SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE

LEADERSHIP · PARTNERSHIP · RESULTS

Groundwater Exchange Monitoring and Modeling (GEMM)

An Interagency Research Proposal for Central Florida Bay

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WG/SCG MEETING, WEST PALM BEACH, JUNE 20, 2019

Groundwater Exchange Monitoring and Modeling (GEMM) Plan for Central Florida Bay

v.8.4

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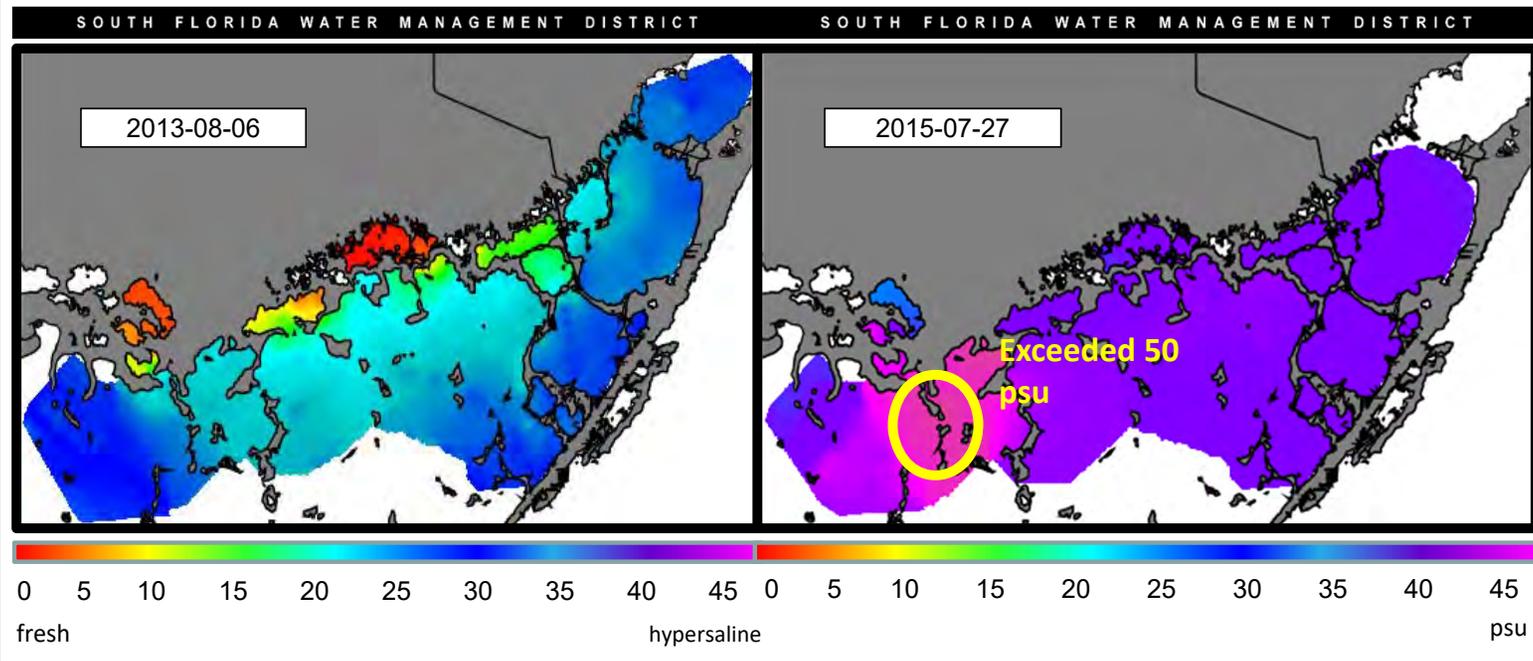
Walter Wilcox, Modeling Technical Lead
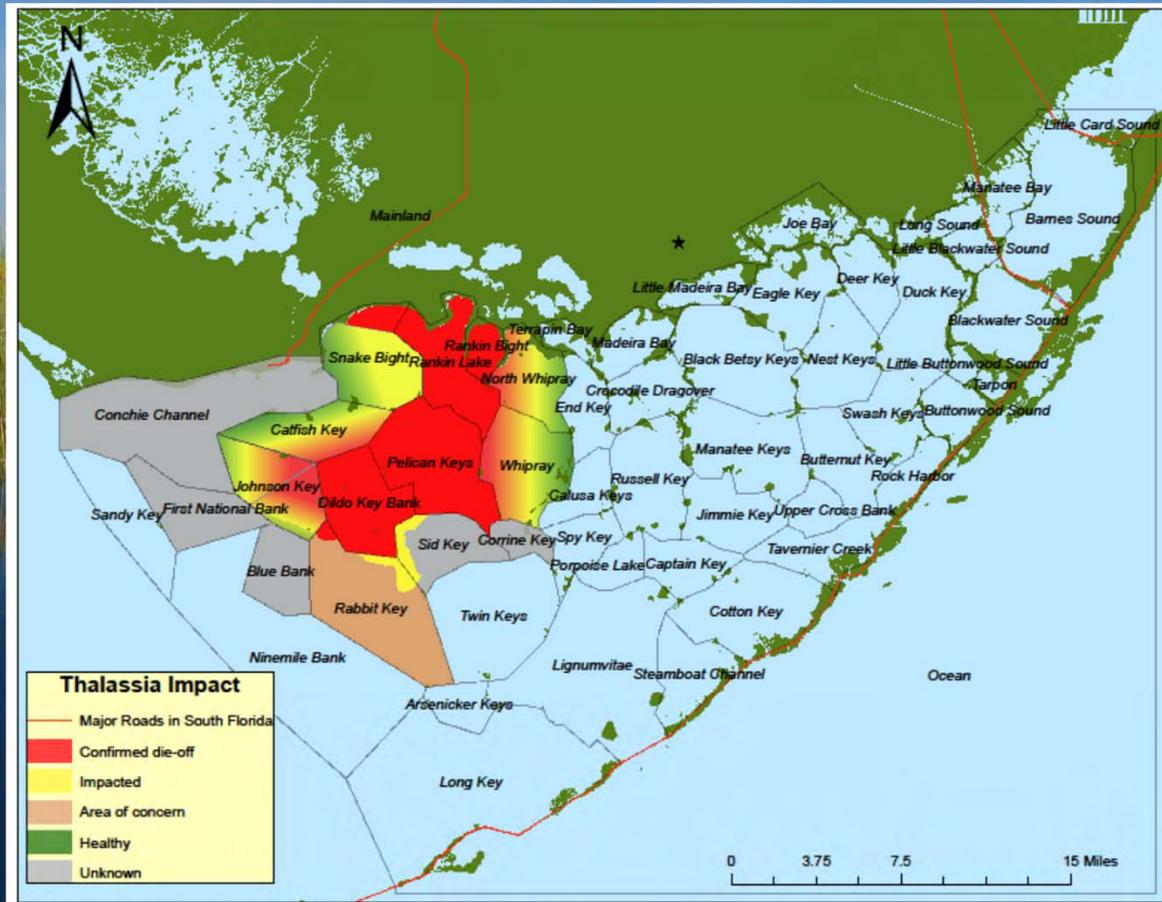
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Salinity in Florida Bay

