CENTRAL EVERGLADES PLANNING PROJECT

Working Group Sponsored Workshop

PRESENTED BY

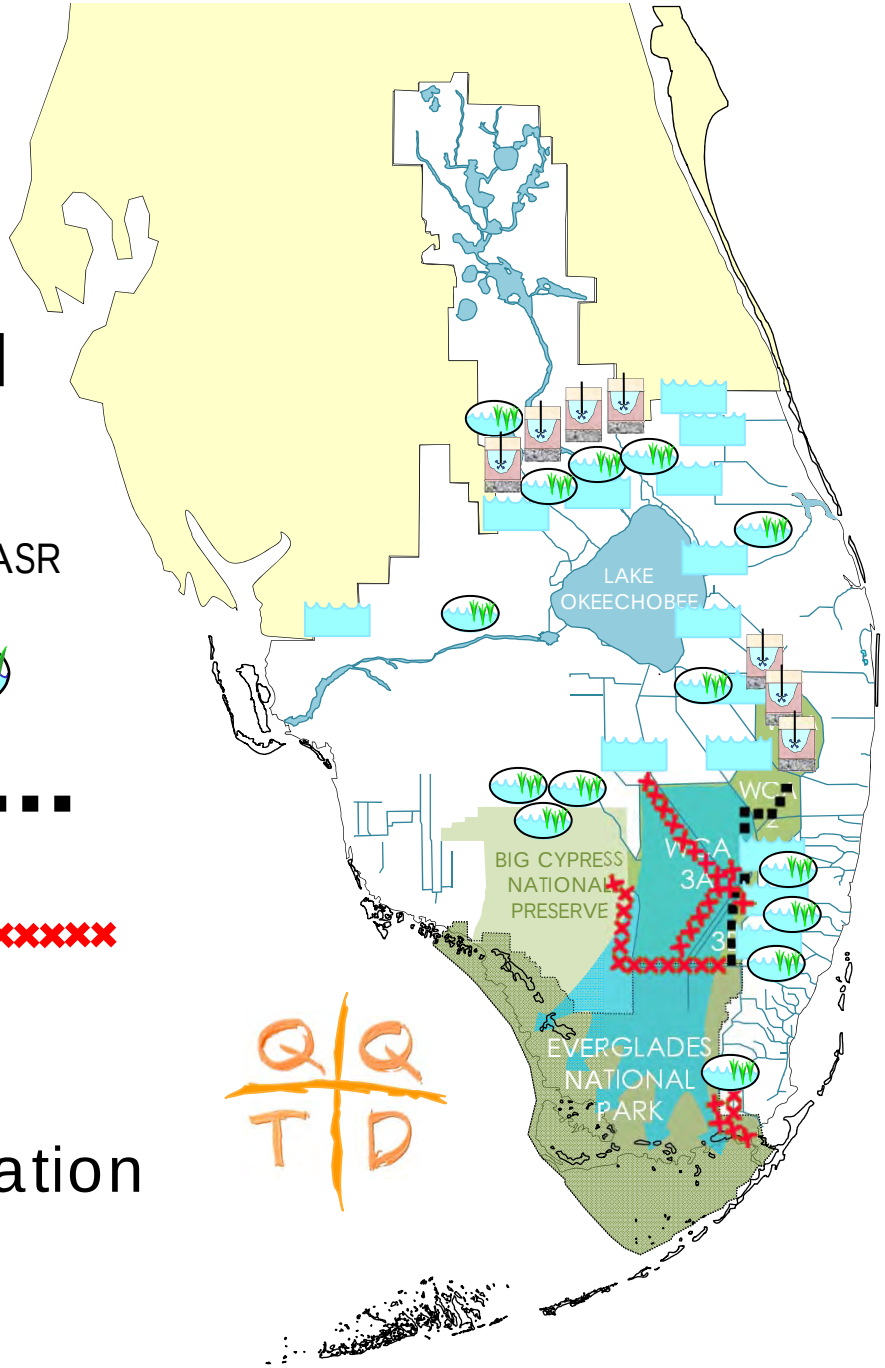
Matt Morrison,
Everglades Policy and Coordination

