

SECN Program Summary

National Park Service
U.S. Department of the Interior

Inventory & Monitoring Program
Southeast Coast Network



Southeast Coast Network Science Products, FY 2013

Southeast Coast Network Overview

The Southeast Coast Network (SECN; Figure 1) is one of 32 National Park Service Networks established to implement an integrated monitoring program under the Natural Resource Challenge. In 2001, the SECN began planning and implementing its long-term Vital Signs Monitoring Program, and completed its long-term monitoring plan in 2008 (DeVivo et al., 2008). Beginning in FY2010, with the new Administration's focus on climate change science, the SECN began planning for enhancing its original program as a part of the DOI and NPS strategy to improve the ability of resource managers to include climate change science in planning and management.

The SECN contains 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 range in size from slightly more than 20 to nearly 60,000 acres, and when considered with non-federal lands jointly managed with SECN parks the Network encompasses more than 253,000 acres.

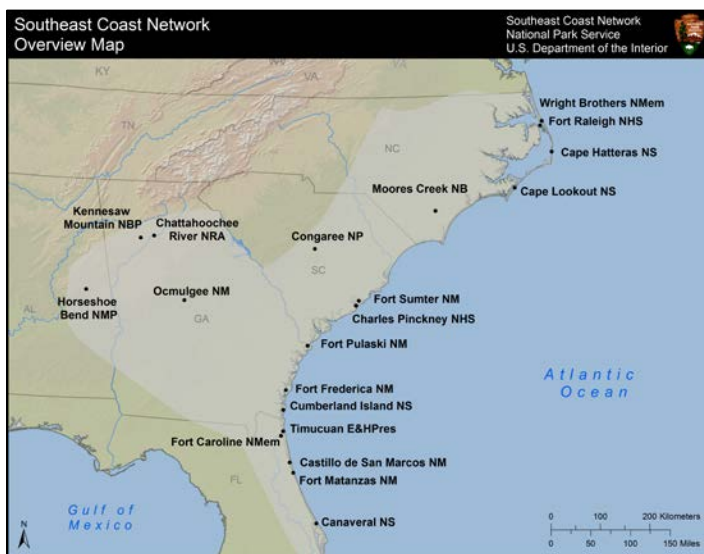


Figure 1. Parks of the Southeast Coast Network.

In FY 2013, 93 products were published by the network to address priority inventory and monitoring needs of Southeast Coast Network Parks. Additionally, the NPS Air Resources Division published a summary of air quality trends and conditions, and the Geologic Resources Division released the final digital geologic map for Horseshoe Bend National Military Park.

All reports are available to the public at <http://irma.nps.gov>.

Highlights

- Network-wide in 2012, temperatures were colder in June, August, September, October, and November when compared to long-term data. Overall, precipitation levels were below normal for the year.
- At Congaree National Park, summer rainfall events potentially increased fixed-station turbidity levels above the South Carolina standard. No other South Carolina standards were exceeded; however, pH was below standard for 99% of measurements.
- In 2012, fixed-station water-quality monitoring at Cape Hatteras National Seashore, Cape Lookout National Seashore, Fort Matanzas, and Fort Pulaski National Monument resulted in *fair* to *good* water-quality measurement readings; there were no *poor* water-quality readings.
- Overall estuarine water and sediment quality index ratings at Cumberland Island National Seashore and Fort Matanzas National Monument during 2012 were *fair*.
- At Fort Frederica National Monument, 12 map classes were developed to map vegetation and general landcover, with vegetation dominated by Neddlerush High Marsh, and a considerable amount of Southern Atlantic Coast Salt Marsh communities.
- At Timucuan Ecological and Historic Preserve and Cumberland Island National Seashore fixed-stations there was a trend in increased rainfall and decreased salinity levels and pH values, thought to have been caused Tropical Storm Debby in late June. These effects could have also been the cause of several *poor* water-quality readings at these parks.
- In 2011, Amphibian Community Monitoring resulted in the addition of new amphibian species at Horseshoe Bend National Military Park, Kennesaw Mountain National Battlefield Park, and Ocmulgee National Monument.
- Amphibian Community Monitoring in 2012 at five SECN parks, Cape Lookout National Seashore, Cumberland Island National Seashore, at Fort Sumter National Monument, Horseshoe Bend National Military Park, and Kennesaw Mountain National Battlefield Park, detected a total of 986 vocalizations from *Anura* species, 596 post-metamorphic amphibians and 161 larval stage amphibians. Cumberland Island National Seashore and Fort Sumter National Monument added new species to their species lists.