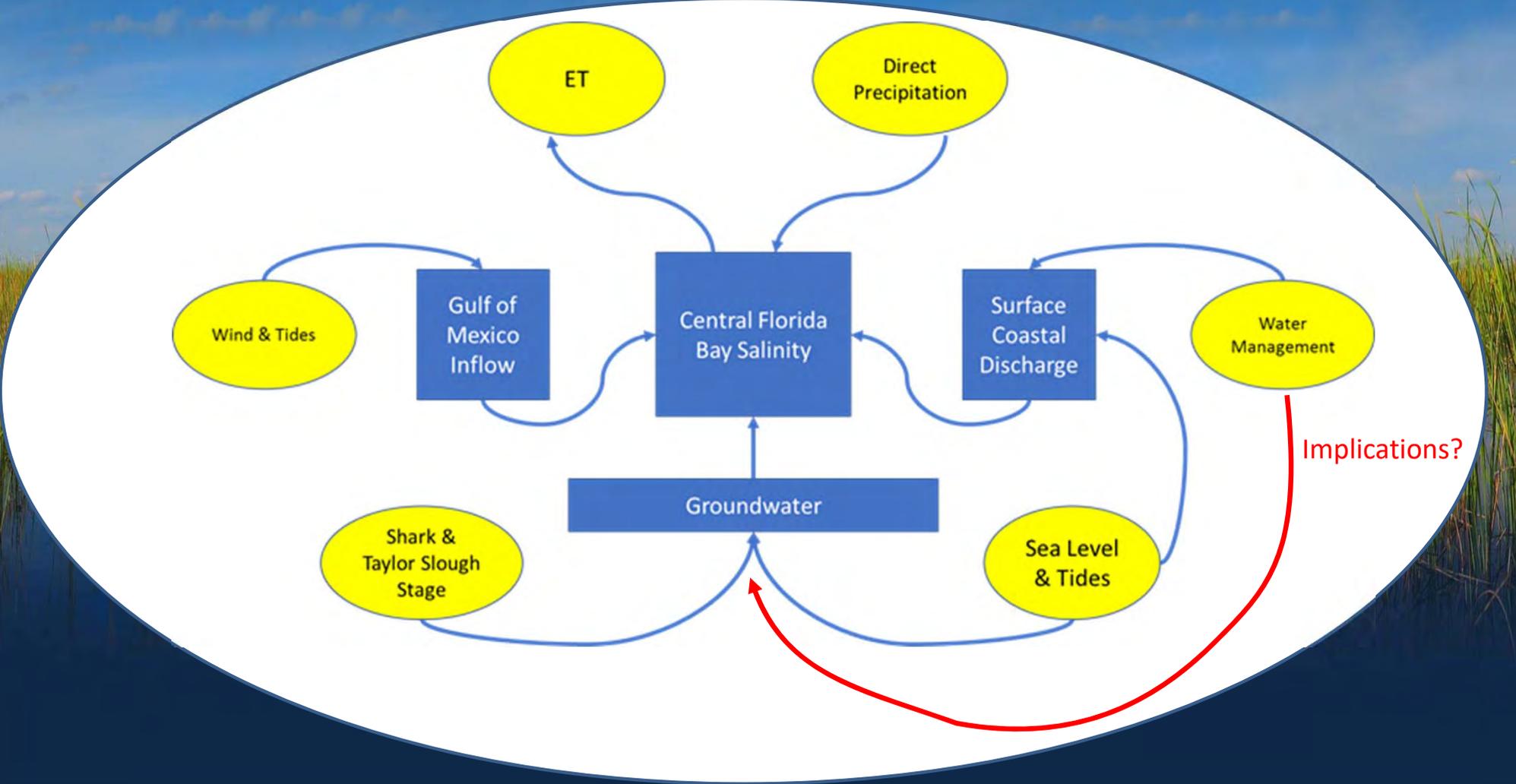

Salinity Contours during a typical wet season: Aug 2013

Salinity Contours at the start of die-off: July 2015

# Estimated *Thalassia* Die-off Area (Jan. 2015)

Basic Question: Can better management of GW (and SW) help mitigate for hypersalinity?

