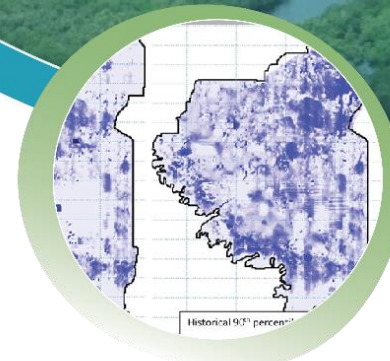
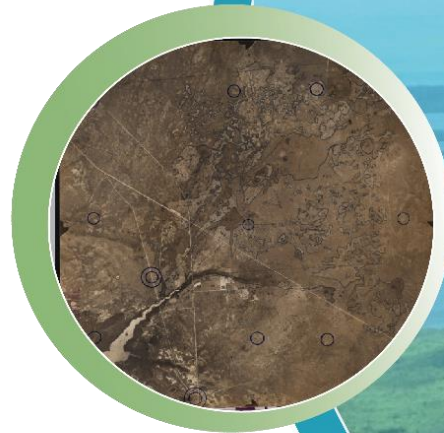




Collier County Comprehensive Watershed Improvements Plan

Project Team:

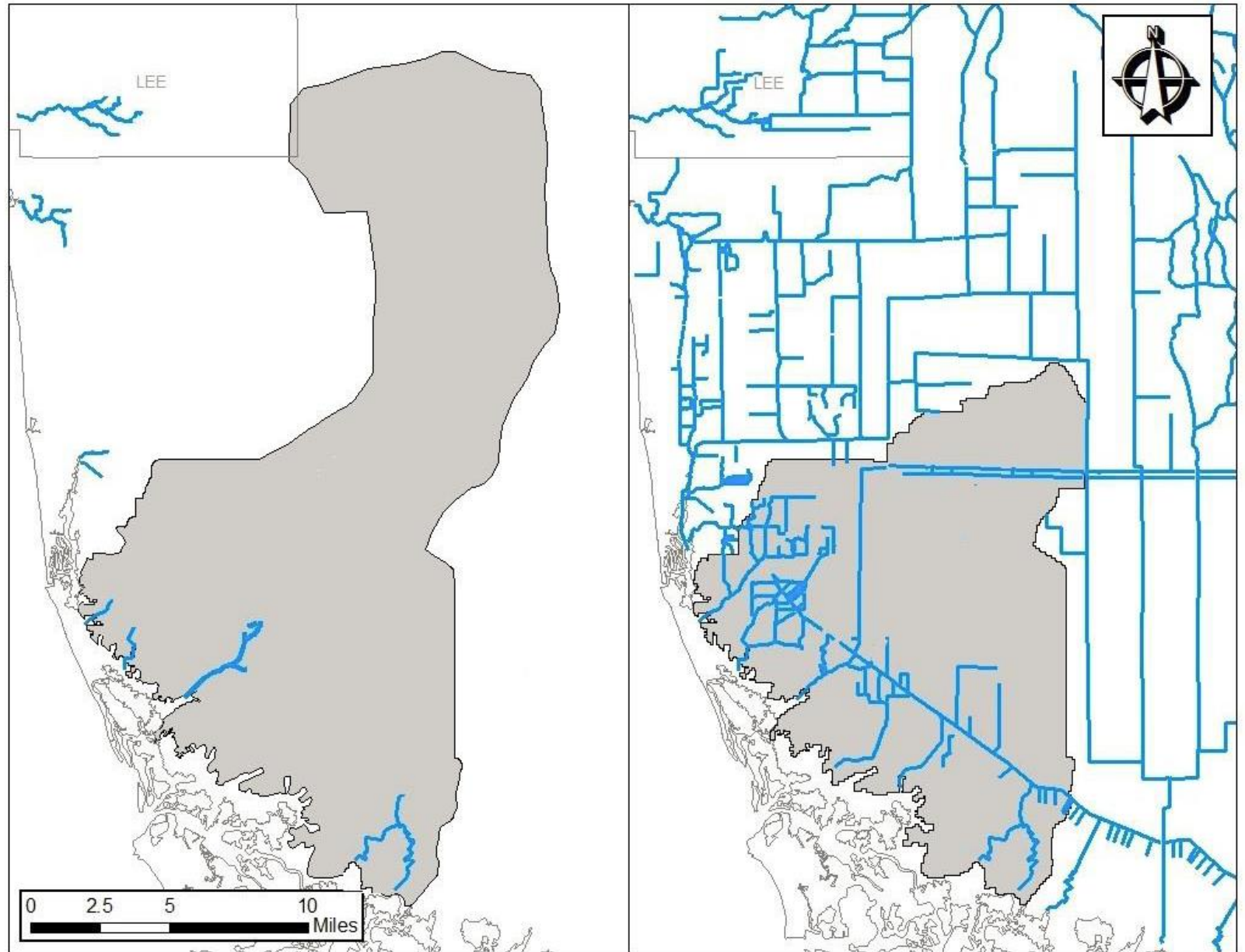
- John Loper, Taylor Engineering
- Gary McAlpin, Collier County
- Jeremy Sterk, Earth Tech Environmental
- David Stites, Taylor Engineering
- Jenna Phillips, Taylor Engineering