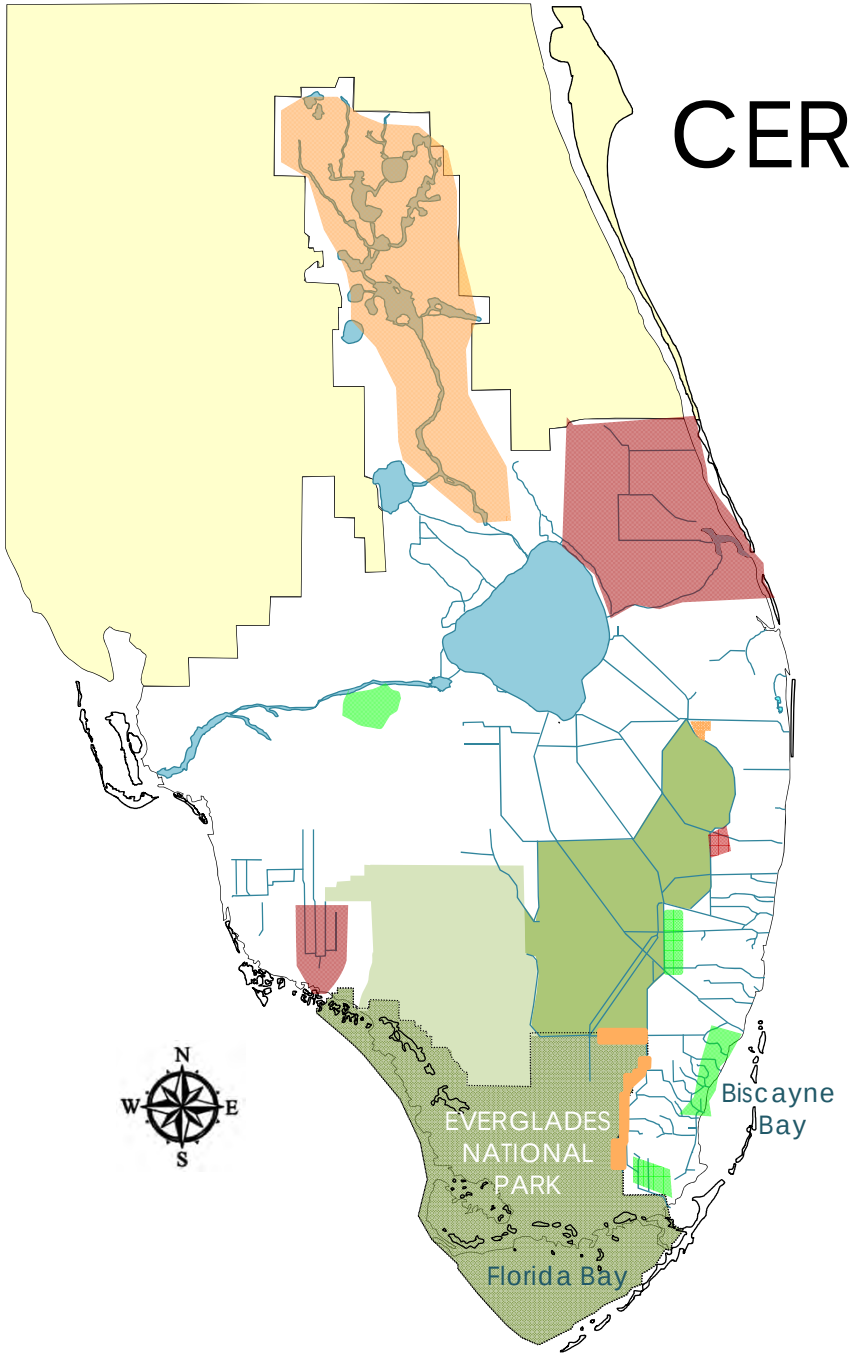
South Florida Water Management District

March 9, 2012

COMPREHENSIVE EVERGLADES RESTORATION PLAN

- 68 Components
  - Storage Surface ASR
  - STAs for water quality
  - Seepage management
  - Removing barriers to flow
  - Revised operations
- 30+ year implementation





CERP IMPLEMENTATION

Foundation Projects

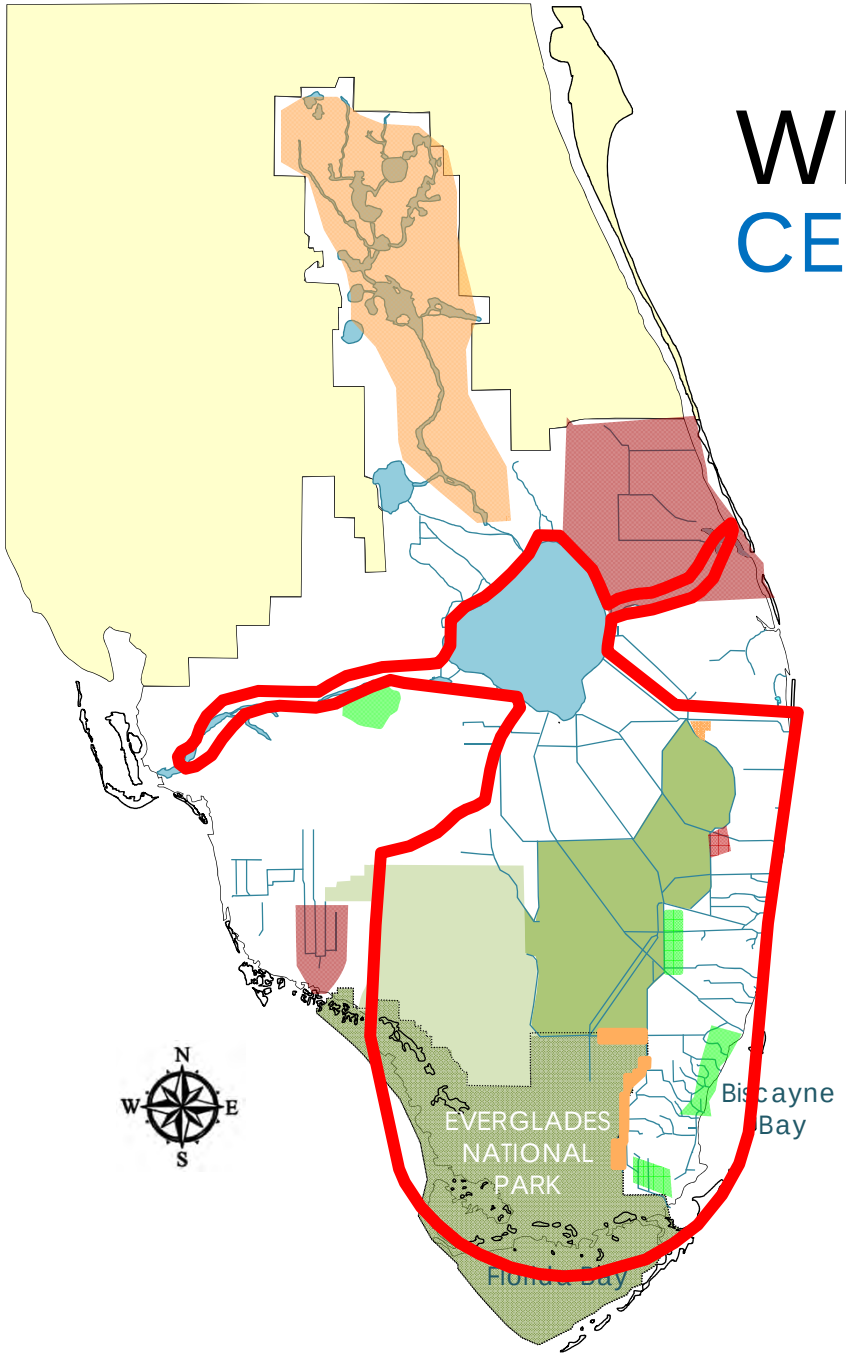
- Kissimmee River
- C-111 South Dade
- C-51/STA-1E
- Modified Water Deliveries

