

Ocmulgee National Monument

National Park Service
U.S. Department of the Interior

Inventory & Monitoring Program
Southeast Coast Network



Summary of Stream Flow Conditions, 2011

Vital Sign Overview

Evaluation of stream flow characteristics offers some of the most appropriate and useful indicators for assessing aquatic ecosystem integrity, and for monitoring environmental changes over time. It also provides key support data for other vital signs indicators including water quality, threatened and endangered aquatic species, wetlands, and riparian habitat. The large amount of uncertainty associated with many projections for changes in water availability due to climate change means that more data is likely needed before the direction and magnitude of the influence can be measured. In order to evaluate the significance of changes in flow regimes due to naturally occurring and/or regulated conditions, the National Park Service Southeast Coast Network (SECN) began harvesting relevant data sets collected at selected sites and disseminating this data to Network parks in the context of historical flow characteristics and/or park specific flow thresholds. This report provides a summary of the previous year's flow conditions and provides information on overall flow variability as well as the seasonality and timing of ecologically relevant flow events in rivers near or adjacent to SECN parks.

Significant Findings

Flows on the Ocmulgee River near the Monument were highest during winter and spring months with the highest median flows occurring in March and April (Table 1).

On several occasions, flows on the Ocmulgee River from February to April exceeded the 75th percentile for flows typically observed during that time of year (Figure 1).

Flows were lowest from May to December; however, this pattern is normal and not outside what is typically observed on the Ocmulgee.

Extreme low flows occurred 4–9 times with a duration of 5 to 10.5 days. High flow pulses occurred 8–11 times with a duration of 3–4 days.

Status of Conditions – Median and Low Flow Magnitude

Table 1. Monthly median flow magnitudes for Ocmulgee National Monument during 2011. Darker blue color indicates higher flow magnitude in cubic feet per second (cfs).

USGS ID	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2210500	1110	1505	2680	1785	728	589	433	306	236	254	729	744
2213000	1680	2180	3530	2640	948	678	593	343	300.5	338	603	638

Table 2. Environmental Flow Components for flows (in cubic feet per second) at OCMU during 2011. Timing refers to average date of peak events if more than one occurred. These metrics were calculated using the Indicators of Hydrologic Alteration Software (TNC 2009).

USGS ID	Extreme Low Flow				High flow pulses			
	Frequency	Peak (cfs)	Duration (days)	Timing	Frequency	Peak (cfs)	Duration (days)	Timing
02210500	4	342.5	10.5	7/31	11	3000	3	3/12
02213000	9	460	5	8/6	8	4865	4	3/15

Status of Conditions – Monthly Flow

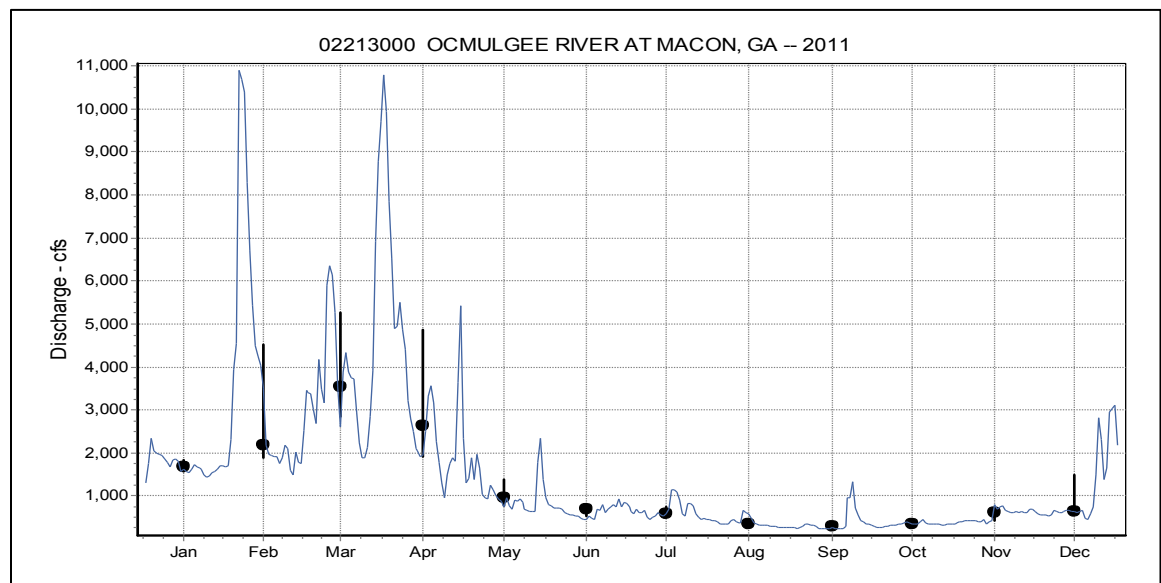


Figure 1. Daily flow (blue line), monthly median flow (dots), and monthly interquartile range (25th and 75th percentiles; error bars) for flow on the Ocmulgee River at Macon, GA during 2011.

Sampling Area

Ocmulgee National Monument is located on the Fall Line, near Macon, Georgia (Figure 2). The 702-acre park is surrounded by urban and suburban development. Roughly 300 acres of the park are classified as emergent wetlands. Surface water resources in the area include the Ocmulgee River, Walnut Creek, Swift Creek, Town Creek, and numerous other creeks; Edwards, Club, Nelsons, and other impounded lakes and ponds; and swamps and wetlands (National Park Service 2001). Flows in the Ocmulgee River near the Ocmulgee National Monument have been impacted for over 100 years by the construction of Lloyd Shoals Dam (Lake Jackson) in 1911.

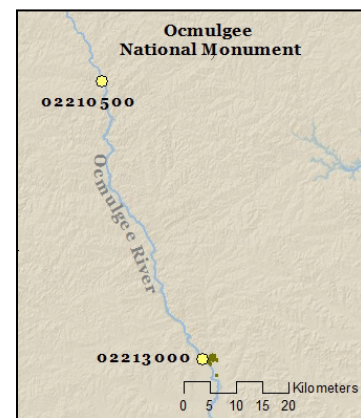


Figure 2. Ocmulgee National Monument and USGS gage used in this report.

About the Southeast Coast Network

The Southeast Coast Network (SECN) includes twenty parks, seventeen 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.

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/SECoastNetwkNPS> or [@SECoastNetwkNPS](https://twitter.com/SECoastNetwkNPS)