NONPOINT SOURCE SUCCESS STORY

South Carolina

Outreach, Partnerships, and Implementation Improve Rabon Creek

Waterbody Improved

Nonpoint source pollution is a major contributor to elevated bacteria levels in Rabon Creek and its main tributaries. Rabon Creek failed to attain its primary recreation designated use, prompting South Carolina to add the creek to its 2000 Clean Water Act (CWA) section 303(d) list for fecal coliform (FC) bacteria impairment. After the 2000 listing, a water quality improvement plan was implemented, educating citizens in the area and encouraging landowners to install best management practices (BMPs) to decrease bacteria loading to the waterbodies. As a result, water quality improved, allowing South Carolina to report that South Rabon Creek (a tributary to Rabon Creek) fully supported its recreational use when data from 2010–2014 was evaluated during the 2016 CWA section 303(d) assessment cycle.

Problem

The 127.3-square mile Rabon Creek watershed is in the Saluda River Basin, a priority watershed (Figure 1). North Rabon Creek and South Rabon Creek join to form the Rabon Creek watershed, ultimately discharging into Lake Greenwood. Rabon Creek is in Greenville and Laurens counties, and includes portions of the towns of Laurens, Simpsonville, Fountain Inn, and Gray Court. Primary land uses include forest (67 percent), pastureland (15 percent) and cropland (14 percent).

Through monitoring efforts at several stations in the watershed, the South Carolina Department of Health and Environmental Control (SCDHEC) assessed FC bacteria for recreational use. Until 2013, state criteria for FC impairment required that no more than 10 percent of the total samples during any 30-day period exceed 400 colony-forming units (CFU) per 100 milliliters (100 mL). Upon review of data collected from 1996 to 2000, SCDHEC found that 58 percent of samples violated the standard. As a result, SCDHEC placed South Rabon Creek (Station S-322) on the CWA section 303(d) list of impaired waters in 2000. A total maximum daily load (TMDL) for FC bacteria was developed in 2004.

Project Highlights

Partners implemented a multifaceted TMDL implementation effort to improve water quality throughout the Rabon Creek watershed from November 2007 to November 2010. Main objectives of the implementation project included offering cost-share assistance to landowners for direct implementation of BMPs,

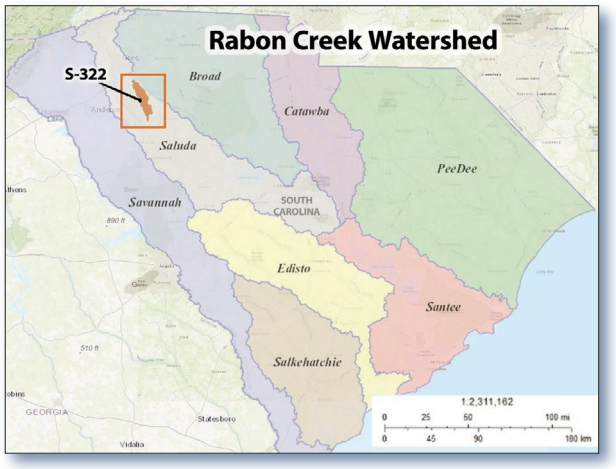

Figure 1. Rabon Creek is in the Saluda River Basin in northwest South Carolina.

and providing information to residents. Assistance and information was offered to homeowners for septic repair, stormwater management and pet waste management. Farmers were encouraged to implement practices to exclude livestock from streams.

The project began with a survey on the Laurens County Water and Sewer Commission website and publicity to the community through local newspapers to gauge resident interest. Along with these early outreach efforts, pet waste stations and informational kiosks were installed at Lake Rabon Park. In addition, over 4,000 informational letters were sent to watershed residents, geared toward homeowners and farmers. The Upper Savannah Council of Governments published several articles to coincide with the mailing. These efforts were effective with homeowners,

Figure 2. Surfacing of effluent from a failing septic system (repaired in 2009) is visible at the ground surface.

Figure 3. A landowner installed fencing alongside a pasture to prevent goats and cattle from accessing the waterway.

resulting in more than 50 septic tank evaluation visits and 23 septic tank repairs in 2009 alone (Figure 2). Work on septic systems continued in 2010, when an additional 21 septic tanks were repaired. A total of 97 septic site visits were made during the project, and 44 failing septic tanks were repaired.

Agricultural implementation included personal farm visits and a Farm Field Day. The field day was held at a farm that had been a participant in a previous CWA section 319 project. At the field day, farmers became familiar with BMP and their benefits. The field day led to several news articles and several farms developed implementation plans. Cost-share assistance was offered for a variety of practices, including buffers, exclusion fencing, watering facilities, heavy use area protection, and wells (Figure 3). Participating farmers installed a total of 14 watering facilities, two watering gaps, 10,918 square feet of heavy use area protection, 22,215 linear feet of fencing, and 1.5 acres of vegetative plantings. At the end of the project, these measures helped provide a safe drinking water supply for livestock and eliminated or restricted access by 320 head of livestock to waterways.

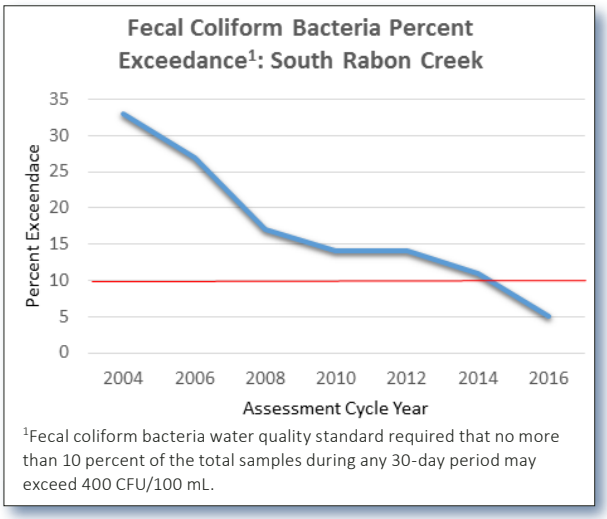

Figure 4. Percent exceedance fecal coliform bacteria found at station S-322 during water quality assessments for listing cycles 2004–2016.

Results

Monitoring in the watershed is ongoing. In total, implementation efforts reduced loadings of nitrogen by 4,611 pounds, phosphorous by 1,343 pounds, sediment by 645 tons, and FC bacteria by 3.87E+13 CFU. Results show that monitoring site S-322 steadily improved as the percent of samples with exceedances declined during every assessment cycle. Based on 2010 and 2011 monitoring results, S-322 met water quality standards and achieved full support for the designated recreational use in the 2016 CWA section 303(d) assessment (Figure 4).

Partners and Funding

The Rabon Creek TMDL implementation project was made possible by the dedication and collaboration of several partners. The lead organization, Upper Savannah Council of Governments, cooperated with Clemson University Extension, Laurens County Water and Sewer Commission, Laurens Natural Resources Conservation Service, Laurens Cattlemen's Association and local landowners. Funding sources included $194,525 in CWA section 319 funding from SCDHEC. Partners and landowners provided $177,980 in cash and in-kind services for BMP cost-share.

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