



**Ecological and Hydrological Response of the
Everglades to Restoration Flows**

sfwmd.gov

C-111 Spreader Canal Project

Christopher J. Madden

SFWMD

Applied Science

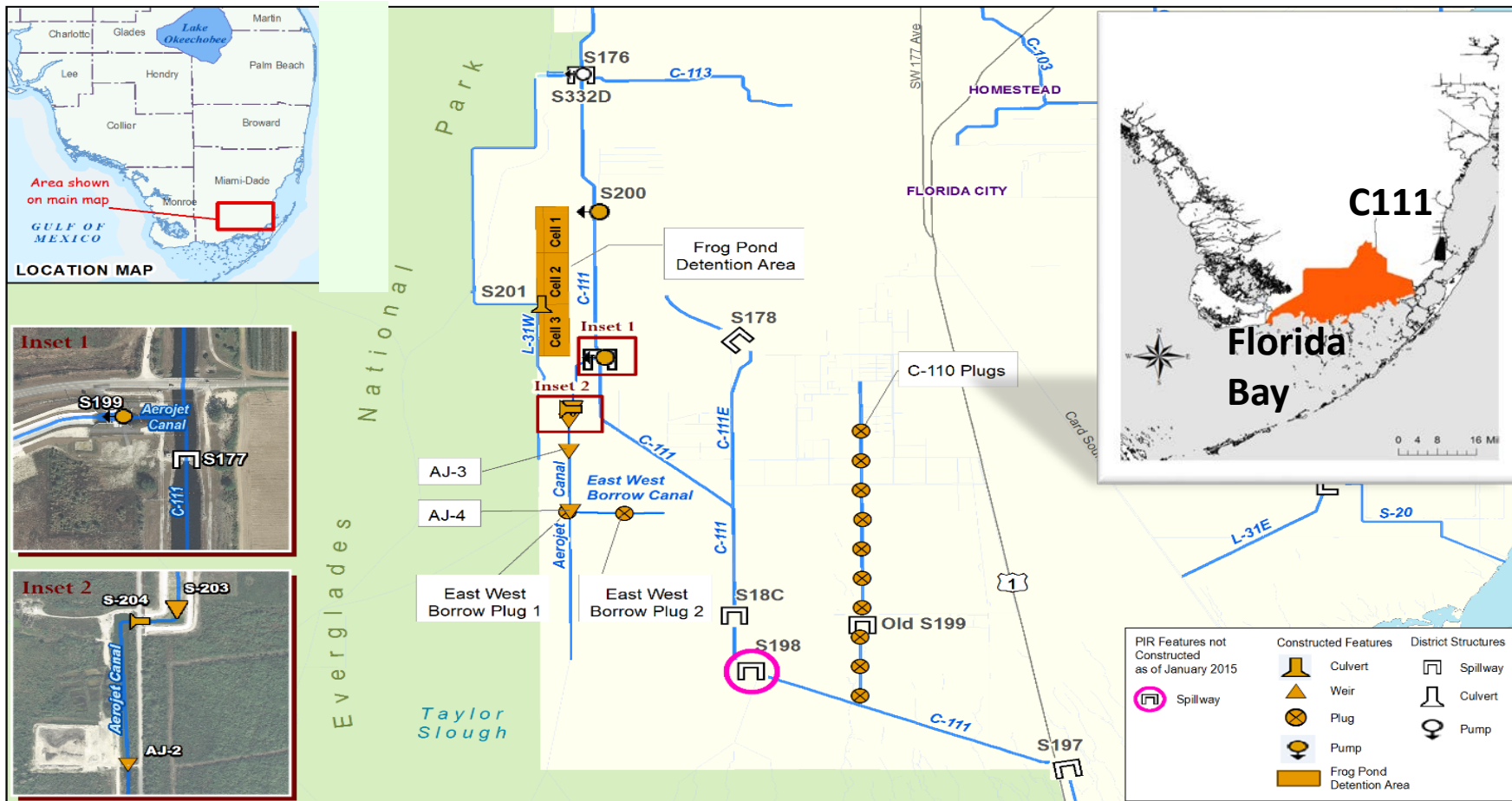
NCER

April 19, 2016

C-111 Project Objectives

- Improve hydroperiods and hydropatterns in the southern Everglades
- Restore the quantity, timing, and distribution of water delivered to Florida Bay via Taylor Slough
- Improve coastal zone salinities in Florida Bay
- Ecosystem to follow

C-111 Project Features

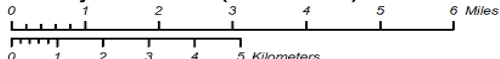


BASE CREDITS:
State plane projection, Florida east zone, NAD 83-HARN, US feet.

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P.O. Box 24680 - West Palm Beach, FL 33416-4680



C-111 Spreader Canal Western Project Features (Miami-Dade)

