

Miccosukee Standards Development Grant: Developing Hydrologic Standards to Protect Designated Uses of the Miccosukee Federal Reservation

by:

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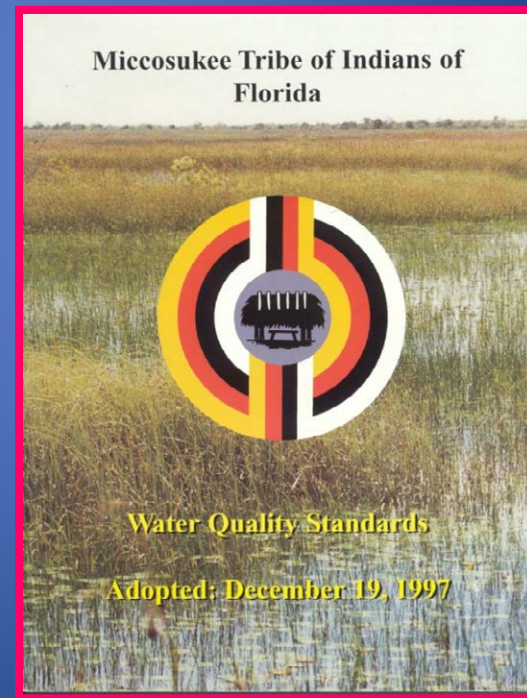
Miccosukee Environmental Protection Agency (MEPA)

- Wildlife
- Real Estate Services
- Water Resource Management



Miccosukee Tribe of Indians of Florida

- January 11, 1962
 - Federally Recognized as an Indian Tribe
- December 20, 1994
 - TAS
- May 25, 1999
 - WQS



The Everglades

- Ridge and slough wetland
 - Tree island upland habitat
- The changes to Everglades hydrology has the potential to stress plant and animal communities and restrict Native American cultural uses





Hydrology

- Four facets of Everglades hydrology
 - Hydroperiod
 - Water Depth
 - Water Flow
 - Water Quality
 - Water quality has been established with WQS adopted in 1994



Hydrologic Component	Duration/ intensity	Ecological Effect
Hydroperiod	Short	Soil Oxidation Soil nutrient increases Loss of open Slough
	Long	No seed germination Fish population diffuse Wading bird nests decline



Hydrologic Component	Duration/ intensity	Ecological Effect
Water Depth	Shallow	Muck fires Low fish populations Shrub encroachment
	Deep	Plant stress Tree island loss Loss of bird foraging sites



Hydrologic Component	Duration/ intensity	Ecological Effect
Flow (volume & velocity)	Low	Loss of ridge & slough O ₂ depletion
	High	High pollution load Vegetation changes Channel formation



