



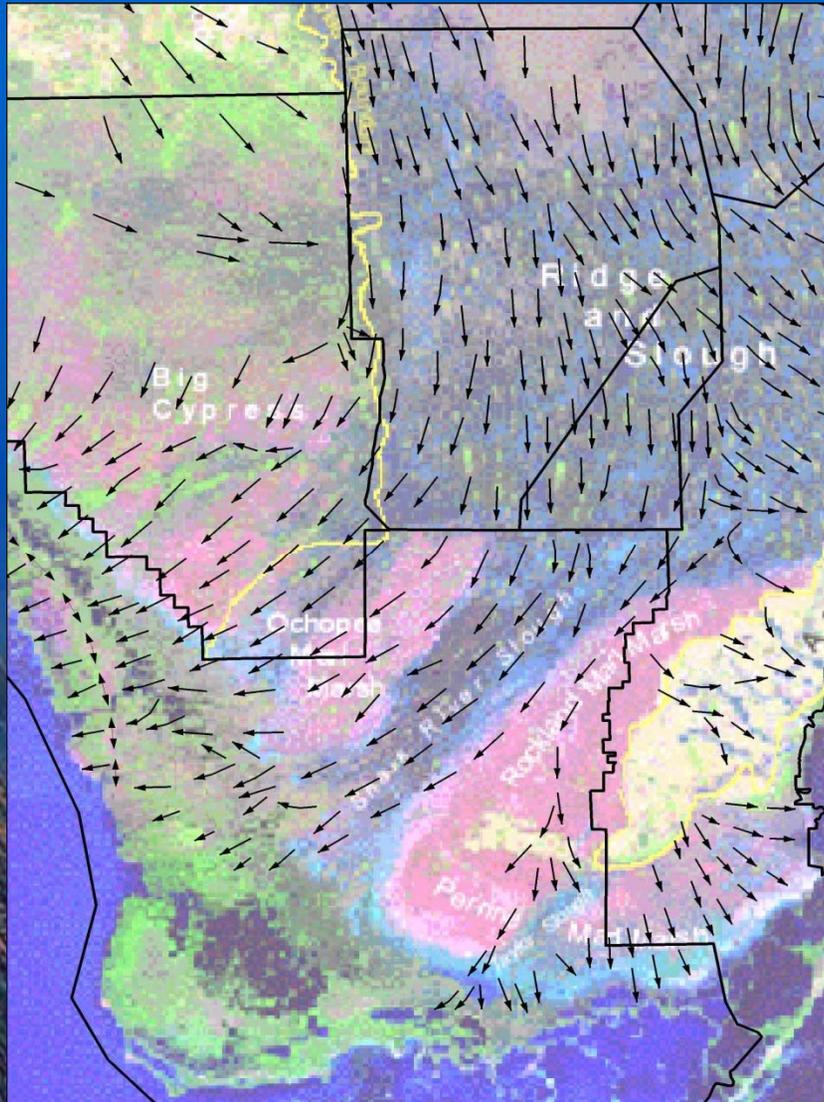
***Restoring Flows to Northeast Shark River Slough  
via the Modified Water Deliveries Project  
A Thirty-Year Odyssey***

***Robert Johnson, Kevin Kotun, & Gregg Reynolds  
South Florida Natural Resources Center, ENP***

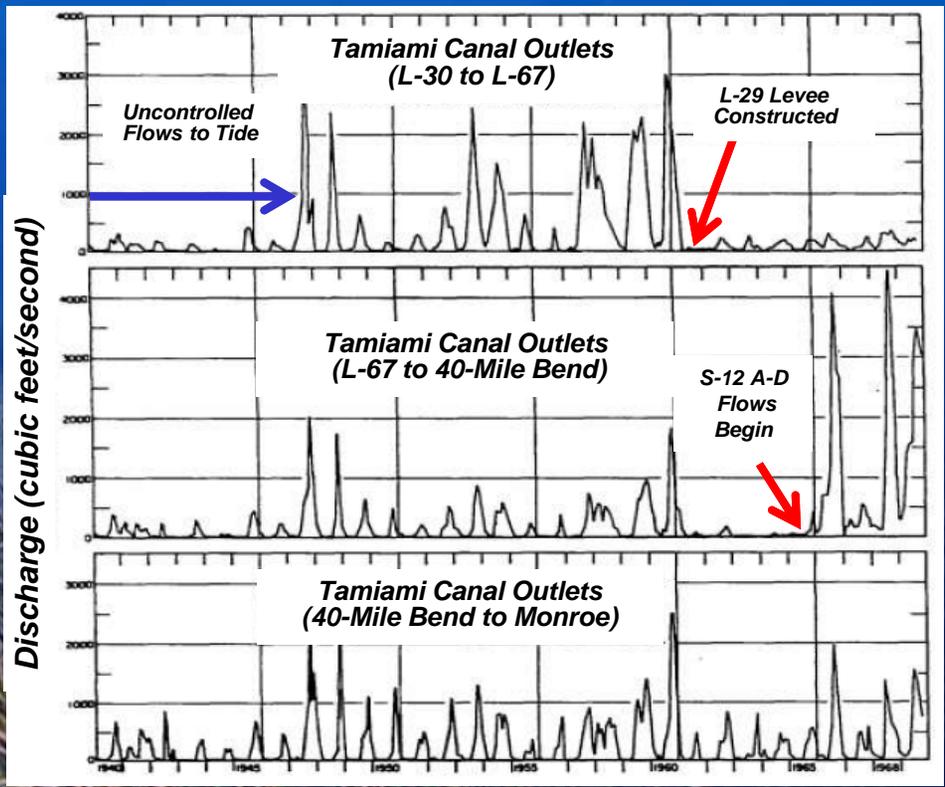
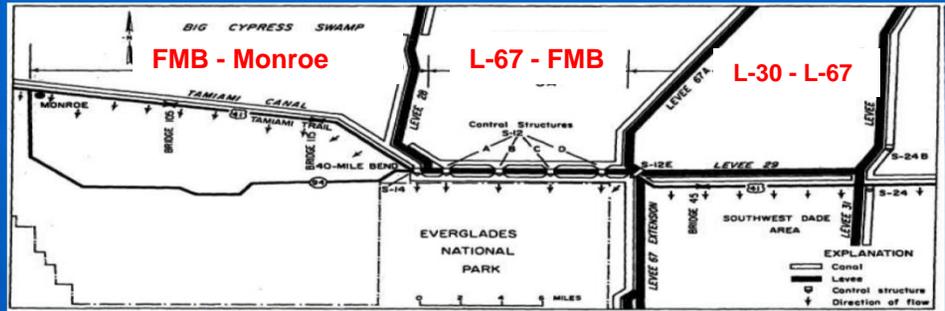


