

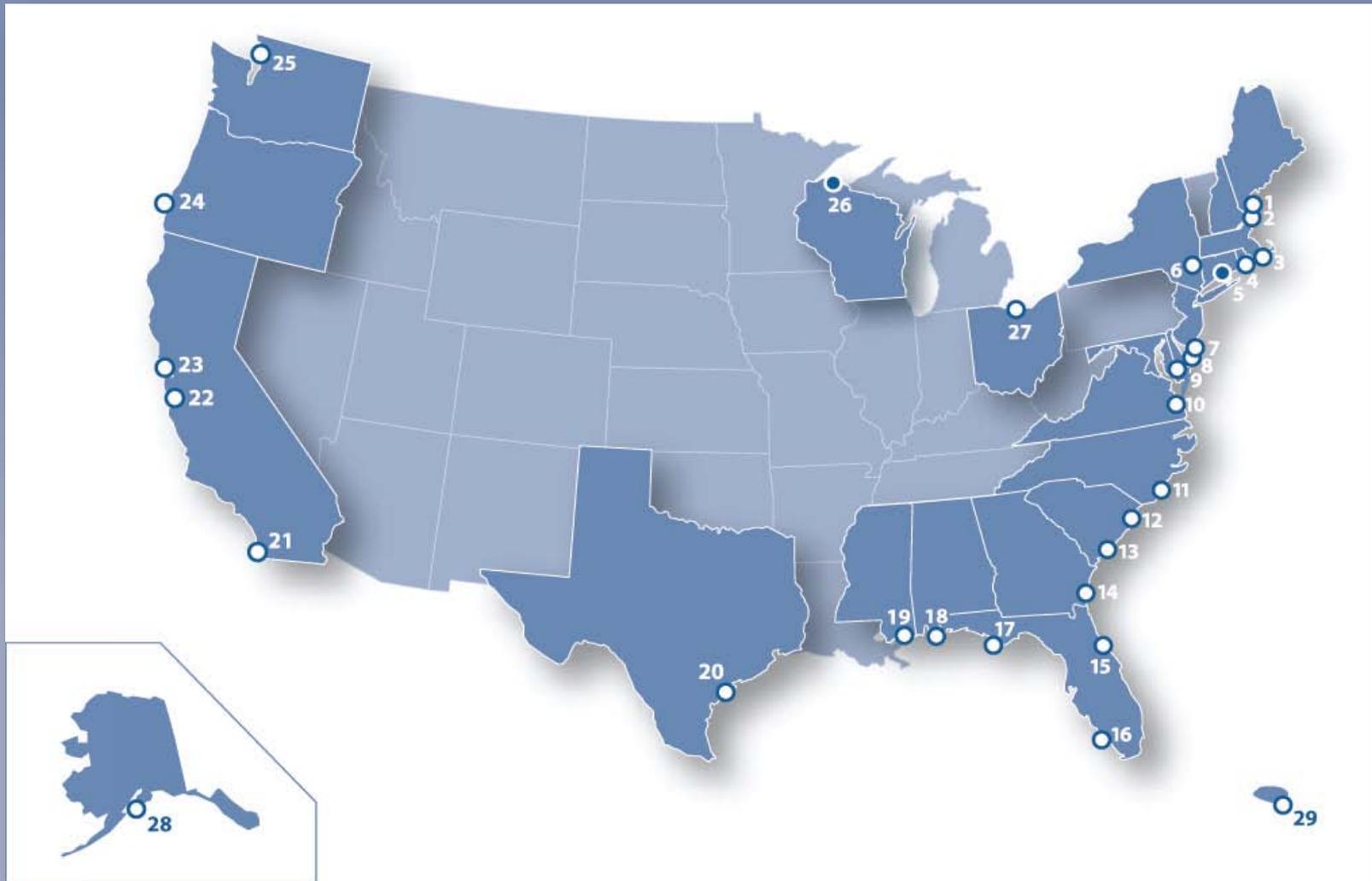
Managing South Carolina Coastal Habitats in Light of Climate Change Impacts

