



Coastal Water And Sediment Quality, July 2009

Vital Sign Overview

In July 2009, the Southeast Coast Network in cooperation with the University of Georgia, Marine Extension Service conducted a water-quality assessment at selected sites at Canaveral National Seashore as a part of the National Park Service Vital Signs Monitoring Program. Monitoring was conducted following methods developed by the U.S. Environmental Protection Agency as a part of the National Coastal Assessment Program and included laboratory analysis for chlorophyll *a*, total dissolved nitrogen and phosphorous concentrations and field measurements of water temperature, pH, dissolved oxygen, and salinity. Estimates of water clarity were made using a secchi disk to estimate light extinction.

Significant Findings

Overall water quality at Canaveral National Seashore ranged from *Good* to *Poor* with the majority of sites found to be in *Fair* condition (83 percent).

Nitrogen levels were at concentrations considered *Poor* at 90 percent of the sites sampled. Consistently high concentrations indicate potential nonpoint sources of pollution in the watershed as well as an overall phosphorus limited system. Only one site was observed with concentrations of both nitrogen and phosphorus considered *Poor*.

Overall sediment conditions were good at all sites sampled with most sites showing only trace amounts of metals and little or no measurable organic contamination.

Relatively clean sediments at Canaveral National Seashore are potentially due to the high levels of sand and low levels of total organic carbon – a combination that reduces the benthic materials' ability to bind contaminants.

Aside from the generally high levels of nitrogen found across the park, no distinctive spatial patterns in the data suggested sites of immediate concern or where specific management actions might be needed.

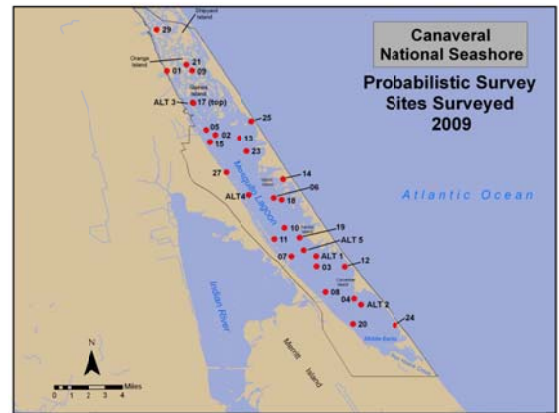
Continued monitoring of nutrients might help detect future problems and might be prudent due to the level of development in the surrounding watersheds.

Status of Conditions

Overall Condition				Sediment Chemistry				
	% Sites Rated				% Sites Rated			
	Good	Fair	Poor		Good	Fair	Poor	
Water Quality Index	10	83	7	metals	Arsenic	77	23	0
Sediment Contamination	100	0	0		Cadmium	100	0	0
Total Organic Carbon	100	0	0		Chromium	100	0	0
Sediment Quality Index	100	0	0		Copper	100	0	0
					Lead	100	0	0
					Mercury	100	0	0
					Nickel	100	0	0
					Silver	100	0	0
					Zinc	100	0	0
Water Chemistry				organics	Total DDT	100	0	0
					High molecular weight PAH	100	0	0
Water Clarity	60	7	7		Low molecular weight PAH	100	0	0
Chlorophyll a	40	60	0		Total PAHs	100	0	0
Total Dissolved Nitrogen	0	10	90		Total PCBs	100	0	0
Total Dissolved Phosphorus	23	73	3					
Dissolved Oxygen	90	10	0					

Sampling Area

Unlike most barrier islands along the East Coast, Canaveral National Seashore has only a single dune ridge, averaging 12 feet in height. Mosquito Lagoon, extending along the backside of Canaveral National Seashore's barrier island, is the northernmost part of the Indian River Lagoon. Containing the most diverse assemblage of aquatic species on the entire eastern seaboard, this 155-mile long lagoon has been designated as an Estuary of National Significance by the Environmental Protection Agency as an Outstanding Florida Water by the State of Florida. The estuary acts as an important nursery area for a number of commercially important ocean-going species such as flounder, mullet, black drum, and shrimp and contains one of the last significant populations of oysters on the Atlantic Coast that has not been depleted by over harvesting or pollution.



About the Southeast Coast Network

The Southeast Coast Network (SECN) includes 20 parks, 17 of which contain significant and diverse natural resources. In total, SECN parks encompass more than 184,000 acres of federally-managed land across North Carolina, South Carolina, Georgia, Alabama, and Florida. The parks span a wide diversity of cultural missions also, including four national seashores, two national historic sites,

two national memorials, seven national monuments, two national military parks, as well as a national recreation area, national battlefield and an ecological and historic preserve. The parks range in size from slightly more than 20 to nearly 60,000 acres, and when considered with non-federal lands jointly managed with NPS, the Network encompasses more than 253,000 acres.

About the Inventory & Monitoring Program

In 1999, the National Park Service initiated a long-term ecological monitoring program, known as "Vital Signs Monitoring", to provide the minimum infrastructure to allow more than 270 national park system units to identify and implement long-term monitoring of their highest-priority measurements of resource condition. The overarching purpose of natural resource monitoring in parks is to develop scientifically sound information on the current status and long-term trends in the composition, structure, and function of park ecosystems, and to determine how well current management practices are sustaining those ecosystems.

The NPS Vital Signs Monitoring Program addresses

five goals for all parks with significant natural resources:

- Determine the status and trends in selected indicators of the condition of park ecosystem,
- Provide early warning of abnormal conditions,
- Provide data to better understand the dynamic nature and condition of park ecosystems,
- Provide data to meet certain legal and Congressional mandates, and
- Provide a means of measuring progress towards performance goals.

For More Information

SECN Home Page: <http://science.nature.nps.gov/im/units/secn/index.cfm>

SECN Reports & Publications: <http://science.nature.nps.gov/im/units/SECN/reports.cfm>

Inventory & Monitoring Program: <http://science.nature.nps.gov/im/index.cfm>

Data Downloads via the Natural Resource Information Portal: <http://nrinfo.nps.gov/Home.mvc>

Follow us on Twitter at: <http://twitter.com/SECoastNetwNPS> or [@SECoastNetwNPS](https://twitter.com/SECoastNetwNPS)

Project Lead: Brian Gregory at mark_gregory@nps.gov