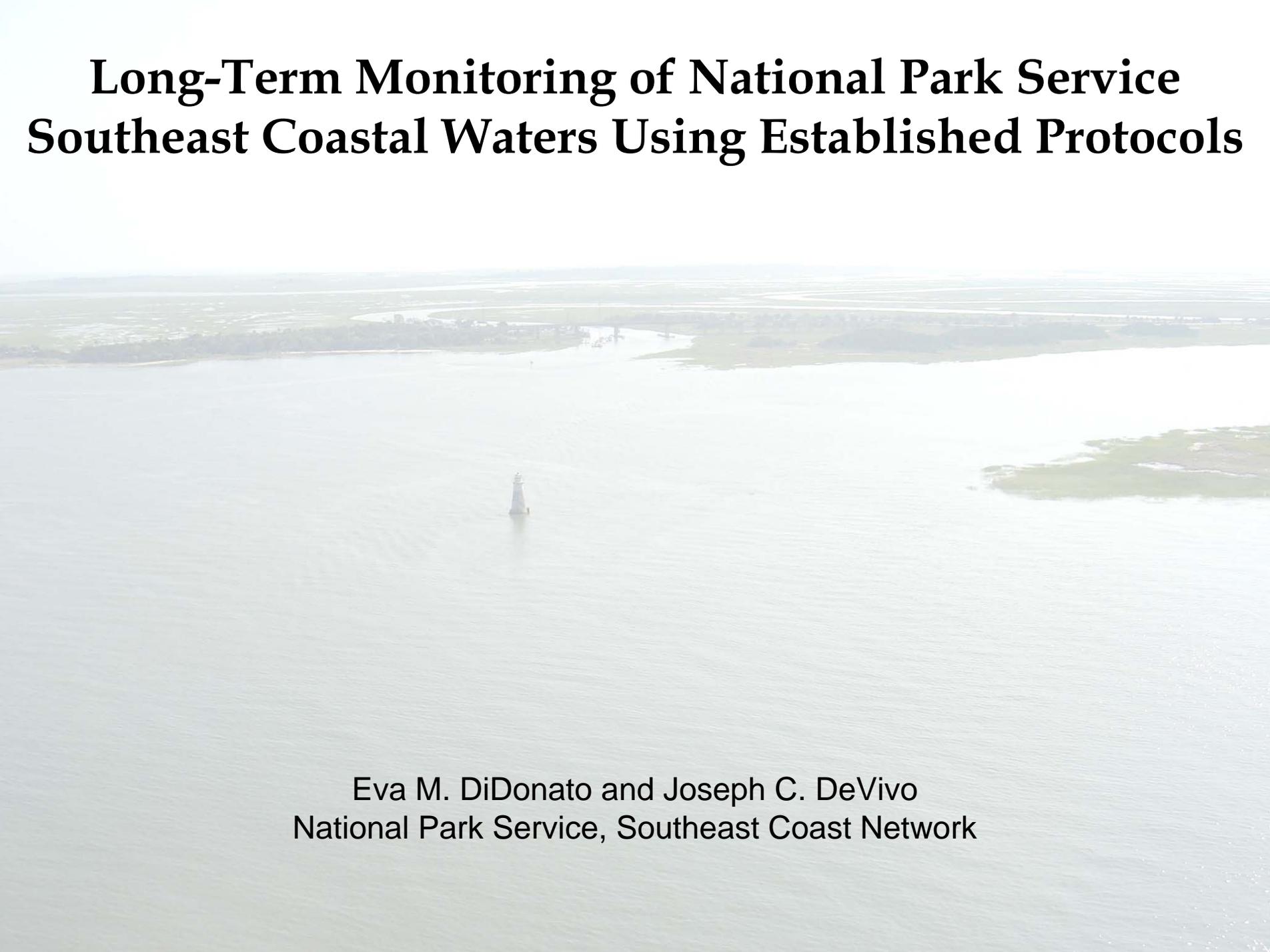


Long-Term Monitoring of National Park Service Southeast Coastal Waters Using Established Protocols

An aerial photograph of a wide, shallow coastal waterway. The water is a light, silty grey color. In the center of the frame, a small, white, conical buoy or marker is visible. The background shows a wide expanse of land with green vegetation and a distant shoreline under a hazy sky.

