



**Florida Department of Environmental Protection**  
**Florida Coastal Office**

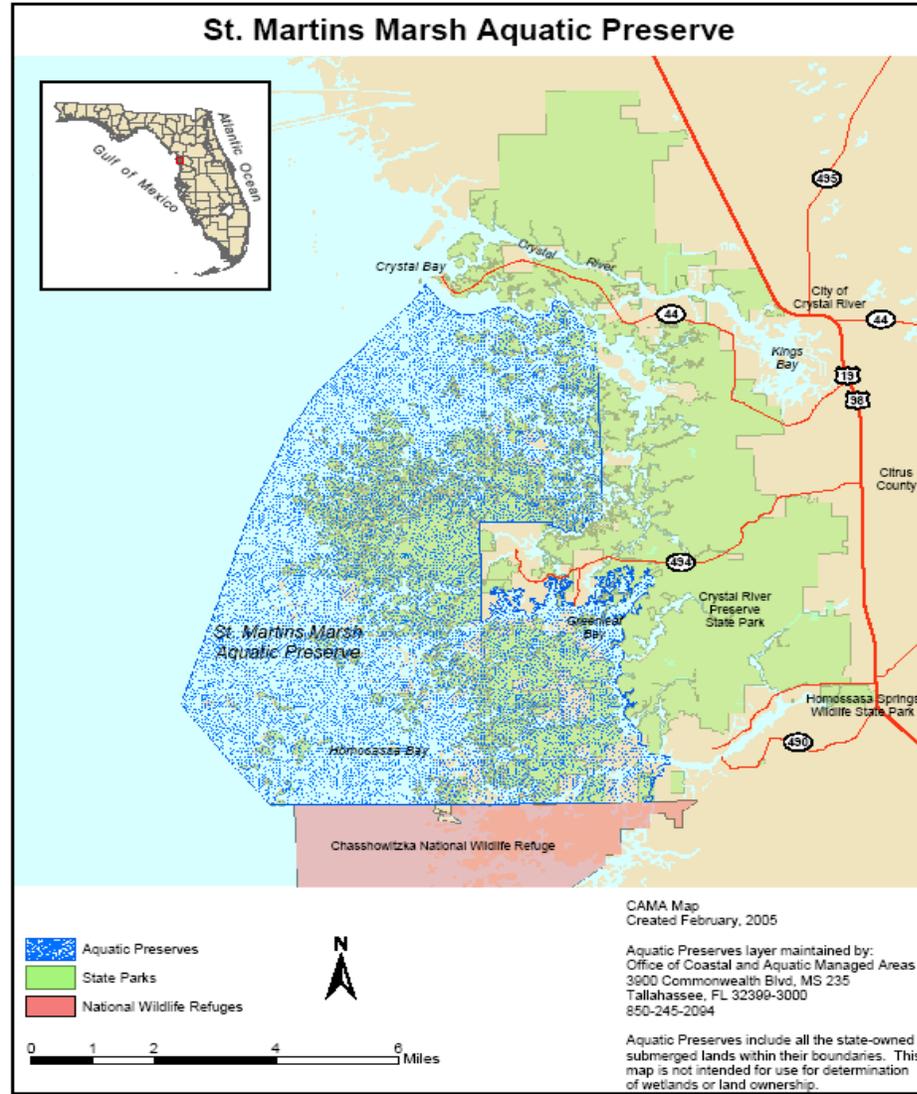
# **Seagrass Monitoring Efforts in the Big Bend**