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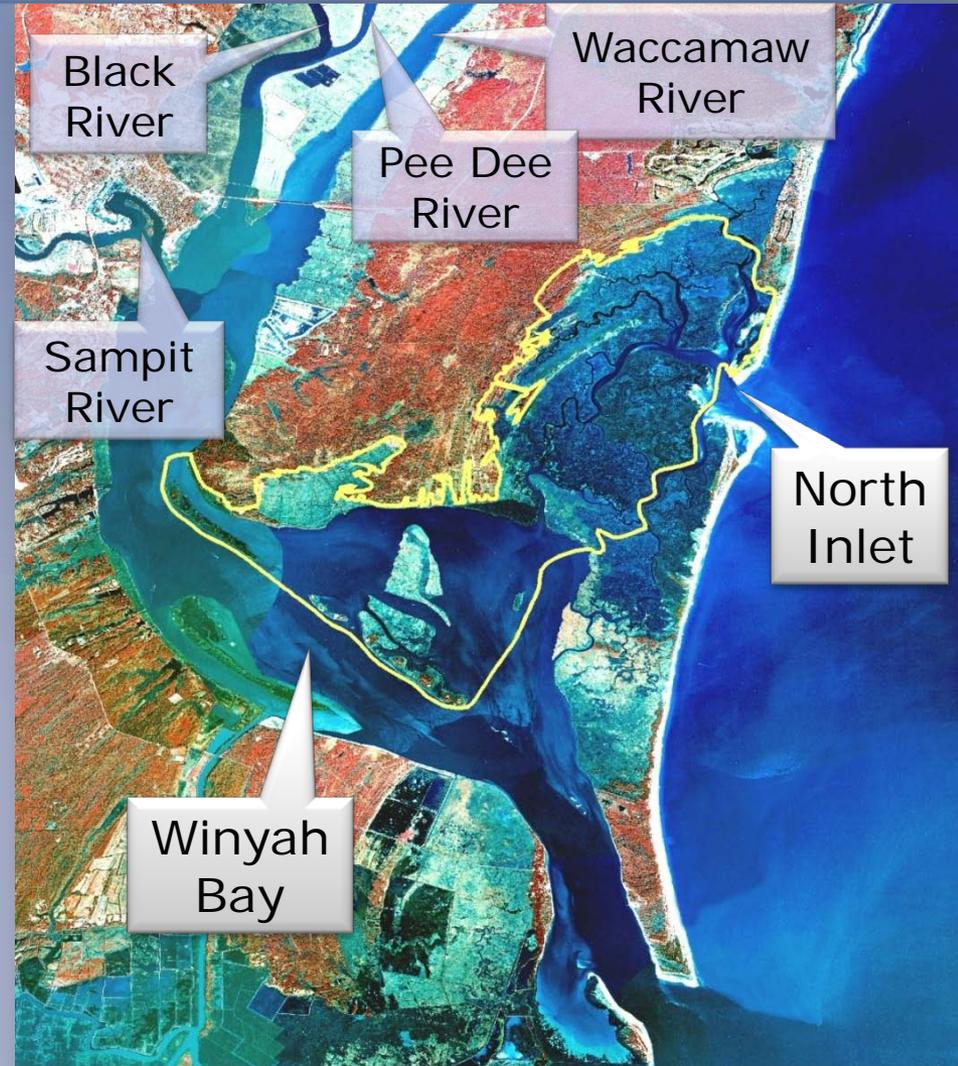
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National Estuarine Research Reserves



Geographic Context of NI-WB NERR



Views of NI-WB NERR



Climate Change Concerns

- Range extension of invasive species
- Changes in biological community structure
- Increase in storm frequency and severity
- Changes in hydrology
- Threats to water quantity and quality
- **Sea-level rise**
- **Loss (migration) of salt marsh**
- **Shoreline erosion and migration**



NERRs Climate Change Strategy

Contribute to scientific understanding of climate change and monitor ecosystem changes.

Assess climate change impacts on human and estuarine ecosystem communities, vulnerability of these communities, and their capacity for adaptation and mitigation.

Provide educational opportunities and training related to effects of climate change on human and estuarine systems to **increase public awareness** and foster behavior change.



Contribute to Scientific Understanding

- System-Wide Monitoring Program (weather, water quality, nutrients)