***GEER 2015, Session 26  
April 23, 2015***

# Historic Flow Patterns in Comparison to the Major Landscape Features

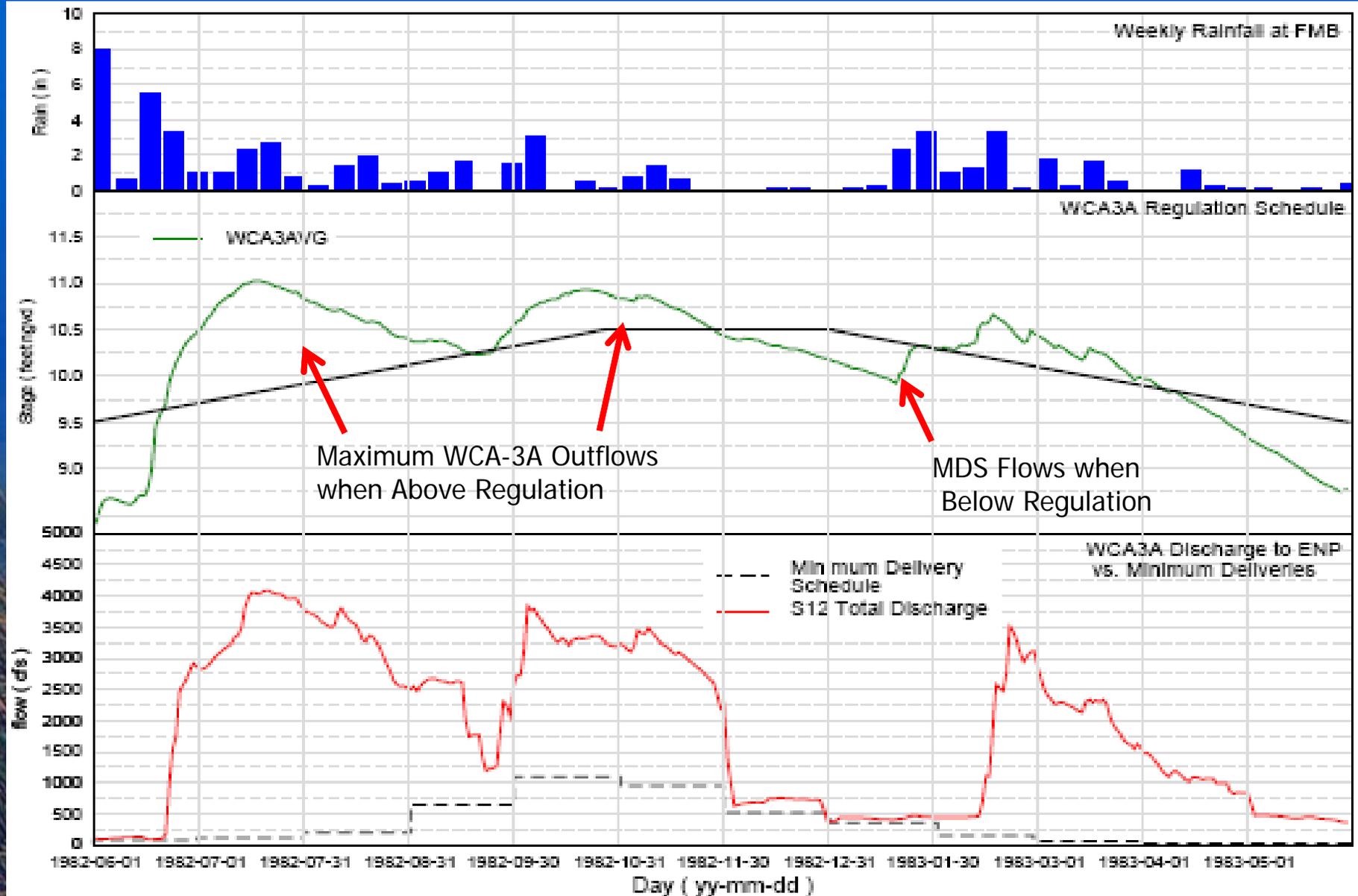


Source: Parker et. al., 1955, Water Resources of SE Florida, USGS, WSP 1255.