**Timothy Jones**  
March 7<sup>th</sup>, 2016





# The Aquatic Preserves





# Nutrient Sampling

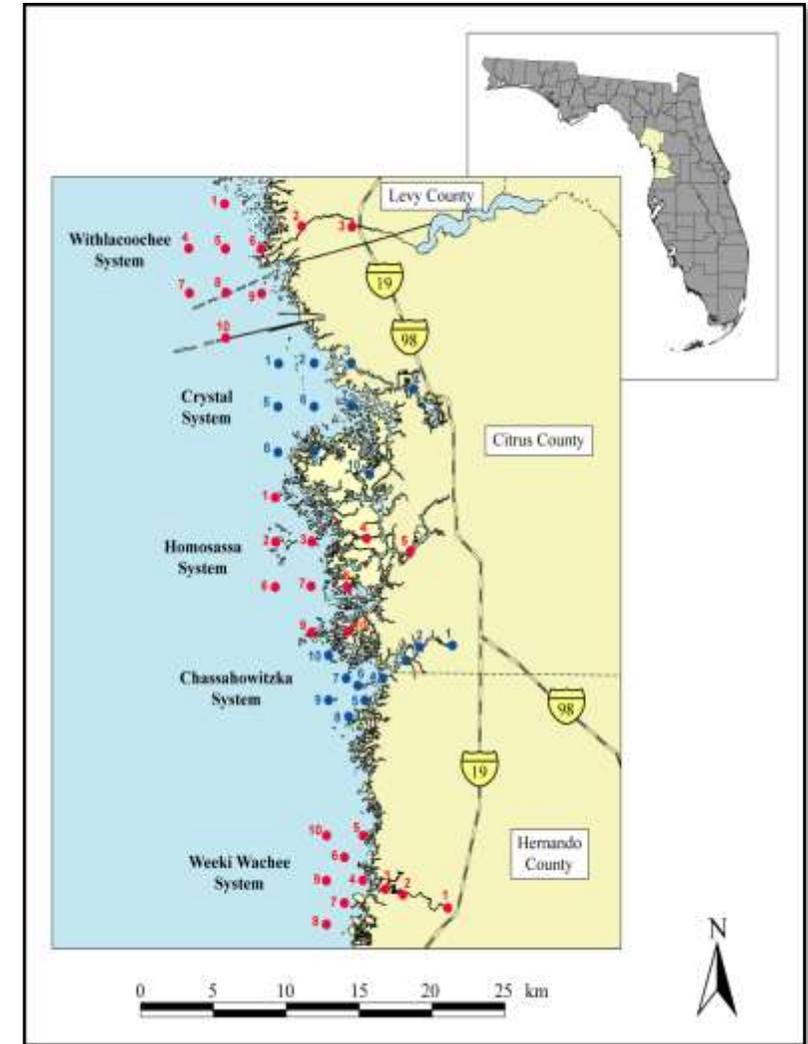
- Partnership with DEAR started in November of 2014
- 5 locations:
  - Keaton Beach
  - Steinhatchee River
  - Horseshoe Beach (6 sampling sites)
  - Suwannee River
  - Waccasassa River
- Abiotic and multiple nutrient parameters collected
- Potential for expansion into the St. Martins Marsh AP systems





# Project COAST – University of Florida

- Project began in 1997
- Currently Sampled Rivers: Weeki Wachee, Chassahowitzka, **Homosassa**, **Crystal River**, **Withlacoochee**, ~~Waccasassa~~, ~~Suwannee~~, & ~~Steinhatchee~~
- Sampled monthly for nutrients, color, Chlorophyll, light attenuation PAR, wind speed and direction, secchi, and standard YSI parameters - DO, salinity, temperature, and pH
- This establishes baseline data that can be used to monitor changes in water quality over time.

