# Using mangrove monitoring to inform and guide restoration efforts

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CHIMMP/MWG Workshop

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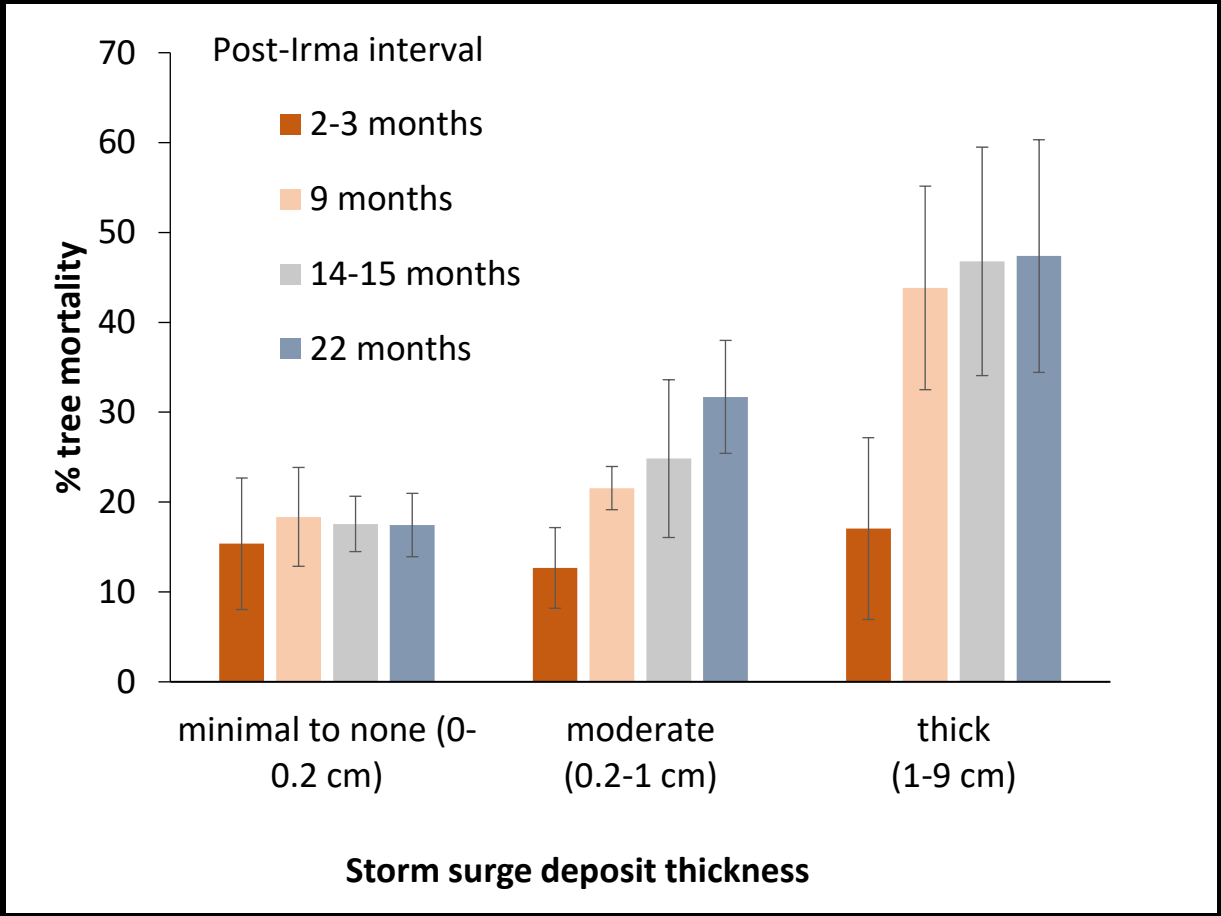
Work statewide to provide data for managers to make effective decisions regarding preservation, management, and restoration of coastal wetland habitat

# Mangroves and Hurricanes

- Recent injury and past legacies of cumulative disturbance can limit long-term ecosystem resilience to biophysical and human stressors
- Initial storm damage
  - Wind damage causes canopy loss and snapped trunks
  - Loss of shoreline due to erosion
- Long-term stressors
  - Storm surge deposit
  - Altered hydrology