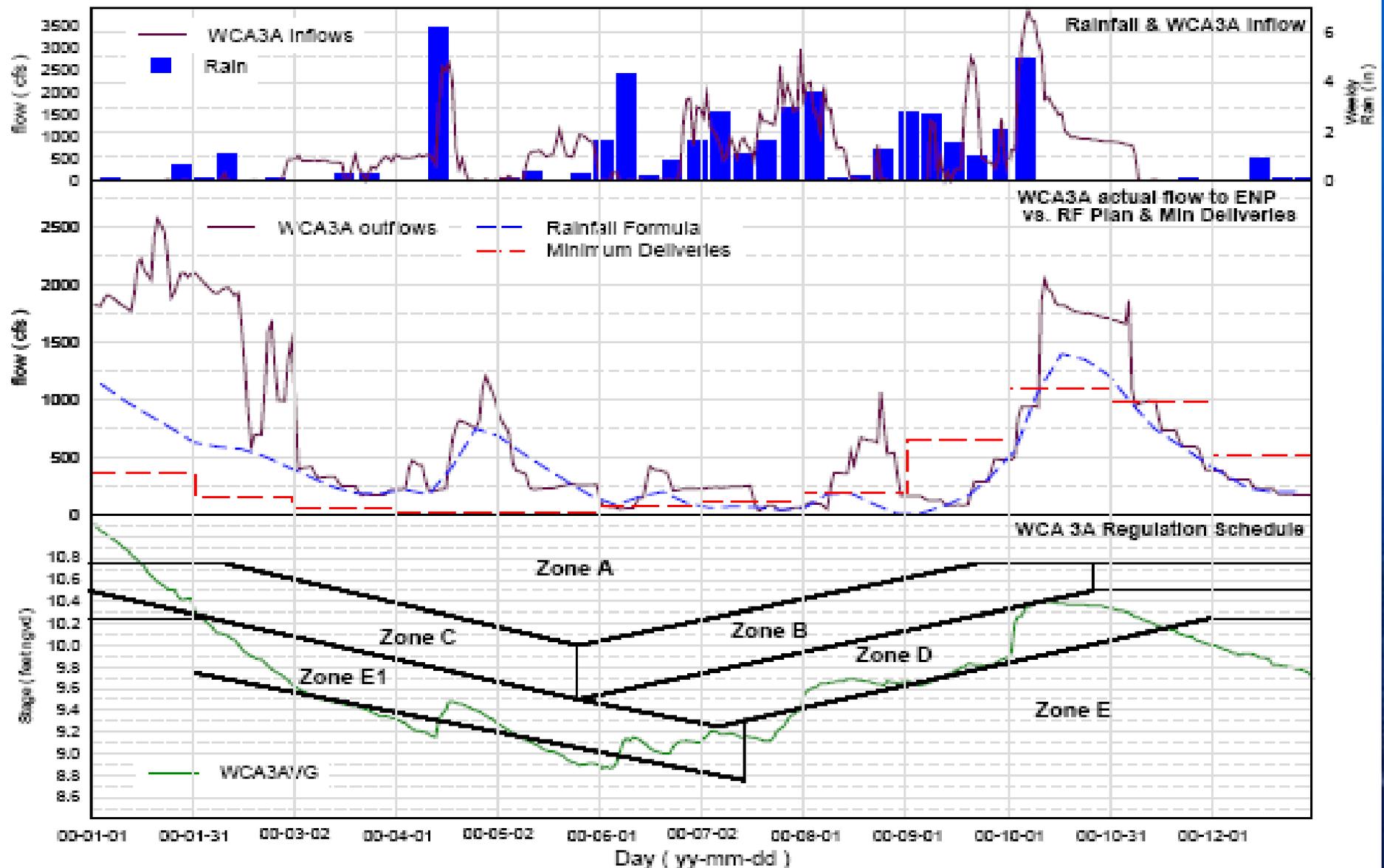


Source: Leach, et. al., 1972, Hydrologic Affects of Water Control and Management in SE Florida, USGS.

# Minimum Water Delivery Schedule (PL 91-282, 1970-1983)



# Experimental Water Delivery Program & CSSS/ISOP (PL 98-181, 1984-2000)



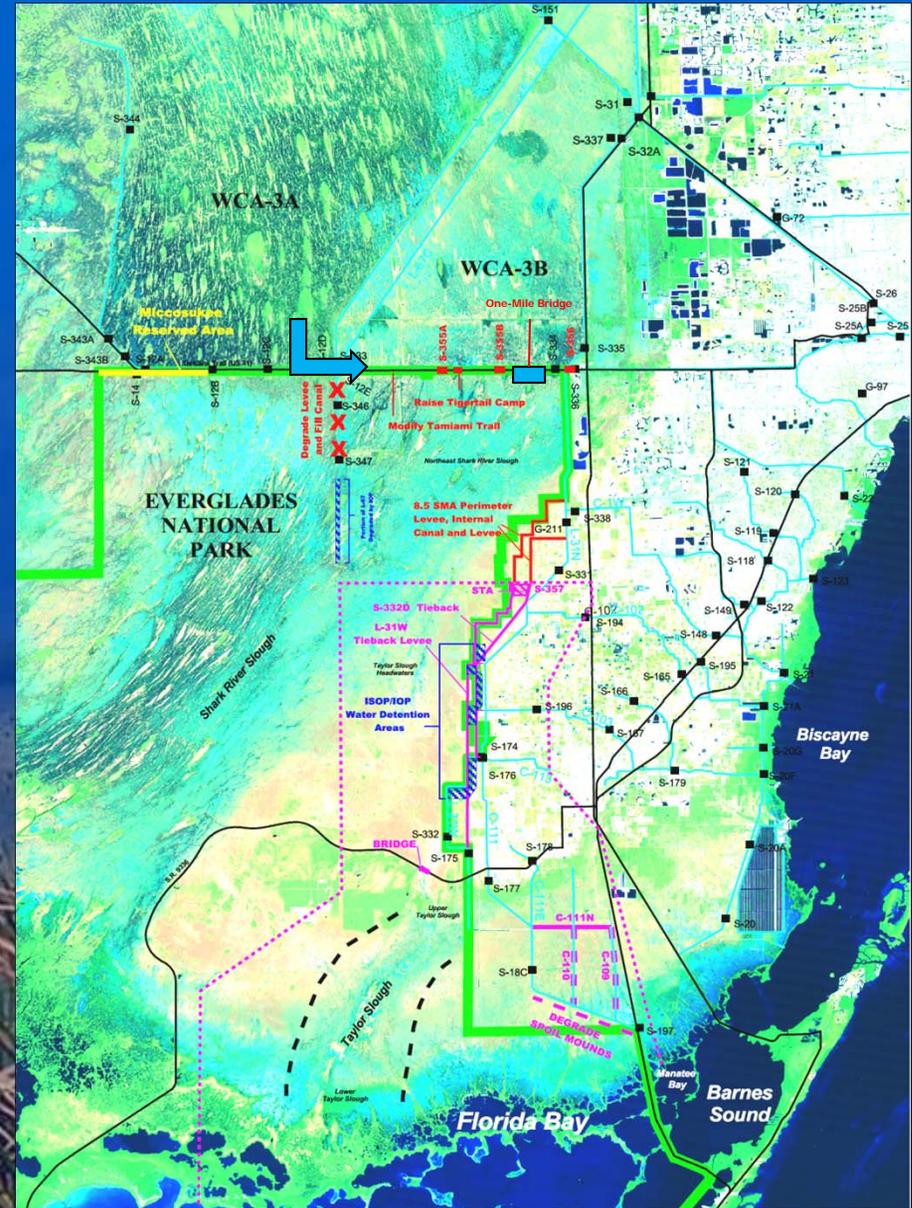
# Modified Water Deliveries and C-111 South Dade Projects

## Project Goals:

- Increase flows from Water Conservation Area 3A into Northeast Shark River Slough.
- Decrease flows into Western Shark River Slough. (particularly via S-12A/B).
- Return NESRS Seepage Losses to the Everglades (using the S-356 pump station).
- Reduce Seepage Losses and Rehydrate Taylor Slough (using the S-332 B/C/D pumps and Detention Areas).
- Maintain Existing Flood Control and Water Supply in South Miami-Dade County.

## Implementation Approach:

- Conduct a Series of Incremental Field Tests that Incrementally Increase flows into Northeast Shark River Slough, and evaluate their Impacts (Inc.1 2015-2017, Inc.2 2017-2019).
- Develop a Revised Water Control Plan for WCA-3A, ENP, & South Dade (by late 2019).



