NONPOINT SOURCE SUCCESS STORY

Louisiana

State and Federal Efforts Help Remove Fecal Coliform Impairment in Big Creek

Waterbody Improved

Polluted runoff from pasture grazing and dairy farms entering Louisiana's Big Creek caused fecal coliform bacteria counts to exceed state water quality standards for the creek's primary contact recreation (PCR) and secondary contact recreation (SCR) designated uses. As a result, the Louisiana Department of Environmental Quality (LDEQ) listed Big Creek on the 2002 Clean Water Act (CWA) section 303(d) list of impaired waters. Since 2008, cattle and dairy farmers have implemented best management practices (BMPs) within the watershed to decrease polluted runoff. As a result, fecal coliform bacteria counts have been reduced and now attain water quality standards, prompting LDEQ to remove the PCR and SCR impairments of Big Creek from its 2016 list of impaired waters.

Problem

Big Creek is in northern Tangipahoa Parish and is a tributary to the Tangipahoa River, which flows into Lake Ponchartrain. The Big Creek subsegment (040703) is comprised of two primary streams and two 12-digit hydrologic unit code (HUC) watersheds: 080702050203 (Big Creek) and 080702050202 (East Fork Big Creek). The land use/land cover in these HUCs is primarily forest and grass/pasture (Figure 1).

Louisiana's water quality standard for PCR requires that no more than 25 percent of the fecal coliform samples collected on a monthly or near-monthly basis may exceed a fecal coliform density of 400 colonies per 100 milliliters of water (col/100 mL) during May to October. For SCR, no more than 25 percent of the fecal coliform samples collected on a monthly or near-monthly basis may exceed a fecal coliform density of 2,000 col/100 mL year-round.

Big Creek fecal coliform ambient cycle monthly monitoring (Figure 2) show exceedances of the water quality standard in 2001, 2007 and 2010. All six values collected during May–October of 2001 and 2007 exceeded 400 col/100 mL (a 100 percent exceedance rate) and four of 12 values collected year-round in 2001 and 2007 exceeded 2,000 col/100 mL (a 33 percent exceedance rate). As a result, LDEQ first listed Big Creek on the 2002 CWA section 303(d) list for impaired PCR and SCR designated use.

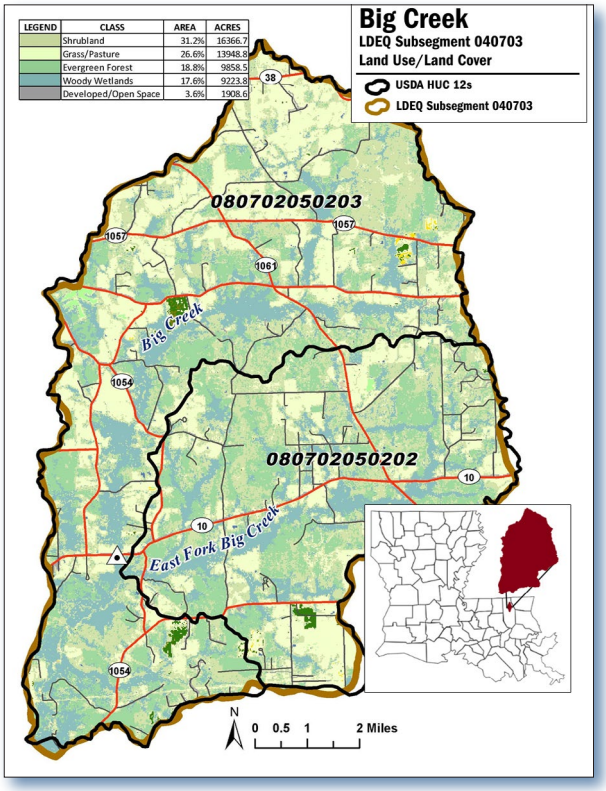

Figure 1. Big Creek is in eastern Louisiana.

