On-the-ground Implementation of Two Major Ecosystem Restoration Efforts in Everglades & Dry Tortugas National Parks: Tremendous Opportunities/Major Challenges

Aquatic Professionals Meeting

Fort Collins, CO

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Dry Tortugas National Parks

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Everglades National Park

Nature on a grand scale....

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- 1.5 million total acres, 1.3 million acres of wilderness, 500,000 acres in Florida Bay.

- Shares a border with 7 million people and counting. Population growth is averaging 900 per day.

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- **World Heritage Site**
- **International Biosphere Reserve**
- **Wetland of International Importance**
- **Largest sawgrass prairie in North America**
- **Largest mangrove ecosystem in Western Hemisphere**

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Protecting South Florida's Natural Heritage....

- 69 Federal and State threatened and endangered species
- More than 100 miles of mangrove coast
- Over 90% of south Florida's remaining pine rocklands

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Water diverted….

- South Florida is a landscape prone to flooding, especially during hurricanes
- Engineers and developers dug canals to drain the floodwaters and make land suitable for agriculture and development.
- By the 1960s, the Everglades was diked and drained
- Almost immediately, the Park was parched

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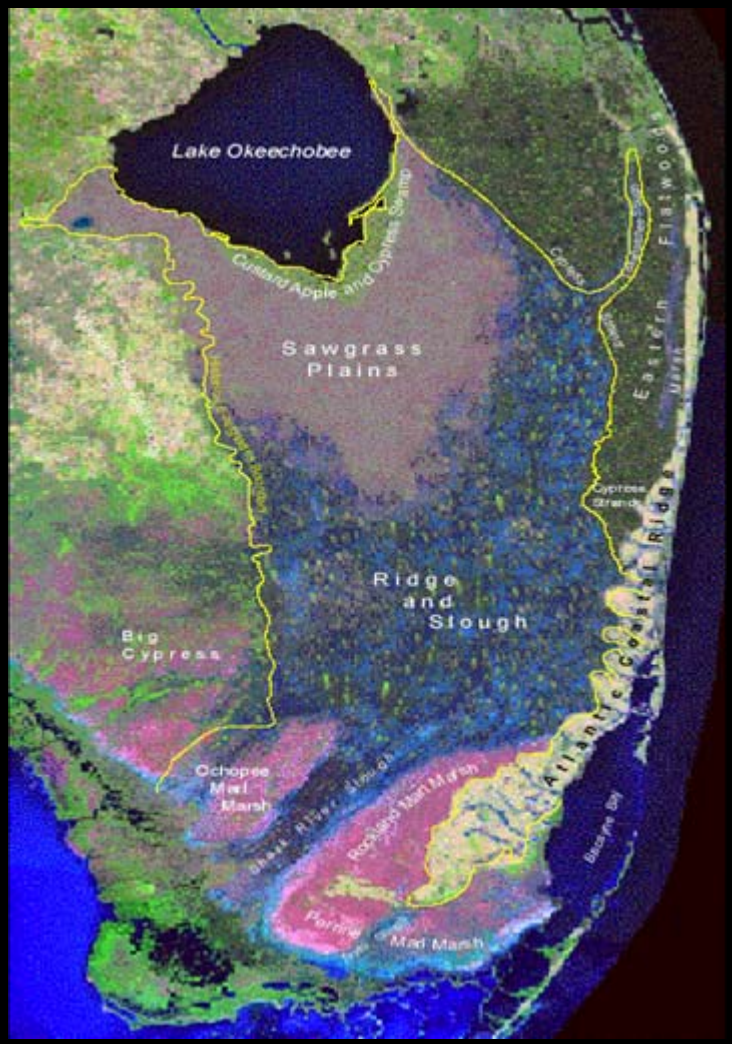
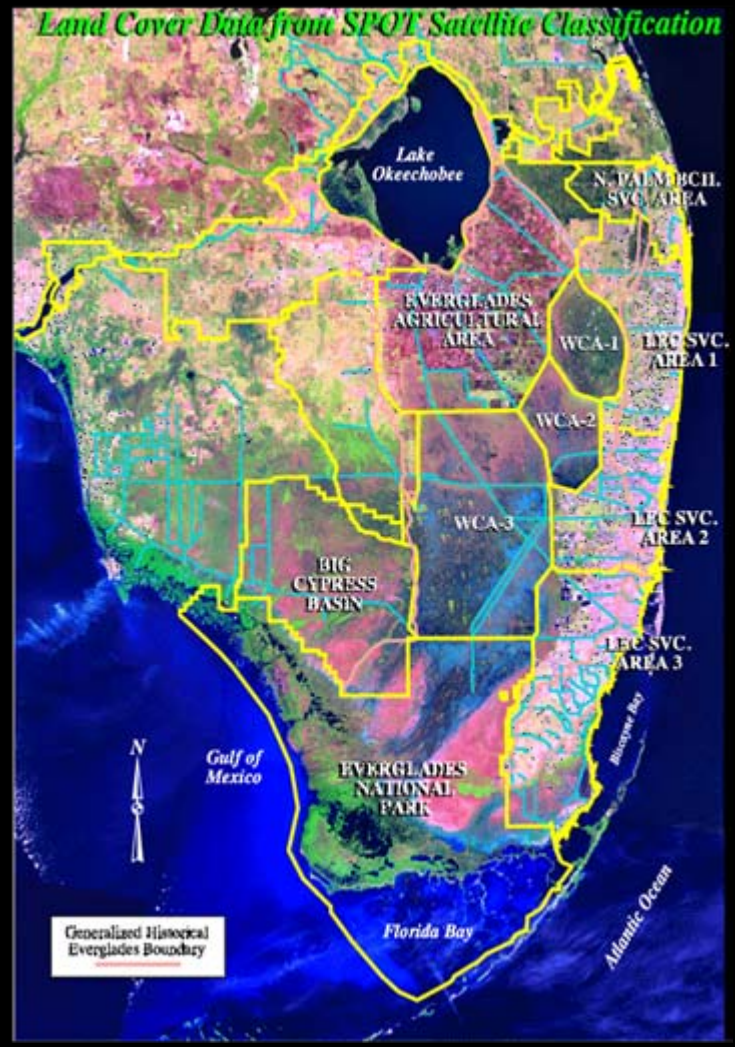
"… draining the Swamps"



Pre-Drainage System (circa 1850's)



Post-Drainage System (1995)

