RECOMMENDATION FROM HABITAT MASTER PLAN UPDATE

- Establish a long-term fixed transect program to determine ecological and functional changes in critical coastal habitats
- Funded with TBEP workplan
- Grant from US Fish and Wildlife Service
PURPOSE OF PROJECT

- Develop a long term monitoring program to assess the status, trends, and ecological function of the mosaic of critical coastal habitats to:
  - Detect changes due to natural, and indirect anthropogenic impacts including sea level rise and climate change, and
  - Improve future management of habitats
MONITORING PROJECT OBJECTIVES

- Establish assessment methods to:
  - Characterize the baseline (2014) status of the mosaic of critical coastal habitats
  - Detect trends in those habitats over time
  - Assess changes in ecological function of habitats over time

- Implement methods into a cost-effective, long-term monitoring program
RECOMMENDATIONS FROM TAMPA BAY HABITAT MASTER PLAN UPDATE

- At least 1 fixed transect in each 4 primary bay segments
- Areas that have a full complement of emergent tidal wetland communities
  - Mangrove → salt marsh → salt barren → coastal uplands
- Establish fixed quadrats at selected points representative of various plant communities
- Collect data annually on low tide, possibly November
3 SCALES OF INFERENCE

- **Bay Wide Scale**
  - “Restoring the Balance”

- **Bay Segment Scale**
  - Gross changes in habitat edges and extent

- **Habitat Ecotone Scale**
  - Fine-scale changes in location and function of habitats
BAY WIDE SCALE EXAMPLE

Restoring the Balance aims to:

- Restore the predevelopment balance of habitat ratios (i.e. relative proportions) of emergent tidal wetland that were present during a benchmark time period.

- Proportionally, salt marsh and salt barrens have lost the most acreages.

Example Questions:

- How have relative proportions of wetland habitats changed since the 1950s (benchmark) period?

PBS&J, 2010. Tampa Bay Habitat Master Plan Update.
Aims to:
- Examine gross changes in the changes in habitat ecotones and extent within the major bay segments.

Changes in habitat ecotones, position from the shoreline, and total extent can be monitored with aerial photography.

Example Question:
- How have habitat edges within a bay segment changed between LULC updates (e.g., every 5 years)?
HABITAT ECOTONE SCALE EXAMPLE

- Aims to:
  - Examine small-scale changes in location and function of the habitat edge at specific locations.
  - The edge of each habitat type will be monitored and tracked over relevant periods of time (e.g., 5+ year intervals).

- Example Question:
  - How are the habitat edges changing in terms of ecological function and community structure?
AREAS OF INTEREST FOR BAY SEGMENT/ HABITAT ECOTONE SCALE

- Six permanent transects proposed
- One coastal transect in each major bay segment
  - Old Tampa Bay
  - Hillsborough Bay
  - Middle Tampa Bay
  - Lower Tampa Bay
- Two transects along tidal tributaries (likely candidates)
  - Double Branch Creek (Upper Tampa Bay Park)
  - Little Manatee River
**PROPOSED SAMPLING APPROACH**

- Belt transect with individual sample plots along linear transect
- Stratified random sampling locations along plots within each vegetation strata
Physical
- Permanent elevation benchmarks
- Topographic survey along habitat gradients
- Shallow well piezometers
  - Water table elevation
  - Interstitial salinity
- Sediment cores
  - Percent organic matter
  - Vertical accumulation
    ▪ Feldspar marker horizons

Biological
- Flora
  - Line-intercept along habitat gradients
  - Stratified random quadrats within belt transects
  - Species richness/diversity
  - Percent cover
  - Shoot density
- Fauna
  - Macro invertebrates
    ▪ Fiddler crab burrows
  - Wildlife observations
Atkins selected as contractor for CCHA
Kick-off meeting with project team in April
Draft methods and Pilot study (summer 2014)
Final methods and baseline assessment (fall 2014)
Baseline data presented in geospatial database