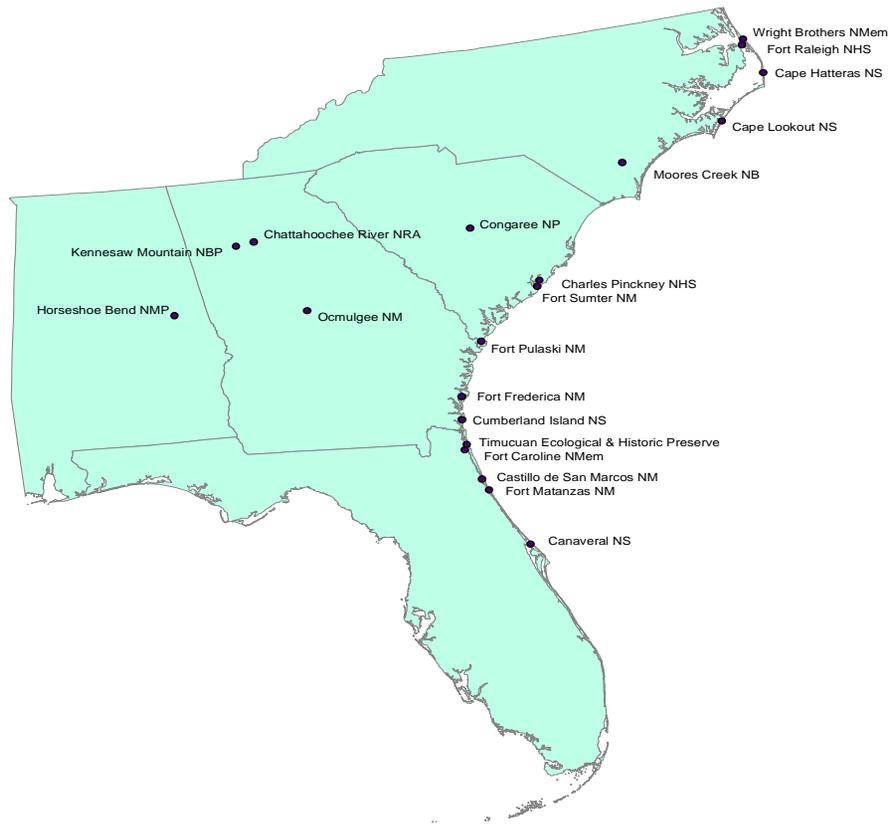
Eva M. DiDonato and Joseph C. DeVivo
National Park Service, Southeast Coast Network

National Park Service



Southeast Coast Network

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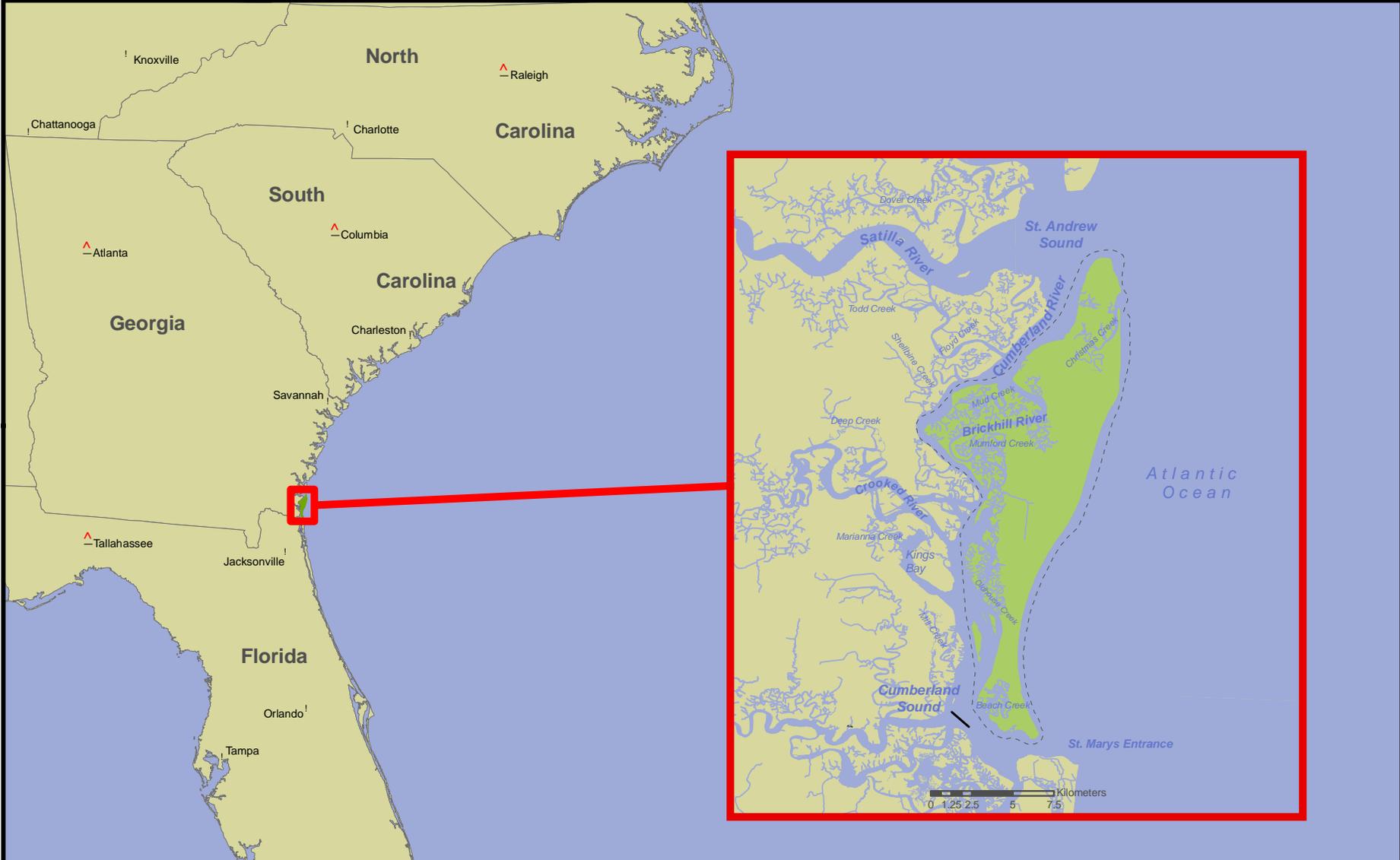
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Water Quality Monitoring Objectives

