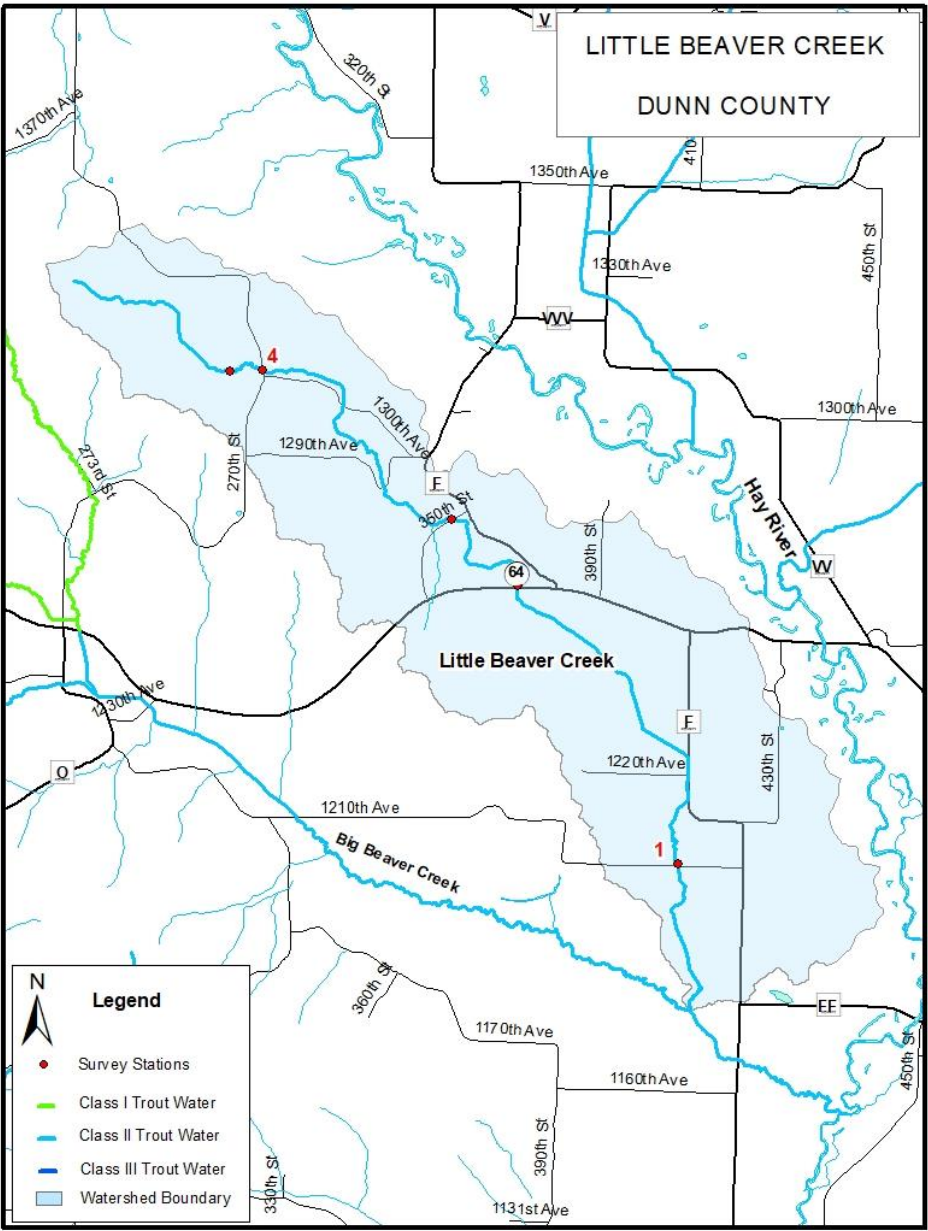


WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Fisheries Survey Report for Little Beaver Creek, Dunn County, Wisconsin
2021

WATERBODY IDENTIFICATION CODE 2076300



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Introduction

Little Beaver Creek is a small, low-gradient stream in northern Dunn County that contains 7 miles of Class II trout water. It flows in a south-easterly direction to its confluence with Big Beaver Creek, approximately one mile upstream from the Hay River north of the Village of Wheeler. Little Beaver Creek is within the Hay River watershed, which drains mostly forested and agricultural land and, to a lesser extent, grassland and wetlands.

Little Beaver Creek is considered a Coldwater, Cool-Cold Headwater under the state's Natural Community Determinations. Water temperatures during past surveys indicated poor thermal regimes for trout, and few to no trout were detected during those years. No trout stocking occurs within the Little Beaver watershed; therefore, all trout are the result of natural reproduction. Habitat throughout the stream generally lacks adequate fish cover, and fine sediments make up the substrates, according to previous habitat surveys. A 2018 assessment indicated that Little Beaver Creek is impaired due to high phosphorus levels.

