CENTRAL EVERGLADES PLANNING PROJECT

WCA 3A Decomp & Sheetflow Enhancement

PRESENTED BY

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WCA 3A - Specific Problems

- **The MC functions as a major, unnatural drainage. In combination with the northern levees of WCA-3 (L-5 and L-4) substantial impacts to historical sheetflow and natural wetland hydroperiods have occurred.**

- **The natural capability of the WCA to store water is lost. Excess water that could be stored in the landscape to help with seasonal droughts is lost to tide.**

- **Disruption of the natural hydrologic regime (variable, annual pattern of falling and rising water depths) has resulted in loss of tree island communities and conversion of once wet prairies into aquatic sloughs; unnatural cattail monocultures have expanded.**

- **Degradation of the structure and function of the Everglades has resulted in the degradation of fish and wildlife habitat and their relative abundance and diversity.**

- **Construction and operation of canals and levees provide habitat and avenues for dispersal of invasive and exotic organisms.**

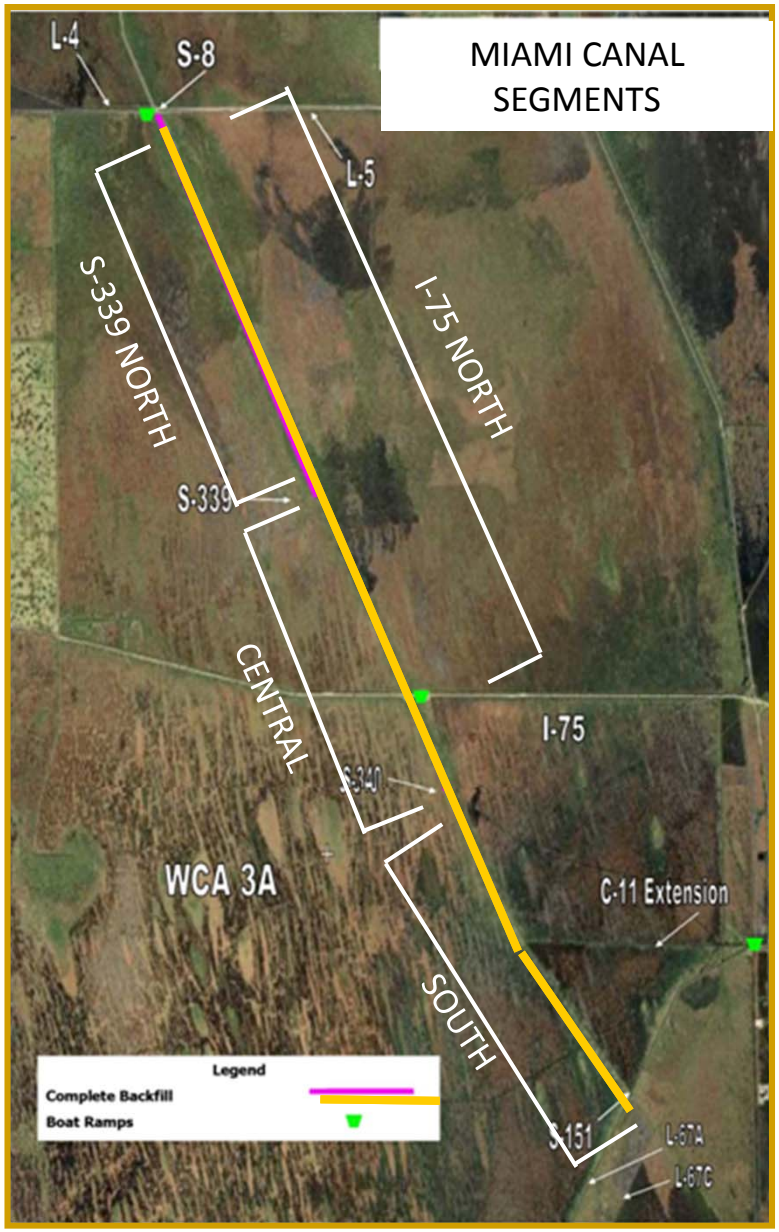
Management Measures
(Project Features)