- Determine the status, trends and spatial variability of selected parameters and overall water quality in park estuaries.
- Determine the extent to which water quality changes over time.
- Identify problem areas and areas needing protection.
- Determine the extent to which clean water projects and programs are effective in meeting stated goals.

Southeast Coast I&M Network Cumberland Island National Seashore

Southeast Coast Network
National Park Service
U.S. Department of the Interior



Map created by Southeast Coast Network
May 2008

0 95 190 380 Kilometers

 Administrative Park Boundary

Protocol:

Fixed Site – Following Protocols Developed by the National Estuarine Research Reserve Program.

Datalogger (every 1/2 hour)

- pH
- Dissolved Oxygen
- Temperature
- Salinity
- Turbidity
- Depth



Monthly

- Total Dissolved Nitrogen
- Total Dissolved Phosphorus
- Chlorophyll a
- Secchi Depth



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Cumberland Island National Seashore

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Site 1 established:

August 2005

Site 2 established:

January 2007

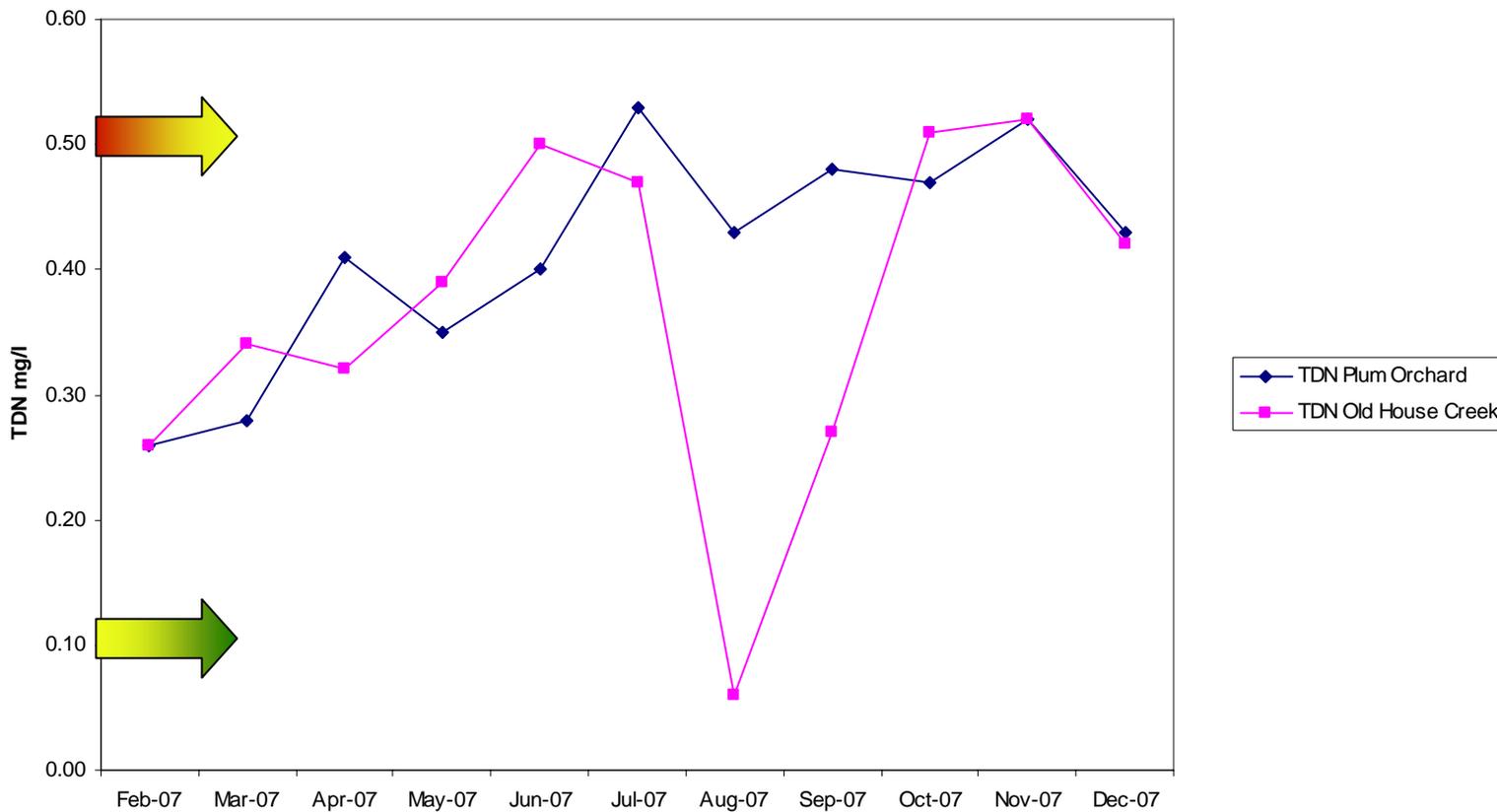
Nutrient and Chlorophyll
started February 2007

