



CEER

Conference on
Ecological and
Ecosystem
Restoration

FIU

FLORIDA
INTERNATIONAL
UNIVERSITY



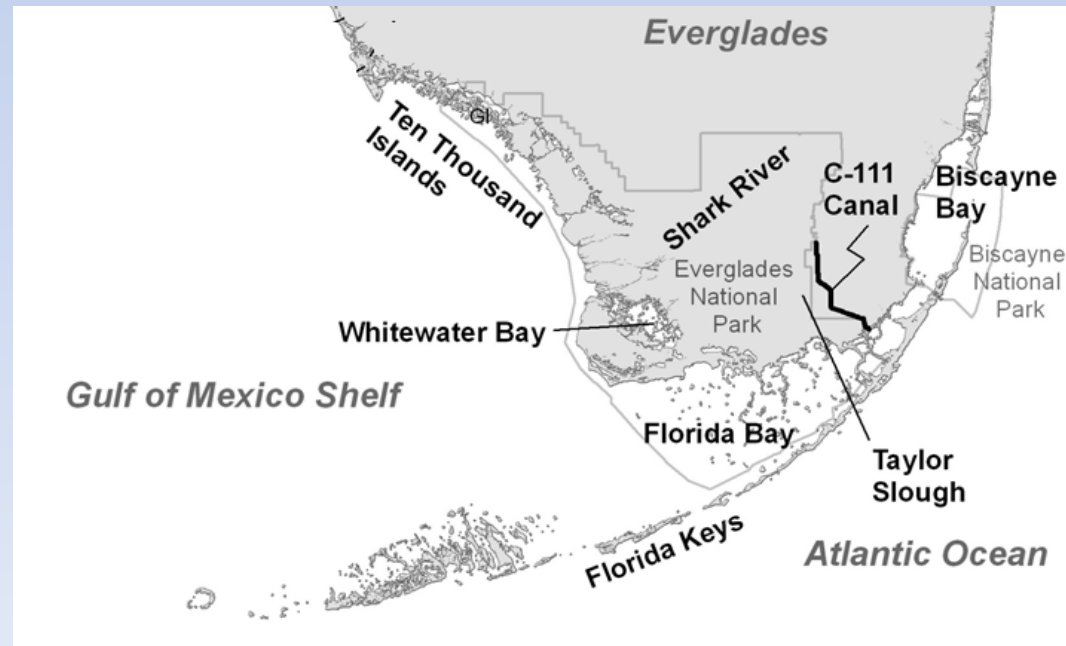
Restoring Water Quality in the Florida's Everglades and Florida Keys:

ASSESSING WATER QUALITY CHANGES DUE TO RESTORATION ALTERNATIVES: COASTAL EVERGLADES, FLORIDA

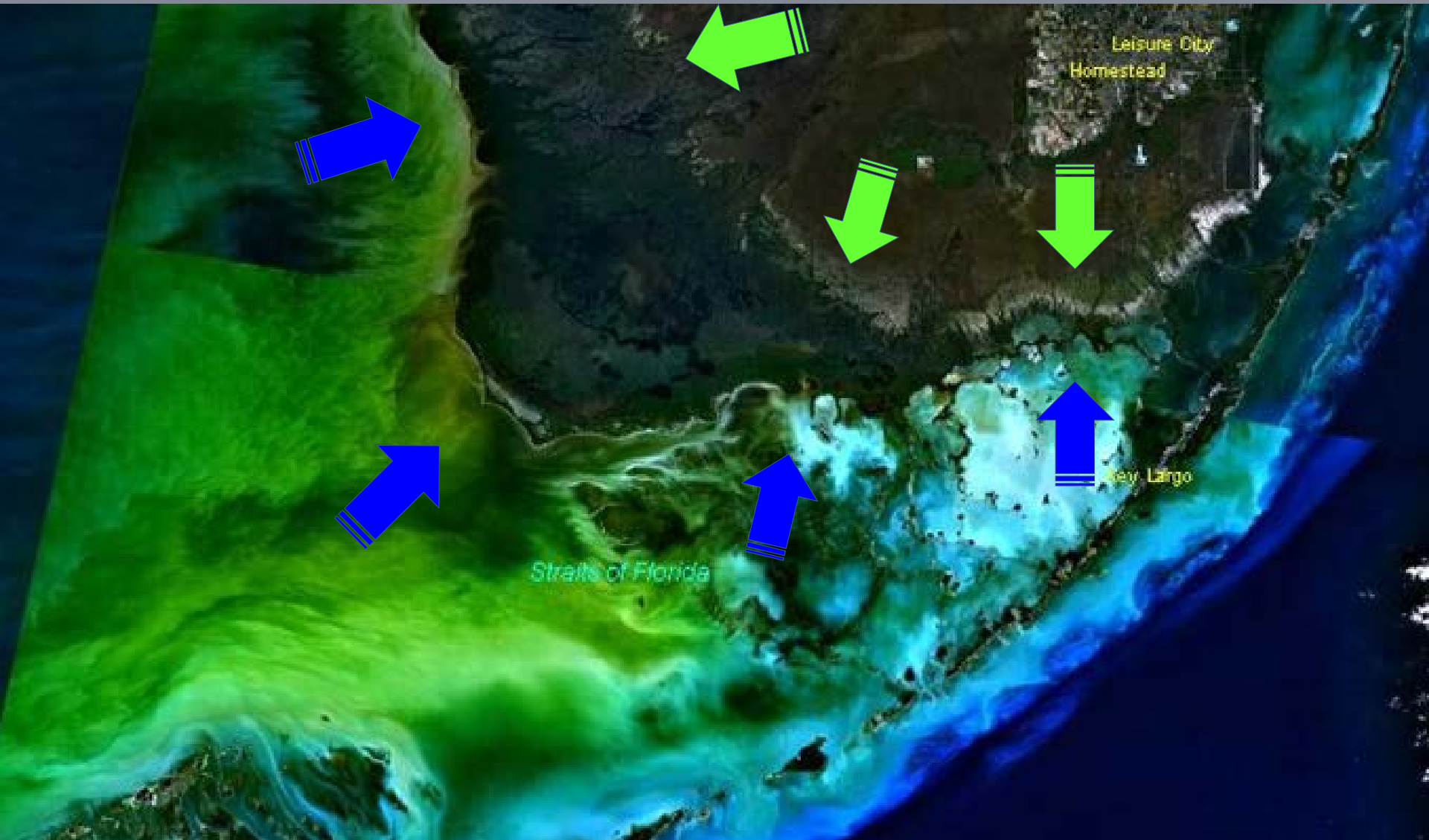
Henry O. Briceño

CONTENT

- Grass War
- Brief description of method for assessment of nutrient concentrations along salinity gradient
