Tampa Bay Blue Carbon Study: What did we learn?

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Tampa Bay Blue Carbon Project

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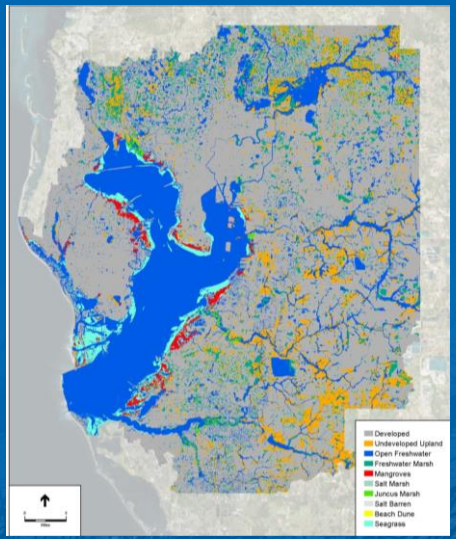
A "Coastal Blue Carbon" Assessment of the Tampa Bay Estuary: Accounting for the Climate Change Mitigation Benefits of Integrated Climate Change Adaptation and Ecosystem Restoration in Tampa Bay

Project Setting in Tampa Bay

Land Use:

- 60% of coastal lands developed
- 14% agriculture
- Only 26% of natural uplands and coastal wetland remaining



Slide credit: ESA

Project Purpose

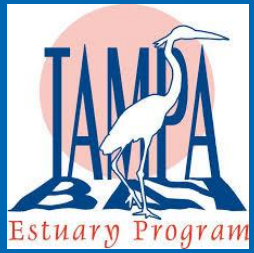
Purpose: Explore how coastal wetland carbon ("blue carbon") can be included in coastal management and support restoration efforts

2014 Study in Snohomish Estuary, Puget Sound provided basis for study approach (www.estuaries.org/bluecarbon-science)

Tampa Bay – ideal setting

- Major wetland types: marsh, seagrass and mangroves
- Engaged coastal community with success in planning and implementing environmental recovery

Project Partner & Funders



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Study Approach

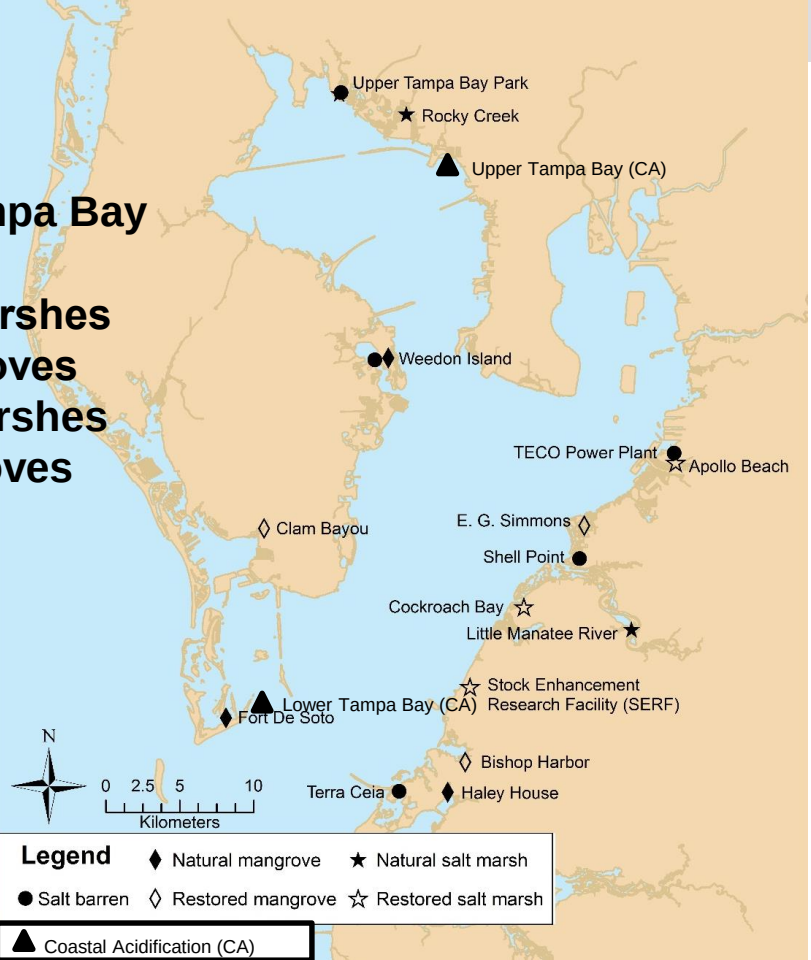
- Presented to TBEP TAC/ABM at project onset
- Develop GHG emission and removal estimates
- Field data collection
- Quantify GHG changes wrt SLR
- Land management options using carbon benefits

