



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Georgia

Applying Agriculture Best Management Practices Reduces Bacteria

Waterbody Improved

Fecal coliform from animal agriculture areas, failing septic tanks and impervious surfaces caused Georgia's Broxton Creek to violate water quality standards. As a result, Georgia's Environmental Protection Division (EPD) added a six-mile segment of Broxton Creek to Georgia's 2000 Clean Water Act (CWA) section 303(d) list of impaired waters for fecal coliform bacteria. Using CWA section 319 and Environmental Quality Incentives Program (EQIP) funds, farmers installed numerous best management practices (BMPs) on pasturelands adjoining the creek's impaired segments. Water quality improved, prompting Georgia EPD to remove the six-mile segment of Broxton Creek from the list of impaired waters for fecal coliform in 2006.

Problem

Broxton Creek flows through Coffee County and empties into the Satilla River in south-central Georgia (Figure 1). The Satilla River basin lies entirely within the Coastal Plain physiographic province, which extends throughout the southeastern margin of the United States. Pastures, cropland and hayfields cover approximately 20 percent of the watershed.

Monitoring data collected in the late 1990s show that Broxton Creek violated the fecal coliform water quality standard for its fishing designated use classification. The standard requires that fecal coliform levels not exceed a geometric mean (four samples collected over a 30-day period) of 200 colony forming units (cfu) per 100 milliliters (mL) in the summer and 1,000 cfu/100 mL in the winter. In the winter, the criterion also requires that fecal coliform levels not exceed 4,000 cfu/100 mL for any one sample.

In 1998 Broxton Creek violated water quality standards for fecal coliform in one of four geometric mean sampling sets and in two single winter sampling events. Because Broxton Creek did not meet criteria to support its fishing designated use classification, Georgia EPD added a six-mile segment of the creek to Georgia's 2000 CWA section 303(d) list of impaired waters for high fecal coliform levels.



Figure 1. Broxton Creek is a tributary of Georgia's Satilla River.

Georgia EPD developed a total maximum daily load (TMDL) study for pathogen loads in the Satilla River watershed; the U.S. Environmental Protection Agency approved the TMDL in 2000. The TMDL determined that pathogen loading into Broxton Creek must be reduced by 85 percent to meet water quality requirements for fishing. The TMDL attributed the pathogen loading to runoff from animal agriculture areas, leaking septic tanks, urban areas and residential areas with pets.

Project Highlights

Using a combination of CWA section 319 and EQIP funding, the Seven Rivers Resource Conservation and Development Council worked with local landowners to install BMPs that reduce pathogen runoff into Broxton Creek and improve the landowners' operations. CWA section 319 funds supported installing one poultry litter stackhouse (Figure 2). Local agriculture agency partners advised the landowner on the technical design and specifications of the BMP and provided oversight and expertise during installation. The landowner participated voluntarily and provided partial labor funds for the BMP.



Figure 2. Poultry litter stackhouse.

Other BMPs implemented in the watershed include installing foundations to support cattle in heavy-use areas, installing grade-stabilization structures, planting pasture and hay areas, vegetating critical areas, implementing waste management systems and installing livestock watering pipelines and alternative watering structures. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) office in Coffee County provided additional technical assistance and support.

Coffee County adopted several ordinances to help improve water quality including one that controls soil erosion and sedimentation, one that governs septic tank permits and one that requires drainage plans for new subdivisions.

Results

Georgia EPD collected monitoring data on Broxton Creek in 2003 as part of a larger effort to update the Satilla River fecal coliform TMDL. Data show that Broxton Creek's fecal coliform geometric mean values, which had reached a high of 5,386 cfu/100 mL in February 1994, had dropped to 30 cfu/100 mL in February 2003. The revised TMDL, approved in 2006, found that Broxton Creek met water quality standards for its designated use and required no additional load reductions. On the basis of that information, Georgia EPD removed the six-mile segment of Broxton Creek from the state's list of impaired waters in 2006.

Partners and Funding

A total of \$41,569 in CWA section 319 funding supported projects in the Broxton Creek watershed. Producers provided the remaining 40 percent of BMP construction costs for a total of \$69,281. Key partners in this effort include the Coffee County Soil Conservation District, Seven Rivers Resource Conservation and Development Council, NRCS agents and Coffee County. Agents of these generous partners provided technical expertise and labor. Landowners in the Satilla River watershed contributed in-kind labor hours and some funding.



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