

Adaptive Management Strategies to Address Saltwater Intrusion at Alligator River NWR

OCTOBER 2019

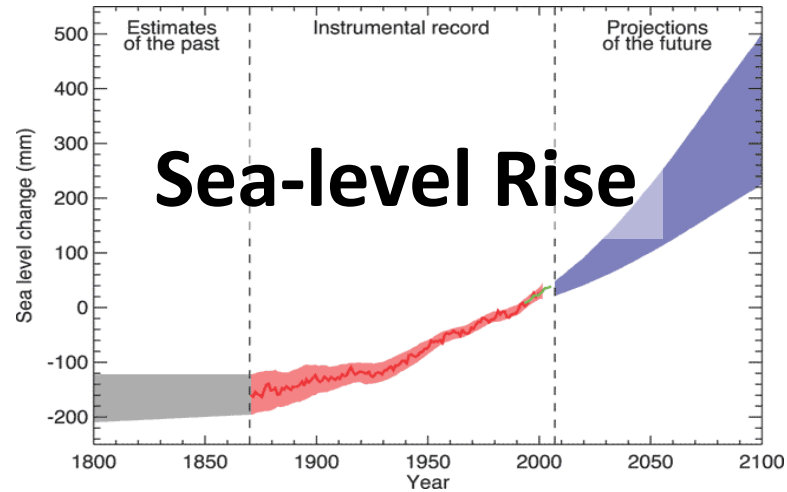
BRIAN BOUTIN AND ERIC SODERHOLM

THE NATURE CONSERVANCY

ALBEMARLE-PAMLICO SOUNDS PROGRAM



Climate Change on the Coast



