Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
South Carolina

Best Management Practices Improve Water Quality in the Upper Little Pee Dee River

Waterbody Improved

Agricultural activities and malfunctioning septic systems contributed nonpoint source pollution to South Carolina's Upper Little Pee Dee River. Fecal coliform levels violated the state's water quality standard, and, as a result, the South Carolina Department of Health and Environmental Control (SCDHEC) added the waterbody to the state's Clean Water Act (CWA) section 303(d) list of impaired waters in 2002. Stakeholders implemented best management practices (BMPs) in the watershed, improving water quality and prompting SCDHEC to remove the Upper Little Pee Dee River from the state's list of impaired waters in 2008.

Problem

The 12.6-mile-long Upper Little Pee Dee River is in the Little Pee Dee watershed of South Carolina's Pee Dee River Basin. The Upper Little Pee Dee watershed is over 107 square miles in size (Figure 1). Most of the watershed's land use is agricultural (43 percent) and forested (54 percent).

Data collected by SCDHEC at monitoring station PD-029E (located on the Upper Little Pee Dee River at the Route 23 bridge, northwest of the town of Dillon) indicated that the Upper Little Pee Dee River's primary contact designated use was partially or not supported due to elevated fecal coliform bacteria levels. The river failed to meet South Carolina's water quality standard for fecal coliform, which requires that no more than 10 percent of the total samples exceed 400 colony-forming units per 100 milliliters (cfu/100 mL). On the basis of these data, the Upper Little Pee Dee River was added to South Carolina's CWA section 303(d) list of impaired waters in 2002 for excessive concentrations of fecal coliform bacteria. A total maximum daily load (TMDL) was developed in 2005 for fecal coliform bacteria. The TMDL identified grazing livestock, land application of poultry litter, wildlife, and mal-functioning septic systems as the most significant sources of pollution.

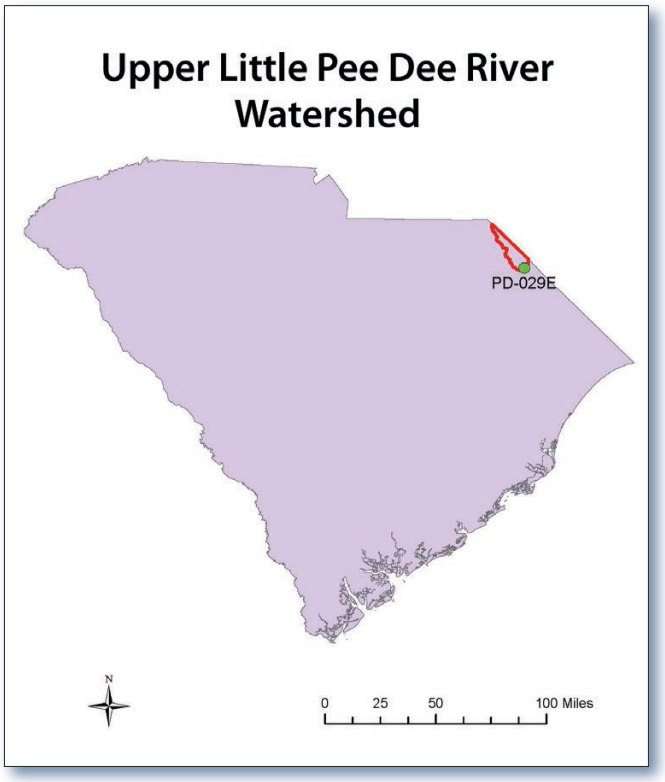

Figure 1. The Upper Little Pee Dee River watershed is in northeastern South Carolina.

Project Highlights

Staff from the Pee Dee Resource Conservation and Development Council (Pee Dee RC&D), local soil and water conservation districts (SWCDs), and the South Carolina Department of Natural Resources (SCDNR) worked collaboratively to restore the Upper Little Pee Dee River. Project partners engaged in a number of educational and outreach activities, including speaking to people about agricultural activities and septic tank issues,

distributing septic tank repair information door to door, and running public awareness advertisements in the local newspaper. These outreach efforts led to BMP implementation on two farms and the repair of 12 septic systems. Within the watershed, a total of 14 farms received BMP installation assistance and 25 septic systems were repaired or replaced.

CWA section 319 grant funding supported the construction of five alternate water sources, 16,709 feet of fencing, 4,624 acres of nutrient management, 24 onsite wastewater treatment systems, 8.9 acres of pasture and hayland planting, and 24,484 feet of streambank and shoreline protection.

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), Environmental Quality Incentives Program (EQIP), funded a suite of BMPs that included 25,000 square feet of heavy-use area protection, 8,643 acres of nutrient management, the construction of one well, 235 acres of pasture planting, 13,333 feet of pipeline, 5,033 acres of cover crop, 18,896 feet of fencing, 182 acres of prescribed grazing, one waste storage facility, and 19 watering facilities.

Results

Data from station PD-029E continued to be collected during and after TMDL implementation (2005 until 2009). Water quality monitoring data assessed in 2008 indicated that 5 percent of the samples collected were above 400 cfu/100 mL of fecal coliform. Accordingly, the Upper Little Pee Dee River met South Carolina's water quality standard, which requires that no more than 10 percent of samples exceed 400 cfu /100 mL during any 30-day period. On the basis of these data, SCDHEC removed the Upper Little Pee Dee River from the state's list of impaired waters in 2008 (Figure 2).

Table 1 lists the water quality assessments for the 2002–2012 CWA section 303(d) listing cycles, further illustrating post-project water quality improvements. In total, implementation efforts reduced pollutant loadings of nitrogen (by 24,525.70 pounds), phosphorus (by 11,682 pounds), sediment (by 12,655.70 tons), and fecal coliform (by 3.5000E+12 cfu).

Partners and Funding

The U.S. Environmental Protection Agency and SCDHEC provided $300,000 in CWA section 319 funding and oversaw the project. The Pee Dee RC&D provided overall project management and worked with the Dillon SWCD and NRCS, Marlboro SWCD and NRCS, and SCDNR to support the development and implementation of the TMDL, manage projects, and provide assistance and information related to fecal coliform bacteria loading into the Upper Little Pee Dee (providing $66,000 through in-kind services). Landowners in the watershed contributed approximately $197,000 in cash and in-kind services to implement BMPs. NRCS provided approximately $536,080 in 50 percent cost-share EQIP funding and provided technical design expertise and oversight (beyond CWA section 319 project participation).

Figure 2. The Upper Little Pee Dee River now complies with water quality standards and has been removed from the state's list of impaired waters for fecal coliform bacteria.

Table 1. SCDHEC Water Quality Assessments for 303(d) Listing Cycles 2002–2012: Fecal Coliform Bacteria at Monitoring Station PD-029E (Upper Little Pee Dee River)

Year	Percent of samples exceeding 400 cfu/100 mL[1]
2002	11%
2004	20%
2006	11%
2008	**5%**
2010	**7%**
2012	**7%**

[1] Values that fall under 10% exceedance (in bold) meet the water quality standard.

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