

ROCKY RIVER

Cass County (T5S, R13W, Sections 23, 24, 26, 27, 28, 29, 30)
St. Joseph County (T5S, R12W, Sections 19, 20, 21, 22, 23, 24, 25, 36;
T6S, R12W, Sections 1, 12, 7; and T6S, R11W, Section 18)

Surveyed June 1996

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Environment

The Rocky River is a marginal trout stream with most of the potential trout water located in the northeastern corner of Cass County. The stream exits Cass County as a third-order stream, and continues into St. Joseph County where it enters the St. Joseph River in the town of Three Rivers. The headwaters are classified as top-quality coldwater, while the remainder of the stream (starting just south of Marcellus) is classified as second-quality coldwater.

Flowing through a patchwork of active and fallow farmland, swamps, and small blocks of forests, the Rocky River exhibits moderate summer flows (roughly 50-75 cfs). Flood flows can become very high, especially near Three Rivers, where flows in excess of 900 cfs have been recorded. The majority of the watershed lies in well-drained loamy soils that encompass nearly level land to moderately rolling hills. The watershed is large, encompassing more than 100,000 acres upstream from Floating Bridge Road (P. Seelbach, Institute for Fisheries Research, personal communication).

There are 13 tributaries to this stream system. Since 1967, three tributaries have been classified as top-quality coldwater, two as second-quality coldwater, seven as top-quality warmwater, and one as second-quality warmwater. About half of the tributaries start as springs, the other half originate as outlets of small lakes. Flowerfield Creek is the largest tributary, entering the Rocky River in the middle stretches of St. Joseph County. This coldwater tributary virtually doubles the size of the river.

The Rocky River is estimated to be 25 miles long. Stream width averages 32 feet and depth averages 1.5 feet. Habitat varies considerably from section to section. Undercut banks, logs, aquatic vegetation, and overhanging brush are common to all areas. Channel sinuosity, the number of pools, and in-stream brush vary from abundant to lacking. In the headwaters, bottom substrates are mostly silt, sand, and gravel, with some clay. Substrates in the middle portions are composed of 50% sand, equal amounts of gravel and silt, and a trace of rock rubble. The lower sections are mostly rock rubble, gravel, and sand, with some silt. The Rocky River falls approximately 90 feet from its source to its confluence. Water quality characteristics collected during a 1990 survey included alkalinity (144-214 ppm), pH (7.5), and dissolved oxygen (7.9-9.1 ppm). No historical data could be found concerning those characteristics.

Development along the river is limited to farms. One remnant dam exists on the mainstream, at the confluence with the St. Joseph River. In December 1992 this low head, rock-rubble structure failed and washed out. The structure had not been fixed as of February 2000. The City of Three Rivers is now considering an off-channel pond to substitute for the old dam. No state ownership exists along the banks. Access is available with permission of landowners.

Fishery Resource

Portions of the Rocky River have been managed for trout since at least 1938. For 7 years, between 1938 and 1946, combinations of brook, brown, rainbow trout were stocked in the St. Joseph County portions of the river. Stocking was discontinued for 30 years, then that area received up to 10,000 brown trout yearlings in 1977, 1978, and 1986-1990. The Cass County portion of the Rocky River was stocked with brown trout from 1977 until recent years at the rate of 200 trout per acre.

In 1990, a fish survey covering representative stations along the entire length of the system thoroughly delineated which waters are suitable for trout and which were not (Dexter 1992). Combinations of gear (backpack shocker at upper station, 250-V DC stream shocker with 2 or 3 probes at all other stations) were used to sample fish. Based on that survey, only the headwaters appeared to be suitable for trout because brown trout (including some wild trout), mottled sculpins, white suckers, and creek chubs predominated there. The lower waters did not contain these coldwater indicator species. This led to the decision to discontinue all trout stockings in the St. Joseph County portion of the river.

For the 1996 evaluation, only two stocked sites in the better waters of Cass County were surveyed. These sites were at M-40 and Pioneer Road. A 250-V DC stream shocker with two probes was used to sample fish.

