The "River of Grass" Paradigm: Planning Everglades Restoration through Model-Assisted, Interactive Public Engagement

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South Florida Water Management District
West Palm Beach, FL

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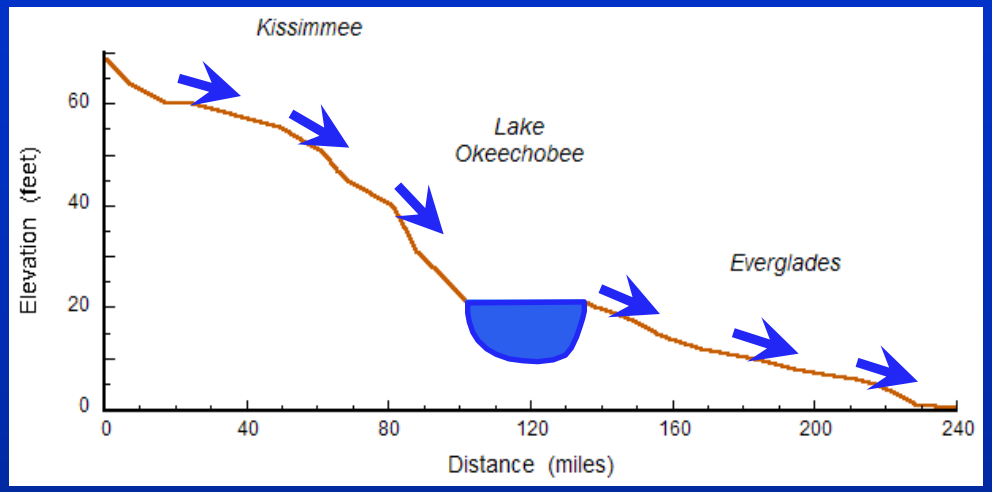
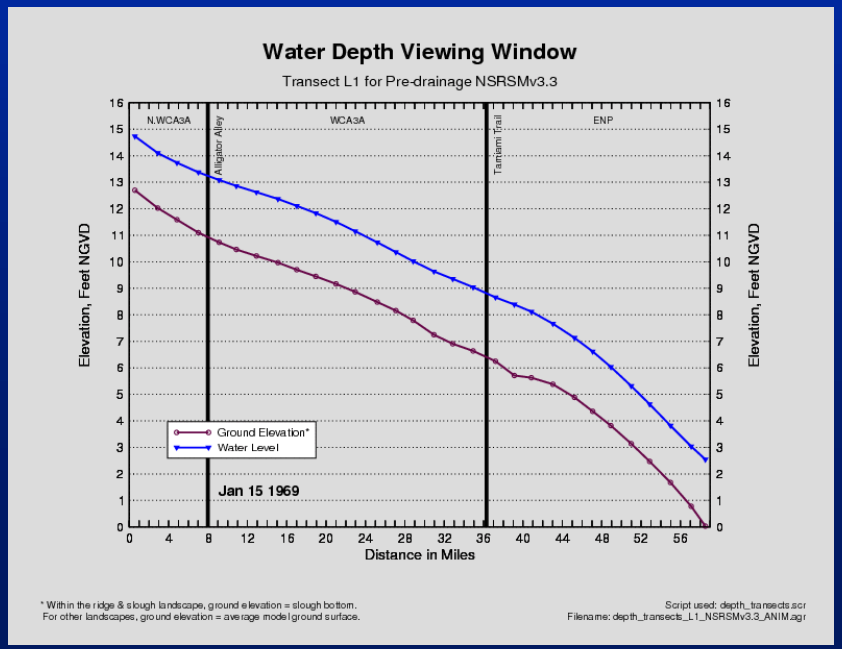
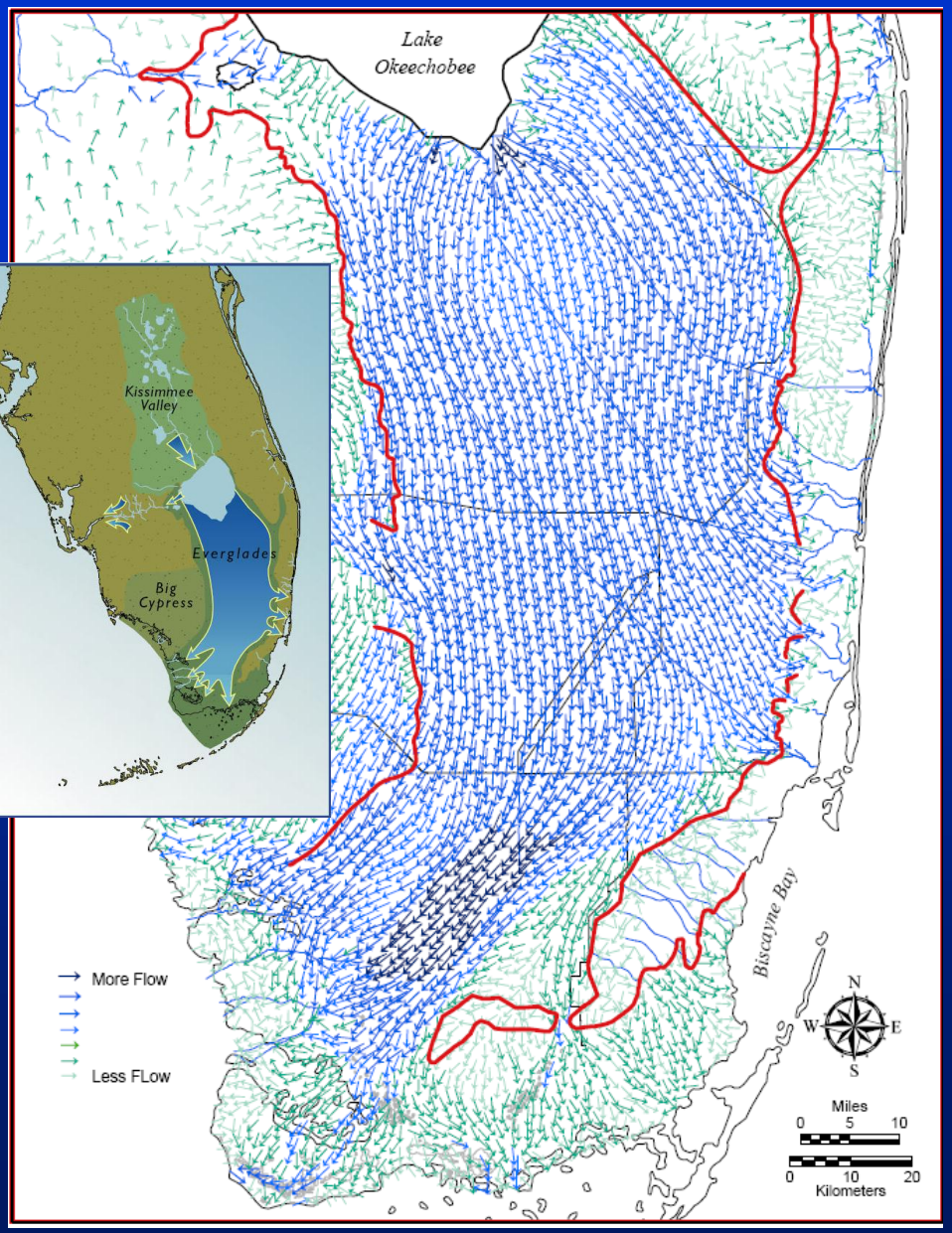
The Pre-Development Everglades