Retained

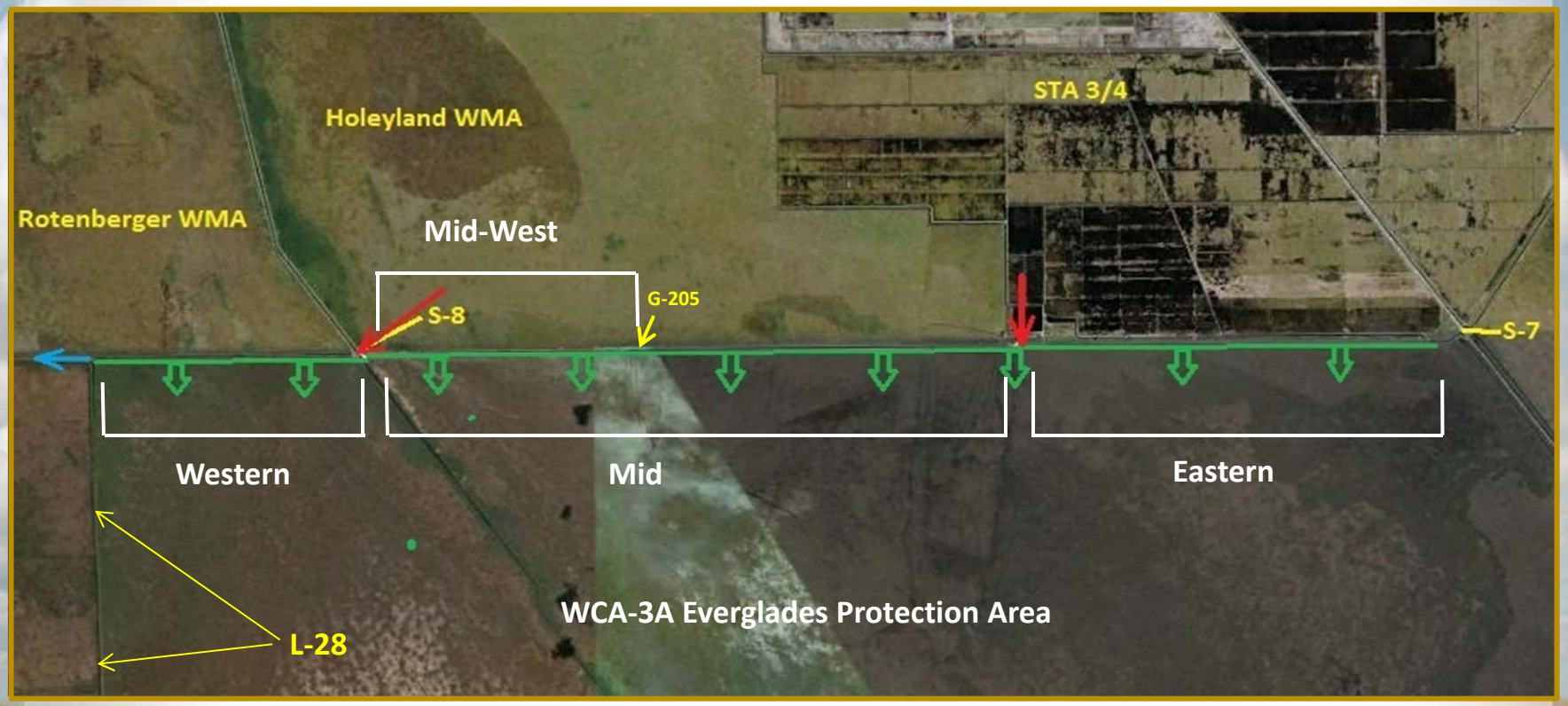
- Backfill (full & plug)
- No Fill (No Action)
- Spoil Mound Removal - To remove obstruction to flow
- Planted Spoil Mounds planted by FWC (same for all alternatives)
- Spreader Canal
- Tree Island Creation -Considered during design phase

Eliminated

- Shallowing of MC
- Piping
- Bladder
- Oxbows / meander modifications to MC
- Cap w/ backfill Miami Canal
- Degrade L-4 Canal


MIAMI CANAL SEGMENTS
L-4
S-8
L-5
S-339 NORTH
I-75 NORTH
S-339
CENTRAL
I-75
S-340
WCA 3A
C-11 Extension
SOUTH
S-151
L-67A
L-67C
Legend
Complete Backfill
Boat Ramps