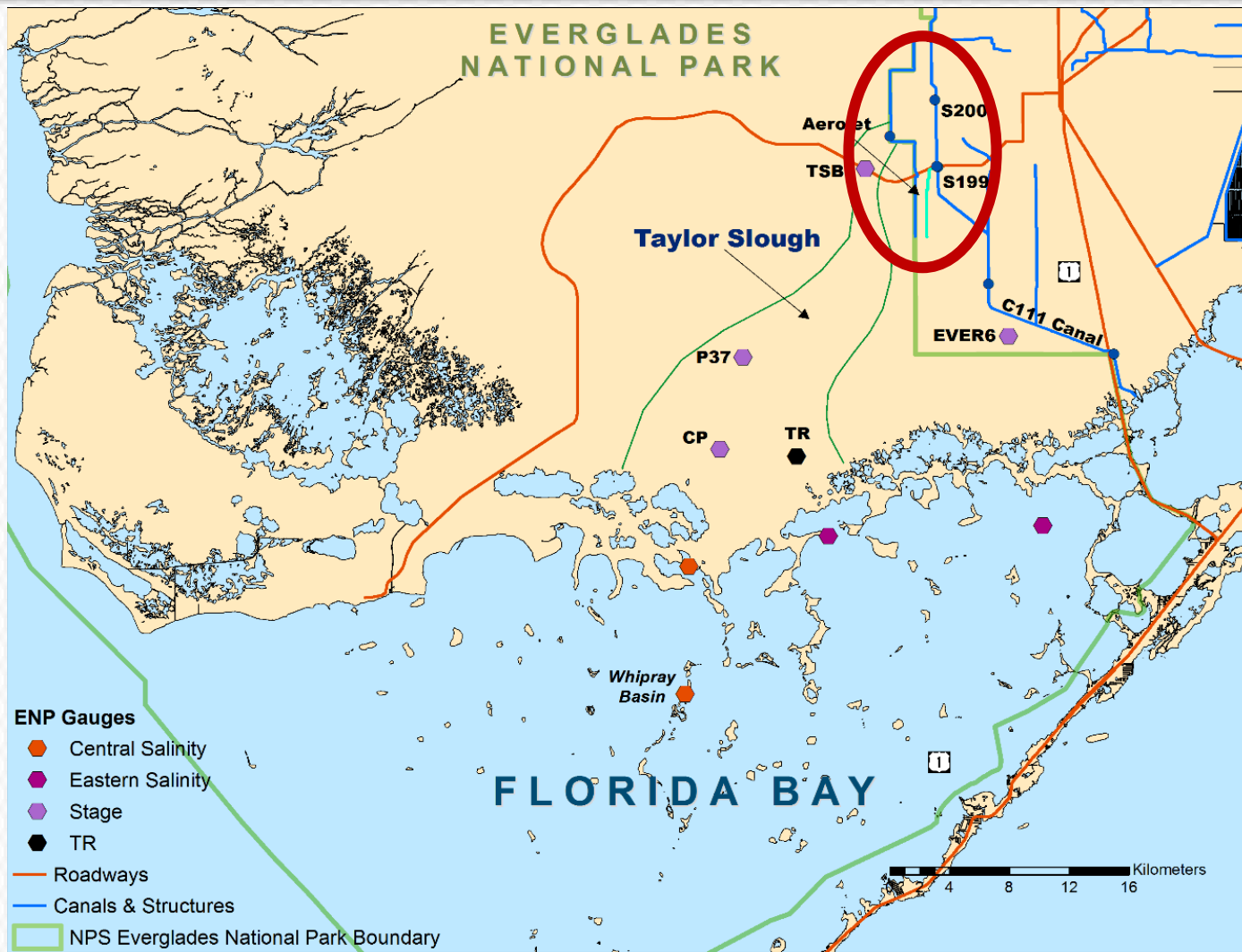


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July 2015

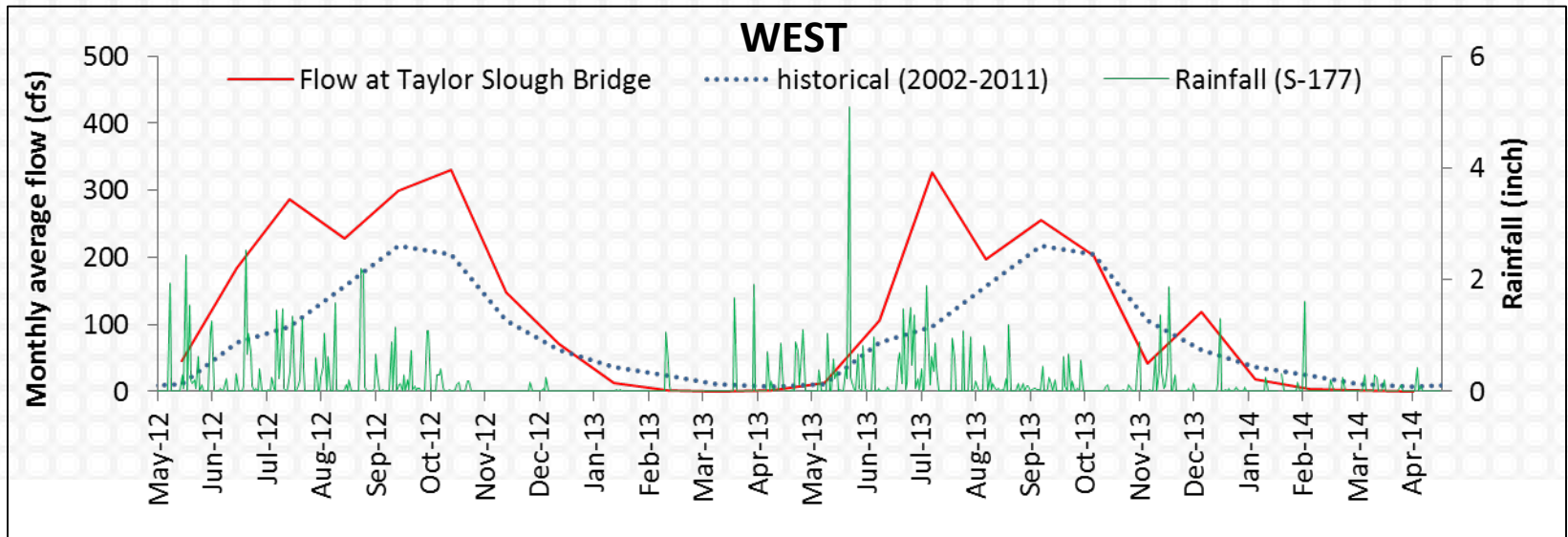
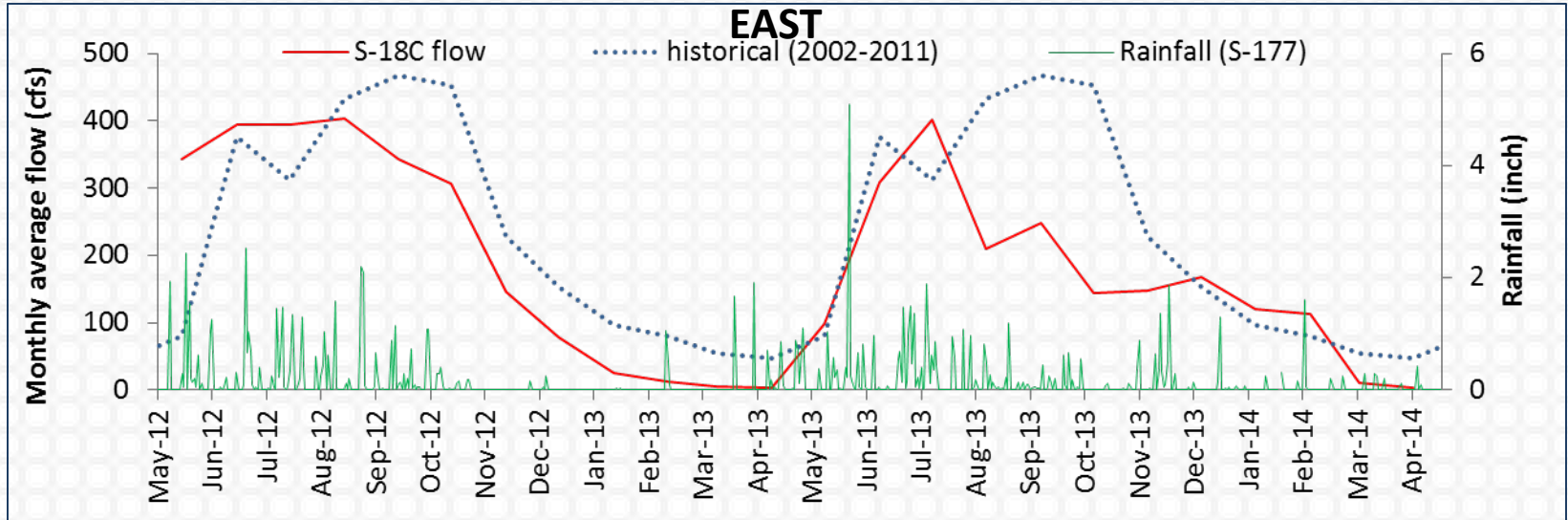


Project in Relation to Florida Bay



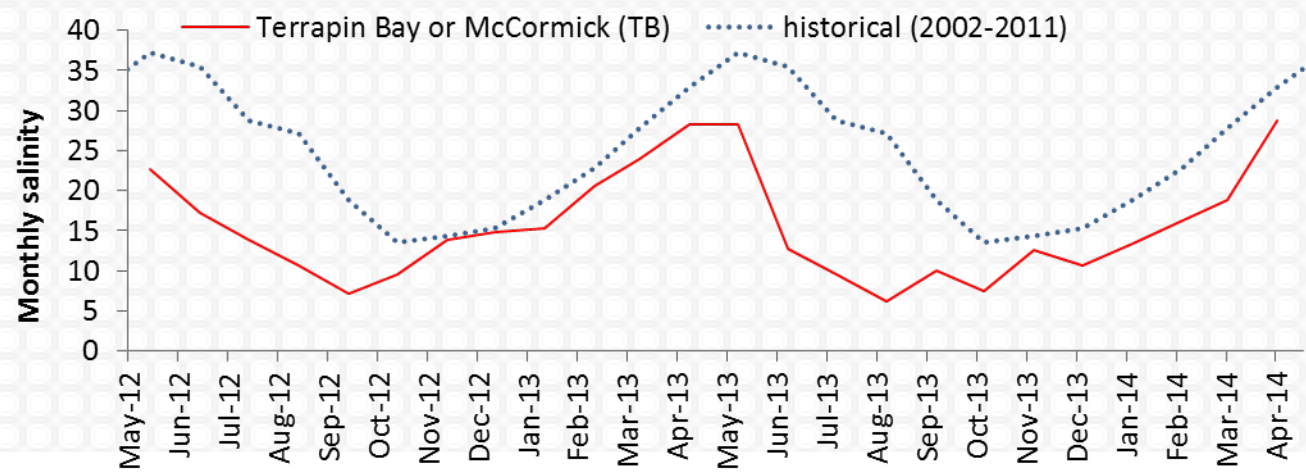
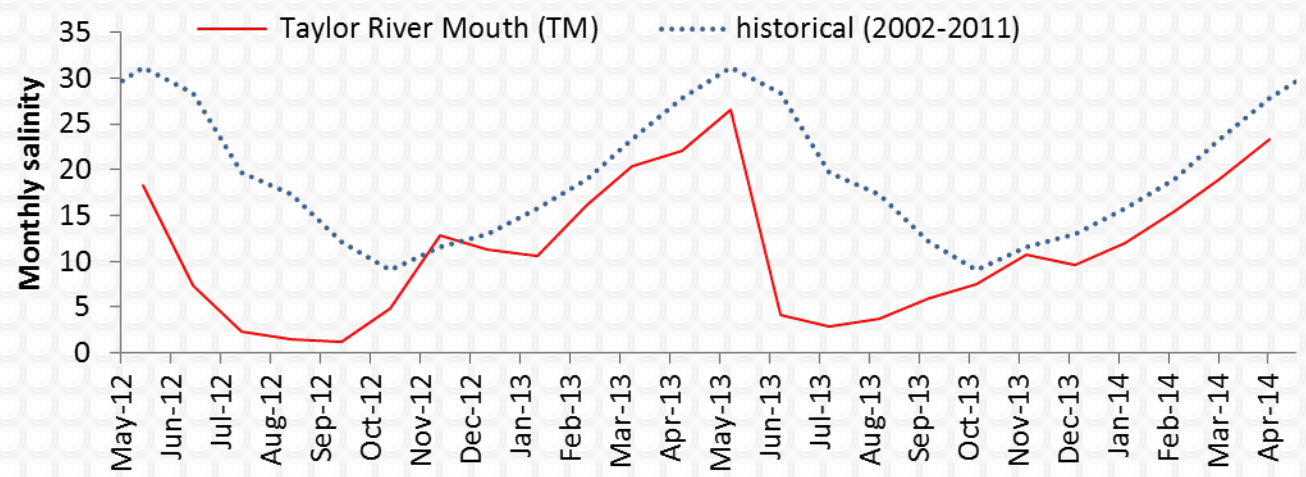
Hydrometeorological Monitoring