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Indicators of Ecosystem Problems

- **90 - 95% reduction in wading bird populations**
- **69 threatened or endangered species**
- **1.5 million acres infested with invasive, exotic plants**
- **1 million acres under health advisories for mercury contamination**

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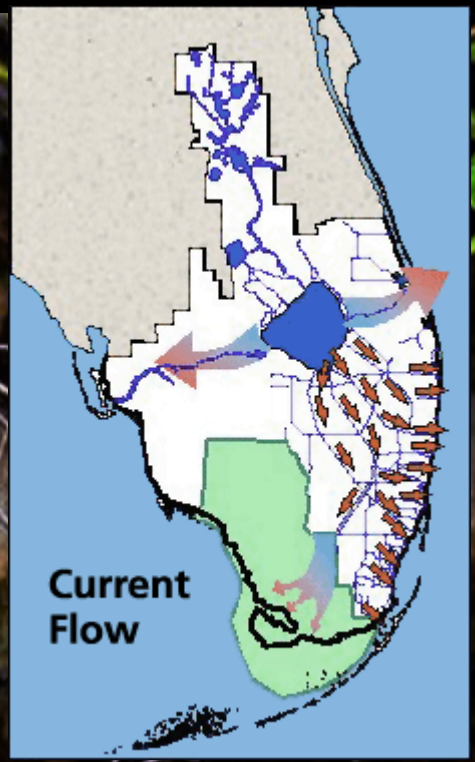
Restoring the Everglades Watershed....



Restoration Goals: “get the water right,” “get the habitat right,” & assure compatibility with the built environment.

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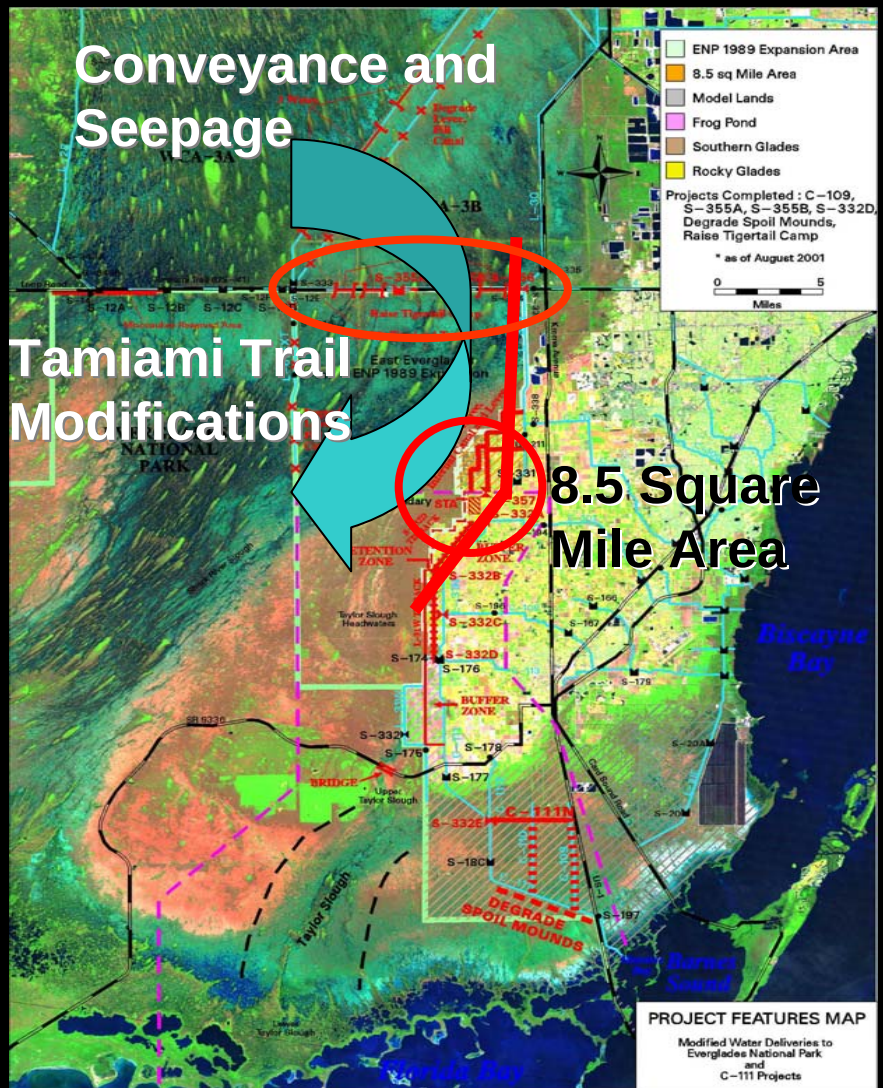
Modified Water Deliveries Project



Intent of Project

- The Army Corps will construct C&SF Project modifications to restore flows to Northeast Shark Slough.
- Shared funding by NPS and Corps (current estimate of approved plan is ~$800M).
- The project has three major components:

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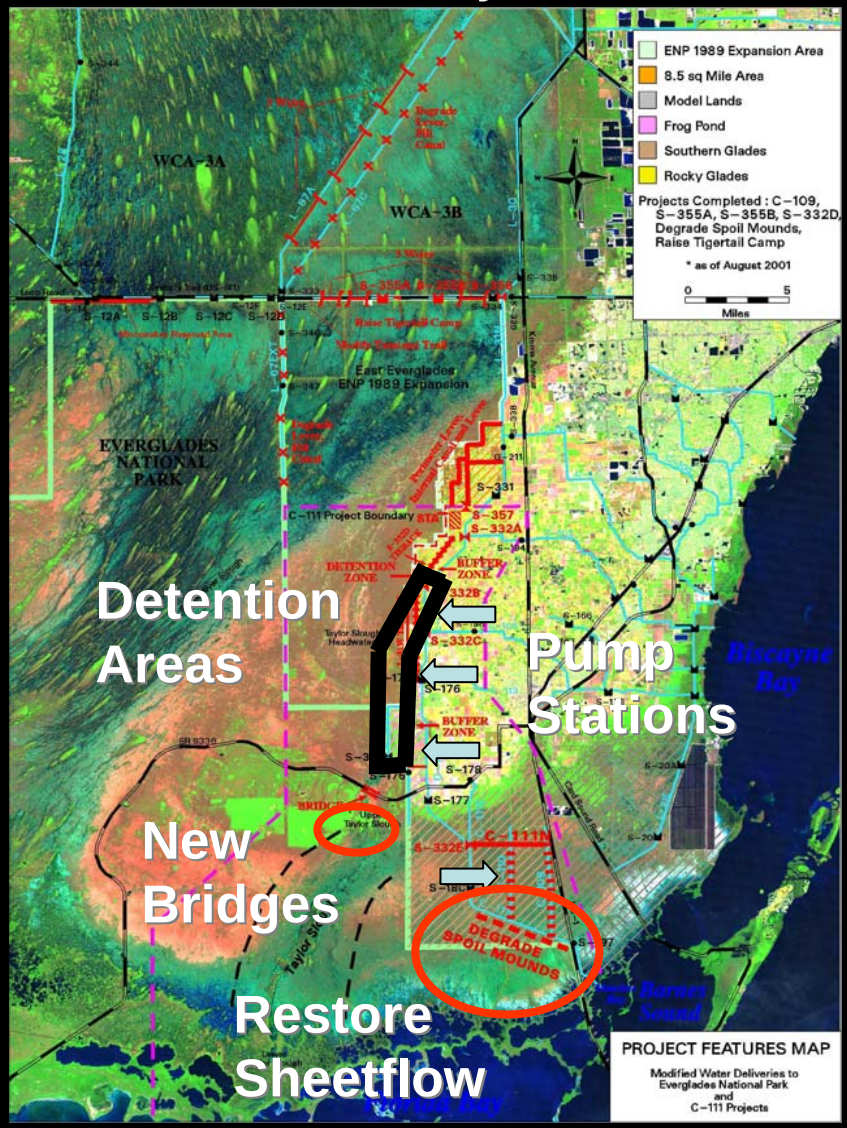
The C-111 Project



Intent of the Project:

- Restore the hydrologic conditions in the Taylor Slough and Eastern Panhandle Basins.
- Reduce Damaging Freshwater Flows to Manatee Bay/Barnes Sound (Biscayne National Park).
- Maintain Authorized Flood Protection for the C-111 Basin.
- The project has four major components:

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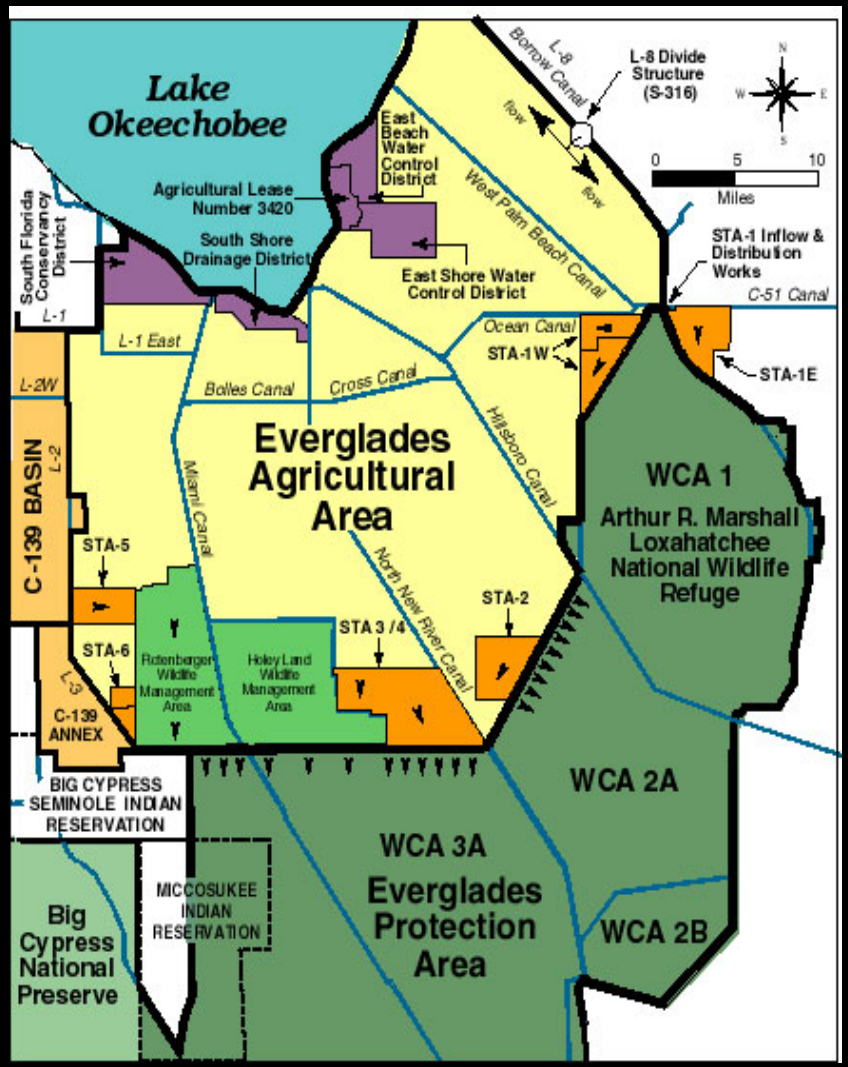
The Everglades Construction Project



Intent of the Project:

- **Reduce Total Phosphorus concentrations and loads from the Everglades Agricultural Area to protect Everglades flora and fauna.**
- **Construct Stormwater Treatment Areas (40,000 acres), implement agricultural BMPs.**
- **STAs will lower TP and result in load reductions.**
- **Nutrient threshold research has set the TP quantitative imbalance criteria at 10 ppb.**

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CERP Components....