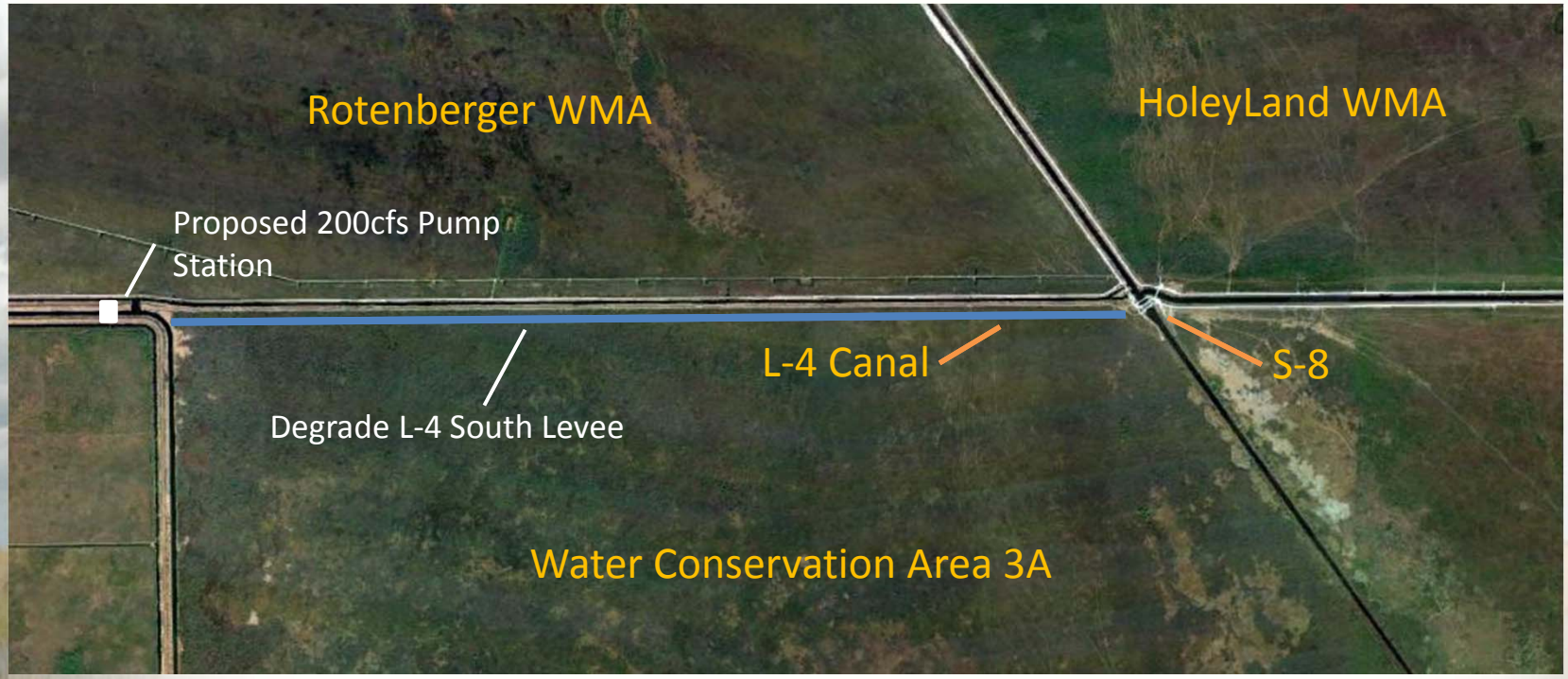
Hydropattern Restoration



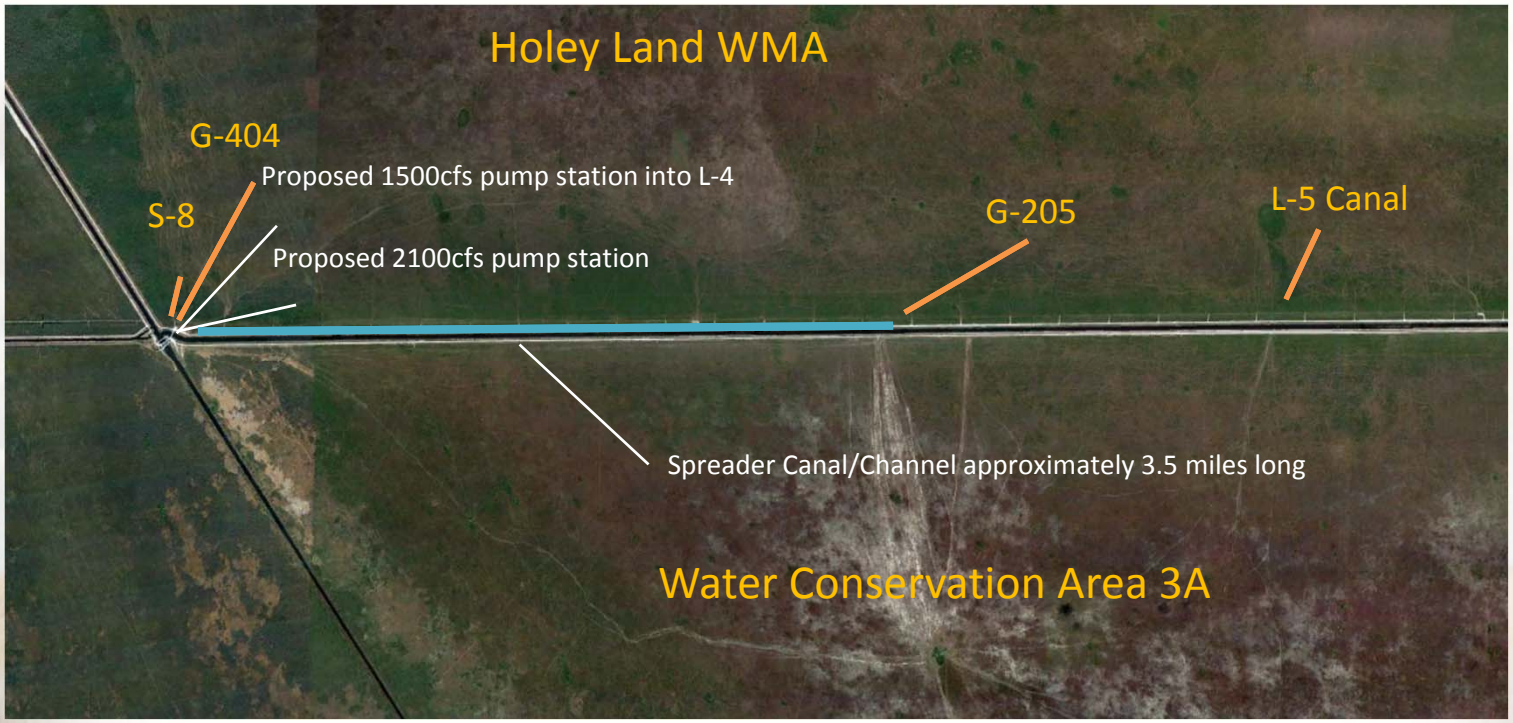
4 sections with new pump stations to redistribute inflows

1. Western: degrade L-4 Levee from S-8 to L-28 (3.3 miles)
2. Mid-western: spreader canal parallel to L-5 Levee (3.5 miles)
