Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Tennessee

Best Management Practices Reduce Pathogens in Cane Creek

Waterbody Improved

Cane Creek, in McMinn County, Tennessee, was contaminated by pathogens due to urban runoff/storm sewers and pasture grazing. Pathogen inputs to the creek were reduced by stabilizing erosion-prone areas near animal feeding operations and relocating the discharge point for the city of Etowah's stormwater discharge. As a result, Cane Creek was removed from Tennessee's 303(d) list.

Problem

Effluent from the city of Etowah's sewage treatment plant and runoff from cattle and poultry production areas contributed to the high levels of pathogens in Cane Creek. Of 12 fecal coliform samples collected between 1993 and 1996, 4 samples exceeded the fecal coliform criterion of 1,000 colonies per 100 mL. In 2002 Cane Creek was added to the state's 303(d) list as impaired by pathogens due to urban runoff/storm sewers and pasture grazing in the watershed.

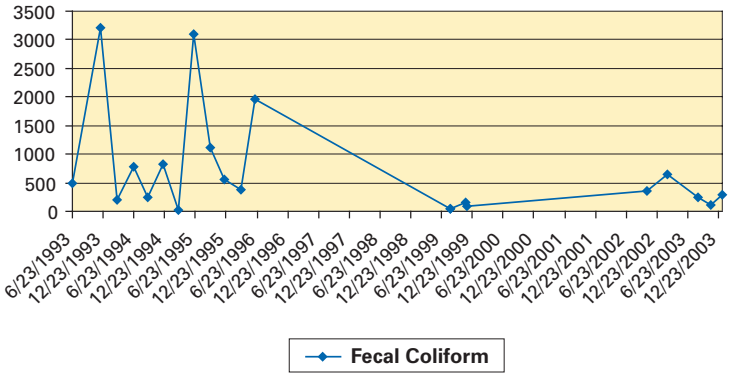
Project Highlights

Poultry and cattle farmers in the Cane Creek watershed installed conservation treatments known as heavy-use areas (HUAs). HUAs usually use geotextile material and gravel to stabilize soil in areas containing large concentrations of animals, thereby preventing soil erosion and improving water quality. Nine HUAs were installed on a large (400-acre) farm in the Cane Creek watershed and three more were installed on a smaller farm according to Natural Resources Conservation Service design standards. In addition to the HUAs, fencing was installed to exclude cattle from streams and stream crossing to minimize erosion where crossings are necessary. Trees were planted in critical areas to decrease soil erosion and provide additional habitat.

The city of Etowah's sewage treatment plant moved its stormwater discharge to another stream. The city had historically discharged to Cane Creek, which was previously assessed as impaired by pathogens on the basis of sampling results from the 1990s.

Results

By 2004 pathogen levels had reached acceptable levels as a result of the best management practices (BMPs) implemented throughout the watershed. Of the nine fecal coliform samples collected between 1999 and 2004, only one sample exceeded the *E. coli* criterion of 941 colonies per 100 mL. Although the fecal coliform criterion had been replaced by *E. coli*,



Number of fecal coliform colonies per 100 mL at Cane Creek River Mile 1.5 in McMinn County 1993–2004. Data collected by Water Pollution Control, Tennessee Department of Environmental Conservation.

levels were reduced to 640 colonies or fewer, which is below the criterion of 1,000 colonies per 100 mL that was used to list the stream. As a result, Cane Creek was removed from Tennessee's 303(d) list in 2004.

Partners and Funding

The U.S. Department of Agriculture Natural Resources Conservation Service and the McMinn County Soil Conservation District helped design and implement many of the BMPs. The project cost a total of $36,550, funded through the Agricultural Resources Conservation Fund (ARCF) and $7,576 of Clean Water Act section 319 funding that was used for critical area plantings, HUAs, and a stream crossing.

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

EPA 841-F-05-004Q
August 2005

For additional information contact:

Sam Marshall, PhD
Tennessee Department of Agriculture
615-837-5306
sam.marshall@state.tn.us