Sea-level Rise



Saltwater Intrusion



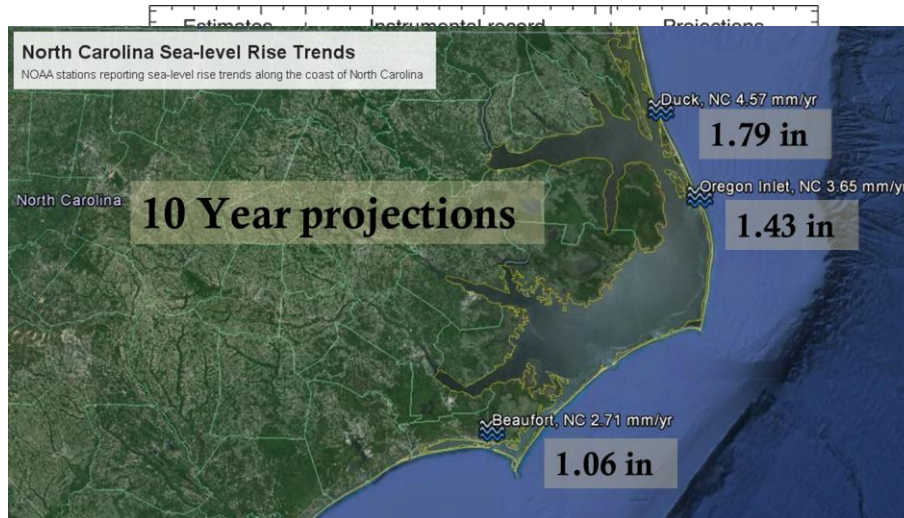
Severe Weather Events



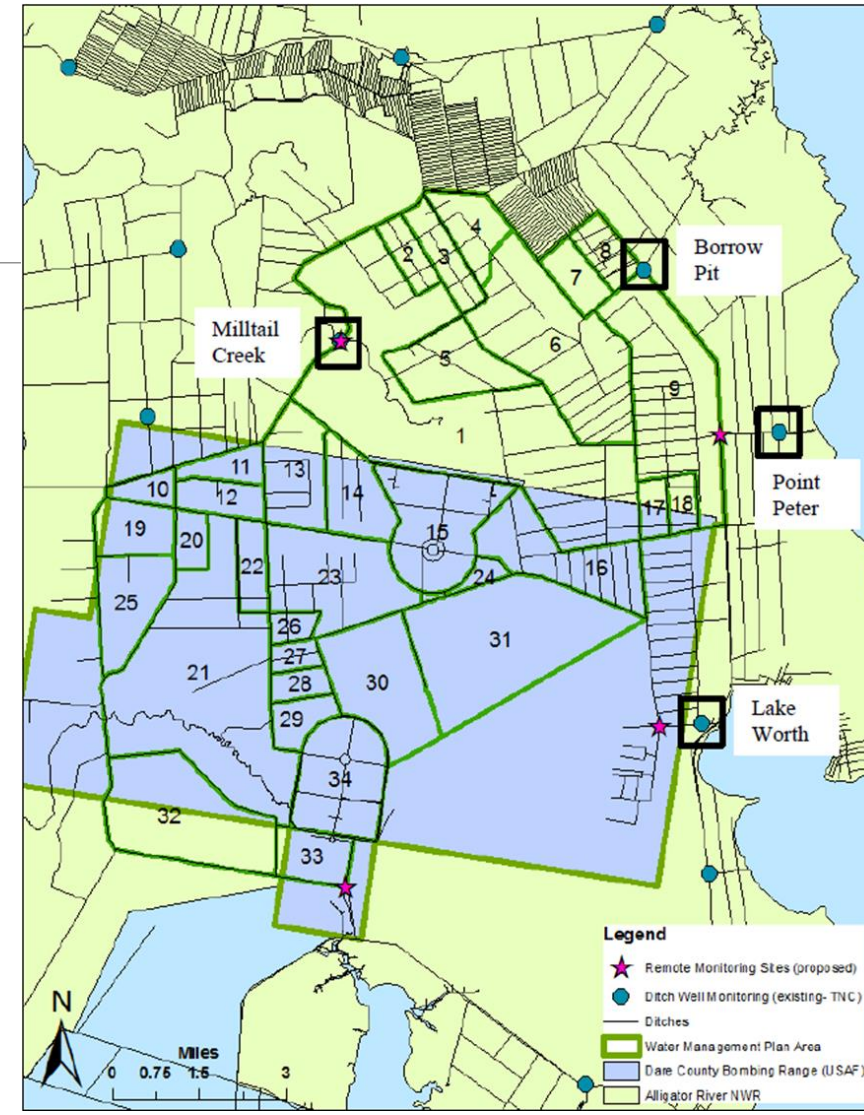
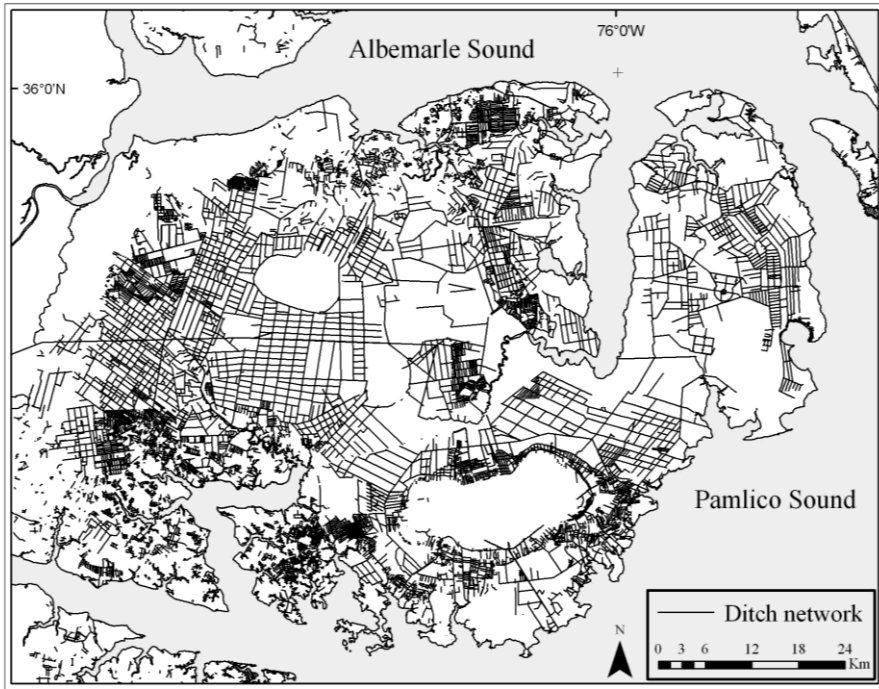
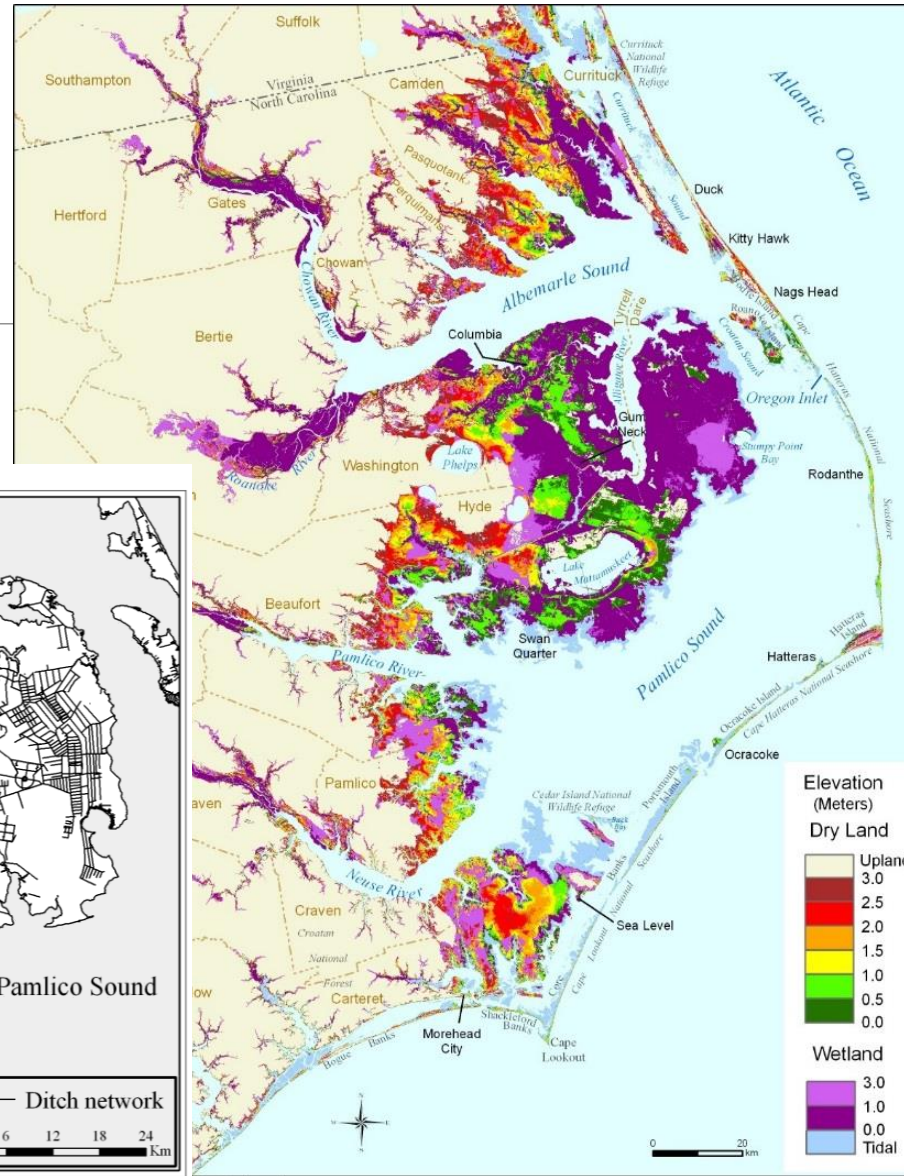
Catastrophic Wildfire