3. Mid – spreader canal parallel to L-5 Levee (8.5 miles)
4. Eastern – gap "remnant" L-5 (5 miles; 1000' gaps at 0.5 mile intervals)

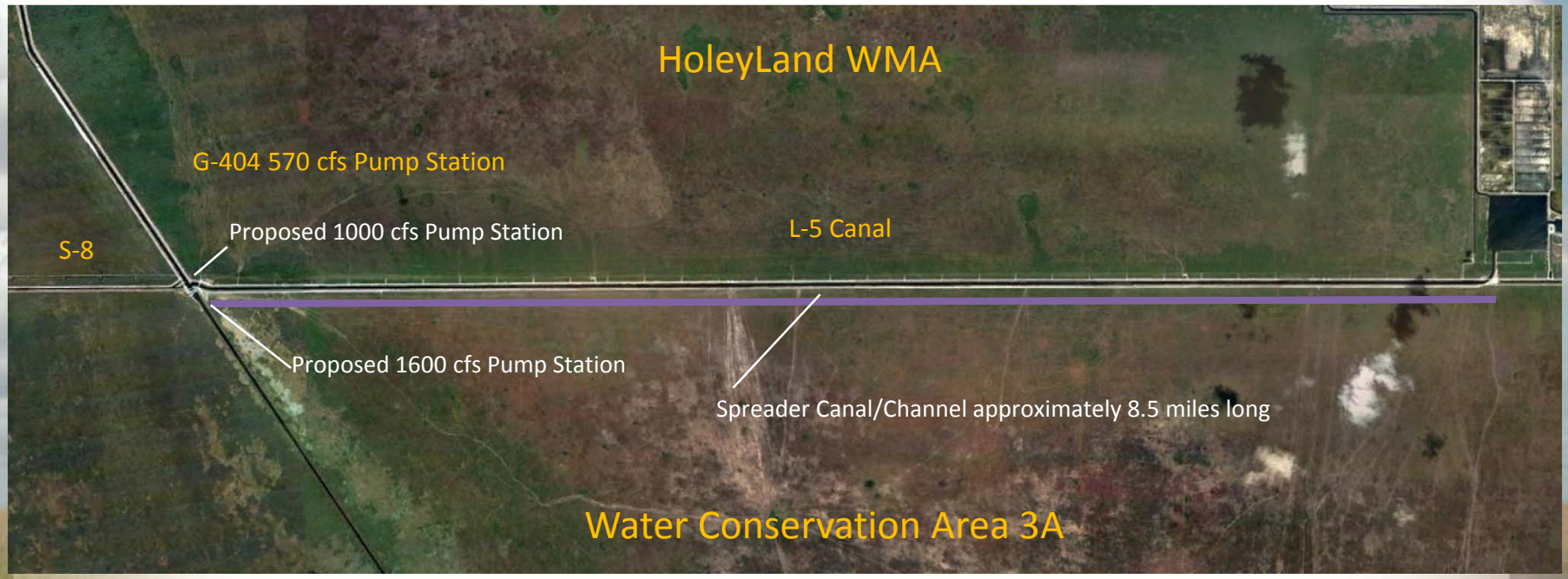
Western: Degrade L-4 Levee from S-8 to L-28 (3.3 miles)