Monitoring Results - Flow

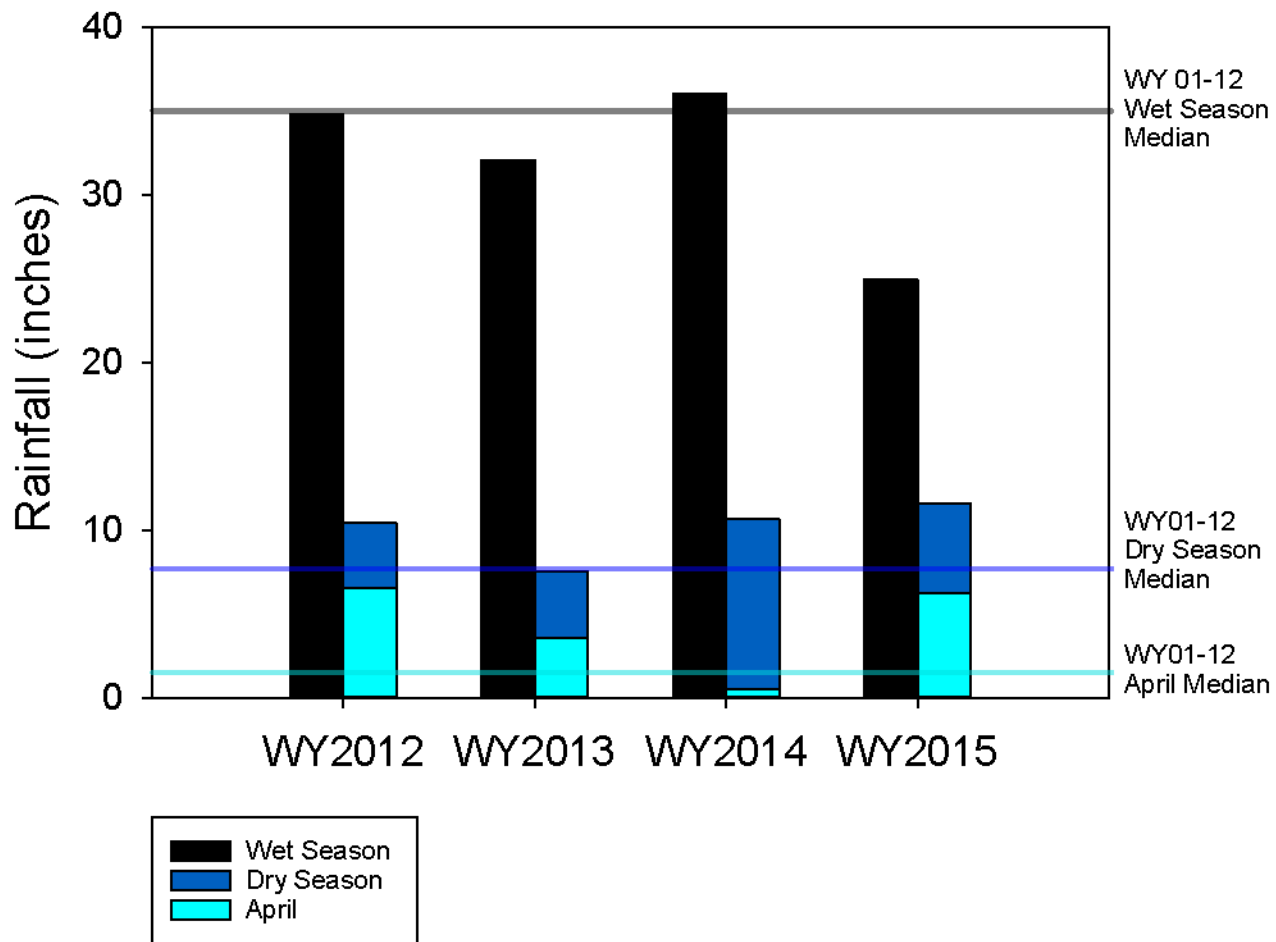


Ecological Monitoring

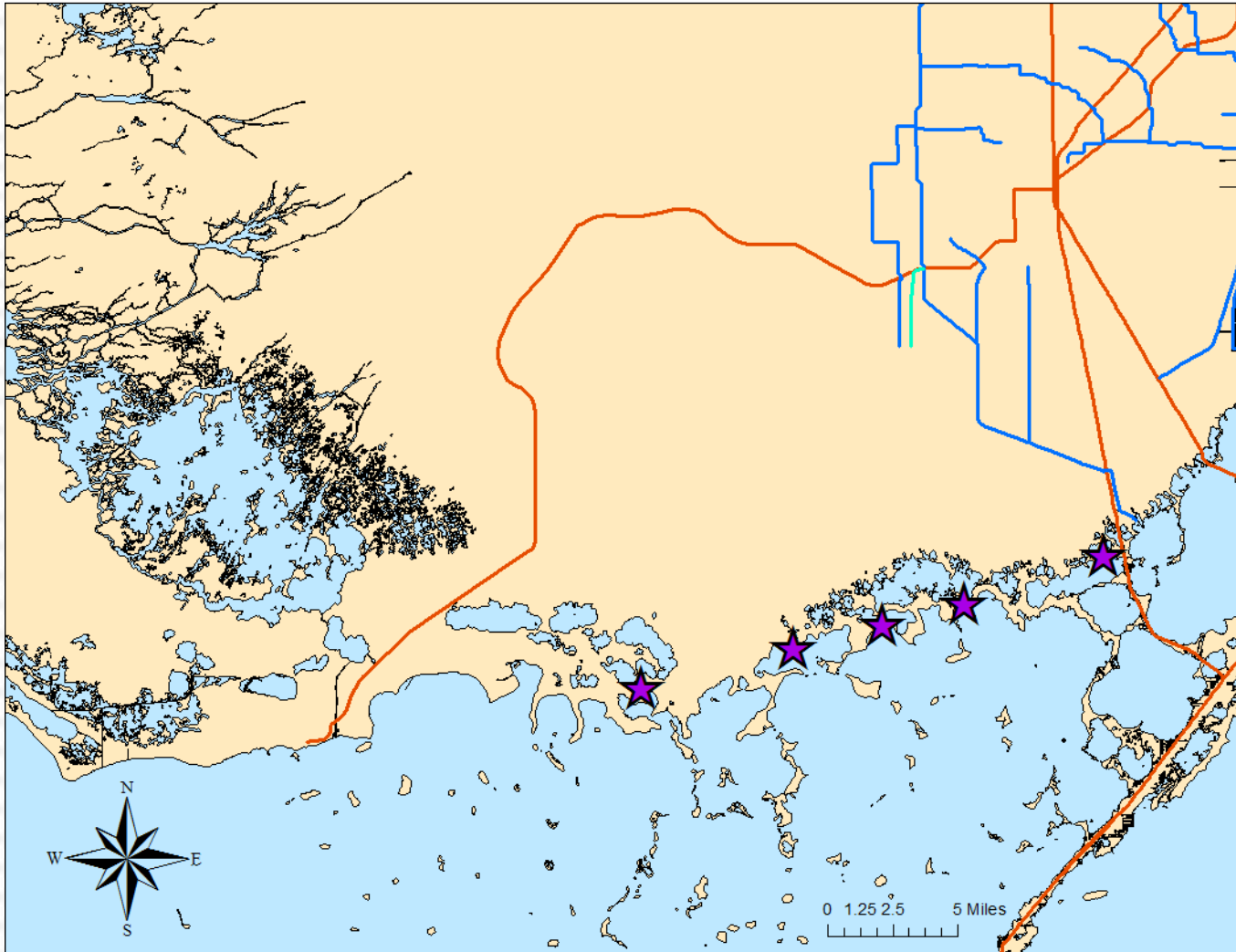
Salinity Monitoring Results



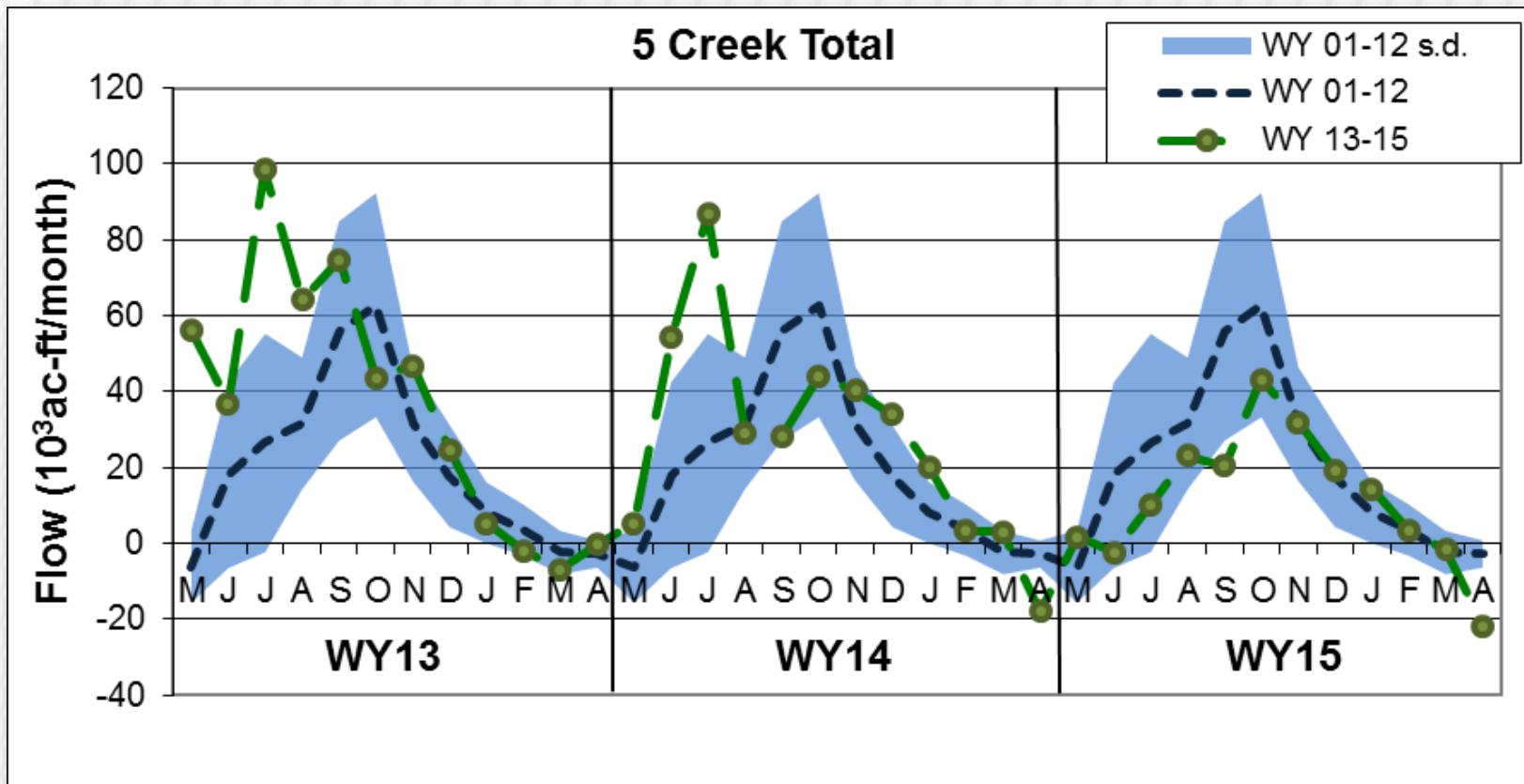