1st Generation CERP

- Site 1 Impoundment
- IRL-South
- Picayune Strand

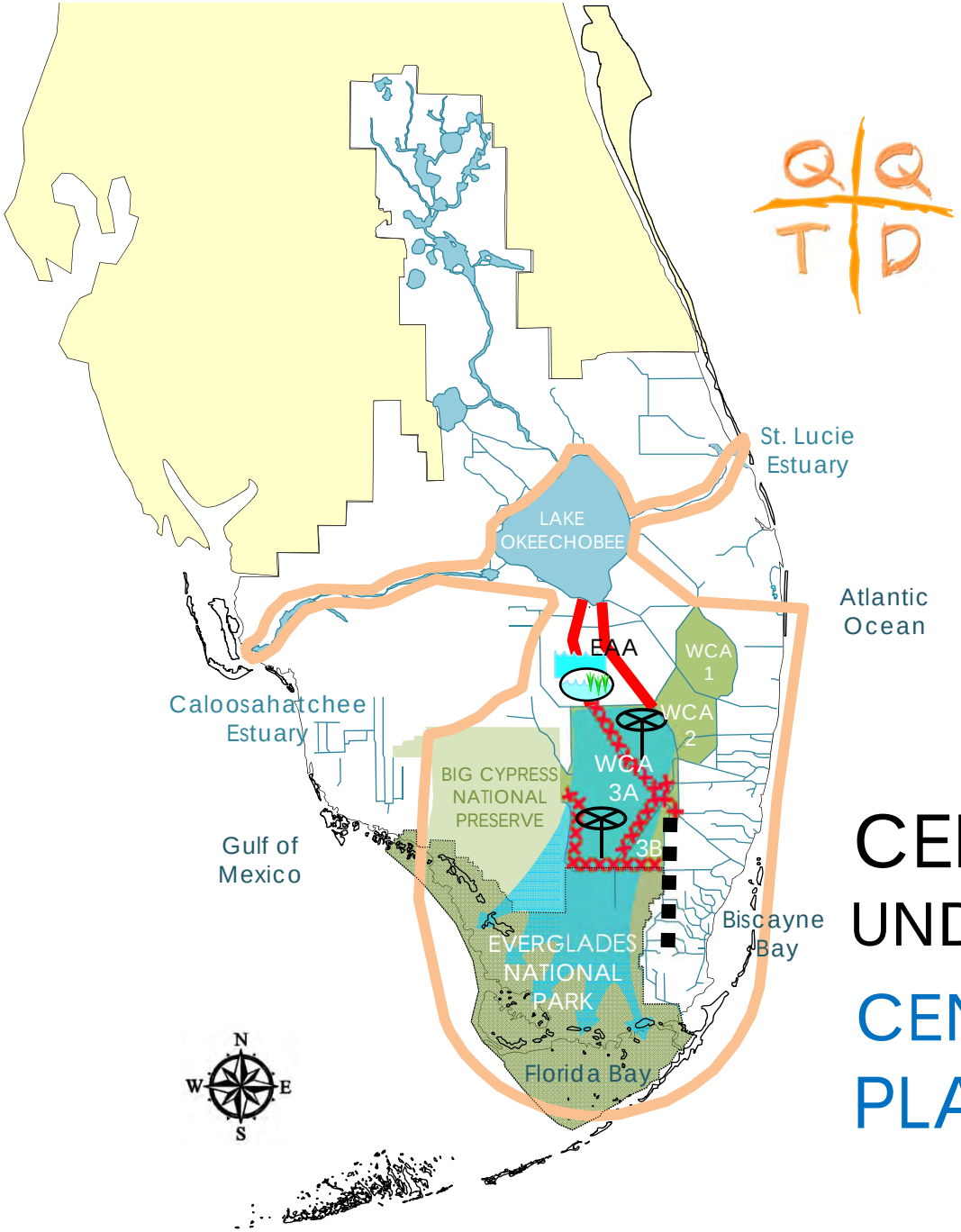
2nd Generation CERP

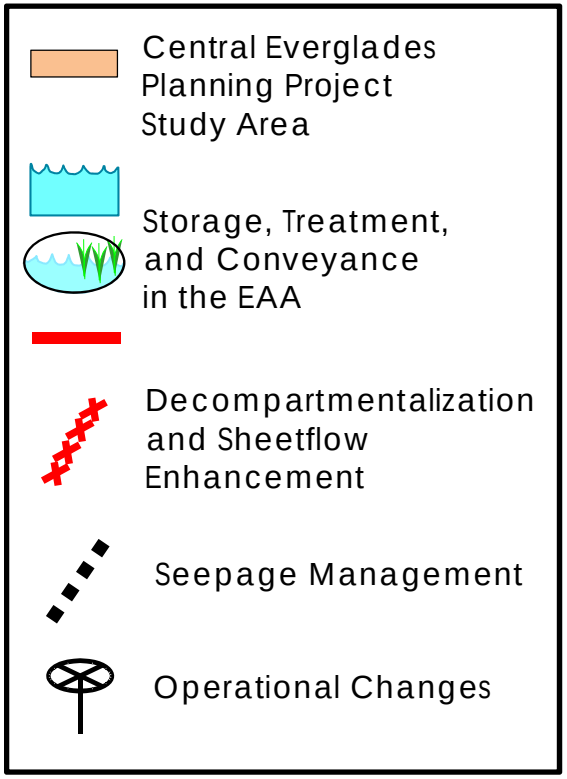
- C-43 Reservoir
- Broward County WPA
- C-111 Spreader Canal
- Biscayne Bay Coastal Wetlands



WHAT'S NEXT?
CENTRAL EVERGLADES

- Reduce undesirable discharges to east and west coast estuaries
- Deliver "new" sources of clean water to the Central Everglades and ENP
- Restore habitat in the central Everglades, focusing on the "River of Grass"





CERP COMPONENTS UNDER CONSIDERATION

CENTRAL EVERGLADES PLANNING PROJECT

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Screening Analysis

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SCREENING ANALYSIS

REGIONAL STORAGE AND TREATMENT

- Robust hydraulic connection to Lake Okeechobee with flexibility to manage high water levels
- Improve the timing of environmental deliveries to the WCAs
- Reduce regulatory releases of water from the EAA to the WCAs
- Reduce regulatory releases to the northern estuaries
- Meet agricultural demands and flood protection within EAA
- Potential to enhance STA operations

SCREENING ANALYSIS

REGIONAL STORAGE AND TREATMENT

- Unwilling sellers, eminent domain authority, economic realities
- Minimize negative impacts on socio-economics in Palm Beach County
- Lands already acquired and ready for environmental restoration purposes
- Topography
- Major canal networks (Miami Canal, B&C Canal and NNR Canal) already in place and in close proximity to move water from LO to project features