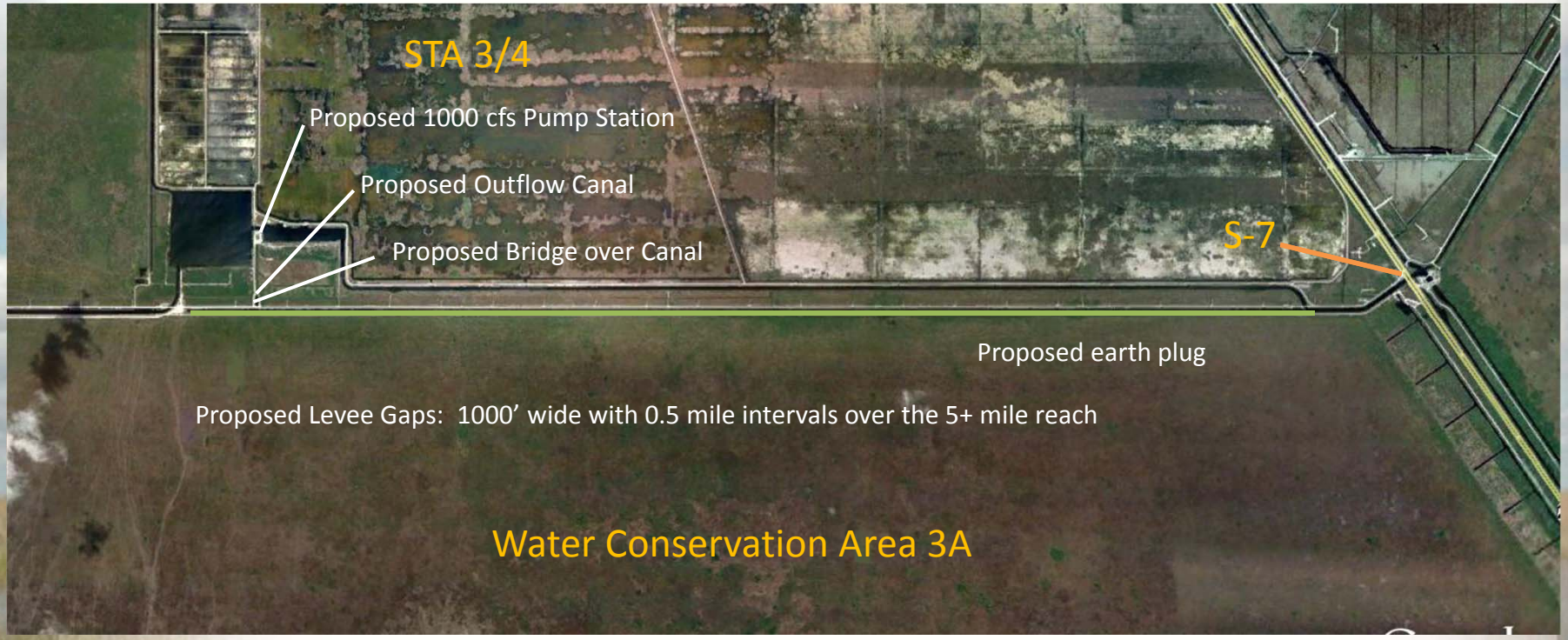
Mid-western: Spreader canal parallel to L-5 Levee (3.5 miles)



Mid: Spreader canal parallel to L-5 Levee (8.5 miles)