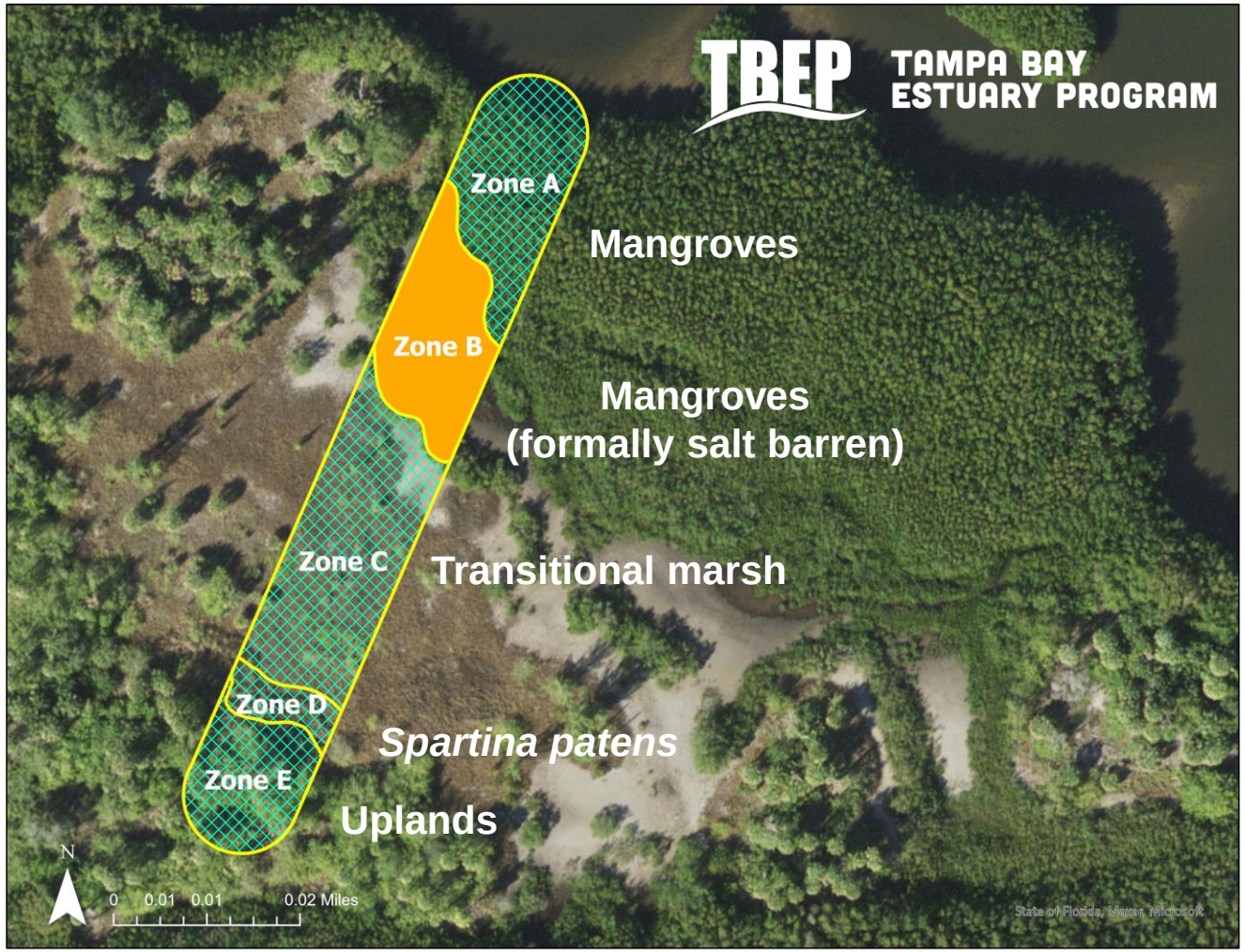
# Delayed mortality


Radabaugh et al. 2020 *Estuaries and Coasts* Irma special issue

# Critical Coastal Habitat Assessment

- Long-term fixed-transect monitoring project initiated by the Tampa Bay Estuary Program
- Monitoring the ecological status and trends of coastal habitats in relation to climate change, sea-level rise, and anthropogenic impacts
- Conducted at nine sites across Tampa Bay from the water's edge to the coastal uplands