Approach:

17 habitat sites in Tampa Bay

- 3 “Natural” salt marshes
- 3 “Natural” mangroves
- 3 Restored salt marshes
- 3 Restored mangroves
- 5 Salt barrens

- Above- and below-Ground C stocks; Burial rate at 6 sites



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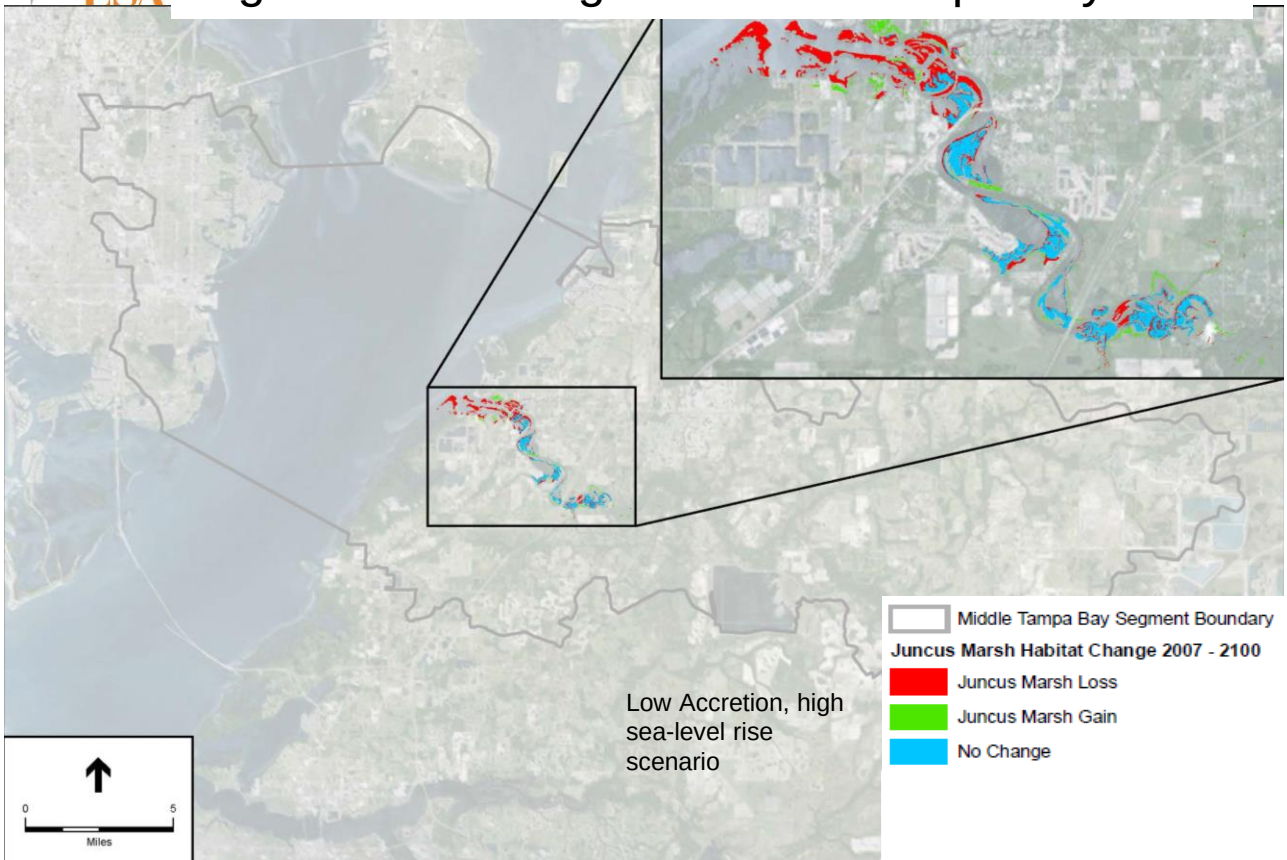
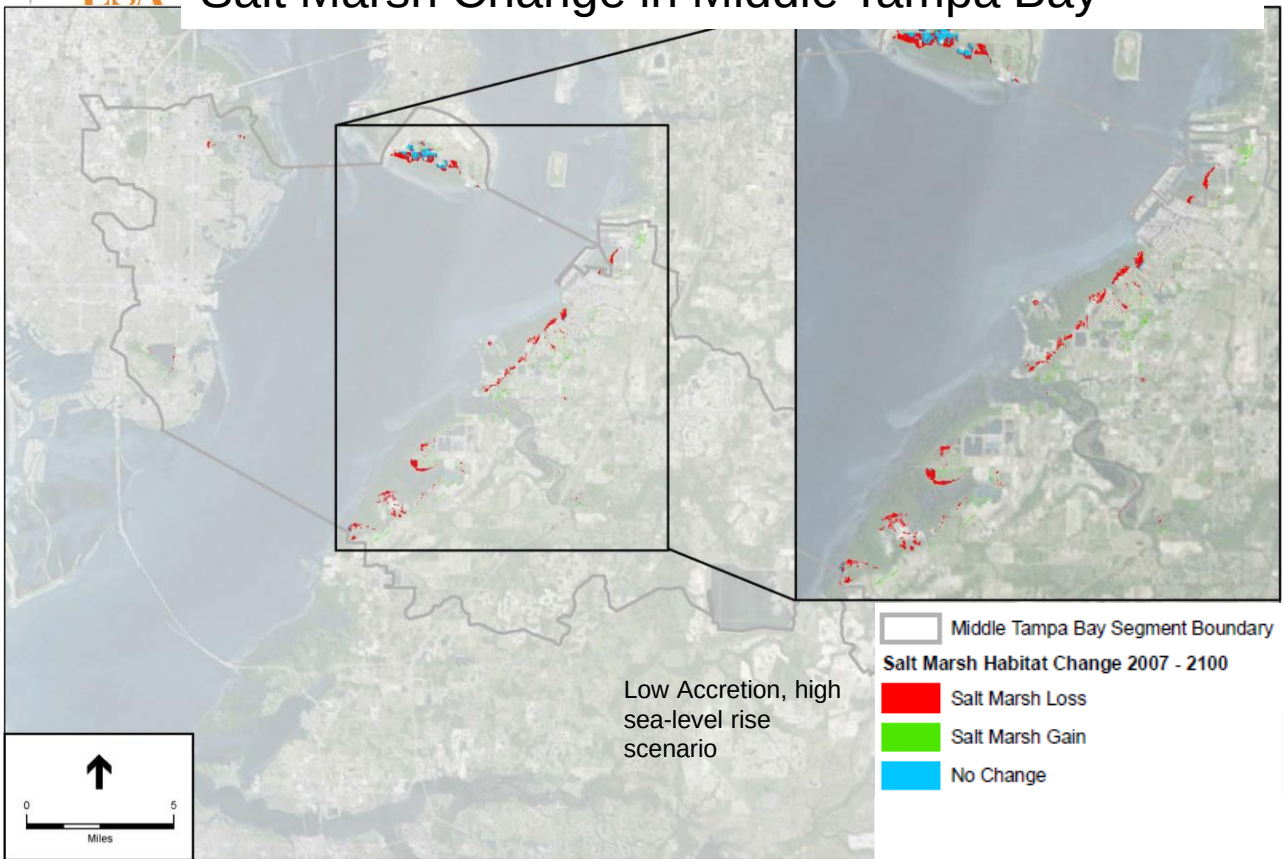
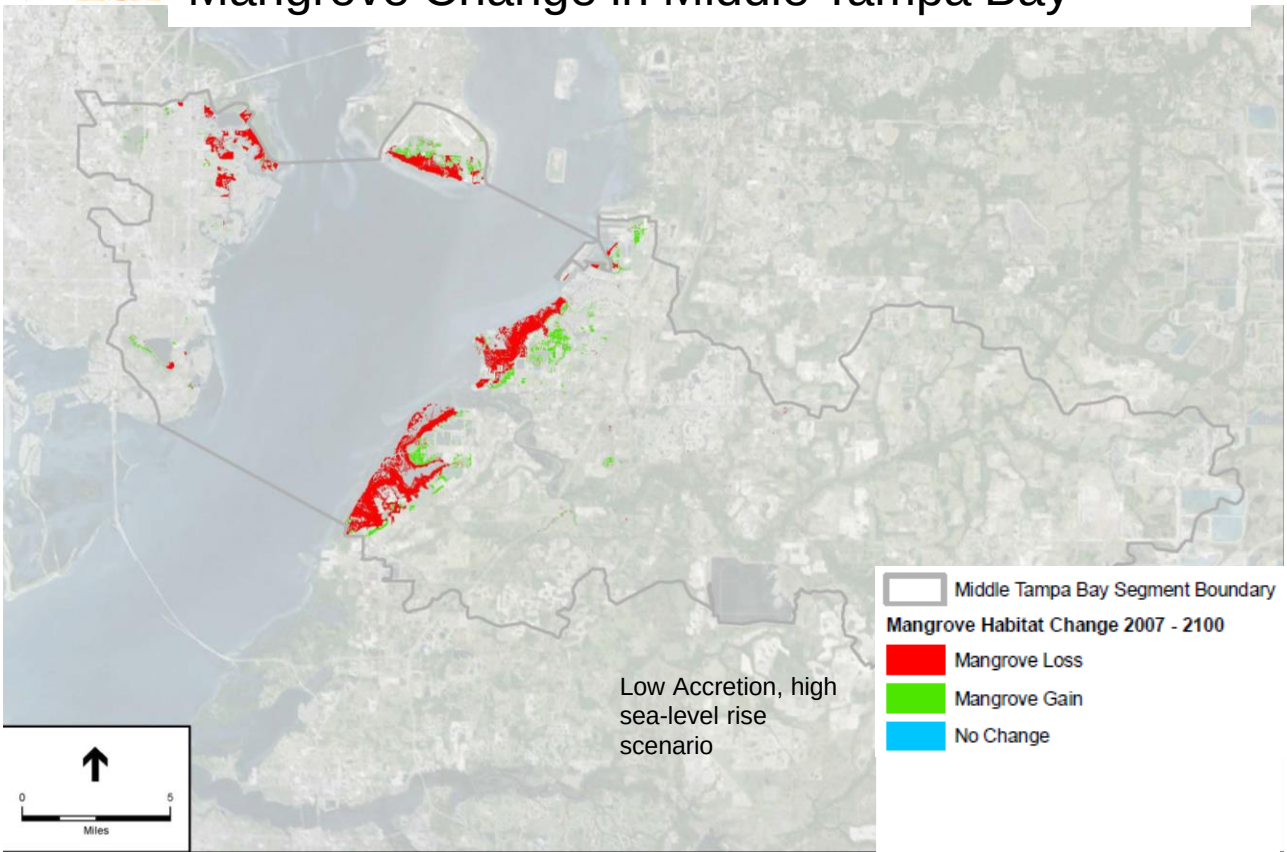
High Marsh Change in Middle Tampa Bay



