

## **Black River**

Gogebic County, 49N 46W 3  
Lake Superior, 2006

## **Brian Gunderman**

### **Environment**

The Black River arises in northern Wisconsin and flows northward approximately 42 river miles to Lake Superior (Figure 1). The Black River is one of the larger rivers in western Gogebic County, draining an area of 255 square miles. Mean monthly discharge at the United States Geological Survey gauge site near Bessemer varied from 57 cfs in February to 1,160 cfs in April during the period of record (1954-2006). Streamflow is quite "flashy". The 10% exceedence flow for the period of record is approximately 19 times higher than the 90% exceedence flow (base flow). Stream width varies from 8 ft near the headwaters to 80 ft at Hedberg Road (September 2006 survey).

The surficial geology of the Black River watershed is diverse. Coarse-textured materials predominate near the headwaters of the Black River. Peat and muck deposits exist near the Mosinee Grade, adjoining a region of thin to discontinuous glacial till over bedrock to the north. Coarse-textured glacial till and glacial outwash sand and gravel deposits occur from Devils Creek downstream to Sand Island Creek. Downstream of Sand Island Creek, the Black River flows through lacustrine clay and silt.

Groundwater inputs to the Black River are light to moderate upstream of US-2. Base flow yield for the watershed upstream of the Bessemer gauge station is 0.145 cfs per square mile. Groundwater inflow increases downstream of US-2, moderating summer water temperatures in the lower reaches of the river. Tributaries that flow through coarse-textured surficial deposits (e.g., Sand Island Creek) provide additional inputs of cold water to the Black River system.

Stream gradient is steep immediately below Black River Lake Dam (33 ft/mi). Gradient lessens between the Mosinee Grade and Devils Creek, then increases as the stream approaches Jackson Creek (Figure 1). The gradient declines to around 8 ft/mi near Hedberg Road, then increases again near Narrows Creek. The mean gradient (estimated from topographic maps) upstream of US-2 is 13 ft/mi, the mean gradient between US-2 and Chippewa Falls (near Kirby Creek) is 19 ft/mi, and mean gradient from Chippewa Falls to Lake Superior is 60 ft/mi.

Gravel, sand, and silt are the major substrate types in the upper Black River, but rocky substrates (i.e. cobble and boulders) predominate at the Hedberg Road and Camp Nine Road sites. Undercut banks, large woody debris, and submergent vegetation provide cover for fish in the headwaters of the Black River. These structures are virtually absent downstream of US-2, where fish cover is limited to boulders and deep pools.

Staff from Michigan Department of Environmental Quality conducted macroinvertebrate and habitat assessments at several stations within the Black River watershed in 2003. Macroinvertebrate community ratings for these stations ranged from "high acceptable" to "excellent", and habitat ratings were "near excellent" to "excellent" (Taft 2004). Total hardness measurements in the mainstem ranged

from 36 mg/L upstream of Ramsay to 99 mg/L at Hedberg Road (Taft 2004). Total hardness measurements for most tributaries were <70 mg/L, but two streams (Kallander Creek = 162 mg/L and Powder Mill Creek = 225 mg/L) had much higher total hardness values (Taft 2004).

There are 10 named waterfalls on the mainstem, and several of these waterfalls are barriers to upstream movement of fish. Seven of the waterfalls are located downstream of Reed Creek, and only one named waterfall exists upstream of US-2. Rainbow Falls (located 0.7 mi upstream from the mouth) is the upstream barrier for fish migrating from Lake Superior. Powder Horn Falls (on Powder Mill Creek) prevents upstream movement of fish into the upper 19 miles of this major tributary to the Black River.

Dams are additional barriers to fish movement within the Black River and tributaries. The Black River Lake Dam, located about 1.5 mi from the Wisconsin border, is the only dam on the mainstem. This dam was constructed in 1966 by Michigan Department of Natural Resources - Fisheries Division to provide additional trout fishing opportunities. During the 2005 MDNR land consolidation review process, the recommendation was made to transfer ownership of this dam and the land surrounding Black River Lake from the State of Michigan to Gogebic County. (The legal transfer of this property had not been completed at the time this report was written.) Another small dam on the mainstem, Bessemer Township Park Dam in Ramsay, washed out in spring 2002 and was completely removed later that year. Dams also control water levels in McDonald and Sunday Lakes and prevent upstream movement of fish into these water bodies.

The northern and southern portions of the watershed are sparsely populated, but three communities (Bessemer, Ramsay, and Wakefield) with combined populations of approximately 4,500, are located in the central part of the basin. Most of the land south of McDonald Creek is either listed under the Commercial Forest Act or managed by the Gogebic County Forestry and Parks Commission. Residential (and to a lesser extent, industrial) development is most prominent between McDonald and Sixmile Creeks. Nearly all of the riparian lands north of Sixmile Creek are included in the Ottawa National Forest, and the 14-mile river segment from the Ottawa National Forest boundary to Lake Superior is classified as "scenic" under the Michigan Scenic Rivers Act of 1991 (P.L. 102-249).

The public can gain access to the Black River at numerous locations. There is a public boat launch at Black River Lake, and the lake is surrounded by State and County Forest. Anglers can access the upper mainstem at the Mosinee Grade. Multiple road-stream crossings provide public access near the towns of Ramsay and Bessemer, and there are several access trails on the National Forest land along the lower Black River.