GEMM v8.4

| Task	Description
Task 1	Florida Bay Hydrology Workshop (STOP-GO for Task 2-5)
Task 2	GIS Compilation This compilation will bring together all the data needed to help answer the questions that a groundwater monitoring and modeling program will need to address.
Task 3	Electromagnetic Survey
Task 4	Ecological component: Vegetation mapping, aerial photography, sediment depths/soil analysis, extent of peat collapse
Task 5	Phase 1 Model Development and Data Synthesis. (STOP-GO for Task 6)
Task 6	Implementation of a SW-GW Connectivity Monitoring Network
Task 7	Phase 2 Modeling and Synthesis. Evaluate management options to reduce hypersaline conditions in central Florida Bay.
Task 8	Adaptive Management and O&M: Data reporting, model calibration, and review of management options
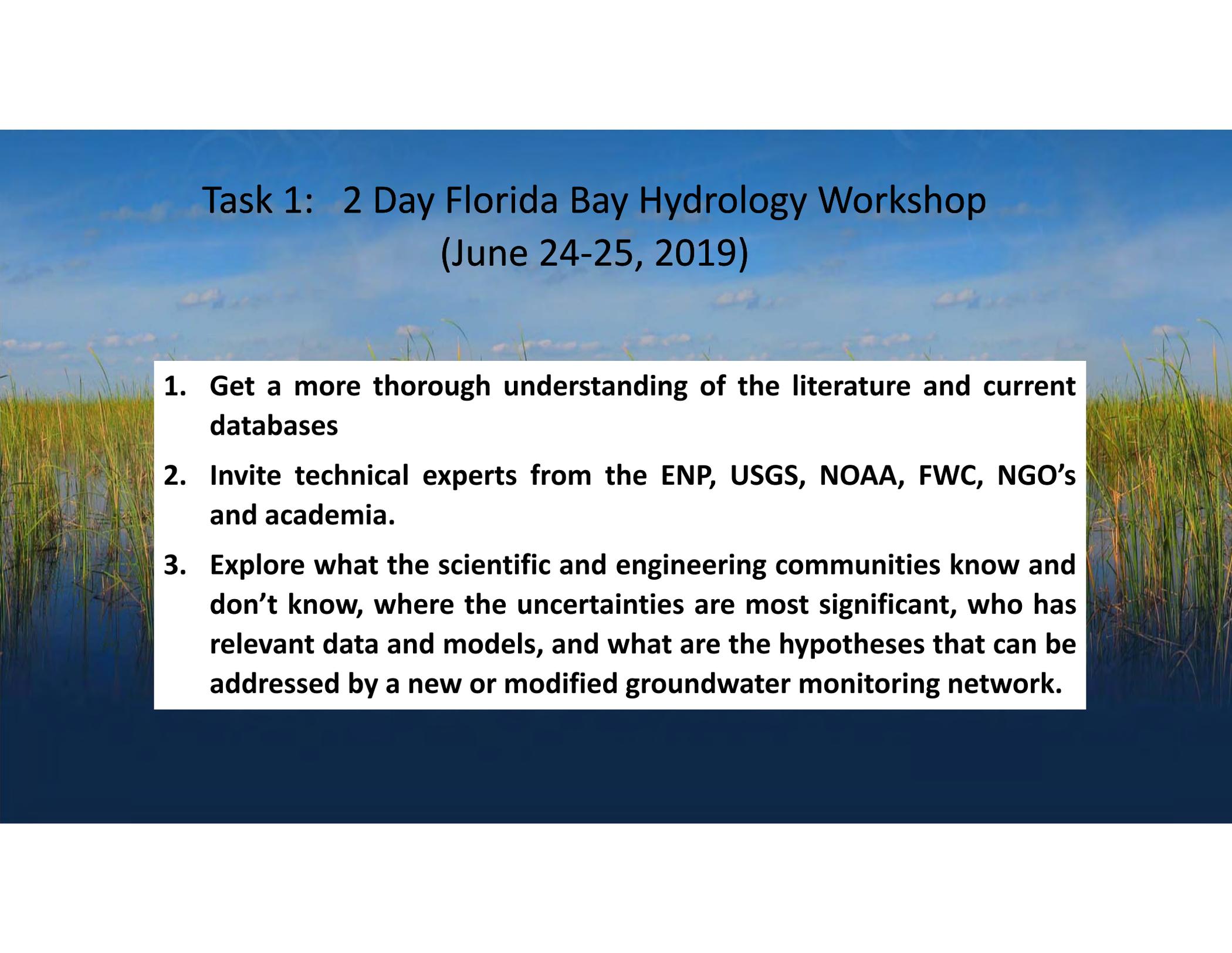
# Task 1:   2 Day Florida Bay Hydrology Workshop
(June 24-25, 2019)