Rainfall in the Project Area



USGS Creek stage, discharge, and salinity sites

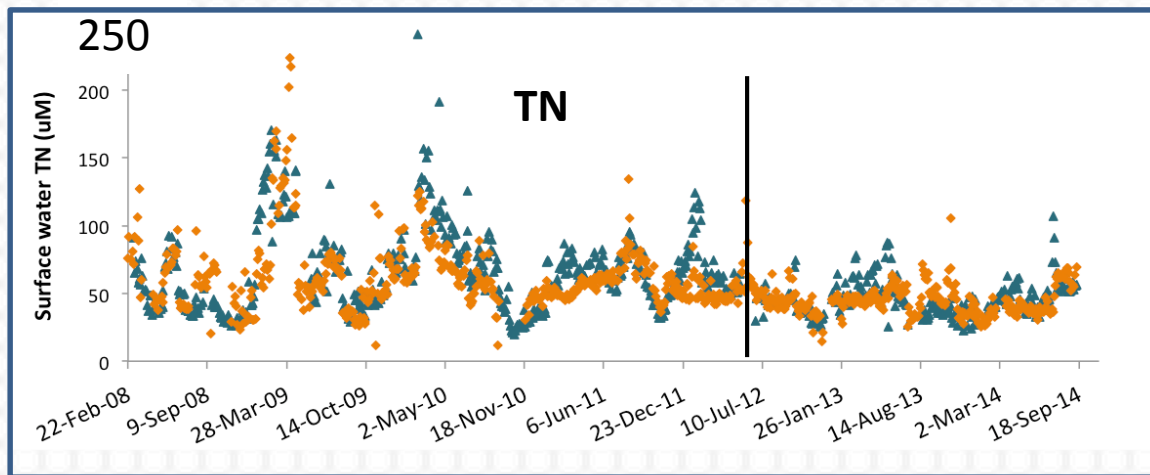
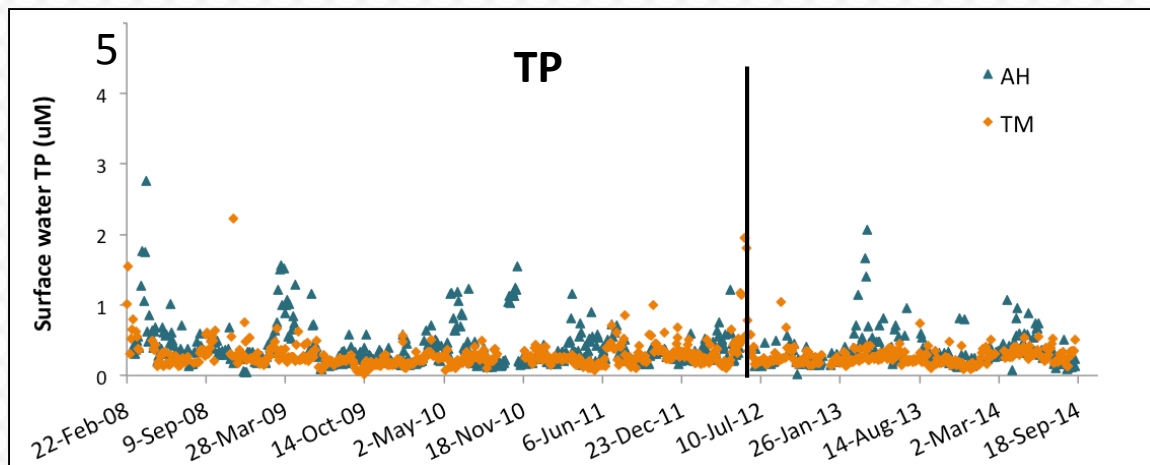
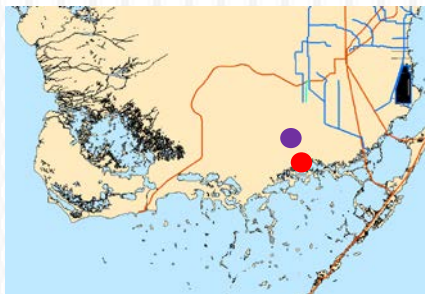