### **History**

Stocking has been an important component of fisheries management on the Black River system since the 1930s. Brook trout and brown trout stocking were the primary tools used to enhance fishing opportunities on the mainstem and tributary streams during the 1930s through the mid 1960s. In 1971, MDNR began stocking potamodromous fish species (Chinook salmon, coho salmon, rainbow trout, and brown trout) at Black River Harbor. Harvest of these species has been monitored as part of the Great Lakes Creel Program and will not be discussed in this report.

After a brief hiatus, brown trout were stocked in the Black River from 1974 through 1981. When no trout were found during the 1982 electrofishing survey on the mainstem the brown trout plants were

temporarily discontinued. During the 1980s, the trout stocking sites were moved to Jackson Creek - a major tributary to the Black River. Brook trout were stocked in Jackson Creek from 1983 through 1989, but the plants were discontinued due to poor survival of stocked fish. In response to political requests, brook trout and brown trout stocking in the mainstem Black River resumed in the early 1990s and continued through 2006 (Table 1). Brook trout also have been stocked in Powder Mill Creek since 1993.

During the last 15 years, there have been four main stocking sites on the mainstem: Mosinee Grade, Moore Road, Hedberg Road, and Camp Nine Road (Figure 2). Brook trout generally have been stocked at the Mosinee Grade site, whereas brown trout generally have been stocked at Camp Nine Road. Both brook trout and brown trout have been stocked at the Moore Road and Hedberg Road sites.

Natural reproduction of brook trout has been documented in the Black River watershed. Coldwater tributaries (e.g., Reed, Kirby, and Sand Island Creeks) provide important spawning and nursery areas for brook trout in the Black River system. Past survey data indicate that there has been limited natural recruitment of brown trout in the mainstem or tributary streams.

No formal angler census data are available, but some anglers have reported good catches of brook and brown trout in the Black River, especially during the spring. Fishing success apparently declines during the summer. Most previous electrofishing surveys on this stream were conducted during July to early September. Few brook trout and even fewer brown trout were found during these electrofishing surveys. Only 99 brook trout and 12 brown trout were collected in approximately 13,000 ft (2.5 miles) of electrofishing effort between 1984 and 1997,. Catch-per-effort of brook trout was highest in the lower river (below the Narrows Creek confluence).

Any discussion of the Black River fishery would be incomplete without mentioning Black River Lake. This lake was created in 1931 when the Gogebic County Road Commission (GCRC) constructed an earthen dam across the headwaters of the Black River. The original dam washed out and was repaired in 1947. This dam washed out again in 1960, and Fisheries Division constructed the current dam in 1966. The dam consists of an embankment (150 ft long and 15 ft high) and a concrete box drain structure with stop logs. The surface area of the impoundment is approximately 105 acres.

Rainbow trout were stocked in Black River Lake in 1968-69. Fisheries surveys indicated that wild brook trout were more abundant than rainbow trout. During the 1970s, annual brook trout stocking was used to supplement the existing brook trout fishery. Suckers became overabundant during the late 1970s, and the impoundment was drawn down for about one month in 1978 to reduce sucker abundance. Brook trout stocking continued through the 1980s. In 1990, the impoundment was drawn down again to replace the stop logs, repair the concrete box drain, and install a concrete boat ramp. Brook trout stocking resumed in 1991 and continued through 2001. A survey conducted during fall 2000 indicated that black crappie and largemouth bass made up the bulk of the fish community in the impoundment.

Dam inspections in 2000 and 2003 revealed major cracks in the concrete drain structure. In 2004, Fisheries Division held a series of public listening sessions to discuss future management of Black River Lake. Approximately half of the citizens supported removing the dam, while the other half

wanted to retain the impoundment. Because ownership of the dam was expected to be transferred to Gogebic County within a few years, the opinions of the Gogebic County commissioners were especially important in the decision process. Due to support from the Gogebic County Commissioners and the State legislature, the decision was made to repair Black River Lake Dam. The impoundment was drawn down in 2004, and the repairs were completed in 2005. Fall fingerling brook trout were stocked during October 2005, and yearling rainbow trout were stocked in 2006 and 2007. A fisheries survey conducted on Black River Lake during October 2007 revealed acceptable survival and growth of stocked rainbow trout. Large numbers of juvenile largemouth bass and pumpkinseeds also were captured during the 2007 survey. The rainbow trout fishery in the impoundment is expected to last only a few years, after which the management focus will switch to largemouth bass and panfish.

### **Current Status**

The most recent fisheries survey on the Black River was conducted during September 6-8, 2006. Four stations were sampled during the 2006 electrofishing survey: Underwood Grade (250 ft station), Mosinee Grade (450 ft station), Camp Nine Road (1,000 ft station), and Hedberg Road (1,500 ft station). The combined length for the four sampling stations was 3,175 ft. Backpack electrofishing units were used to capture fish at the first three sites: Underwood Grade - 1 unit, Mosinee Grade - 2 units, and Camp Nine Road - 4 units. A tow-barge electrofishing unit with two probes was used to collect fish at the Hedberg Road site.

Four brook trout were found at the Underwood Grade site. The length range for brook trout captured at this station was 2-9 inches. One rainbow trout (total length = 8 inches) also was collected at this location.