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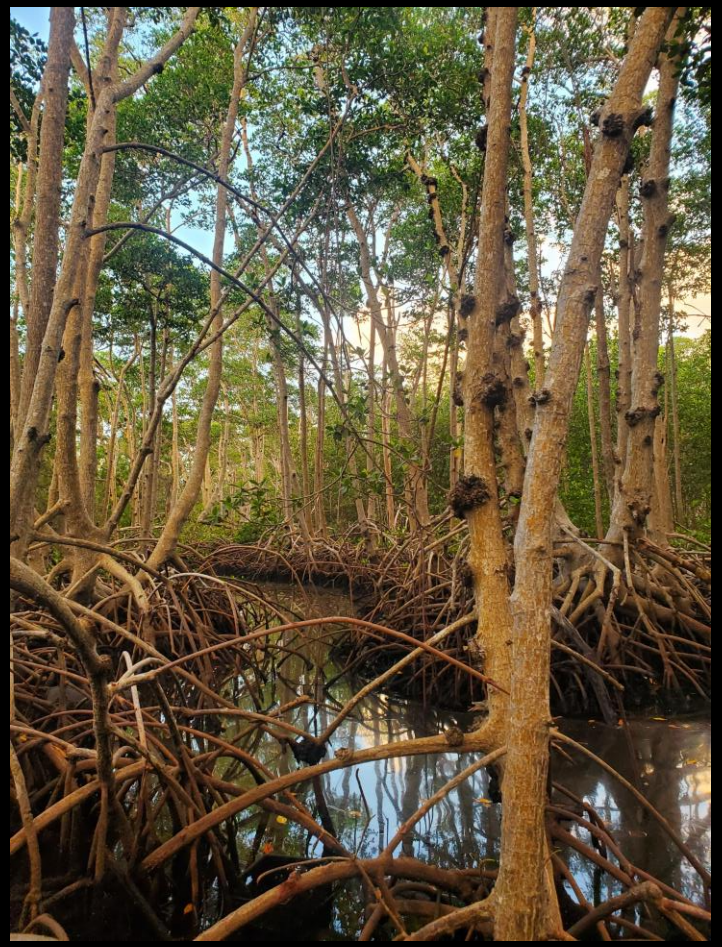

