



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Michigan

Best Management Practices Control Urban Nonpoint Source Pollution

Waterbody Improved

Whetstone Brook in Michigan's Upper Peninsula was included on the 303(d) list in 1998 and 2000 for periodic fish kills.

Nonpoint source pollution control projects in the watershed have led to increased habitat, restoration of the macroinvertebrate communities within the brook, and elimination of fish kills. In 2002 Michigan removed Whetstone Brook from its list of impaired waters.

Problem

Whetstone Brook flows through Marquette County into Marquette Harbor on Lake Superior, in Michigan's Upper Peninsula. Poor water quality caused fish kills in the early 1990s, which led Michigan Department of Environmental Quality (MIDEQ) to add a 1.7-mile segment of Whetstone Brook to its 303(d) list in 1998. MIDEQ attributed the problems to sediment, litter, oil, and flash flood-prone hydrologic conditions caused by uncontrolled storm water runoff from parking lots, roads, and inadequately protected upland construction sites.

Project Highlights

In the mid-1990s, the Marquette Conservation District (District) undertook a project that examined the Whetstone Brook watershed, established a watershed plan, and demonstrated best management practices (BMPs) for nonpoint source pollution management at two sites. The District installed 600 linear feet of streambank stabilization, 500 feet of a diversion outlet, 5,000 square feet of critical area stabilization, 6 acres of filter strip restoration, and a storm water detention basin. The District also conducted education efforts to highlight the brook and to reduce polluted runoff.

Results

The BMPs eliminated the cause(s) of the fish kills; the last fish kill occurred in 1994. Biological monitoring conducted in 1991 (pre-implementation) and again in 2001 (post-implementation) confirmed that the project was effective. MIDEQ

Table 1. Biological data collected downstream of the Whetstone Brook project area before and after installation of BMPs

Year	Macroinvertebrate taxa	EPT taxa*	Score	Score Range -9 to +9
1991	10	2	-4	Acceptable
2001	16	4	-2	Acceptable

*EPT= mayflies, caddisflies, and stoneflies—three orders of pollution-sensitive aquatic insects that are common in the benthic macroinvertebrate community.

uses a macroinvertebrate community scoring procedure to assess water quality. Possible scores range from -9 to +9; a score of less than -4 is considered *unacceptable*. The total number of macroinvertebrate taxa and the number of pollution-sensitive macroinvertebrate taxa (mayflies, caddisflies and stoneflies) increased after BMP implementation (Table 1). The MIDEQ macroinvertebrate score in Whetstone Brook improved slightly, from -4 in 1991 to -2 in 2001. MIDEQ removed Whetstone Brook from the 303(d) list in 2002.

Partners and Funding

MIDEQ provided the Marquette Conservation District with \$101,861 in section 319 funds in 1993 and \$197,910 in section 319 funds in 1994. The District used these funds for both the pre-implementation planning and implementation of BMPs in this watershed.



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