Discharge to Florida Bay



Mark Zucker

TP & TN at Downstream Discharge Sites

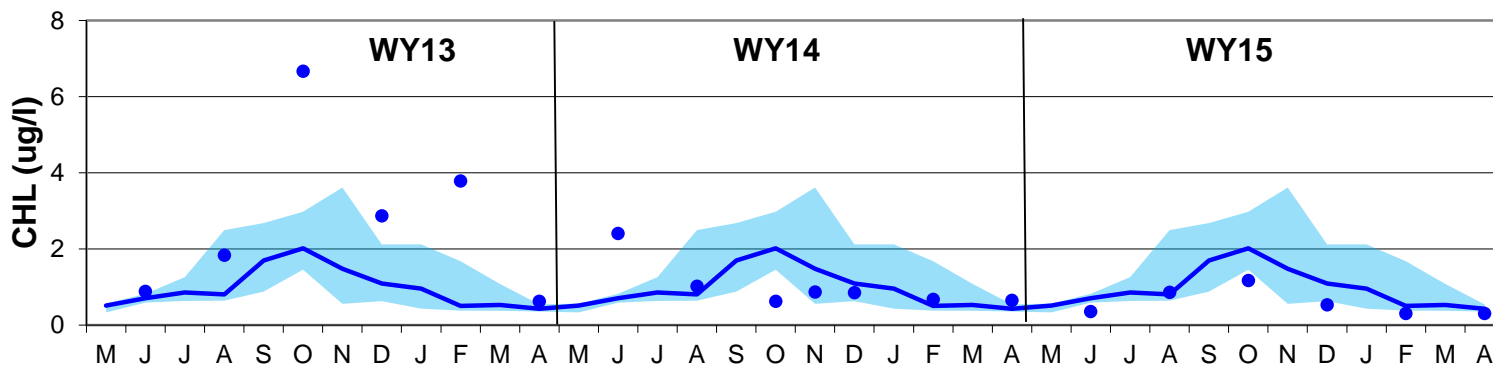


Tiffany Troxler

Chl_a, TP & TN at Coastal Water Quality Monitoring Sites

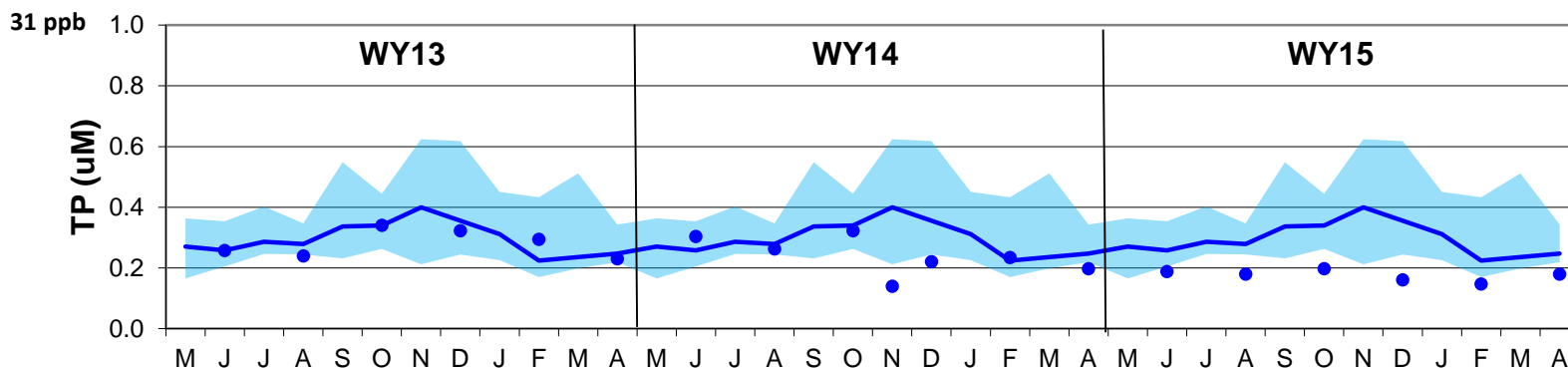
Chl *a*

POR Median:
WY2001-2012



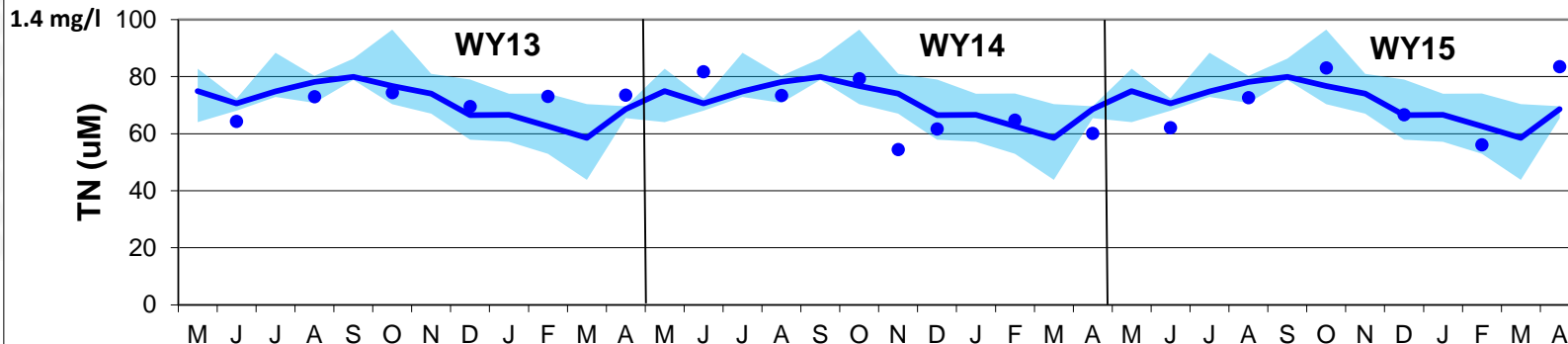
