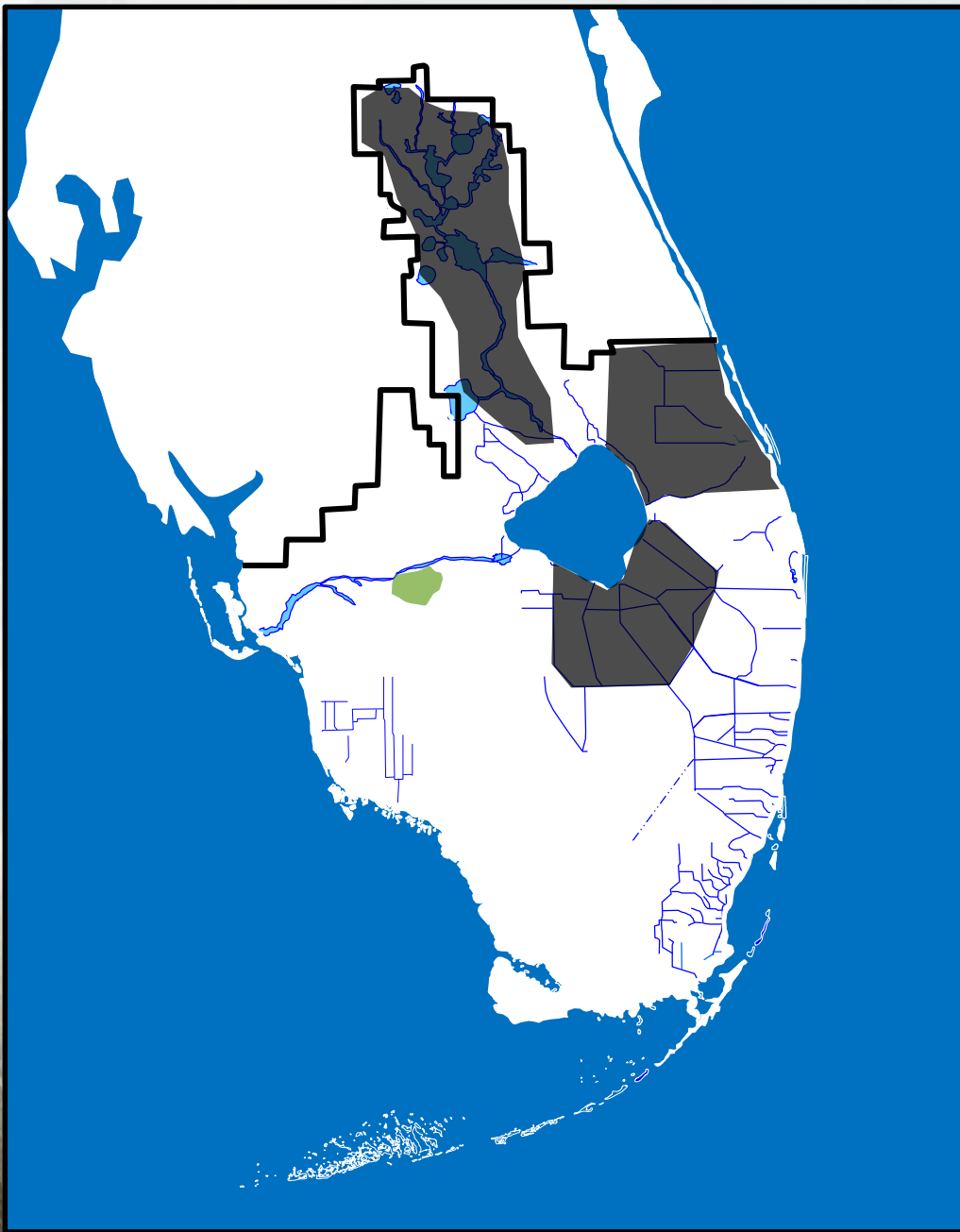
Indian River Lagoon FWO in RSMBN

C23/C24 STA

- Storage capacity: 3852 acre-feet
- Footprint: 3323 acres (assumed 2568 effective acres / 80%)
- Inlet: 200 cfs capacity, modeled as pump; source: C23/C24 Reservoir
- Outlet: 200 cfs capacity, modeled as pump; destination: TMC Basin

Ten Mile Creek Reservoir and STA

- Storage capacity: 7078 acre-feet
- Footprint: 820 acres (assumed 656 effective acres / 80%)
- Inlet: 360 cfs capacity, modeled as pump; source: TMC Basin
- Outlet: 200 cfs capacity, modeled as pump; destination: TMC Basin