- Results & comparison with proposed targets (Marshall, Wingard & Pitts, E&C, 2013; and this session)
- Conclusions/Recommendations



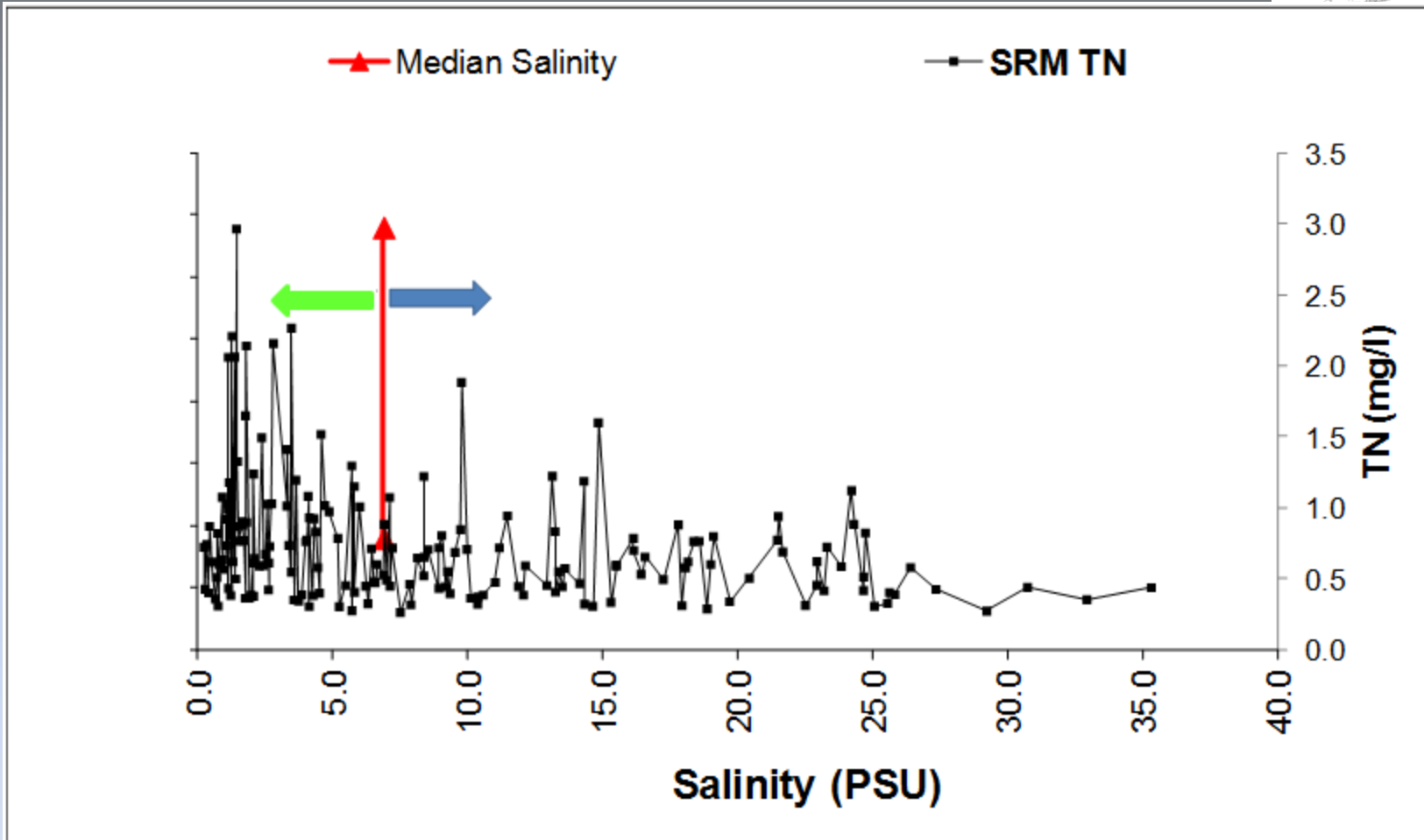
Seagrass vs. Sawgrass ...the battlefield....