Eastern: Gap "remnant" L-5 (5 miles)



Discussion

Evaluation Tools and Techniques

Screening Criteria/Miami Canal

- Reduce Dryouts in Northern WCA-3A
- Reduce Ponding in Southern WCA-3A
- Degree (Spatial) of Increased Sheetflow
- Spatial Extent of Ecologic and Hydrologic Connectivity

Screening Criteria/HRF

- Hydrology:
  - *Flexibility to move water where most needed*
  - *Promotes longer flow path through WCA-3A (connectivity)*
  - *Maximizes sheetflow objectives (overall distribution – includes minimizing short-circuiting along eastern and western boundaries)*
- Biogeochemistry:
  - *Minimizes likelihood to increase phosphorus movement from impacted areas (large*
  - *Best addresses dry outs in over-drained areas*
  - *Improves conditions for wading birds (foraging/nesting)*
- Vegetation:
  - *Maximum potential to restore and sustain ridge and slough pattern and tree islands where desired*
- Connectivity:
  - *Maximizes Spatial extent*

CEPP PERFORMANCE MEASURES

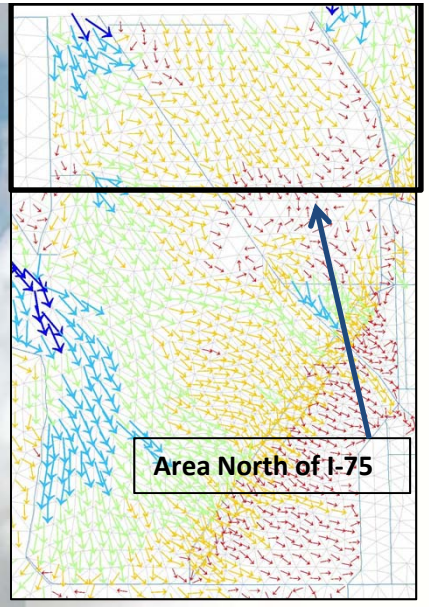
PLANNING REGION	PERFORMANCE MEASURE	DESCRIPTION
Lake Okeechobee	Lake Stage	Measure of optimum stages for Lake Okeechobee littoral zone health
Northern Estuaries	Salinity Envelopes	Measure of oyster and sea grass habitat based on frequency of flows from S-79 and S-80
Greater Everglades	Hydrologic Surrogate for Soil Oxidation	Measure of cumulative drought intensity to reduce exposure of peat to oxidation
	Inundation Pattern in Greater Everglades Wetlands	Measure of the number and duration of inundation events used to calculate the percent period of record of inundation
	Number and Duration of Dry Events in Shark River Slough	Measure of the number of times and mean duration in weeks that water drops below ground
	Sheet flow in the Everglades Ridge and Slough Landscape	Measure of the timing and distribution of sheet flow across the landscape.
	Slough Vegetation Suitability	Measure to evaluate the hydrologic suitability for slough vegetation

Evaluation Techniques

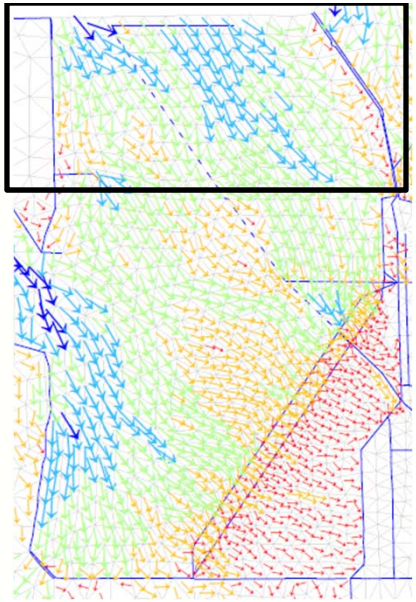
- Perspectives Considered in Analysis:
  - Hydrological Improvements – via graphics (ex: flow vector maps)
  - Ecological Improvements – Anticipated response to hydrologic changes
  - Performance Measures - % target achieved

Average Annual Overland Vector

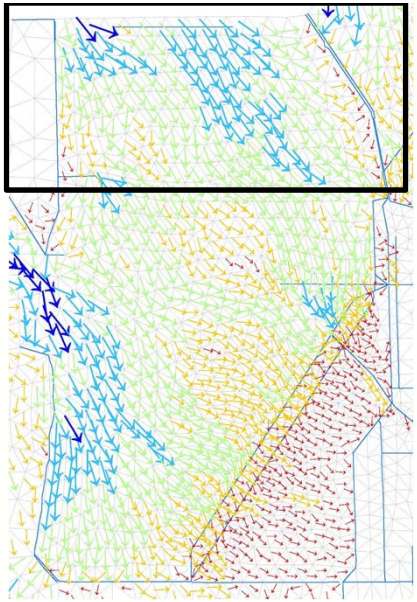
Dry Year (1989)