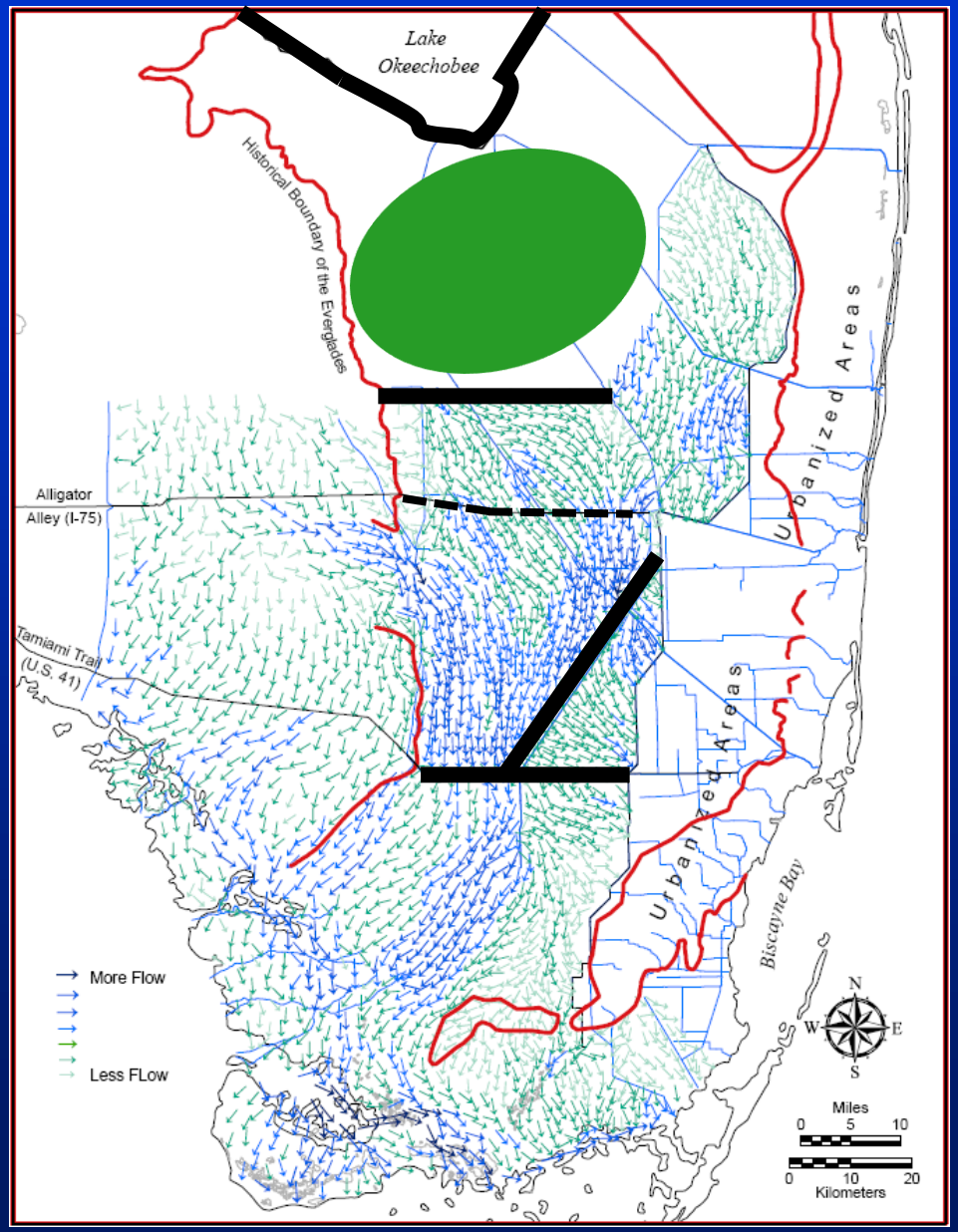




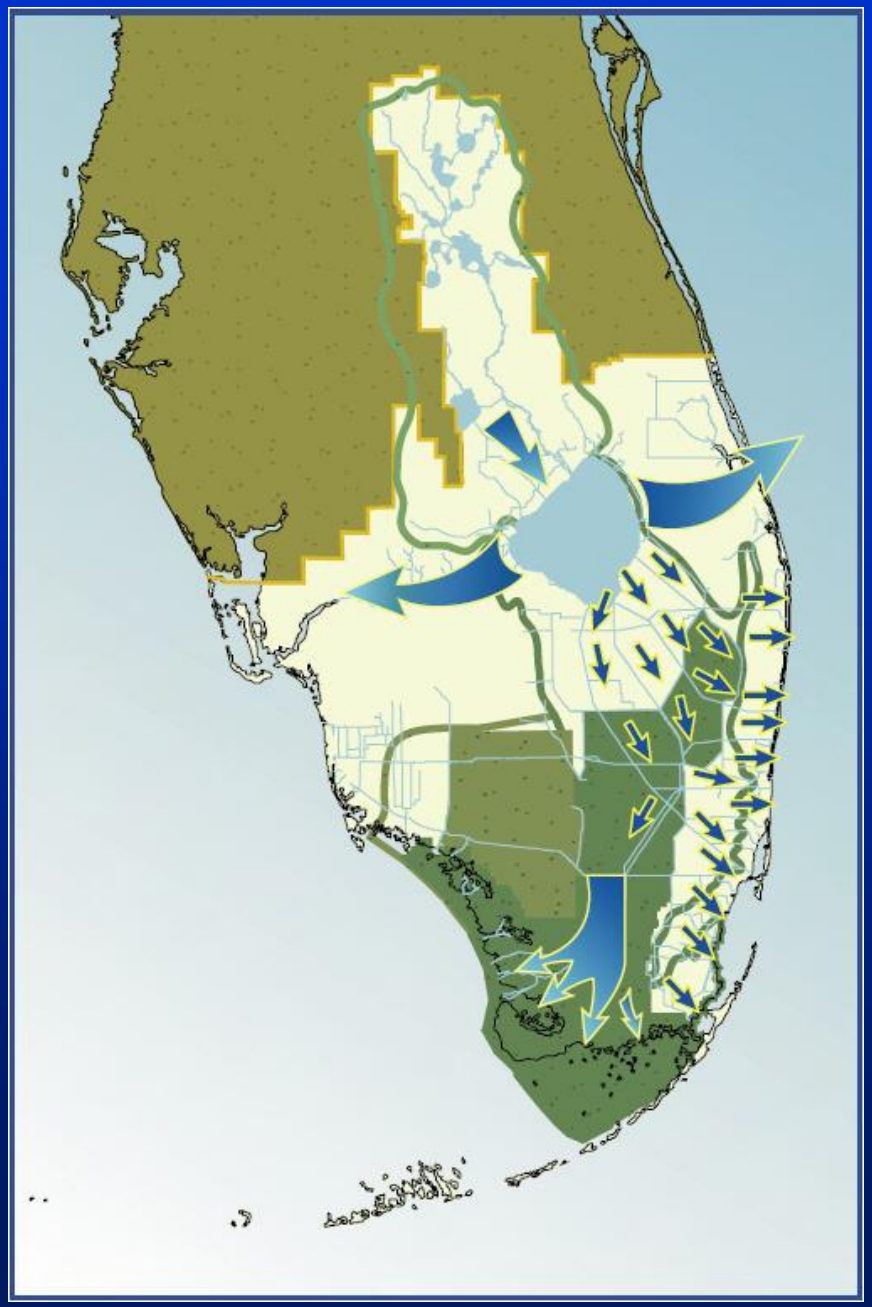
Pre-Development

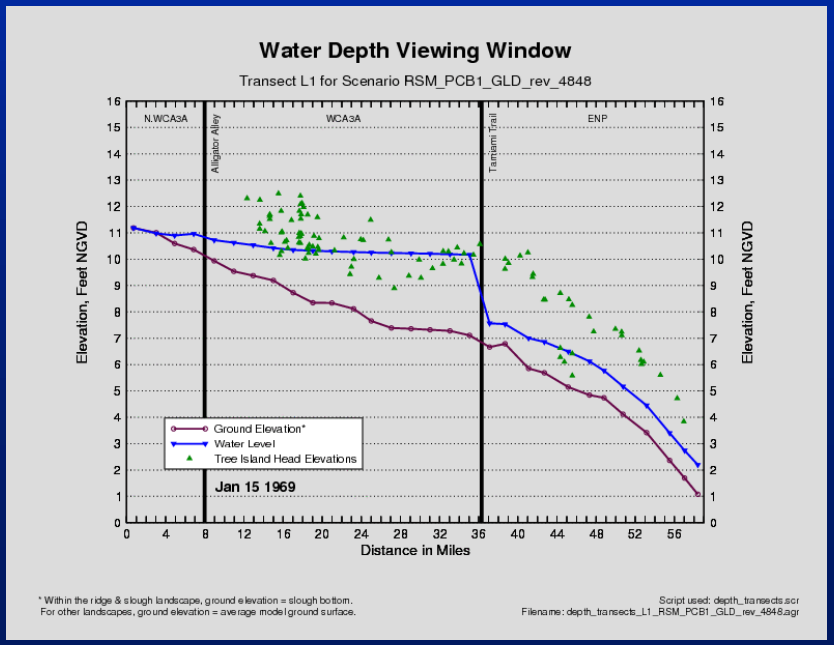


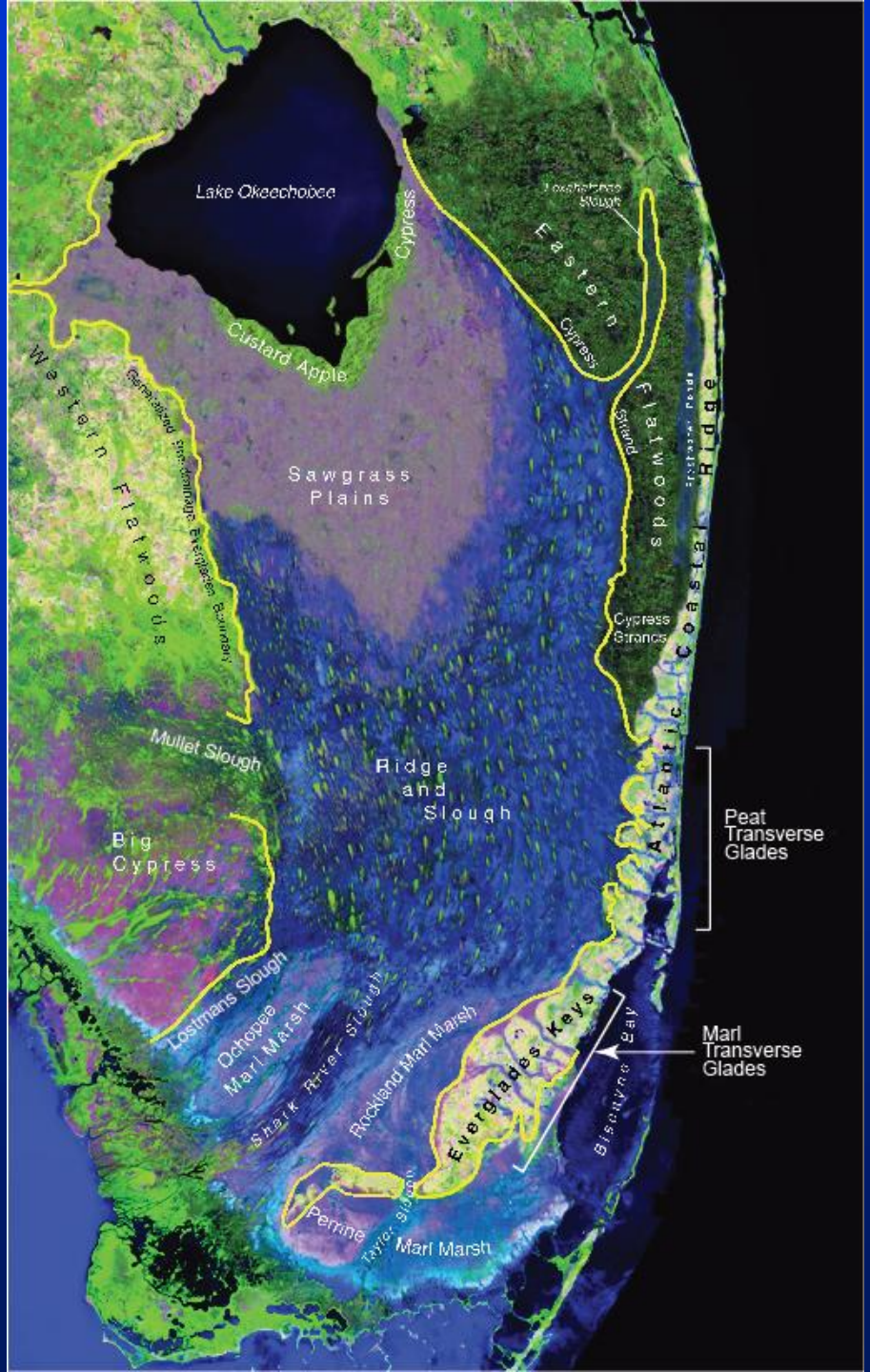
Current

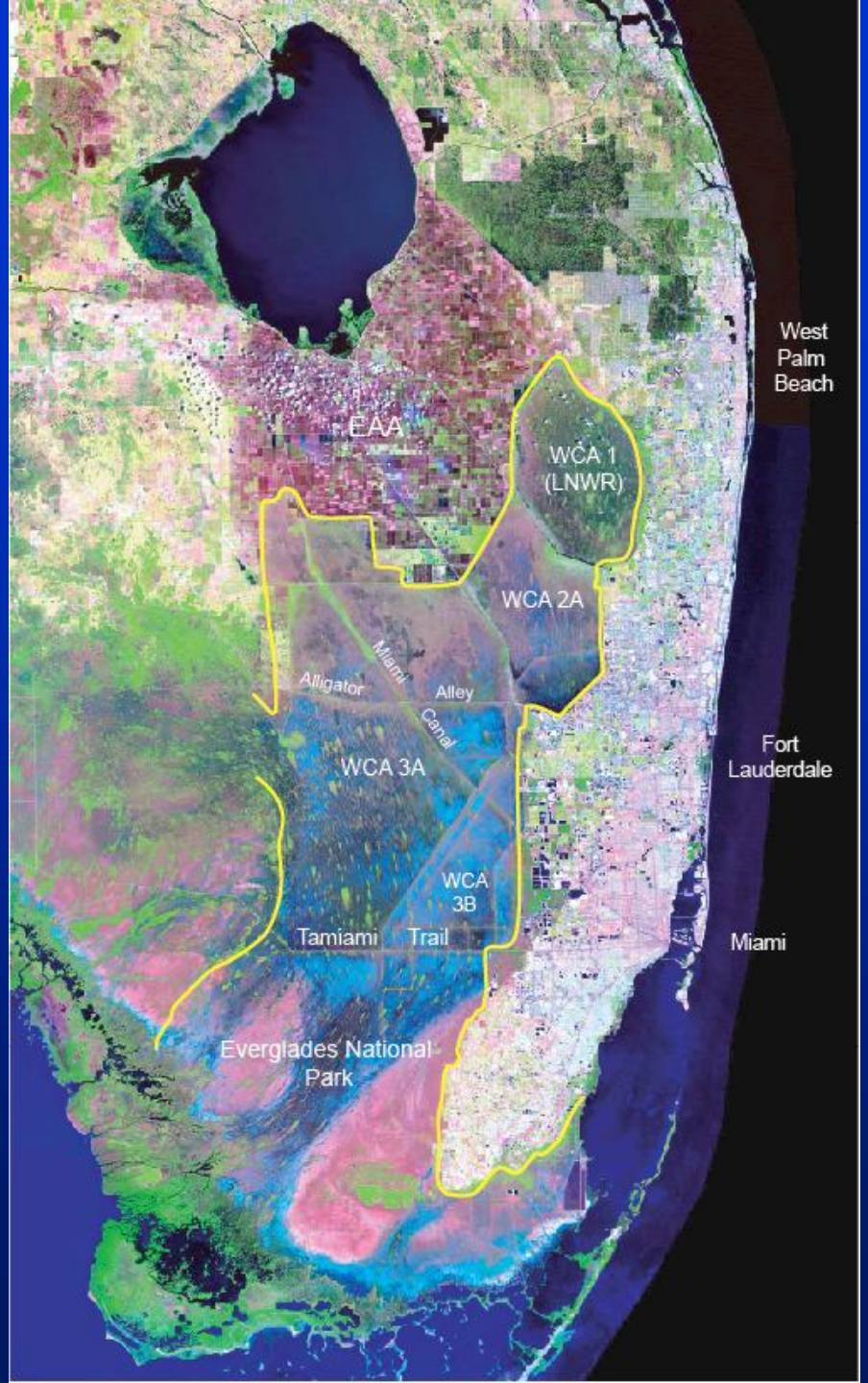