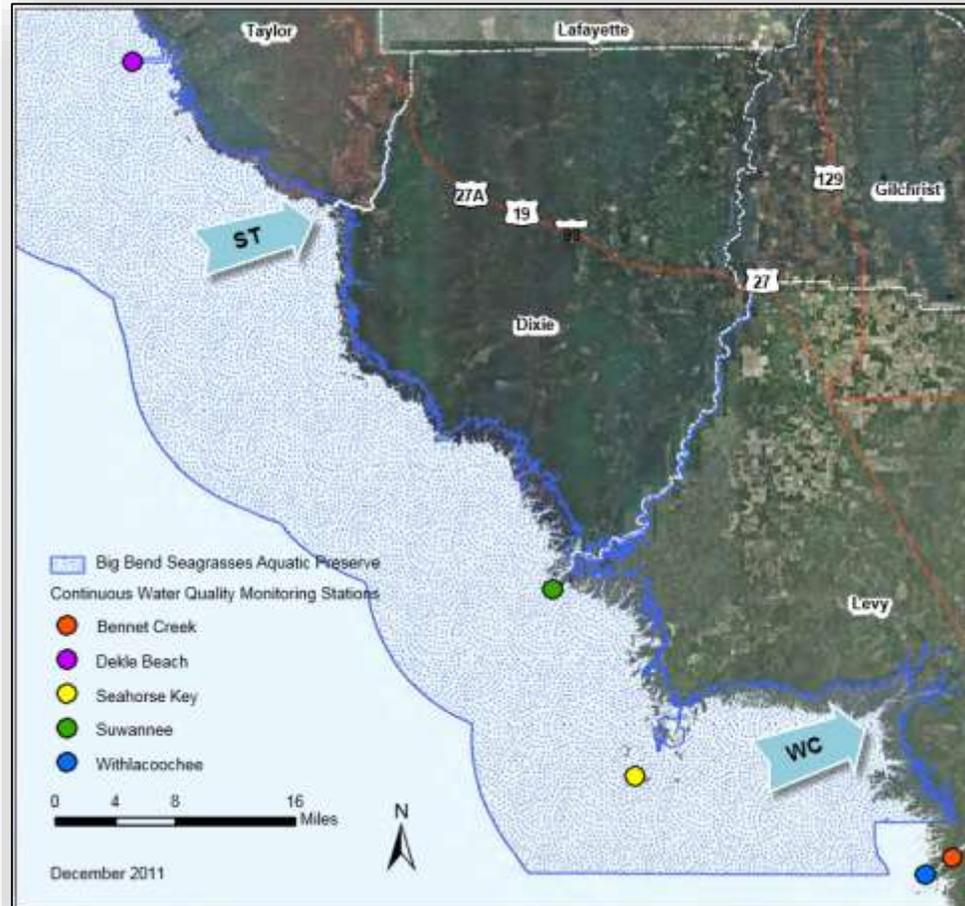




# Water Quality Program Cont...

## Big Bend Seagrasses Aquatic Preserve's Existing Water Quality Monitoring Locations

- **Dekle Beach (DB)**
  - YSI 6600
  - Data since 2007
- **Suwannee River (SW)**
  - YSI 6600
  - Data since 2009
- **Seahorse Key (SK)**
  - YSI 6600
  - Data since 2004
- **Future Sites:**
  - Steinhatchee (ST)
  - Waccasassa (WC)





# Submerged Aquatic Vegetation Monitoring

- Sampling Locations - St. Martins, Cedar Key, Steinhatchee, Dekle Beach/Keaton Beach, and St. Marks/Aucilla/Econfina
- 25 fixed sites are sampled in each area using
- Sampling Method: Braun & Blaunquet coverage scale
- 4 random quadrats are assessed at each fixed site (125 total sites)
- Coverage for each seagrass species, rooted
- Macro-algae and drift algae are assessed
- Sediment type, sediment depth
- Number of scallop and urchins
- Water quality parameters –temperature, salinity, pH, and dissolved oxygen





# Seagrass Species

Manatee Grass



Turtle Grass



Shoal Grass



Star Grass



Widgeon Grass



Paddle Grass





# Variegated Sea Urchins



*Lytechinus variegatus*

*Food Preference: Turtle grass (Thalassia testudinum)*

*Up to 11 cm in diameter*

*Have demonstrated photo-sensitivity – cover upper portion of body with objects in clear water to block out UV light*