Water Management Policies

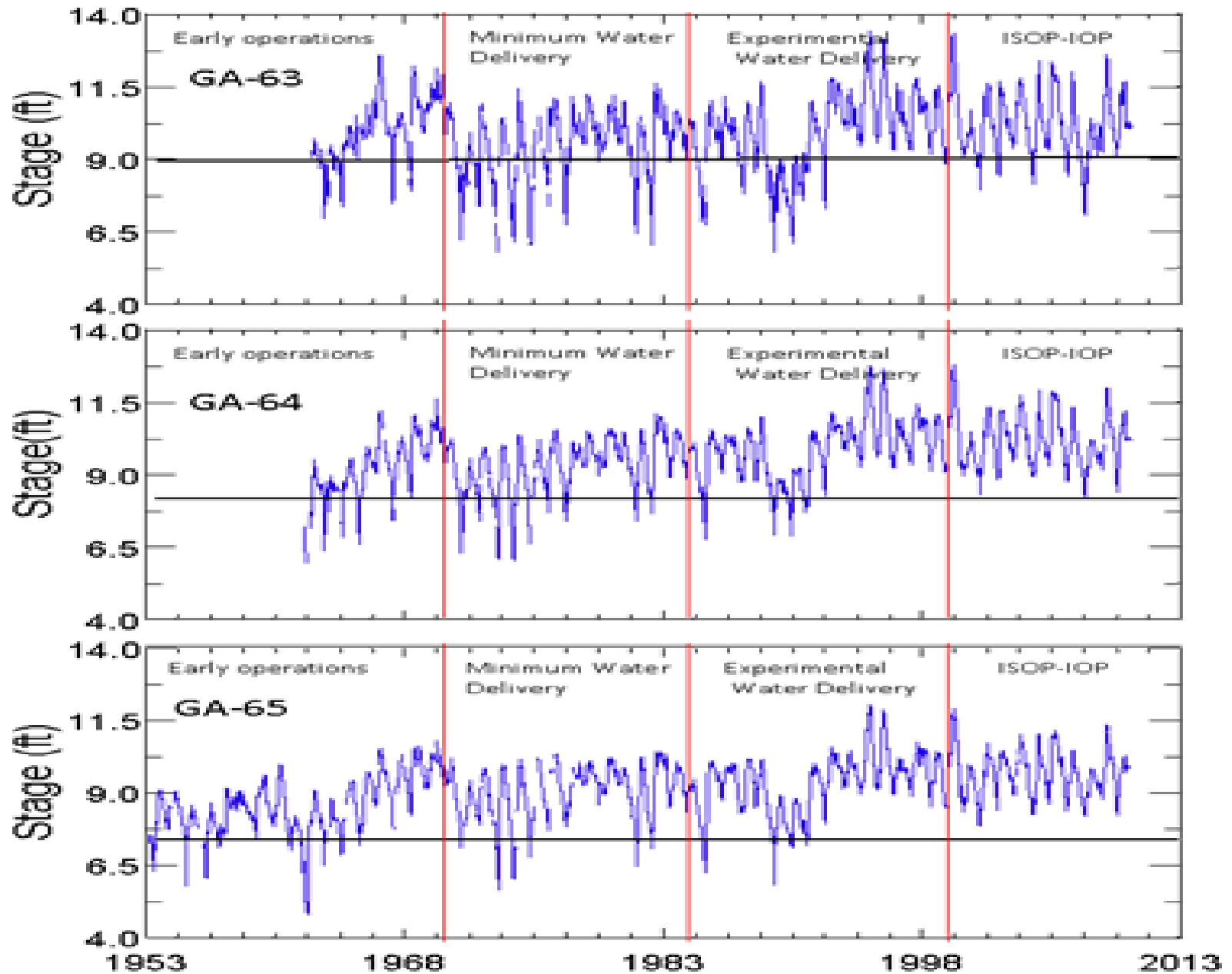
- Operational plans include performance measures to preserve/protect:
 - Drinking Water Supply
 - Human health & safety
 - Target species





