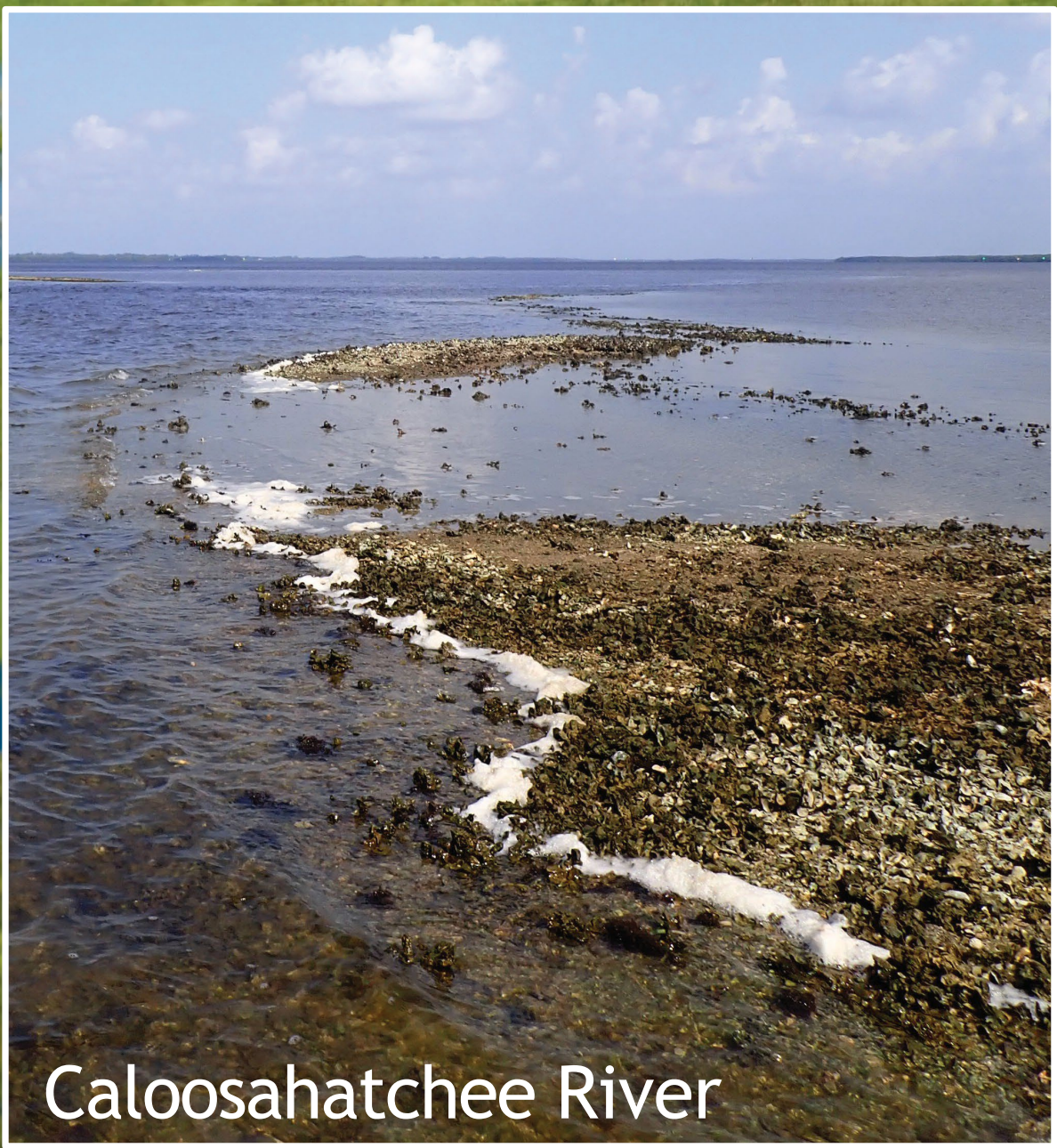


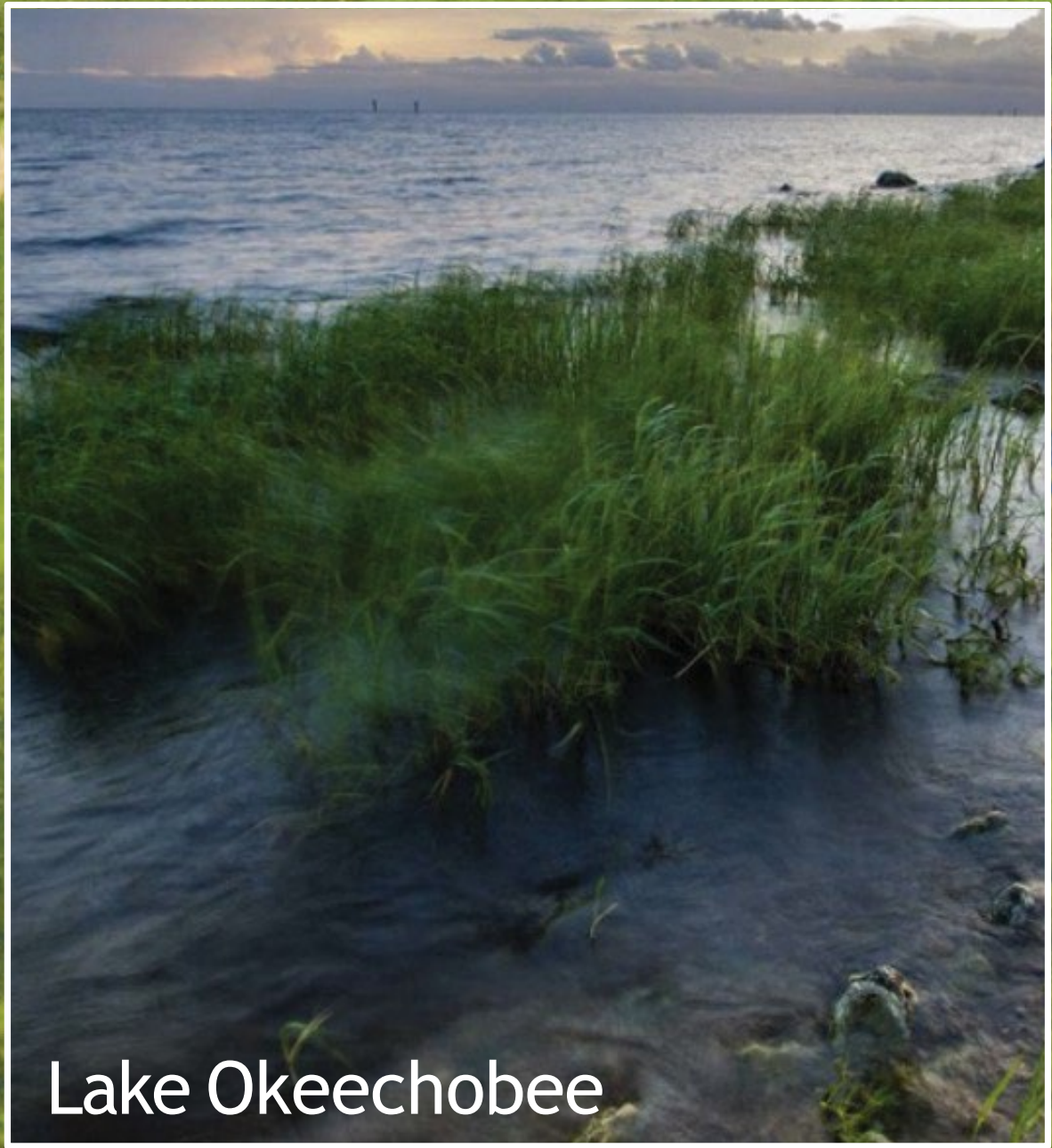


# 2025 Northern Everglades and Estuaries Protection Program (NEEPP) Regional Simulation Model Update

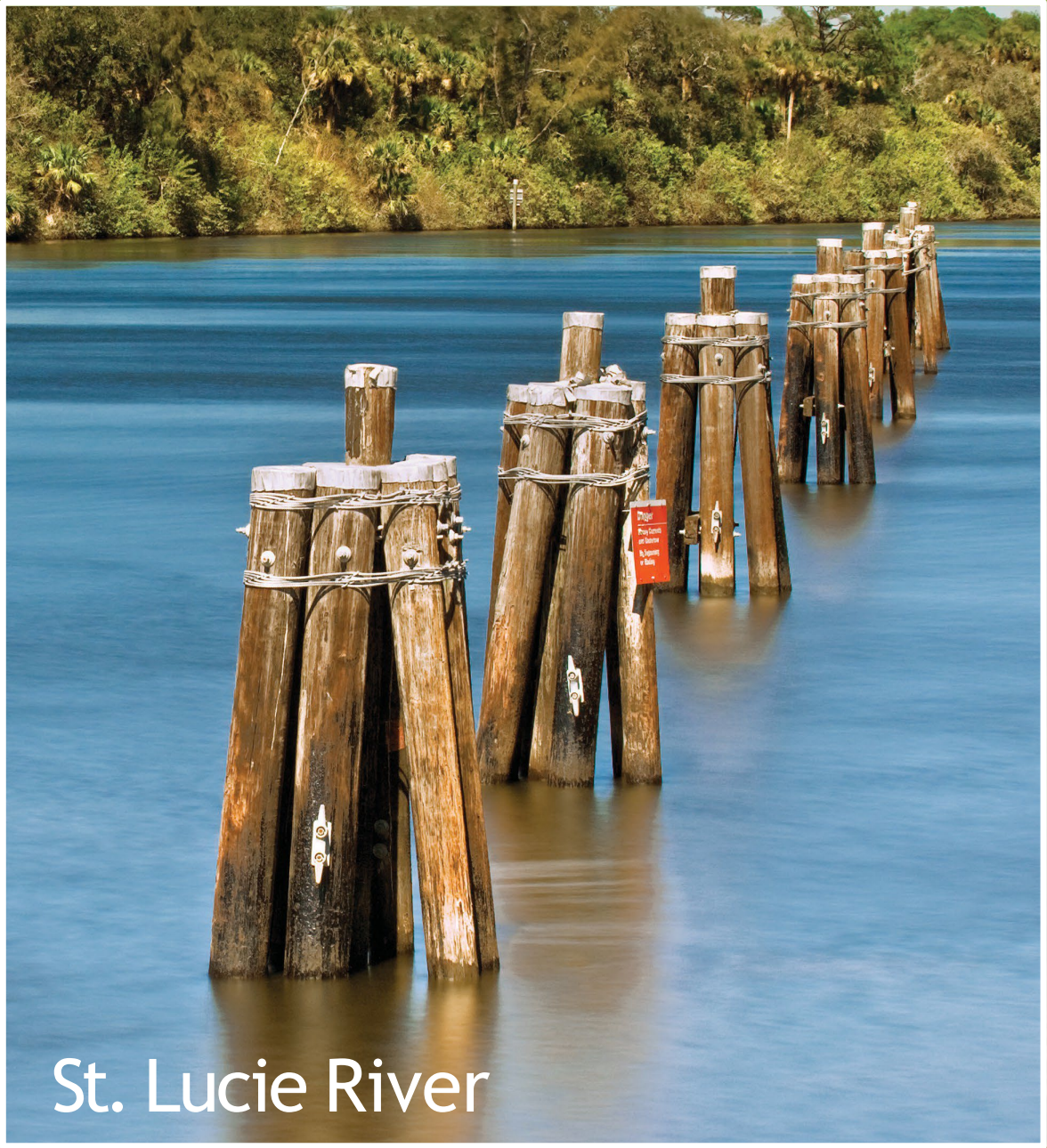
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Caloosahatchee River



Lake Okeechobee



St. Lucie River

## Key Findings

**Lake Stage:** All model simulations reduced potentially high stage impacts; improving conditions during drier periods was heavily dependent on additional storage.

**Estuary Salinity:** Updated performance metrics show equal or improved performance in St. Lucie and Caloosahatchee Estuaries Minimum Flows and Levels (MFL) compliance and reduced high and damaging flows compared to the original plan metrics.