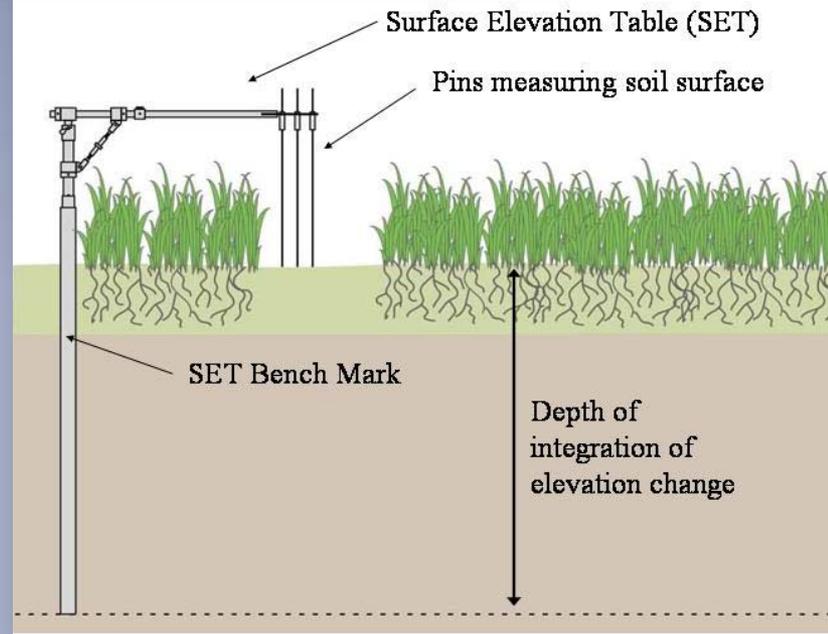
Contribute to Scientific Understanding

- System-Wide Monitoring Program(weather, water quality, nutrients)
- Emergent vegetation monitoring



Contribute to Scientific Understanding

- System-Wide Monitoring Program(weather, water quality, nutrients)
- Emergent vegetation monitoring
- Sediment elevation tables



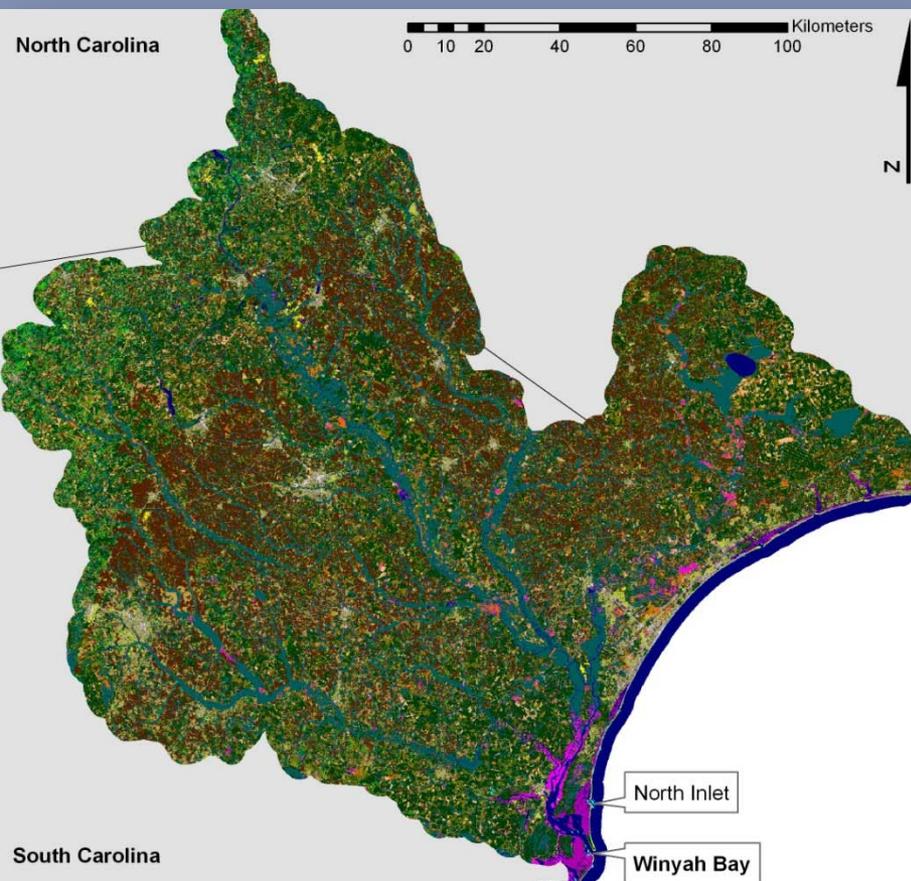
Contribute to Scientific Understanding

- System-Wide Monitoring Program(weather, water quality, nutrients)
- Emergent vegetation monitoring
- Sediment elevation tables
- Establish vertical control (working with NGS and NOAA CO-OPS)