Based upon the court-ordered total maximum daily load (TMDL) schedule set forth for Louisiana, a TMDL for fecal coliform was developed in 2012. This TMDL used data available from 2001 to 2010, requiring that fecal coliform pollutant loads be reduced by 88 percent from May to October (summer) and 88.8 percent from November to April (winter).

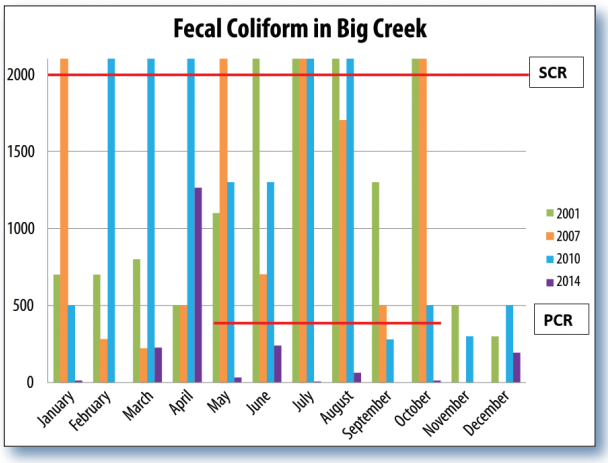

Figure 2. Fecal coliform ambient monitoring cycle data collected for Big Creek.

Project Highlights

Big Creek is one of 40 waterbodies identified in the state's 2012 Nonpoint Source Management Plan to be partially and/or fully restored by October 2016. Big Creek is also a priority waterbody selected as part of a joint effort between the state, the U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency's National Water Quality Initiative for financial and technical assistance and instream monitoring to assess water quality improvements.

Since 2008, USDA's Natural Resources Conservation Service (NRCS) has assisted local landowners in implementing dairy and cattle farm BMPs. In 2012 the Louisiana Department of Agriculture and Forestry (LDAF) partnered with NRCS to continue implementing these BMPs, which included nutrient management (3,659 acres), fencing (463 acres), field borders (89 acres), forage harvest management (617 acres), heavy use area protection (366 acres), irrigation pipeline (144 acres), livestock pipeline (67 acres), livestock shade structure (77 acres), pond (43 acres), prescribed grazing (3,606 acres), residue and tillage management (363 acres), sprinkler system (114 acres), upland wildlife habitat management (150 acres), waste facility closure (77 acres), waste recycling (598 acres), water well (35 acres) and water facility (256 acres). Road signs stating, "Big Creek Watershed: Ours to Protect," were also placed along roadways throughout the watershed in an effort to raise public awareness.

Figure 3. Data were collected at this Big Creek monitoring site.

Results

The rapid improvement in water quality following restoration efforts indicated that the major sources of bacteria impairment were addressed. Monthly bacteria data from the 2014 ambient sampling cycle indicated that bacteria levels did not exceed PCR and SCR (see Figure 2). As a result, LDEQ removed the fecal coliform impairment for Big Creek from its 2016 list of impaired waters. Big Creek has been restored for its PCR and SCR designated uses (Figure 3).

Partners and Funding

In 2012, LDAF's Office of Soil and Water Conservation partnered with the Tangipahoa-St. Helena Soil and Water Conservation District and LDEQ on the Big Creek Watershed Restoration Project in the Lake Pontchartrain Basin. This cost-share program enabled farmers to better understand how BMPs reduce the amount of sediment, nutrients and fecal coliform in local waters.

A total of $266,950 of CWA section 319 funding was spent on BMP implementation on 3,046 acres of land owned by 27 different farmers. Additional 319 funding included approximately $82,164 for LDAF staff to provide technical assistance for BMP implementation, $28,630 for lab analyses, and $67,125 to support LDEQ staff time for monitoring. NRCS spent $2,037,269 within the Big Creek watershed in 2008–2015. NRCS funding supported BMPs through the Environmental Quality Incentives Program ($1,891,559), Wildlife Habitat Incentive Program ($135,910), and the Conservation Stewardship Program ($9,800).

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

EPA 841-F-16-001V
October 2016

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