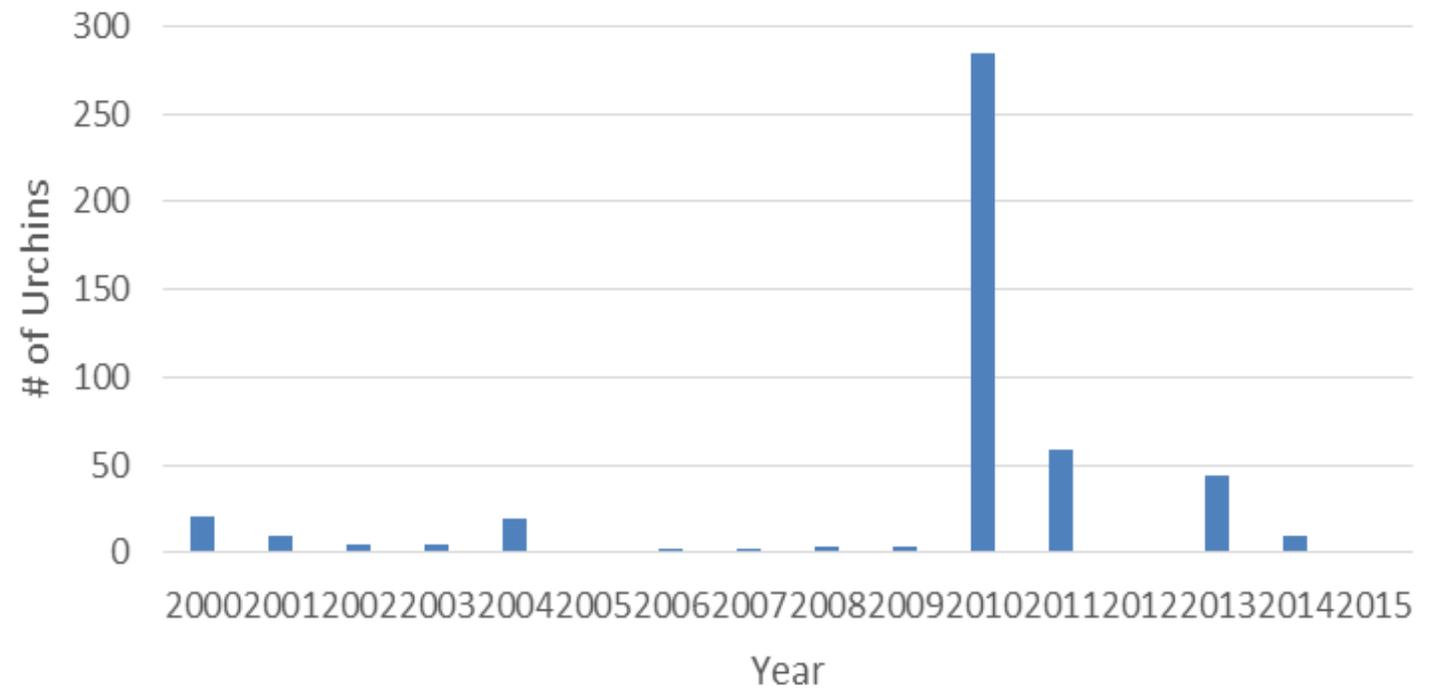
*External Reproduction resulting in multiple metamorphoses to adulthood*