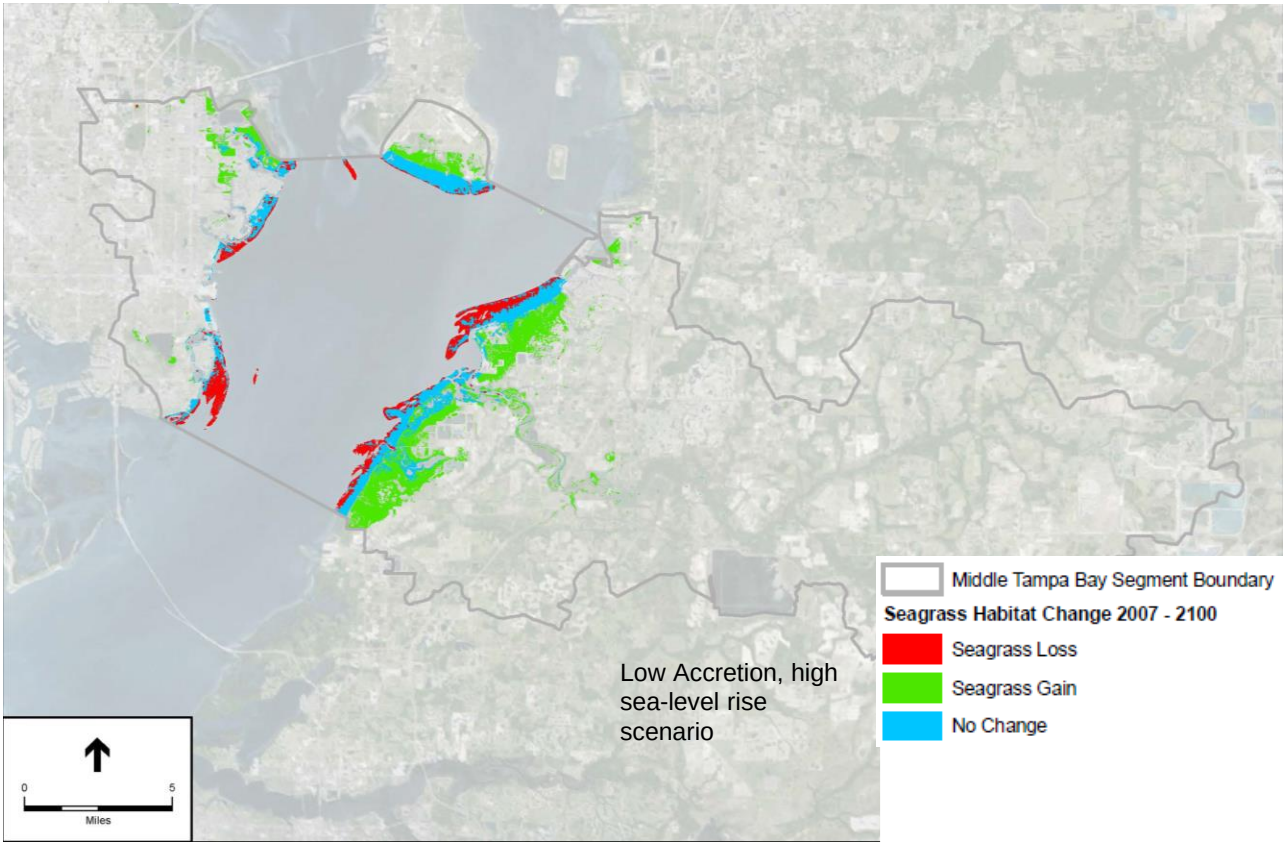
Salt Marsh Change in Middle Tampa Bay



Mangrove Change in Middle Tampa Bay

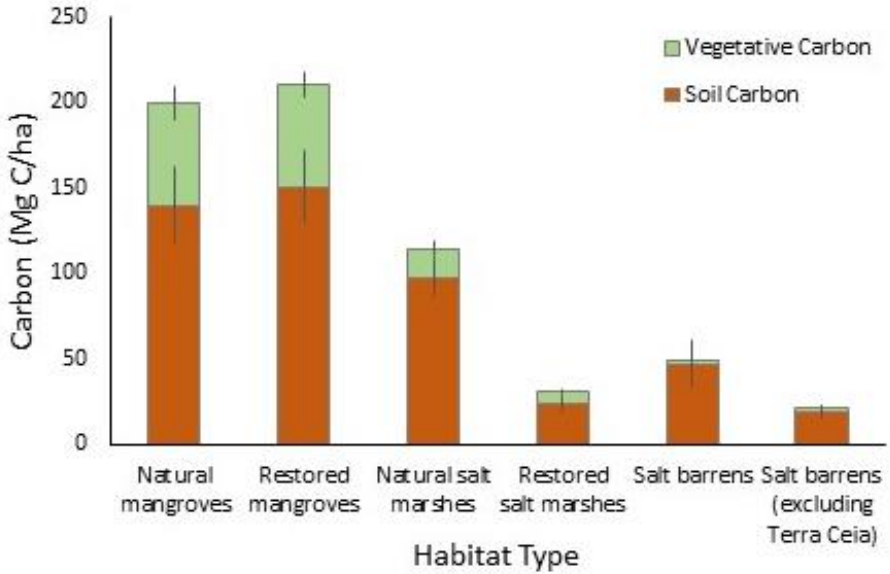


Seagrass Change in Middle Tampa Bay



How Much Blue Carbon Is There?

Tampa Bay Carbon Stocks by Habitat Type



Slide credit: Ryan Moyer, FL FWCC

(Radabaugh et al. In revision)

Tampa Bay Assessment

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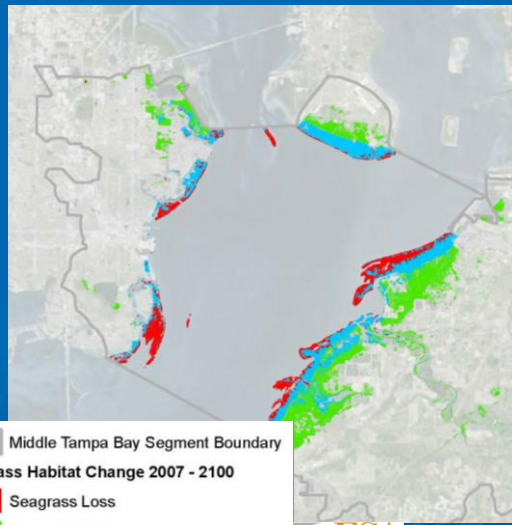
What did we learn?

- Over next 100 years, TB habitat will continue to sequester and store C
- **3.5 M metric tons CO2 by 2100** = 160,000 cars/year (4.3 M gal gas/yr) → $11.5 M in offsets