No trout were found at the Mosinee Grade site. Beaver activity reduced sampling efficiency at this station. There was some evidence of angling activity at the bridge, but deep water and the thick tag alder swamp surrounding the stream appeared to limit fishing access.

Two brook trout (7-12 inches) were collected at the Camp Nine Road station. Brown trout were stocked at Camp Nine Road in April 2006, but no brown trout were captured during this effort.

Three brook trout (8-12 inches) and one brown trout (3 inches) were captured at the Hedberg Road station. Warmwater fish species dominated the catch at this site (Table 2). Minnows (Family Cyprinidae) and white suckers comprised 70.1% of the catch by weight, whereas brook trout and brown trout only made up 16.2% of the sample.

For many years, fisheries managers have suspected that the major factor limiting trout survival and production in the Black River is water temperature. At the request of Fisheries Division, United States Forest Service personnel deployed 21 temperature loggers in the Black River and tributary streams during May-August 2006 (Figure 3). Due to equipment loss and malfunction, temperature data only was obtained from 15 stations. Mean July water temperatures (MJTs) were calculated for these stations (Table 3), but data from sites 1, 8, 9, and 12 were questionable as rapid temperature fluctuations suggest that the loggers were not fully submerged during the entire month of July.

### **Analysis and Discussion**

Electrofishing surveys and angling reports clearly indicate that few trout remain in the Black River during the summer months. The 2006 thermograph data support the hypothesis that water temperature is the primary factor limiting trout abundance in this system.

Data collected during the Michigan Rivers Inventory indicated that streams with mean July temperatures (MJTs) greater than 68 degrees rarely supported sizeable trout populations (Andy Nuhfer, Michigan Department of Natural Resources - Hunt Creek Research Station, personal communication). Brook trout are particularly sensitive to high water temperatures and were rarely found in streams with MJTs greater than 66 degrees.

None of the thermograph sites in the mainstem Black River had MJTs below 66 degrees, and only the Underwood Grade site had a MJT below 68 degrees (Table 3). Past temperature surveys at the Mosinee Grade site have shown MJTs of 68.0 and 68.1 degrees, and it appears that beaver activity has increased water temperatures at that location. For all of the thermograph sites on the mainstem, the mean daily maximum temperatures during July were higher than 73 degrees. With the exception of one unseasonably cold day, the daily maximum temperatures at each of these sites were > 68 degrees during the entire month of July.

Another method of evaluating habitat suitability for trout is to determine mean water temperatures during the hottest week of the year. Brook trout are rarely found in stream reaches where the mean water temperature during any week exceeds 72.1 degrees (Eaton et al. 1995). During July 12-18, 2006, the Underwood Grade was the only site on the mainstem Black River that did not have a mean temperature higher than 72.1 degrees (Table 3).

One of the concerns raised by citizens who supported removal of the Black River Lake Dam was the effects of the impoundment on downstream water temperatures. Thermograph data from 2006 and 2003 indicate that groundwater inputs quickly reduce water temperatures below the dam. The Underwood Grade site (located 0.3 miles downstream of the Black River Lake Dam) had the lowest MJT of any site on the mainstem during 2006. In 2003, the MJT at the Mosinee Grade was 5 degrees lower than the MJT at the Black River Lake outlet. Discharge calculations indicate that the mean discharge at Black River Lake Dam during the month of July is only 4.3 cfs (R. Sorrell, Michigan Department of Environmental Quality, Hydrologic Studies Unit, personal communication). The mean discharge at the United States Geological Survey gauge site in July was 89 cfs during the period of record, so it is very unlikely that the Black River Lake Dam could have any noticeable effect on stream temperatures near Bessemer.

Coldwater tributaries (e.g., Powder Mill Creek, Reed Creek, Narrows Creek, Kirby Creek, and Sand Island Creek) provide thermal refugia for trout stocked in the lower reaches of the Black River. There is some natural reproduction of brook trout in these streams, and these wild fish contribute to the seasonal trout fishery in the Black River. Coldwater refugia are scarce upstream of US-2, and electrofishing surveys suggest that survival of trout stocked at the Mosinee Grade has been poor.

The effects of the trout stocking program on fishing success in the Black River are difficult to evaluate. None of the trout stocked in the Black River have been marked. Thus, it is not possible to provide quantitative estimates on the relative percentages of hatchery and wild fish in the overall populations

of legal-sized brook trout and brown trout. It is possible, however, to draw some qualitative conclusions from the fisheries surveys and angling reports of the last 25 years.

Brook trout catch-per-effort (CPE) from electrofishing surveys has not increased since the stocking program was initiated. In 1984, brook trout CPE (in fish/100ft) was 0.79. No brook trout were stocked in the Black River system for two decades prior to the 1984 survey (except 1,160 fall fingerlings planted in Jackson Creek in 1983), so the 1984 sampling effort essentially provides a pre-stocking benchmark for comparison. Since 1984, brook trout CPE has varied as follows: 1993 - 1.3, 1997 - 0.35, and 2006 - 0.47. Thus, the 1993 effort was the only post-stocking survey in which brook trout CPE exceeded the pre-stocking value. Much of the sampling during the 1993 survey was conducted between Narrows Creek and Sand Island Creek (i.e., in the highest quality trout water), so it is not surprising that the catch was higher than in other years when lower quality waters were surveyed.