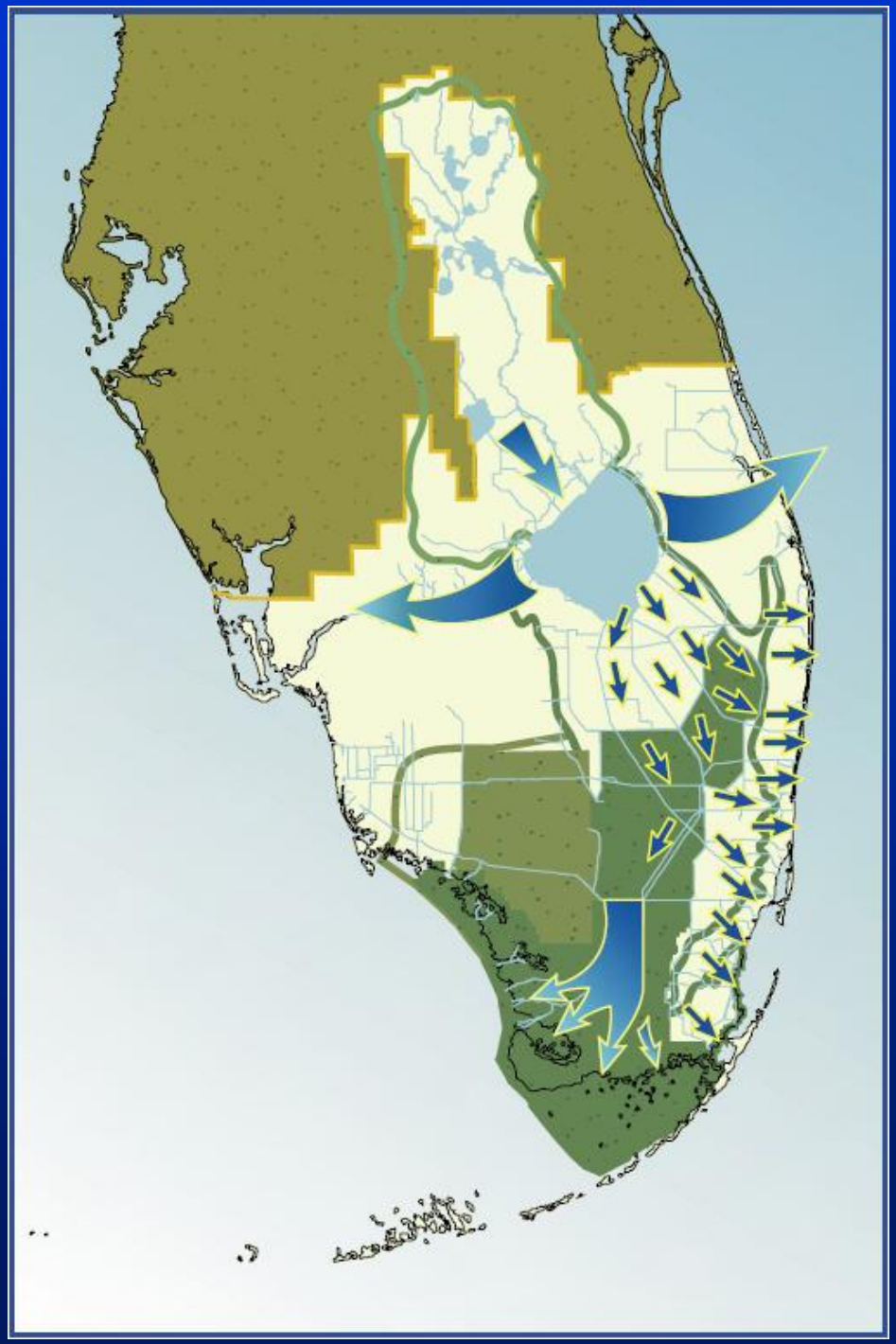
The Current Everglades






Lake Okeechobee
Cypress
Custard Apple
Western Flatwoods
Sawgrass Plains
Eastern Flatwoods
Cypress Strand
Cypress Strands
Atlantic Coastal Ridge