# 2010 Deadmans Bay



Total Number of Sea Urchins Observed/Year in Steinhatchee





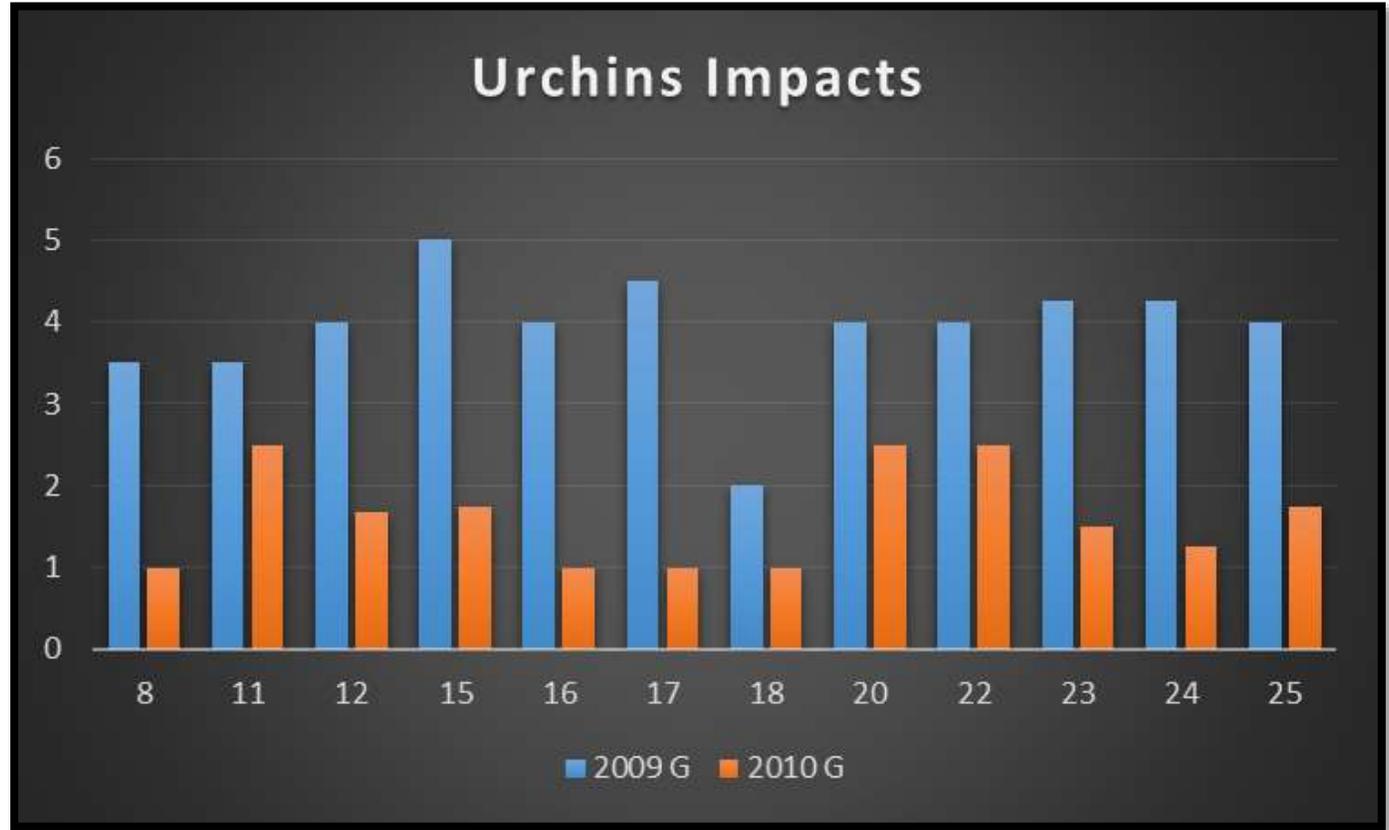
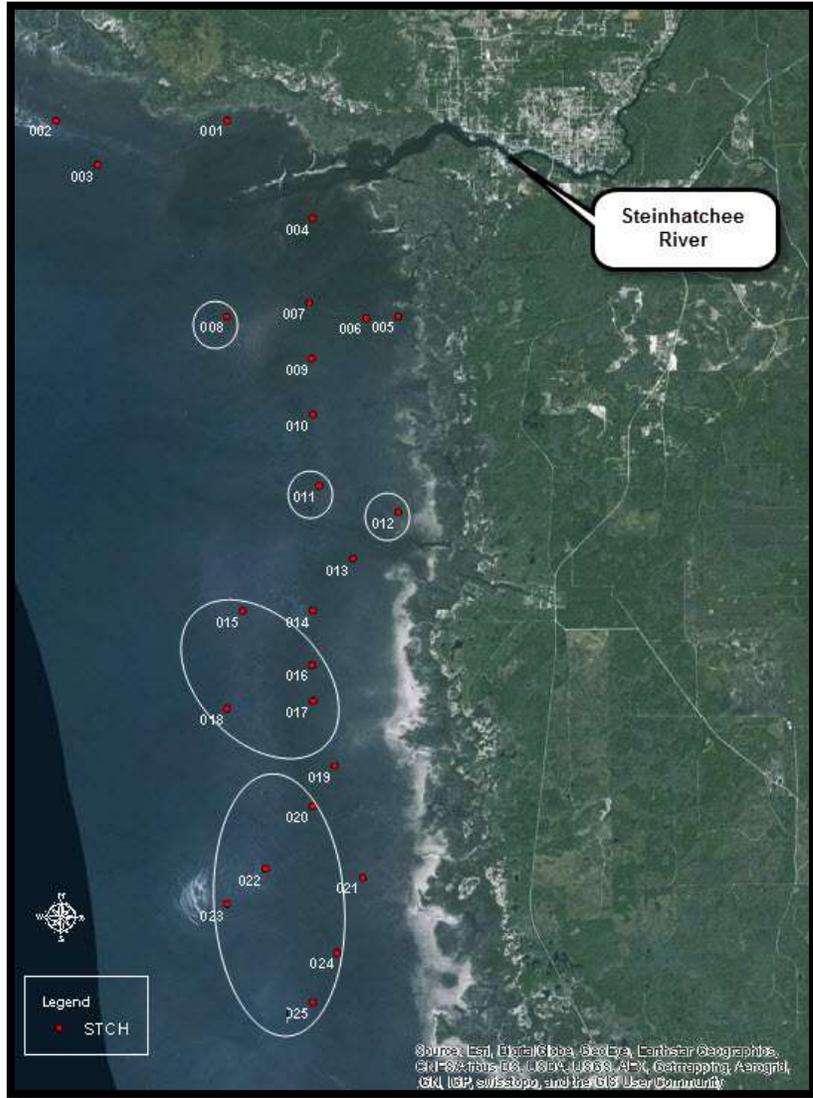
# Grazing Trails