SCREENING ANALYSIS

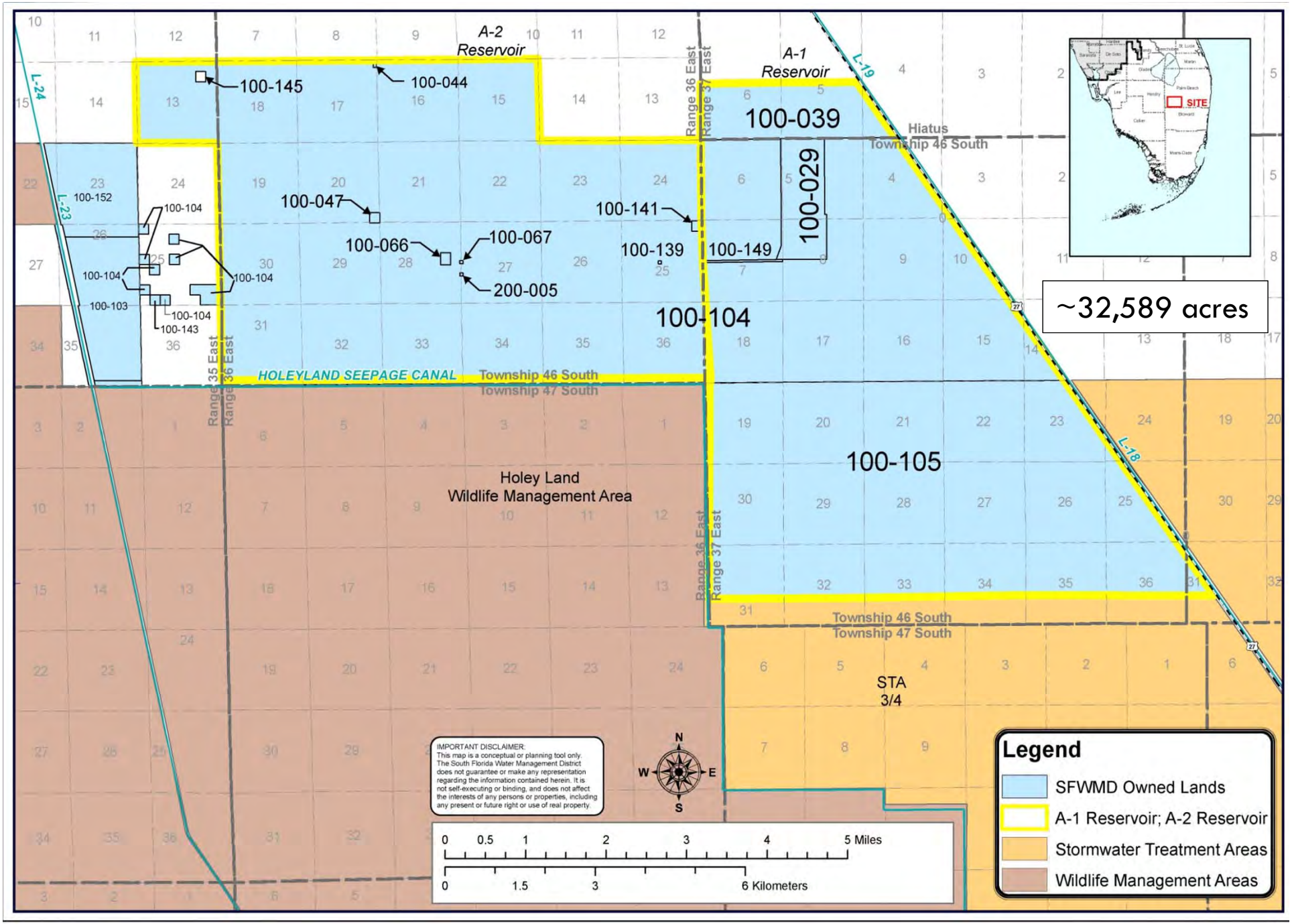
REGIONAL STORAGE AND TREATMENT

- Centralized Economies of Scale – proximity to existing public works (STAs, existing pump stations) and natural areas
- Muck Depths
- Construction and maintenance access
- Seepage Management
- Availability of construction material
- FAA Circular Requirements
- Existing project and site related data
  - Site Conditions, Geotechnical, Agricultural Chemicals, Cultural Resources

SCREENING ANALYSIS

Conclusion

- Lands owned by the SFWMD in the southern portion of EAA demonstrated better cost effectiveness on a cost per ac-ft of storage and treatment when compared to other locations
- No compelling reason to pursue meeting the planning objectives elsewhere in the study area

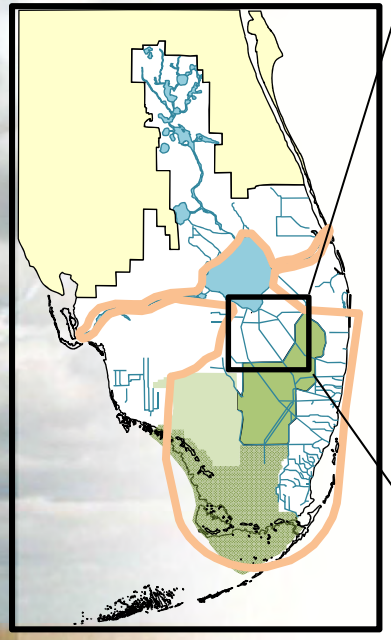

A-2 Reservoir
A-1 Reservoir
100-145
100-044
100-039
100-029
100-047
100-141
100-066
100-067
100-139
100-149
200-005
100-104
100-152
100-103
100-143
100-105
Hiatus
Township 46 South
Township 47 South
Range 35 East
Range 36 East
Range 37 East
HOLEYLAND SEEPAGE CANAL
Holey Land
Wildlife Management Area
STA
3/4
L-24
L-23
L-19
L-18
SITE
~32,589 acres
IMPORTANT DISCLAIMER:
This map is a conceptual or planning tool only. The South Florida Water Management District does not guarantee or make any representation regarding the information contained herein. It is not self-executing or binding, and does not affect the interests of any persons or properties, including any present or future right or use of real property.
N
W
E
S
0 0.5 1 2 3 4 5 Miles
0 1.5 3 6 Kilometers
Legend
SFWMD Owned Lands
A-1 Reservoir; A-2 Reservoir
Stormwater Treatment Areas
Wildlife Management Areas

