

Title: Rocky River Cattle Access

Michigan AUID Number: 040500010603-02, 040500010605-02, and 040500010606-01 (formerly WBID 083209F)

GRTS Number: The cattle exclusion portion of this project was not funded with Section 319 funds nor used as match for another project, so it is not in the Grants Reporting and Tracking System (GRTS). Section 319 funds were used for the monitoring described below, which in 2000 was Grant 995014000, Project 01.

Opening Paragraph: The Rocky River is a tributary to the St. Joseph River, in St. Joseph, Cass, Van Buren and Kalamazoo Counties in southwestern lower Michigan. Agriculture accounts for approximately 60 percent of the watershed land use. A 1995 biosurvey conducted by the Michigan Department of Environmental Quality (MDEQ) found that unrestricted cattle access to the stream at a farm upstream of Pioneer Road in Cass County had degraded instream and riparian habitat, impacting the physical habitat of the stream and its macroinvertebrate populations. Consequently, this location was listed in the 1996, 1998, and 2000 Michigan 303(d) list as not attaining the aquatic life designated use. The problem was reported to the Michigan Department of Agriculture, who worked with farmers in the watershed to eliminate the cattle access. A follow-up biosurvey in 2000 found that cattle no longer had access to the stream and that the macroinvertebrate community had recovered. Consequently, this site was removed from the 303(d) list in 2002.

Problem: Unrestricted cattle access at a farm upstream of Pioneer Road degraded instream and riparian habitat, impacting the physical habitat of the stream and its macroinvertebrate populations.

Results: The 1995 biosurvey found that the macroinvertebrate community upstream of the cattle access problem was much more diverse than immediately downstream of the farm (Table 1). Specifically, the upstream sampling location had four times more macroinvertebrate taxa (Families), and nine times more sensitive taxa (mayflies, caddisflies and stoneflies), than the downstream sampling location. The macroinvertebrate community downstream of the farm was dominated by tolerant amphipods. An aquatic habitat quality survey conducted at the same time found more sedimentation, less diverse instream habitat, and less stable streambanks downstream of the cattle access problem than upstream of the farm (Table 2).

By 2000 conditions downstream of the farm had recovered to the point that the macroinvertebrate community and aquatic habitat scores were similar to the upstream sampling location in 1995 (the upstream sampling location was not resampled in 2000).

Partners and Funding: The Michigan nonpoint source program supported the biosurveys in 1995 and 2000, which were performed by MDEQ Water Bureau Staff.

Photographs: None.

Data:

Table 1. Pre and Post Macroinvertebrate Data.

Metric	Pre Data (1995)		Post Data (2000)
	Upstream of farm	Downstream of farm	Downstream of farm
No. of taxa	27	7	24
No. of EPT taxa*	9	1	8
Percent dominant taxon	16	55	13
Overall score (-9 to +9)	2 ("Acceptable")	-5 ("Poor")	2 ("Acceptable")

(* sensitive macroinvertebrata taxa; mayflies, caddisflies, and stoneflies)

Table 2. Pre and Post Aquatic Habitat Data.
(Observed score/maximum possible score)

Metric	Pre Data (1995)		Post Data (2000)
	Upstream of farm	Downstream of farm	Downstream of farm
Available cover	15/20	6/20	13/20
Embeddedness	8/20	2/20	13/20
Bottom deposition	9/15	2/15	7/15
Habitat variability	7/15	2/15	7/15
Bank stability	10/10	1/10	9/10
Overall score (135 maximum)	86 ("Good")	37 ("Fair")	78 ("Good")

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