NCFS

Climate Change on the Coast



Landscape Attributes



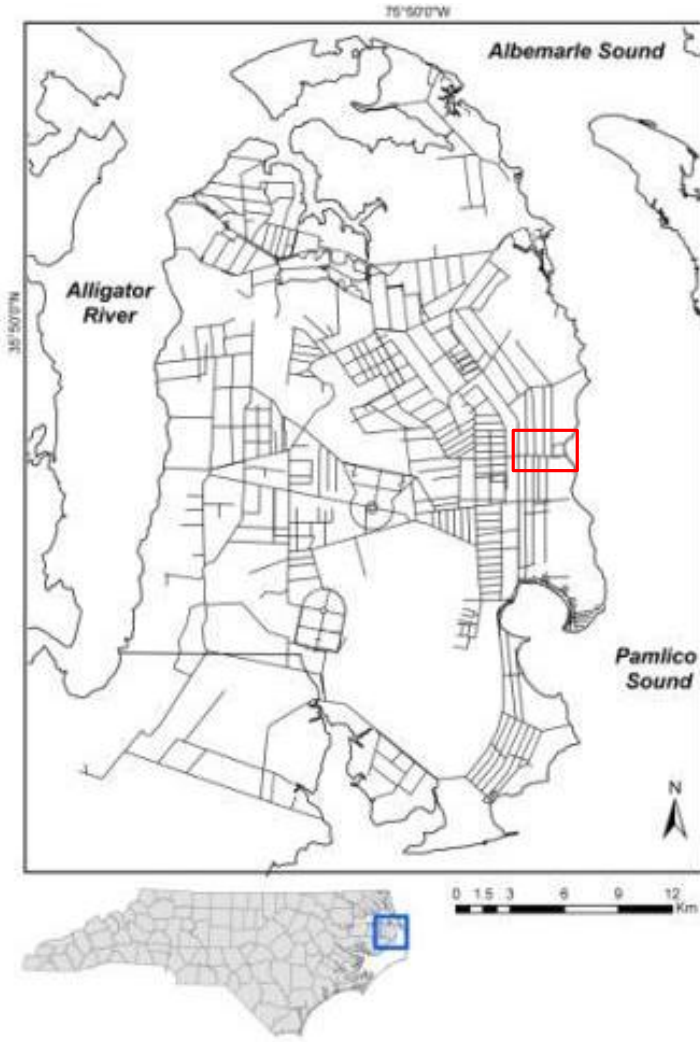
Elevations are above spring high water, which is the average high tide during new and full moons, and approximately the inland boundary of tidal wetlands. This map is a general graphical representation of elevations in the area depicted, not designed to estimate the precise elevations at specific locations. Actual elevations at specific locations may be 30 cm above or below the elevation shown.
 Source: J.G. Titus and J Wang. 2008. "Maps of Lands Close to Sea Level along the Mid-Atlantic Coast".
 US Environmental Protection Agency.

Climate Adaptation Strategies

- Improve water management capability
- Set the stage for change through vegetative restoration
- Reduce shoreline erosion using oyster reefs