Mullet Slough
Ridge and Slough
Big Cypress
Peat Transverse Glades
Lostmans Slough
Ochopee Marl Marsh
Shark River Slough
Rockland Marl Marsh
Everglades Keys
Biscayne Bay
Marl Transverse Glades
Perrine Marl Marsh


West Palm Beach
EAA
WCA 1 (LNWR)
WCA 2A
Miami Canal
Alligator Alley
WCA 3A
WCA 3B
Tamiami Trail
Fort Lauderdale
Miami
Everglades National Park



Lost:

- Water Storage
- Temporal Buffering

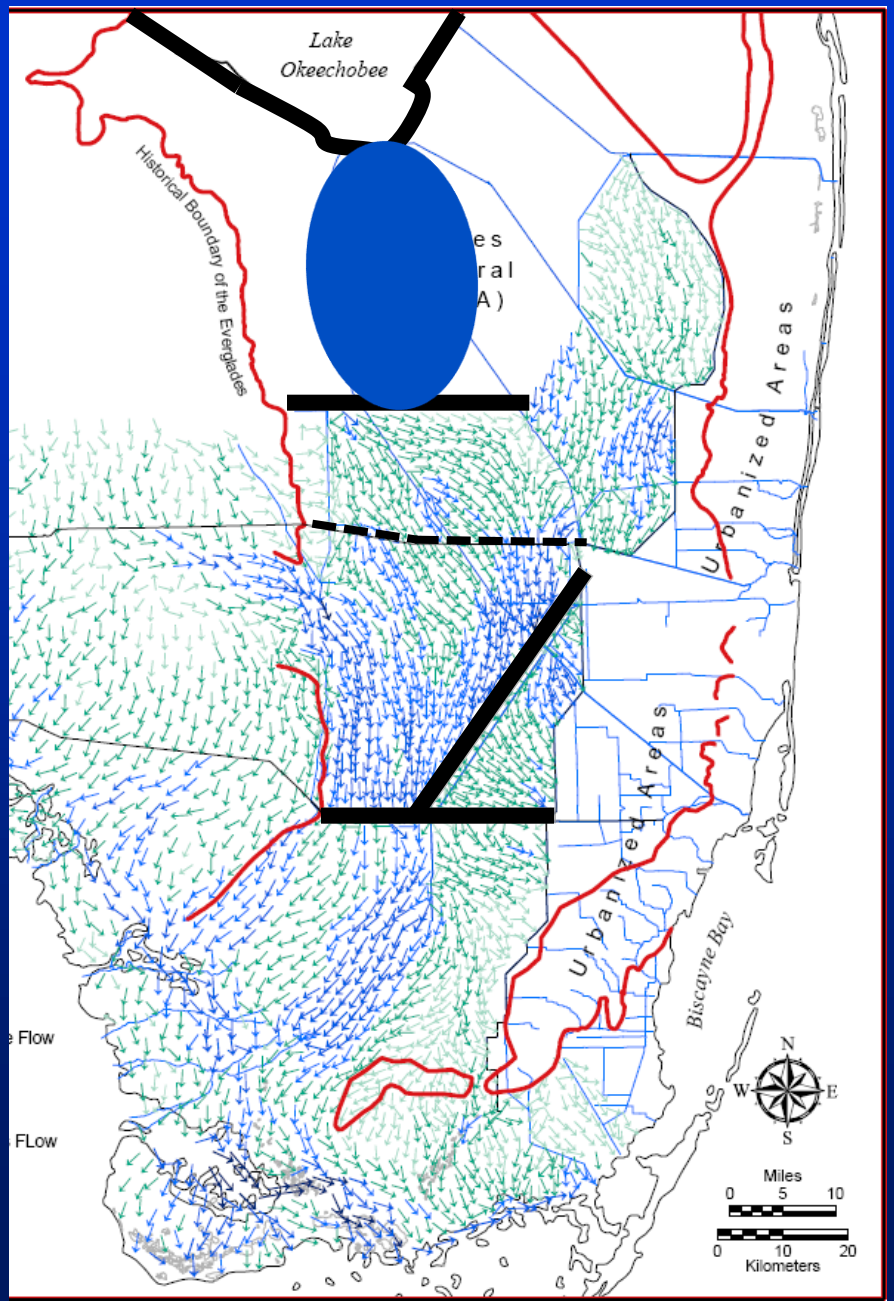
Gained:

- E & W Flows
- Compartmentalization
- Stakeholders

Stakeholders:

- Lake Okeechobee
- Estuaries, W & E
- Agriculture
- Everglades
- Urban

Two Restoration Processes



2) River of Grass

1) CERP

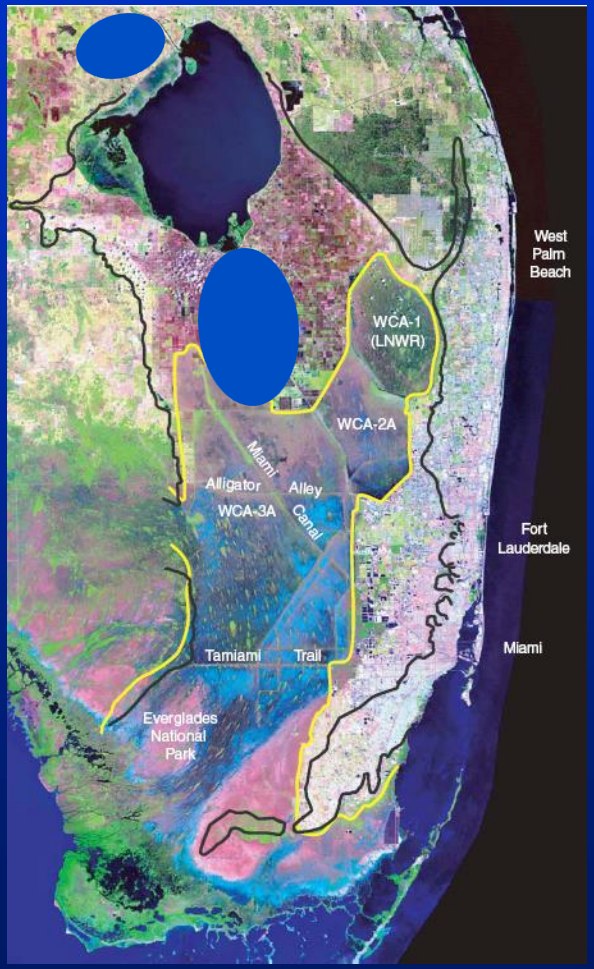
(Comprehensive Everglades Restoration Plan - WRDA 2000)

River of Grass project planning task

How should new and existing land be used for Everglades restoration?

What combination of:

- water storage
- water treatment
- spatial extent (natural area)
- agriculture
- recreation



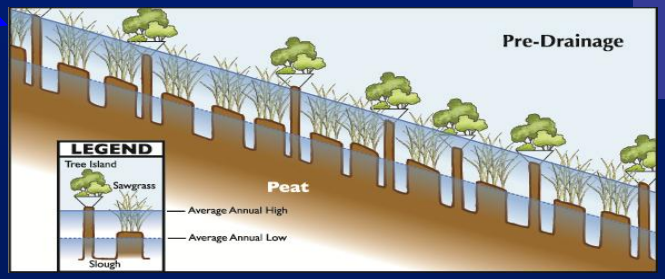
“Divide and Conquer”

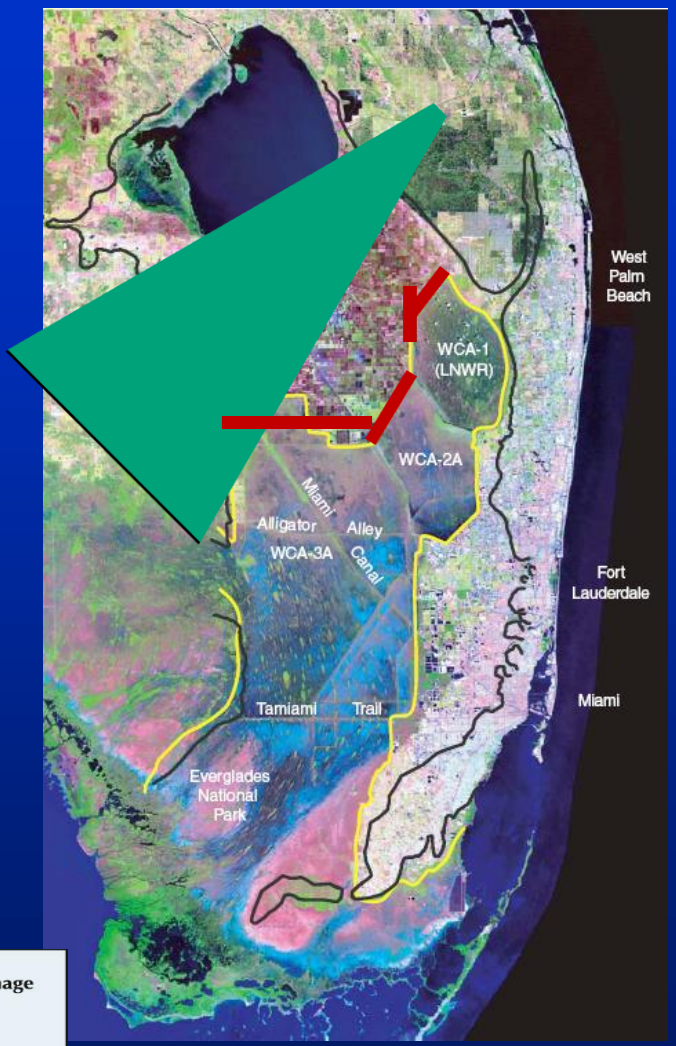
Two separate tasks:

(1) Upstream inflow conditions needed to restore the natural area - *emphasize*

(2) Restoration vision for the natural area (remaining Everglades) - *put on hold*