Brown trout can tolerate higher water temperatures than brook trout, so one can speculate that this species might survive better than brook trout the Black River system. However, only thirteen brown trout have been captured in over 13,000 ft of electrofishing effort since 1993, and only one brown trout was found during the 2006 survey. Thus, it is evident that survival of stocked brown trout is also low.

The survey data clearly demonstrate that the trout stocking program has not created a summer fishery, but the contribution of stocked trout to the spring fishery has not been determined. If hatchery fish were marked, then a spring (last Saturday in April through May) creel survey could provide information on the relative contributions of hatchery and wild fish to the Black River trout fishery. However, it probably would not be feasible to obtain accurate estimates of fishing effort and total harvest because there are so many locations where anglers can access the river. Given the Department's current budget situation, it is unlikely that a formal creel survey will be implemented within the next few years.

### **Management Direction**

A public meeting was held in Ironwood on May 31, 2007 to discuss the results of the 2006 survey and obtain citizen comments regarding possible management options. The following management plan was developed based on citizen comments and the physical and biological characteristics of the watershed.

The existing Type 2 trout regulations do not appear to be appropriate for the upper Black River (upstream of US-2). No brook trout larger than 10 inches were captured in this stream reach during the 1997 and 2006 surveys, and temperature monitoring indicates that the environmental conditions in the upper Black River and its tributaries are marginal for trout survival. It appears that most brook trout die from natural causes (and possibly hooking mortality) before reaching harvestable size. To allow some brook trout harvest on the upper Black River, Fisheries Division has submitted an amendment to institute Type 1 fishing regulations on this portion of the mainstem. If this amendment is approved by the Natural Resources Commission, the Type 1 regulations will go into effect on April 1, 2008. At the 2007 meeting, there was strong public support for retaining the Type 2 regulations on the lower Black River (between US-2 and Rainbow Falls). Thus, the lower Black River will continue to be classified as a Type 2 stream.

Beaver activity has degraded trout habitat between the Underwood Grade and the Mosinee Grade. Local sport fishing groups will work with Fisheries Division, Wildlife Division, and Gogebic County to remove beaver and beaver dams from this portion of the Black River.

Angler reports suggest that trout stocking at the Hedberg Road and Moore Road sites (near the town of Bessemer) provides an urban fishery in the spring. These stocking locations are only about 1 mile apart. Brook trout can easily move between the two sites, so they essentially function as one stocking location. The current fish stocking numbers were based on total stream acreage. High summer water temperatures greatly reduce the area of suitable trout habitat and fish are restricted to coldwater tributaries (e.g., Powder Mill Creek) and isolated spring seeps. To avoid density-dependent effects on trout survival and growth, the Moore Road plants will be discontinued in 2008. The stocking programs at Camp Nine Road, Hedberg Road, and the Mosinee Grade will continue without modification.

A voluntary creel survey appears to be the best affordable method of gathering information on the spring angling fishery. Fisheries Division will work with the local sport fishing club to implement a voluntary creel survey on the Black River. Depending on the results of the pilot survey, Fisheries Division may implement a marking study to more accurately define the relative contributions of hatchery and wild trout to the fishery.

#### **References**

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Taft, W. 2004. A biological survey of selected streams within the Presque Isle, Black, Montreal, and western Lake Superior coastal watersheds, Ontonagon and Gogebic Counties, Michigan. Michigan Department of Environmental Quality, Water Bureau, Staff Report 04/064, Lansing.

Table 1.-Fish stocking in Powder Mill Creek and the Black River upstream of Rainbow Falls, 1992-2006.

Year	Site	Species	Strain	Number	Average length (inches)
1992	Moore Road	Brown trout	<i>Plymouth Rock</i>	950	6.6
	Hedberg Road	Brown trout	<i>Plymouth Rock</i>	950	6.6
	Camp Nine Road	Brown trout	<i>Plymouth Rock</i>	950	6.6
1993	Mosinee Grade	Brook trout	<i>Assinica/Maine</i>	1,500	6.4
	County Road 513	Brook trout	<i>Assinica/Maine</i>	1,500	6.4
	Camp Nine Road	Brook trout	<i>Assinica/Maine</i>	5,000	6.4
	Powder Mill Creek	Brook trout	<i>Assinica/Maine</i>	2,000	7.0
	Moore Road	Brown trout	<i>Wild Rose</i>	1,425	8.2
	Hedberg Road	Brown trout	<i>Wild Rose</i>	1,425	8.2
1994	Moore Road	Brook trout	<i>Assinica/Maine</i>	1,815	8.1
	Hedberg Road	Brook trout	<i>Assinica/Maine</i>	1,815	8.1
	Powder Mill Creek	Brook trout	<i>Assinica/Maine</i>	2,000	7.2
	Moore Road	Brown trout	<i>Plymouth Rock</i>	970	6.9
	Hedberg Road	Brown trout	<i>Plymouth Rock</i>	970	6.9
	Camp Nine Road	Brown trout	<i>Plymouth Rock</i>	970	6.9
1995	Powder Mill Creek	Brook trout	<i>Maine</i>	2,000	7.8
	Moore Road	Brown trout	<i>Wild Rose</i>	940	7.5
	Hedberg Road	Brown trout	<i>Wild Rose</i>	940	7.5
	Camp Nine Road	Brown trout	<i>Wild Rose</i>	940	7.5
1996	Moore Road	Brook trout	<i>Assinica</i>	950	7.7
	Hedberg Road	Brook trout	<i>Assinica</i>	950	7.7
	Camp Nine Road	Brook trout	<i>Assinica</i>	950	7.7
	Powder Mill Creek	Brook trout	<i>Assinica</i>	2,000	6.2
	Moore Road	Brown trout	<i>Wild Rose</i>	884	7.1
	Hedberg Road	Brown trout	<i>Wild Rose</i>	884	7.1
	Camp Nine Road	Brown trout	<i>Wild Rose</i>	884	7.1
	1997	Mosinee Grade	Brook trout	<i>Assinica</i>	910
Moore Road		Brook trout	<i>Assinica</i>	910	7.2
Hedberg Road		Brook trout	<i>Assinica</i>	910	7.2
Powder Mill Creek		Brook trout	<i>Assinica</i>	1,680	7.2
Moore Road		Brown trout	<i>Seeforellen</i>	855	6.1
Hedberg Road		Brown trout	<i>Seeforellen</i>	855	6.1
Camp Nine Road		Brown trout	<i>Seeforellen</i>	855	6.1
1998	Mosinee Grade	Brook trout	<i>Iron River</i>	1,000	4.0
	Moore Road	Brook trout	<i>Iron River</i>	1,000	4.0



