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

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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.
Protocol:

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

**Datalogger** (every ½ hour)
- pH
- Dissolved Oxygen
- Temperature
- Salinity
- Turbidity
- Depth

**Monthly**
- Total Dissolved Nitrogen
- Total Dissolved Phosphorus
- Chlorophyll a
- Secchi Depth
Cumberland Island National Seashore

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

TDN Plum Orchard
TDN Old House Creek
Total Dissolved Phosphorus

- Plum Orchard
- Old House Creek

TDP (mg/l)

Dissolved Oxygen Mean Daily Values

Old House Creek
Assessed using:

State DO Standard

EPA’s National Coastal Assessment Criteria
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
Water Quality Index

OVERALL = FAIR
Why ‘FAIR’???

Is that good enough???
Cumberland Island National Seashore

NCA Survey Results
2000 – 2004 (19 Stations)

SECN Survey Results
2007 (30 stations)
Questions???