METHOD

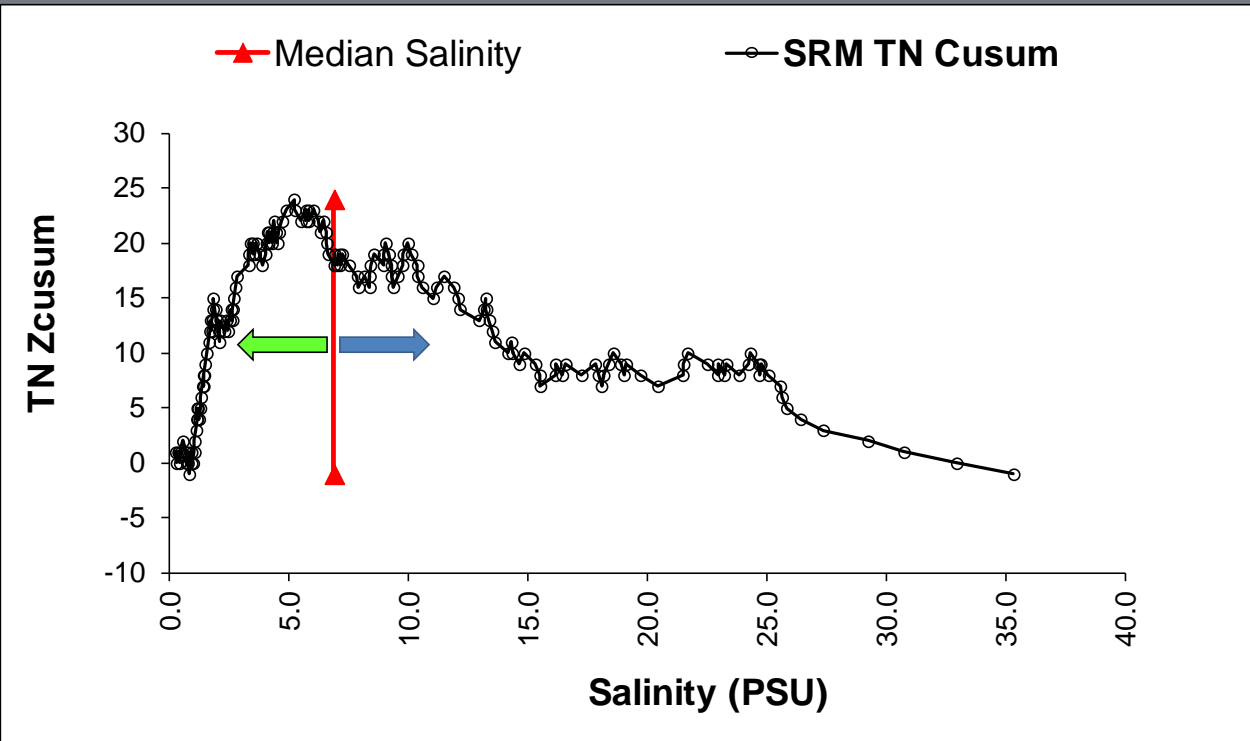
- Salinity gradient analysis
 - Several stations along transects
 - Change components, structure and function of ecosystem
 - One station under different salinities
 - Preserve components, structure and function of ecosystem

METHOD



General TN decline as salinity increases. Green arrow shows potential trend if restoration is implemented. Blue arrow shows trend as sea level rises.

METHOD



Running sum of standardized concentrations
 $TN_{csum} = (TN - TN_{ave}) / TN_{sd}$