Table 1.-Continued.

Year	Site	Species	Strain	Number	Average length (inches)
1998	Hedberg Road	Brook trout	<i>Iron River</i>	1,000	4.0
	Powder Mill Creek	Brook trout	<i>Iron River</i>	2,000	3.9
	Mosinee Grade	Brown trout	<i>Seeforellen</i>	940	5.8
	Moore Road	Brown trout	<i>Seeforellen</i>	940	5.8
	Hedberg Road	Brown trout	<i>Seeforellen</i>	940	5.8
1999	Mosinee Grade	Brook trout	<i>Assinica</i>	1,000	6.4
	Moore Road	Brook trout	<i>Assinica</i>	1,000	6.4
	Hedberg Road	Brook trout	<i>Assinica</i>	1,000	6.4
	Mosinee Grade	Brown trout	<i>Seeforellen</i>	950	6.5
	Moore Road	Brown trout	<i>Seeforellen</i>	950	6.5
	Hedberg Road	Brown trout	<i>Seeforellen</i>	950	6.5
2000	Mosinee Grade	Brook trout	<i>Iron River</i>	1,000	5.6
	Moore Road	Brook trout	<i>Iron River</i>	1,000	5.6
	Hedberg Road	Brook trout	<i>Iron River</i>	1,000	5.6
	Moore Road	Brown trout	<i>Seeforellen</i>	1,000	5.9
	Hedberg Road	Brown trout	<i>Seeforellen</i>	1,000	5.9
	Camp Nine Road	Brown trout	<i>Seeforellen</i>	1,000	5.9
2001	Mosinee Grade	Brook trout	<i>Iron River</i>	1,000	5.7
	Moore Road	Brook trout	<i>Iron River</i>	1,000	5.7
	Hedberg Road	Brook trout	<i>Iron River</i>	1,000	5.7
	Mosinee Grade	Brown trout	<i>Seeforellen</i>	900	5.2
	Moore Road	Brown trout	<i>Seeforellen</i>	900	5.2
	Hedberg Road	Brown trout	<i>Seeforellen</i>	900	5.2
2002	Mosinee Grade	Brook trout	<i>Assinica</i>	900	7.3
	Moore Road	Brook trout	<i>Assinica</i>	900	7.3
	Hedberg Road	Brook trout	<i>Assinica</i>	900	7.3
	Powder Mill Creek <sup>1</sup>	Brook trout	<i>Jumbo River</i>	3,000	5.9
	Mosinee Grade	Brown trout	<i>Wild Rose</i>	1,400	7.4
	Moore Road	Brown trout	<i>Wild Rose</i>	2,290	7.4
2003	Mosinee Grade	Brook trout	<i>Assinica</i>	1,000	7.0
	Moore Road	Brook trout	<i>Assinica</i>	1,000	7.0
	Hedberg Road	Brook trout	<i>Assinica</i>	1,000	7.0
	Powder Mill Creek	Brook trout	<i>Iron River</i>	1,600	6.2
	Koski Road	Brown trout	<i>Wild Rose</i>	950	6.9
	Moore Road	Brown trout	<i>Wild Rose</i>	950	6.9
	Hedberg Road	Brown trout	<i>Wild Rose</i>	950	6.9

Table 1.-Continued.

