

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Turtle Creek Smallmouth Bass Surveys
Rock County, Wisconsin
2025



Photo credit: Wisconsin DNR



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Introduction

Turtle Creek is a popular smallmouth bass stream that stretches for 24 miles across southern Wisconsin in Walworth and Rock Counties. The stream begins at the outlet of Turtle Lake in the town of Richmond in Walworth County. It flows south until it enters Comus Lake in the city of Delevan. Turtle Creek exits Comus Lake to travel west where it reaches Rock County at Clowes Road. In Rock County, Turtle Creek crosses many major roads such as US Highway 14, State Highway 140 and US Interstate 90. Eventually, it empties into the Rock River at the Wisconsin-Illinois state line in the city of South Beloit.

Turtle Creek is unique making it increasingly popular amongst kayakers and fisherman. Unlike many other warmwater streams in southern Wisconsin that suffer from turbid water and silty substrate; Turtle Creek has clear, shallow water making it appealing for many recreational activities including kayaking, wildlife viewing and fishing. Much of the stream has clean substrates made up of sand and gravel which makes Turtle Creek a good location for wade fishing.

This stream is also different compared to the more traditional smallmouth bass streams found in the Driftless Area of southwest Wisconsin which are usually characterized by higher gradient and rocky/gravel substrate. Even though Turtle Creek is found in a flat area of the state with heavy agricultural influence, a healthy smallmouth bass population is still able to exist in this stream. Other predatory species such as northern pike, channel catfish and walleye are present in Turtle Creek; however, the stream is too small to support large populations of these species. With little competition for food from other species, smallmouth bass can thrive and be the dominate predatory species.

Public access points can be found along Turtle Creek in Rock County, especially in parks or large wildlife areas. The most popular shore fishing locations on Turtle Creek are found at Rock County Parks including Sweet-Allyn County Park, Turtle Creek Parkway and Turtle Creek access at Highway 140. Turtle Creek Wildlife Area in the eastern part of Rock County provides unique opportunities to explore floodplains, woods and wetlands for fishing or hunting locations. The city of Beloit has multiple parks on Turtle Creek including Turtle Creek Greenway Trail which has hiking opportunities for walk-in access to the creek.

Annual electrofishing surveys were established on Turtle Creek at Carvers Rock Road and Smith Road in 2009. Due to limited staff availability and turnover, surveys were not completed at both locations in 2012, 2018, 2020, 2022 and 2023. Additionally, surveys were not completed at Smith Road in 2010 and Carvers Rock Road in 2017. In 2025, the Wisconsin Department of Natural Resources (DNR) conducted smallmouth bass surveys on Turtle Creek at Carvers Rock Road and Smith Road in Rock County. The goals of these surveys were to assess (1) relative abundance of all fish species

and health of the fish community, (2) size structure for gamefish species and (3) natural reproduction and recruitment of smallmouth bass.

Methods

The DNR conducted smallmouth bass surveys on Sept. 9, 2025 on Turtle Creek at Carvers Rock Road and Smith Road in Rock County following standard sampling procedures (Simonson 2015). Surveys were performed using three stream barge electrofishing units. In total, 800 meters were sampled at each location. For each survey, two 400-meter shocking runs were completed including a “catch all” run and a gamefish, endangered, and threatened species (GET) run. During the “catch all” run, all species encountered were collected to calculate an Index of Biotic Integrity (IBI), which evaluates the health of fish communities found in streams by considering several metrics such as species richness, abundance, percent of pollution intolerant species and feeding cohorts. This tool calculates a value from 0 to 100, with 0 indicating an unhealthy stream and 100 indicating a healthy stream. During the GET run only gamefish and threatened/endangered species were collected. Gamefish species were measured to the nearest tenth of an inch while non-gamefish species were only counted. All fish were immediately released. Relative abundance was calculated by dividing the number of each individual fish species by the number of stream miles sampled which resulted in a catch-per-unit-effort (CPUE). Smallmouth bass less than or equal to 4.5 inches were considered young-of-year (YOY).