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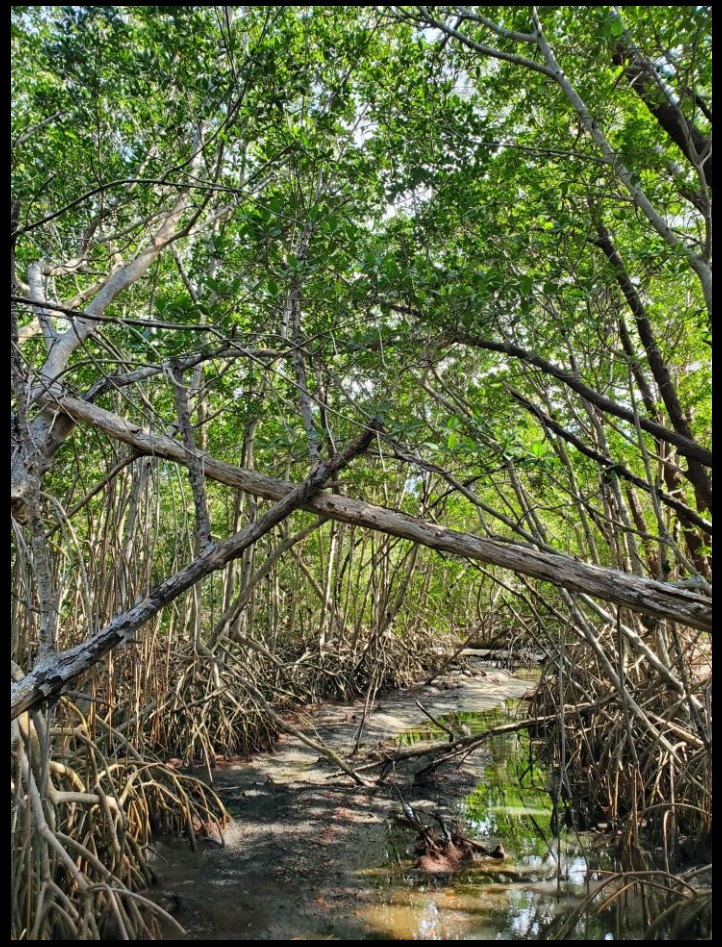
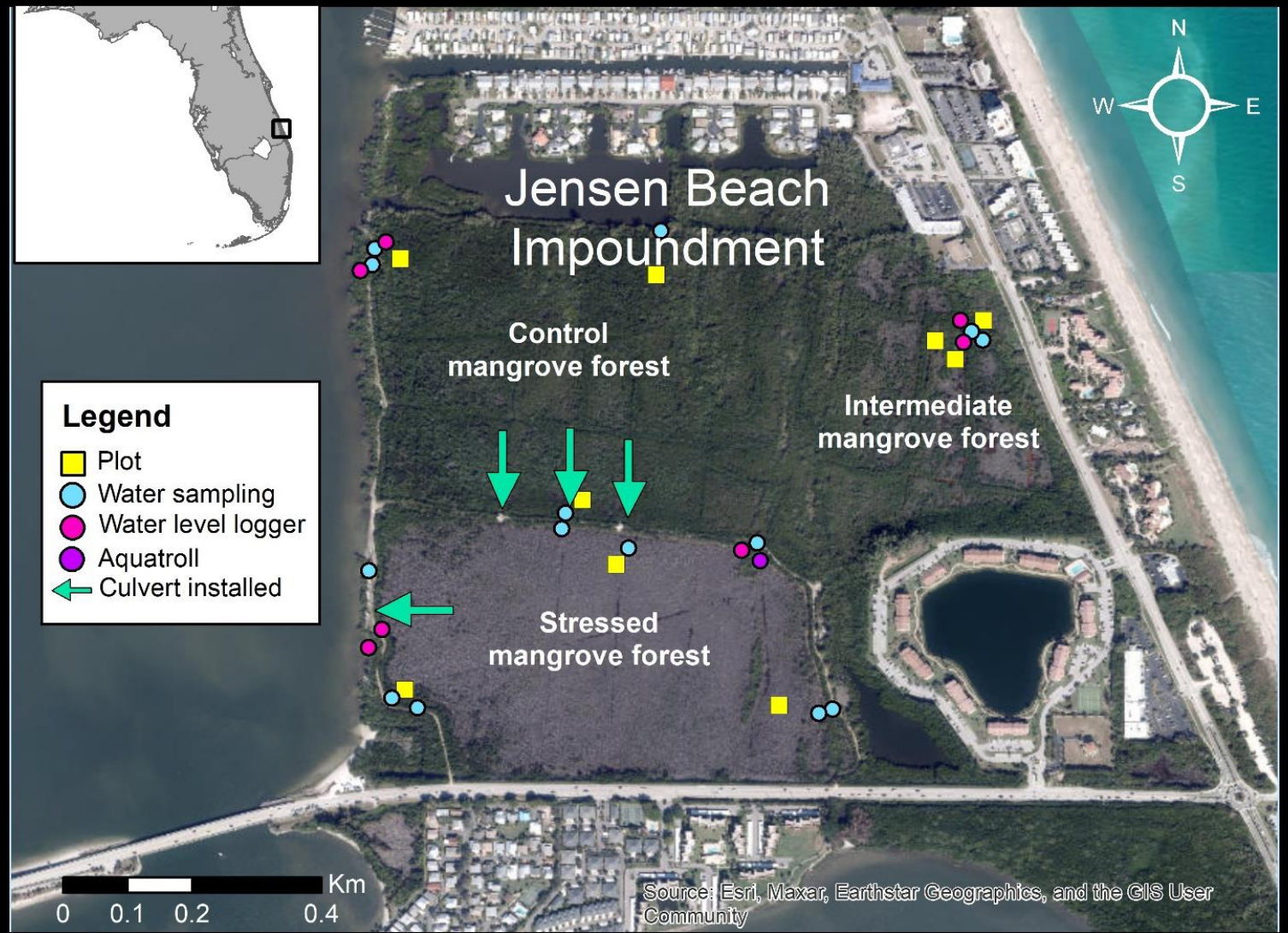


