Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY

Georgia

Installing Agricultural and Stormwater Management Practices Reduces Bacteria in the Upper Soque River

Waterbody Improved

Bacteria in runoff from agricultural and urban lands led to high bacteria counts in Georgia's Soque River. As a result, the Georgia Environmental Protection Division (GAEPD) added a 29-mile segment of the Soque River to its 2002 Clean Water Act (CWA) section 303(d) list of impaired waters for failure to attain its fishing designated use. Beginning in 2008, the installation of agricultural and stormwater best management practices (BMPs) resulted in decreased bacteria levels that met state water quality standards. These measures allowed Georgia to remove fecal coliform as an impairment from the 29-mile segment of the Soque River in 2012.

Problem

The Soque River is the northeastern-most tributary of the Chattahoochee River and has a number of important uses both locally and regionally within the state (Figure 1). The main stem of the river serves as the drinking water source for the city of Clarkesville, and the river's tributaries provide water for other localities in Habersham County. In addition, the river supplies an estimated 1/6 of the inflow to Lake Lanier, the major drinking water reservoir for the city of Atlanta. The Soque River is also renowned for the recreational opportunities it provides (primarily fishing). The watershed covers approximately 160 square miles and rests wholly within Habersham County, thus presenting a unique opportunity for watershed protection and management while avoiding jurisdictional conflicts.

Georgia's water quality standards for the months of May through October require that fecal coliform not exceed a geometric mean of 200 colony-forming units per 100 milliliters (cfu/100 mL). For the months of November through April, fecal coliform is not to exceed a geometric mean of 1,000 cfu/100 mL or a maximum of 4,000 cfu/100 mL for any single sample. Data collected by GAEPD indicated that these standards were not being met. The fecal coliform geometric mean from Georgia sampling station 12024001 (now called 1201020201) was 304 cfu/100 mL in July 2000. This prompted GAEPD to add a 29-mile segment of the Soque River (beginning at Goshen Creek and ending at the State Route 17 Bridge in the city of Clarkesville) to the 2002 CWA section 303(d) list for not supporting its fishing designated use. In 2003 GAEPD developed a total maximum daily load (TMDL) for fecal coliform in the impaired segment (Goshen Creek to SR 17, Clarkesville - segment # GAR031300010202). The TMDL was revised in 2008.

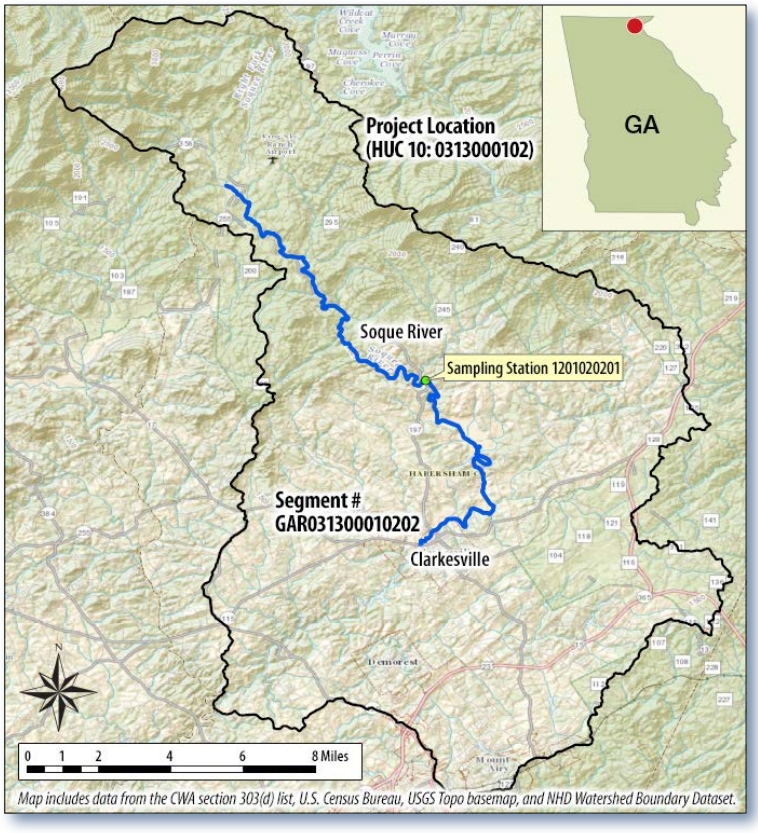

Figure 1. The Upper Soque River is in northeastern Georgia.