TP

POR Median:
WY2001-2012

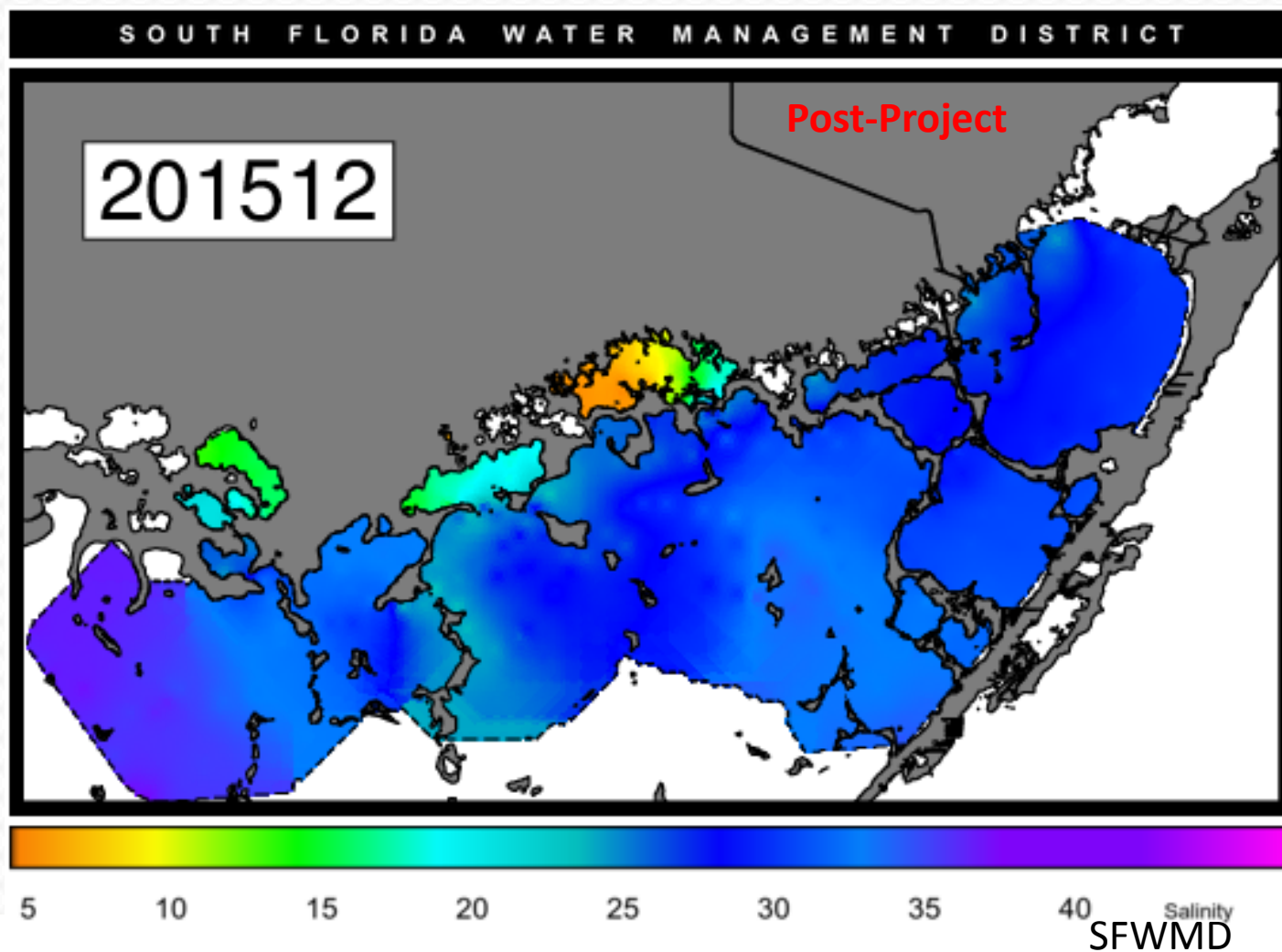


TN

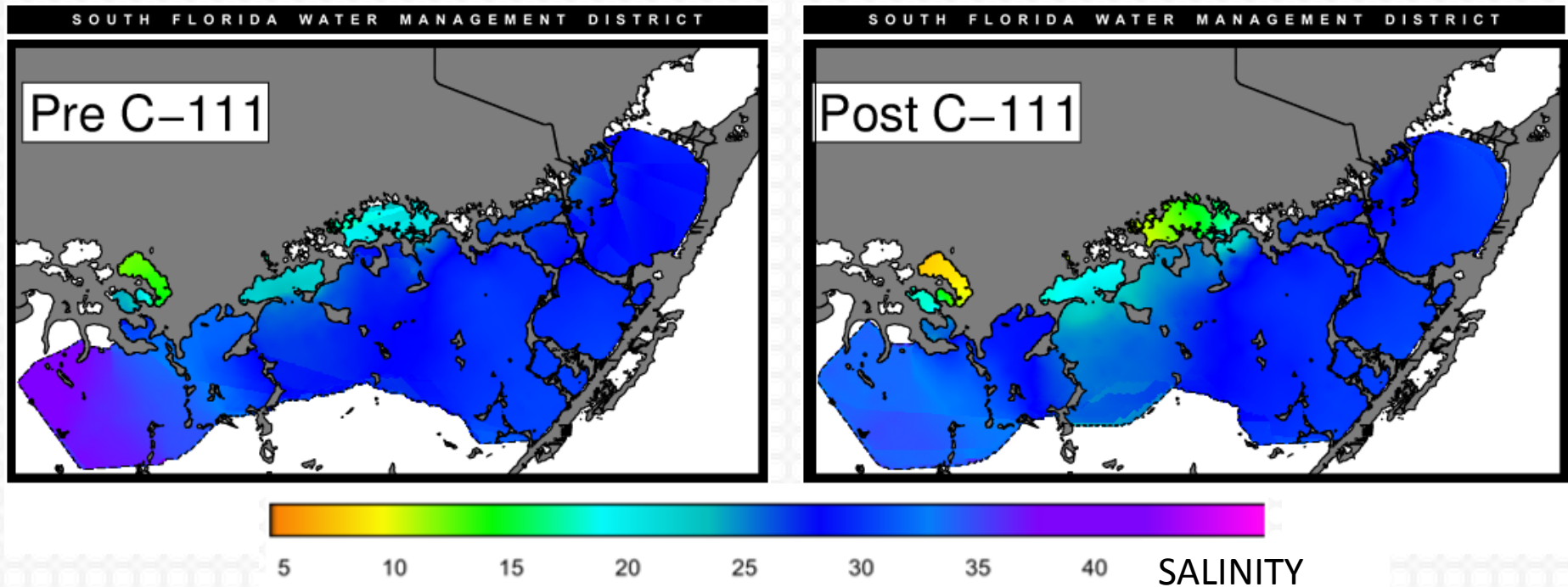
POR Median:
WY2009-2012



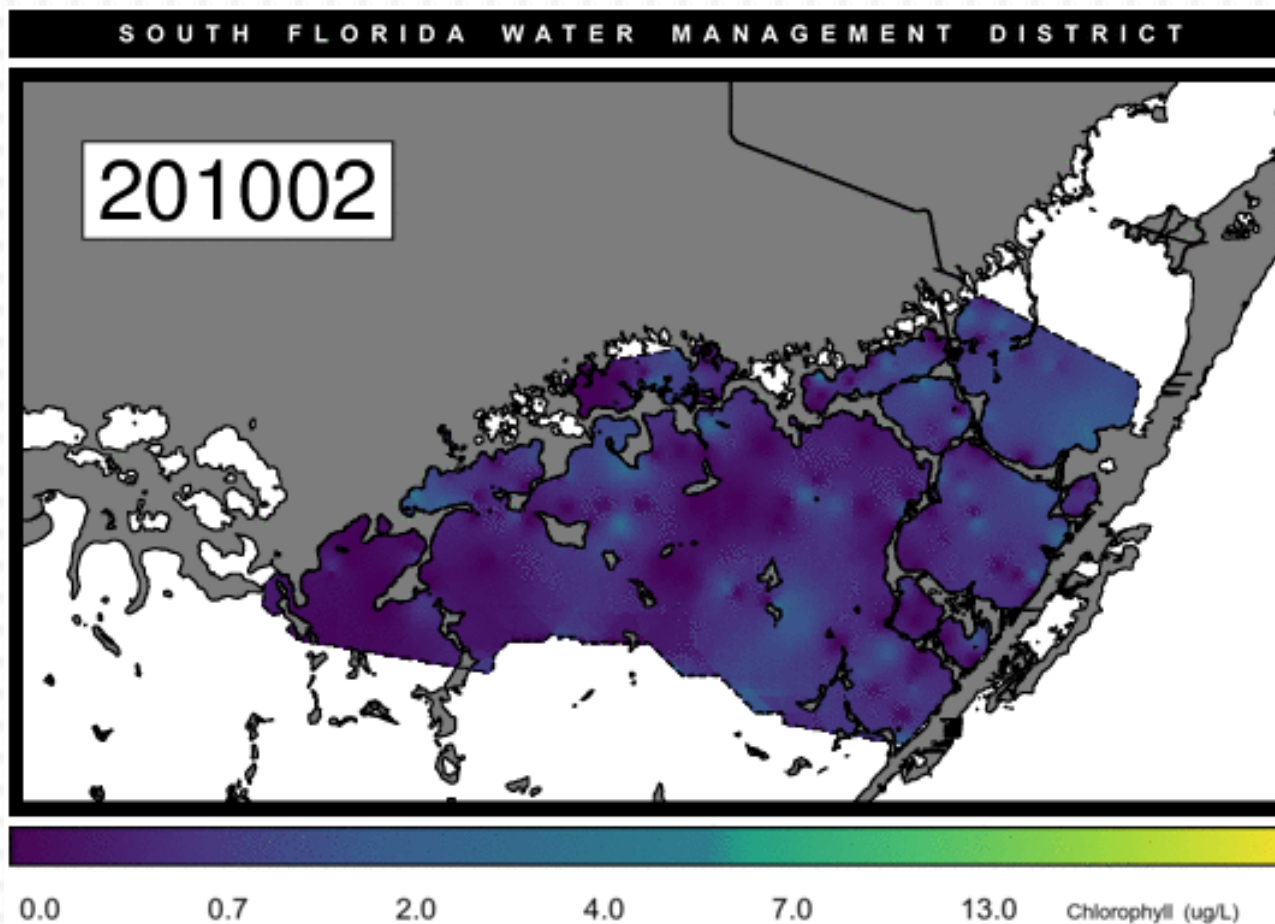
Dataflow Mapping - Salinity



Pre-Post Salinity

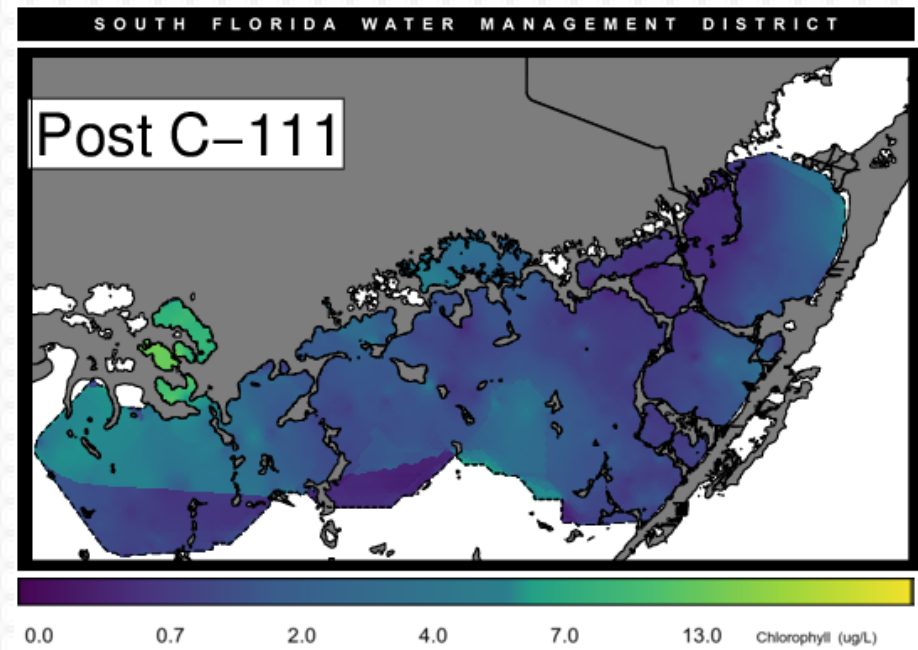
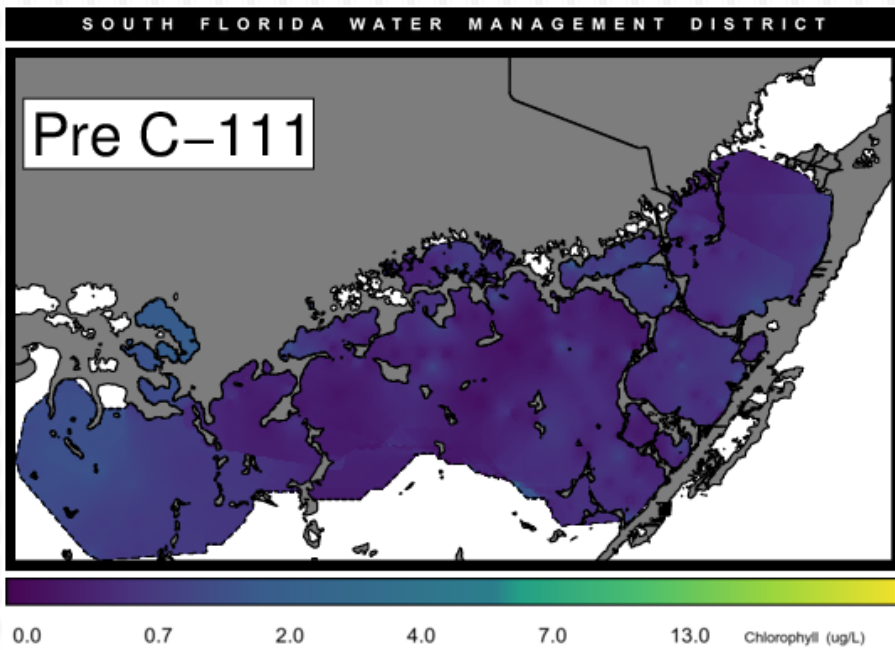