- A baseline vascular plant survey was conducted at Ocmulgee National Monument, and resulted in a species list that now totals 436 species. The current survey represented 123 species; of these, 58 species were new taxa for the Park.

Protocols

Gregory, M. Brian, J. C. DeVivo, E. M. DiDonato, C. J. Wright, and E. Thompson. 2013. Protocol for monitoring estuarine water and sediment quality in selected Southeast Coast Network parks. Natural Resource Report NPS/SECN/NRR—2013/644. National Park Service, Fort Collins Colorado.

Inventory Reports

McManamay, R. H., A. C. Curtis, and S. L. Corbett. 2013. Vegetation mapping at Fort Frederica National Monument. Natural Resource Report NPS/FOFR/NRR—2013/684. National Park Service, Fort Collins, Colorado.

National Park Service (NPS). 2013. Unpublished Digital Bedrock Geologic Map of Horseshoe Bend National Military Park and Vicinity, Alabama. National Park Service Geologic Resources Inventory Program, Fort Collins, Colorado.

Zomlefer, W. B., and Others. 2013. A baseline vascular plant survey for Ocmulgee National Monument, Bibb County, Macon, Georgia. *Journal of the Botanical Research Institute of Texas*. 7(1):453-473.



Figure 2. Southern Atlantic Coast Salt Marsh vegetation association at Fort Frederica National Monument.

Monitoring Reports

Air Resources

National Park Service, Air Resources Division. 2013. Air quality in national parks: trends (2000–2009) and conditions (2005–2009). Natural Resource Report NPS/NRSS/ARD/NRR—2013/683. National Park Service, Denver, Colorado.

Weather and Climate

Wright, C. J. 2013. Summary of weather and climate monitoring in Southeast Coast Network parks, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/477. National Park Service, Fort Collins, Colorado.

Water Resources

Coastal Assessments

Wright, W., M. B. Gregory, and J. Asper. 2013. Assessment of estuarine water quality at Cumberland Island National Seashore, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/454. National Park Service, Fort Collins, Colorado.

Wright, W., M. B. Gregory, and J. Asper. 2013. Assessment of coastal water quality at Fort Matanzas National Monument, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/451. National Park Service, Fort Collins, Colorado.

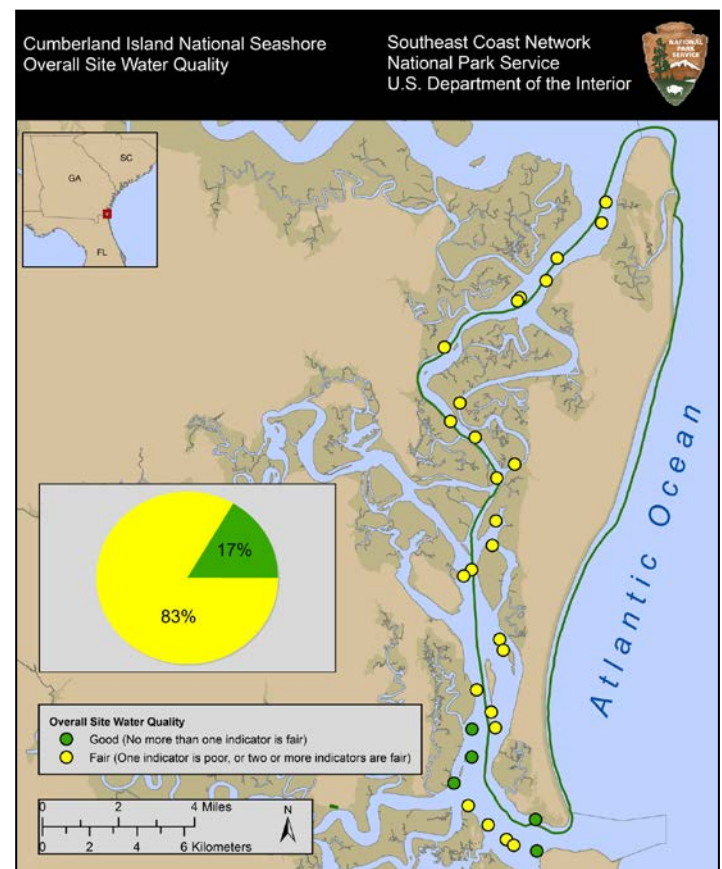


Figure 3. Water quality index rating in waters near Cumberland Island National Seashore July 31– August 2, 2012.

