



Carl Sandburg Home National Historic Site Water Quality Summary Fiscal Year 2011

Water quality at Carl Sandburg Home National Historic Site remains good



Side Lake, September 8, 2001. Image by Joe Meiman.

Highlights of Fiscal Year 2011 Monitoring

The Cumberland Piedmont Inventory and Monitoring Network began long-term water quality monitoring at Carl Sandburg Home National Historic Site (CARL) in fiscal year 2003 (October 2002 through September 2003) – sampling occurs quarterly in alternating years. Water quality for CARL during fiscal year 2011 reflected the beginning of recovery from the prolonged drought throughout the Blue Ridge and Piedmont. Many streams that were reduced to trickles were starting to increase flow as flow-dependent parameters such as dissolved oxygen recovered.

Violations of North Carolina water quality standards found during fiscal year 2011 are considered apparent violations. On August 10, 2011 the water temperature of Front Lake was measured at 29.1°C, the standard is less than 29°C. This should be considered a natural and temporary condition.

Other apparent violations caused by natural conditions regard pH values falling below the state's lower pH threshold of 6.0 Standard Units (SU). Due to the lack of carbonate minerals CARL waters have a very low acid neutralizing capacity (ANC). Thus the naturally low-pH waters of the park remain low. This is most obvious at Trout Spring and Mountain Reservoir where values were between 4.0 and 5.5 SU during each of the quarterly visits. Low pH was also expressed downstream of Trout Spring in Side Lake where two of the four samples were below the lower pH limit of 6.0 SU.

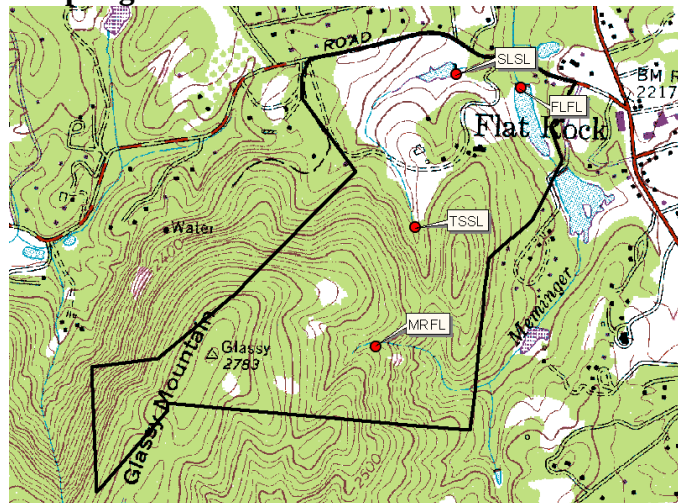
Escherichia coli were below the USEPA recommendations of 576 Most Probable Number per 100 ml (MPN/100ml) at all sites. The high reading found in the normally "clean" Trout Spring during the May 2009 sampling event (980.4 MPN/100ml) proved to be an outlier.

Water Quality Standards

All CARL waters are considered "North Carolina High Quality Waters, WS II and WS IV," a combination that gives CARL the highest standards under the Clean Water Act as promulgated by the state of North Carolina. The state currently does not impose a standard for *Escherichia coli* bacteria so we have adapted the USEPA recommendations for "Single Sample Infrequently Used Full Contact Recreation." We use the most tolerant of federal recommendations reflecting the lack of recreational use of CARL waters, 576 MPN/100ml. Other monitored parameters, ANC and Specific Conductance (SpC), are without state standards or federal guidelines. These parameters are useful in interpreting water quality.

Water Temperature	Not to exceed 29°C
Dissolved Oxygen	Not to exceed 4.0 mg/l
pH	Between 6.0 and 9.0 SU
<i>Escherichia coli</i>	Not to exceed 576 MPN/100ml
SpC	No Standard
ANC	No Standard

Sampling Sites



SLSL	Side Lake at dam
FLFL	Front Lake at dam
TSTS	Trout Spring
MRFL	Mountain Reservoir

Future Monitoring

Water quality sampling is scheduled to resume in fiscal year 2013.

Water quality data are available upon request to the Cumberland Piedmont Network or our website:

<http://science.nature.nps.gov/im/units/cupn/reports.cfm>