Key System Changes From ECB to FWO

- Kissimmee River Restoration
- Indian River Lagoon-South
- **C-43 Phase 1 Reservoir**
- EAA

Caloosahatchee ECB in RSMBN

C43 Basin

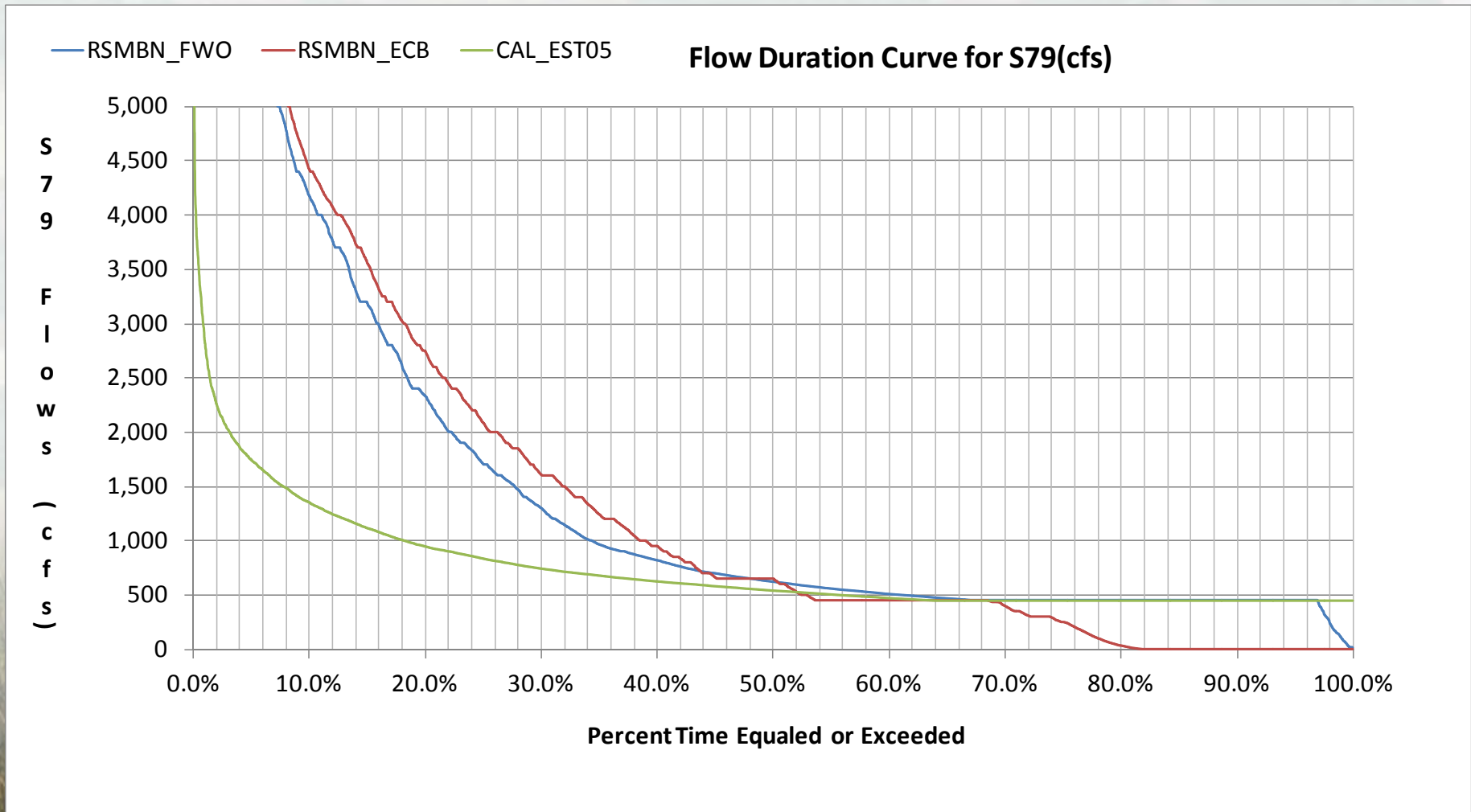
- S-79 discharges into the Caloosahatchee Estuary.
- C43 Basin runoff has potential to backflow into Lake Okeechobee when Lake stage is below 11.1 feet NGVD.
- C43 Basin supplemental demands for surface water irrigation are met by Lake Okeechobee.