Figure 2. A landowner installed this off-stream watering source to reduce livestock access to surface waters.

Project Highlights

In 2008 a FY2005 CWA section 319 implementation grant was initiated to carry out recommendations outlined in the 2007 Soque River Watershed Protection Plan. The primary focus areas of the implementation grant included (1) cost-sharing with 20 farmers on cattle exclusion projects to eliminate fecal coliform bacteria and reduce streambank erosion, (2) implementing two sediment reduction BMPs, and (3) implementing two stormwater control BMPs. The implementation grant also called for public education and outreach activities.

The restoration efforts resulted in a total of 812.3 acres under contract, with 65 agricultural BMPs aimed at bacterial and sediment source control, including 46,442 linear feet of stream and cross-fencing installed; 111,756 square feet of heavy-use area protected; four stream crossings built; and three water wells installed for off-stream watering (Figure 2). Approximately 549 animals, predominantly beef cattle, have been excluded from surface waters. Streambank restoration work included using a natural channel design (provided by North Carolina State University researchers) to restore 500 linear feet of severely eroding streambanks. Stormwater restoration projects included a rain barrel distribution program for homeowners (more than 300 barrels distributed over the project span), installing a demonstration rain garden (500 square feet) at North Georgia Technical College, a 1,100-gallon cistern to collect rooftop runoff and meet garden irrigation demand at Fairview Elementary, a 275-gallon cistern at Clarkesville City Hall, and a rain garden at Cornelia Community House to infiltrate parking lot runoff.

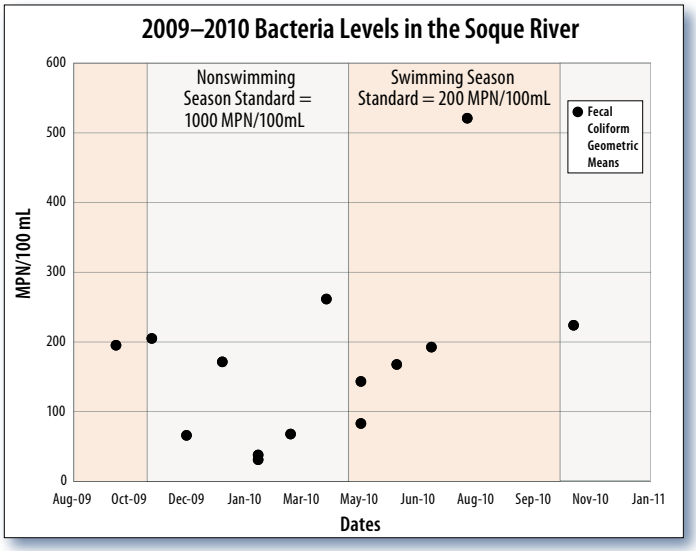

Figure 3. Data show that fecal coliform levels meet applicable standards in both the nonswimming season (November through April) and swimming season (May through October).

Results

Bacteria samples collected at U.S. Geological Survey station# 02331200 (also called GAEDP monitoring site 1201020201) in 2009 and 2010 by GAEPD and the Soque River Alliance showed only a 7 percent exceedance of standards (based on 14 geometric means) (Figure 3). To remove the waterbody from the impaired waters list, exceedances of the allowable geometric mean must be less than 10 percent.

Based on these data, GAEPD removed the fecal coliform impairment from the 29-mile segment of the Soque River on the state's 2012 list of impaired waters.

Partners and Funding

The water quality improvement in the Soque River has primarily been the result of partnerships between GAEPD and the city of Clarkesville. CWA section 319 grant funding was provided from FY2005 (totaling $447,286) to support the implementation of restoration projects. Another $298,191 in local match and documented landowner contributions was provided by the city of Clarkesville to implement these restoration projects. Additional monitoring data to support the impairment removal was collected by the Soque River Alliance.

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