

SECN Program Summary

National Park Service
U.S. Department of the Interior

Inventory & Monitoring Program
Southeast Coast Network



Southeast Coast Network Science Products, FY 2012

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.

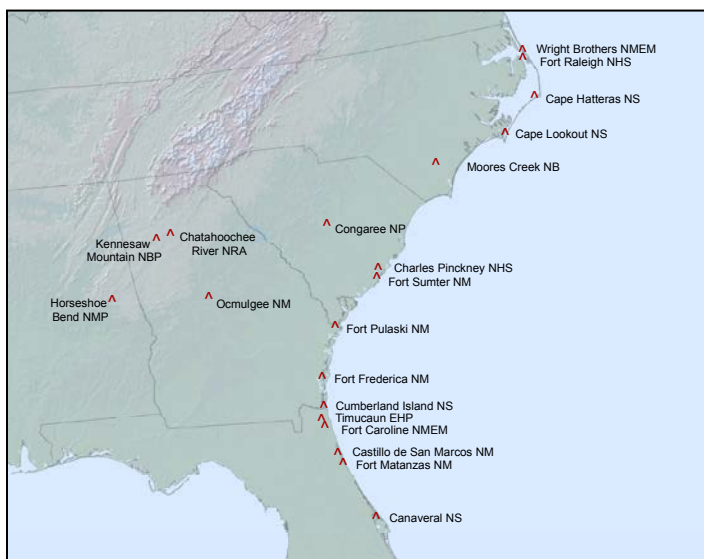


Figure 1. Parks of the Southeast Coast Network.

In FY 2012, 40 products were published that address priority SECN Inventory & Monitoring needs.

Highlights

- An average of 10 new plant records were added to 11 park certified species lists based on SECN monitoring efforts.

Fort Frederica National Monument (FOFR) had the highest number of new species found (20).

- Total annual precipitation across the southeastern United States was rated below normal (long-term average from 1981–2010), where conditions were rated abnormally dry or drought conditions throughout most of 2011.
- The general temperature pattern (average monthly $T_{\max}$ and $T_{\min}$) at weather stations relevant to SECN parks shows that January and October were colder while the rest of the year was typically warmer during 2011 when compared to the long term (1981 – 2010) average. However, these departures from normal were usually not outside the range of variation for the long-term average.
- Precipitation in the SECN varied widely throughout the Network but was universally below normal for the year, with the exception of Cape Hatteras Airport and Titusville stations. The precipitation departures from normal ranged from 15.70 inches (399 mm) below the long-term average at the Brunswick Malcolm McKinnon station to 5.29 inches (134 mm) above the long-term average at Cape Hatteras Airport station.
- In 2012, the SECN published analyzed and reported on coastal fixed-station monitoring at all coastal parks. Based on monthly sampling, water clarity and dissolved oxygen consistently rated as *good* network-wide, while nutrient levels occasionally rated as *fair* to *poor*. Chlorophyll *a* levels mostly rated as *fair*, except in the Outer Banks parks where they rated as *good* for all readings.
- Across all parks, high flow pulses were more frequent at the five gages in the metropolitan Atlanta area at Chattahoochee River National Recreation Area (CHAT) and Kennesaw Mountain National Battlefield Park (KEMO); the highest frequency of extreme low flow pulses was observed at the downstream-most gage at CHAT.
- At CHAT, the most commonly observed flow conditions on all sections during 2011 (30–42% of the time) were greater than 2,000 cfs—flows generally considered too high for wade and tube fishing, novice rafting, canoeing and other social activities.
- River flows along the sections of the Chattahoochee River were less than ideal (below 750 cfs) 6–16% of the time; extreme low flows were more common on Sections 3 and 4 (Table 6) and a comparison of the number of times daily flow was below 750 cfs at Section 2 and Section 3 (23 and 43, respectively; Table 7) might indicate that Section 3 was impacted by water withdrawals that impeded recreational uses during the late summer and fall.

- Trend analyses of 32 groundwater wells in or near SECN parks showed that groundwater quantity has increased at 34% of wells and decreased at 50% of wells over their periods of record. Well trends at FOFR and Congaree National Park have changed from a positive or no trend to a negative trend since 2010.
- The Georgia Coastal Research Council and the SECN completed an expansion of their joint water quality metadata portal from the SECN coast to the boundaries of the South Atlantic LCC. Currently, 40 programs in the South Atlantic are registered in the database, including metadata on 16,182 stations at which 1,093 distinct parameters are measured (i.e., 286,042 total station parameter records).
- An updated plant inventory at CHAT yielded 570 species and three varieties of vascular plants, including 169 species not previously vouchered for the park.
- Based on benthic macroinvertebrate community sampling at Cape Hatteras and Cape Lookout National Seashores, overall benthic conditions in both brackish and saltwater systems were *Good* (i.e., healthy benthos), with only 2 of 22 sites receiving overall ratings of *Fair* (i.e., some stress).

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Figure 2. Photo of continuous data collection station in Middle Marshes (CALO 02) at Cape Lookout. Photo by John Fear, NC National Estuarine Research Reserve.

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Figure 3. American beautyberry (*Callicarpa americana*), a common shrub occurring at Fort Frederica National Monument. Photograph by Sarah L. Corbett

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Urban Land Use 1986-2006

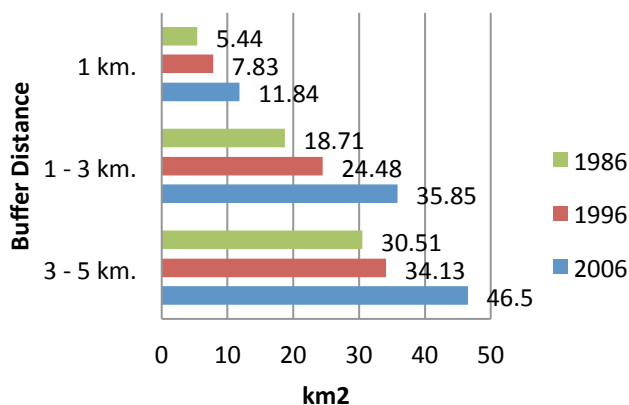


Figure 4. Change in amount of urban land use found within three distance ranges of the Kennesaw Mountain National Battlefield Park boundary from 1986–2006.

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Inventory & Monitoring Home –
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