Year	Site	Species	Strain	Number	Average length (inches)
2004	Mosinee Grade	Brook trout	<i>Assinica</i>	1,000	6.5
	Moore Road	Brook trout	<i>Assinica</i>	1,000	6.5
	Hedberg Road	Brook trout	<i>Assinica</i>	1,000	6.5
	Powder Mill Creek	Brook trout	<i>Iron River</i>	2,000	5.2
	Powder Mill Creek <sup>1</sup>	Brook trout	<i>Jumbo River</i>	3,000	4.4
	Moore Road	Brown trout	<i>Seeforellen</i>	950	7.0
	Hedberg Road	Brown trout	<i>Seeforellen</i>	1,900	7.0
2005	Mosinee Grade	Brook trout	<i>Assinica</i>	1,250	5.4
	County Road 513	Brook trout	<i>Assinica</i>	1,250	5.4
	Powder Mill Creek	Brook trout	<i>Iron River</i>	1,000	5.3
	Powder Mill Creek <sup>1</sup>	Brook trout	<i>Jumbo River</i>	2,500	5.4
2006	Mosinee Grade	Brook trout	<i>Assinica</i>	910	7.3
	Mosinee Grade <sup>2</sup>	Brook trout	<i>Assinica</i>	650	4.0
	County Road 513 <sup>2</sup>	Brook trout	<i>Assinica</i>	650	4.0
	Koski Road <sup>2</sup>	Brook trout	<i>Assinica</i>	650	4.0
	Ramsay <sup>2</sup>	Brook trout	<i>Assinica</i>	650	4.0
	Blackjack Ski Resort <sup>2</sup>	Brook trout	<i>Assinica</i>	650	4.0
	Moore Road	Brook trout	<i>Assinica</i>	910	7.3
	Hedberg Road	Brook trout	<i>Assinica</i>	910	7.3
	Powder Mill Creek	Brook trout	<i>Iron River</i>	1,920	5.2
	Powder Mill Creek <sup>2</sup>	Brook trout	<i>Iron River</i>	2,600	3.6
	Moore Road	Brown trout	<i>Seeforellen</i>	950	5.1
	Hedberg Road	Brown trout	<i>Seeforellen</i>	950	5.1
	Camp Nine Road	Brown trout	<i>Seeforellen</i>	950	5.1

<sup>1</sup> Fish stocked by Keweenaw Bay Indian Community – Natural Resources Department

<sup>2</sup> Fall fingerling brook trout stocked after the 2006 electrofishing survey was completed

Table 2.-Numbers, weights, and lengths for each fish species collected during the electrofishing survey on the Black River at the Hedberg Road stream crossing, September 6, 2006. (Note: Only general notes regarding the presence or absence of non-game species were recorded for the other three sampling sites.)

Species	Number	Percent by number	Weight (lbs)	Percent by weight	Length range (inches)	Average length (inches)	Percent legal size*
Blacknose dace	35	7.1	0.39	5.5	1-3	2.8	--
Brook trout	3	0.6	1.13	15.9	8-12	9.8	33
Brown trout	1	0.2	0.02	0.3	3	3.5	0
Central mudminnow	4	0.8	0.04	0.6	2-3	2.8	--
Common shiner	24	4.9	0.21	3.0	1-3	2.7	--
Creek chub	45	9.2	0.38	5.4	1-4	2.5	--
Golden shiner	1	0.2	0.00	0.0	2	2.5	--
Hornyhead chub	221	45.1	3.23	45.7	1-4	3.0	--
Johnny darter	69	14.1	0.28	4.0	1-2	2.3	--
Mottled sculpin	27	5.5	0.26	3.7	1-3	2.5	--
Rock bass	15	3.1	0.39	5.5	1-4	2.9	0
White sucker	45	9.2	0.74	10.5	1-8	2.5	--

\* Percent of the catch that was legal or acceptable size for angling harvest

Table 3.-Water temperatures (in degrees Fahrenheit) for various sites within the Black River watershed in 2006. (MJT = mean July water temperature)

#	Black River Sites	MJT	Mean daily maximum temperature in July	Mean temperature during hottest week
1	Black River Lake Dam	70.1	81.0	73.2
2	Underwood Grade	66.8	73.5	69.5
3	Mosinee Grade	69.7	75.9	72.9
4	Old US-2	69.5	76.0	73.4
5	Hedberg Road	74.1	77.9	77.6
6	Wester Creek	68.1	72.6	71.1
7	McDonald Creek	76.3	79.0	79.3
8	Palms Creek	68.5	79.3	72.2
9	Unnamed Creek	66.4	81.6	69.7
10	Little Black River	67.5	72.2	70.5
11	Powder Mill Creek	64.5	69.0	66.6
12	Sixmile Creek	67.6	78.9	70.7
13	Monitowibo Creek	69.7	78.8	73.6
14	Narrows Creek	63.9	67.1	65.7
15	Reed Creek	59.3	66.8	60.5