Fixed-Station Water Quality Monitoring

Gregory, M. B., A. P. Rinehart, and W. Wright. 2013. Fixed-station water-quality monitoring at Congaree National Park: Data Summary 2011. Natural Resource Data Series NPS/2013/NRDS—2013/457. National Park Service, Fort Collins, Colorado.

Gregory, M. Brian, W. Wright, and A. Rinehart. 2012. Fixed-station water quality monitoring at Fort Matanzas National Monument: 2011 data summary. Natural Resource Data Series

NPS/SECN/NRDS—2012/391. National Park Service, Fort Collins, Colorado.

Gregory, M. B., A. P. Rinehart, and W. Wright. 2013. Fixed-station water-quality monitoring at Fort Pulaski National Monument: 2012 data summary. Natural Resource Data Series NPS/SECN/NRDS—2013/490. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., M. B. Gregory, and W. Wright. 2013. Fixed-station water-quality monitoring at Cape Hatteras National Seashore: 2012 data summary. Natural Resource Data Series NPS/SECN/NRDS—2013/489. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., M. B. Gregory, and W. Wright. 2013. Fixed-station water-quality monitoring at Cape Lookout National Seashore: 2012 data summary. Natural Resource Data Series NPS/SECN/NRDS—2013/493. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., M. B. Gregory, and W. Wright. 2013. Fixed-station water-quality monitoring at Canaveral National Seashore: 2012 Data Summary. Natural Resource Data Series NPS/SECN/NRDS—2013/496. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., W. Wright, and M. B. Gregory. 2013. Fixed-station water-quality monitoring at Congaree National Park: Data summary 2010. Natural Resource Data Series NPS/2013/NRDS—2013/476. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., W. Wright, and M. B. Gregory. 2013. Fixed-station water-quality monitoring at Congaree National Park: Data Summary 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/487. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., M. B. Gregory, and W. Wright. 2013. Fixed-station water-quality monitoring at Cumberland Island National Seashore: 2012 data summary. Natural Resource Data Series NPS/SECN/NRDS—2013/491. National Park Service, Fort Collins, Colorado.

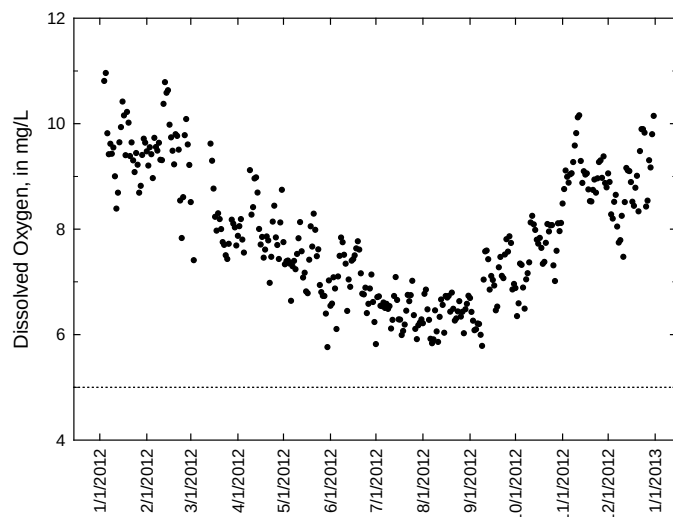


Figure 4. Mean daily values for dissolved oxygen at Ocracoke near Cape Hatteras National Seashore during 2012. Dotted line indicates minimum value for a rating of good.

Rinehart, A. P., M. B. Gregory, and W. Wright. 2013. Fixed-station water-quality monitoring at Fort Matanzas National Monument: 2012 data summary. Natural Resource Data Series NPS/SECN/NRDS—2013/488. National Park Service, Fort Collins, Colorado.

Rinehart, A. P., M. B. Gregory, and W. Wright. 2013. Fixed-station water-quality monitoring at Timucuan Ecological and Historic Preserve: 2012 data summary. Natural Resource Data Series NPS/SECN/NRDS—2013/494. National Park Service, Fort Collins, Colorado.

Wright, W., and M. B. Gregory. 2013. Fixed-station water-quality monitoring at Canaveral National Seashore: 2005 to 2009 Data Summary. Natural Resource Data Series NPS/SECN/NRDS—2013/507. National Park Service, Fort Collins, Colorado.