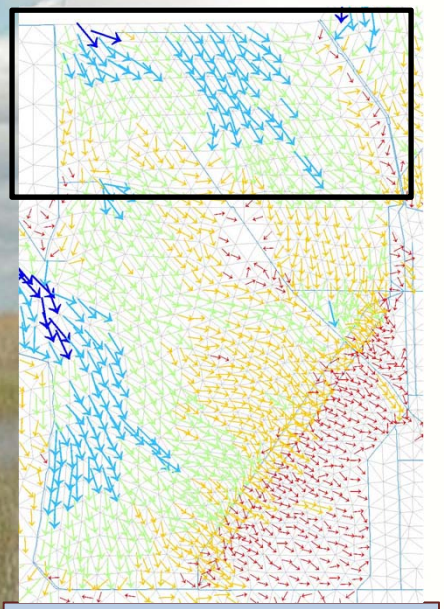
Full HRF Only



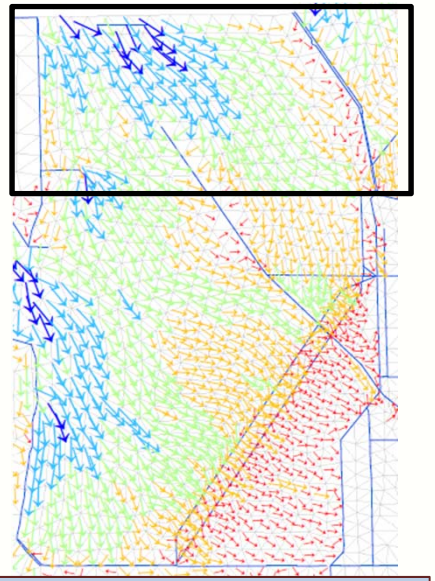
Full HRF/Full MC Plugged



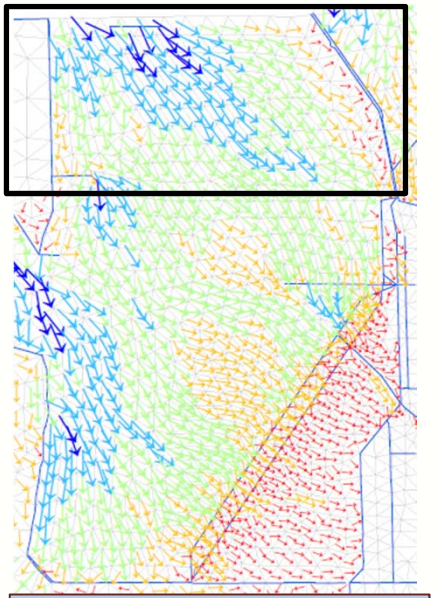
Full HRF/Full MC



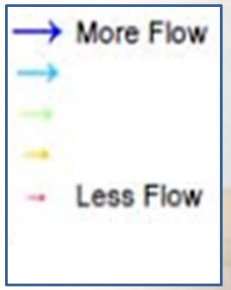
Full HRF/North MC



West HRF/North MC



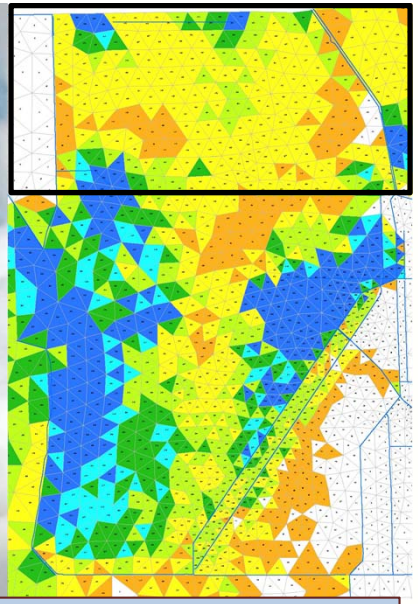
West HRF/Full MC



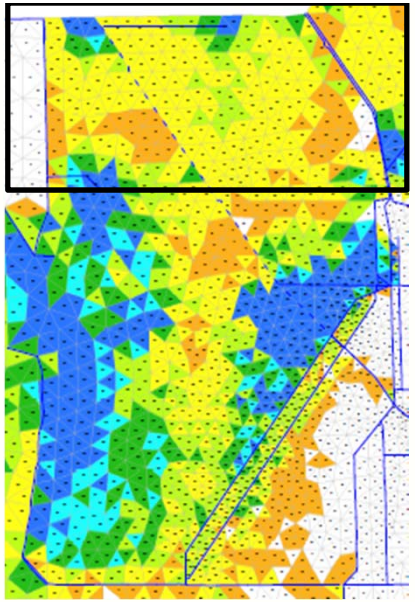
Direction
Magnitude

Average Annual Hydroperiod Distribution

