Consideration in Moving Water to Shark River Slough

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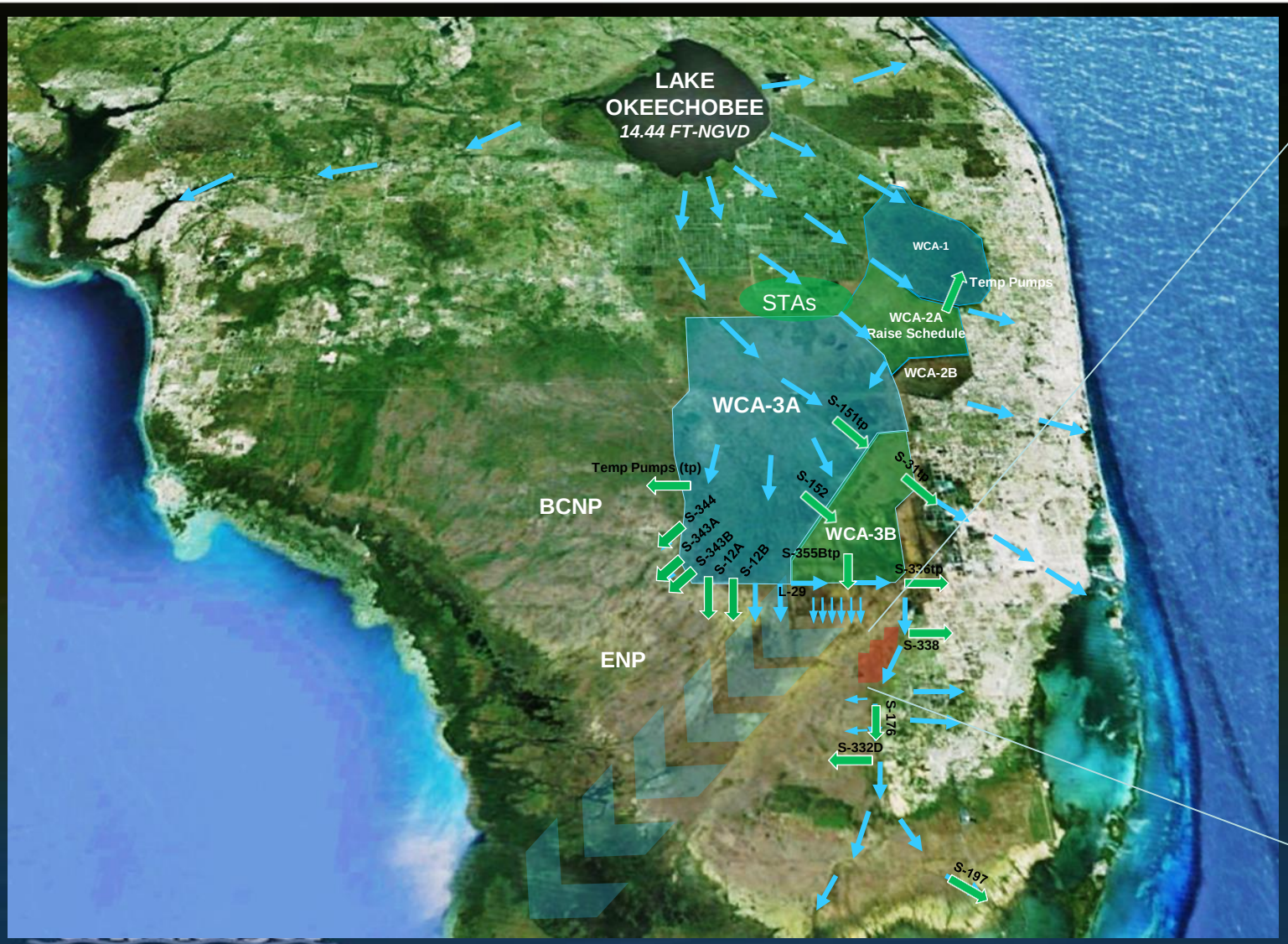