Starting on the Frontline



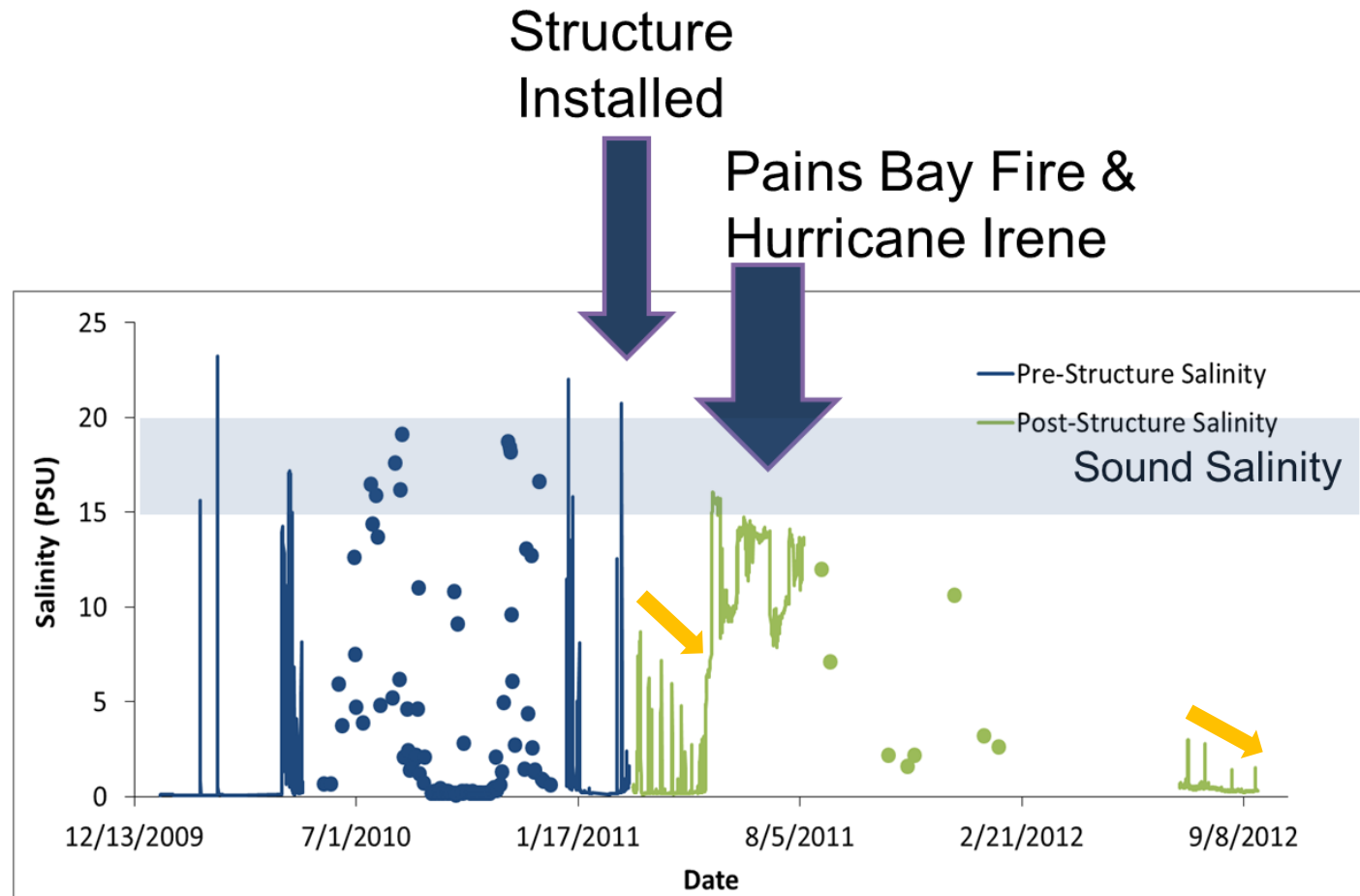
- Alligator River NWR
 - Point Peter Rd
- Visible impacts
 - Ditching
 - Vegetation die-off
 - Shoreline erosion
- Good Accessibility
 - Monitoring
 - Education



