

Title: Dowagiac River Meander Reconnection Improves Macroinvertebrate Populations

Waterbody Improved: A reach of the Dowagiac River (HUC 04050001), a cold water trout stream in Cass County, Michigan. **This reach of the Dowagiac River is not on Michigan's nonattainment list.**

GRTS Number: Grant 97547403, Project 09.

Problem: Several miles of the Dowagiac River were channelized in the early 1900s, which increased water velocities, simplified instream habitat, **and** disconnected the river from its floodplain, **all of which negatively impacted the ecology of the river.**

Project Highlights: A 1,320-foot reach of the river in Arthur Dodd Memorial Park was relocated **in 2007** from the straightened channel into a remnant meander, and instream channel structures were installed (a rock cross-vane, two rock riffles, and a rock J-hook vane) to ensure channel stability and improve instream habitat.

Results: Compared to macroinvertebrate communities upstream of the restored reach (Table 1), the restored meander:

- Increased the number of macroinvertebrate taxa by 45 percent
- Increased sensitive mayfly, stonefly and caddisfly taxa by 27 percent
- Increased mayfly taxa by 152 percent
- Decreased insensitive isopod, snail and leach taxa by 75 percent

The constructed rock riffles provided the best macroinvertebrate habitat (Figure 2).

This project did not, however, have a positive impact on macroinvertebrate communities downstream of the restored reach (Table 1), possibly because the restored reach was too short. A similar project proposed for upstream of this reach and inspired by this project, which would restore up to 3 miles of channelized stream, may be long enough to improve downstream conditions.

Partners and Funding: The grantee was the Cass Conservation District, and the **Section 319 grant** was for \$83,400, with \$94,700 in match. Partners in this project were the Partnership for MEANDRS ("Meeting the Ecological & Agricultural Needs with the Dowagiac River System"; **provided funding, volunteers and technical assistance**), Michigan Department of Natural Resources (**material, labor and equipment**), Cass County Parks (**provided the project site**), Cass County Road Commission (**materials and equipment**), Cass County Board of Commissioners (**funding**), the Inter-County Drain Board (**approved the work in the drain**), St. Deny's Foundation (**funding**), Trout Unlimited (**funding and volunteers**), St. Joe River Valley Fly Fishermen (**volunteers**), Consumers Concrete (**materials**), U.S. Fish and Wildlife Service (**funding**), Pheasants Forever (**seed for re-vegetating the project site**), Dowagiac Conservation Club (**administrative support**), and the National Fish and Wildlife Foundation (**funding**). **This project is located in the Michigan 6th Congressional District.**

Photographs:

Figure 1. Aerial Photograph of the Reconnected Meander and the Original Channelized Channel.



Figure 2. Dodd Park Meander After Relocation.



Data:

Table 1. Macroinvertebrate Data **Upstream, Within and Downstream of the Meander Reconnection, from 2011.**

Metric	Upstream of Meander	Within Meander	Downstream of Meander
Total taxa	22	32	26
Sensitive taxa (mayflies, stoneflies, & caddisflies)	11	14	5
Percent mayflies	5.8	14.6	2.2
Percent insensitive taxa (isopods, snails & leaches)	17.3	4.4	11.4

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