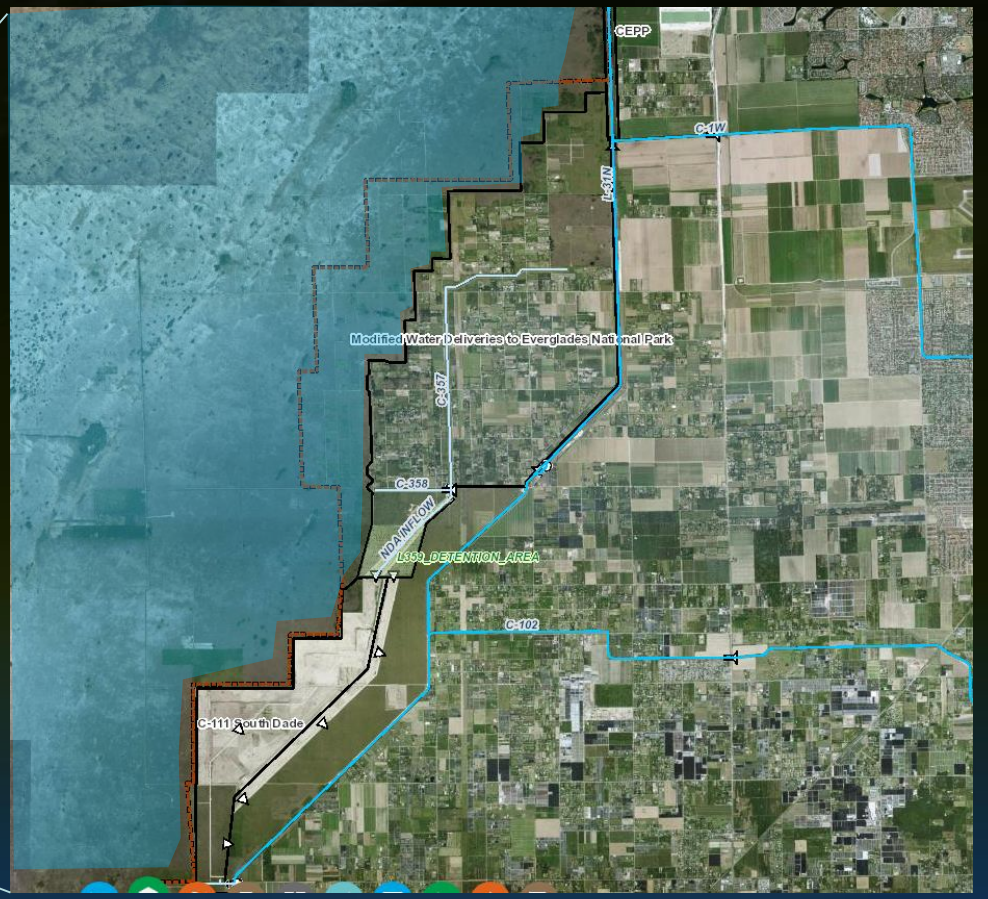
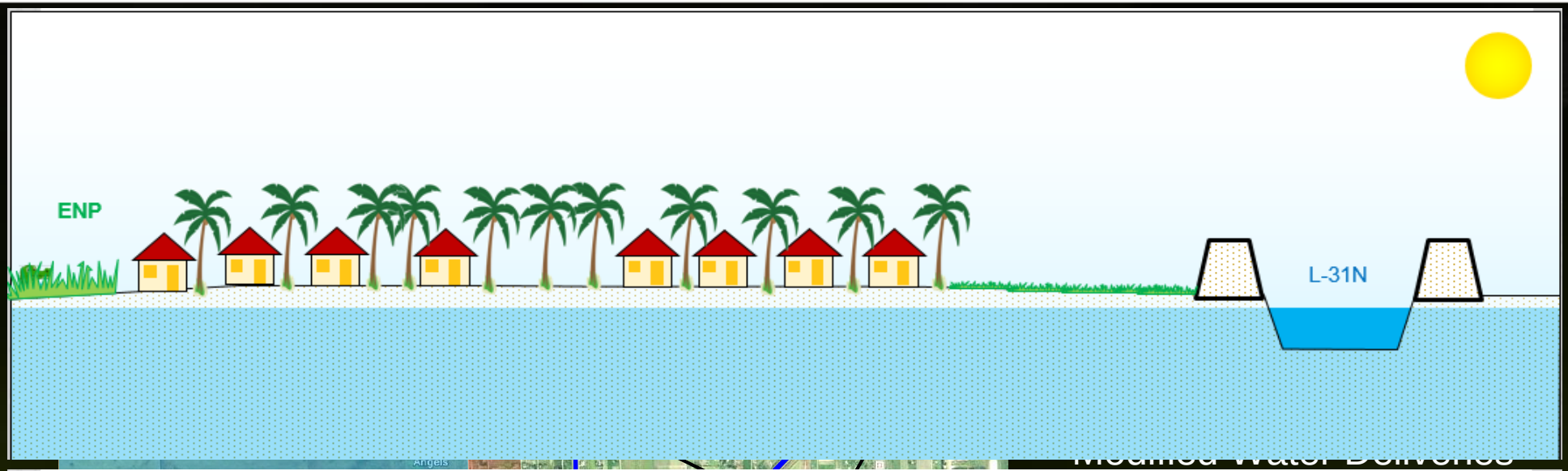
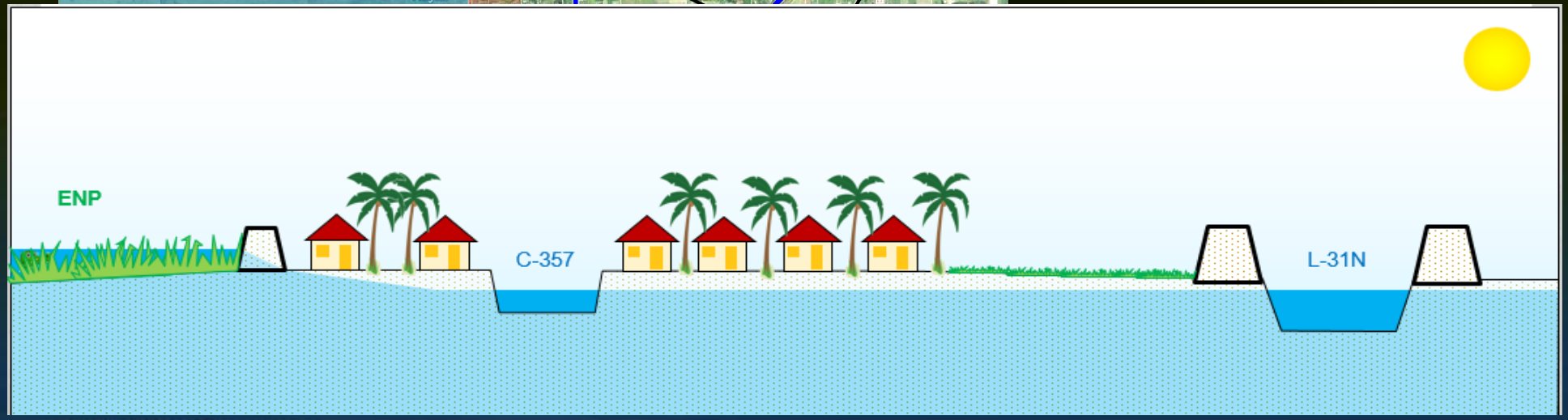
Tracking Restoration Flow to Shark River Slough