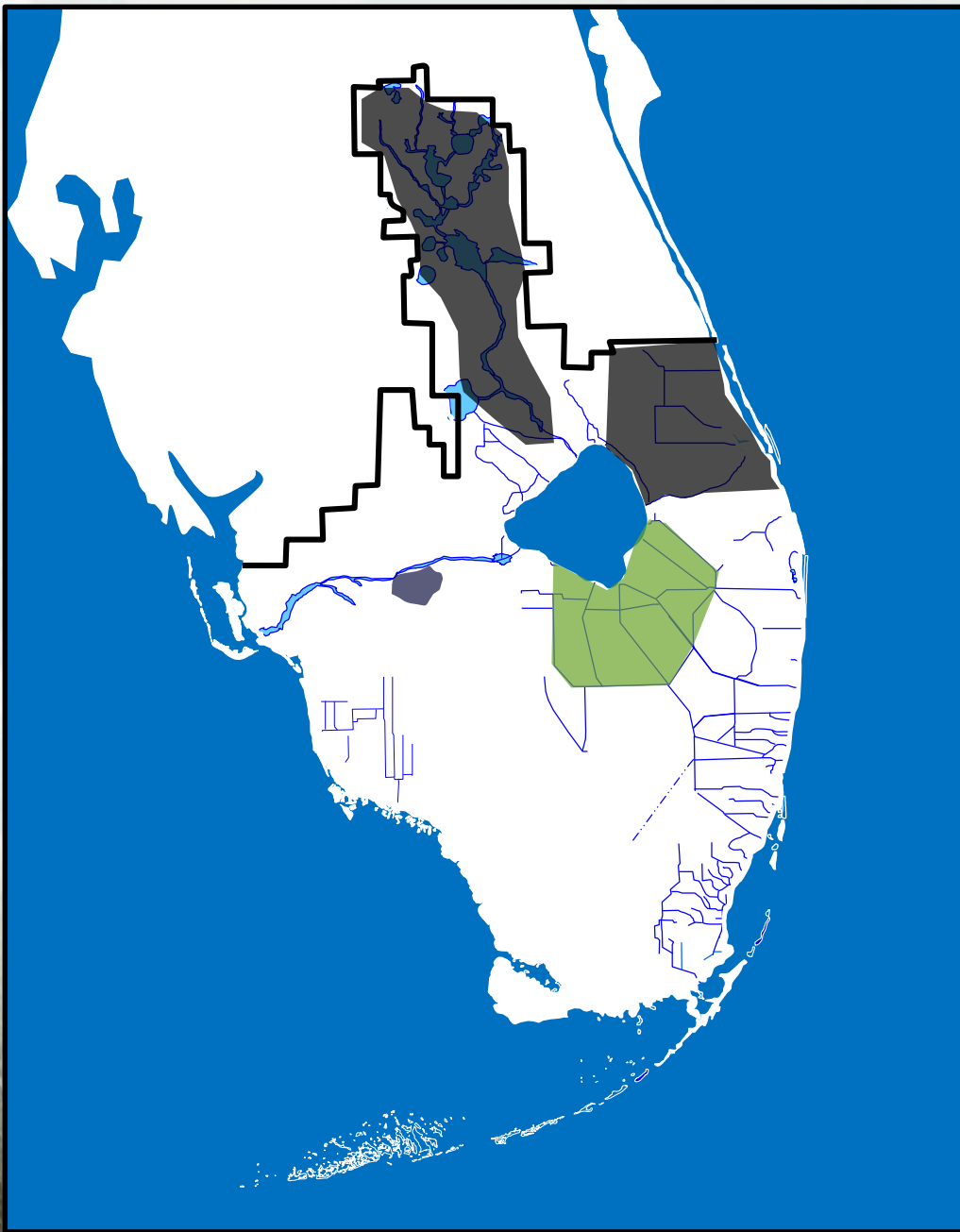
Caloosahatchee FWO in RSMBN

C43 Reservoir

- Modeled consistent with September 2007 PIR
- Storage capacity: 175,800 acre-feet
- Maximum footprint: 9,379 acres
- Inflow, capacity 1500 cfs, modeled as pump; destination: C43 Reservoir
- Outflow, capacity 1200 cfs modeled as pump; destination: C43 Canal
- Operates to meet estuary environmental target time-series (EST05)

Caloosahatchee Estuary Performance (Continued)