Fish Assemblage

SMALLMOUTH BASS

Carvers Rock Road

In total, 97 smallmouth bass were sampled at Carvers Rock Road which resulted in a catch rate of 195 smallmouth bass per mile. The average length of smallmouth bass collected was 8.6 inches with sizes varying from 2.7 inches to 19.0 inches (Figure 1). Evidence of successful natural reproduction was found at Carvers Rock where the YOY CPUE was 90.5 fish per mile. The 2025 smallmouth bass catch rate of 195 fish per mile was higher than the average catch rate found at Carvers Rock Road from 2009 to 2025 of 147 fish per mile (Figure 2)

Smith Road

In total, 33 smallmouth bass were sampled at Smith Road which resulted in a catch rate of 66 fish per mile. The average length of smallmouth bass collected was 7.2 inches with sizes varying from 3.0 inches to 19.1 inches (Figure 1). Young-of-year were found at Smith Road at a rate of 38.2 fish per mile which is lower abundance compared to Carvers Rock Road. The 2025 catch rate of 66 smallmouth bass per mile was lower than the average catch rate at Smith Road from 2009 to 2025 of 114 smallmouth bass per mile (Figure 2).

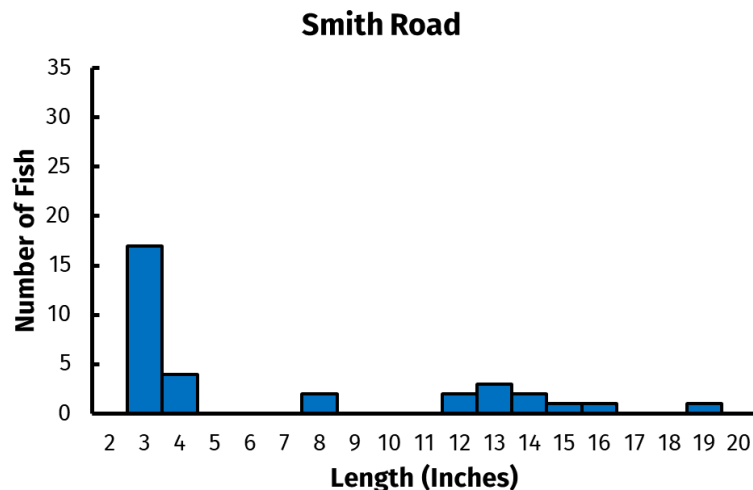
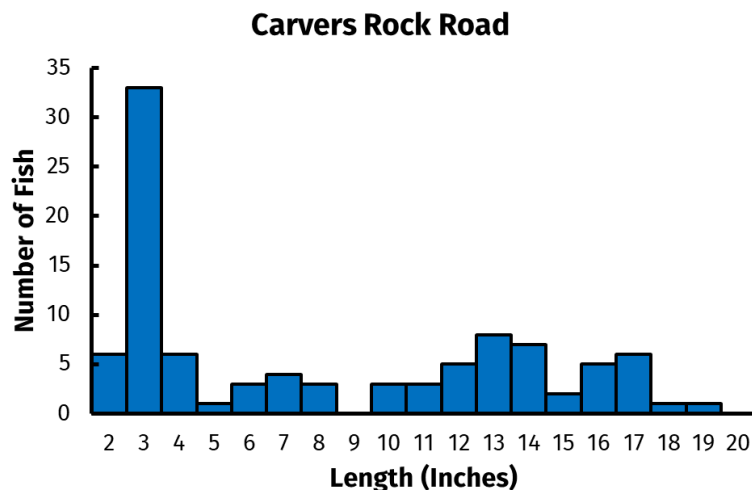


Figure 1. Length frequencies for smallmouth bass found during 2025 surveys of Turtle Creek at Carvers Rock Road and Smith Road in Rock County, Wisconsin.