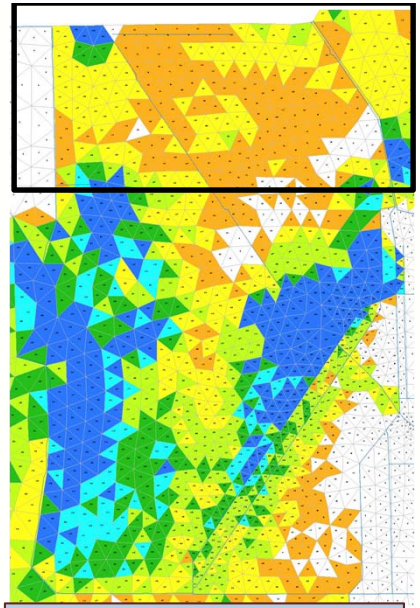
Dry Year (1989)



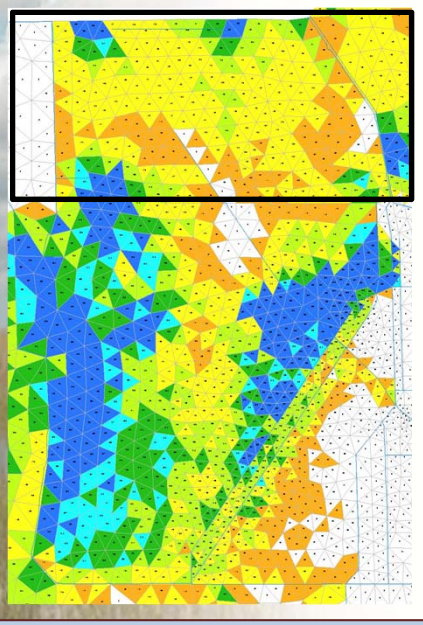
Full HRF/Full MC



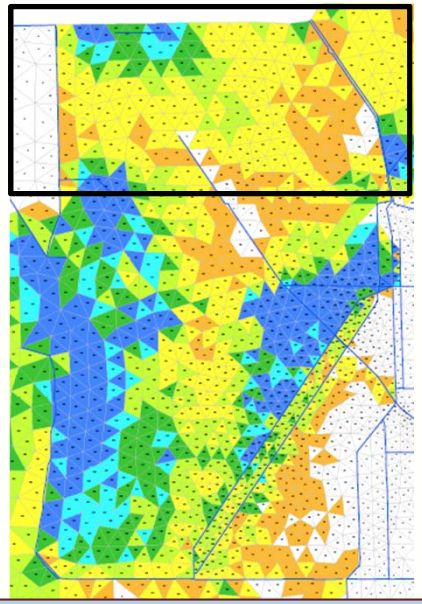
Full HRF/Full MC Plug



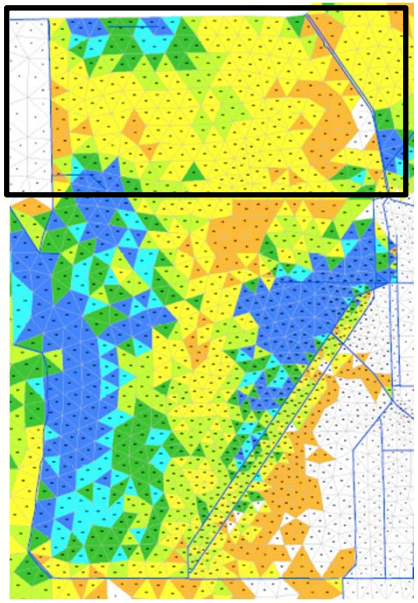
Full HRF Only



Full HRF/North MC



West HRF/North MC



West HRF/Full MC

Hydroperiod Class

- 0 to 60 days
- 60 to 120 days
- 120 to 180 days
- 180 to 240 days
- 240 to 300 days
- 300 to 330 days
- 330 to 365 days