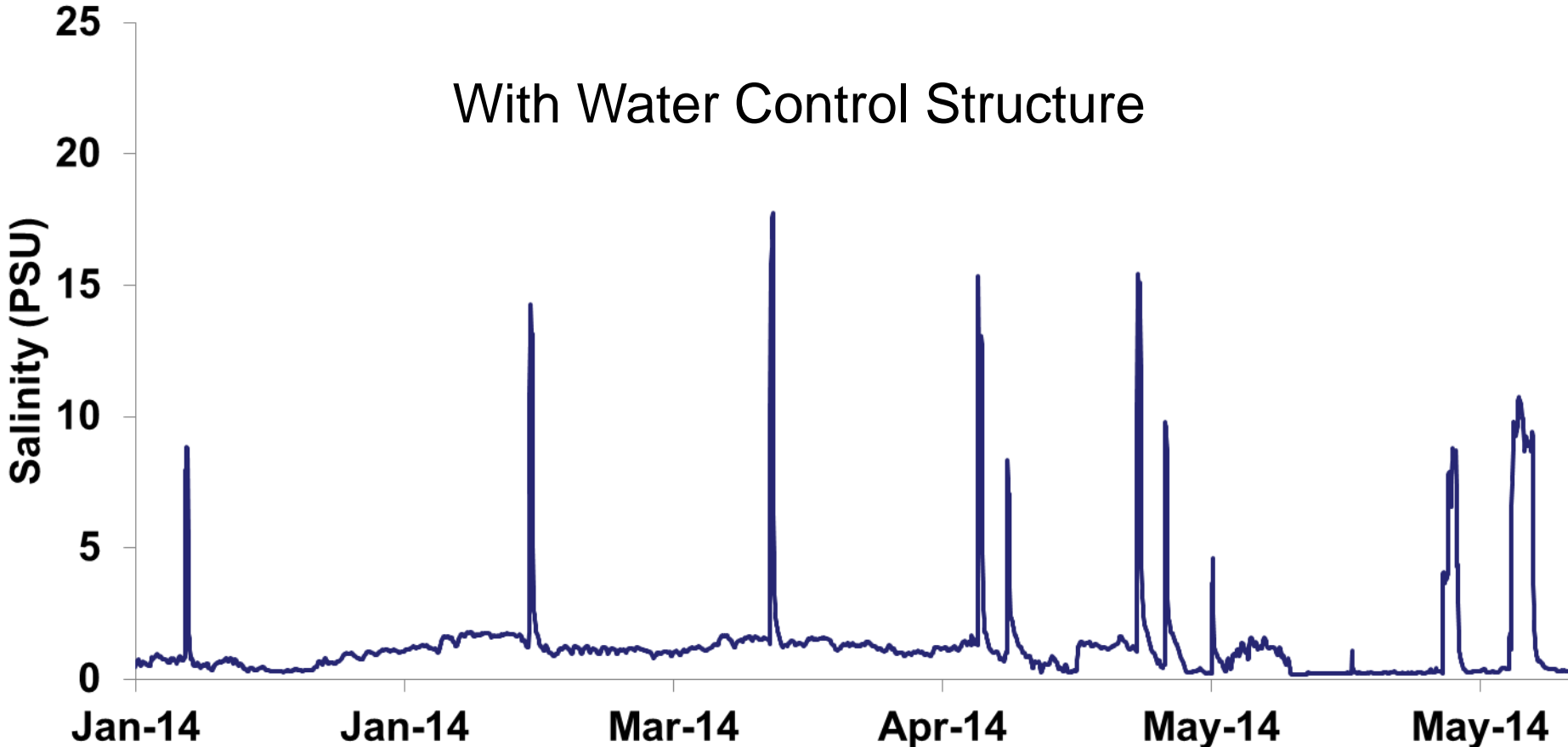
Point Peter Road: Water Management



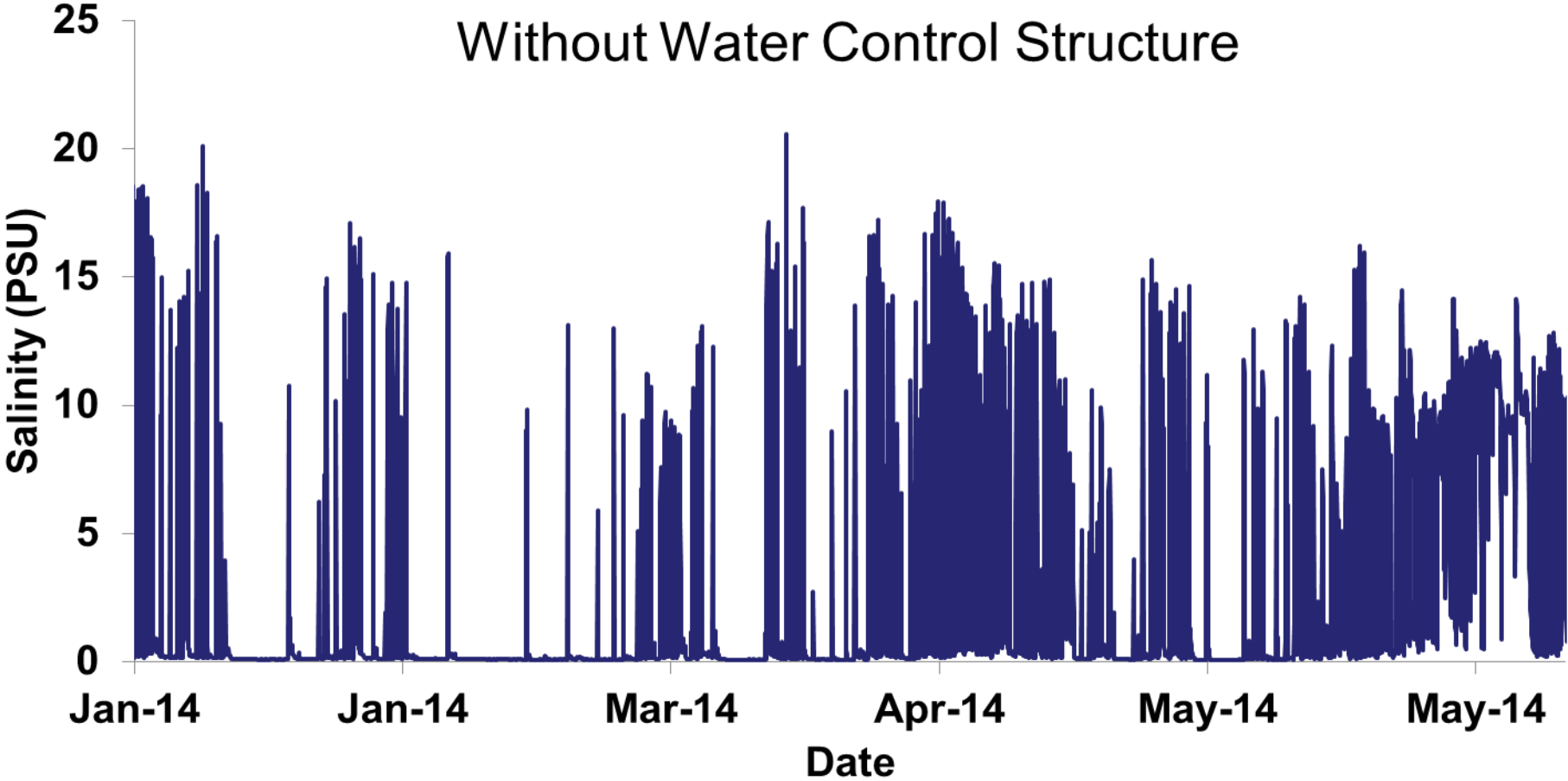