# Preliminary RSM Hydrologic Modeling

## Model Alternatives:

Increment 1: G-3273 Relaxation  
& S-356/357N test (2115-2017).

Increment 2: L-29 Canal Stage  
Increase 7.5-8.0 ft. (2017-2019).

Full Implementation: L-29 Canal  
Stage from 8.0-8.5 ft. (2020).

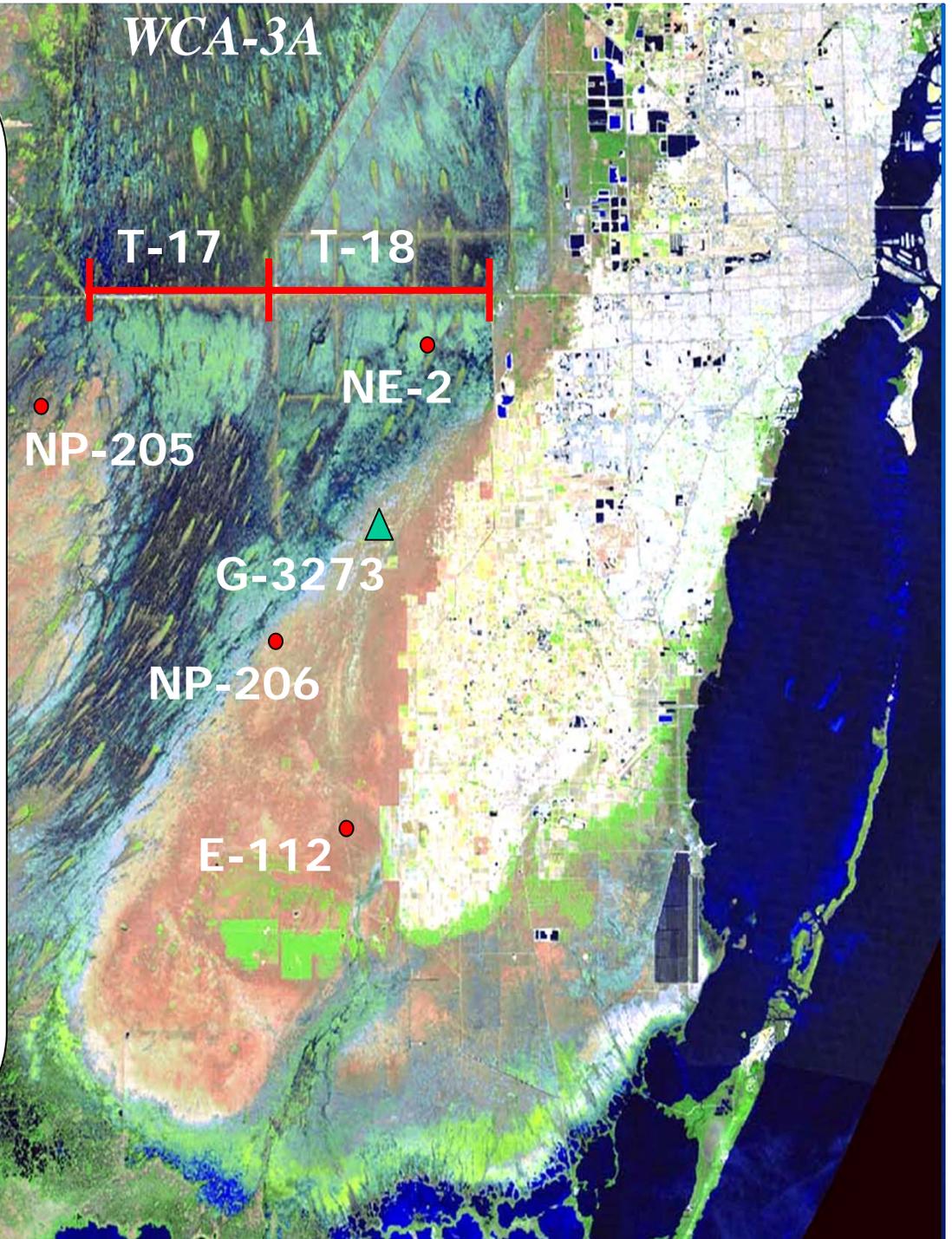
## Hydrologic Parameters:

Shark River Slough Inflows  
WSRS & NESRS (Transects -17&18)

## Hydrologic Monitoring Gages:

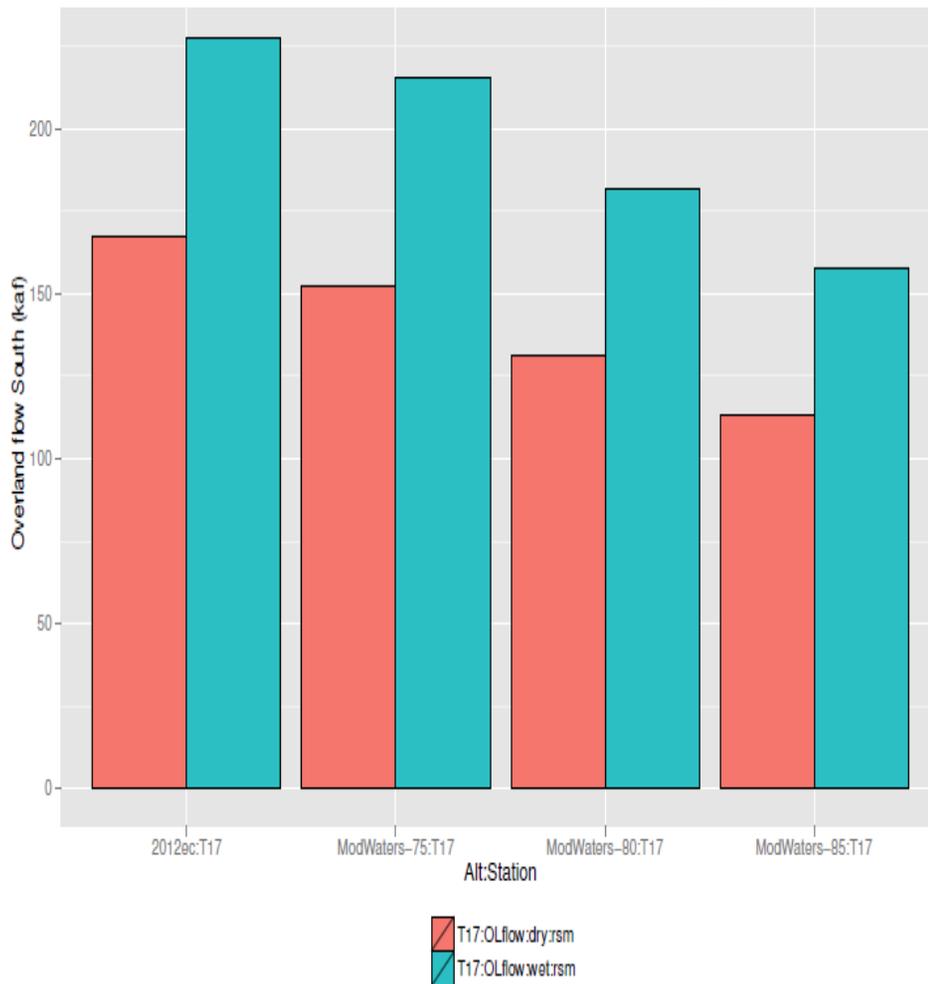
NESRS NE-2  
Rocky Glades NP-206  
Taylor Slough E-112  
WSRS NP-205  
Trigger Well G-3273