Dataflow Mapping - Chlorophyll



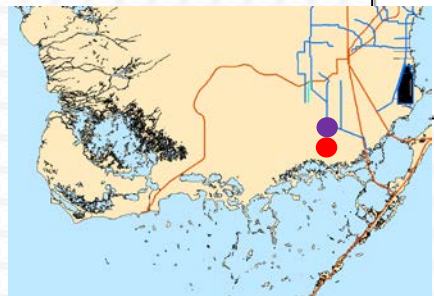
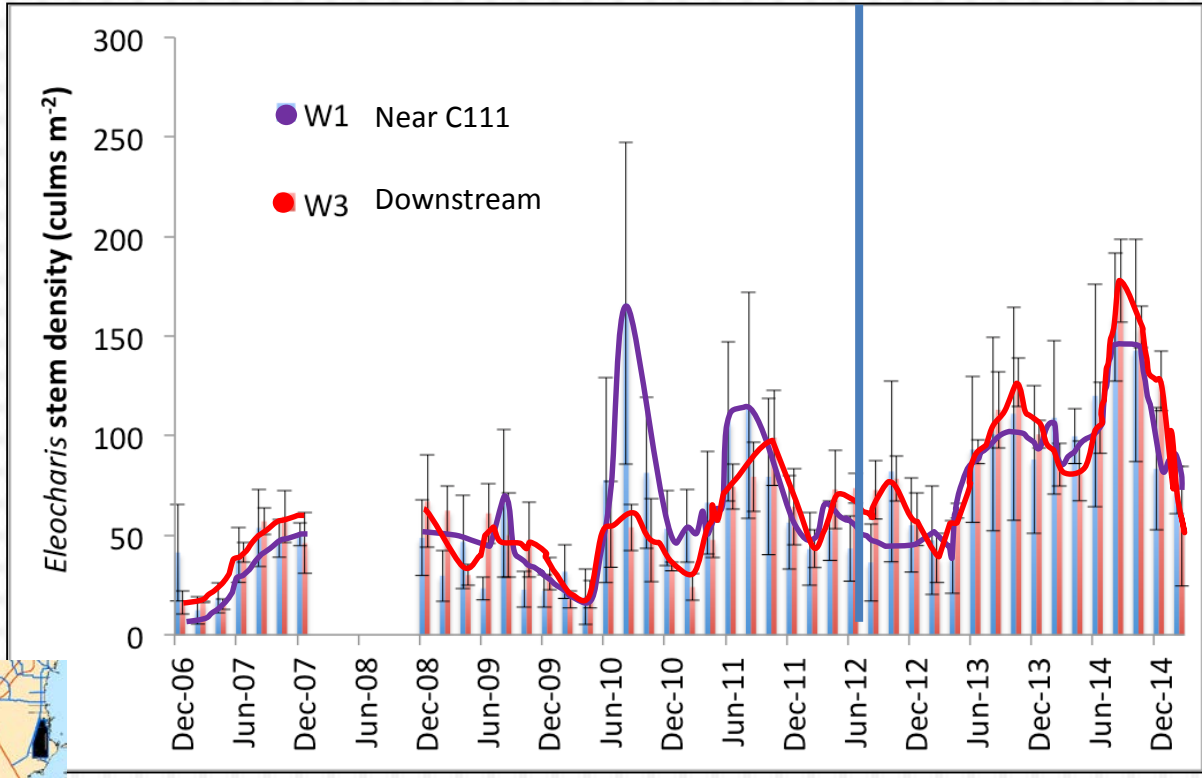
SFWMD

Pre-Post Chlorophyll



Emergent Macrophyte Vegetation: C-111 Basin

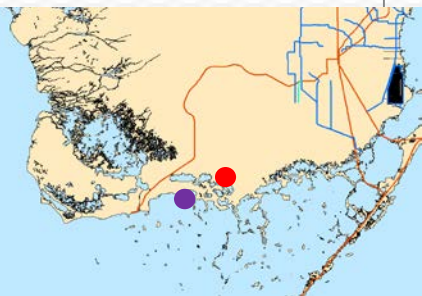
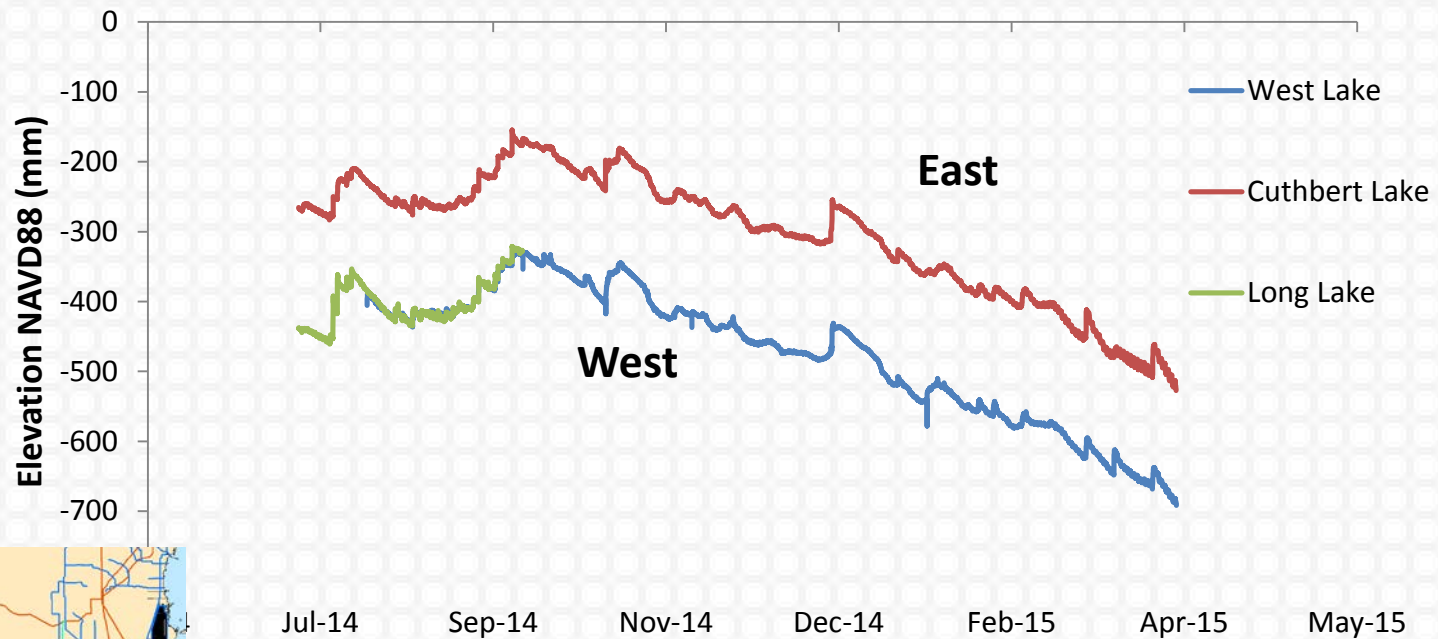
Eleocharis