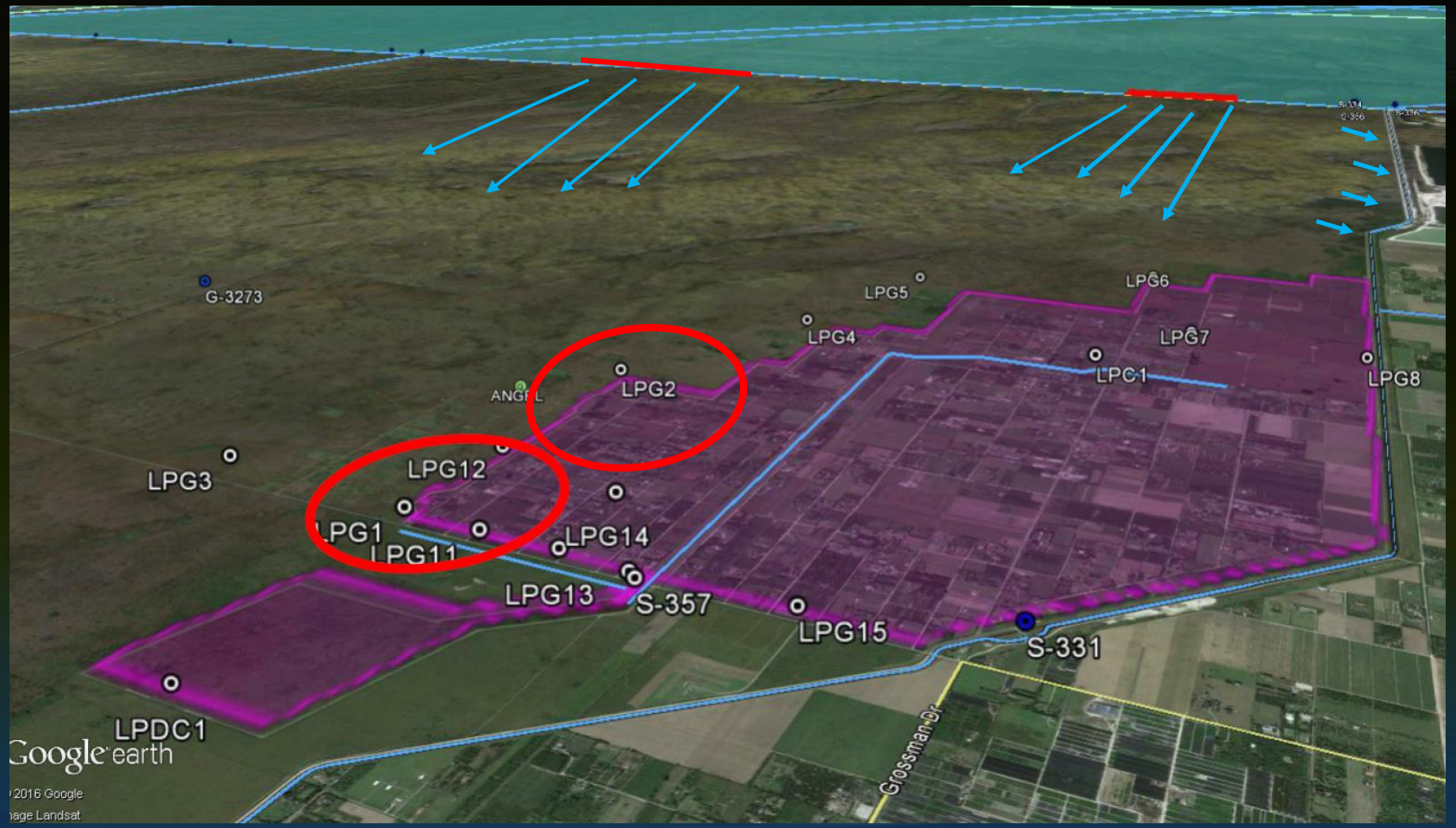


Providing Context – How is it Impacted



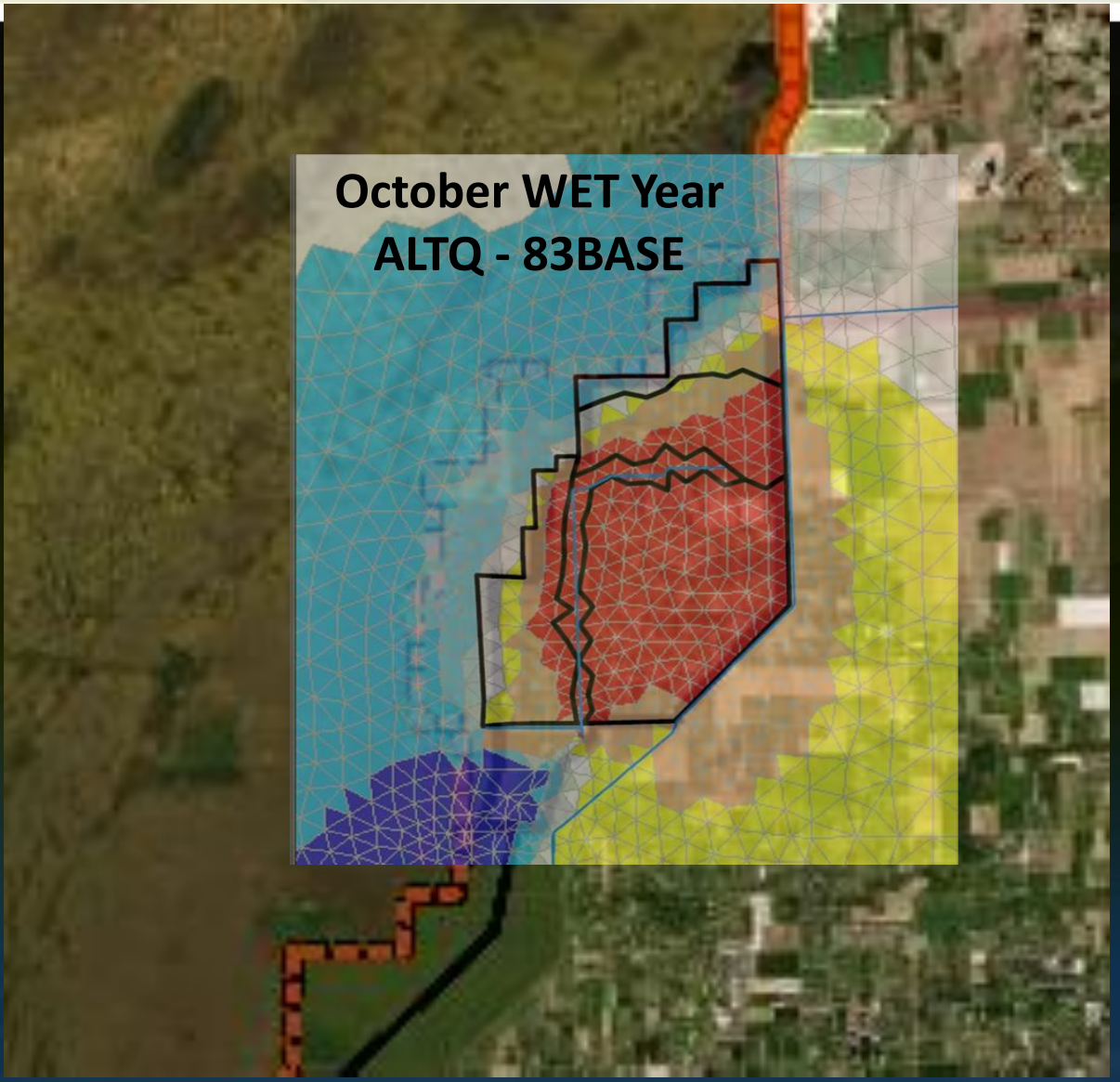


Modified Water Deliveries Project
Seepage Management Features for 8.5 SMA



- L-357W – Levee separating the 8.5 SMA from ENP
- C-357 – Seepage collection canal inside the 8.5 SMA to capture and discharge seepage flows
- C-358 – Additional seepage canal south and west of the 8.5 SMA to capture seepage
- S-357 N – Structure connecting C-358 to C-357
- S-357 – Pump station for moving recovered seepage into the 8.5 SMA Detention Cell
- 8.5 SMA Detention Cell – Detention area that discharges to the C-111 South Dade North Detention Area