- Aerial of Pepperfish Keys from 1944
- Urchin grazing trails clearly visible





# Steinhatchee Sites



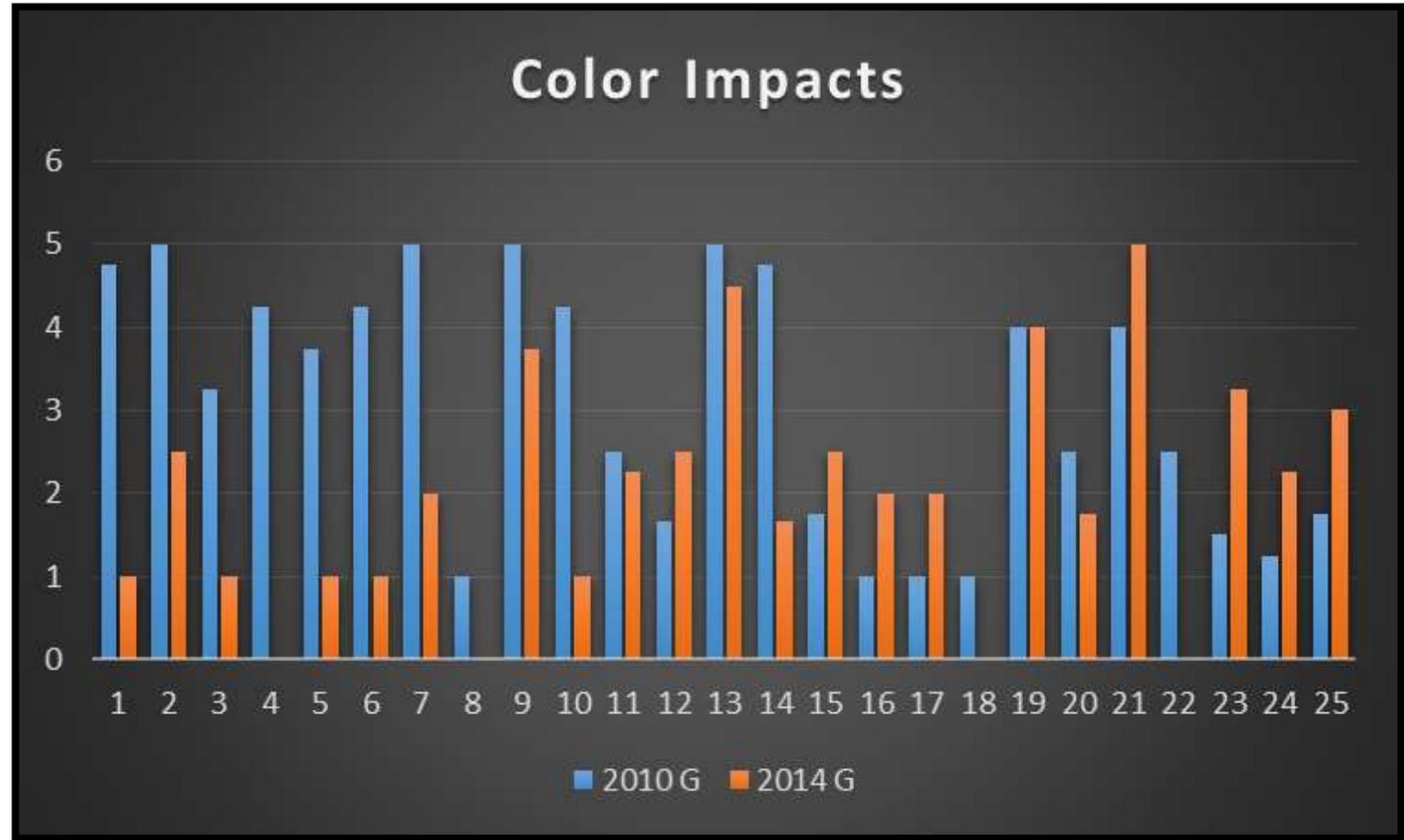