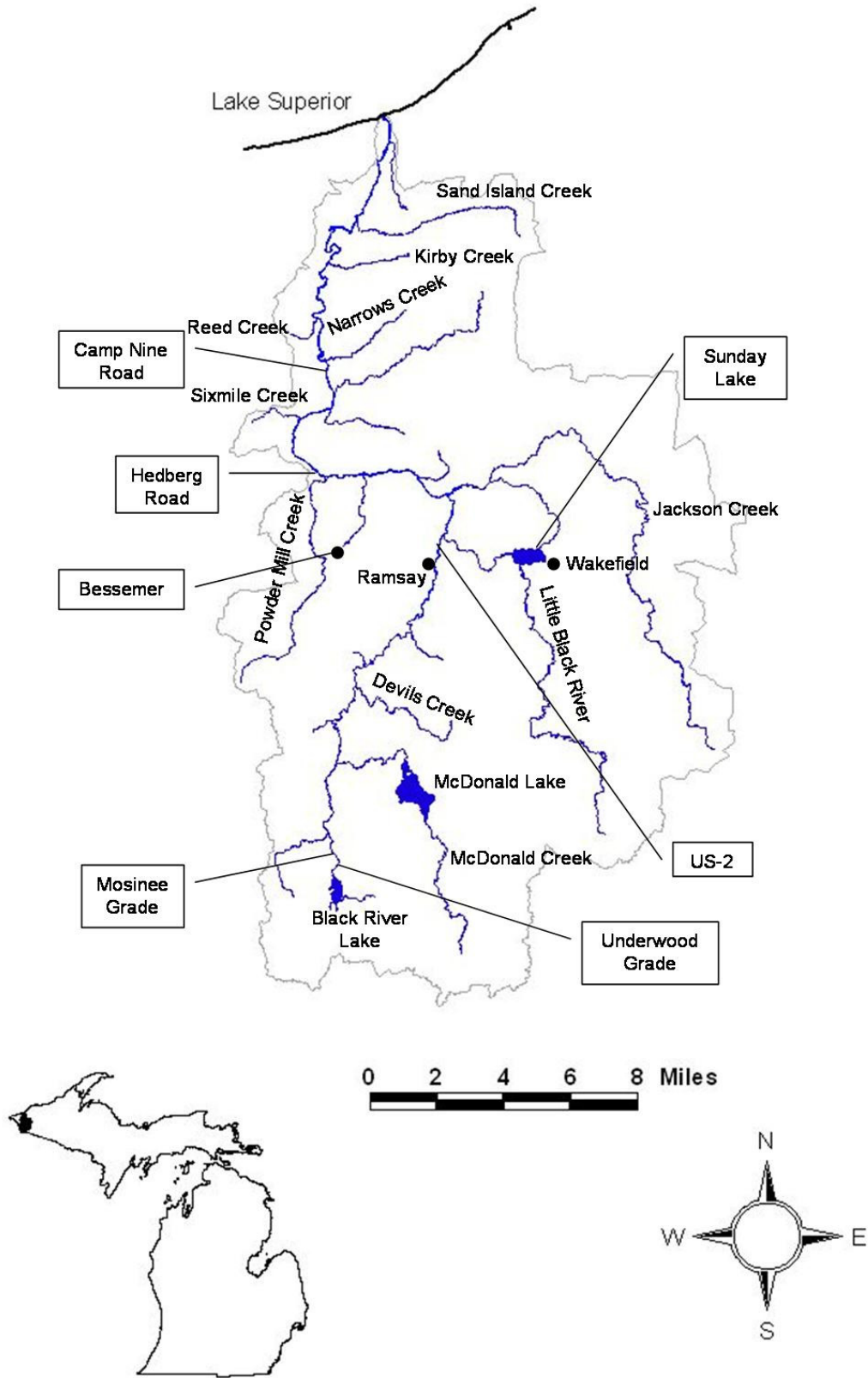


Figure 1.-The Black River and major tributaries.