# Jensen Beach Impoundment

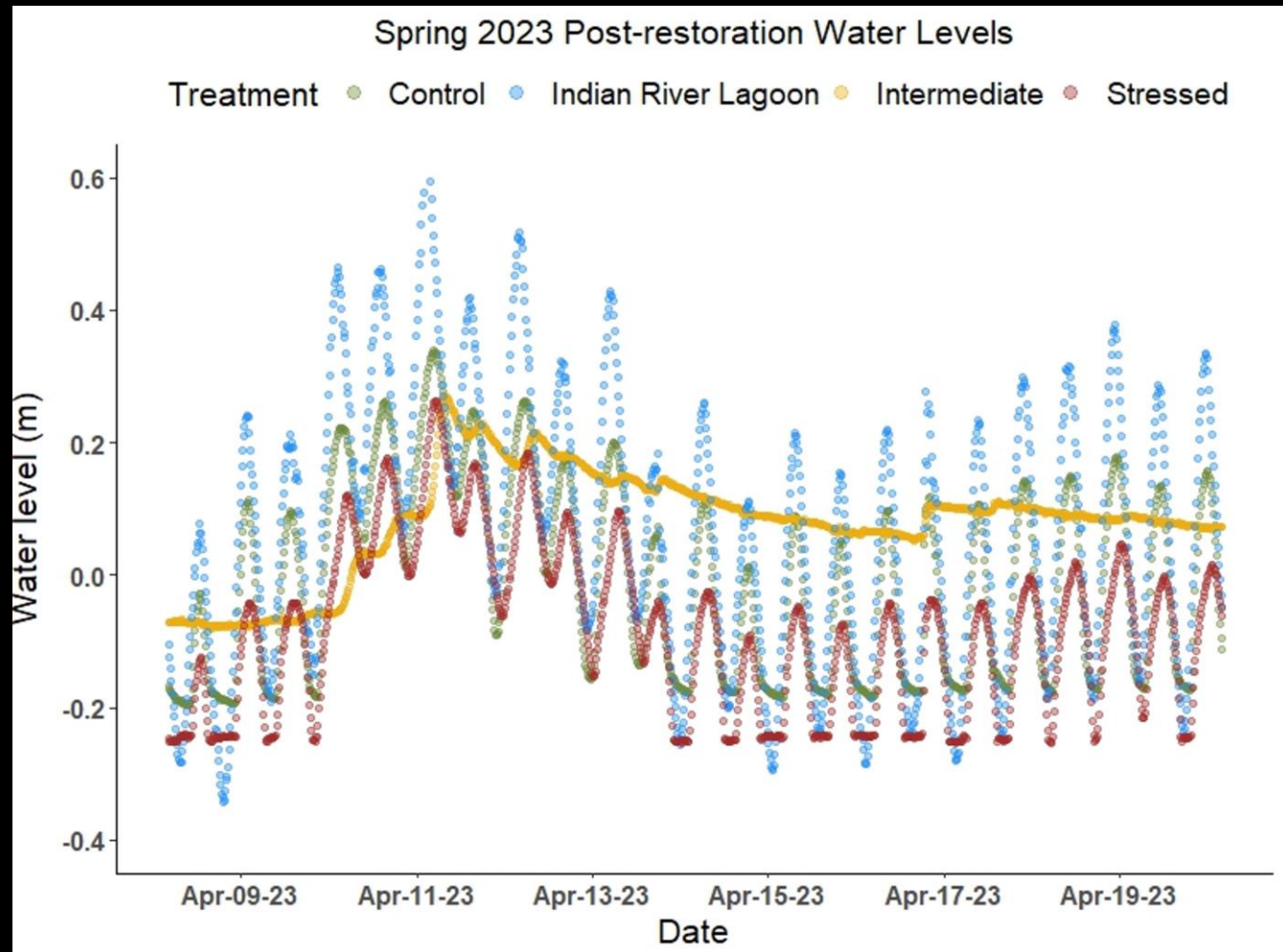


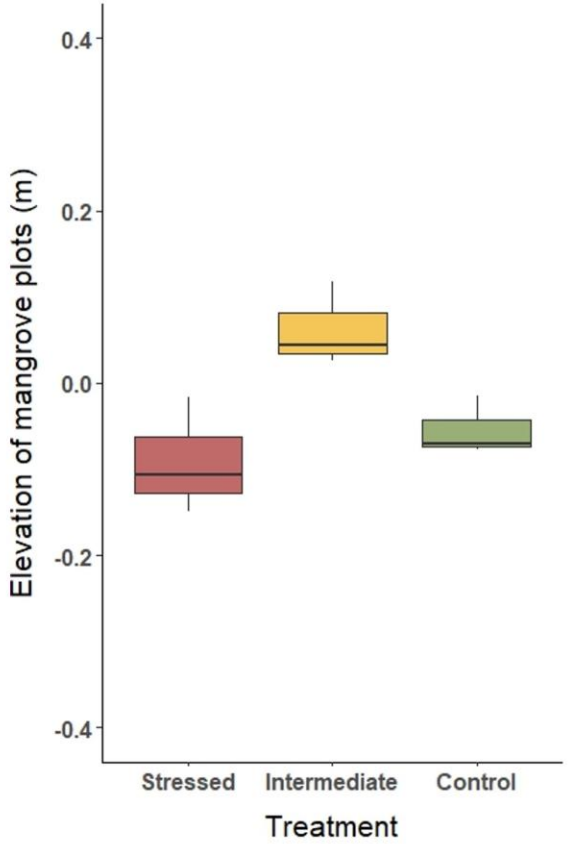

Florida Oceanographic Society


A)
January 2017
Pre-Hurricane Irma
B)
January 2018
Post-Hurricane Irma
C)
January 2021
D)
January 2023


New saplings
New culvert

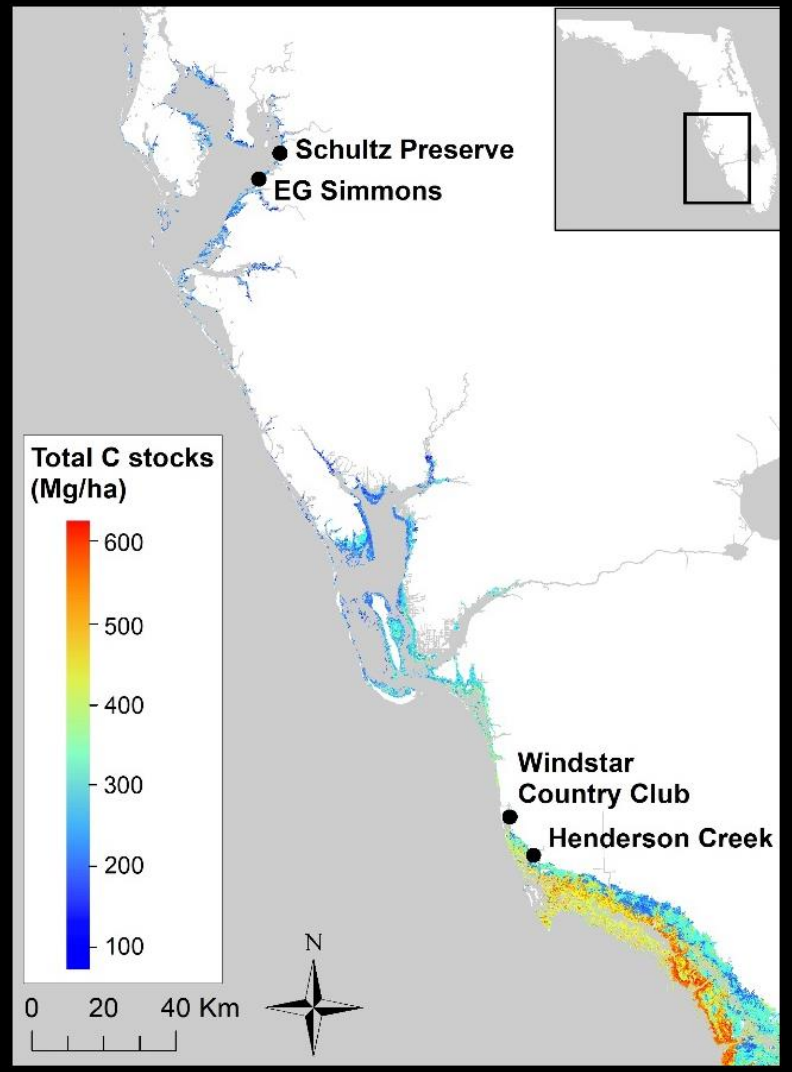
# Hydrological restoration



# Evaluation of past mangrove restoration

- Compare restored and natural Florida Gulf Coast mangrove forests to determine success and resilience of restored systems
- Compare carbon stock of mangrove stands created 20-40 years ago to natural, undeveloped stands



# Acknowledgements

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**Partners:**

**Field, lab, and logistical support:**

# Questions & comments

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MangroveExplorer

# Post-Hurricane Monitoring

December 2022

March 2023

# Wrack height

By measuring the height of wrack trapped in branches, we can estimate the high-water level during the storm

Some Charlotte Harbor fringe mangrove sites had a wrack height of 3 meters following Hurricane Ian