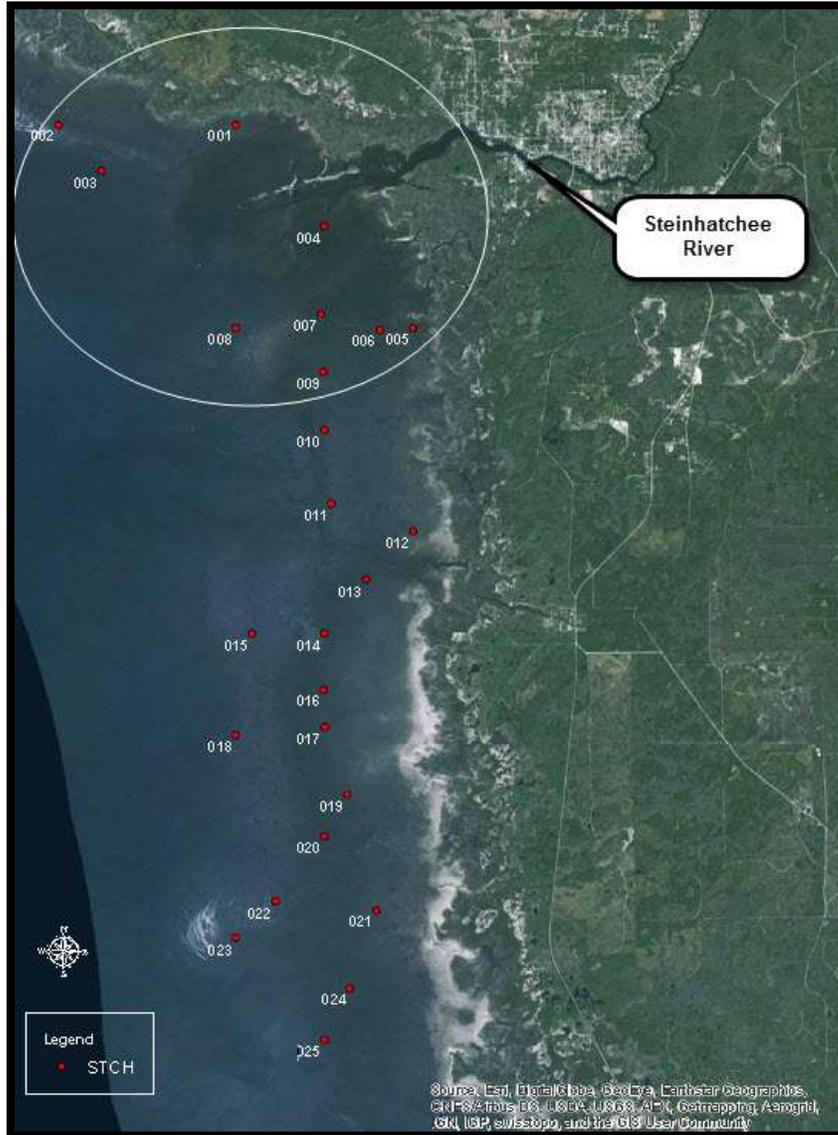


# Visuals





# Other Stressors





# Thank You

# Questions?

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