Carl Sandburg Home National Historic Site Water Quality Summary Fiscal Year 2013

Water quality at Carl Sandburg Home National Historic Site remains good

Side Lake, May 17 2013. Image by Shepard McAninch.

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." ANC and Specific Conductance (SpC) are without state standards or federal guidelines. These parameters are useful in interpreting water quality.

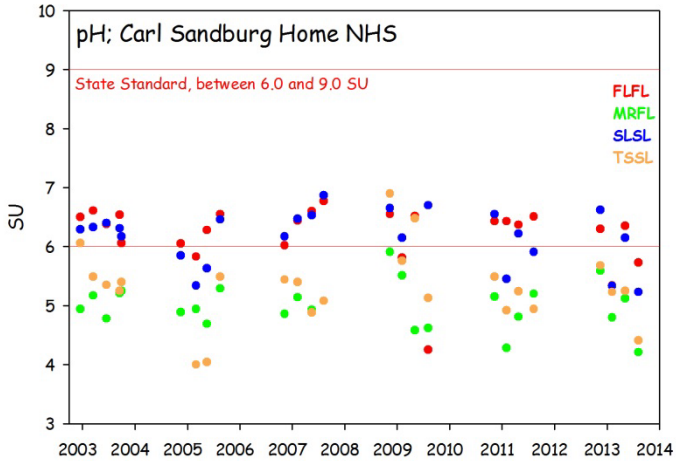
Water Temperature	Not to exceed 29°C
Dissolved Oxygen	Not to deceed 4.0 mg/l
pH	Between 6.0 and 9.0 SU
Escherichia coli	Not to exceed 576 MPN/100ml
SpC	No Standard
ANC	No Standard

Highlights of Fiscal Year 2013 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.

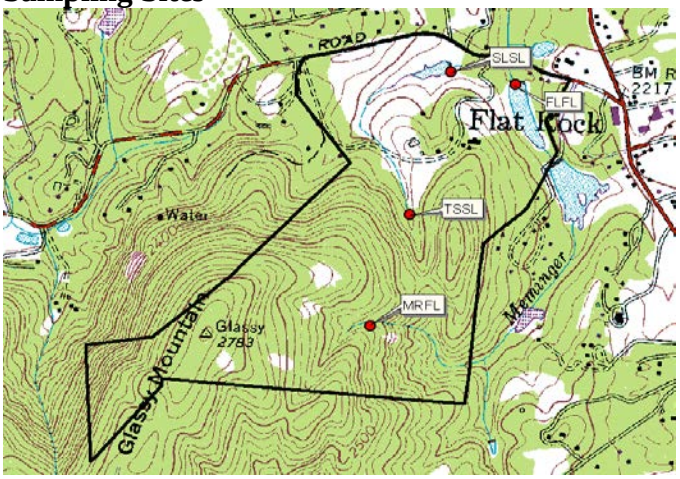
Violations of North Carolina water quality standards found during fiscal year 2013 are considered apparent or temporary violations. One sample taken during the year at Side Lake (August 8 2013) exceeded the single-sample USEPA *Escherichia coli* recommended limit for infrequent full contact recreation of 576 Most Probable Number per 100 ml (MPN/100ml). This single high value was due to increased runoff following a week which had nearly 18 cm (7 in) of rain. As Side Lake's watershed is almost completely within the park and has very little development, the bacteria are likely to be non-point source.

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 measurements were between 4.0 and 5.5 SU during each of the quarterly visits. Low pH was also expressed downstream in Side Lake where two of the four samples, and Front Lake one of four, were below the lower pH limit of 6.0 SU.



pH at Carl Sandburg Home National Historic Site.

Sampling Sites



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

Future Monitoring

Water quality monitoring is scheduled to resume in fiscal year 2015. Water quality data are available upon request to the Cumberland Piedmont Network or our website: http://science.nature.nps.gov/im/units/cupn/publications.cfm