Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Tennessee

Conservation Efforts Improve Water Quality

Waterbody Improved

Agricultural practices along DeMoss Creek contributed to silt runoff that degraded water quality. The Tennessee Department of Environment and Conservation (TDEC) added the creek to the state's 2002 Clean Water Act (CWA) section 303(d) list of impaired waters because of siltation. Landowners implemented numerous best management practices (BMPs), including sediment control basins and conservation plantings. Water quality improved, prompting TDEC to remove DeMoss Creek from Tennessee's list of impaired waters in 2008.

Problem

DeMoss Creek is part of the South Fork Obion River watershed. It flows west of the town of Trezevant in Carroll County, Tennessee. DeMoss Creek did not support its designated uses of fish and aquatic life, prompting TDEC to add a 24.2-mile segment of the creek to the state's 2002 CWA section 303(d) list of impaired waters for sedimentation and siltation. TDEC attributed the loss of biological integrity to sediment from eroding, non-irrigated cropland and riparian areas.

Project Highlights

Landowners installed agricultural BMPs along DeMoss Creek with support from Tennessee's Agricultural Resources Conservation Fund (ARCF) (Figure 1). BMPs included two water and sediment control basins and one acre of critical area plantings (see Figures 2 and 3). The practices helped reduce the amount of sediment entering the creek.

Results

In 2005 TDEC conducted a biological reconnaissance (biorecon) survey of DeMoss Creek using the U.S. Environmental Protection Agency's rapid bioassessment protocol III. A biorecon survey is a tool used to evaluate stream impairment as determined by species richness measures, emphasizing the presence or absence of indicator organisms without regard to relative abundance. The biorecon survey score is used as a measure of compliance with water quality standards for the beneficial use of fish and aquatic life. The principal metrics used

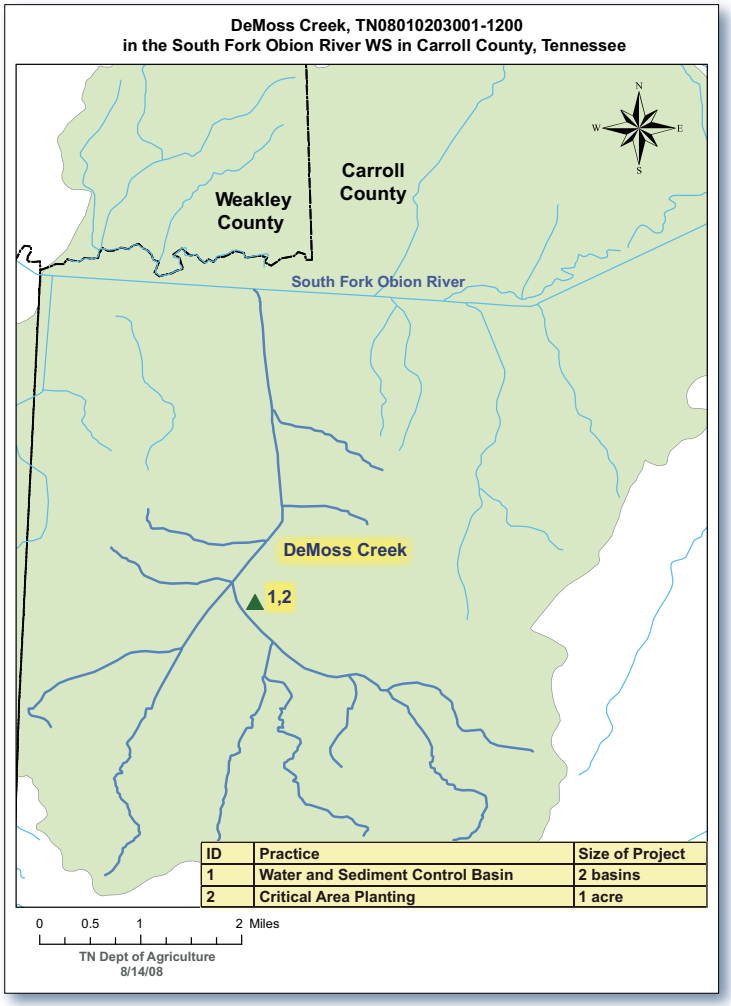

Figure 1. This map shows the location and types of BMPs installed in the DeMoss Creek watershed.

Figures 2 and 3. Examples of water and sediment control basins implemented in western Tennessee.

are the total macroinvertebrate families (or genera); the number of families (or genera) of mayflies, stoneflies, and caddisflies (collectively referred to as EPT—short for the order names Ephemeroptera, Plecoptera and Trichoptera); and the number of pollution-intolerant families (or genera) found in a stream. The biorecon index is scored on a scale from 1 to 15. A score of less than 5 is regarded as very poor. A score of more than 10 is considered good. The 2005 biorecon survey score for DeMoss Creek was 11. The survey documented four EPT families, one intolerant family and 18 total families—yielding an overall habitat score of 93. Those results indicate that the water quality in DeMoss Creek has improved and now supports the creek's fish and aquatic life designated use. Therefore, TDEC removed a 24.2-mile segment of DeMoss Creek from the state's CWA section 303(d) list of impaired waters in 2008.

Partners and Funding

This project was funded through cost-sharing from CWA section 319 grant pool projects. From 2003 to 2008, ARCF provided $10,938 in funding with an additional match of $4,538 from landowners. Other key partners include the Carroll County Soil Conservation District, which helped landowners implement BMPs, and landowners, who contributed the majority of the in-kind match.

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