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Aquifer Storage & Recovery

Surface Water Storage Reservoir

Stormwater Treatment Areas (STAs)

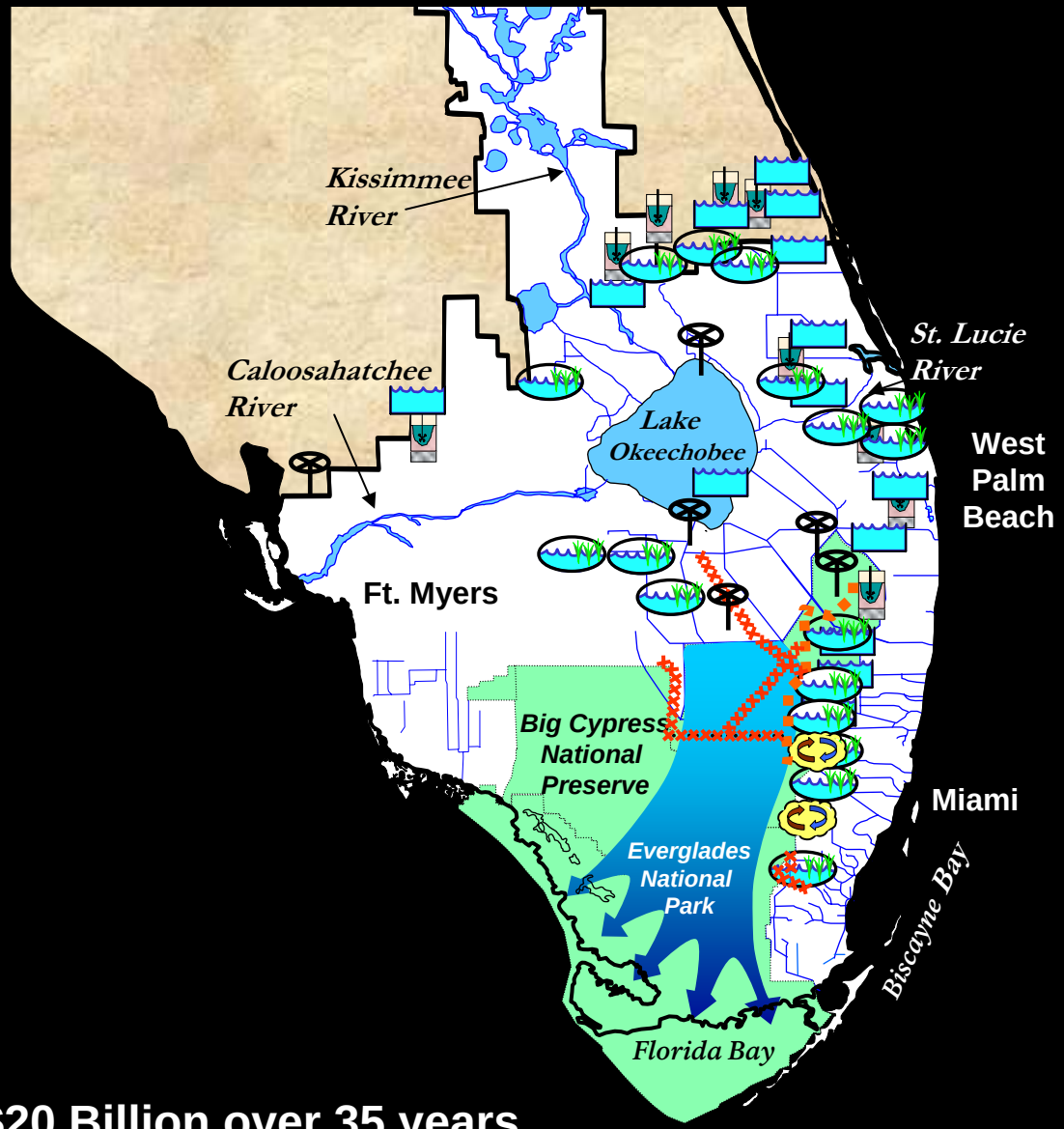
Reuse Wastewater

Seepage Management

XXXXXX

Removing Barriers to Sheetflow

Operational Changes



Total estimated cost: $20 Billion over 35 years

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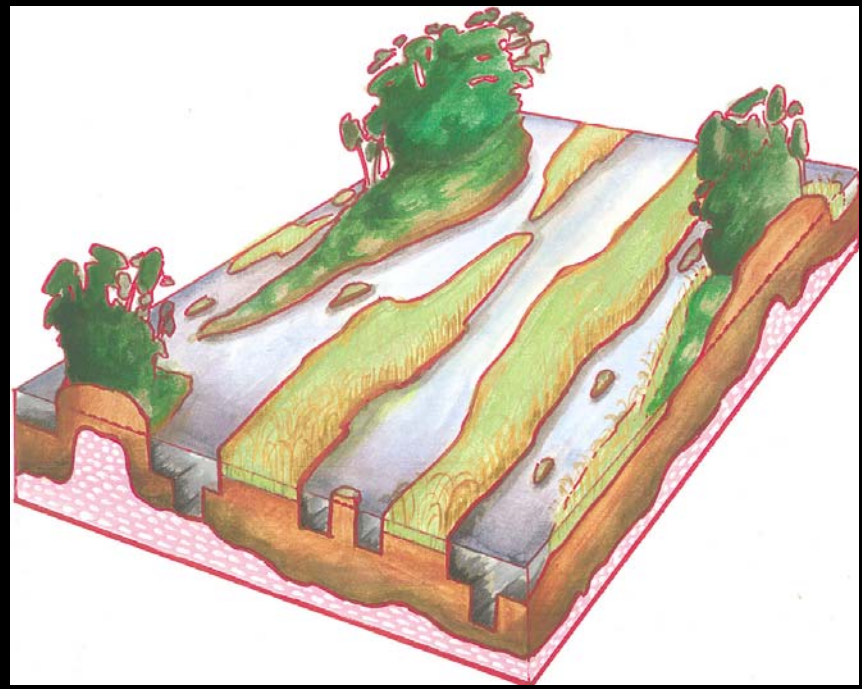
Key Tenets of Everglades Restoration

- Focus on Hydrological Restoration
- Long-Term Monitoring and Performance Measurement
- Adaptive Management/Incremental Adaptive Restoration
- Education and Outreach



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Ecosystem Restoration Challenges ….

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"New" Water Distribution of CERP

80% - environmental restoration, reviving the ecosystem from the Kissimmee River, through Lake Okeechobee, through Everglades National Park, to Florida Bay and the coral reefs, and reserved for the natural system ...

20% - enhanced water supplies for cities and farmers

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Ecosystem Restoration Challenges ….