**Water Supply:** Performance improved with additional storage.

## Background

- ▶ **The Northern Everglades and Estuaries Protection Program**
  - Statute stipulates that the South Florida Water Management District (District) shall take the lead on hydrologic improvements consistent with the Lake Okeechobee Basin Management Action Plans.
  - Directs the District to develop the appropriate water quantity storage goals to achieve the desired Lake Okeechobee range of lake levels and inflow volumes to the Caloosahatchee and St. Lucie estuaries while meeting the other water-related needs of the region, including water supply and flood protection.
- ▶ **Original Regional Simulation Model (NE-RSM)**
  - The Lake Okeechobee Watershed Phase II Technical Plan published in Feb. 2008 and the St. Lucie and Caloosahatchee River Watershed Protection Plans in Jan. 2009.
  - In the 15 years since the initial modeling effort was completed:
    - Several major hydrologic projects have been constructed and are operational.
    - Progress has been made in locating and sizing additional future planned storage projects.
    - Other regulatory/operational guidelines have been revised.

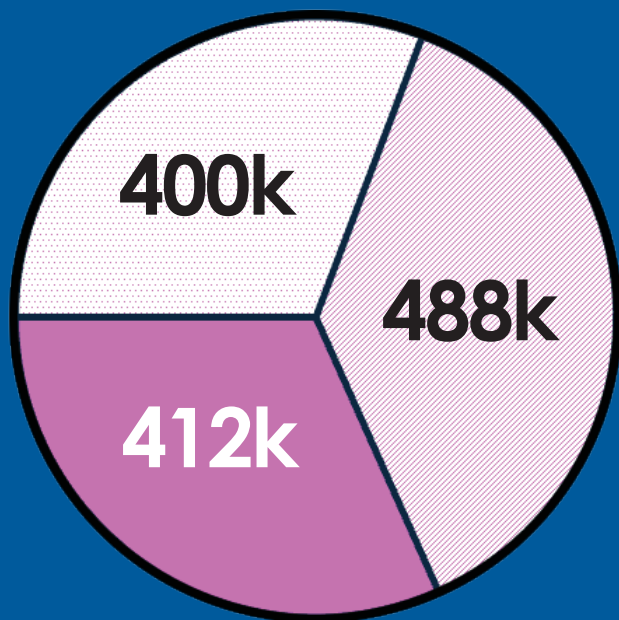
## Recommendation

Original storage targets were confirmed to meet Northern Everglades and Estuaries Protection Program legislative goals.

### Lake Okeechobee Watershed

Target: 900,000 - 1,300,000 acre-feet

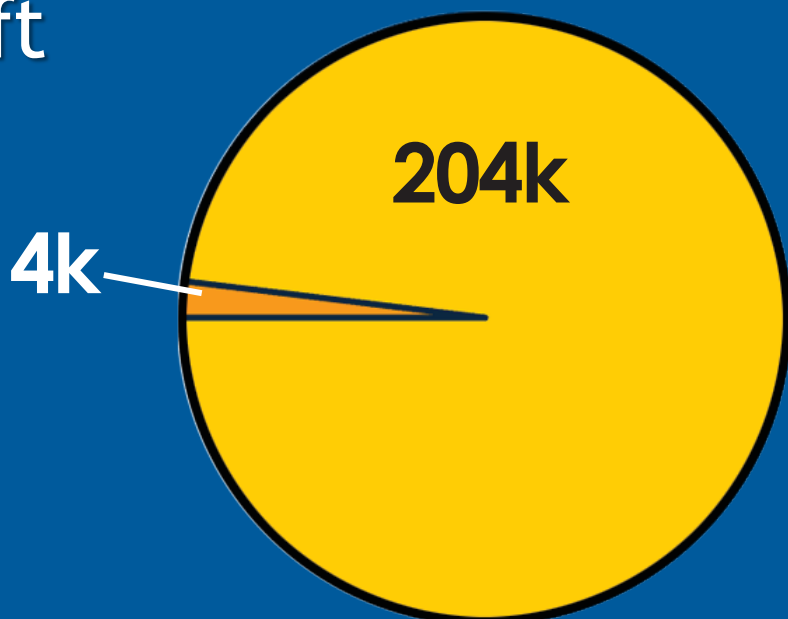
- Current & future project storage
- Additional Storage needed for 900k acre-ft
- Additional Storage needed for 1.3M acre-ft



