Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
North Dakota

Implementing Innovative Best Management Practices and Targeting Technical Assistance Restored Recreational Uses

Waterbody Improved

Uncontrolled livestock grazing and poor cropland management contributed high levels of bacteria to the uppermost segment of Lower Pipestem Creek, prompting North Dakota to include the creek on its 2004 Clean Water Act section 303(d) list of impaired waters. Landowners implemented various agricultural best management practices (BMPs) to reduce bacteria levels, including keeping livestock out of the creek, establishing riparian area easements, and better management of manure, crop residues and nutrients. Bacteria levels declined, and the creek now meets fecal coliform standards for recreation, allowing North Dakota to remove this portion of Lower Pipestem Creek from the 2008 section 303(d) list for fecal coliform.

Problem

A segment of Lower Pipestem Creek flows through Wells County and extends from Sykeston Dam downstream to a small impoundment known as Pipestem Dam #3, located just south of the Wells County/Foster County line (Figure 1). In 1999 the Stutsman, Wells and Foster County Soil Conservation Districts (SCDs), in cooperation with the North Dakota Department of Health (NDDH) and the Natural Resource Conservation Service (NRCS), initiated a Lower Pipestem Creek Water Quality Assessment project. The primary goal of the two-year assessment was to determine the status of the stream's beneficial uses and identify the sources of pollutants impairing those uses.

Water quality monitoring data collected during the two-year assessment showed high levels of nitrogen, phosphorus, suspended solids and fecal coliform bacteria in the creek. Additionally, other monitoring data from 1994 to 2005 showed that more than 10 percent of monthly samples collected from May 1 through September 30 exceeded a density of 400 colony forming units (CFU) per 100 milliliters (mL), violating the state standard to protect recreational uses. Therefore, North Dakota included this 10.53-mile upper segment of Lower Pipestem Creek on the 2004 section 303(d) list of impaired waters for total fecal coliform.

Project Highlights

The Lower Pipestem Creek Water Quality Assessment project gave watershed partners a head start in the effort to fix the problem. The assessment had already concluded that improper land management and lack of soil conservation measures in the watershed led to the nonpoint source pollution problems. The assessment recommended that partners could restore the creek by helping landowners to better manage manure within concentrated

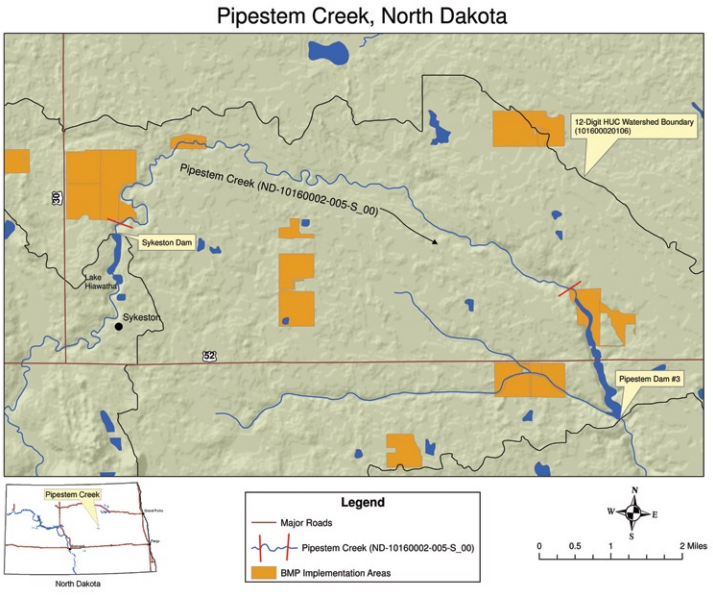

Figure 1. This location map for Lower Pipestem Creek includes shaded areas that indicate where landowners implemented BMPs.

livestock feeding areas and implement BMPs that improve cropland and grazing land management.

Given the assessment findings, the local SCDs launched the Lower Pipestem Creek Watershed Project in April 2002—even before the stream was officially included on the state's 303(d) list of impaired waters. This project delivered financial and technical assistance to agricultural producers to implement various BMPs addressing livestock grazing, manure management, riparian restoration and cropland management. Clean Water Act section 319-funded practices include improving manure management at two animal feeding operations. For example, landowners installed additional wells and water tanks and began spreading out livestock winter feeding locations across cropland and hayland, thereby eliminating areas that generated concentrated runoff (Figure 2). Landowners also converted 550 acres of cropland to hayland (including mildly saline areas using saline-tolerant vegetation), implemented nutrient management on 1,300 acres, applied residue management to 800 acres and prescribed grazing management for 340 acres. In addition, they established riparian area easements on 41 acres and erected livestock exclusion fencing on an animal feeding operation near the riparian area.

Results

The project successfully reduced the amount of bacteria reaching the creek. Data from a set of 54 fecal coliform bacteria samples collected in 2006 and 2007 show that the upper segment of Lower Pipestem Creek met North Dakota water quality standards. The standards require that the geometric mean of the samples be below 200 CFU/100 mL and that no more than 10 percent of samples exceed 400 CFU/100 mL. Because the upper segment's recreational uses are now fully supported, North Dakota removed it from the 2008 section 303(d) list for fecal coliform. The Lower Pipestem Creek Watershed project will remain active until June 2010. These ongoing efforts will likely result in additional BMPs being applied in the watershed.

Figure 2. This is a temporary winter feeding and watering area on cropland. The landowner insulated the water tank to keep it from freezing and created a windbreak with hay bales.

Partners and Funding

The NRCS coordinated with the Stutsman, Foster and Wells County SCDs and watershed project staff to provide technical assistance for conservation planning and financial assistance for installing BMPs through the NRCS Environmental Quality Incentives Program. The U.S. Environmental Protection Agency granted $82,049 in section 319 funds ($46,925 in producer match) through NDDH to the SCDs' alliance, which provided agricultural producers (farmers, ranchers and other landowners) with one-on-one planning assistance and cost-sharing to implement BMPs and conservation plans. The North Dakota Game and Fish Department's Save Our Lakes Program provided $23,578 for riparian easements and restoration practices. In addition to the financial support, the partners provided approximately 400 hours of technical assistance to agricultural producers in the watershed to help plan and install the BMPs.

NDDH oversaw project management, developed the quality assurance project plan, conducted water quality sample collection training and helped to develop and implement information and education activities. The North Dakota Extension Service also provided technical support for education activities and materials. The partners encouraged and maintained public involvement by holding workshops, creating newsletters, maintaining a project Web site, and presenting information to community groups.

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