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Ecosystem restoration challenges

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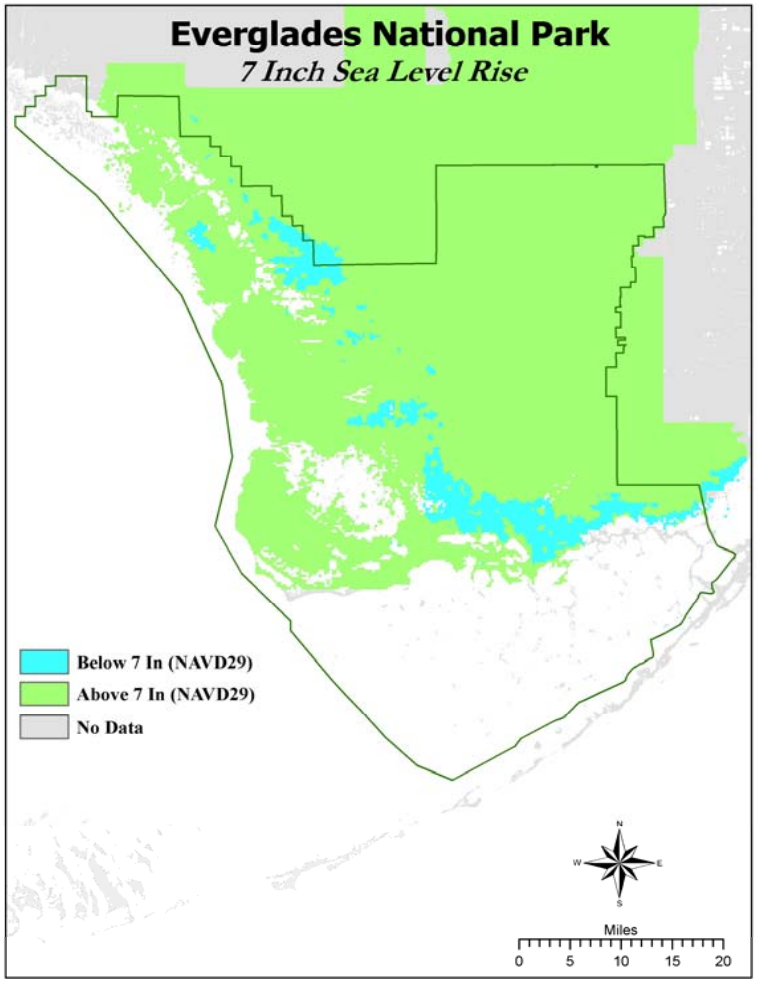