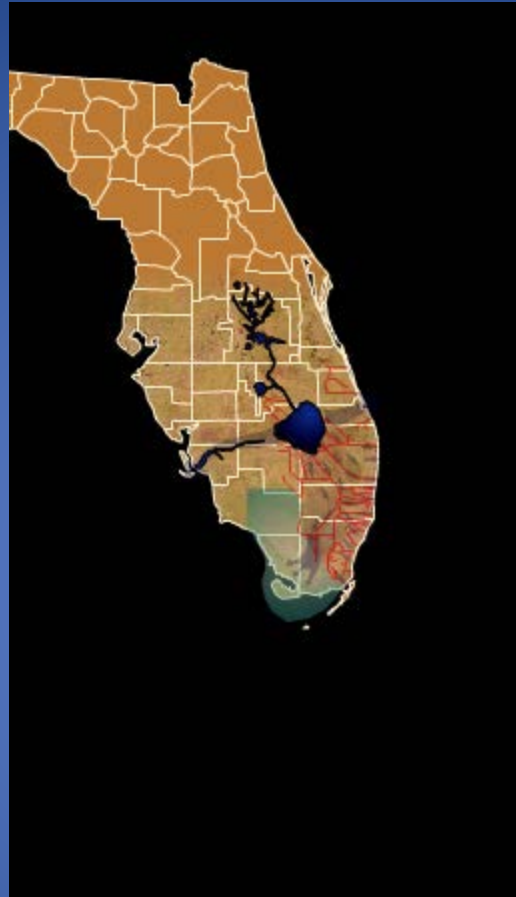








Historic Flow



Current Flow



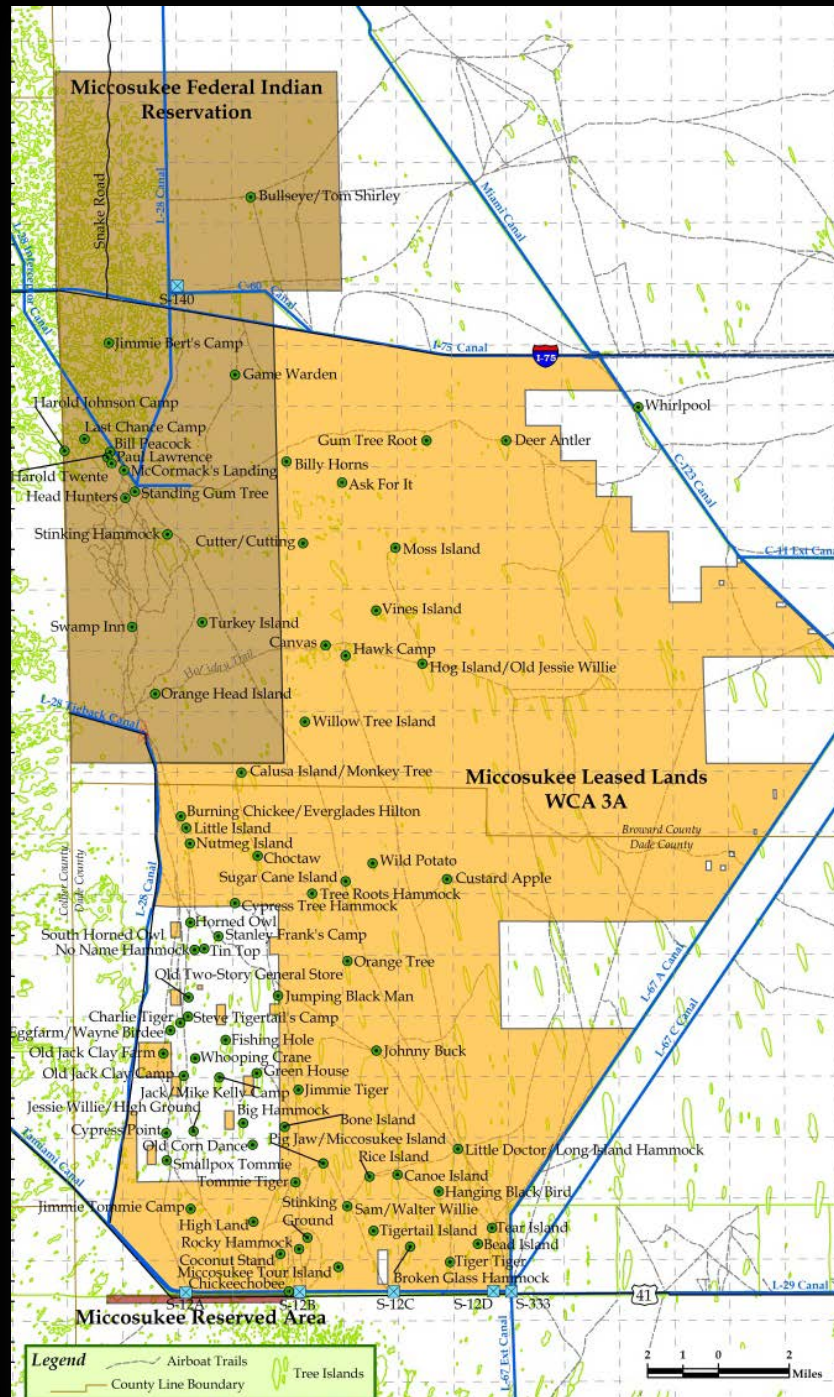
CERP Flow Plan

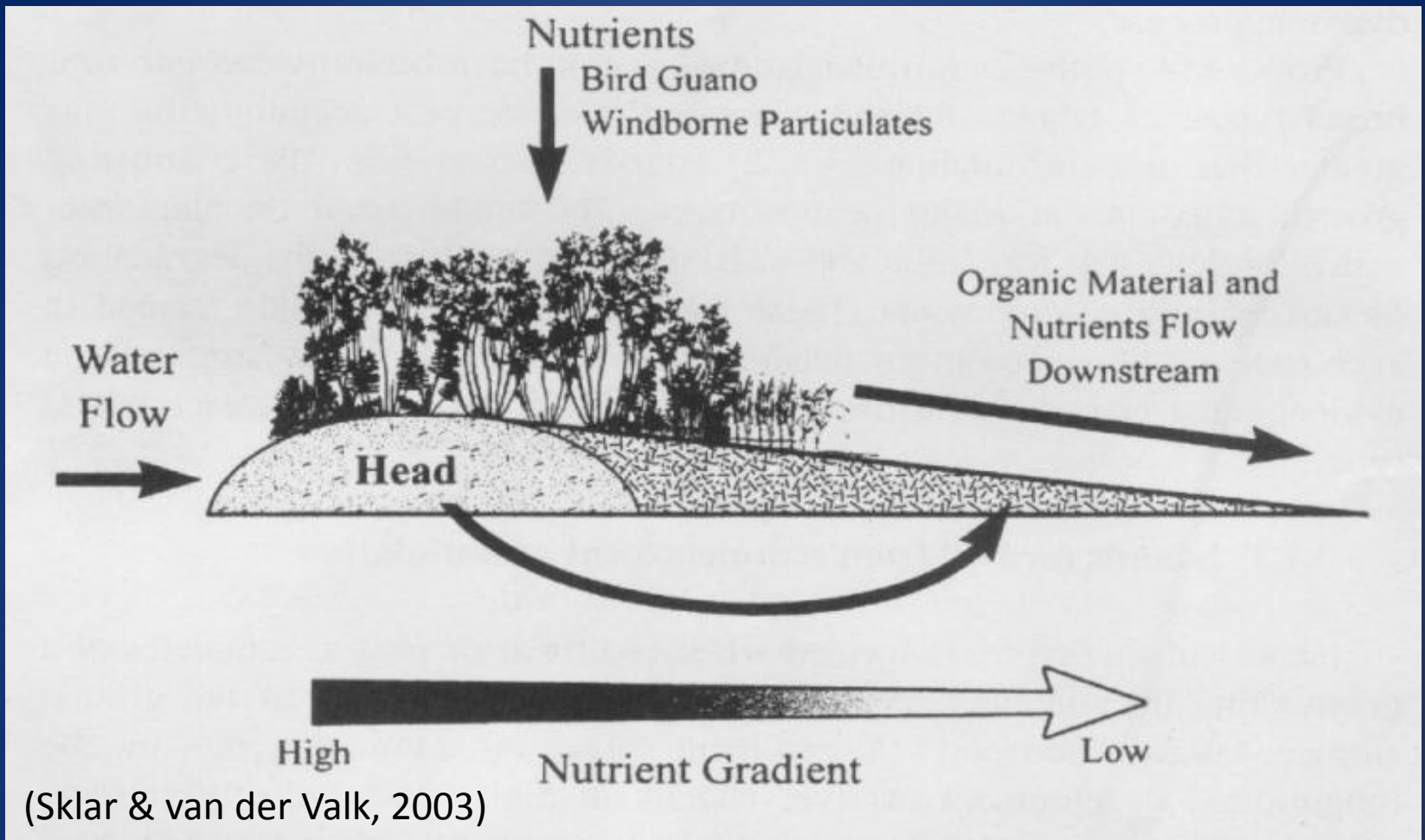


Everglades Restoration

- “A partnership of the U.S. Army Corps of Engineers, South Florida Water Management District, and many other federal, state, local and tribal partners” (evergladesplan.org)
- The key component to Everglades Restoration is to restore natural flow





