

CRITICAL COASTAL HABITAT MONITORING PROGRAM

CHIMMP Meeting
April 29, 2014

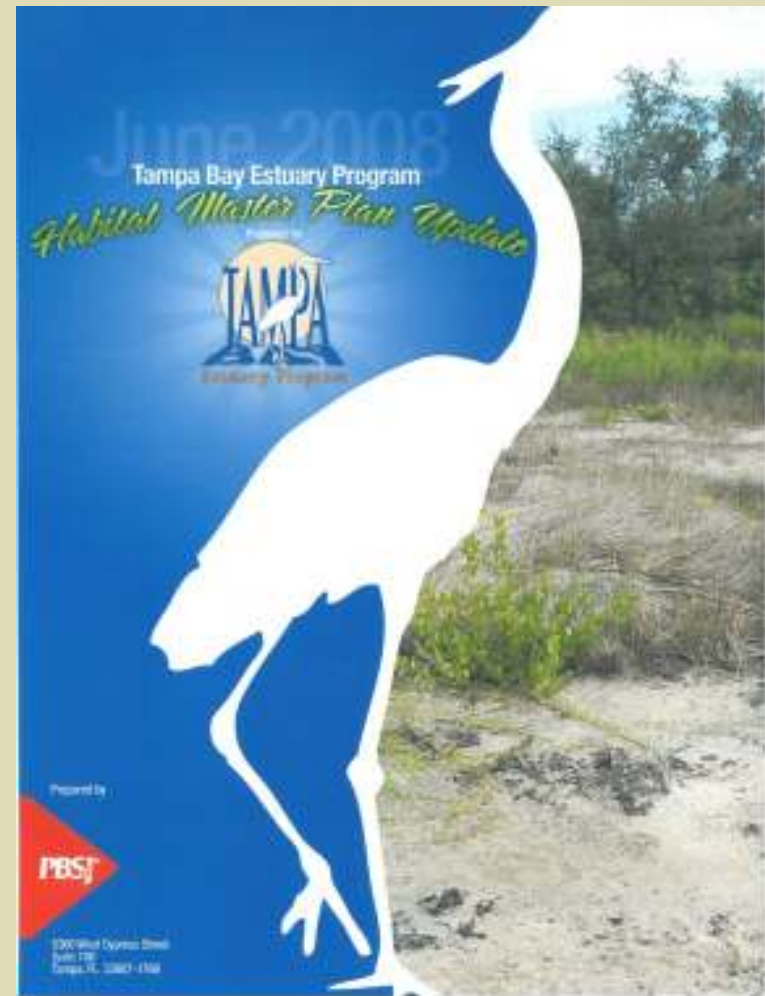


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RECOMMENDATION FROM HABITAT MASTER PLAN UPDATE

- *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.



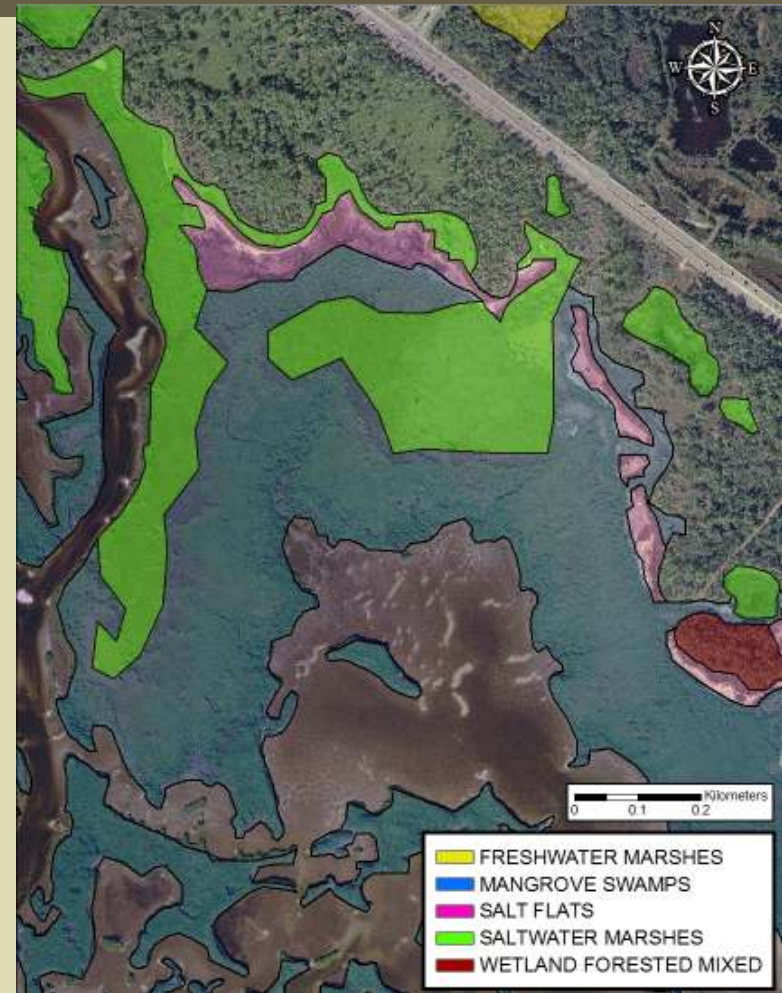
PBS&J, 2010. Tampa Bay Habitat Master Plan Update.