- Park staff maintaining these sites.
- SECN provides field supplies, data management, sample analysis, data analysis and interpretation.





Total Dissolved Nitrogen



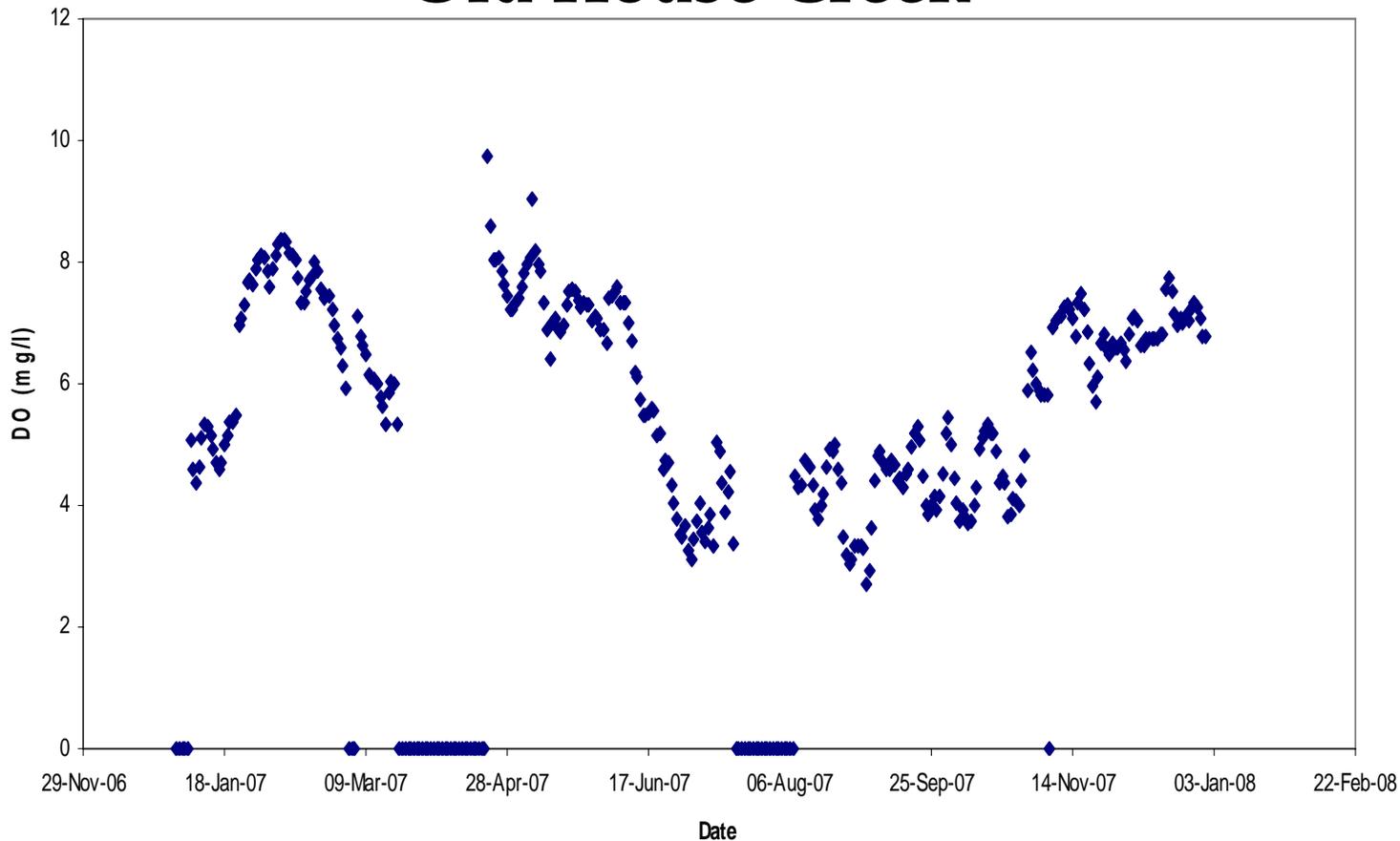


Total Dissolved Phosphorus





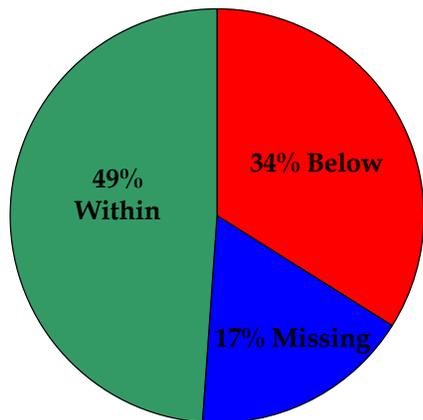
Dissolved Oxygen Mean Daily Values Old House Creek



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Assessed using:

State DO Standard



EPA's National Coastal
Assessment Criteria



Protocol:

Probabilistic Surveys – Following Protocols Developed by the US Environmental Protection Agency.

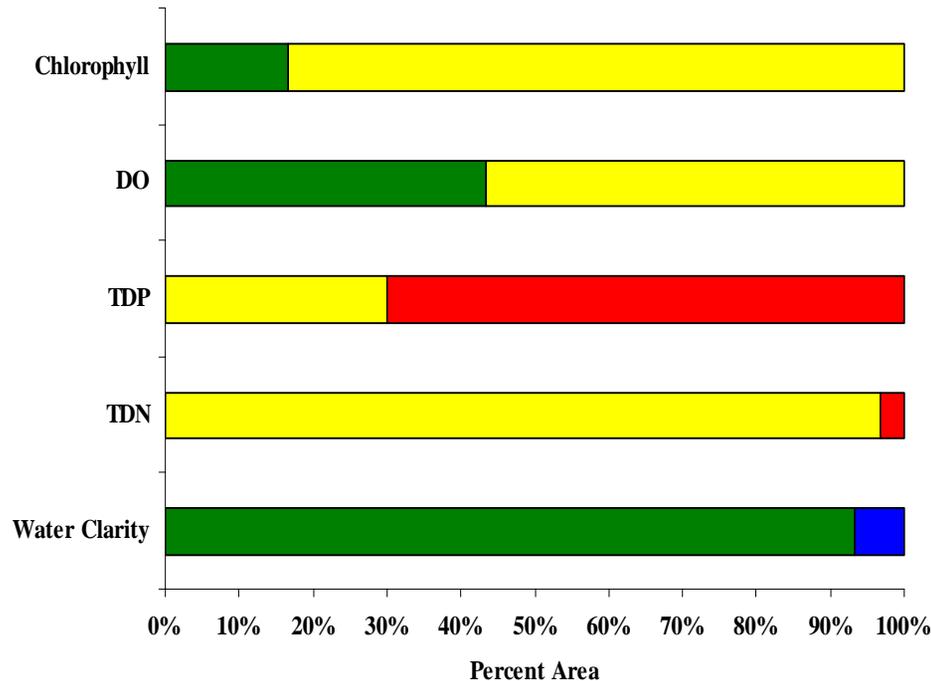
30 Randomly selected stations (5-year rotating basis)

- Hydrographic Profile (pH, DO, Temperature, Salinity)
- Secchi Depth
- Total Dissolved Nitrogen
- Total Dissolved Phosphorus
- Chlorophyll a
- *Sediment Chemistry, Total Organic Carbon & Grain Size