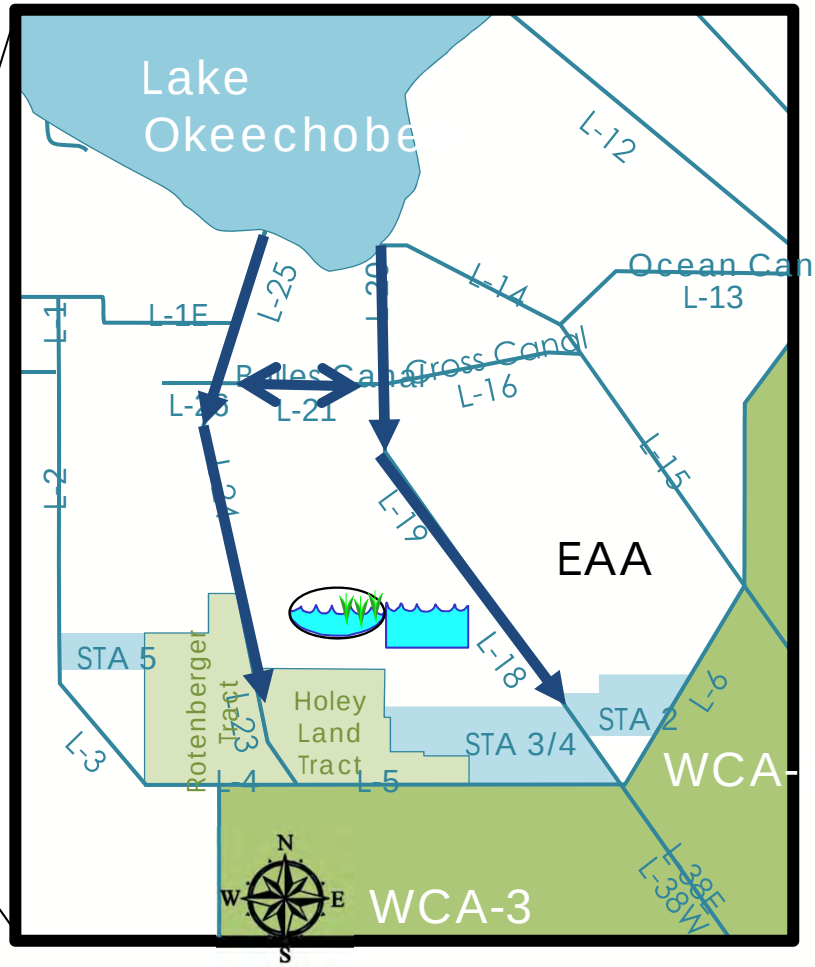
CENTRAL EVERGLADES PLANNING PROJECT

Management Measure Comparisons

CEPP

QUANTITY & QUALITY



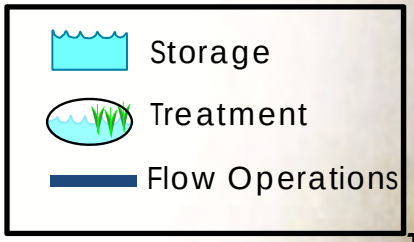


First Increment

Management Measures

- Shallow Storage
- Deep Storage
- Storm Water Treatment Areas
- Restored Wetland
- ASR
- Operations

Management measures for Quantity/Quality will be formulated to reduce high volume discharges from the Lake and restore seasonal hydroperiods and freshwater distribution in the Everglades system.