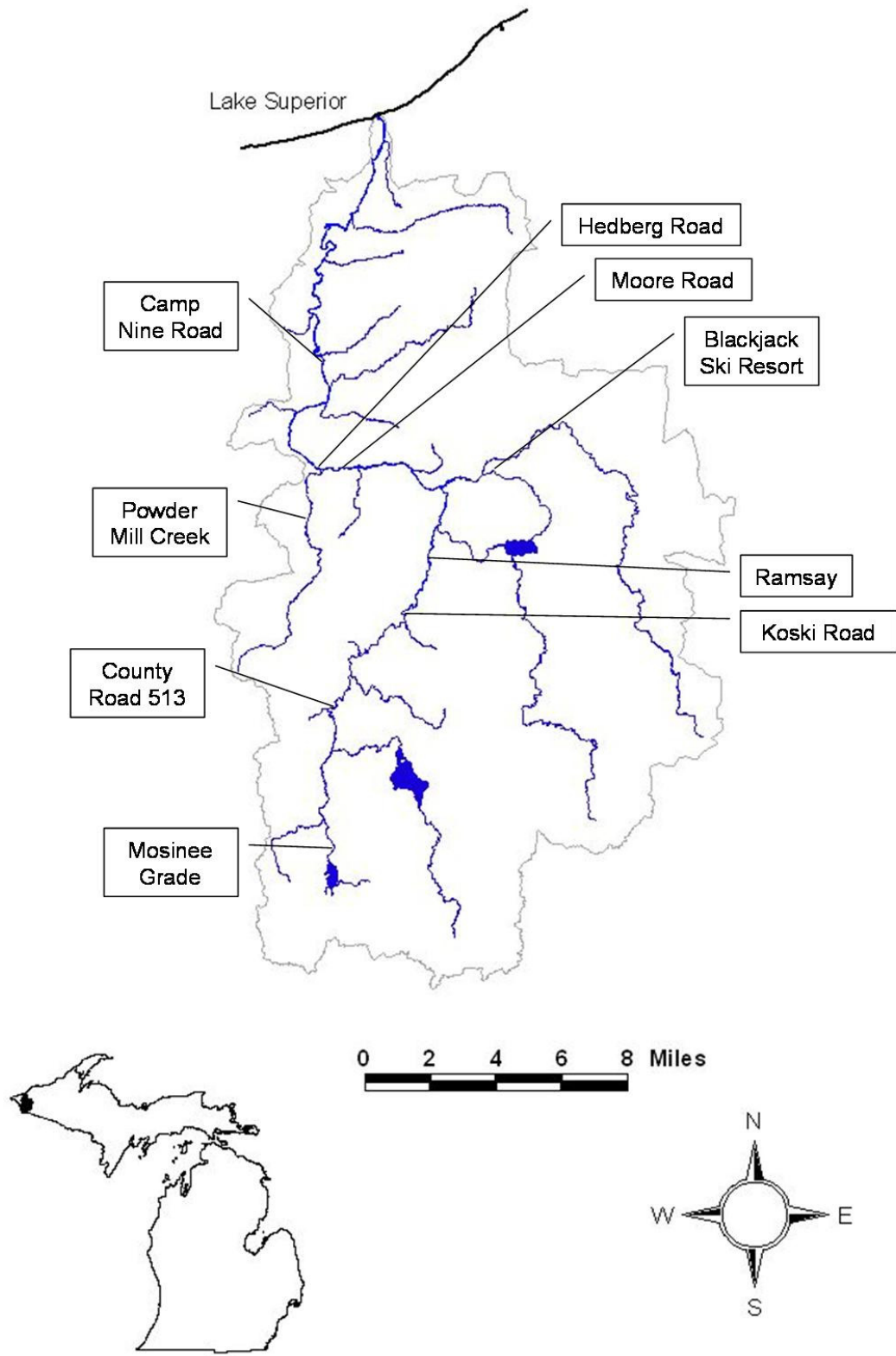


Figure 2.-Fish stocking locations in the Black River watershed, 1992-2006.

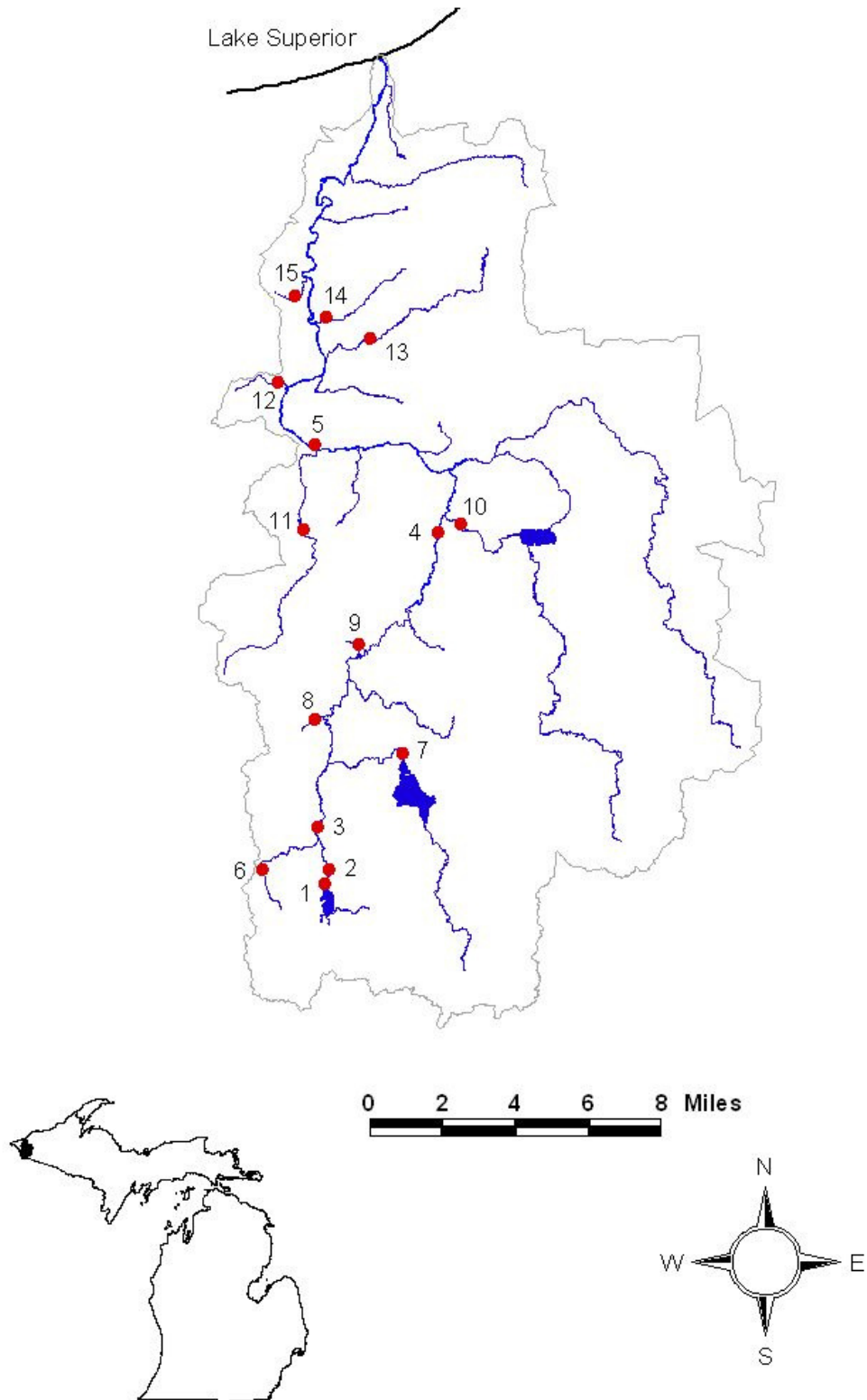


Figure 3.-Temperature logger deployment sites within the Black River watershed, May-August 2006. (See Table 3 for site descriptions.)