Wright, W., M. B. Gregory and A. Rinehart. 2012. Fixed-station water quality monitoring at Cape Lookout National Seashore: 2011 data summary. Natural Resource Data Series NPS/SECN/NRDS—2012/388. National Park Service, Fort Collins, Colorado.

Surface Water Dynamics

Jones, C. D., and M. B. Gregory. Summary of stream flow conditions at five riverine parks in the Southeast Coast Network, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/505. National Park Service, Fort Collins, Colorado.

Biological Integrity

Amphibians

Smrekar, B. D., M. W. Byrne, L. Kleinschmidt, and N. P. Schwartz. 2013. Amphibian community monitoring at Cape Lookout National Seashore, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/551. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, L. Kleinschmidt, and N. P. Schwartz. 2013. Amphibian community monitoring at Cumberland Island National Seashore, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/531. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, L. Kleinschmidt, and N. P. Schwartz. 2013. Amphibian community monitoring at Fort Sumter National Monument, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/549. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, L. Kleinschmidt, and N. P. Schwartz. 2013. Amphibian community monitoring at Horseshoe Bend National Military Park, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/550. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, L. Kleinschmidt, and N. P. Schwartz. 2013. Amphibian community monitoring at Kennesaw Mountain National Battlefield Park, 2012. Natural Resource Data Series NPS/SECN/NRDS—2013/548. National Park Service, Fort Collins, Colorado.



Figure 5. Mountain chorus frog (*Pseudacris brachyphona*) observed during amphibian monitoring at Horseshoe Bend National Military Park in 2011.

Smrekar, B. D., M. W. Byrne, M. N. Moore, and A. T. Pressnell. 2013. Amphibian community monitoring at Chattahoochee River National Recreation Area, 2011. Natural Resource Data Series NPS/SECN/NRDS—2013/522. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, M. N. Moore, and A. T. Pressnell. 2013. Amphibian community monitoring at Horseshoe Bend National Military Park, 2011. Natural Resource Data Series NPS/SECN/NRDS—2013/528. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, M. N. Moore, and A. T. Pressnell. 2013. Amphibian community monitoring at Kennesaw Mountain National Battlefield Park, 2011. Natural Resource Data Series NPS/SECN/NRDS—2013/529. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, M. N. Moore, and A. T. Pressnell. 2013. Amphibian community monitoring at Ocmulgee National Monument, 2011. Natural Resource Data Series NPS/SECN/NRDS—2013/530. National Park Service, Fort Collins, Colorado.

Smrekar, B. D., M. W. Byrne, M. N. Moore, and A. T. Pressnell. 2013. Anuran community monitoring at Congaree National Park, 2011: Supplemental monitoring to 2010 efforts. Natural Resource Data Series NPS/SECN/NRDS—2013/527. National Park Service, Fort Collins, Colorado.

Program Summaries

National Park Service. 2013. Coastal Water and Sediment Quality Monitoring Program Summary. National Park Service, Southeast Coast Network. Athens, GA.

National Park Service. 2013. Inventory & Monitoring Products 2000-2013: Cape Lookout National Seashore. National Park Service, Southeast Coast Network. Athens, GA.

National Park Service. 2013. Inventory & Monitoring Program Status Report, 2012: Canaveral National Seashore. National Park Service, Southeast Coast Network. Athens, GA.

National Park Service. 2013. Inventory & Monitoring Program Status Report, 2012: Cape Hatteras National Seashore. National Park Service, Southeast Coast Network. Athens, GA.

National Park Service. 2013. Inventory & Monitoring Program Status Report, 2013: Moores Creek National Battlefield. National Park Service, Southeast Coast Network. Athens, GA. Published Report-2197163.

Standard Operating Procedures

The following Standard Operating Procedures (SOPs) were published in FY2013 to govern the collection, management, and reporting of SECN Vital Signs monitoring data. SOPs in *italics* were updated in FY2013.