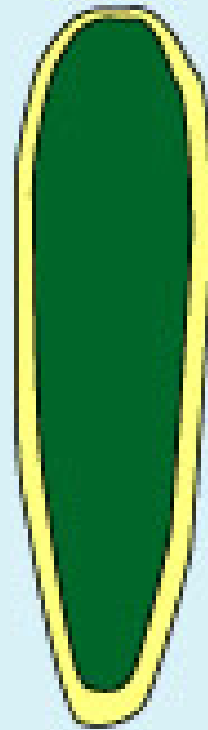




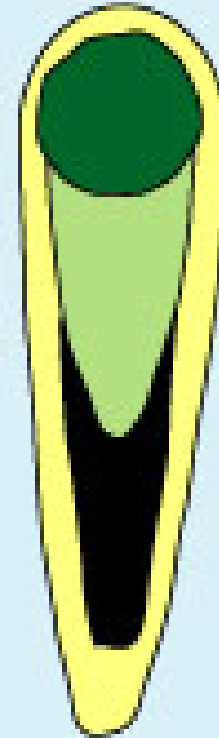
Pop-up/
battery
tree
island

EXPLANATION

-  Head
-  Transitional zone
-  Tail/near tail
-  Far tail
-  Marsh/slough



Strand
tree
island



Fixed
tree
island

(Willard, 2003)









Miccosukee Standards Development

- Multi-year Grant
- Supported by the U.S. EPA CWA Section 106
- Long Term Outcome
 - Develop SCIENTIFICALLY DEFENSIBLE criteria
- Propose the standard to the Miccosukee Business Council during the 2013 triennial review



What We Want To Achieve

- Miccosukee Federal Reservation
 - Criteria for a wetland low water level
 - Criteria for a wetland high water level
 - Criteria for wetland flow characteristics



Why We Are Doing This

- Strengthen the Miccosukee Water Quality Standards
- Provide Protection for the defined designated uses
- Provide an antidegradation policy for the protection of tree islands



Designated Uses for Outstanding Miccosukee Waters

- Preservation of natural populations of Native plant and Animal Communities specific to the Everglades Ecosystem
- Propagation of Fish and Wildlife and aquatic life
- Hunting, Fishing, Frogging, and Airboating
 - Traditional Agriculture
 - Hunting camp leases





Yearly Commitments

- Year 1: Literature review
 - Collect Resources
 - Compile Resource Library



Research

- Millions of dollars have been invested in the Everglades
 - Restoration & Monitoring
- Multi-level research
 - Academic, Government, & NGO
- Using Secondary Data eliminates costs



Year 1

- Search Literature
 - University, Government, NGO
 - Restoration Meetings
- Build Library
 - Electronic
 - Hard copy
 - Citations
- Draft Quality Assurance Project Plan



Secondary Data

- Data or information that you plan to use but that have not been newly generated by your project



Quality Assurance Project Plan (QAPP)

- EPA QA/G-5
- The QAPP will be the methods to validate data so criteria are **SCIENTIFICALLY DEFENSIBLE**
- Qualitative vs. Quantitative data



Qualitative

- Research used to support criteria



Quantitative

- Data used to evaluate criteria
- Methods must be evaluated and meet certain standards to be acceptable for use when evaluating criteria



Yearly Commitments

- Year 2: Data Analysis
 - Conduct a desktop analysis and develop a statistically accurate definition of hydration levels and flow characteristics that provide protection of designated uses in Outstanding Miccosukee Waters.



Year 2

- Develop numeric/narrative criterion for Outstanding Miccosukee Waters
 - Minimum water levels
 - Maximum water levels
 - Flow Characteristics (volume & velocity)