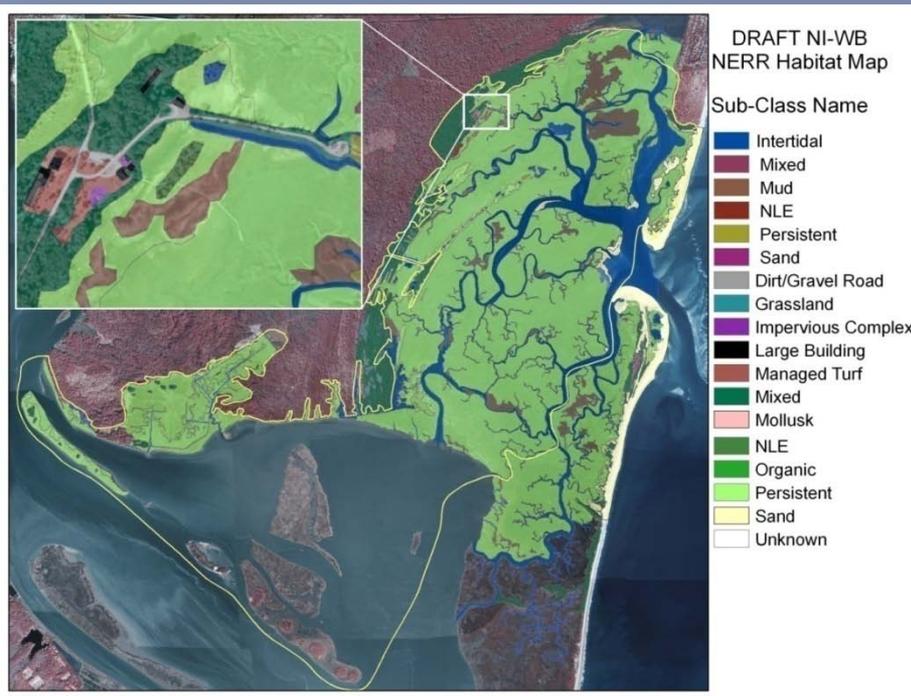
Assess Climate Change Impacts

- Habitat Mapping
 - C-CAP

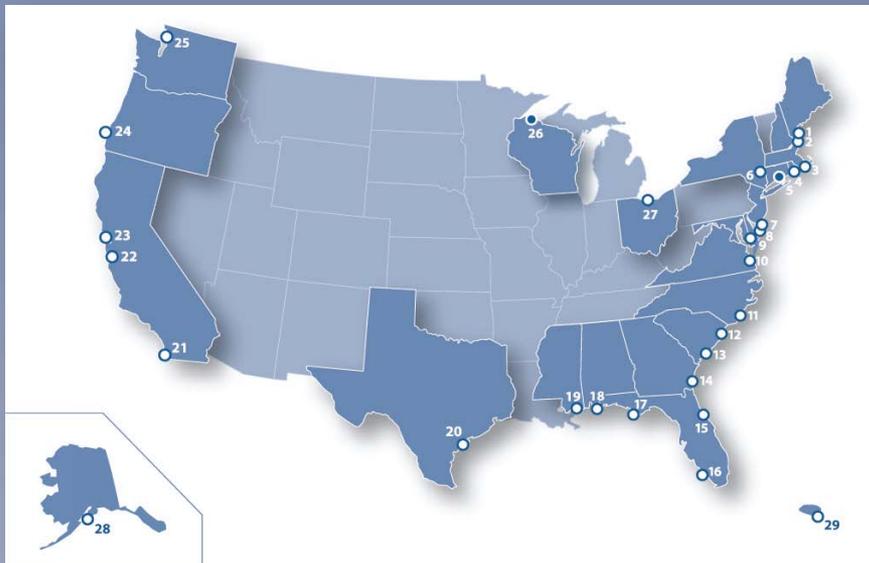


Assess Climate Change Impacts

- Habitat Mapping
 - C-CAP
 - High res. NERR classified



Assess Climate Change Impacts



- Habitat Mapping
 - CCAP
 - High res. NERR classified
- Sentinel Sites
 - Incorporate existing monitoring
 - Build out SET network, establish vertical control
 - Additional sea level rise research/monitoring



Increase Public Awareness

- Coastal Training Program
 - Decision makers
 - Resource Managers
- Education
 - K-12
 - Public education
- Stewardship
 - Local stakeholders
 - Conservation organizations



“Climate Change Lens”





“Reserves need access to high quality visualization and forecasting tools to connect ecosystem and socio-economic data to coastal community planning and adaptation.”