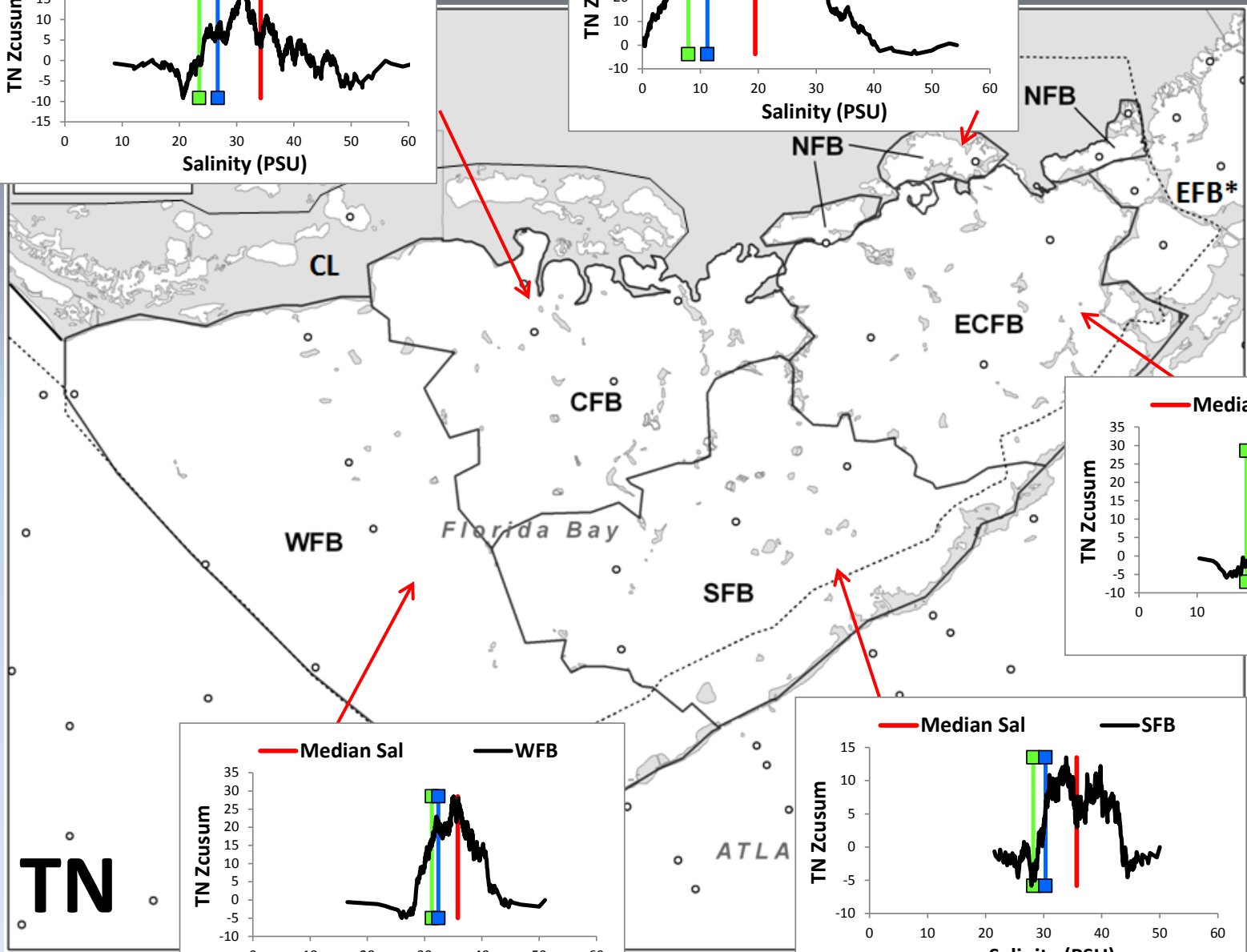
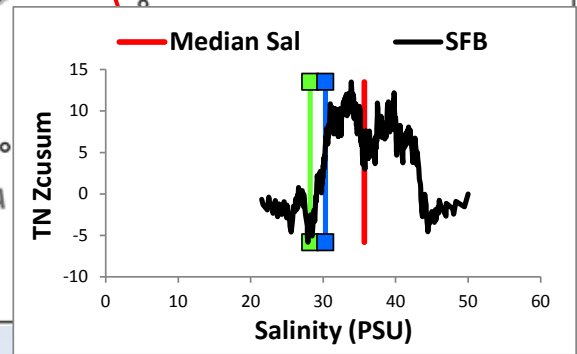
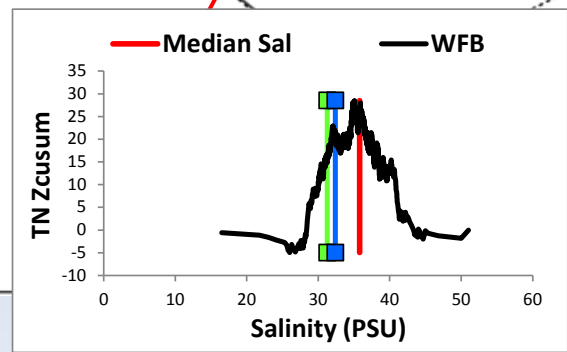
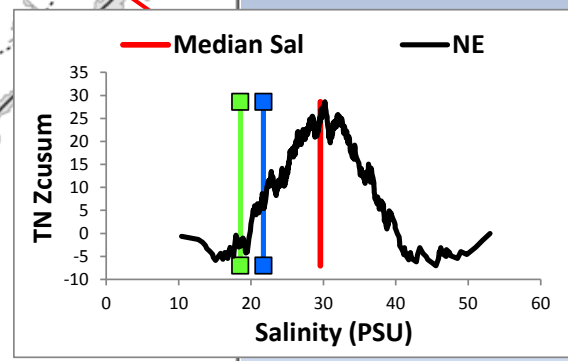
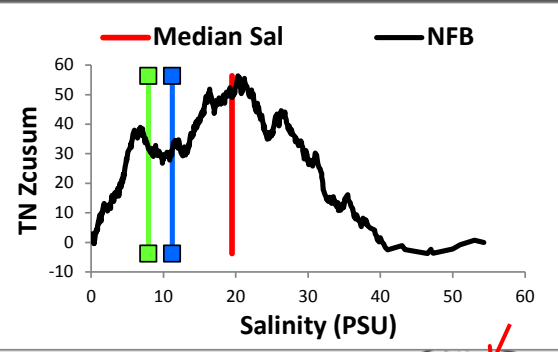
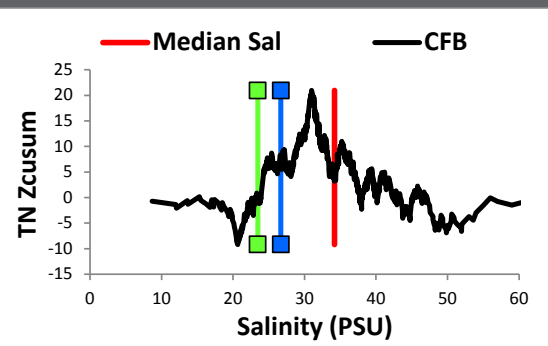
Positive slopes = above average TN