Management Measure Comparison
Wet vs Dry Footprints

Maintaining Wet Footprint

Improves water quality performance

Improves habitat within feature footprint

Allowing Footprint to Go Dry

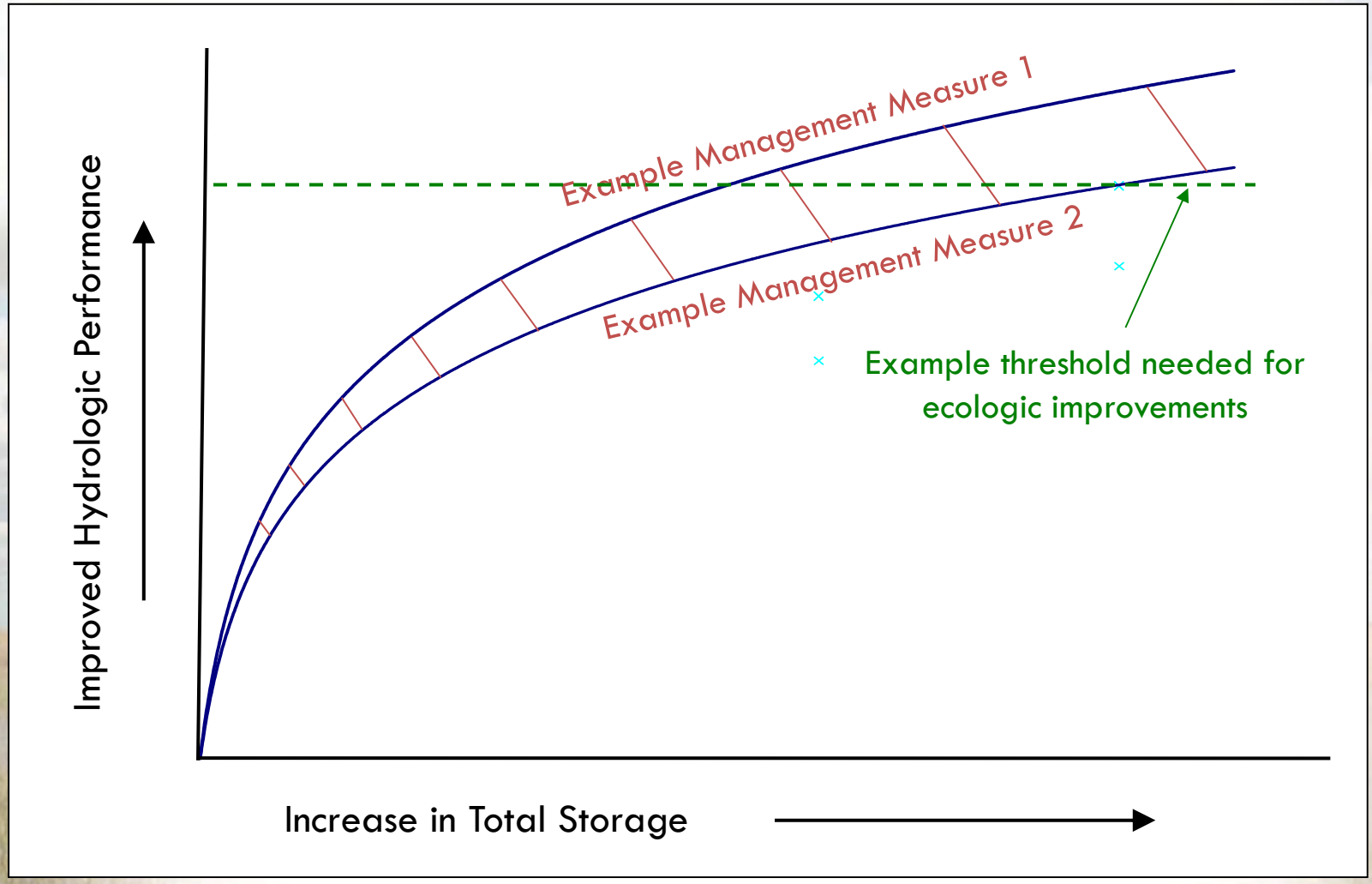
Increases available storage

Stored water is available to meet targets

If wet footprint, then significantly greater storage volumes/acreage to achieve same performance