NERR Climate Change Strategy



Visualizations for Education

Hobcaw Barony Discovery Center Exhibit

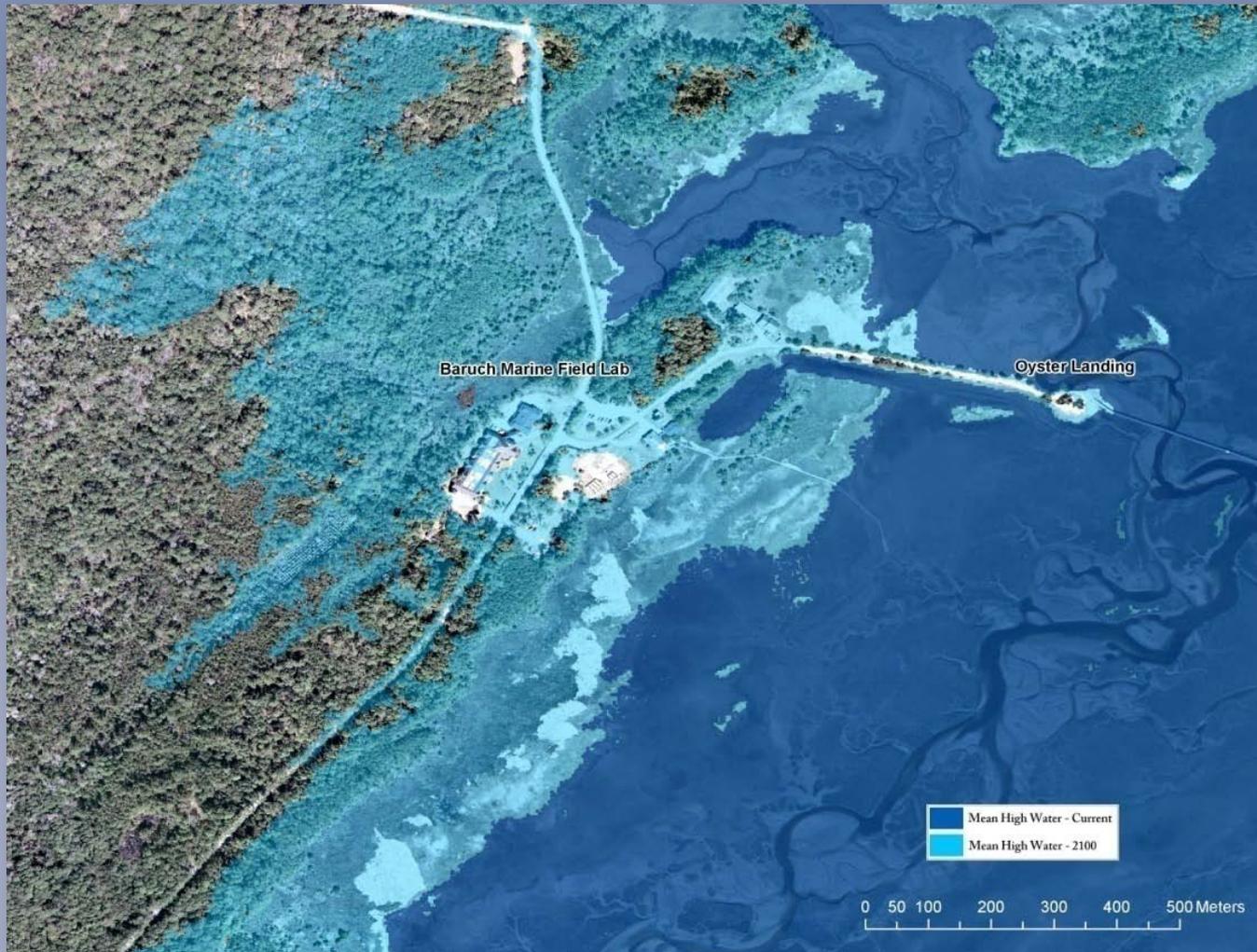
- (purpose of the SLR exhibit....)
- Combines satellite and aerial imagery, GIS and Google Earth technologies, and Adobe Photoshop graphics with audio
- Derived from high-resolution elevation data (LIDAR) at local MHW w/ 1m rise by 2100