COP Operations and Performance at 8.5 SMA

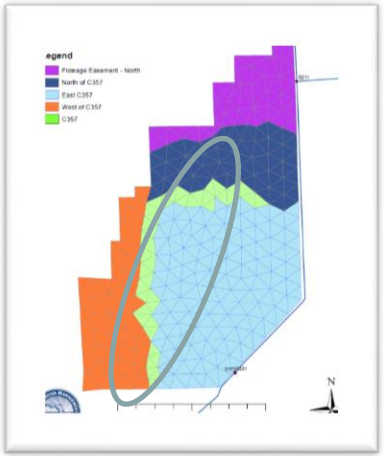


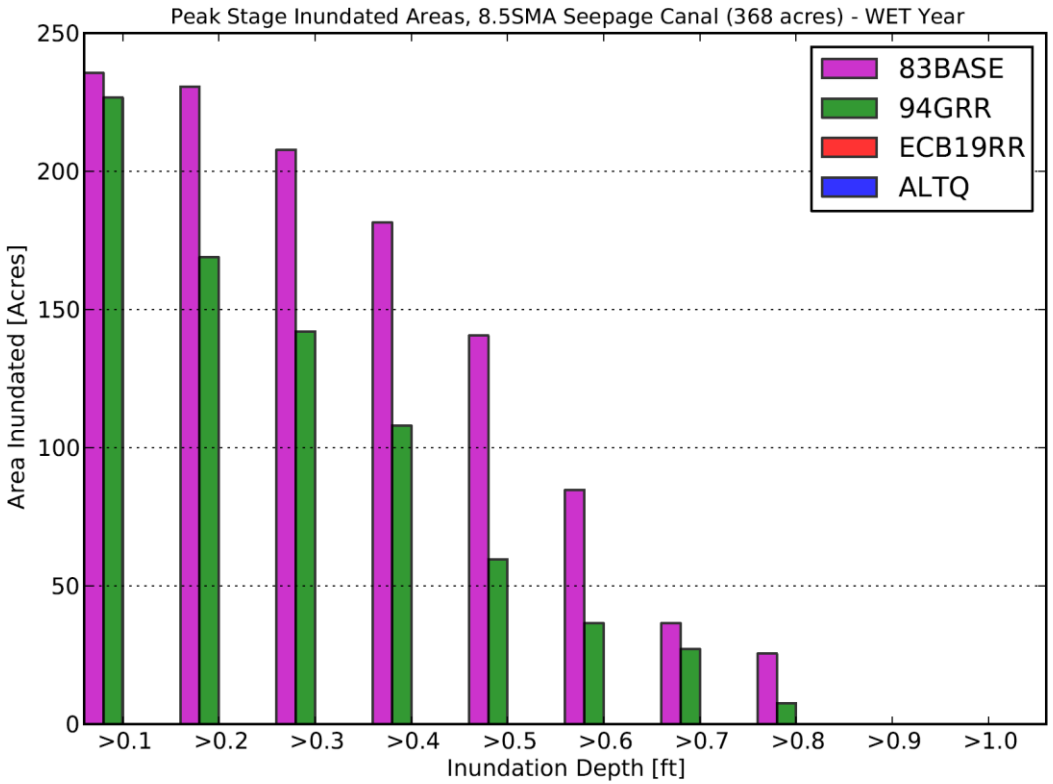
To operate the current system

- COP compared flooding metrics in 8.5 SMA between current conditions and conditions prior to implementation of MWD (1983)
- Looked at conditions in a wet, average or dry year

COP Operations and Performance Summary

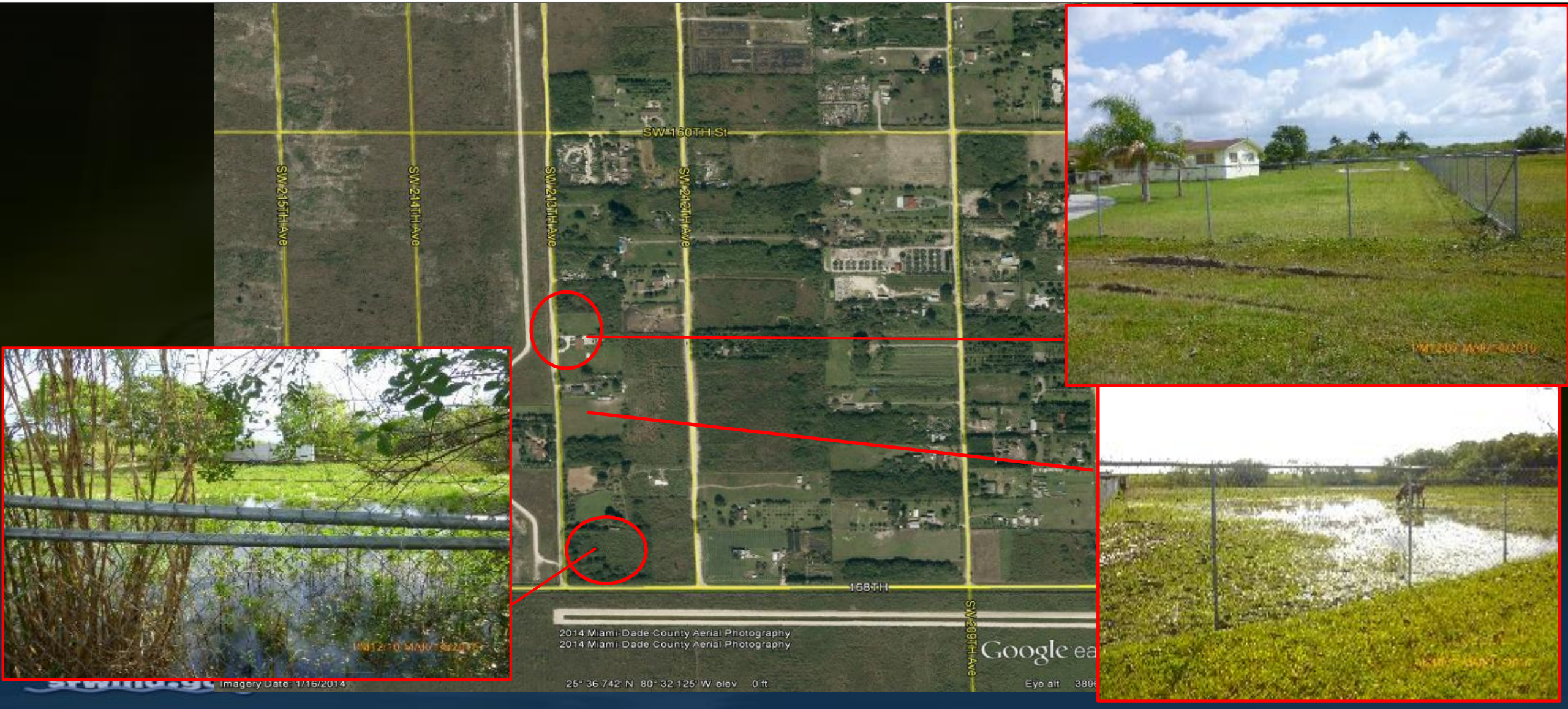
8.5 SMA Area Inundated Area Near Seepage Canal WET WATER YEAR (May05 – Apr06)