* Sediments sampled every 10 years



Cumberland Island National Seashore



Issues of Concern:

- Coastal Development
- Animal Waste
- Fertilizer
- Failing Septic Systems
- Atmospheric Deposition

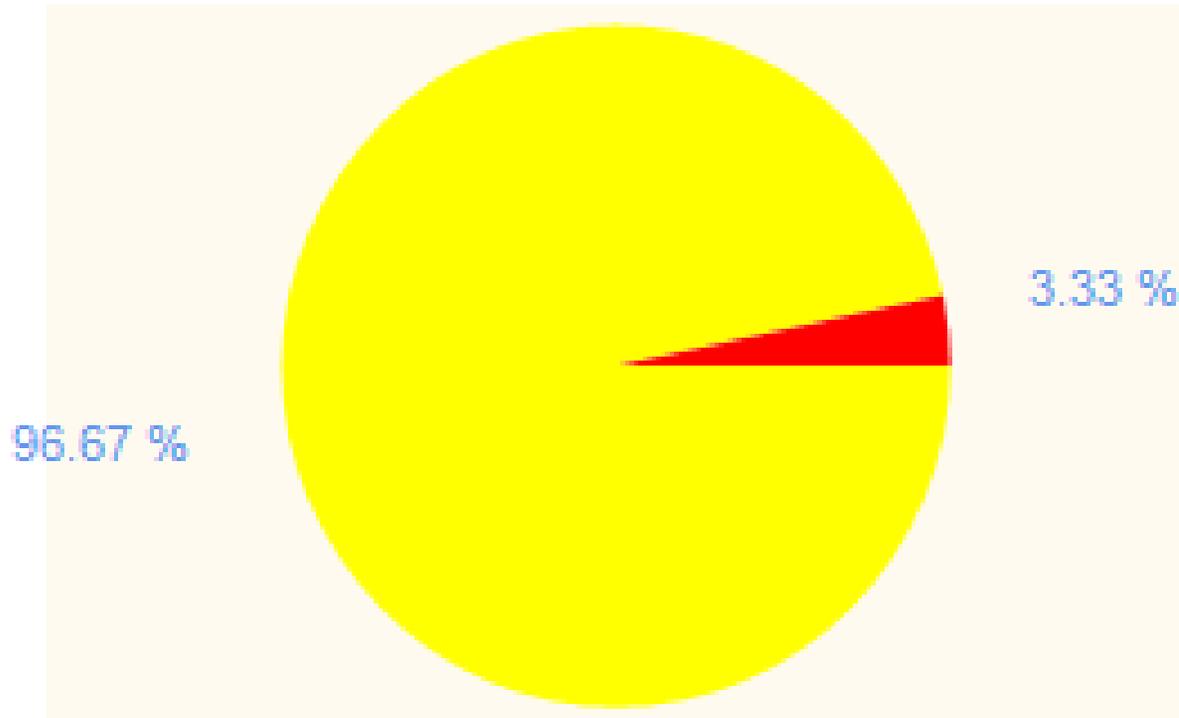
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Water Quality Index

OVERALL = FAIR

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Why 'FAIR'???

Is that good enough???

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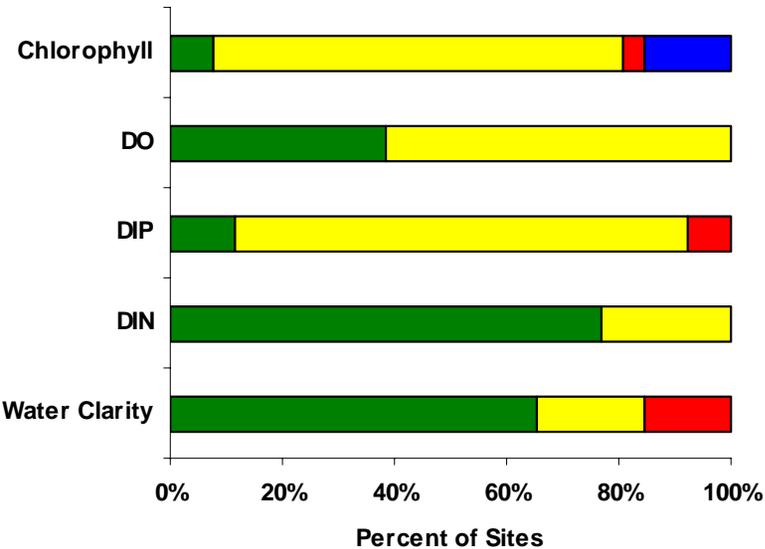