Point Peter Road: Water Management



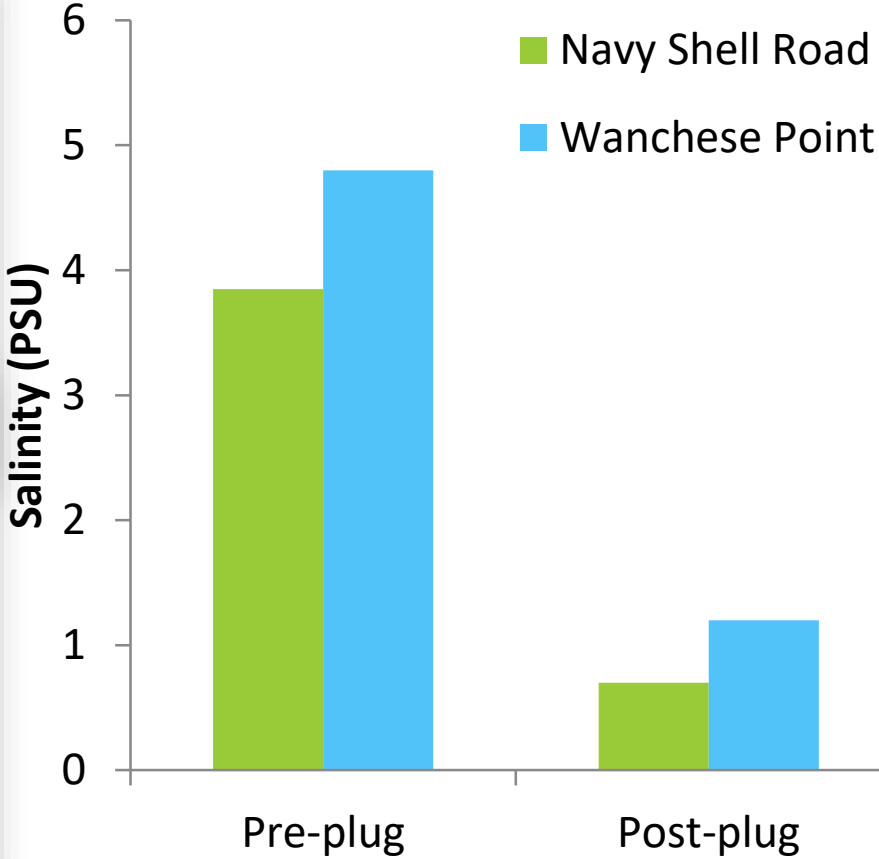
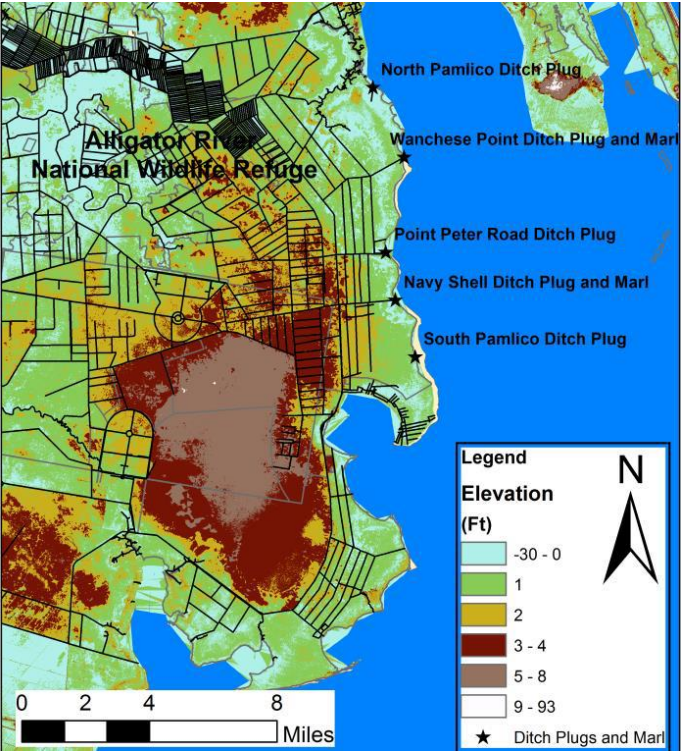
Point Peter Road Salinity 2014



