



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Georgia

Reducing Bacteria in Nonpoint Source Runoff Restores the Etowah River

Waterbody Improved

Leaking septic tanks in residential areas and polluted runoff from impervious surfaces caused abnormally high fecal coliform (FC) bacteria levels in Georgia's Etowah River. As a result, the Georgia Environmental Protection Division (GEPD) placed a 20-mile segment of the river on its 2004 Clean Water Act (CWA) section 305(b)/303(d) list of impaired waters. Using CWA section 319 and third-party grant funding, stakeholders repaired septic systems, installed best management practices (BMPs), and conducted outreach and education activities. Water quality improved, prompting the GEPD to remove the 20-mile segment from the state's 2010 CWA section 305(b)/303(d) list of impaired waters for FC bacteria.

Problem

The Etowah River flows through Cherokee County and empties into Lake Allatoona in northwest Georgia's Coosa River watershed (Figure 1). The river is in the Blue Ridge ecoregion, one of the most floristically diverse areas in the eastern United States. The southern Blue Ridge is home to Appalachian oak forests; shrub, grass and heath balds; and hemlocks, cove hardwoods and oak-pine communities.

The Etowah River is designated for fishing use (i.e., secondary contact recreational use). To support that designated use, the FC bacteria geometric means in the Etowah River must remain below 200 colony-forming units (cfu) per 100 milliliters (mL) of water in the summer (May to October) and below 1,000 cfu/100 mL in the winter (November to April). A single-sample maximum criterion of 4,000 cfu/100 mL for the winter months also applies. Water quality data collected in the Etowah River from 2001 to 2007 showed that two of the four summertime FC geometric means exceeded the state's bacteria water quality criteria for fishing use (Table 1). As a result, GEPD added a 20-mile segment of the river to the 2004 CWA section 305(b)/303(d) list of impaired waters for high FC bacteria levels. GEPD identified urban runoff, animal waste, sanitary sewer leaks and failing septic systems as likely bacteria sources.

A Coosa River Basin total maximum daily load (TMDL) study for pathogen loads in 29 stream segments, including the Etowah River,



Figure 1. The Etowah River is in northwest Georgia.

was established by the GEPD and approved by EPA in 2009. GEPD cited runoff from failing septic systems as the primary source of FC bacteria and urban runoff as a secondary source. The TMDL noted that bacteria levels would need to be reduced by 56 percent to allow the Etowah River to meet the water quality criterion necessary to support the fishing designated use.

Table 1. Etowah River seasonal monitoring data^a (2001 and 2009)

Date	FC Bacteria Geometric Mean (cfu/100 mL)
Feb/Mar 2001	155 (W)
May/June 2001	378 (S)
Aug/Sep 2001	344 (S)
Oct 2001	69 (S)
June 2001	281 (S)
Nov 2009	73 (W)
Mar/Apr 2009	25 (S)
June 2009	91 (S)
Sept/Oct 2009	96 (S)

^a Bold values indicate exceedances of the applicable seasonal standard:

- S = summer (May–Oct):
Must be less than 200 cfu/100 mL geometric mean
- W = winter (Nov–Apr):
Must be less than 1,000 cfu/100 mL geometric mean

Project Highlights

Using a combination of CWA section 319 funding and additional funds obtained through Cherokee County, The Nature Conservancy, the Wildlife Fund, and the City of Canton, the Limestone Valley Resource Conservation & Development Council (RC&D) worked with local stakeholders from 2006 to 2011 to promote and install BMPs that would reduce polluted runoff. First, partners installed a rain garden (Figure 2), repaired two failing septic systems (on Long Swap Creek and Buzzard Flapper Creek) and constructed one manure stackhouse (on Settingdown Creek). Project partners also conducted outreach and education activities for watershed residents (Figure 3). Then partners used additional CWA section 319 funds to install four rain gardens, repair seven failing septic systems, add eight stormwater control improvements, install one livestock exclusion and complete one stream-bank restoration project. Stakeholders participated voluntarily, providing partial labor and funds for the BMPs. The BMPs continue to help meet the load reduction allocations in the 2004 TMDL.

Results

In the most recent (2009) FC bacteria sampling of the 20-mile segment of the Etowah River, state scientists found that all four geometric means complied with the state-established seasonal water quality criteria (see Table 1). The FC data indicate that the river now supports its fishing designated use, prompting the GEPD to remove the segment from the state's 2010 CWA section 305(b)/303(d) list of impaired waters for FC bacteria.



Figure 2. Project partners installed rain gardens along the walls of the Reinhardt College Funk Heritage Center to collect and store roof drainage.



Figure 3. Students participate in a rain garden field day activity at the Funk Heritage Center.

Partners and Funding

Almost \$725,000 in CWA section 319 funds have been invested in the larger Etowah River Basin since 2000. Almost \$48,000 of this amount has directly benefitted the 20-mile-long improved segment of the Etowah River. Stakeholders provided the funding for 40 percent of BMP costs along the improved segment, for a total of \$79,543 directed toward BMP construction. Between 2004 and 2008, the U.S. Department of Agriculture provided more than \$124,900 in Natural Resources Conservation Service Environmental Quality Incentive Program funds and \$30,000 in Farm Service Agency funds to farmers in Cherokee County. Key partners in this effort include the Upper Etowah River Alliance, the Limestone Valley RC&D, and the Cherokee County Environmental Health Department. Agents of these generous partners provided technical expertise and labor. Landowners in the Coosa River watershed contributed in-kind labor hours and some matching funds to support improvement projects.



U.S. Environmental Protection Agency
Office of Water
Washington, DC

EPA 841-F-13-001E
January 2013

For additional information contact:

Jeff Linzer II
Georgia Environmental Protection Division
404-675-1643 • Jeffrey_Linzer@dnr.state.ga.us

Diane Minick
Limestone Valley RC&D
706-625-7044 • dianeminick@msn.com