### St. Lucie River Watershed

Target: 200,000 acre-feet

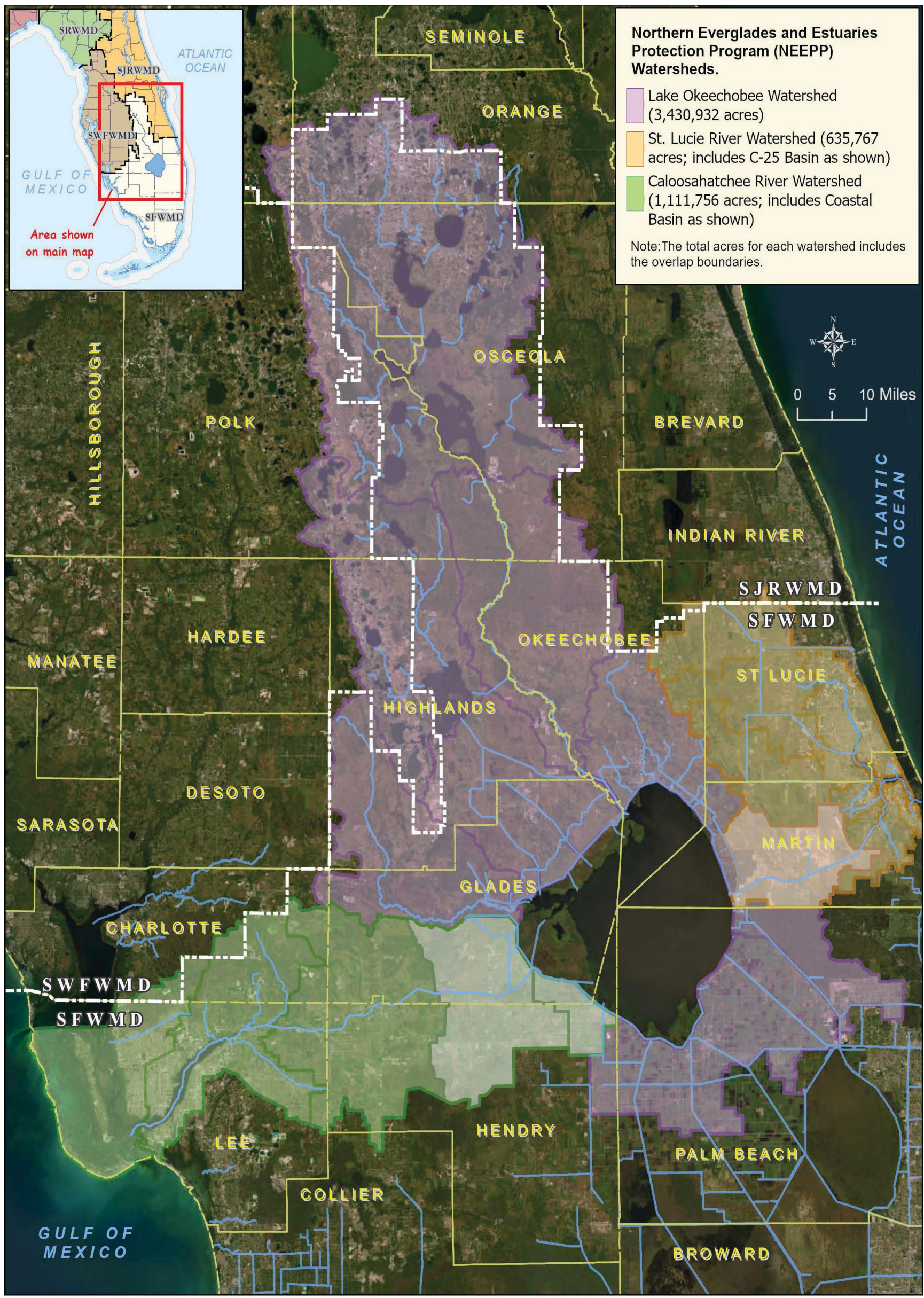
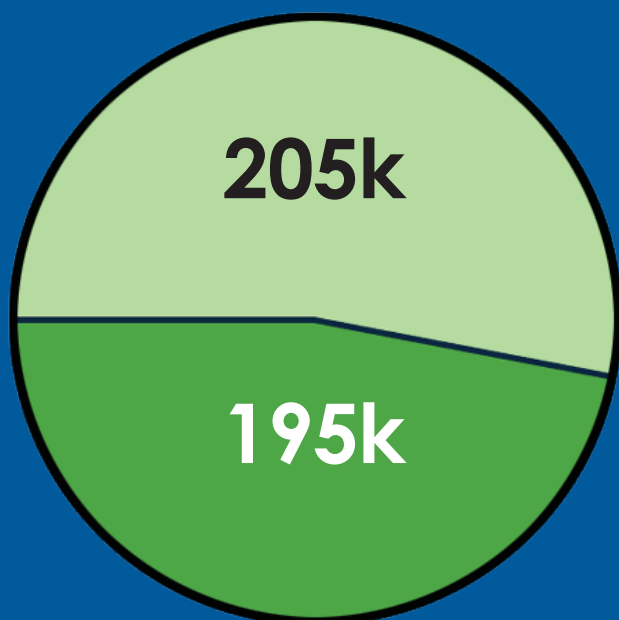
- Current & future project storage
- Storage target exceeded