1. Get a more thorough understanding of the literature and current databases

2. Invite technical experts from the ENP, USGS, NOAA, FWC, NGO's and academia.

3. Explore what the scientific and engineering communities know and don't know, where the uncertainties are most significant, who has relevant data and models, and what are the hypotheses that can be addressed by a new or modified groundwater monitoring network.

Task 3: Electromagnetic Surveys

Resistivity-depth-slice map from Everglades National Park from 1994 for depths of 10 m super imposed with existing offshore groundwater wells from the USGS and FIU (Fitterman and Deszcz,1999).
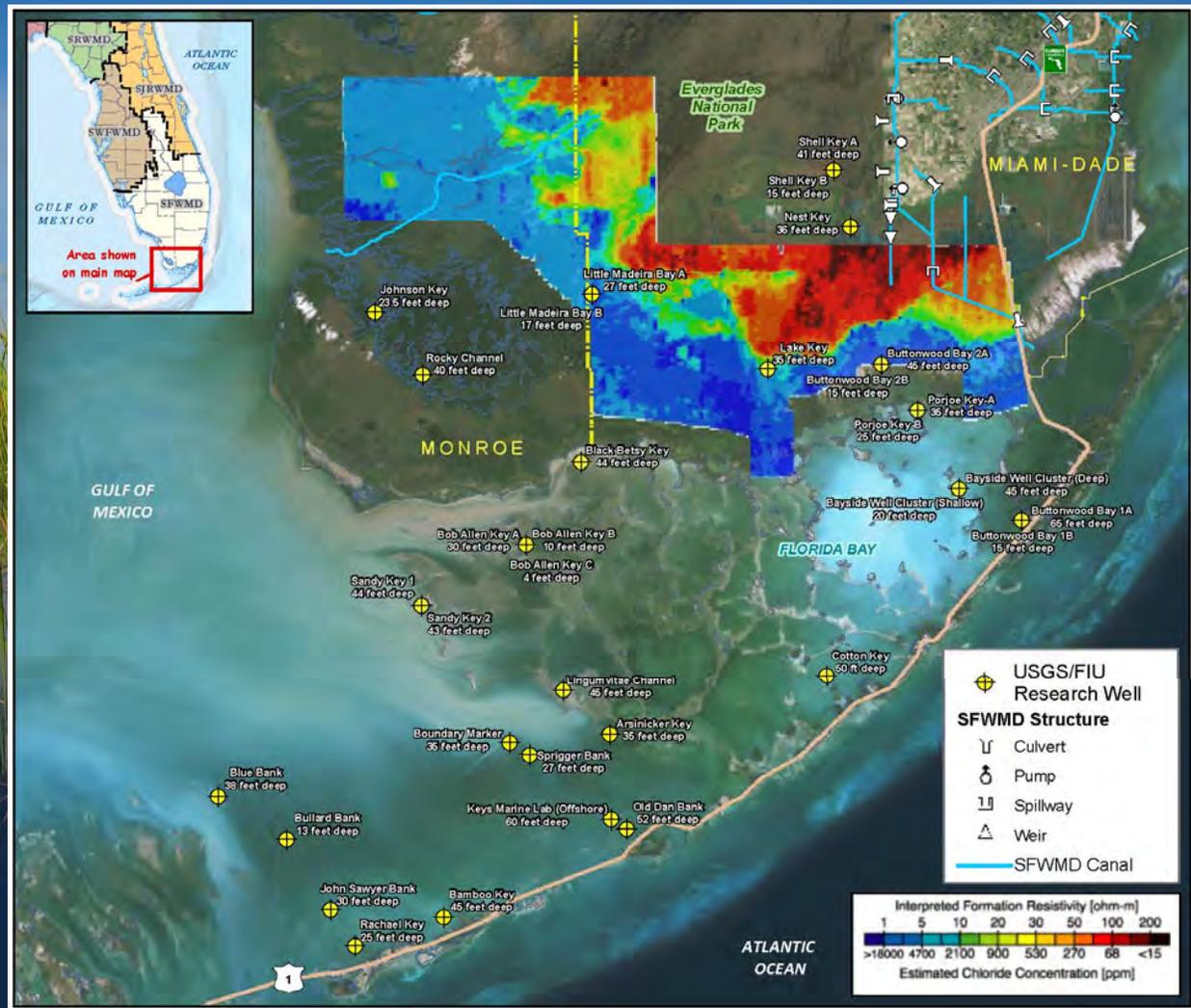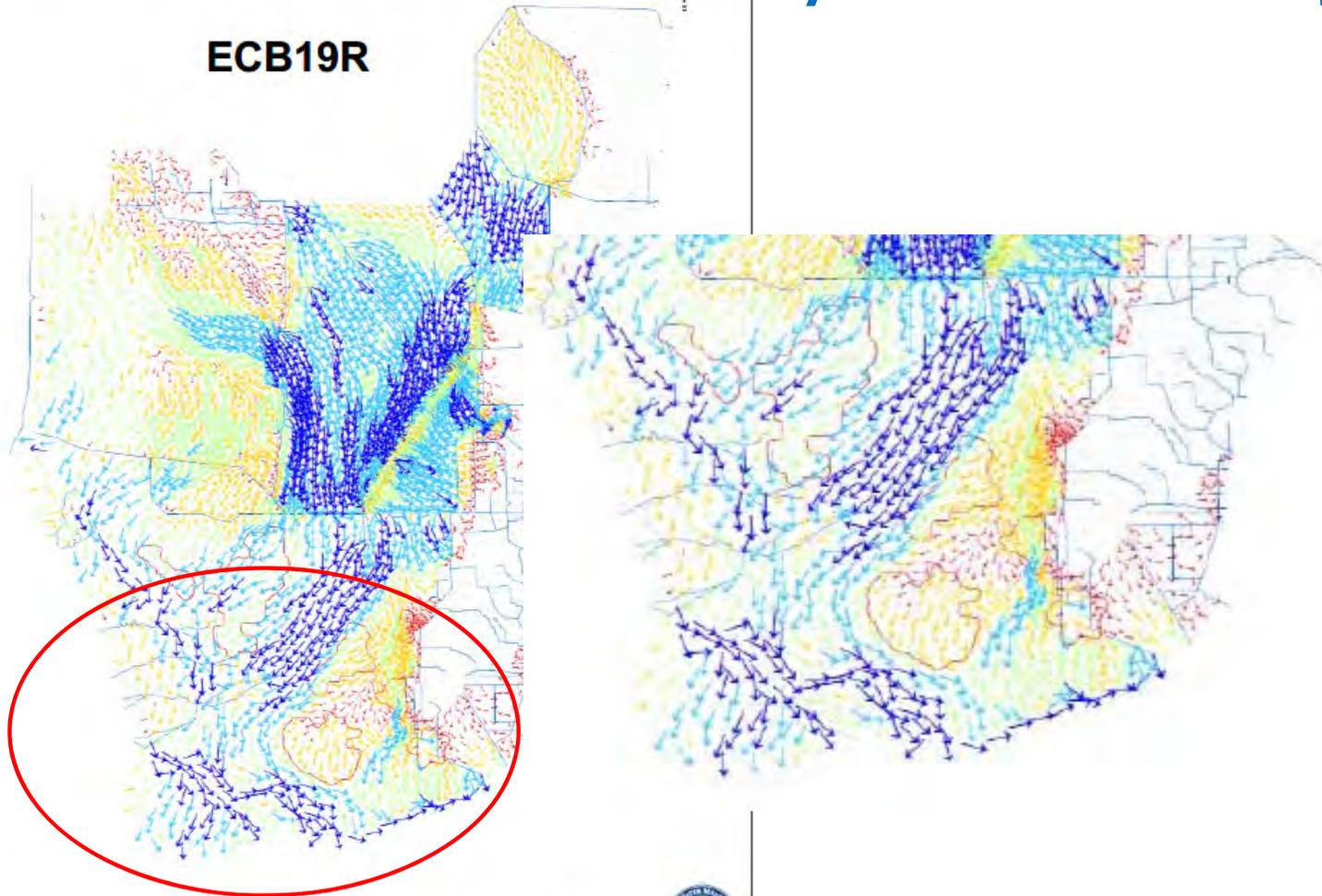
Task 5: Phase 1 Modeling