Negative slopes = below average TN

Horizontal segments = average TN

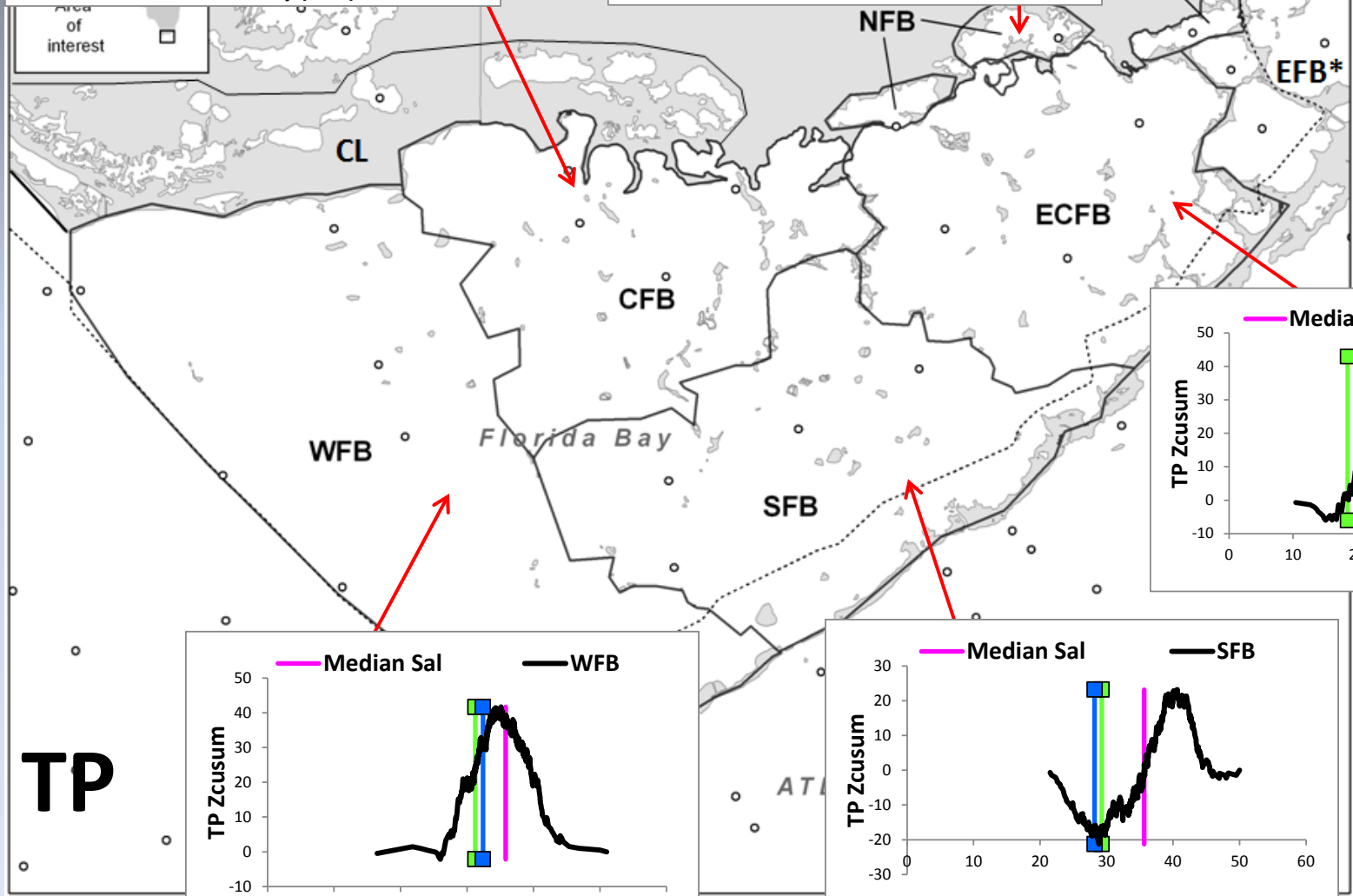
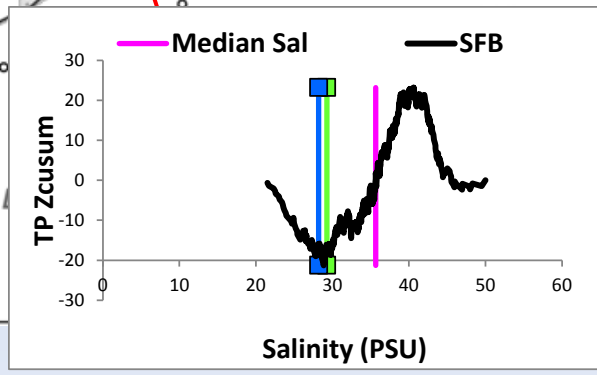
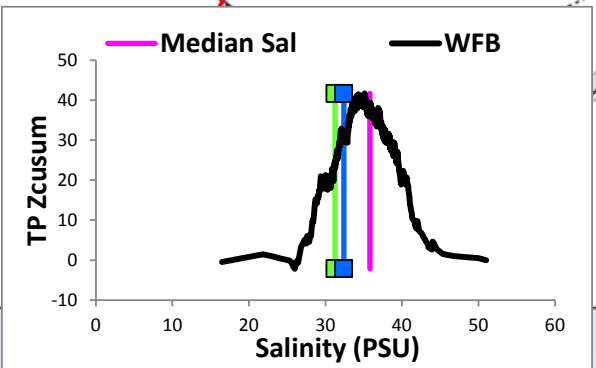
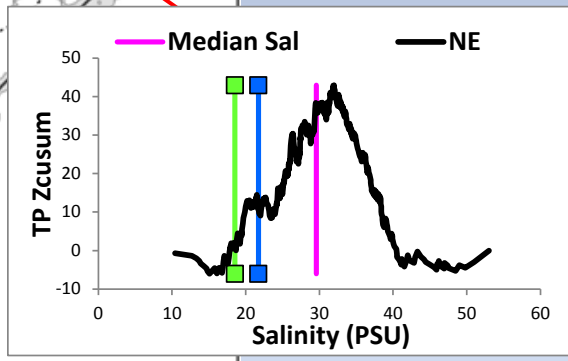
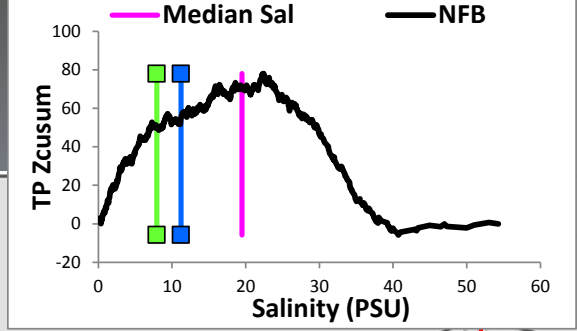
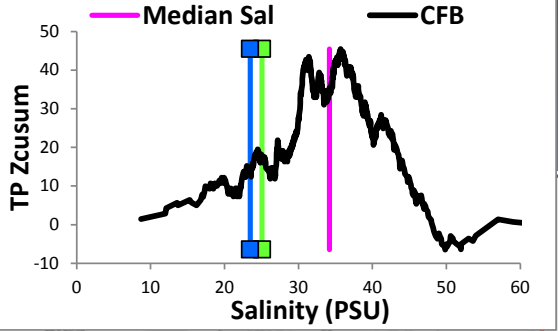
If salinity drops below 5 psu due to restoration, TN values would be preferentially above the current mean, in other words SRM would experience nutrient enrichment