Visualizations for Education



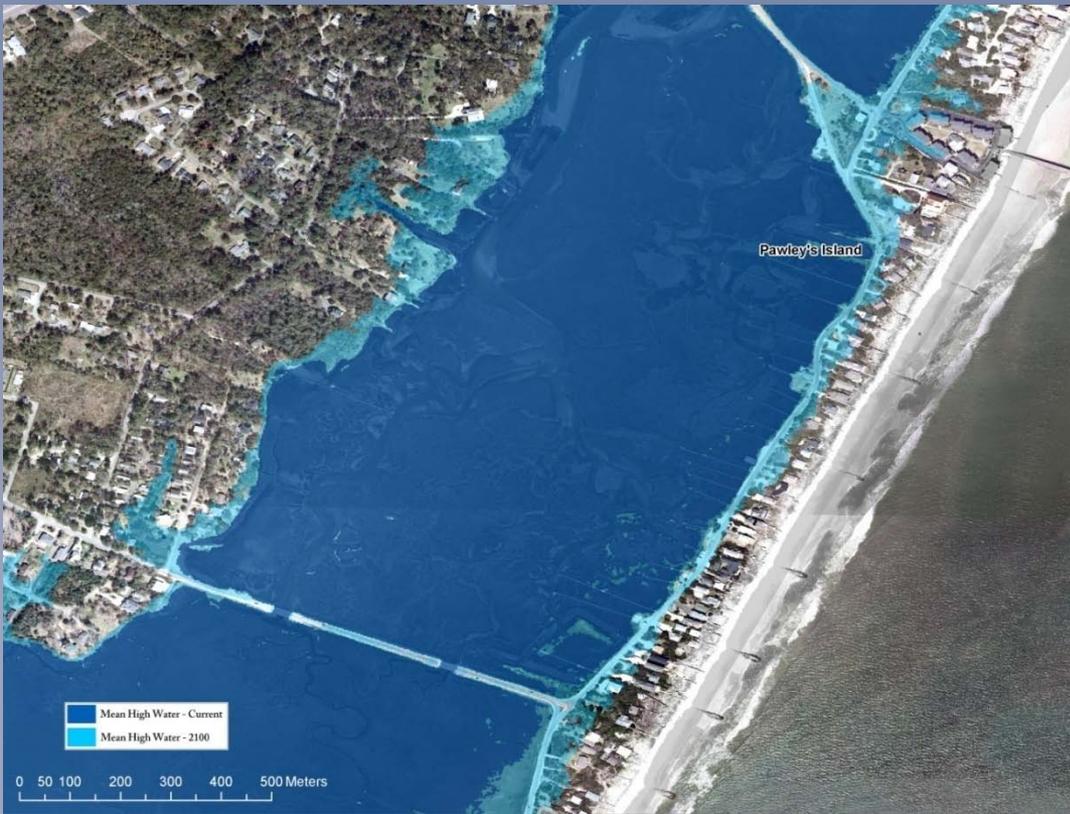
Visualizations for Education



Visualizations for Education



Visualizations for Education



SLAMM as a Visualization Tool

Sea Level Affecting Marshes Model (SLAMM):
simulates the dominant processes involved in
wetland conversions and shoreline modifications
during long-term sea level rise.