Tiffany Troxler

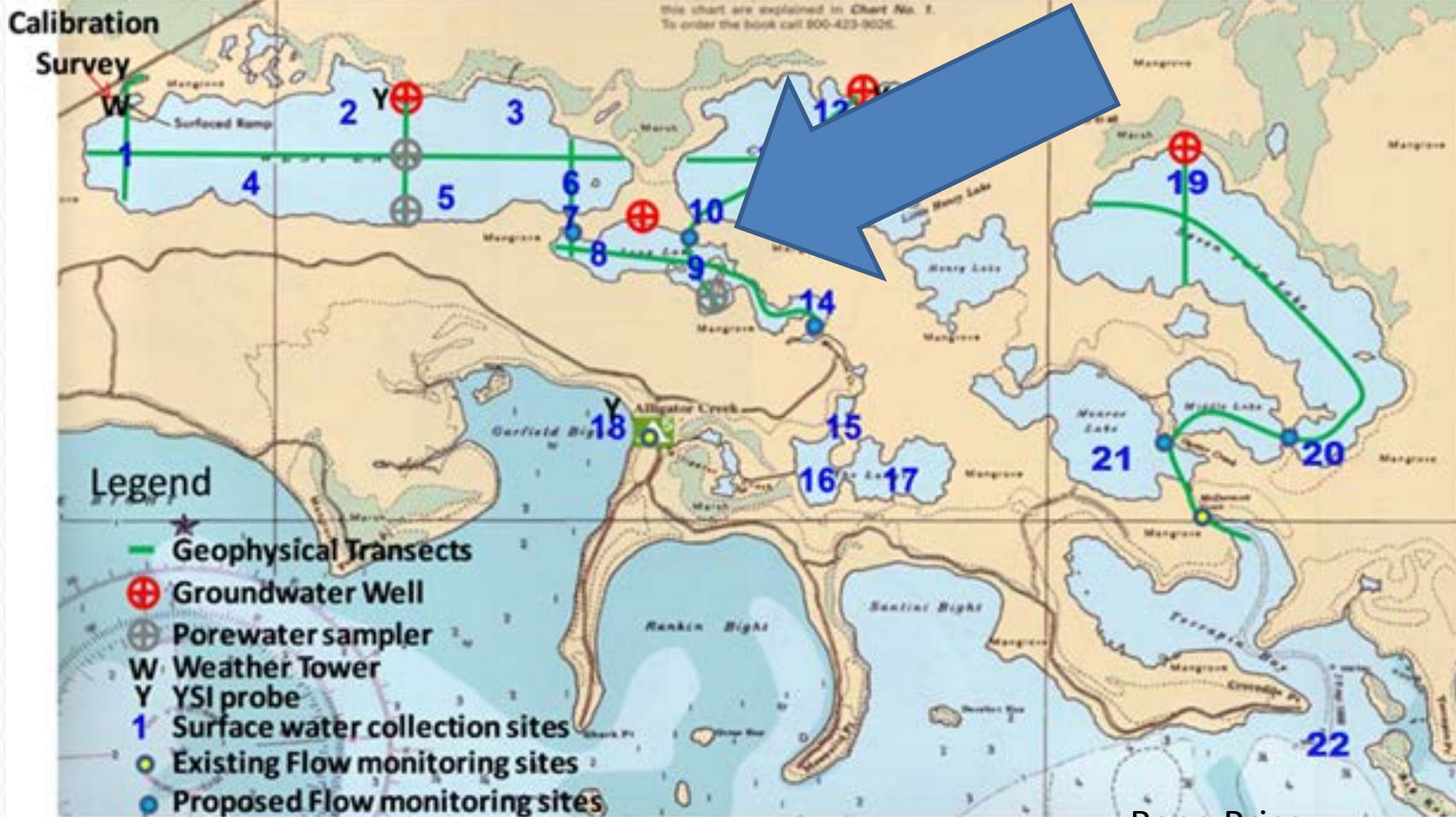
Groundwater Elevation Western Slough

Groundwater Elevation



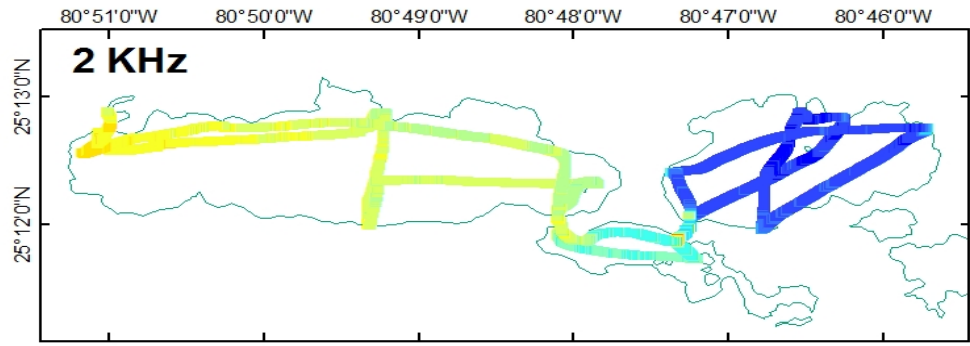
Rene Price

Lakes Hydrology

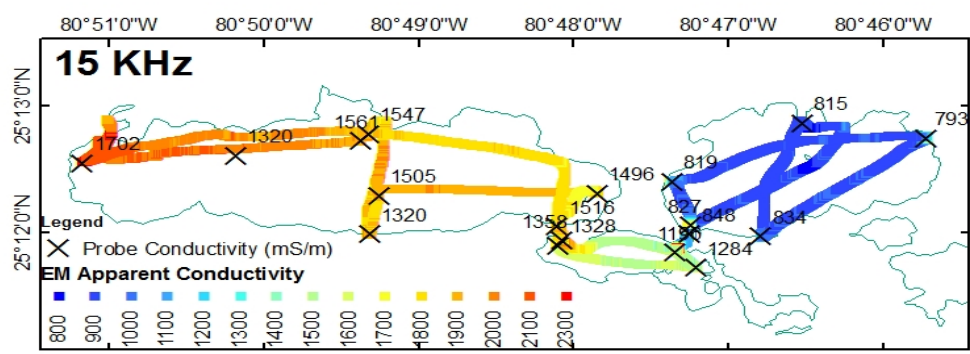
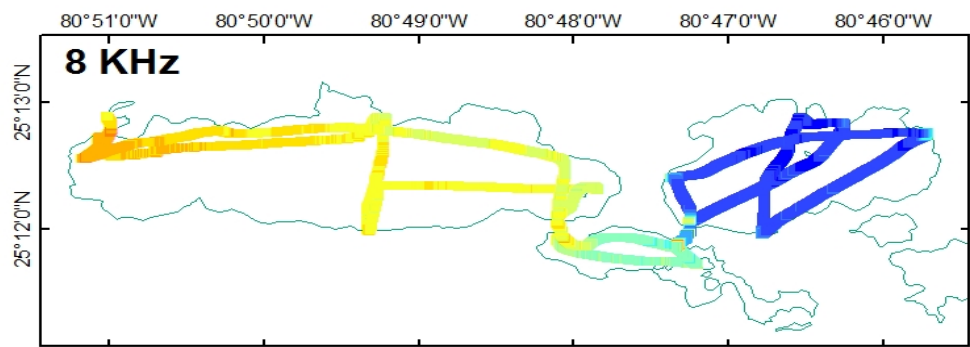


Rene Price

Surface and Groundwater Salinity



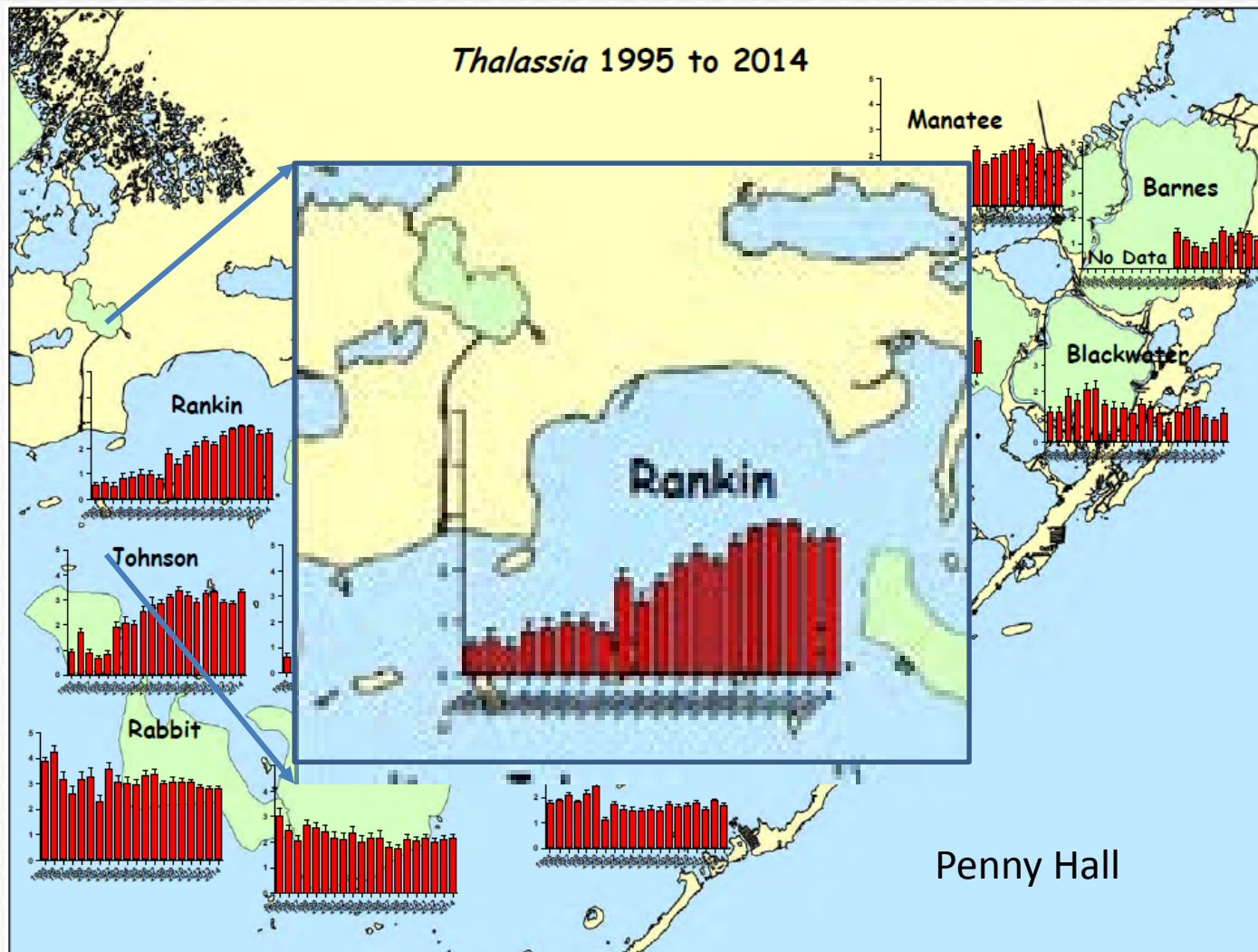
Groundwater



Surface water

Dean Whitman

Benthic Macrophyte Vegetation: Florida Bay



Summary

- Hydrologic and salinity effects show positive trends based on the limited data set
- No apparent nutrient enrichment attributable to the project
- Flows from C-111 project toward the southwest indicate positive directionality for enhancing flow into central Florida Bay
- The ecological effects are complicated by both natural variability and multiple stressor responses

Questions