Management Measure Comparison

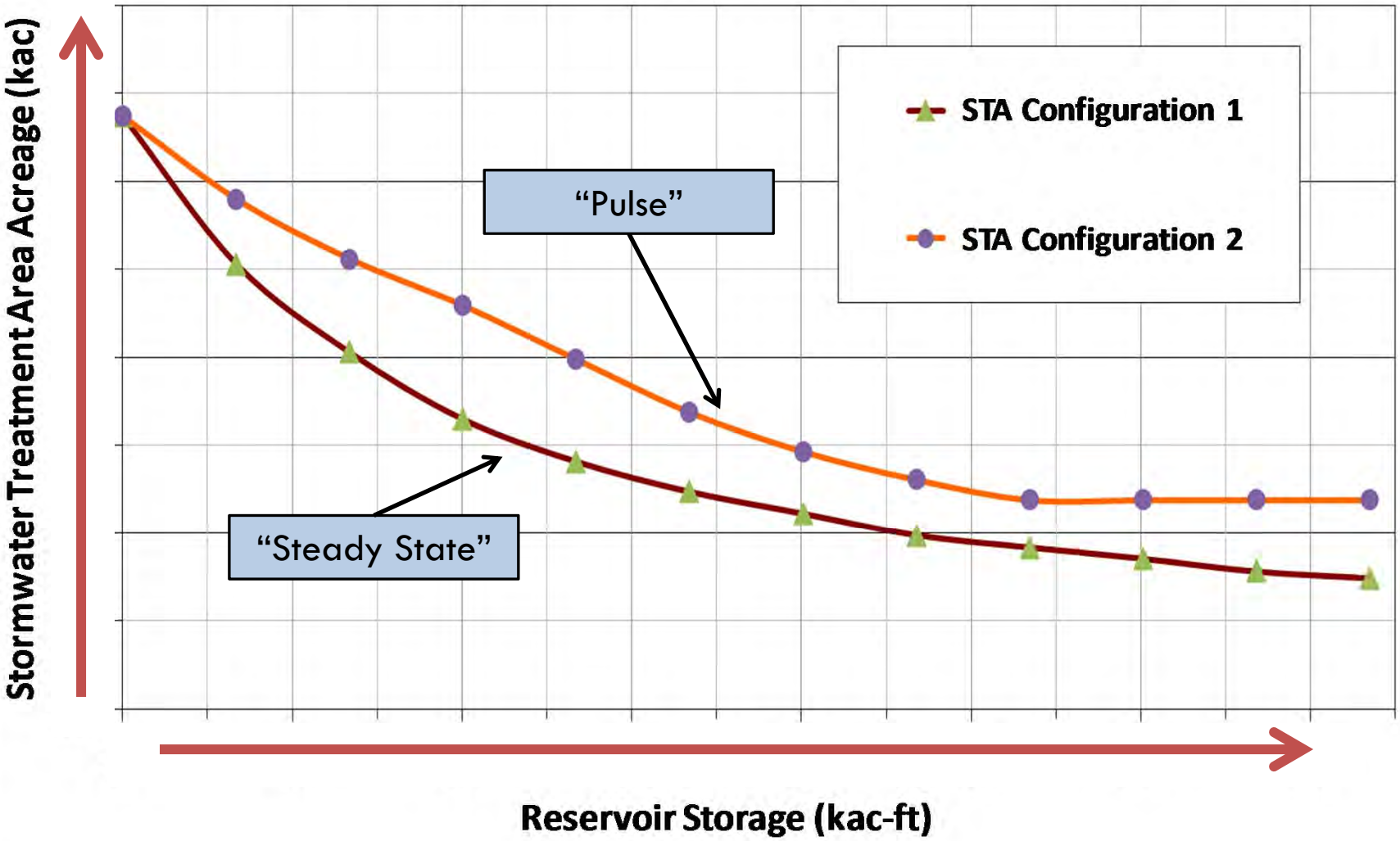
Wet vs Dry Footprints



Management Measure Comparison
Deep Storage vs. Shallow Storage – Findings

	Deep	Shallow
Spatial Extent	Smaller spatial extent per unit volume	Larger spatial extent per unit volume
ET	~ 15% to 30% of total inflow volume	~ 20% to 60% of total inflow volume
Design Criteria	Dam safety criteria; hardened slope protection; compartments may be required; seepage cutoff wall and collection system	Impoundment criteria; grass slope protection; no compartments required; may require seepage collection system
Construction Costs	More expensive per unit volume than shallow	Less expensive per unit volume than deep; However if wet shallow storage, then will need significantly larger storage volume
Land Requirements	Less than half as much land required per unit volume as compared to shallow	More than twice as much land required; 100,000 ac-ft of shallow storage requires ~ 25,000 acres of land