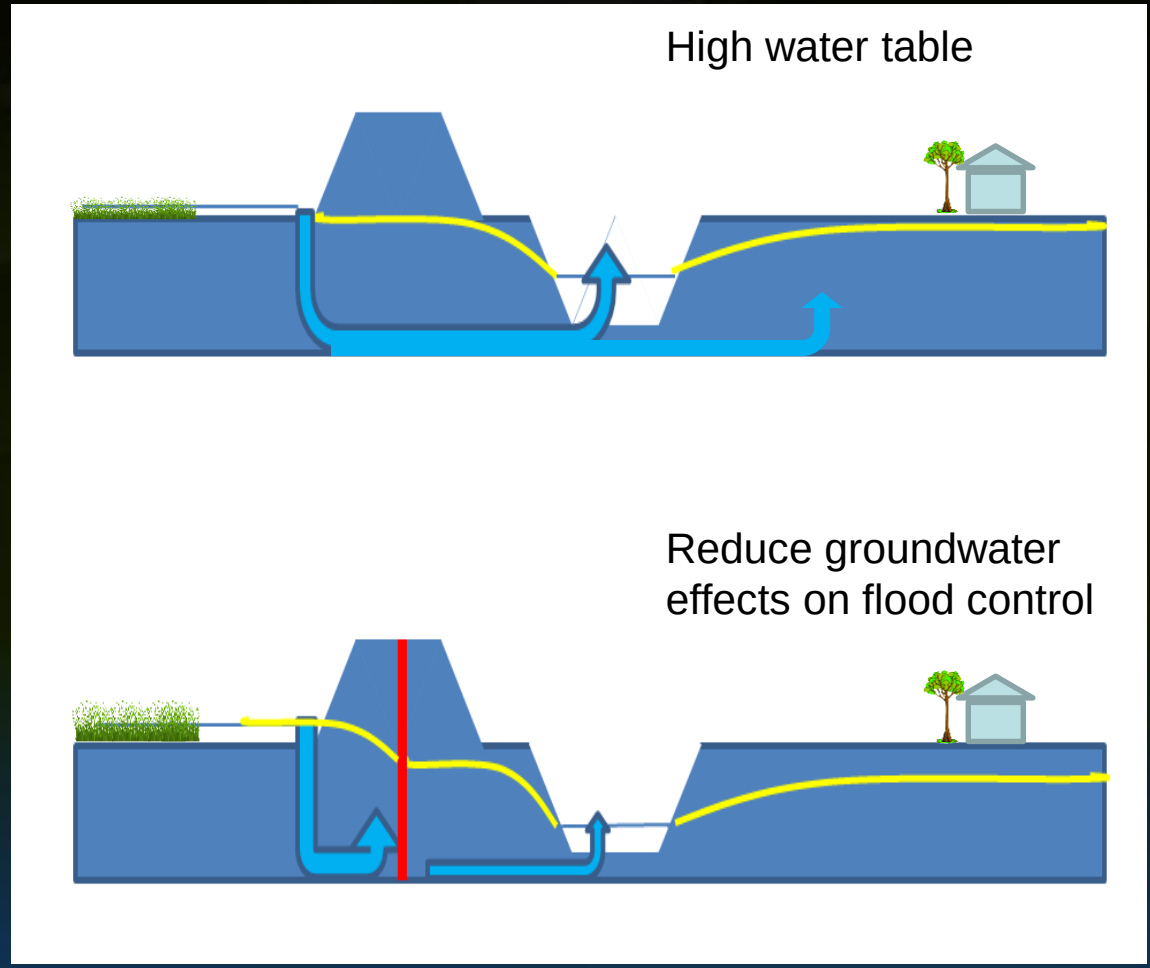
- COP able to achieve goal of restoration at ENP without making 8.5 SMA flooding worse at a regional scale.
- At a sub-regional scale, some areas got wetter with restoration while some got better
- With improved operations metrics looking at overland water were mostly satisfied however water table remained higher in some areas suggesting reduced groundwater storage
- Important note, COP evaluation was for L-29 elevation up to 8.3 feet NGVD raised to 8.5 feet NGVD for up to 90 days in a water year
- With full restoration and L-29 at 9.7 feet NGVD the considerations for 8.5 SMA will very likely become limiting

Poor Drainage



Curtain Wall - Part of Comprehensive Flood Control Strategy

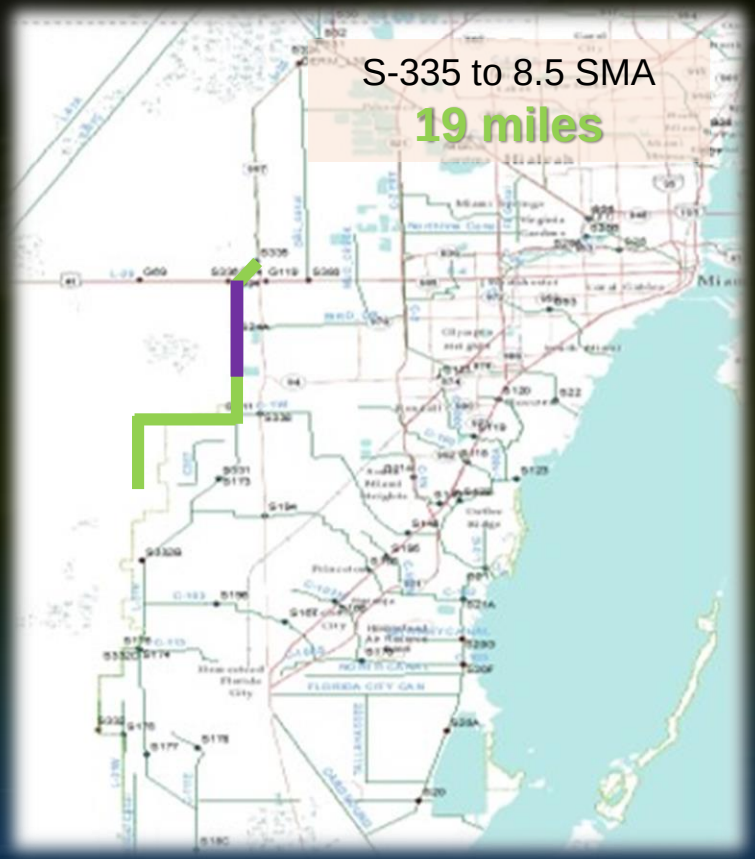
- In South Dade an important goal is to improve flood control in areas impacted by elevated water tables.
- The use of a less permeable material, placed in the flow path to help manage groundwater.