Water Depth Difference Maps

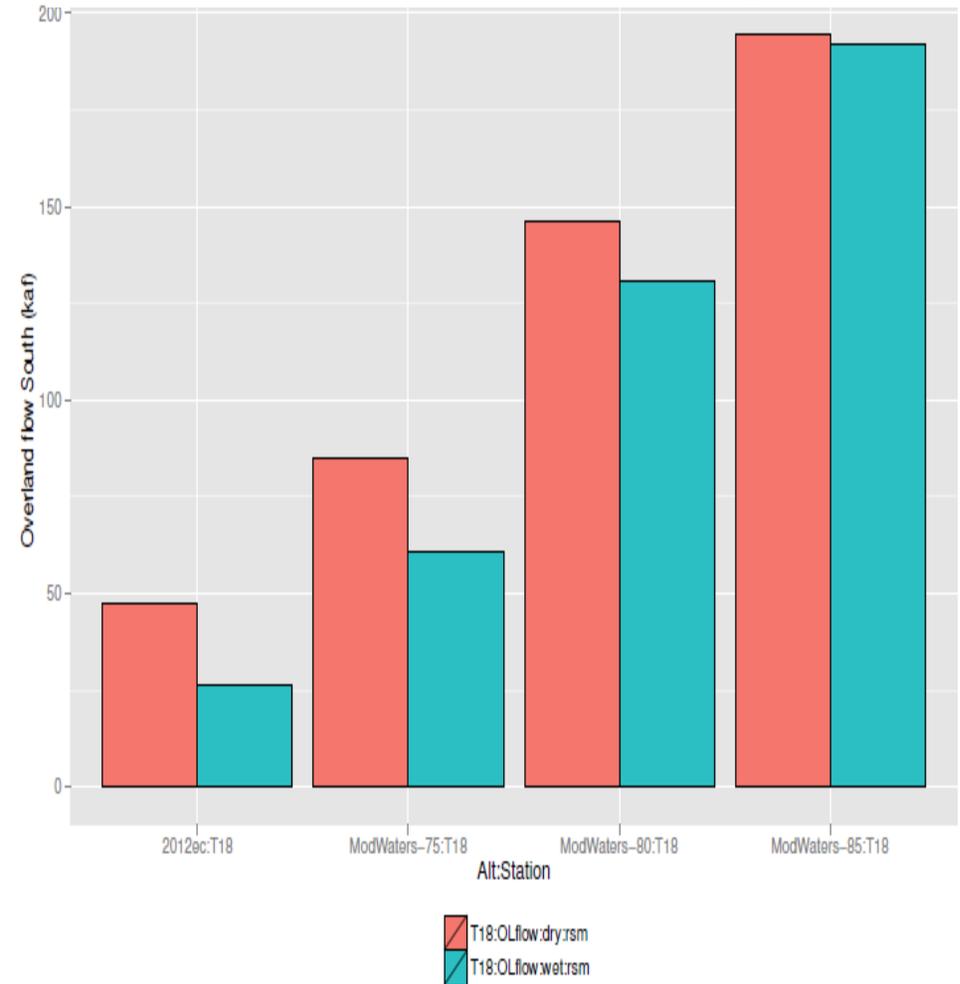


# Predicted Changes in Average Annual Overland Flows Into Western & Northeast Shark River Slough

## Western Shark River Slough (T17)

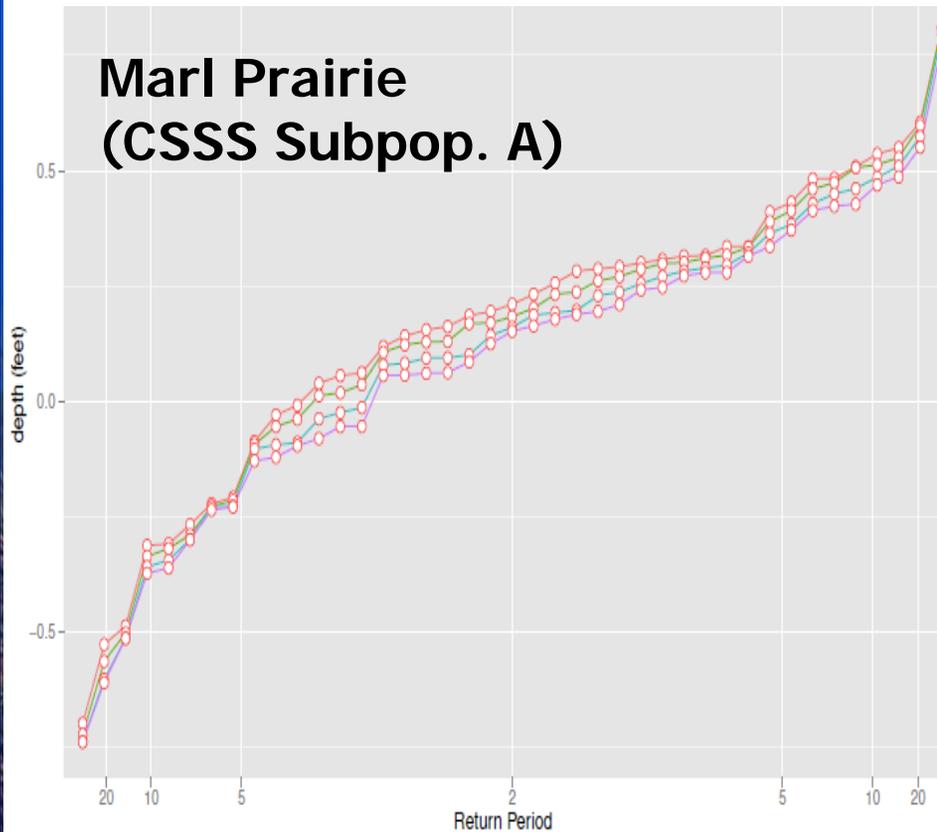


## Northeast Shark River Slough (T18)



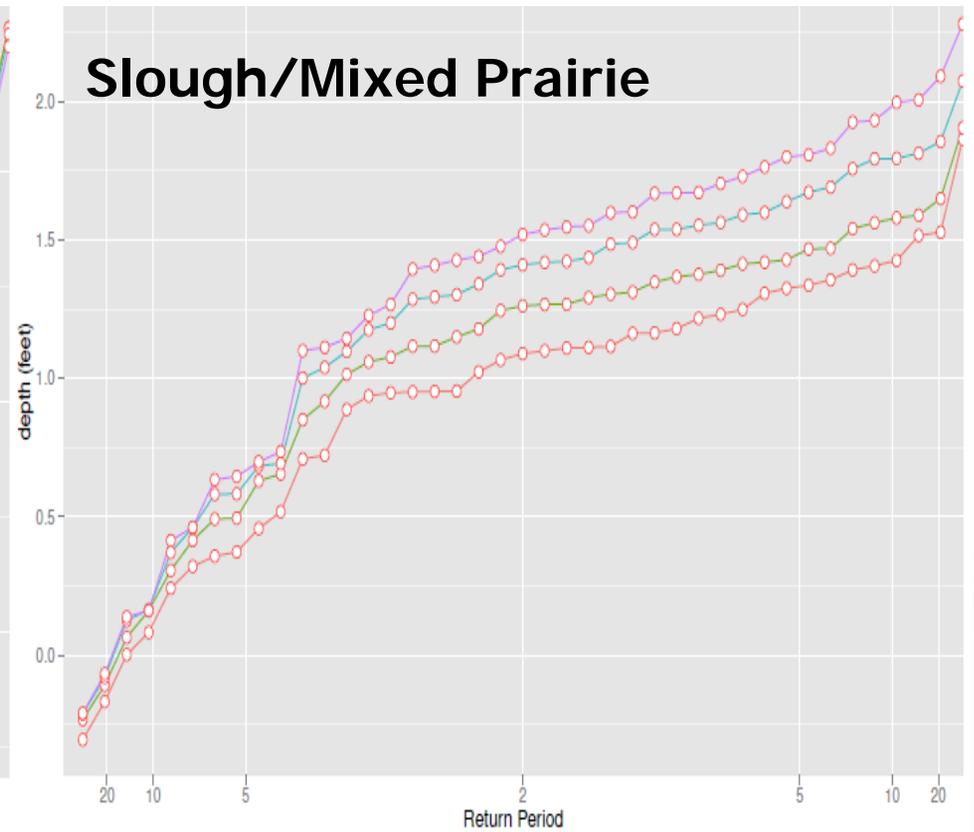
# Predicted Changes in Average Annual Water Depths In Western & Northeast Shark River Slough

Western Shark River Slough (NP-205)



NP205.2012ec:depth:rsm:annual  
 NP205.mod2-80:depth:rsm:annual  
 NP205.mod2-75:depth:rsm:annual  
 NP205.mod2-85:depth:rsm:annual

Northeast Shark River Slough (NE-2)

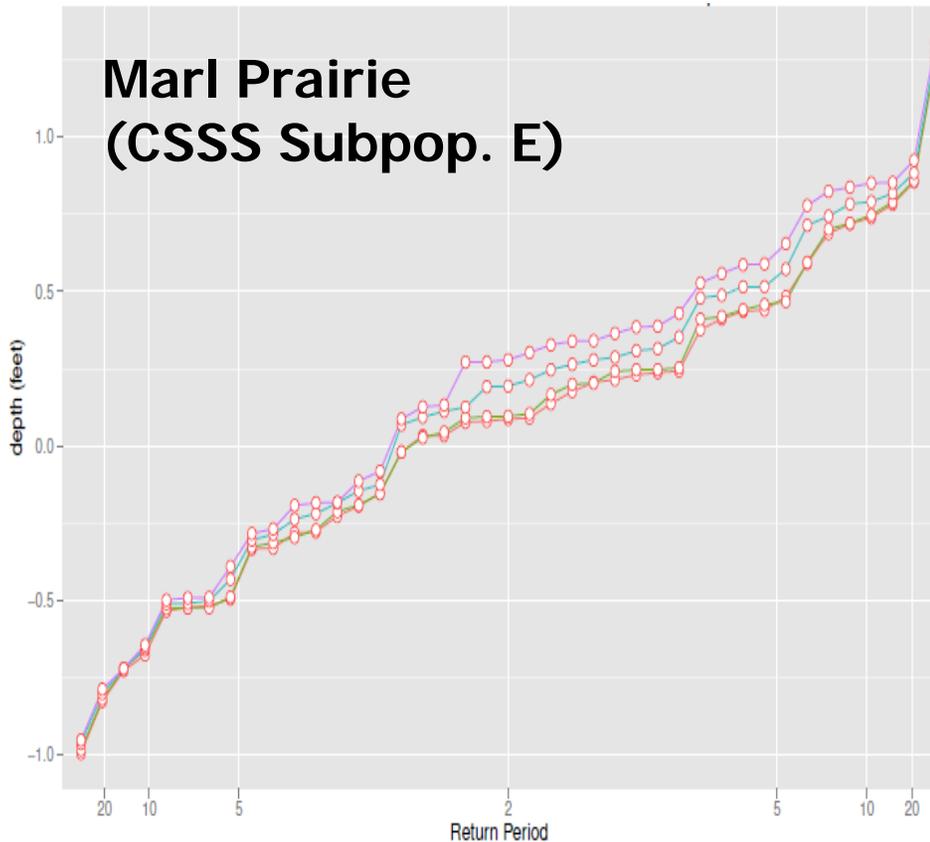


NE2.2012ec:depth:rsm:annual  
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 NE2.mod2-85:depth:rsm:annual