Example STA / Storage Screening



Management Measure Relative Performance

Water Quality- Phosphorus Treatment

- Deep Reservoirs
- Shallow Impoundments
- Stormwater Treatment Areas
- Aquifer Storage and Recovery*

Low ⟷ High

Management Intensity

- Shallow Impoundments
- Deep Reservoirs
- Stormwater Treatment Areas
- Aquifer Storage and Recovery

Low ⟷ High

* Initial results after 3 Cycle Tests at the LO ASR Pilot, no long term data exists

Management Measure Relative Performance

Storage per Acre

•Deep Reservoirs

•Shallow Impoundment

•Aquifer Storage and Recovery

Low ← → High

Cost per Acre-ft of Storage

•Aquifer Storage and Recovery

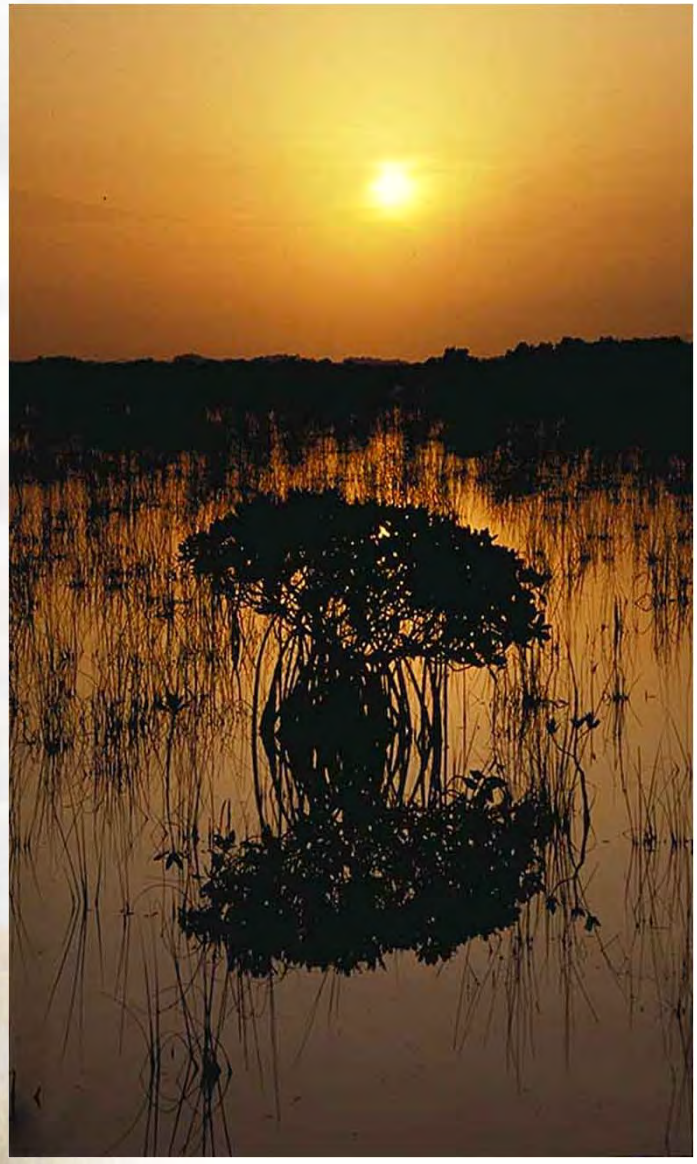
•Shallow Impoundment

•Deep Reservoirs

Low ← → High

Performance and Cost Relationships

- Non-linear
- Performance not strictly tied to costs or total storage volume
- <u>Performance highly dependent on management measure type and operations</u>



QUESTIONS?