Need for Project

Approximately 80 sq. miles of Rookery Bay Watershed diverted to Naples Bay

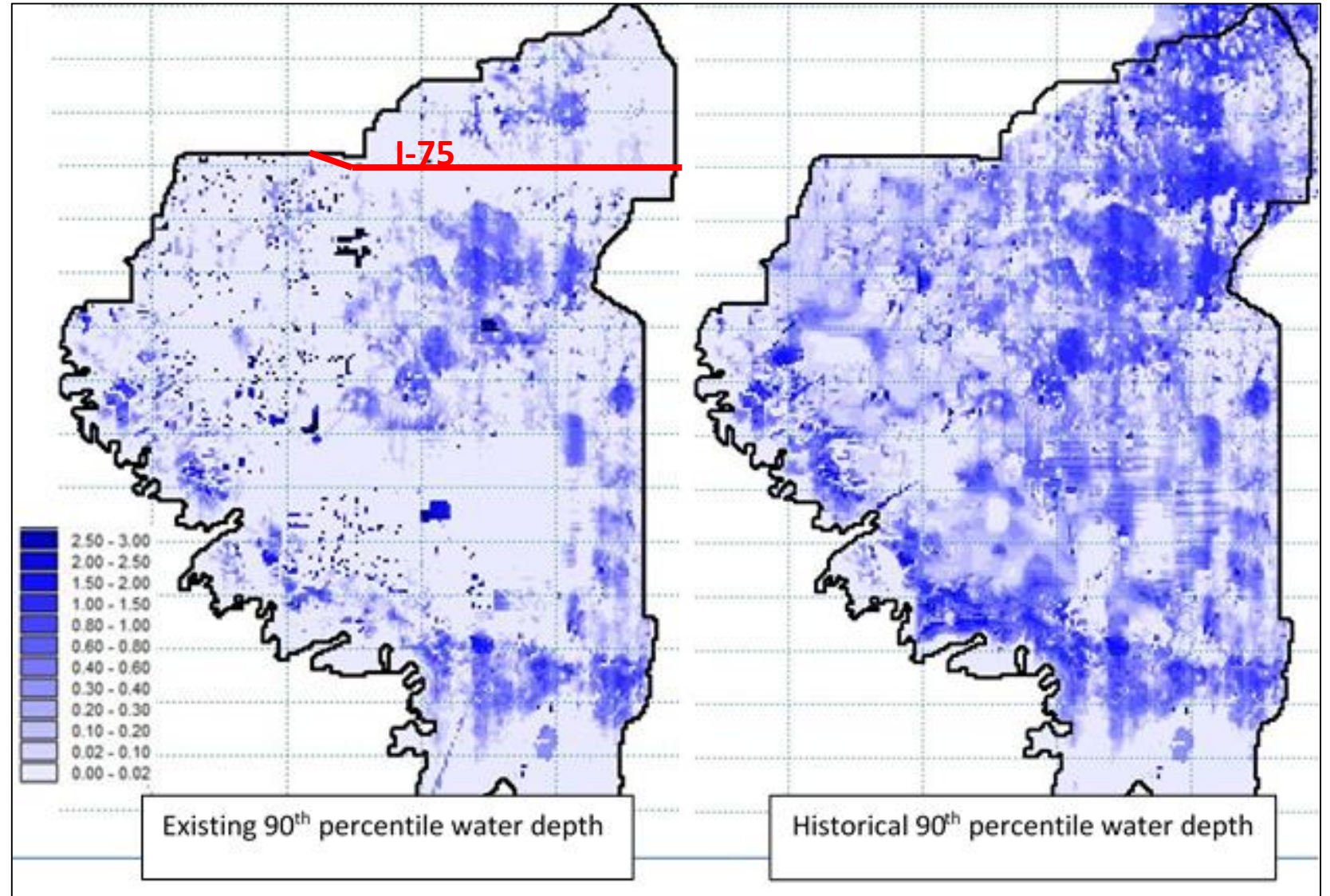
- Naples Bay receives too much fresh water via GGC
- Impacts to aquatic habitat (e.g., seagrass, oysters)