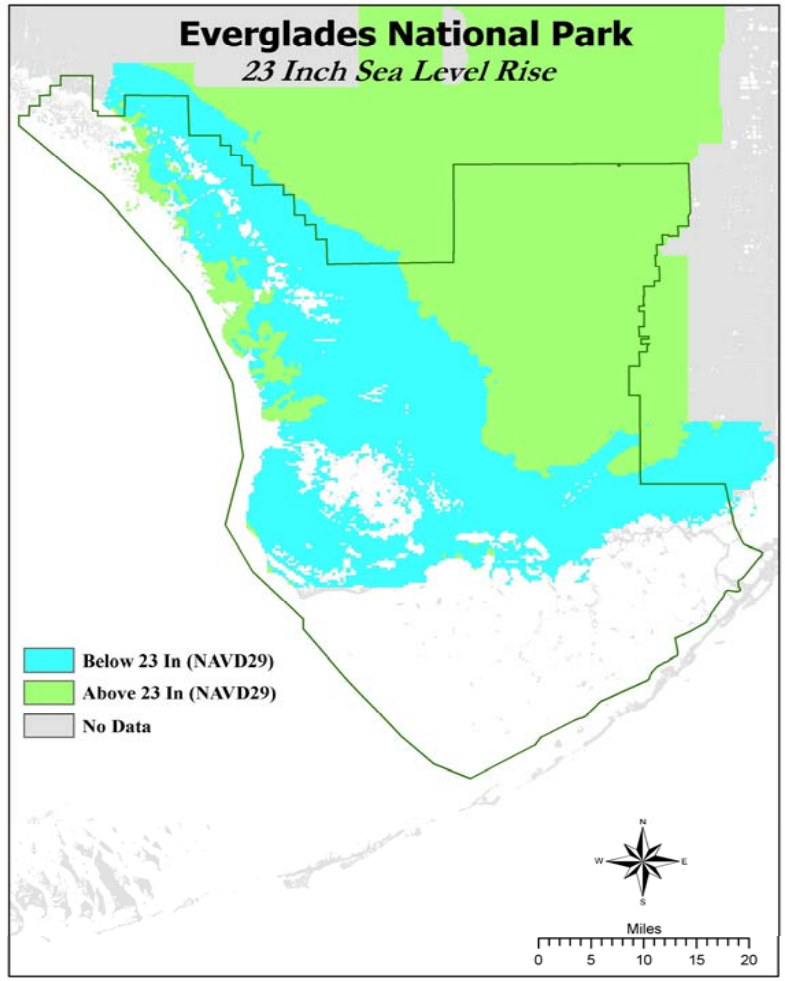

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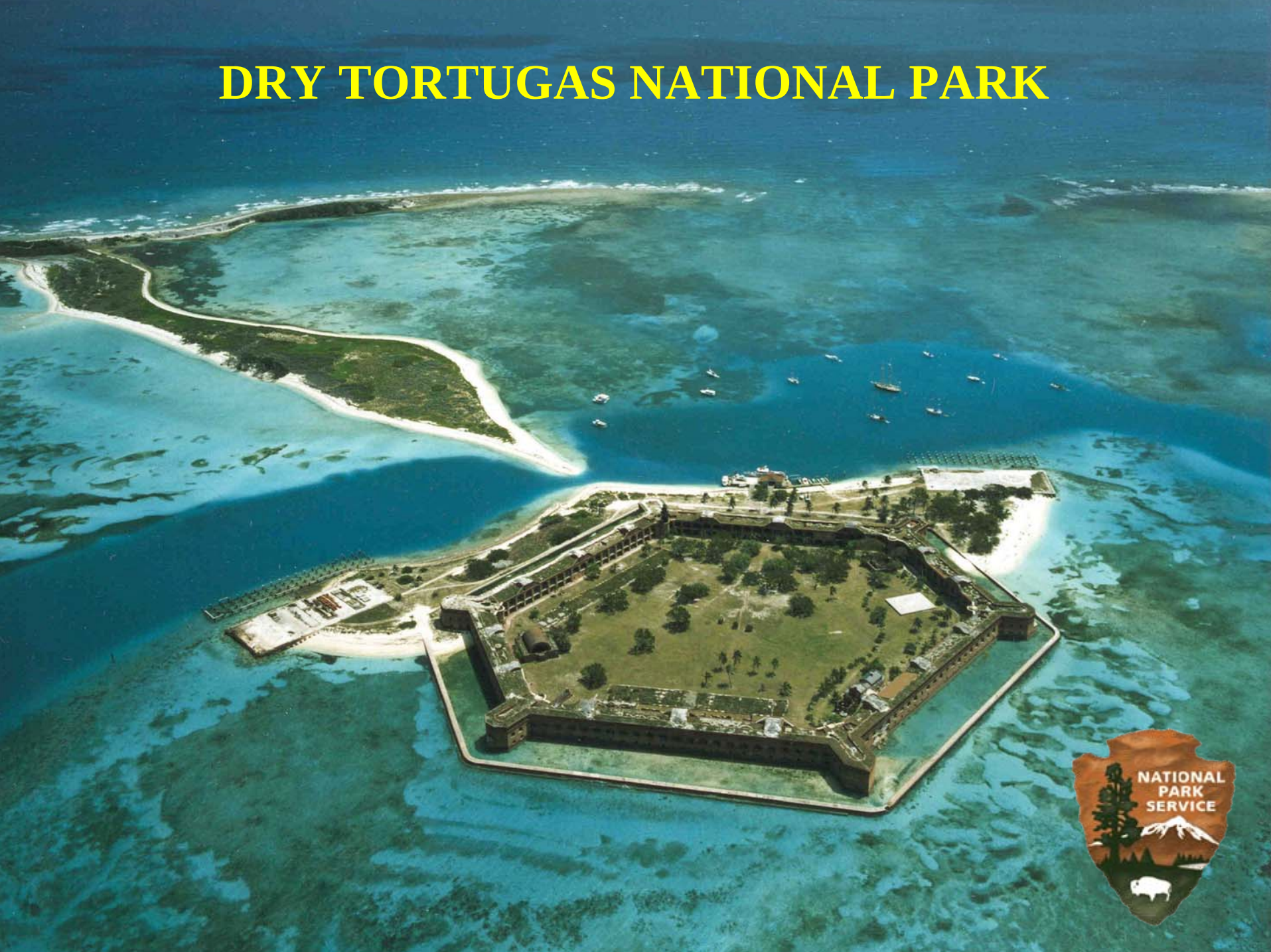
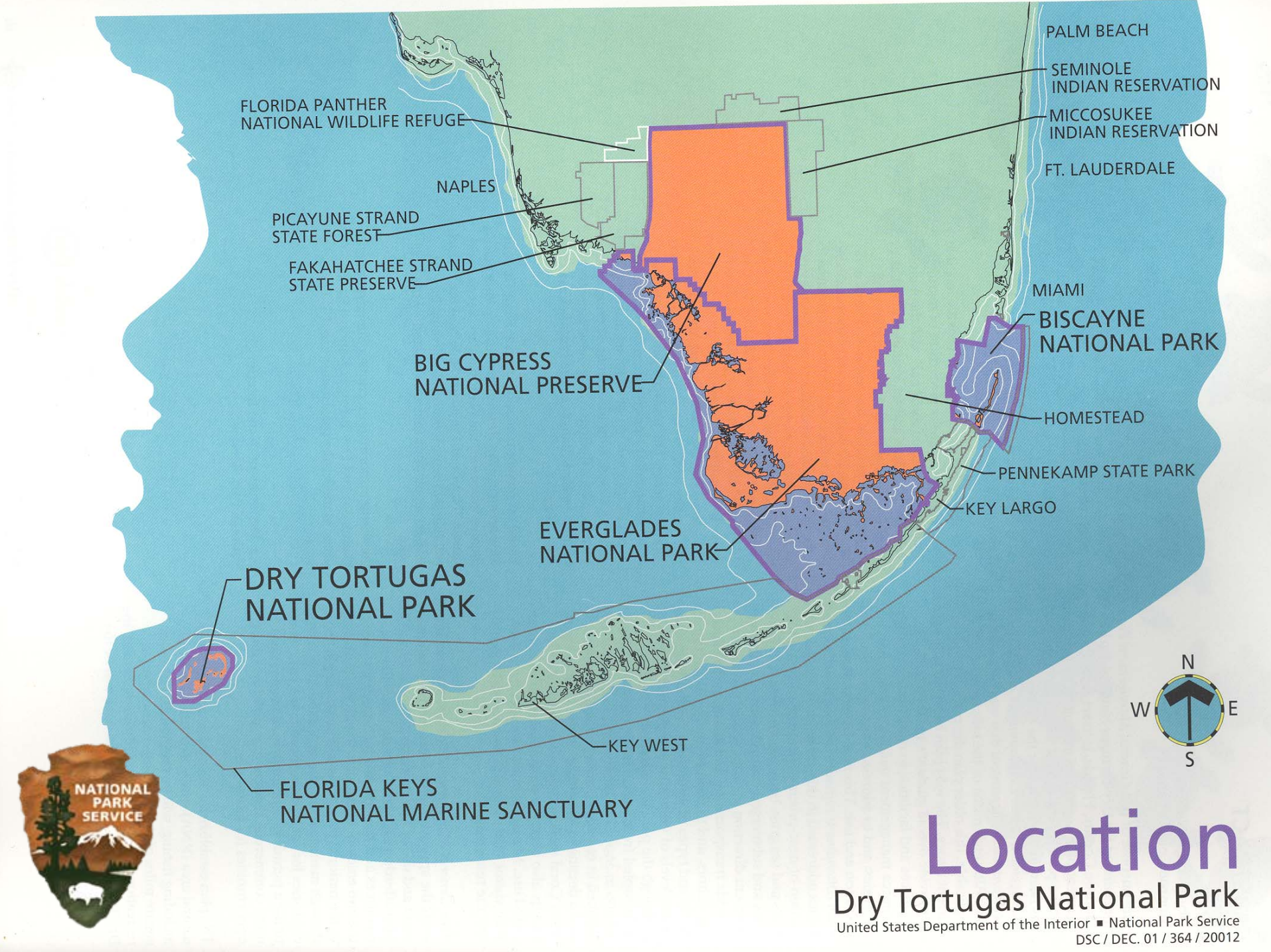
“There are no other Everglades in the world. They are, they have always been, one of the unique regions of the earth, remote, never wholly known.”