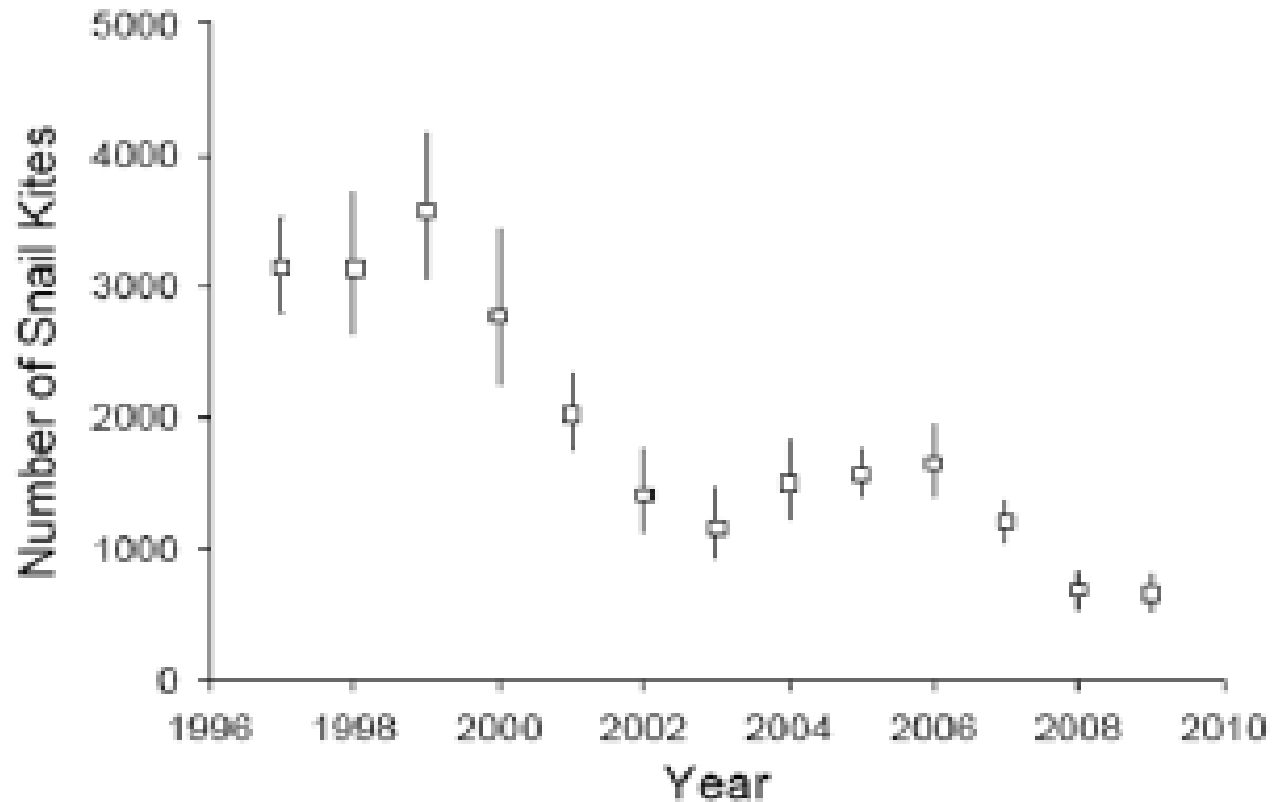


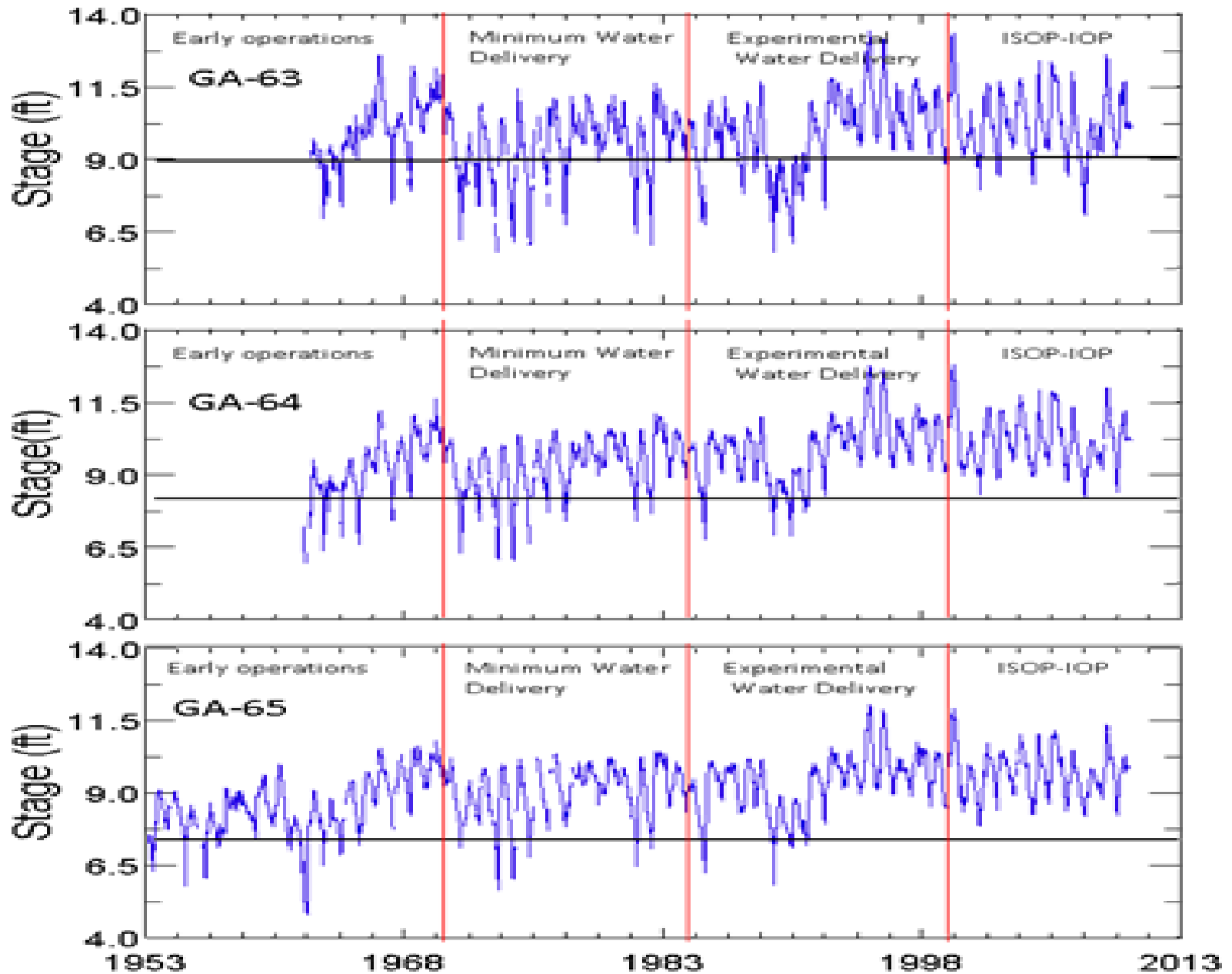
Preservation of natural populations of Native plant and Animal Communities specific to the Everglades Ecosystem

- Decline of the Endangered Snail Kite population
 - Water Conservation Area 3 is habitat for the Snail Kite



Snail Kite Population to 2009





Propagation of Fish and Wildlife and aquatic life

- Native Apple Snail
- Egg laying is suppressed in low water levels
- The native apple snail is prey for endangered snail kite





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Hunting, Fishing, Frogging, and Airboating

- Deer
- High water levels can stress the deer population
 - Loss of foraging habitat
 - Restricted to tree islands
- Miccosukee have the ability to close deer hunting for conservation efforts





Large mammals seek the only high ground left.
These animals will also die due to loss of habitat.
October 16, 2008


Traditional Agriculture

- The Average Tree Island is ~70cm (~2ft) above the surrounding slough
- The harvest can be destroyed when tree islands are inundated for extended periods of time





Miccosukee Indian Camp completely flooded. Water covers entire island. Airboat being driven next to cooking chickee. Cooking fire place is submerged. September 23, 2008



Flooded Tree Island
October 12, 2008

Hunting camp leases

- Hunting camps are located on tree islands





Tree Islands flooded. Houses flooded. Buzzards on roof (eating dead wildlife). October 13, 2008



Photo 4. Houses flooded and boat docks under water. Tree Island completely flooded. October 13, 2008

Yearly Commitments

- Year 3: Criteria Authoring
 - Draft Criteria
 - Propose Criteria



Year 3

- Draft criteria to be presented to the Tribal Business Council and to the EPA
 - Attorneys
- Propose the criteria to the Business Council during the triennial review
- Submit criteria to EPA



**Miccosukee Tribe of Indians of
Florida**



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Water Quality Standards

Adopted: December 19, 1997

(305)223-8380



An alligator is lying on the grassy bank of a pond. The pond is filled with lily pads and has a wooden structure in the background. A large orange thought bubble with a blue outline is superimposed over the scene, containing the word 'QUESTIONS?'. Three smaller orange circles with blue outlines are connected to the bottom of the thought bubble by a thin blue line.

QUESTIONS?