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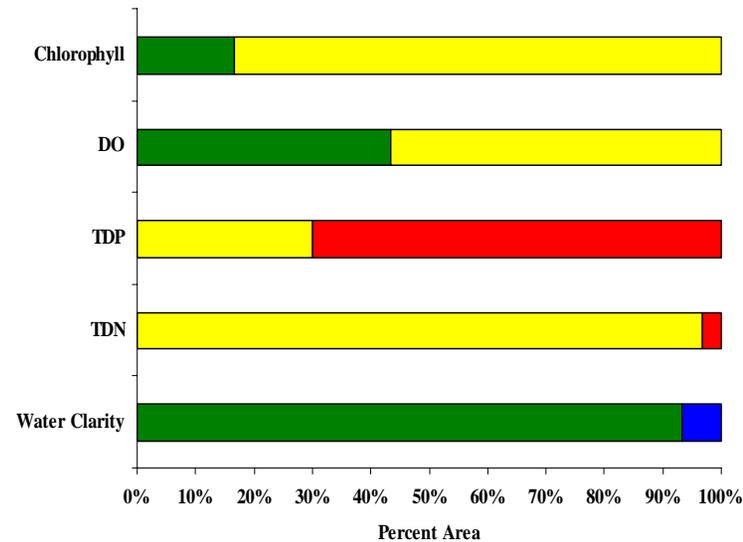
NCA Survey Results

2000 - 2004 (19 Stations)