■ Example Questions:

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

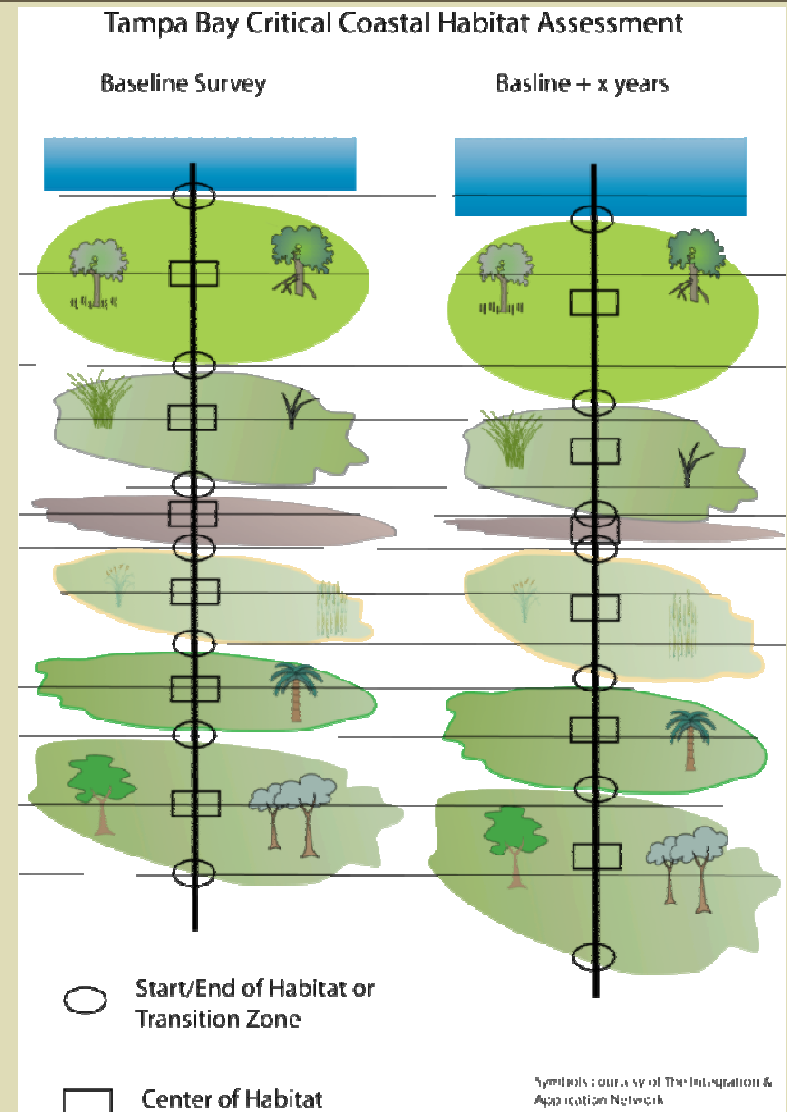
BAY SEGMENT SCALE EXAMPLE

- 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)?