From Interflow Engineering Inc. and Taylor Engineering (2014)

Need for Project

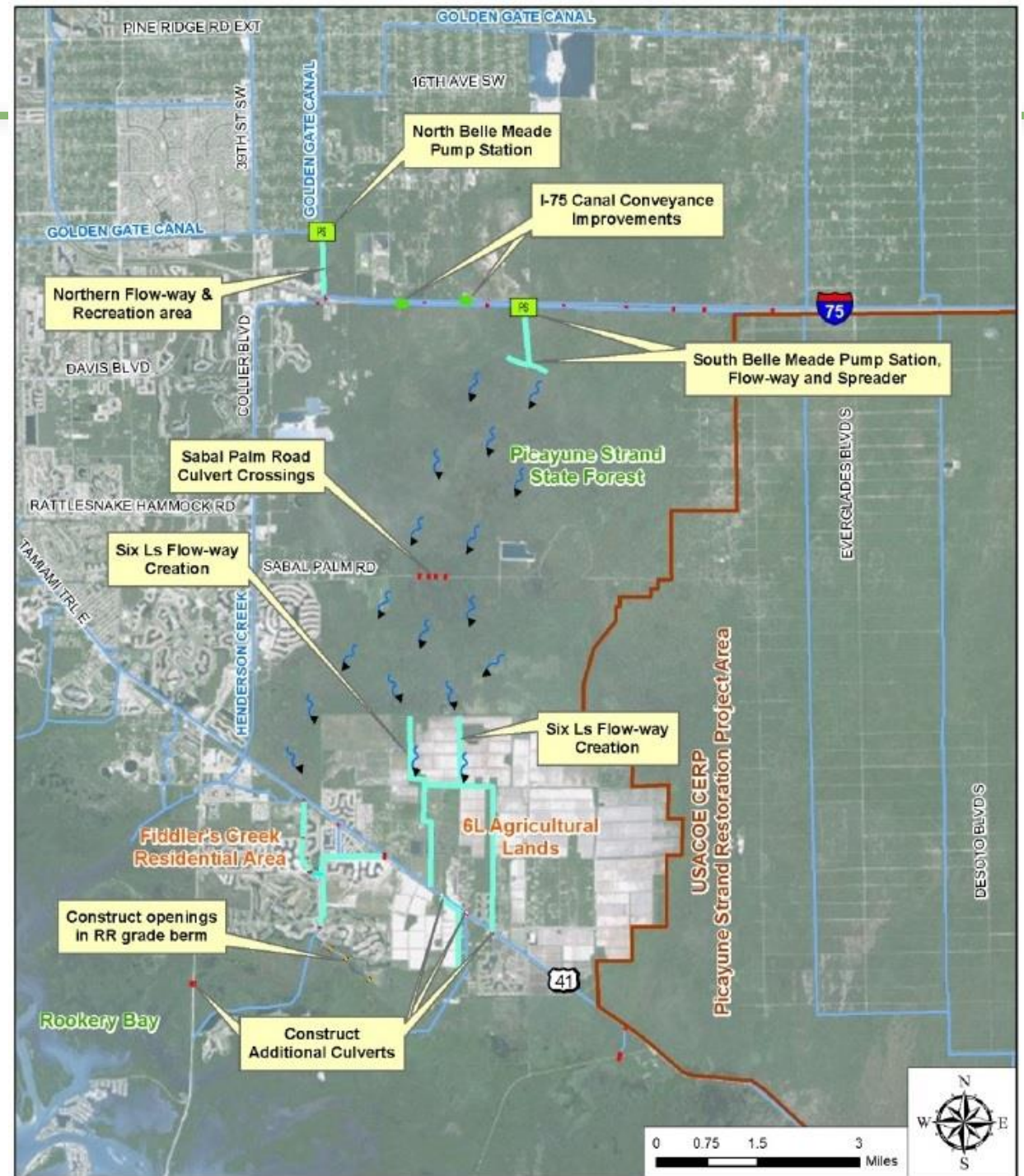
- Historically, the Belle Meade Flow-Way was much wetter than it is today
- Coastal areas in eastern portions of Rookery Bay have freshwater deficits



