



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Michigan

Cattle Leave, Aquatic Community Returns to Furlong Creek

Waterbody Improved Unrestricted cattle access to a 4-mile reach of Furlong Creek caused impairments to its aquatic macroinvertebrate community. With the creek unable to meet its aquatic life support designated use, Michigan placed the waterbody on its 303(d) list in 1996. Project partners installed fencing to keep cattle away from the creek. Soon thereafter, the macroinvertebrate community improved, allowing the state to delist the stream reach in 2005.

Problem

Furlong Creek flows through Mackinac County in Michigan’s Upper Peninsula. Surveys conducted in 1989 found diverse fish and macroinvertebrate communities in the creek. By 1999, however, cattle grazing on private property had unrestricted access to the creek. The animals walked in the creek and trampled riparian vegetation, causing excessive instream habitat disturbance and sedimentation.

Subsequent creek monitoring revealed low fish and macroinvertebrate diversity. Pollution-sensitive insect families (e.g., caddisflies, stoneflies, and mayflies) and fish species (e.g., rainbow trout) were absent or very rare. These aquatic life support impairments led Michigan to place a 4-mile segment of Furlong Creek on its 303(d) list in 1996.

Project Highlights

In the early 2000s, the landowner, Michigan Department of Environmental Quality (DEQ), and Michigan Department of Agriculture (MDA) collaborated to address the water quality problems in Furlong Creek. MDA Right-to-Farm staff worked with the landowner to develop a farm management plan. In implementing the plan, project partners installed more than 20,000 feet of streambank fencing to exclude cattle from Furlong Creek.

Results

The accompanying table shows that, by 2004, the creek had recovered. Fish and macroinvertebrate populations were essentially identical to those found before cattle gained unrestricted access to the creek. The

Biological measurement	1989 (limited cattle access)	1999 (unrestricted cattle access)	2004 (limited cattle access)
Number of fish species	12	7	13
Rainbow trout present?	Yes	No	Yes
Kinds of macroinvertebrates	24	18	26
Kinds of mayflies	2	1	3
Kinds of caddisflies	6	0	5
Mussels present?	Yes	No	Yes
Macroinvertebrate community rating	Attainment	Nonattainment	Attainment

Biological monitoring data from Furlong Creek. Pollution-sensitive fish and macroinvertebrate species returned after the installation of cattle exclusion fencing.

waterbody had recovered from cattle impacts and as a result, the state removed Furlong Creek from its 303(d) list.

Partners and Funding

DEQ provided \$214,000 in section 319 funds to the Luce-West Mackinaw Conservation District for streambank fencing in Furlong Creek and a neighboring watershed. The funding also supported the pre- and post-project biological surveys.



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

841-F-06-003O
December 2006

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