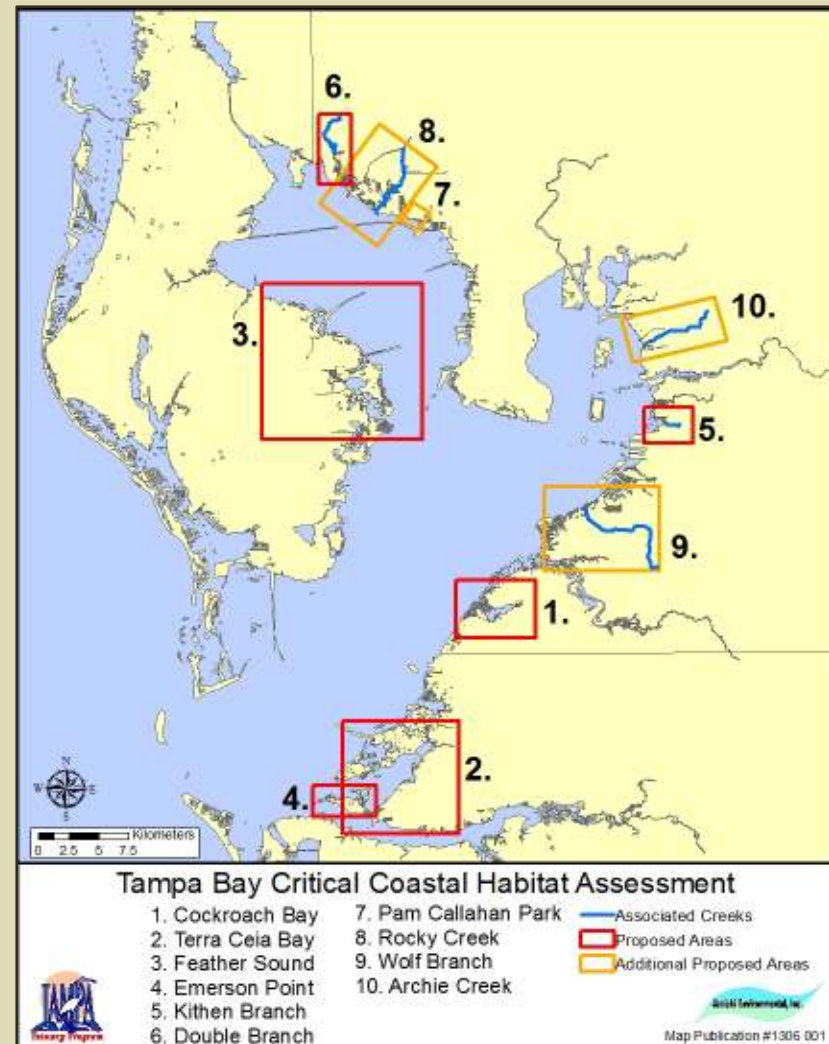
HABITAT ECOTONE SCALE EXAMPLE

- 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?



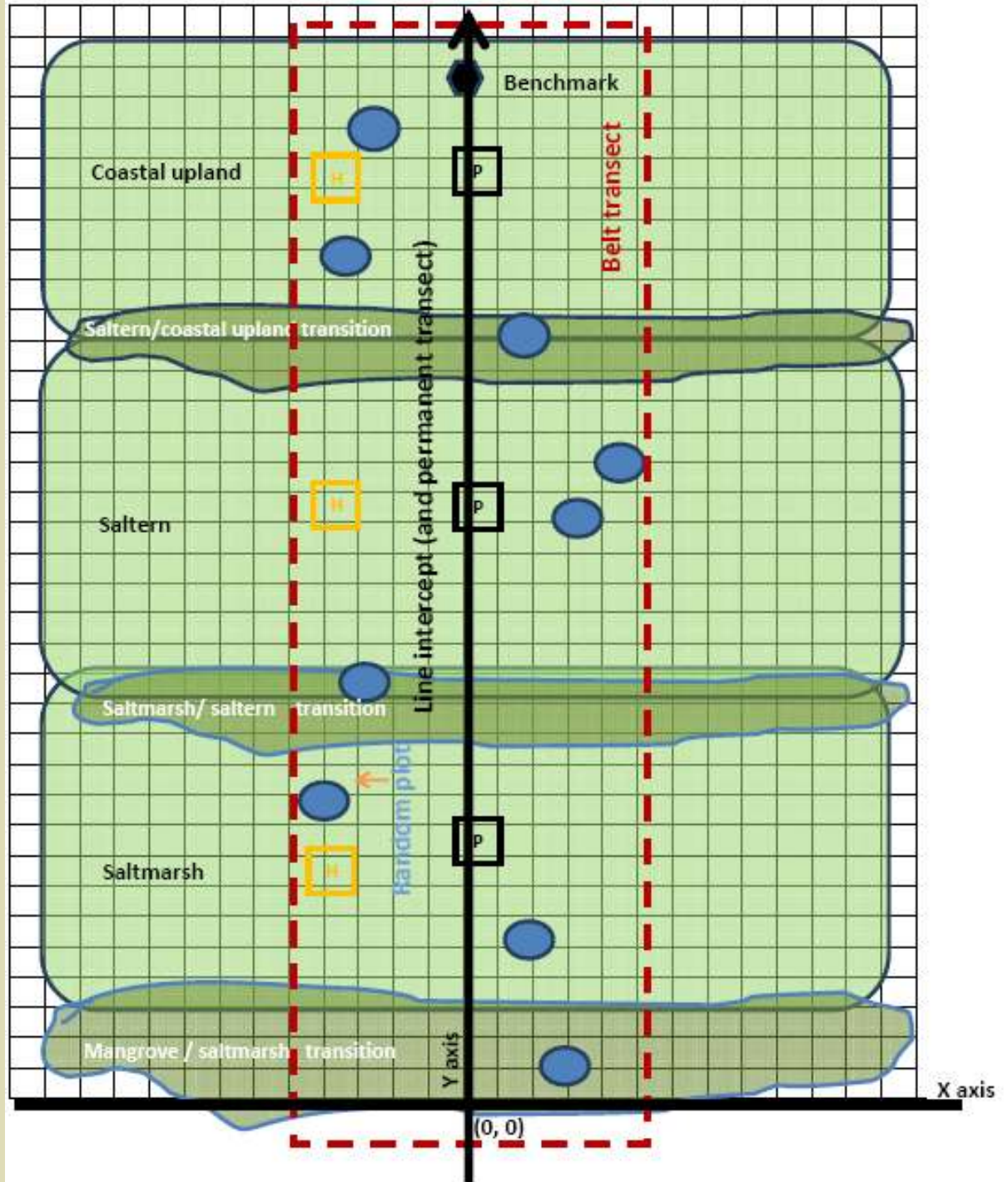
AREAS OF INTEREST FOR BAY SEGMENT/ HABITAT ECOTONE SCALE

- 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





MONITORING PARAMETERS



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

PROJECT TIMELINE

- 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