- Inundation
- Accretion
- Erosion
- Salinity



SLAMM as a Visualization Tool

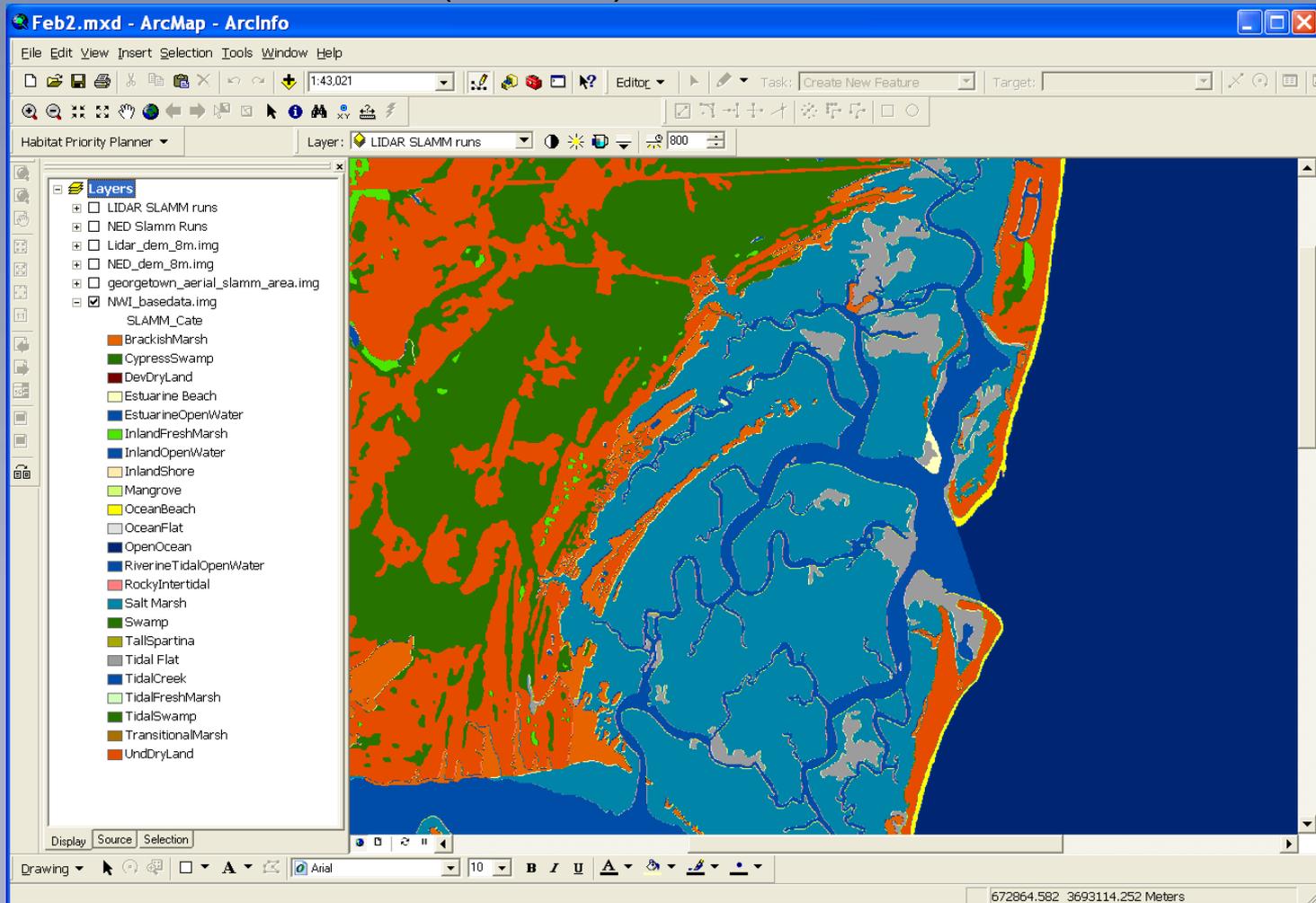
NI-WB NERR SLAMM investigation:

- High-resolution elevation data (LIDAR)
- National Wetland Inventory data (currently);
NERR-classified habitat data next (high resolution)
- Accretion values (from local SETs)
- 1m SLR at 25 yr increments (IPCC)