Methods

Two stations were sampled on Little Beaver Creek in 2021. Sampling was conducted between June 15 and Sept. 15 using a backpack stream shocking unit with a single electrode. The length of stations was determined by multiplying the mean stream width by 35. Stations were located upstream of 1210th Ave (Station 1) and upstream of 270th St (Station 4). All fish species were collected at both stations. All trout were identified by species and measured to the nearest 10th of an inch. Non-game fish were identified to species and counted. Catch rates of Brook Trout were compared to other Class II Brook Trout streams in the North Central Hardwoods ecoregion and percentiles were determined.

The Index of Biotic Integrity (IBI) was used to measure biological attributes that are influenced by human activities to assess the overall health of the stream. The index uses the species assemblage present to assess water quality and thermal regimes within a waterbody. Coldwater IBI's range in score from 0 to 100, with a high score (90-100) interpreted as an Excellent Integrity rating and 10-20 interpreted as a Poor Integrity rating.

Study Sites

Station 1 was located furthest downstream. Habitat was not quantitatively evaluated during the surveys. However, anecdotally, the stream at Station 1 flows through a heavily wooded corridor with instream habitat consisting of tag alders and some large woody debris. The substrate mostly consists of fine sand, sediment and silt. Station 4 was located several miles upstream of Station 1 and was also located within a heavily wooded corridor. The stream at this location was very shallow, with small pools and some gravel substrate. Because of the stream's small size and overhanging vegetation, visibility for sampling was more limited.

Results

Brook Trout were the dominant trout species collected at Station 1, and no trout were sampled at Station 4 (Table 1). No adult Brook Trout were present at Station 1. Natural reproduction was documented at Station 1, as evidenced by the presence of young-of-year (YOY) trout. YOY Brook Trout were in moderate abundances at 145 YOY per mile, which is in

the 75th percentile for Class II Brook Trout streams in the North Central Hardwoods ecoregion (Table 1).

Only one other fish species was collected at Station 1, the Mottled Sculpin (Table 2). The Coldwater IBI rating for this station was Excellent, with a score of 100. A total of four non-game fish species were collected in Station 4, which resulted in a Coldwater IBI rating of Very Poor, with a score of 0 (Table 2). The Warmwater IBI rating for this station was Poor, with a score of 40. Creek Chubs were the dominant species at Station 4 and were in high abundance (Table 2).

Discussion

Trout resources are limited in Little Beaver Creek, with trout only detected at Station 1. No adult trout were present at this station, and YOY trout were present in moderate abundances. The stream likely serves as an important tributary for spawning fish from Big Beaver Creek and, with little to no adult fish habitat present (at least) within the sampling station, adult fish may migrate back into Big Beaver Creek or the Hay River after spawning for more preferred overwintering habitat. The 1993 survey of this station occurred in early September and found small adult Brook Trout in low abundances, while no trout were detected in the 2010 survey. No trout have been detected in the 1993, 2010 or 2021 surveys of Station 4 of Little Beaver Creek. According to the fish community present, the thermal regime at this station is too warm for trout survival and reproduction. Instream habitat is very limited and not adequate for trout, especially for multiple year-classes.

A total of four fish species were sampled at Station 4, including Creek Chub, Brook Stickleback, Fathead Minnow and Blacknose Dace. Because of the lack of trout and other coldwater species, the stream at Station 4 received a Very Poor Coldwater IBI rating. This indicates degraded conditions and a fish community that reflects warmwater conditions. The Excellent Coldwater IBI rating at Station 1 indicates excellent water quality and coldwater conditions with little to no effects of degradation or pollutants.

Little Beaver Creek is currently classified as a Class II trout stream. According to this and previous surveys from 1993 and 2010, the stream should be reclassified to a Class III and declassified near Station 4. However, more sampling is needed to determine the appropriate extent of Class III status upstream of Station 1.

Table 1. Relative abundance (Catch per Effort; Trout per mile) of Brook Trout captured at two stations on Little Beaver Creek, summer 2021.

	ST. 1		ST. 4	
Year	Juv.	Adult	Juv.	Adult
1993	0	48	0	0
2010	0	0	0	0
2021	145	0	0	0

Table 2. Total number of each species captured at two stations on Little Beaver Creek, summer 2021.

SPECIES	ST. 1	ST. 4
Brook Trout	9	0
Mottled Sculpin	1	0
Creek Chub	0	81
Brook Stickleback	0	3
Fathead Minnow	0	1
Blacknose Dace	0	9