Florida Bay



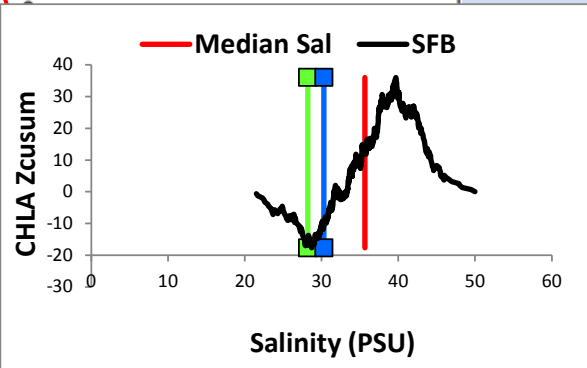
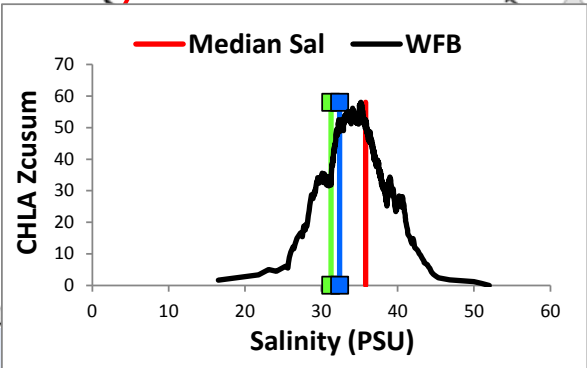
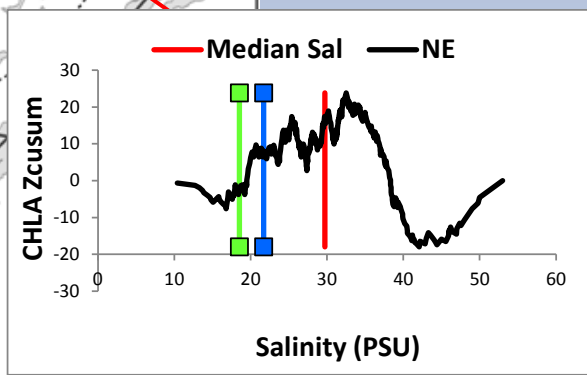
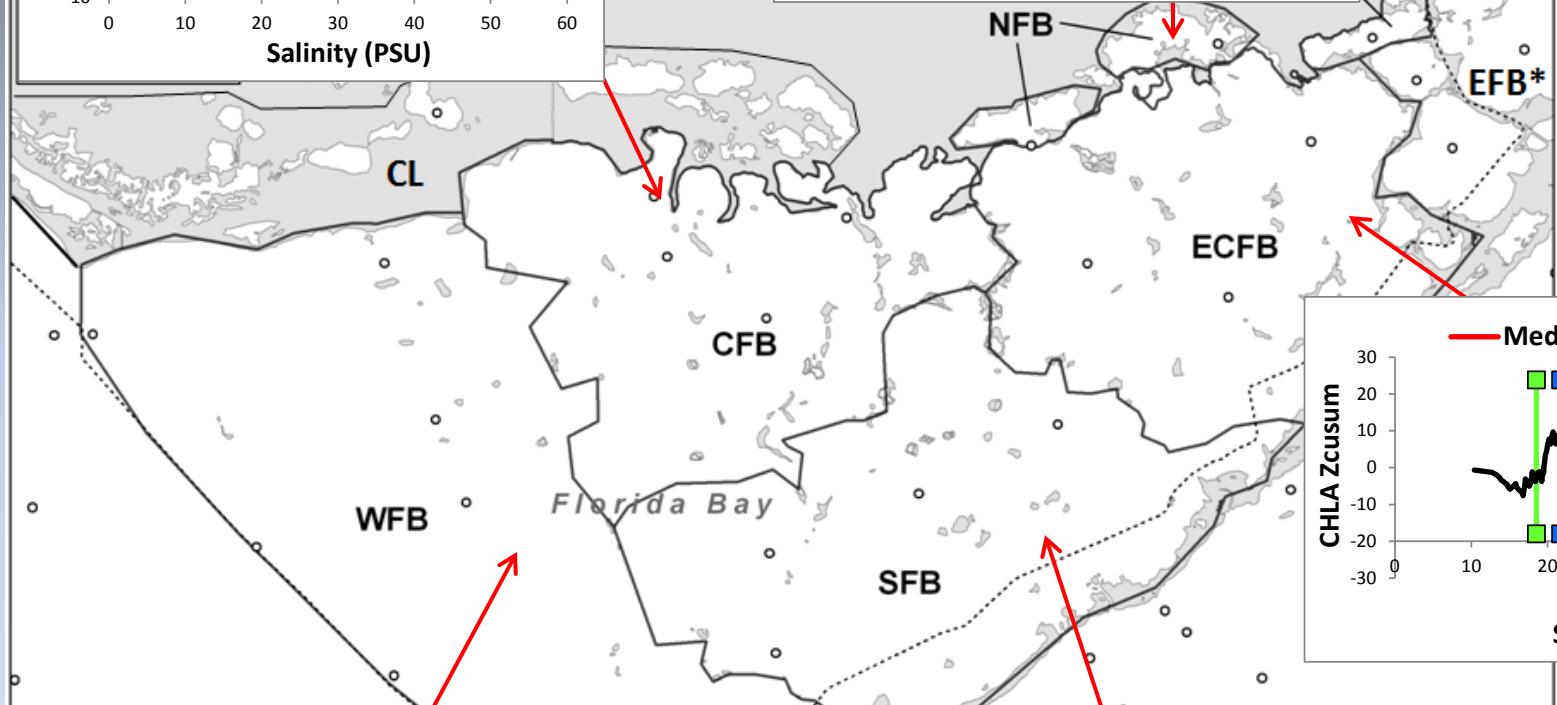
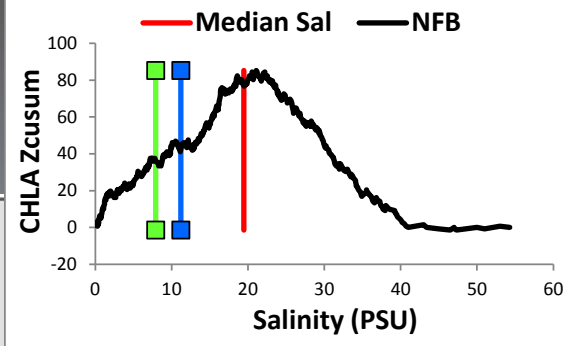
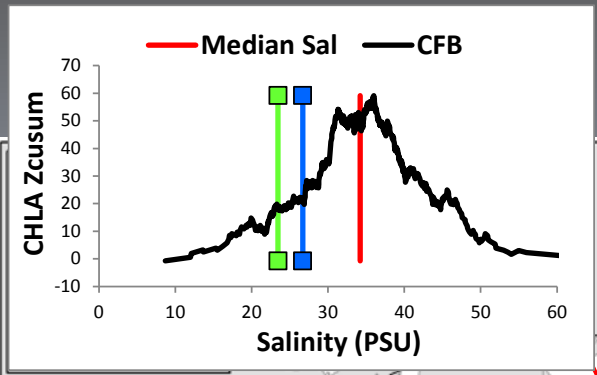
TN