Key System Changes From ECB to FWO

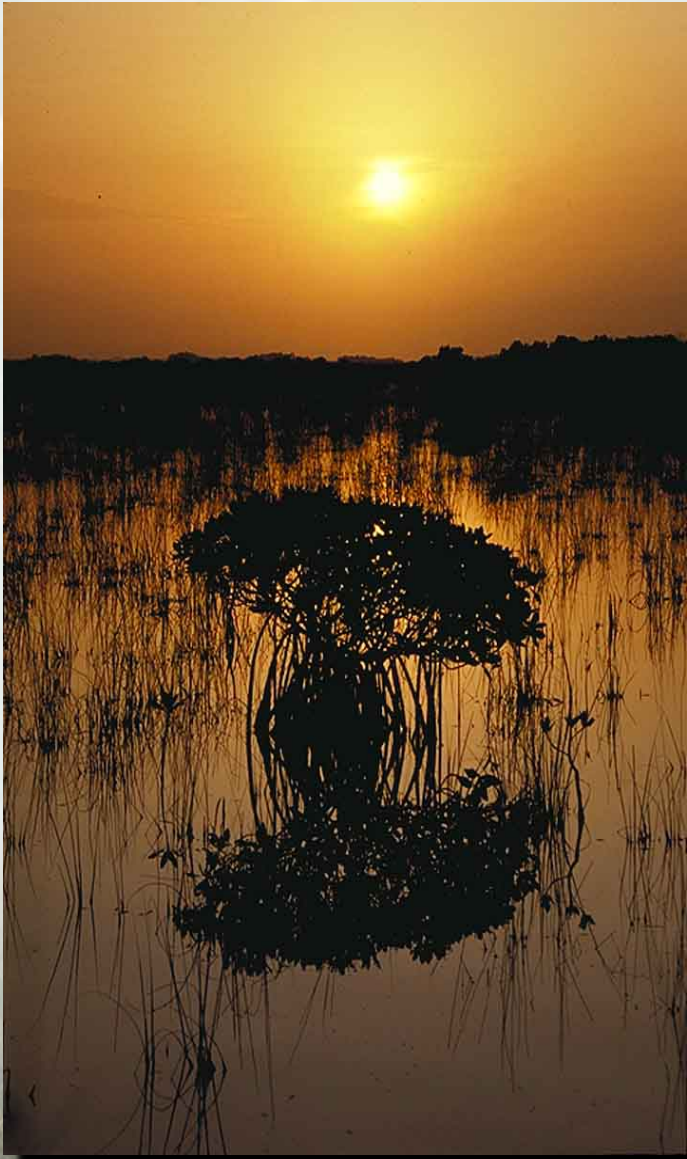
- Kissimmee River Restoration
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- **EAA**

EAA ECB in RSMBN

- Model water body components as follows:
 - Miami Water Body = S3 + S8 + A2W
 - NNR/Hillsboro Water Body = S2 + S6 + S7 + A2E + B North + B South + New Hope South
 - WPB Water-Body = S5A
- Simulated runoff from the North New River – Hillsboro basin will be apportioned based on the relative size of contributing basins via s7 route vs. S6 route.
- G-341 routes water from S-5A Basin to Hillsboro Basin
- EAA runoff and irrigation demand compared to SFWMM (ECB) simulated runoff and demand from 1965-2005 for reasonability
- Compartment C land in the Miami Canal Basin between STA-5 and STA-6 is not considered to be in production (shrub Land Use). Then, no irrigation demands are required in this area.
- Compartment B (excluding cell 4) land in the North New River/Hillsboro is not considered to be in production (shrub Land Use). Then, no irrigation demands are required in this area.

EAA FWO in RSMBN

- A1 FEB: 15,853 acres
- STAs are simulated as single waterbodies
- STA-1E: 6,546 acres total area
- STA-1W: 7,488 acres total area
- S-5A Basin runoff is to be treated in STA-1W first and when conveyance capacities are exceeded, rerouted to STA-1E
- STA-2: cells 1,2 & 3: 7,681 acres total area
- STA-2N: cells 4,5 & 6; refers to Comp B-North; 6,531 acres total area
- STA-2S: cells 7 & 8; refers to Comp B-South; 3,570 acres total area
- STA-3/4: 17,126 acres total area
- STA-5N: includes cells 1 & 2: 5,081 acres total area
- STA-5S: includes cells 3, 4 & 5; uses footprint of Compartment C: 8,469 acres total area
- STA-6: expanded with phase 2: 3,054 acres total area
- STA-3/4 receives Lake Okeechobee regulation target releases at or below 60,000 acre-feet annual average for entire period of record



DISCUSSION