Proposed Project

- Divert up to 100 CFS from Golden Gate Canal when sufficient excess water is available:
 - 2 pump stations,
 - I-75 canal improvements
 - 2 linear flow ways and 1 spreader
- Sheet flow through western PSRP (a.k.a. Belle Meade Flow-Way)
- Increases in ET and percolation
- Flow accommodations through and around 6Ls Agricultural Area, and into coastal fringes/eastern Rookery Bay

Source: Atkins, 2016



Project Benefits

From Atkins, 2016:

- **Naples Bay**
 - Changes in salinity regimes create positive conditions for habitat development
 - Expected water quality benefits associated with nutrient load reductions
 - Turbidity reductions
- **Picayune Strand State Forest**
 - Increase water depth and hydro-periods to previously impacted wetlands, without altering species composition
 - Benefit to ca. 10,000 acres of mostly cypress and hydric flatwoods
- **Rookery Bay**
 - Restore freshwater inflows from forest to Rookery Bay
 - Sufficient combination of water storage and sheet flow to maintain water quality of current watershed

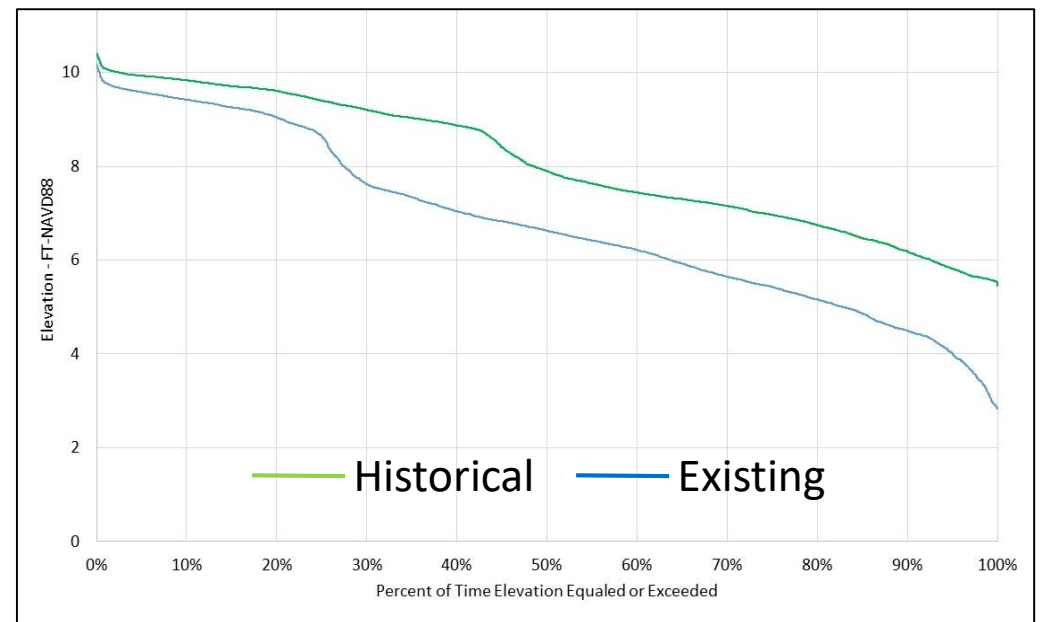
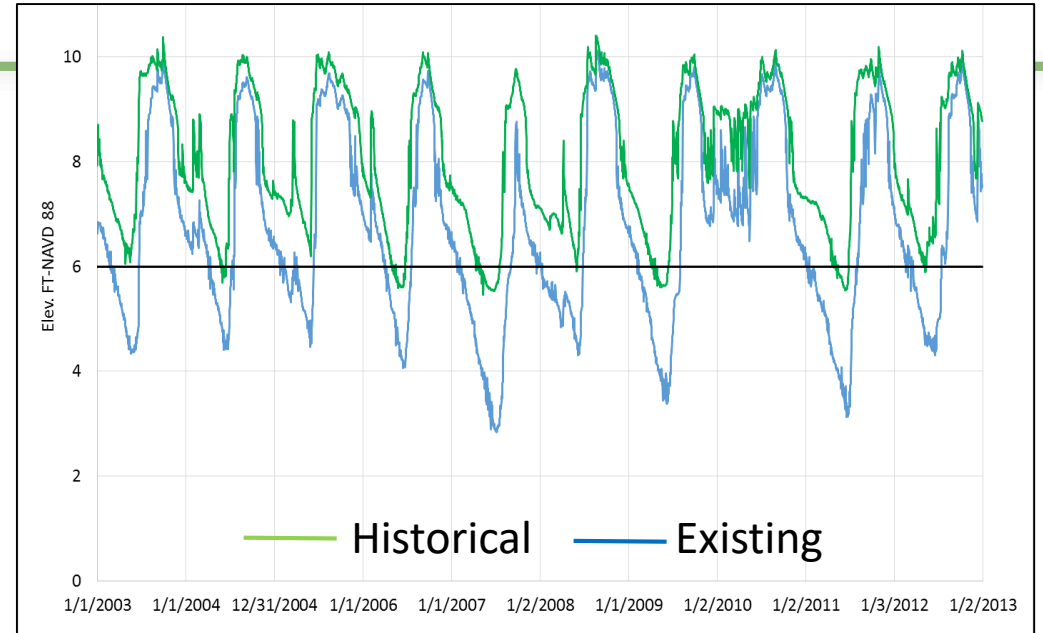
Activities Underway and Planned

- Monitoring and Mapping
 - Groundwater elevations
 - Water quality
 - Vegetation
- Agency Coordination
 - FDEP, SFWMD, FFS, FFWCC
 - USACE, USFWS, NMFS, EPA
- Modeling and Analysis
 - Surface Water / Groundwater
 - Water Quality
- Preliminary Design
- Permitting – Conceptual ERP