Monitoring Methods

SOP 1.1.1 – Sampling point generation using RRQRR

SOP 1.1.2 – Uploading sampling points to GPS units

SOP 1.1.6 – Shipping and tracking of laboratory samples

SOP 1.2.1 – Generating spatially-balanced sampling locations for coastal assessments using ArcGIS 10

SOP 1.2.2 – Field evaluation of coastal assessment sampling locations

SOP 1.2.3 – Field water quality measurements for coastal assessments

SOP 1.2.4 – Water sample collection and processing for laboratory analysis of nutrients and chlorophyll a for coastal assessments

SOP 1.2.5 – Benthic sediment collection and processing for laboratory analysis for coastal assessments

SOP 1.2.6 – Coastal assessment lab and field data entry and certification

SOP 1.2.7 – Laboratory analysis criteria for estuarine water and sediment quality monitoring

SOP 1.2.8 – Installation and maintenance of fixed-station water-quality monitoring stations

SOP 1.2.9 – Fixed-station water-quality data sonde deployment and retrieval

SOP 1.2.10 – Remote sonde deployment and water sample collection at fixed stations

SOP 1.2.11 – Fixed-station water sample Collection

SOP 1.2.12 – Fixed-station water-quality data entry, certification, and QA/QC steps for continuous water-quality data records

SOP 1.2.29 – Sampling schedule for migratory and wintering shorebird monitoring at Cape Hatteras National Seashore

SOP 1.4.1 – Programming and maintenance of automated recording devices for vocal anuran and bird monitoring

SOP 1.4.2 – Audio recognizer development methods

SOP 1.4.3 – Conducting a visual encounter survey

SOP 1.4.4 – Chytrid fungus sampling

SOP 1.4.18 – Amphibian euthanasia procedures

SOP 1.4.19 – Installation and relocation of permanent terrestrial monitoring sampling locations

SOP 1.4.21 – Vocalization identification quality assurance and quality control procedures

SOP 1.4.22 – Deployment and retrieval of automated recording devices for vocal anuran and land bird monitoring

SOP 1.4.23 – Herpetofauna identification training for field staff

SOP 1.4.24 – Manual evaluation of automated recording device files

SOP 1.4.26 – Establishing sampling units and subsample transects for wintering and migratory Shorebird monitoring

SOP 1.4.27 – Conducting a Line transect survey for monitoring migratory and wintering shorebirds

SOP 1.4.28 – Training procedures for monitoring wintering and migratory shorebirds

SOP 1.4.30 – Beach closures and recording closure data methods for monitoring migratory and wintering shorebirds in Southeast Coast Network parks

SOP 1.4.31 – Navigation to terrestrial monitoring sampling locations

Data Management & Publication

SOP 2.1.1 – Revision of Southeast Coast Network protocols and standard operating procedures

SOP 2.1.2 – SECN reporting guidelines

SOP 2.1.3 – SECN authorship guidelines

SOP 2.1.5 – Report publication and distribution

SOP 2.1.8 – Dataset and metadata Publication

SOP 2.2.1 – Coastal Assessment water- and sediment-quality database user manual

SOP 2.2.2 – Exporting coastal assessment data to STORET

SOP 2.2.3 – Coastal assessment water-quality monitoring data management and database technical documentation

SOP 2.2.4 – Coastal water and sediment quality data reporting manual

SOP 2.2.5 – Fixed-station water-quality monitoring data entry: database user manual

SOP 2.2.6 – Publishing fixed-station water quality data to STORET

SOP 2.2.7 – Fixed-Station water-quality monitoring data management and database technical documentation

SOP 2.2.8 – Fixed-station data reporting manual

SOP 2.4.1 – Southeast Coast Network amphibian community monitoring database user manual

SOP 2.4.2 – Amphibian database data dictionary

SOP 2.4.12 – NPSpecies and NPSpecies certification guidance

SOP 2.4.16 – Wintering and migratory shorebird data entry and management

SOP 2.4.17 – Wintering and migratory shorebird data analysis

SOP 2.4.18 – Shorebird data reporting

Safety

SOP 3.1.1 – Identification, treatment, and reporting of on-duty injury and illness

SOP 3.1.2 – Safe operation of Southeast Coast Network watercraft

SOP 3.1.3 – Vehicle use and operation

SOP 3.1.4 – Motor vehicle accident reporting procedures

SOP 3.1.5 – Safe animal handling

SOP 3.1.6 – Logistics for camping while conducting field work.

SOP 3.1.7 – Communicating field operations with SECN parks

SOP 3.1.8 – Safe operations of ATVs



Southeast Coast Network –
<http://science.nature.nps.gov/im/units/secn/>

Integrated Resource Management Applications Portal (IRMA)–
<https://irma.nps.gov/App/>

National Park Service. 2013. Southeast Coast Network Science Products, FY 2013. National Park Service, Athens, GA.