Lake Worth Road Salinity 2014



Point Peter Road: Water Management



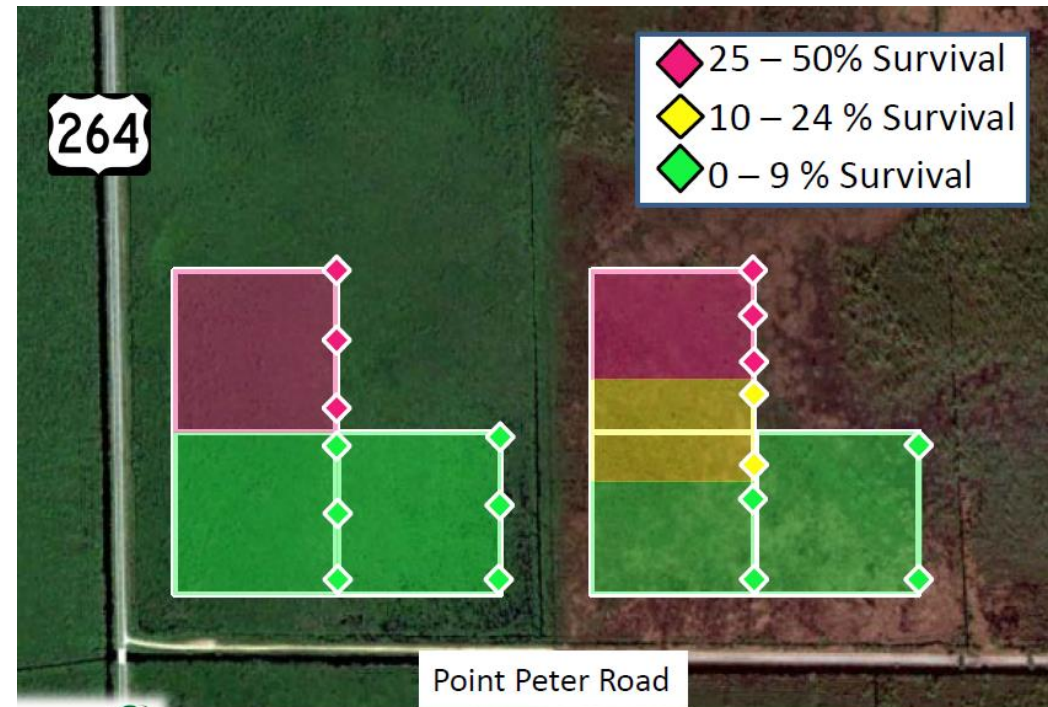
Vegetative Restoration



- 40 acre test plot
- 11,500 bald cypress
- Also tested black gum and pond pine



Vegetative Restoration



- ◆ 25 – 50% Survival
- ◆ 10 – 24 % Survival
- ◆ 0 – 9 % Survival

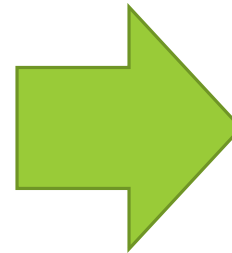
Point Peter Road

Refining Our Approach: Vegetative Restoration

FLOOD-TOLERANT TREES



SALT AND FLOOD-TOLERANT GRASSES