Florida Bay



TP

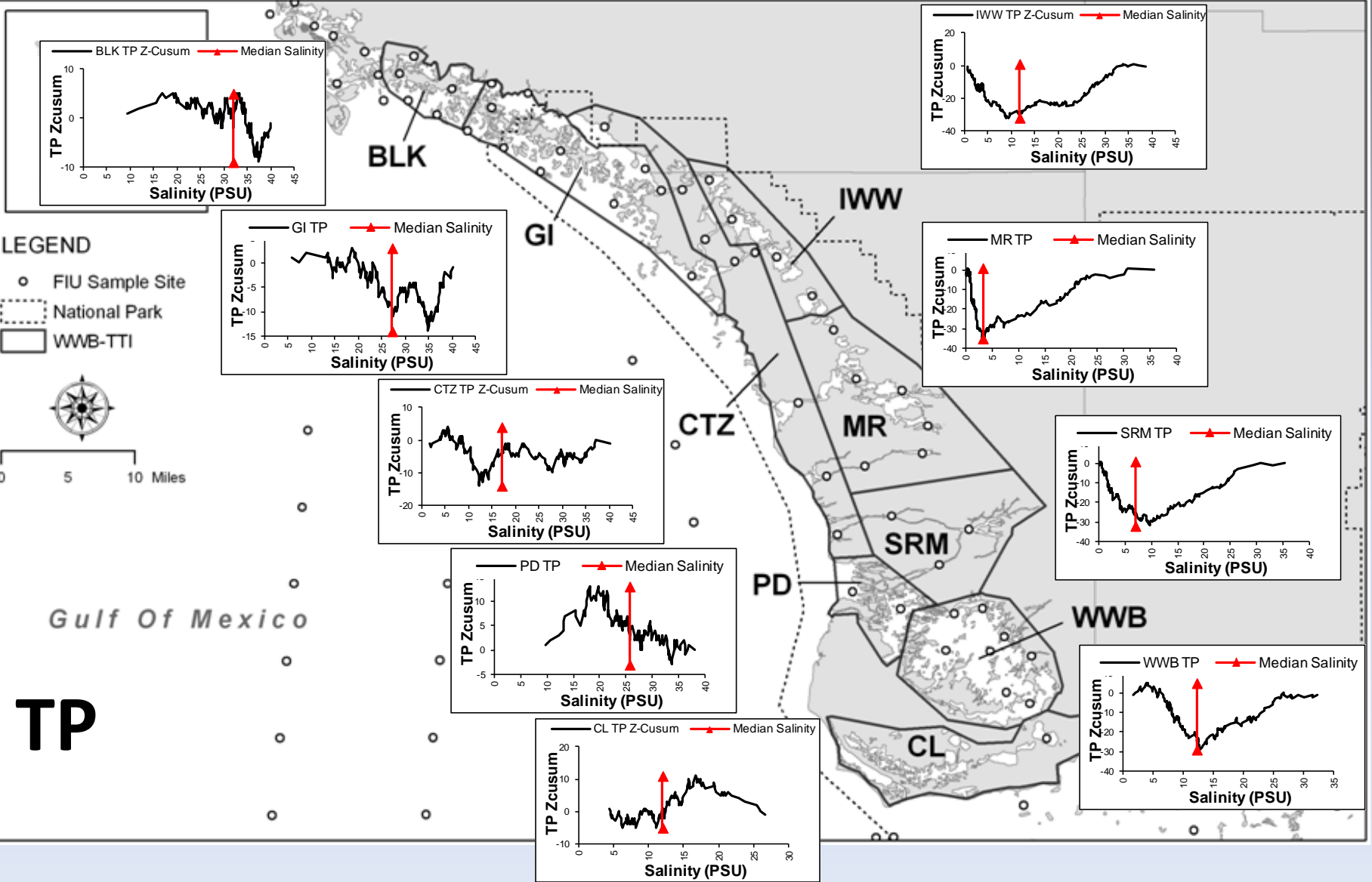
Florida Bay



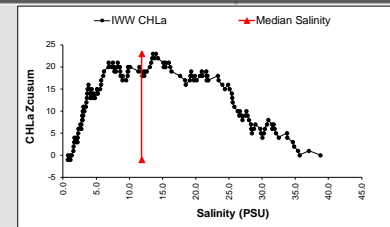
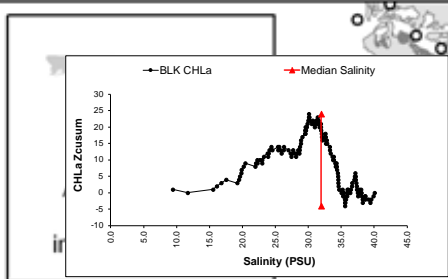
CHLa

ATLANTIC

10,000 Islands- Whitewater Bay

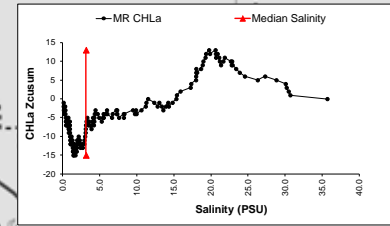
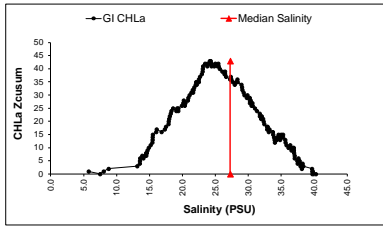


10,000 Islands- Whitewater Bay

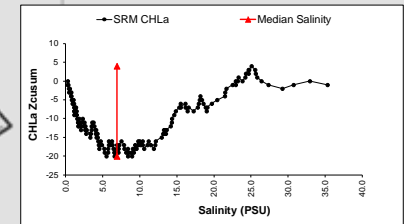
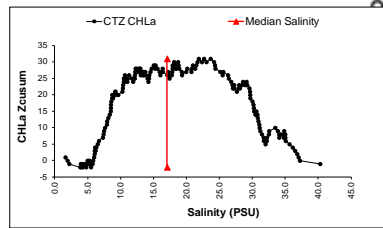


LEGEND

- FIU Sample Site
- ⋯ National Park
- ▭ WWB-TTI

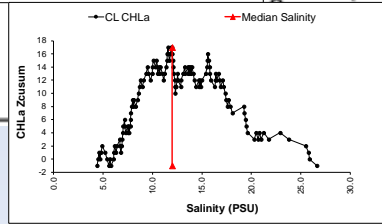
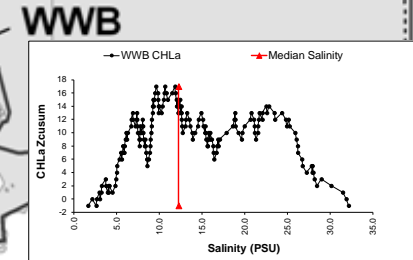
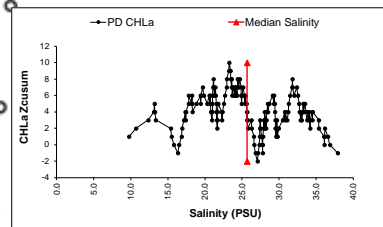


0 5 10 Miles



Gulf Of Mexico

CHLa



BLK

GI

IWW

CTZ

MR

SRM

PD

WWB

CL

Conclusions:

- Increased freshwater flows into the coastal Everglades will cause changes in water quality besides the intended declines in salinity
- Time series analysis indicate that in Florida Bay TN, TP and CHLa concentrations may increase
- In 10,000 Islands-Whitewater Bay, TN may increase everywhere; TP may decline in fresher water stations (landward) with no clear pattern oceanward; CHLa may increase except in freshwater end members around Shark River mouth.



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Thanks

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