Modeling

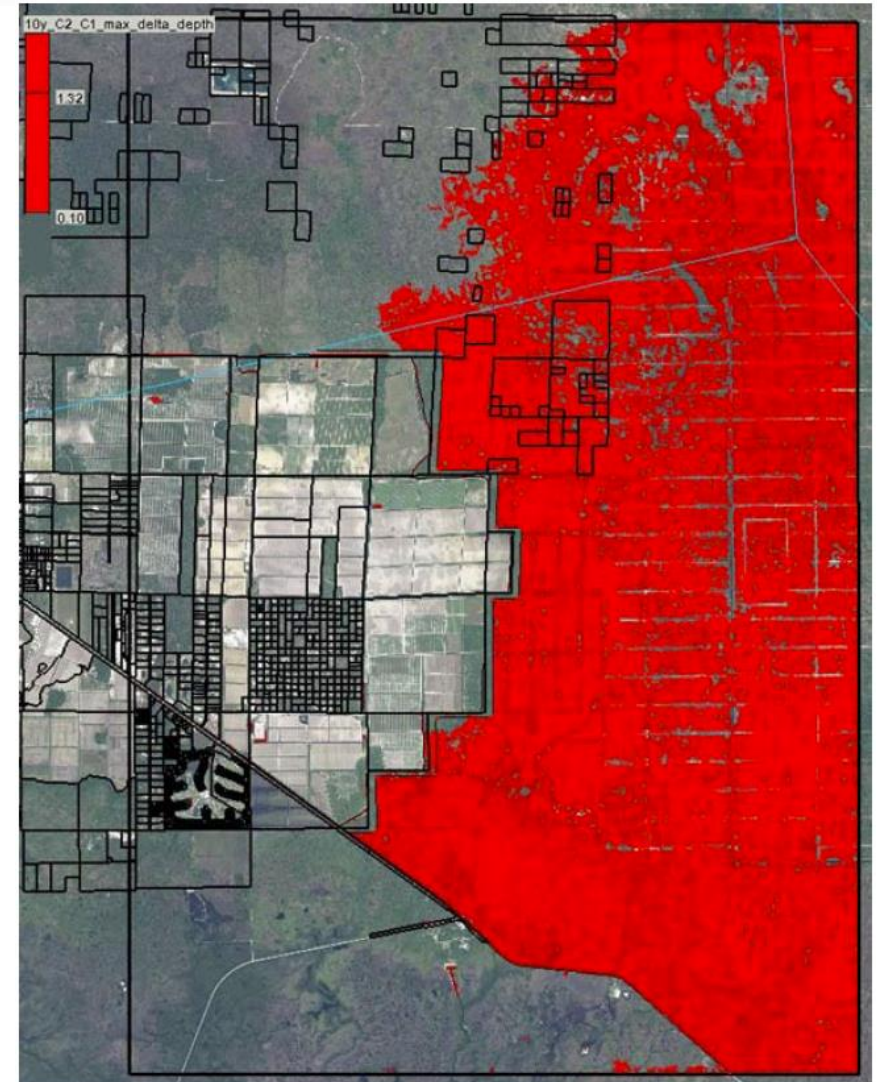
- County's BCB MIKE SHE integrated GW/SW model will be updated in light of new monitoring and mapping data
 - Groundwater Levels (pre and post)
 - Vegetation/habitat mapping
- Will use updated model to refine findings from previous studies:
 - Rookery Bay freshwater deficits
 - Projected changes in wetland hydroperiods
 - Possible effects on vegetation
 - Possible effects on listed species



North Belle Meade Flow-Way GW Level Comparison

Modeling – PSRP Project

- Coordination with BCB/USACE related to on-going GSSHA modeling of PSRP
 - Coordinate with BCB staff, SFWMD HESM, and USACE
 - Ensure no impacts to federal project



GSSHA Partial Results (PRELIMINARY)

Issues to be Addressed

- Water Quality:
 - Nutrient levels in GGC (higher than in Rookery Bay)
 - FDEP WQ Impairment status of Rookery Bay
- Water Quantity
 - Protection of existing water users, Golden Gate Canal
 - Securing FDOT cooperation for improvements within their ROW
 - Cooperation with USACE – adjacent PSRP project
 - Avoidance of adverse impacts to private property and public infrastructure
- Habitat
 - Projected changes in vegetation
 - Protection of listed species (e.g., RCW, FL Panther)
 - Control of, or reduction in, exotic / invasive plant species



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THANK YOU
Questions?