### Caloosahatchee River Watershed

Target: 400,000 acre-feet

- Current & future project storage
- Additional storage needed



## Making Progress

The District is making significant progress towards meeting the NEEPP storage goals. Dispersed Water Management Projects along with the restoration of natural lands are playing a part in achieving these goals.

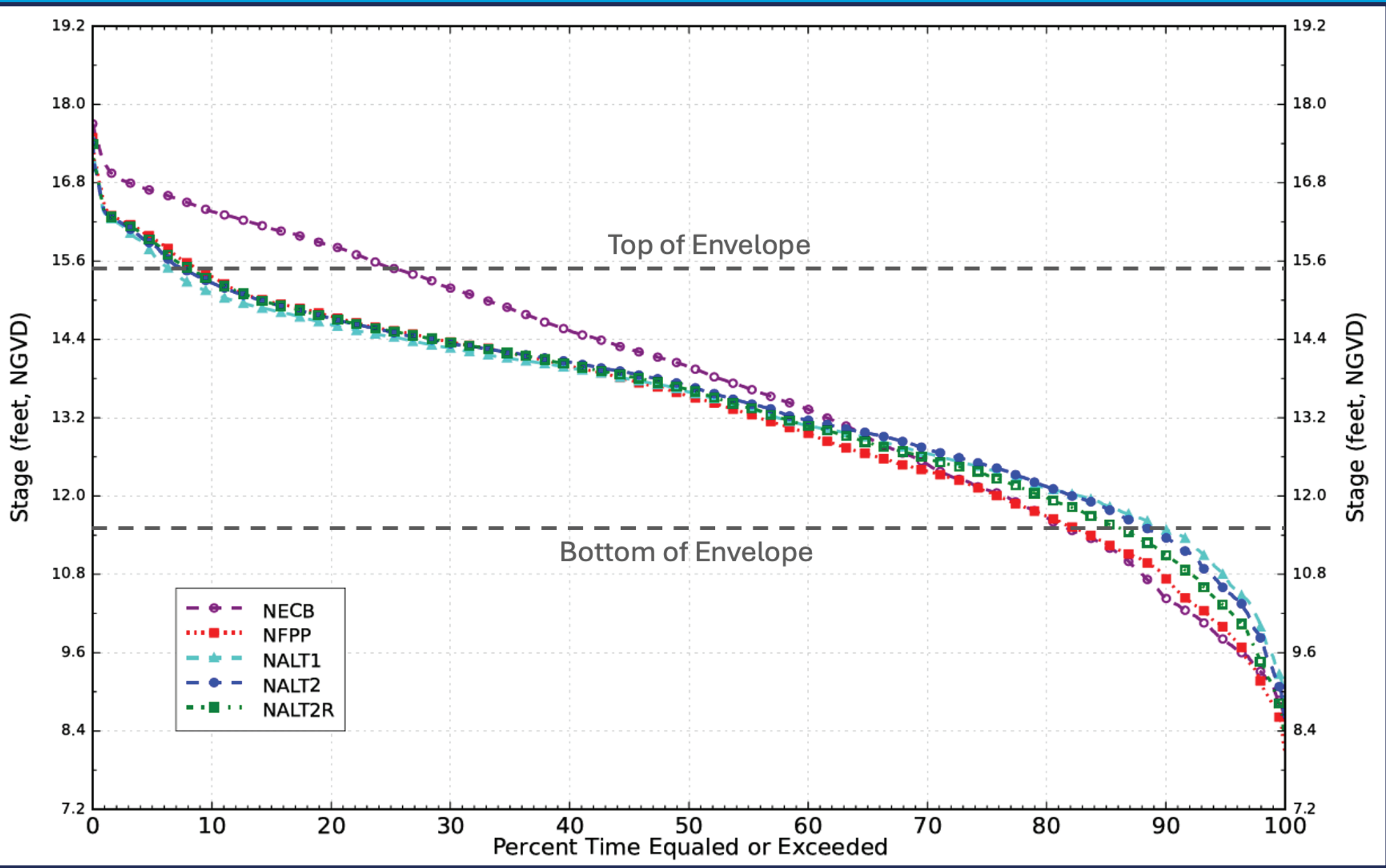
## RSMBN Modeled Scenarios

NECB Existing	=	LOSOM	+	LOW Storage 50k ac-ft	+	SLRW Storage 108k ac-ft	+	CRW Storage 2k ac-ft
NFPP Future Projects	=	NECB	+	LOW Storage 412k ac-ft	+	SLRW Storage 204k ac-ft	+	CRW Storage 195k ac-ft
NALT 1 Maximize Storage	=	NFPP	+	LOW Storage 1,300k ac-ft	+	SLRW Storage 204k ac-ft	+	CRW Storage 400k ac-ft
NALT 2 Optimize	=	NFPP	+	LOW Storage 900k ac-ft	+	SLRW Storage 204k ac-ft	+	CRW Storage 400k ac-ft
NALT 2R Reduce Storage	=	NFPP	+	LOW Storage 682k ac-ft	+	SLRW Storage 204k ac-ft	+	CRW Storage 294k ac-ft

NECB = NEEPP Existing Conditions Baseline NFPP = NEEPP Future Planned Projects NALT = NEEPP Alternative  
LOW = Lake Okeechobee Watershed CRW = Caloosahatchee River Watershed SLRW = St. Lucie River Watershed  
LOSOM = Lake Okeechobee System Operating Manual RSMBN = Regional Simulation Model - Basins Nodes

### Updated Modeling Tools and Hydrologic Analysis

- ▶ Updated performance metrics with the latest science on lake ecology, estuarine salinity, and water supply.
- ▶ Model Existing Conditions Baseline (NECB) was updated to include the Lake Okeechobee System Operating Manual (LOSOM) Dispersed Water Management Projects (DWM), various restoration features and the C-44 Reservoir.
- ▶ Major NEEPP Future Planned Projects (NFPP) included the Caloosahatchee C-43 Reservoir, LOCAR and the EAA Reservoir.
- ▶ Conceptual storage and treatment projects were interchanged for the Alternative runs (NALT 1, NALT2 & NALT 2R) to simulate the addition or subtraction of storage within the watershed.



## LAKE STAGE DURATION CURVE

The Lake Stage Duration Curve suggests that all model simulations were able to substantially improve potential high stage impacts.

Improving conditions during drier periods was heavily dependent on storage capacity.

For more information see the South Florida Environmental Report Appendix 8A-1