Curtain Wall Configurations

South: including portion of 8.5 SMA

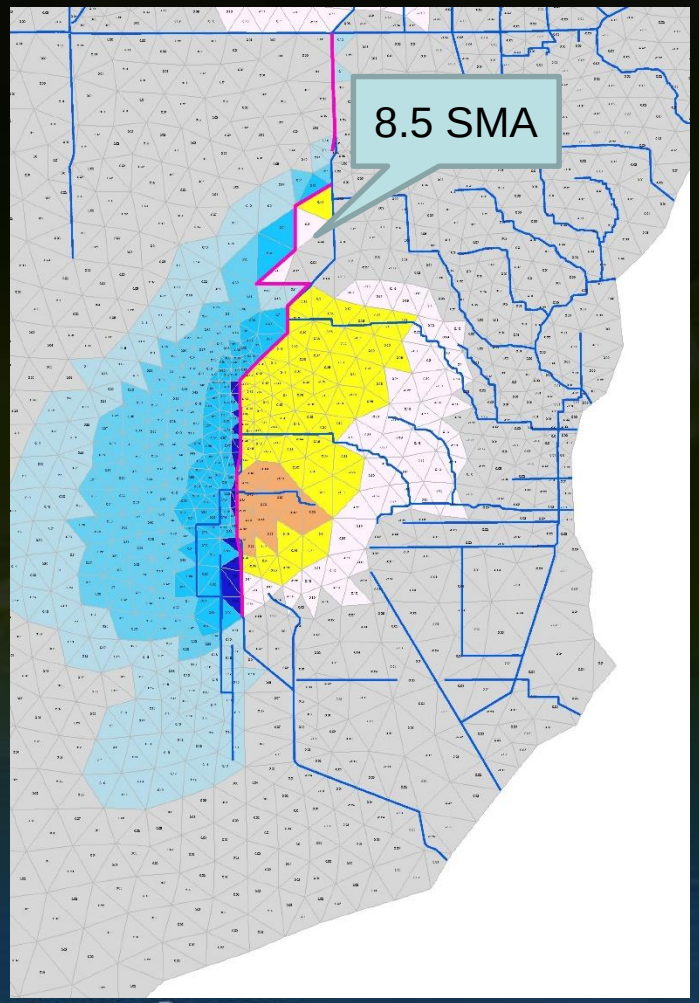
North: Stops after 8.5 SMA



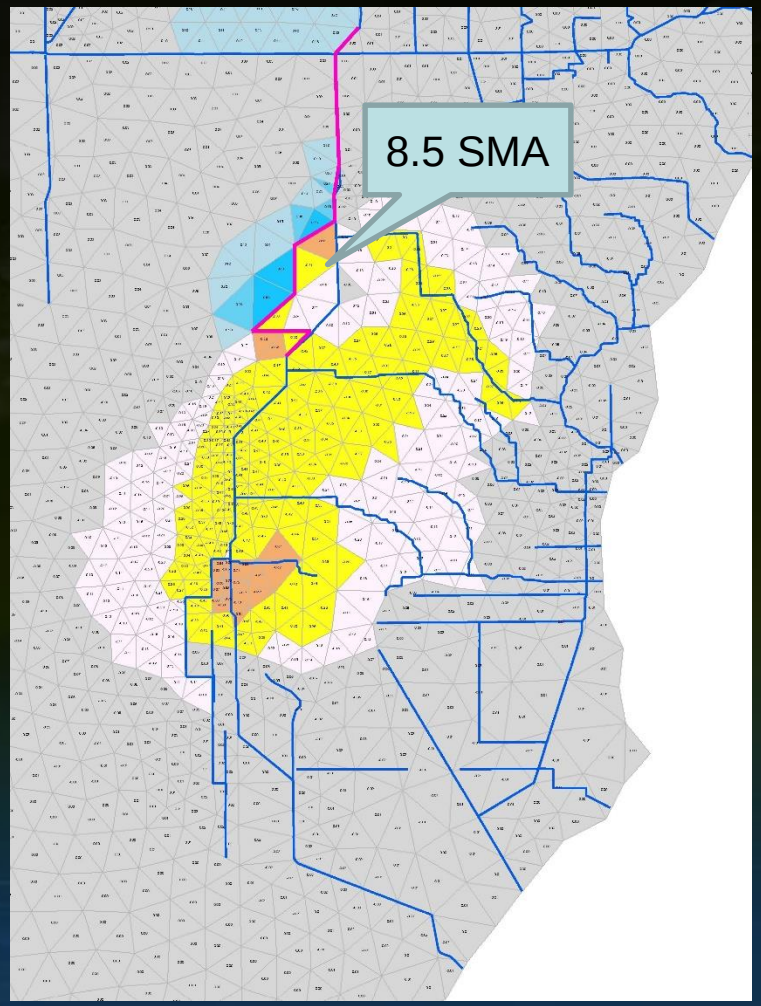
Full: Full extent

Difference maps – with and without curtain wall (Early to Mid Dry Season)