The Red Line





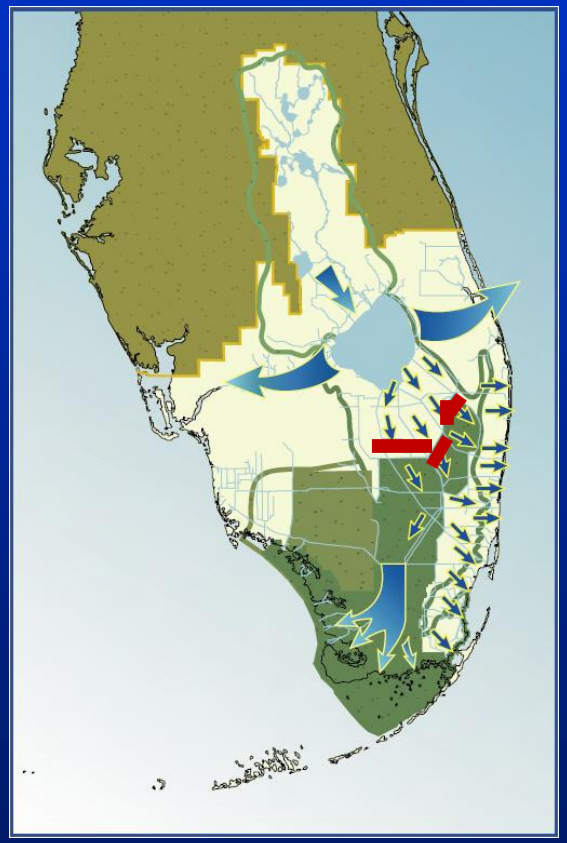
But, how could we know inflow needs?

(without a downstream vision)

Two-pronged, parallel approach:

(1) Bracketing: upstream (Red Line) inflows needed to satisfy a range of visions

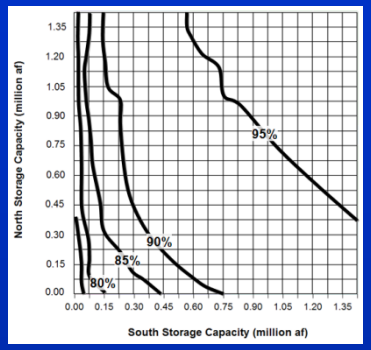
(2) Science Update + New Tools to help narrow the range of visions



Public Participation: Design of the Configurations

- SFWMD did not design configurations
- All stakeholders and public invited to design workshops
- Design groups could form as desired
- Open exchange of information
- Public meetings webcast; materials posted to website
- SFWMD would evaluate proposed configurations for ability to meet flow (red line) and water quality goals
- Groups could optimize for any additional goals

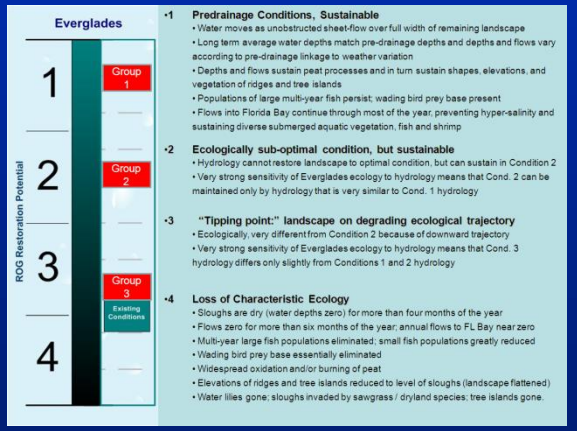
SFWMD support of Public Participation



- Pre-design modeling – response surfaces
- GIS: computers, numerous data layers
- Variety of tools and analyses
- Access at workshops to key modelers, scientists, real estate experts, construction experts, etc.
- Reiteration of goals: Configurations must meet red line flows and water quality targets
- SFWMD would model and evaluate all proposed configurations using identical criteria
- Comparative results would be presented in public workshop

SFWMD support: Modeling and Evaluation

- Screening model used to facilitate rapid turnaround
- Everglades hydrology simulated for each configuration
- SFWMD scientist teams evaluated ecosystem responses to each configuration for:
  - Everglades
  - Lake Okeechobee
  - Caloosahatchee and St. Lucie estuaries



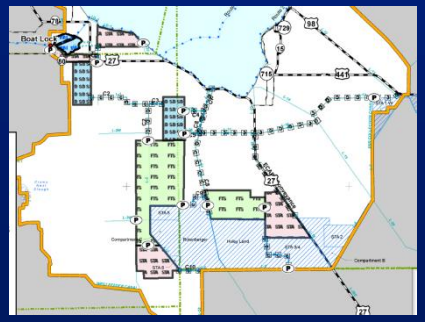
- SFWMD teams evaluated costs of each configuration

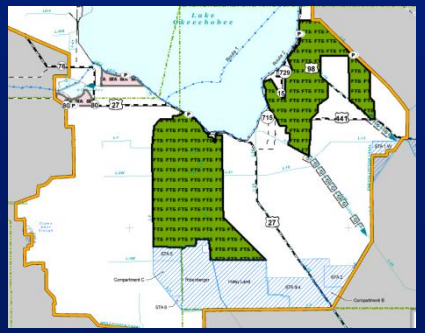
Round Two

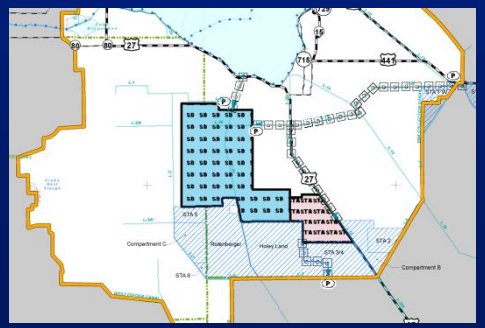
- Results of SFWMD analyses of Round One presented
- Groups offered chance to revise their configurations
- SFWMD modeling and analysis repeated on revised configurations

Narrowing of process:

- SFWMD team picked “common elements” of the nine group configurations, forming three configurations to carry forward for more detailed analysis