Marjory Stoneman Douglas

DRY TORTUGAS NATIONAL PARK





Location

Dry Tortugas National Park

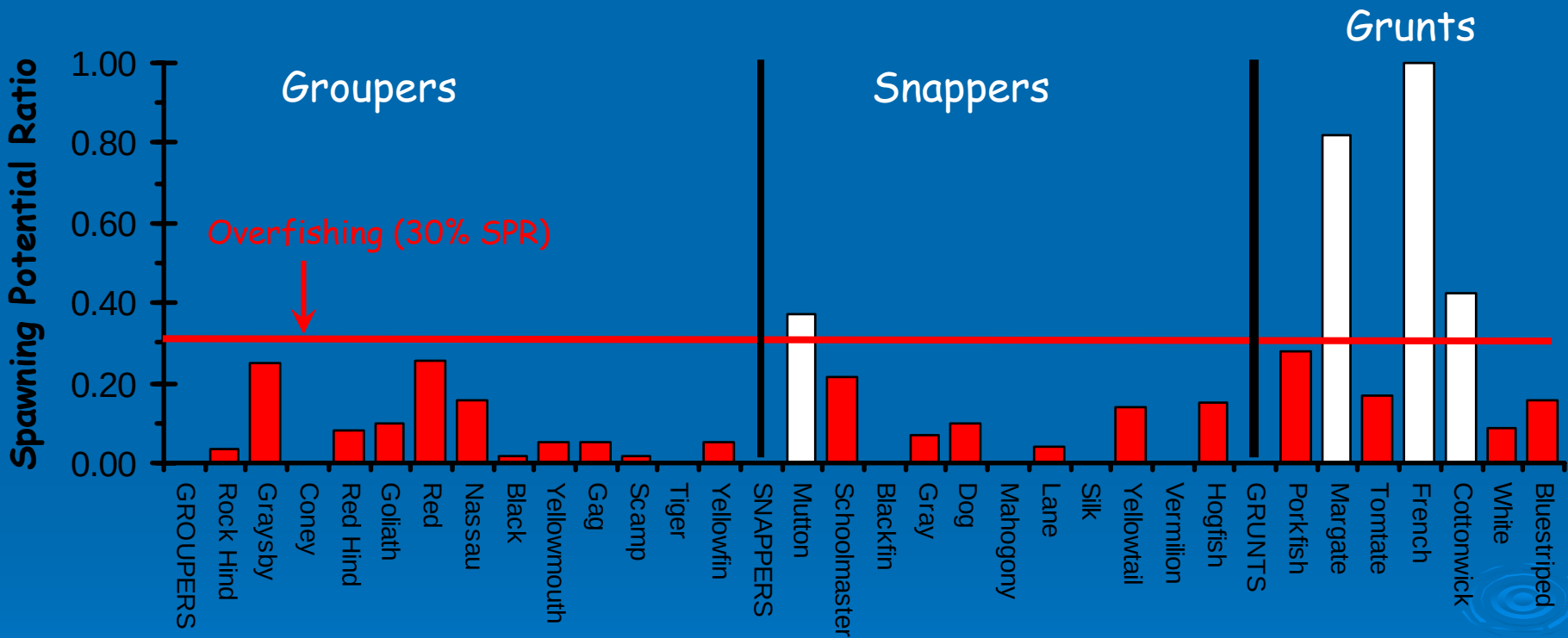
United States Department of the Interior ■ National Park Service