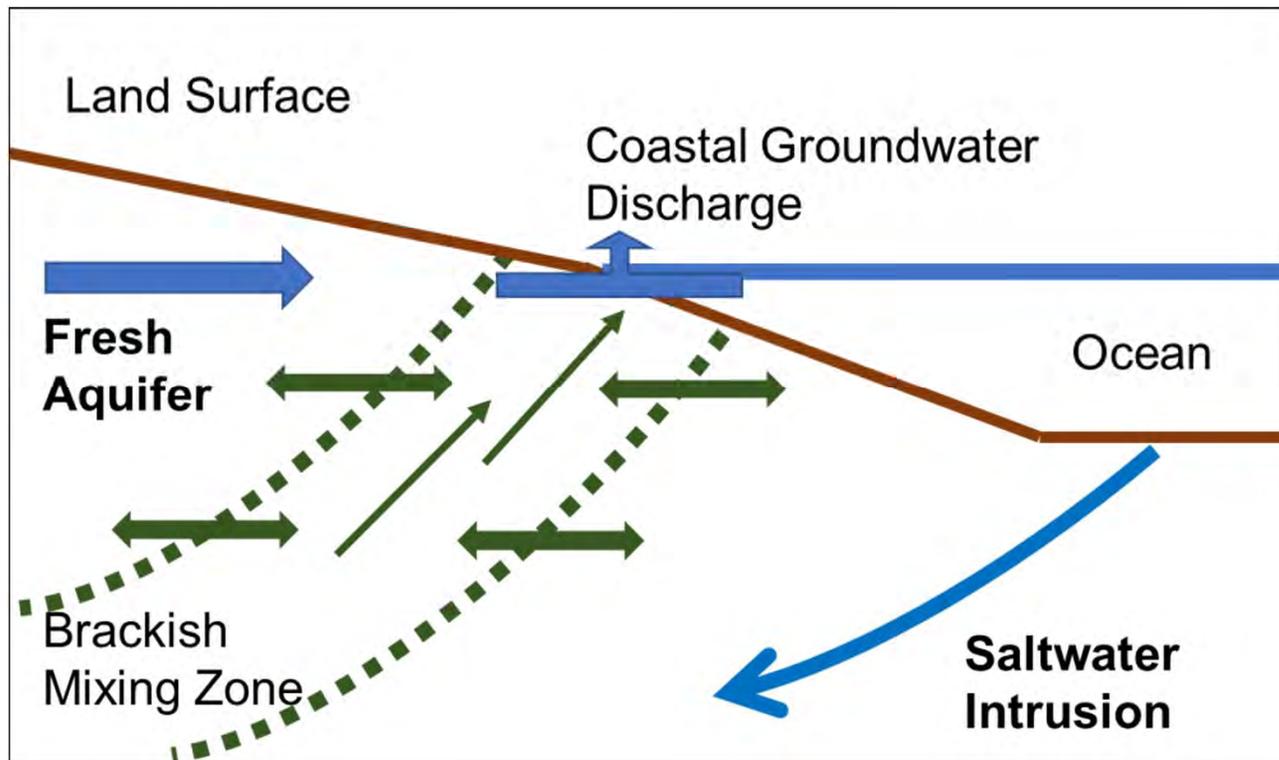
The District will expand and calibrate the RSM-GL into the mangrove zones. Task 5 Tools and Models will be used to decide if a new GW Monitoring network is needed (STOP-GO Point for Task 6).
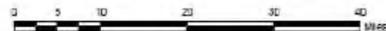
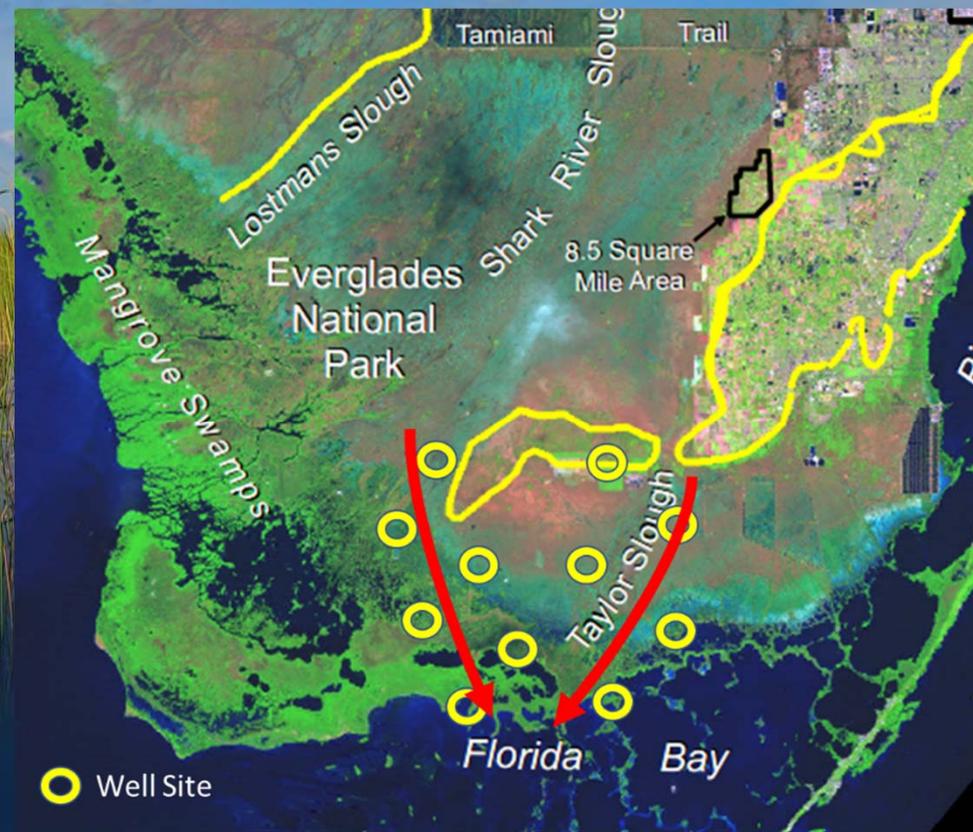Average Annual Overland Vector in POS
1965-2005

ECB19R

Task 5: First-order Synthesis and Modeling

Task 6: Implementation of a Groundwater – Surface Water Connectivity Monitoring Network

1. Use the expanded RSM-GL model and existing monitoring data to expand the monitoring network

2. Workshop #2 -- Explore options for monitoring designs and develop criteria for site selection.

3. Contracts and permits for new wells.

Questions?