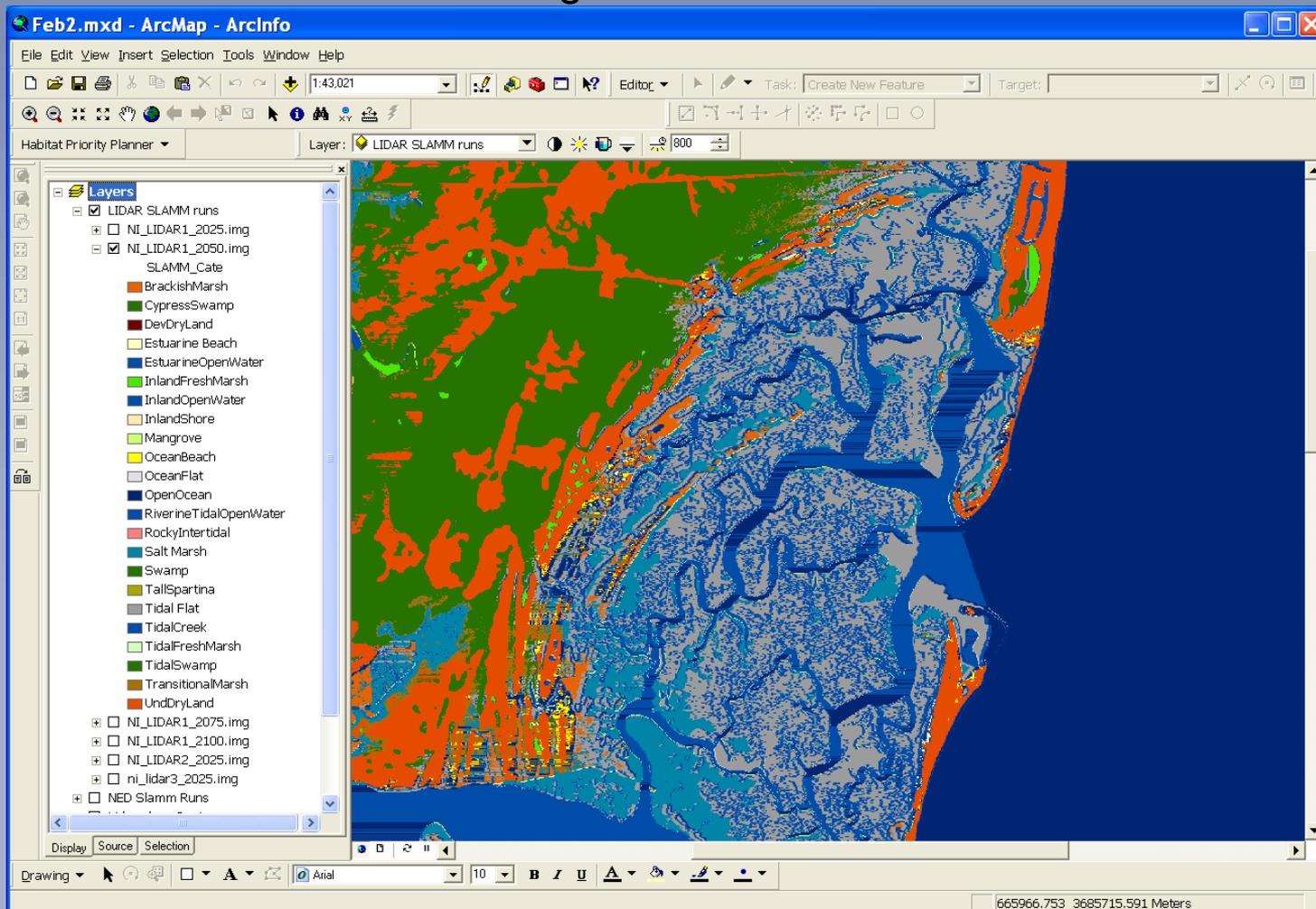
SLAMM as a Visualization Tool

NWI (baseline) for North Inlet



SLAMM as a Visualization Tool

SLR / Habitat Change in 2050 for North Inlet



SLAMM Investigation Next Step

- Determine appropriate uses
 - Visualize change
 - Decision making tool?
- Move into neighboring areas
- Identify and prioritize areas for conservation and management action
 - Integrate w/ Habitat Priority Planner (HPP)
 - Evaluate change on quality and connectivity of habitats



The screenshot shows the NOAA Coastal Services Center Digital Coast website. The page is titled "Habitat Priority Planner" under the "Tools" section. It describes a GIS-based tool for coastal habitat restoration and conservation. The page includes a "Sample Functions" list, "User Requirements" (ArcView 9.x, Spatial Analyst 9.x, Raster-based land cover), and a "How Can I find Out More?" section with a "Learn more about HPP" link and a "Download the Tool Now" button. A sidebar on the right contains links for "Related Data", "Related Training", and "Digital Coast In Action". The footer includes the NOAA logo, "NOAA Coastal Services Center LINKING PEOPLE, INFORMATION, AND TECHNOLOGY", and links for "Privacy Policy", "Link Disclaimer", and "USA.gov".

NOAA Coastal Services Center

DIGITAL COAST

Home Data Tools Training In Action

Tools

Habitat Priority Planner

This GIS-based tool is designed to help coastal officials make and prioritize decisions about habitat restoration and conservation. Using widely available data, officials can generate pertinent reports, maps, and data tables, as well as evaluate and compare different land use scenarios. This software takes away much of the subjective nature of this process by providing a method of obtaining critical habitat analyses that are consistent, repeatable, and transparent.

Sample Functions

- Inventory habitats
- Assess land and water habitat conditions
- Identify and rank potential restoration and conservation sites
- Analyze "what if" scenarios for proposed changes in land use or land cover
- Create maps, reports, and data tables

User Requirements

- ArcView 9.x
- Spatial Analyst 9.x
- Raster-based land cover

How Can I find Out More?

[Learn more about HPP](#)

[Download the Tool Now](#)

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