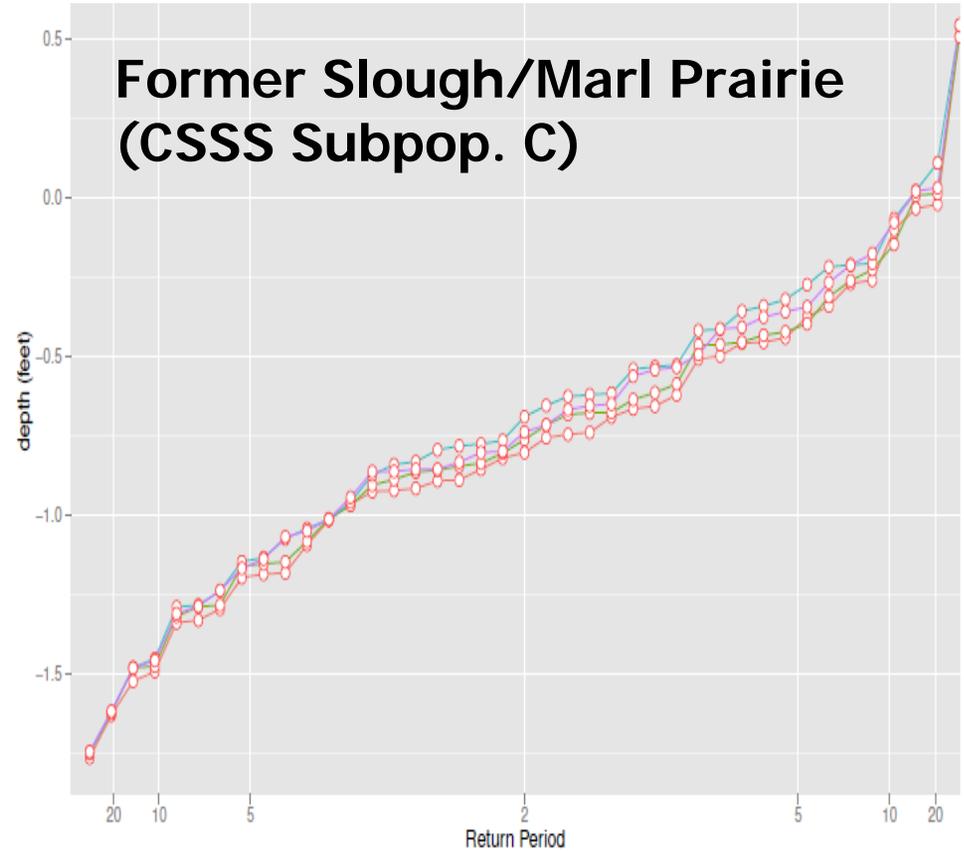
# Predicted Changes in Average Annual Water Depths In the Rocky Glades and Taylor Slough Headwaters

Rocky Glades (NP-206)

Taylor Slough Headwaters (E-112)



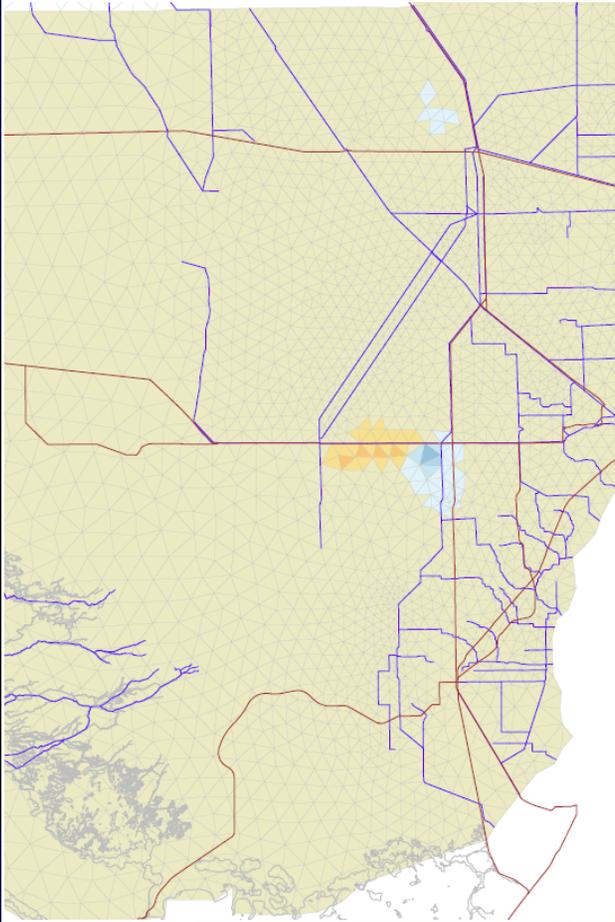
NP206:2012ec:depth:rsm:annual NP206:mod2-80:depth:rsm:annual  
 NP206:mod2-75:depth:rsm:annual NP206:mod2-85:depth:rsm:annual



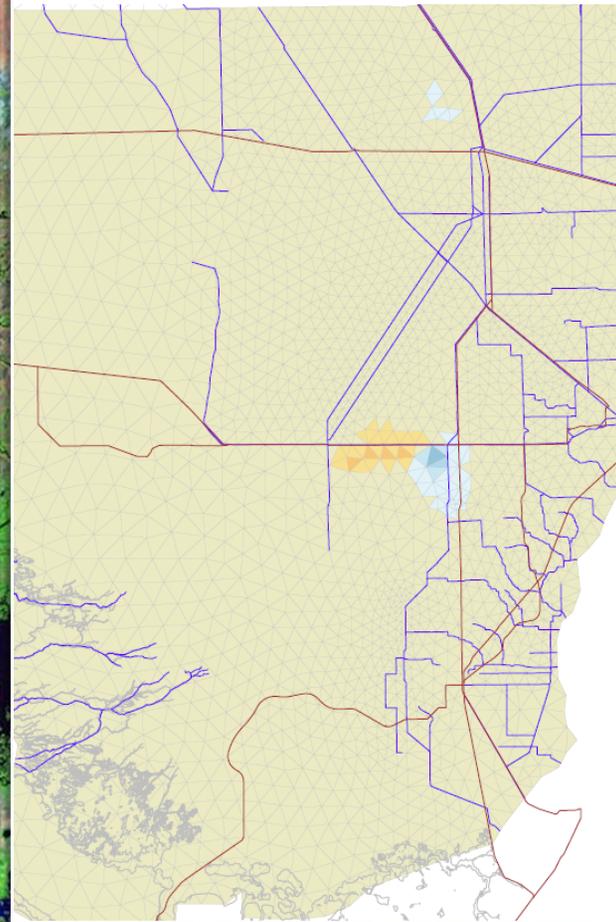
E112:2012ec:depth:rsm:annual E112:mod2-80:depth:rsm:annual  
 E112:mod2-75:depth:rsm:annual E112:mod2-85:depth:rsm:annual