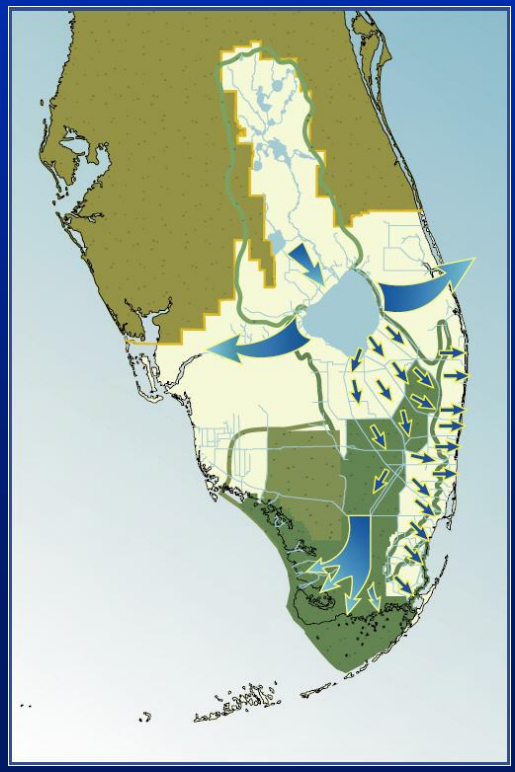
What did we learn? (South Forida-specific)

- Groups optimizing for very different goals could arrive at very similar configurations

- Replacing lost hydraulic storage is critical

- Expanding “natural area” would be a water sink, reducing water available to remaining Everglades

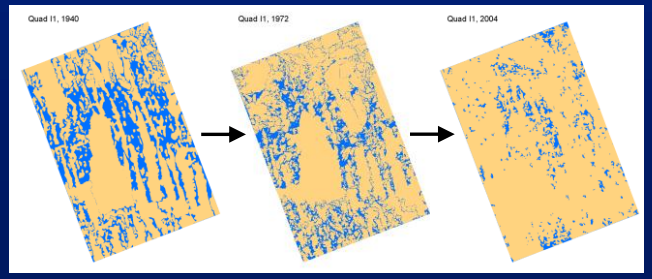
- Electricity is like hydrology



Stakeholder Views

The River of Grass Planning Process

- Educated stakeholders
- Treated stakeholders respectfully and constructively
- Allowed direct interactions between stakeholders and w/ SFWMD
- Fact-driven, focused, and inclusive



What River of Grass planning process demonstrated

Fear: Involving stakeholders will produce unworkable scenarios.
Scenarios were innovative and broad.

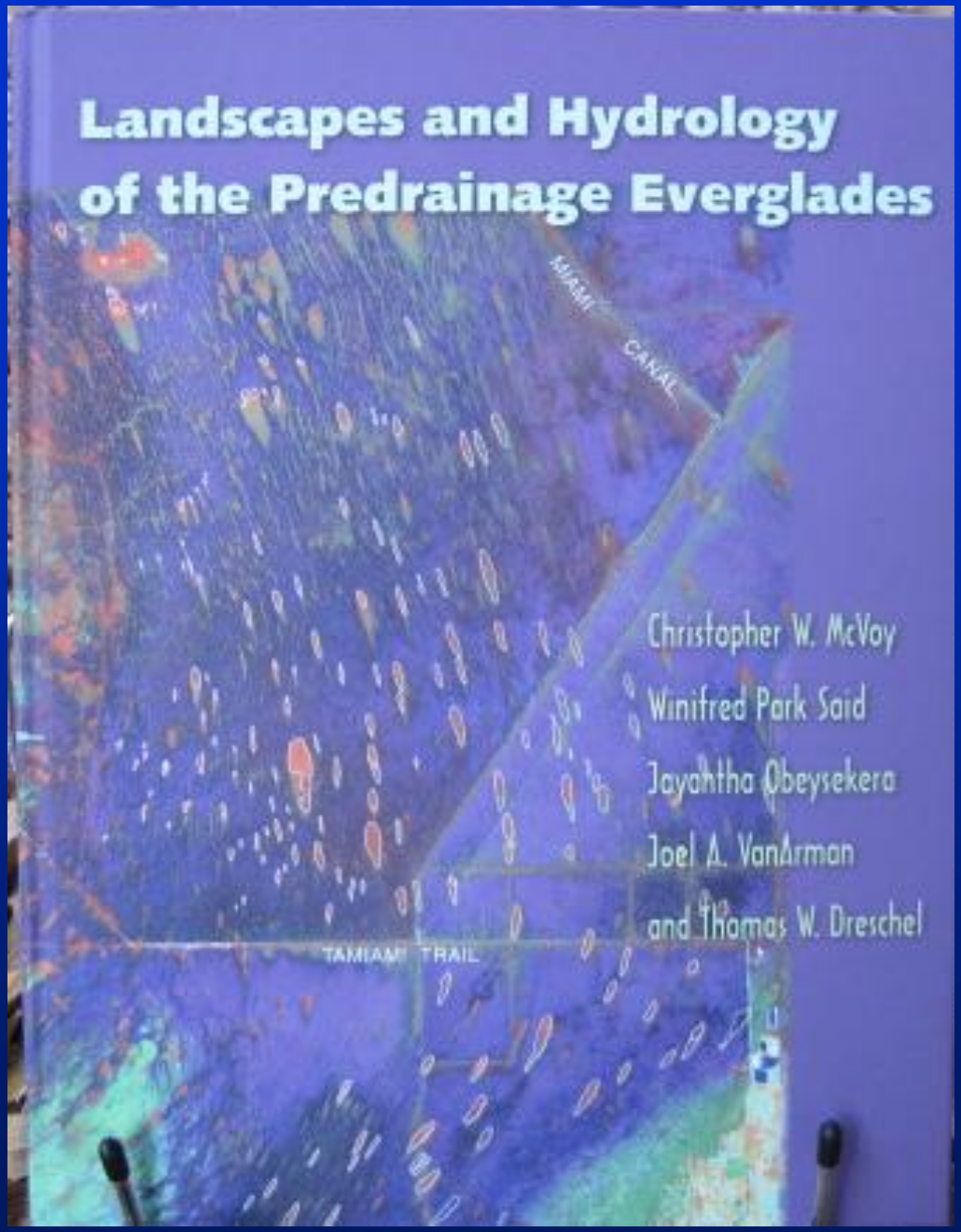
Fear: Stakeholders do not have needed capacity.
Groups either brought own technical support, or relied on SFWMD, improving their respect for agency's expertise.

Fear: Involving stakeholders will slow progress.
Progress was faster due to focus on key stakeholder issues.

Conclusions

Key Elements of Success:

- Incorporation of most current science
- Public participation
- Management and staff involvement and commitment
- Customized modeling and visualization tools
- System-wide perspective


Landscapes and Hydrology
of the Predrainage Everglades
MIAMI CANAL
TAMIAMI TRAIL
Christopher W. McVoy
Winifred Park Said
Jayantha Obeysekera
Joel A. VanArman
and Thomas W. Dreschel