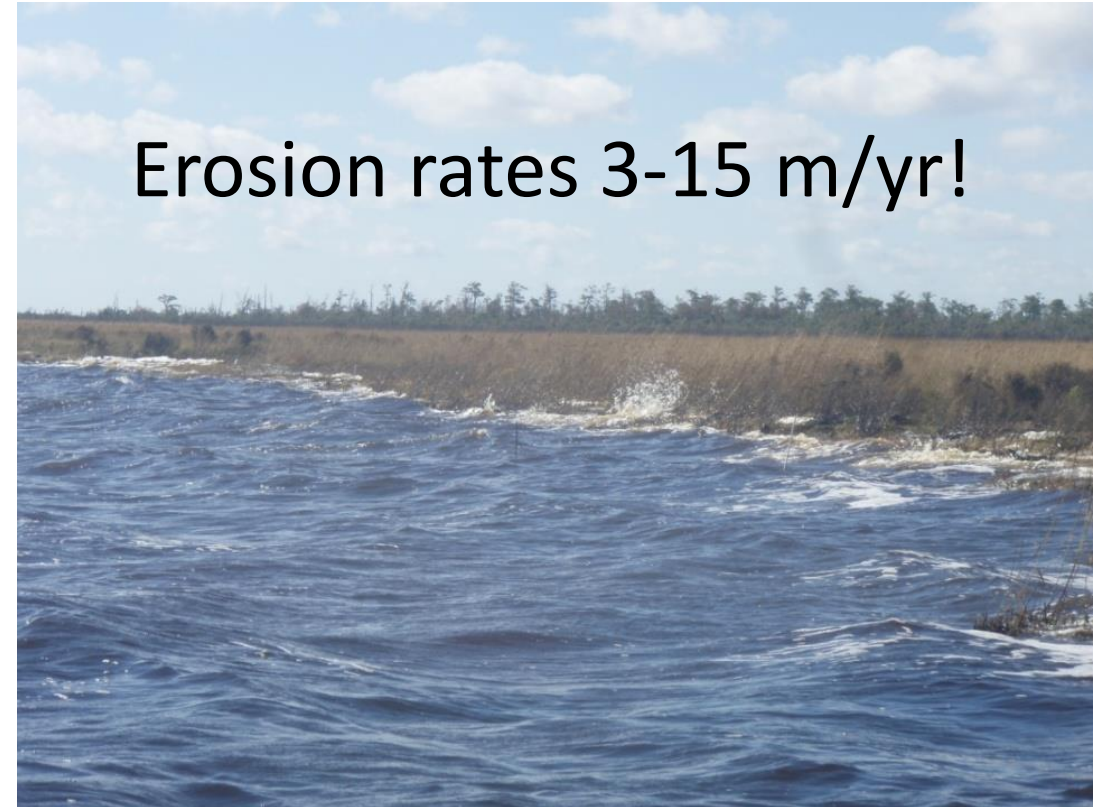
Vegetation Restoration



Vegetation Restoration



Oyster Restoration



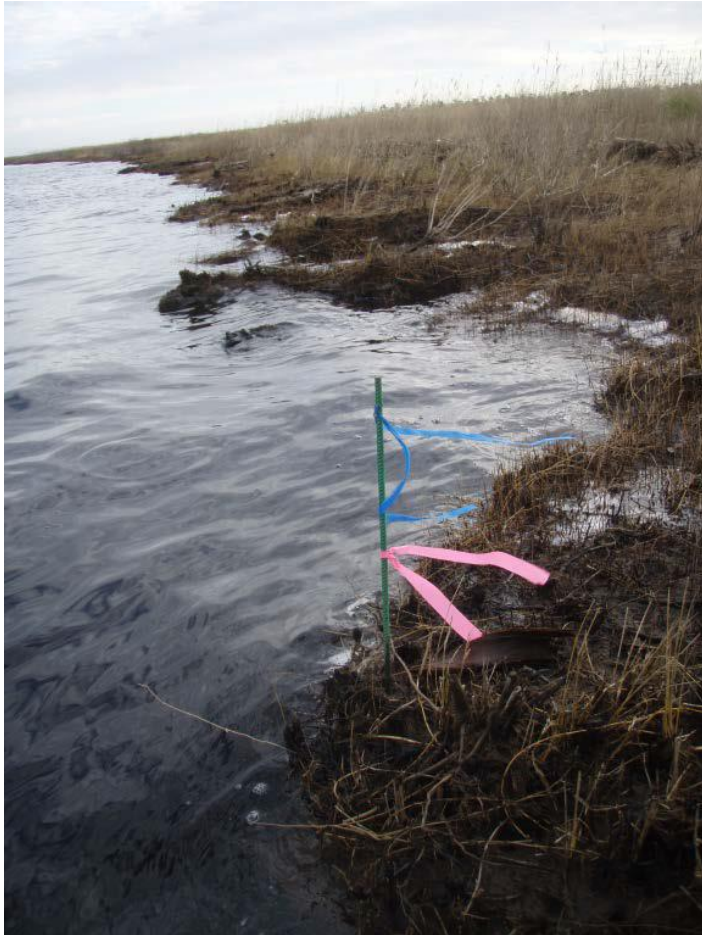
Oyster Restoration



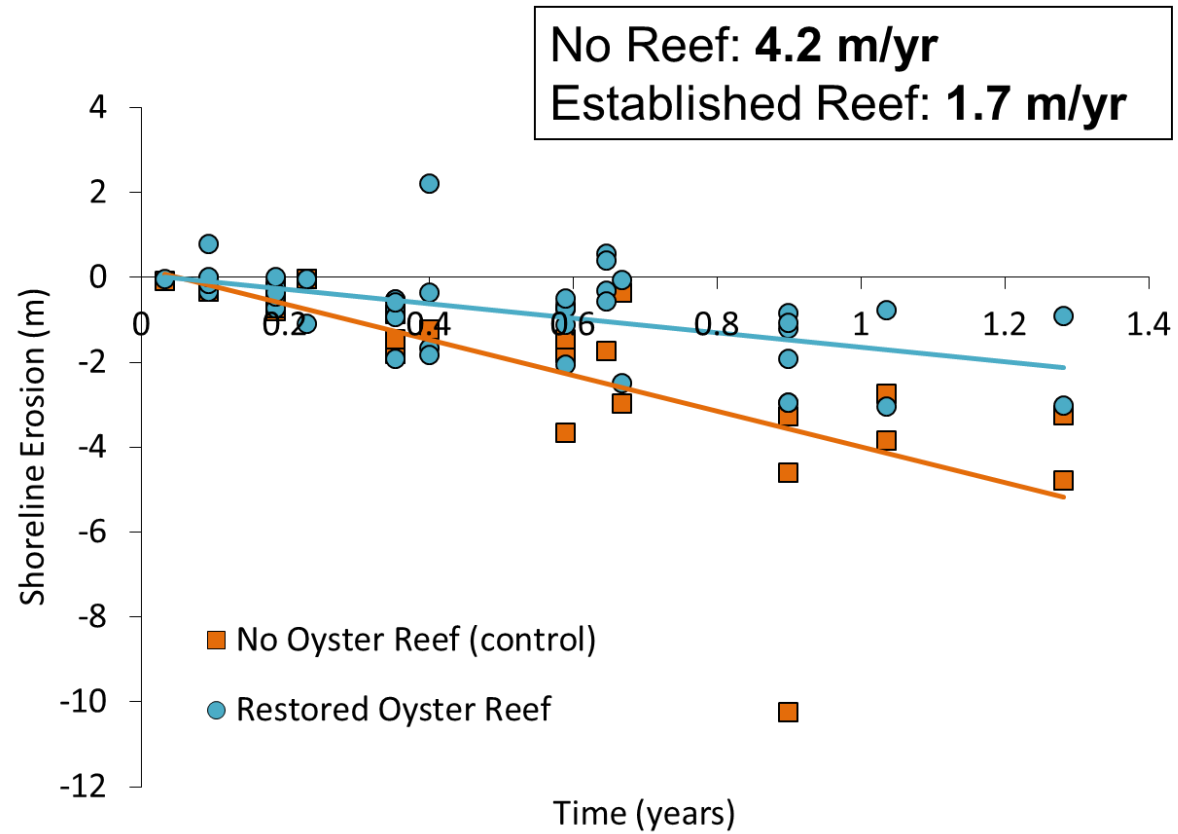
Oyster Restoration



Oyster Restoration



Oyster Restoration



Catalyzing Partnerships

Eight federal agencies, nine state agencies, nine local communities, 13 universities, and ten non-profit organizations.





QUESTIONS?