The fish community found in 1996 was, most likely, no different from that of 50 years ago, and was similar to that found in the 1990 survey (Dexter 1992). A total of 17 species of fish were identified (Table 1). Only three brown trout were collected. One was from M-40 and two were from Pioneer Road. One of the brown trout at Pioneer Road appeared to be a wild fish based on its fin characteristics and color. All three trout were age-1. Catch per hour of brown trout at Cass County stations have declined substantially since the 1990 survey, from 22/hour to 4/hour in 1996. Minnows and miscellaneous species now predominate. Bluegill, white suckers, and rock bass were the only other game fish collected. White suckers were the most common and ranged from 3 to 12 inches. Bluegill and rock bass did not exceed 7 inches in length.

After this survey was completed we contacted local conservation officers to gain their perspective of the trout fishery. None of them had ever encountered a trout angler in the Cass County portion of the Rocky River. Based on this information and the poor results of the survey, it was decided to discontinue all trout stockings into the Rocky River effective in 1997. At the same time we made plans to collect temperature data to further define the potential of this system for future management, and to further support our decision to stop stocking of trout.

Wehrly et al. (1999) developed thermal classifications for Lower Michigan rivers that can be used to describe the thermal distribution of stream fishes and generate expectations of species assemblages. In 1999, temperature data was gathered at Bent Road (St. Joseph County) and M-40 (Cass County). Water temperatures were recorded every 2 hours using Ryan Tempmentors. This information revealed that the lower Rocky River is one of the warmest streams in the state, with a recorded maximum temperature of 93°F. The upper portions of the Rocky River in Cass County also proved to be too warm, exhibiting thermal characteristics very similar to the Grand River. It appears from our records (Johnson 1972) that previous managers had used late summer data to determine the thermal characteristics of the stream. Hinz and Wiley (1997) found that July is the time when streams in Michigan approach the lethal upper thermal limit for some taxa and also when differences in temperature among sites are most pronounced.

Management Direction

With the information that has been gathered, it is apparent that the Rocky River should be dropped from the designated trout stream list (F.O. 200.00). The two surveys in the 1990s indicated that upper tributaries were capable of producing a few wild trout, but that the majority of the system is much too warm to support a year-round coldwater fish assemblage. It is unfortunate that the

temperature data that is available to managers today was not available when this stocking program was reinstated in the 1970s. Thousands of dollars could have been saved by not stocking trout in unsuitable waters such as this.

Report completed May 15, 2000.

References

Dexter, J. L. Jr. 1992. Rocky River. Michigan Department of Natural Resources, Status of the Fishery Resource Report 92-4, Ann Arbor.

Hinz, L. C. Jr., and M. J. Wiley. 1997. Growth and production of juvenile trout in Michigan Streams: influence of temperature. Michigan Department of Natural Resources, Fisheries Research Report 2041, Ann Arbor.

Johnson, D. C. 1972. Preliminary habitat improvement report for the lower portion of the Rocky River, St. Joseph County. Michigan Department of Natural Resources, Inland Streams Files, Plainwell.

Wehrly, K. E., M. J. Wiley, and P. W. Seelbach. 1999. A thermal habitat classification for Lower Michigan rivers. Michigan Department of Natural Resources, Fisheries Division Research Report 2038, Ann Arbor.

Table 1.-Species, relative abundance, and length of fish collected by electrofishing at M-40 and Pioneer Road (Cass County) stations on the Rocky River, June 1996.

Species	Number	Percent of total catch	Length range (inches)
Blacknose dace	104	43.7	1-3
Creek chub	44	18.5	2-7
Common shiner	3	1.3	5-6
White sucker	26	10.9	3-12
Bluntnose minnow	11	4.6	2-3
Bluegill	7	2.9	2-7
Blackside darter	5	2.1	2-4
Rock bass	3	1.3	4-7
Brown trout	3	5.3	5-9
Mottled sculpin	12	5.0	2-4
Rainbow darter	8	3.4	1-2
Lamprey sp.	1	0.4	5
Johnny darter	7	2.9	1-2
Grass pickerel	1	0.4	2
Bullhead sp.	1	0.4	2
Green sunfish	1	0.4	3
Central mudminnow	1	0.4	2

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Questions, comments and suggestions are always welcome! Send them to
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