DSC / DEC. 01 / 364 / 20012


RETURN TO DOCK

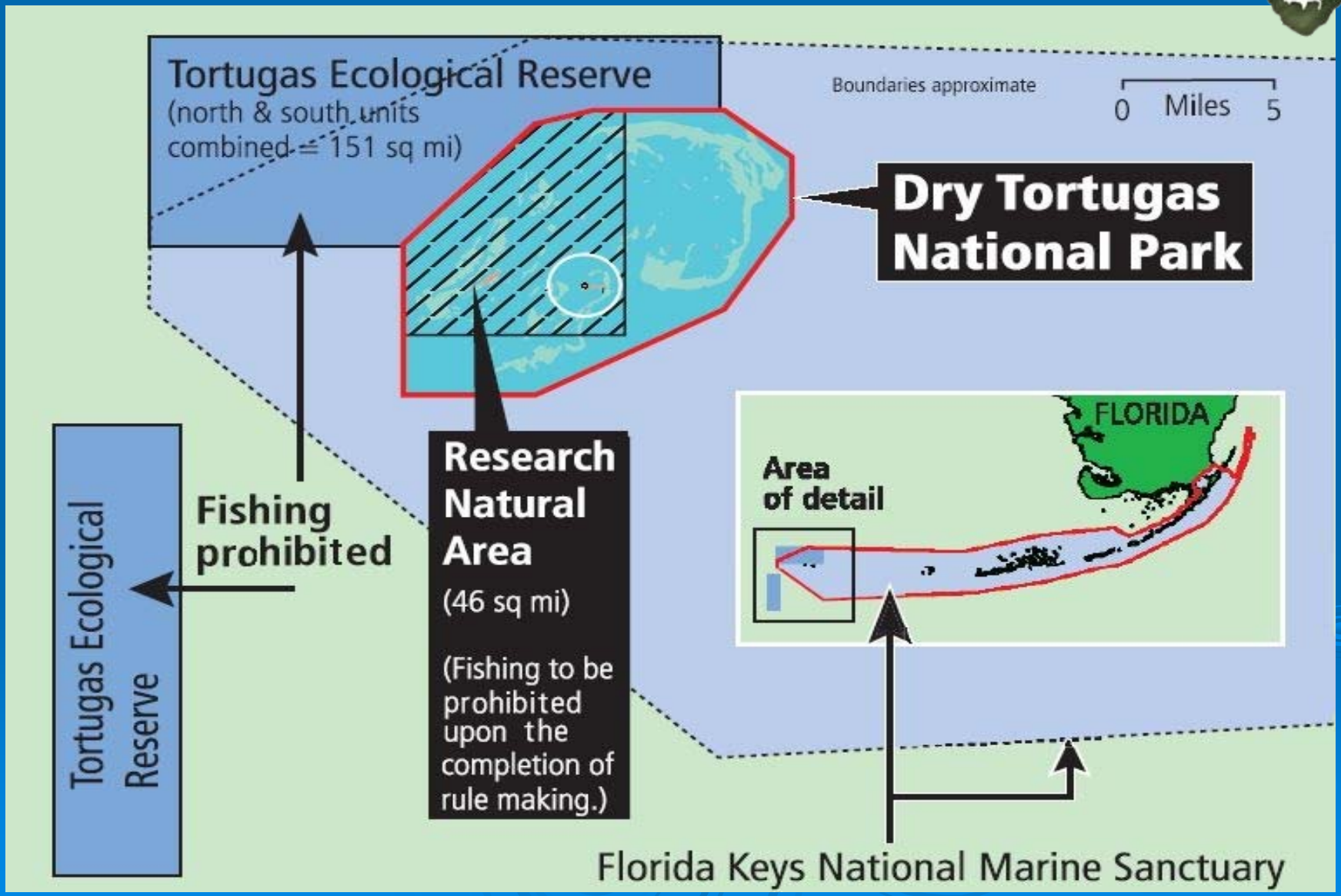

NATIONAL
PARK
SERVICE

Dry Tortugas National Park
Reef Fish SPR Management Benchmarks 2004



- Ault, J.S,, Bohnsack, J.A., and G.A. Meester. 1998. Fishery Bulletin 96:395-414
  (Best Publication Award in *Fishery Bulletin* & NOAA Certificate of Achievement 2002)
- Ault, J.S., Smith, S.G., and J.A. Bohnsack. 2005. ICES Journal of Marine Science 62:417-423.

NPS Research Natural Area and Tortugas Ecological Reserve



RNA IMPLEMENTATION

- FWC/Governor & Cabinet Approvals & Completion of Federal Rulemaking

- NPS / FWC completed MOU for research & monitoring of Park's marine ecosystem & to establish RNA performance targets

- Research, monitoring, & implementation coordinated with FKNMS, FWC, & other partners

- NPS report to Governor & Cabinet at least every 5 years on RNA performance (plus a 3 year report to FWC)

OTHER CHALLENGES

- Hurricanes
- Fort Wall Stabilization
- Cuban Migrants

Dry Tortugas National Park

Some Observations, Perspectives, and Recommendations …

1. Maintain the consensus and shared benefits (CERP)

2. Mandatory: Science-based decision-making & on-going science

3. Adaptive Management/Incremental Adaptive Restoration: great in theory/challenging in practice

4. Tyranny of the models

5. Not everything works – always have a Plan B

Some Observations, Perspectives, & Recommendations …

6. An 80% solution is okay!

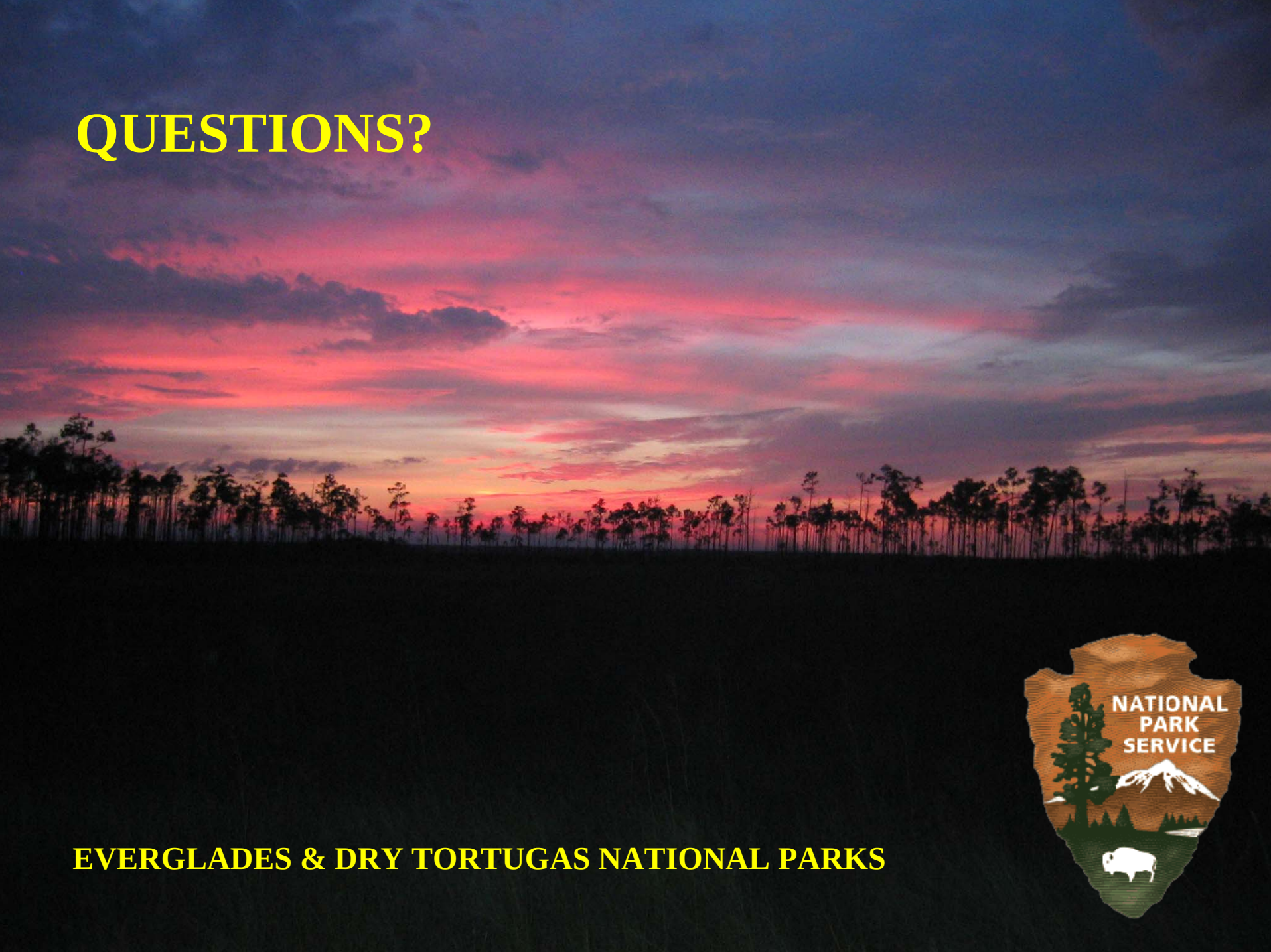
7. Delay = $$$$$

8. Team-up with non-traditional partners

9. Don't underestimate the challenges of implementation – especially 70 miles offshore!

10. There can never be enough outreach and education!

QUESTIONS?



EVERGLADES & DRY TORTUGAS NATIONAL PARKS