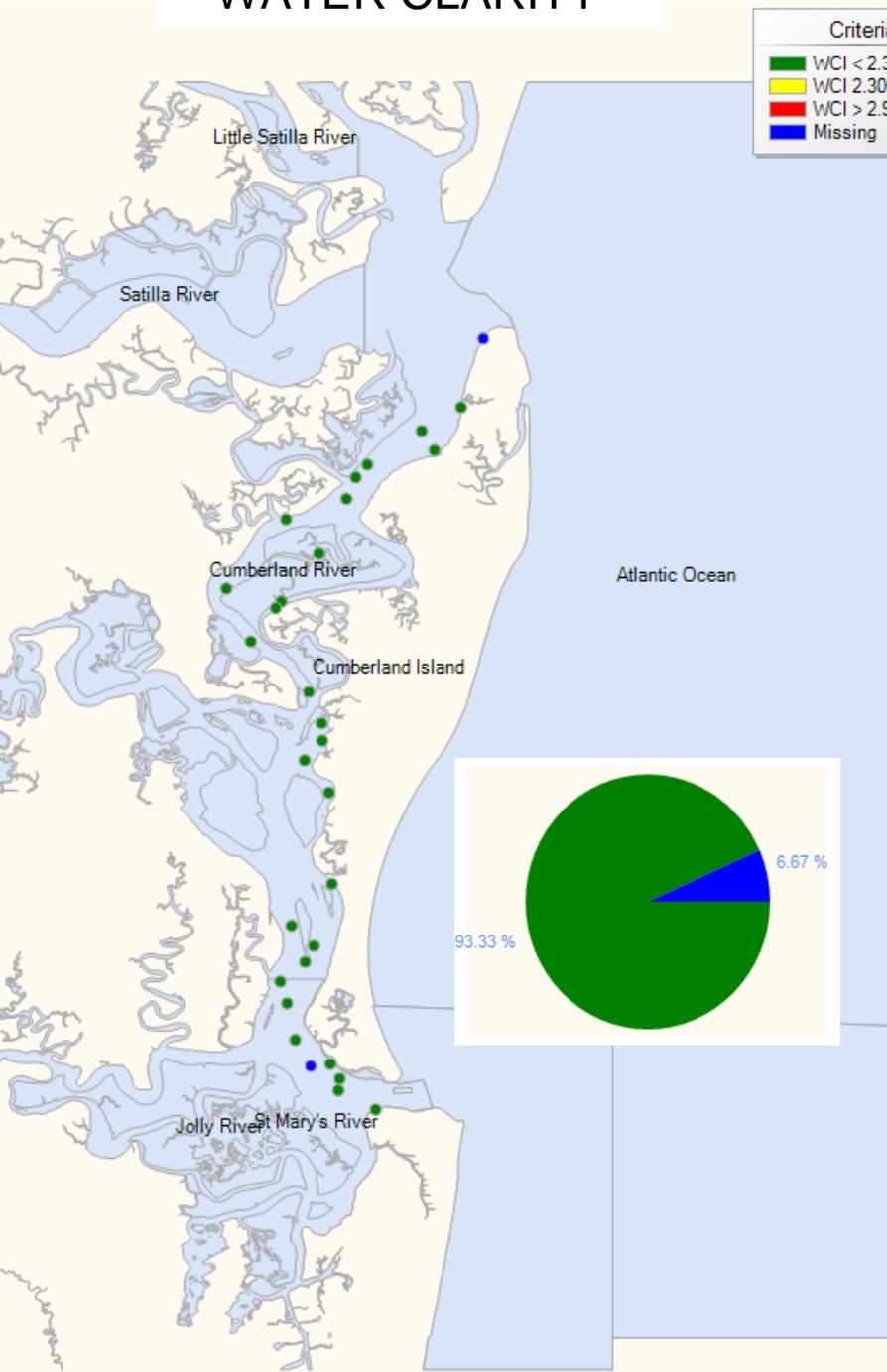


SECN Survey Results

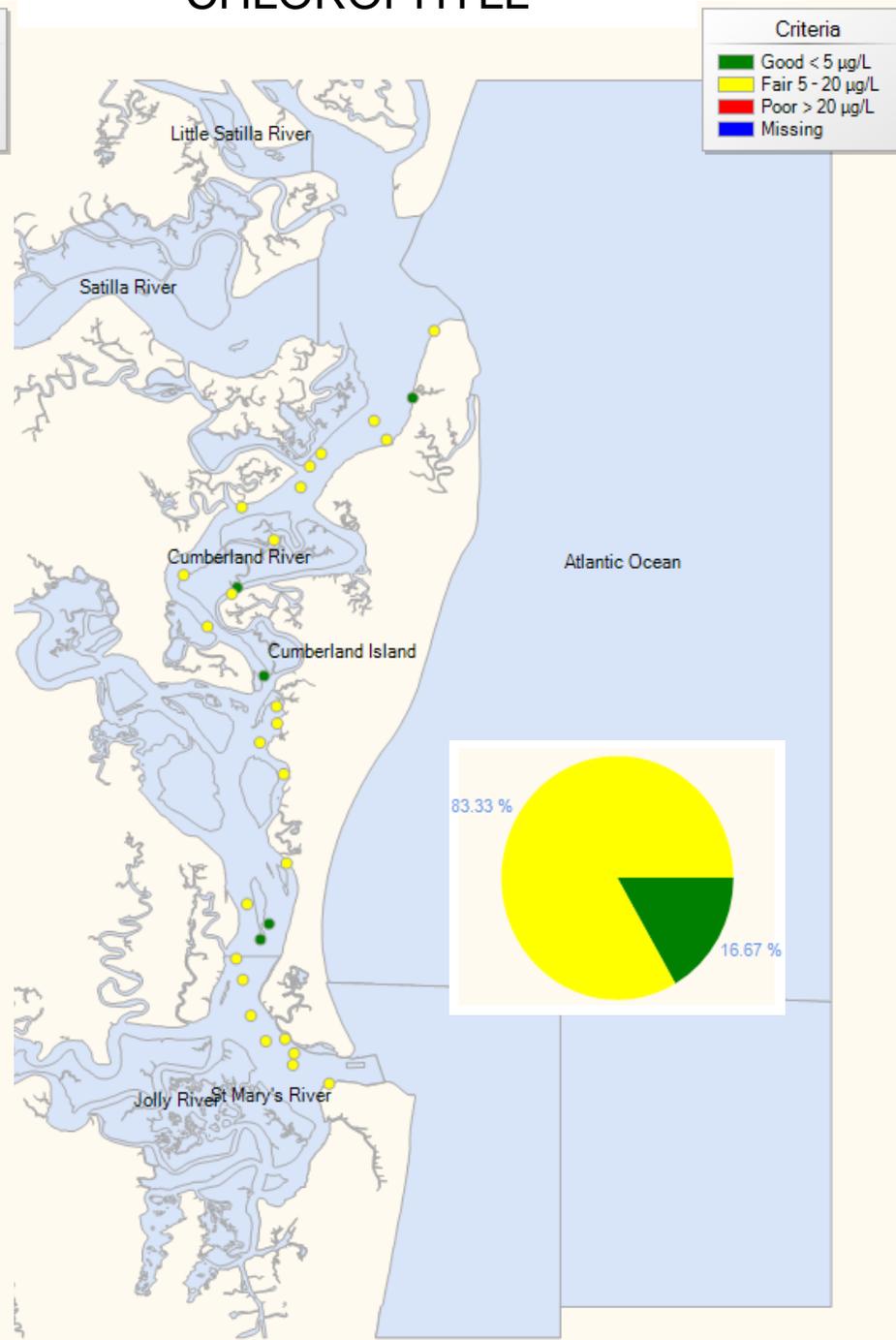
2007 (30 stations)



WATER CLARITY



CHLOROPHYLL





Questions???

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