- Restoration projects have removed 217,000 tons since 2006
- Intertidal habitats likely to decrease
- Seagrass likely to expand

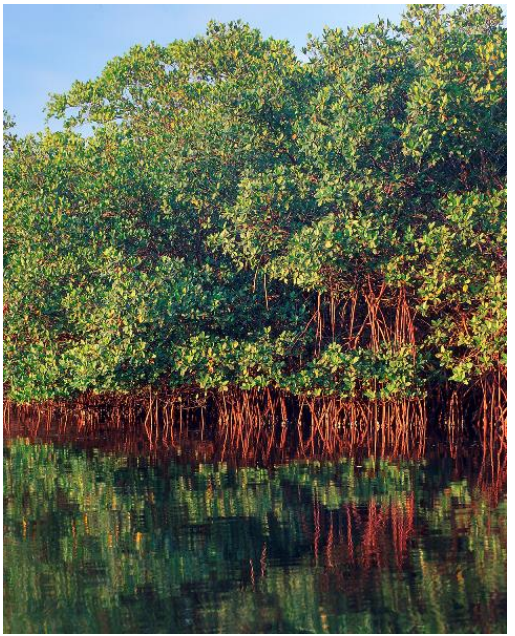
Management recommendations:

- Conserve upland
- Prioritize vulnerable areas
- Maintain water quality



Take-home messages for blue carbon in Tampa Bay

- Blue carbon- another reason to restore/protect habitat
- Way to bring in new partners for restoration/conservation
- Climate change mitigation and planning
- Economic benefit- potential carbon market
- New measure of habitat benefits (GPRA, other metrics)



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