# *Predicted Changes in Dry Year Water Levels In Shark Slough, the Rocky Glades and Taylor Slough Headwaters (October 31, 1989)*

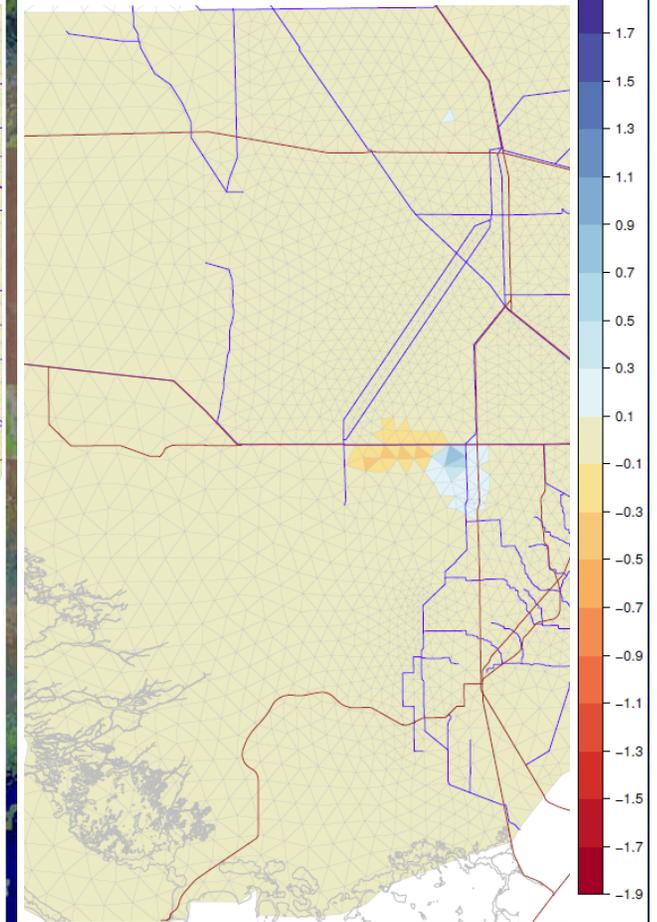
**Increment 1 (7.5-EC)**



**Increment 2 (8.0-EC)**

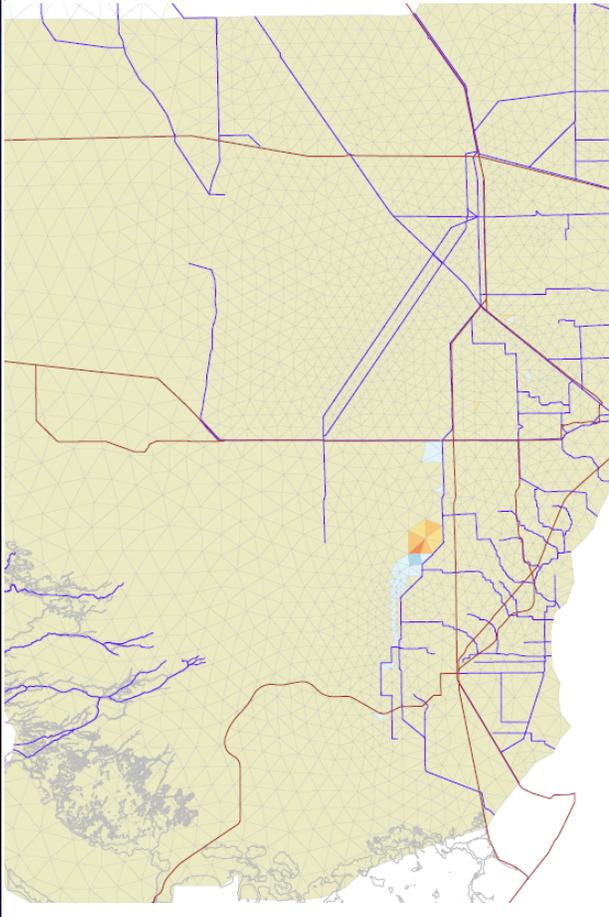


**Full Implem. (8.5-EC)**

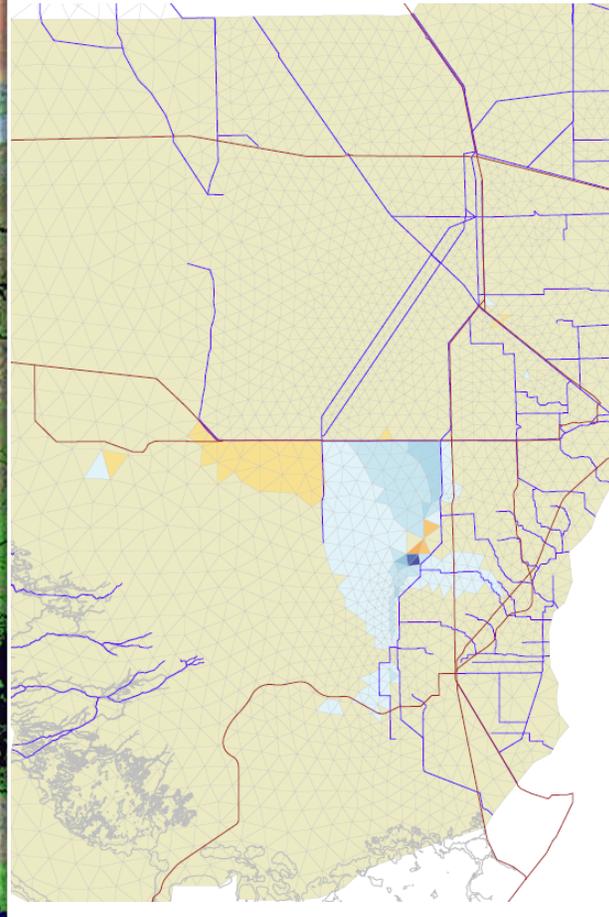


# *Predicted Changes in Wet Year Water Levels In Shark Slough, the Rocky Glades and Taylor Slough Headwaters (October 31, 1996)*

**Increment 1 (7.5-EC)**



**Increment 2 (8.0-EC)**



**Full Implem. (8.5-EC)**