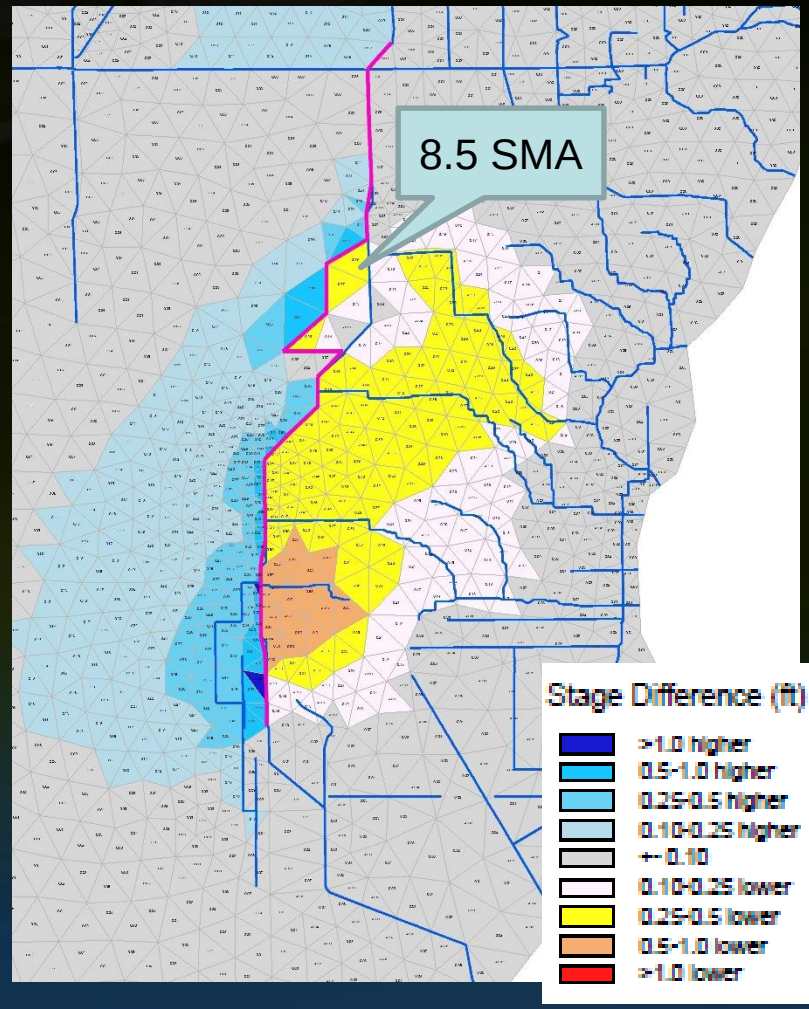
South Wall Configuration



North Wall Configuration



Full Wall Configuration



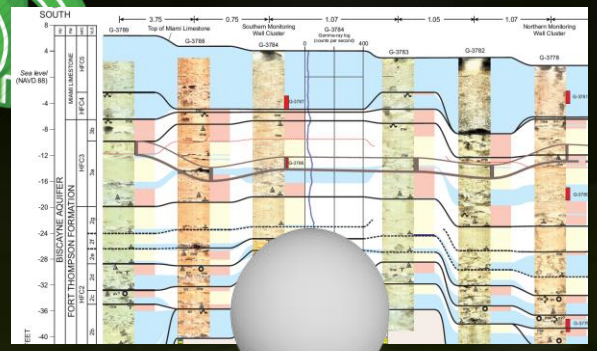
Summary of Average Annual Simulated Overland Flow (k ac-ft)

	No Wall	South Wall	North Wall	Full Wall
Shark River Slough	833	890	873	884
Wet Season (Jun-Oct)	466	501	486	491
Dry Season (Nov-May)	367	389	387	393
Taylor Slough	85	109	82	99
Wet Season (Jun-Oct)	61	74	59	69
Dry Season (Nov-May)	24	35	23	30
Biscayne Bay	927	874	897	889
North Bay	561	534	571	570
Central Bay	120	114	121	121
South Bay	246	226	205	198

Key Findings

- South Wall configuration shows the potential of a well designed curtain wall to improve flood protection to the residential and agricultural lands in South Dade without adversely impacting conditions in Everglades National Park.
- Assessment of flows to Biscayne Bay highlight the importance of ongoing efforts to send more flows to the Bay now and as restoration projects continue
- Flood control with passive curtain walls must be paired with operations to ensure desirable flows continue to Biscayne Bay and for Water Supply
- Design of curtain wall and operations that allow some flows through S-331 South will improve flows through Taylor Slough to eastern Florida Bay.

Current Fiscal Year Initiative



- We have funding from GB to move the effort forward this year
- Expediting an effort to secure detailed hydrogeology of possible alignment to fill some data gaps, which will help improve our modeling and reduce uncertainty estimating cost
- Initiation of public process that will bring in multiple stakeholder and partner groups to address outstanding issues (precursors to initiating design)
  - Directly address identified concern of risk to Biscayne Bay
  - More rigorously examine saltwater intrusion and sea level rise
  - Finalize technical details like length and depth of curtain wall, location and size of gaps in the curtain wall, etc.
  - Determine sequence and other strategies for implementation, and
  - Identify construction funding opportunities and partnerships

Questions

Thank you

Photo credits - Bill Baker (MacVicar Consulting INC>) - MDPLA Seepage Project