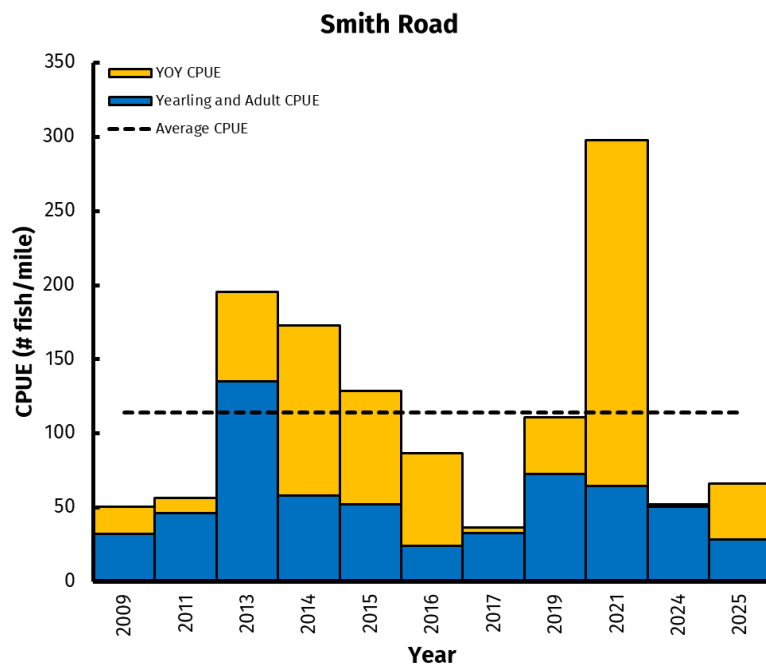
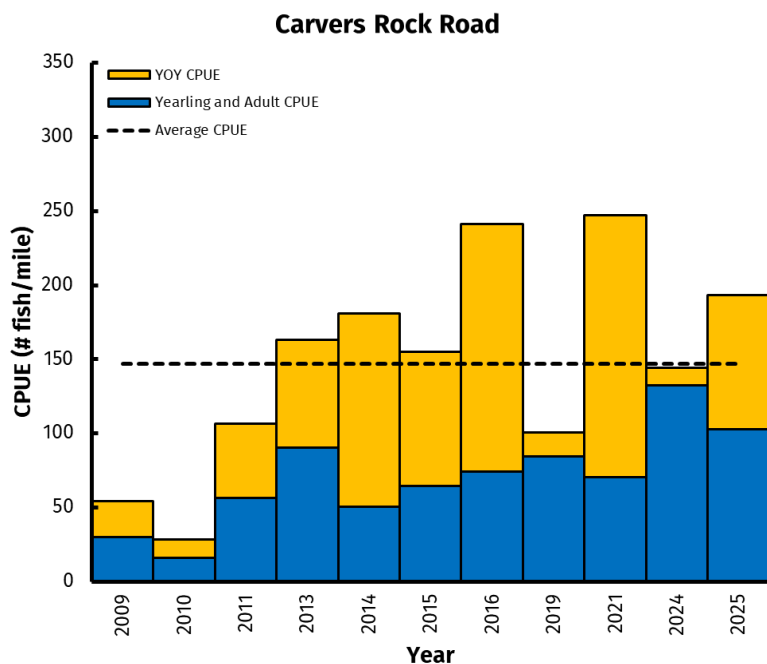


Figure 2. Size specific catch rates for smallmouth bass during surveys from 2009 to 2025 of Turtle Creek at Carvers Rock Road and Smith Road in Rock County, Wisconsin.

OTHER SPECIES

In total, 29 species were present in Turtle Creek between both surveys. A total of 27 species were found at Carvers Rock Road with the most common being common shiner, followed by white sucker (Table 1). The fish community at Smith Road was similar to Carvers Rock Road; however, fewer species were found at Smith Road (Table 2). The most common species found at Smith Road were hornyhead chub, followed by white sucker and common shiner.

Gravel chub, an endangered species in Wisconsin, was abundant at both locations. Rainbow darter, a vibrant forage species, was present in both surveys as well. The IBI score at Carvers Rock Road was 90 while the score at Smith Road was 72 which both come out as excellent overall stream health (Figure 3).



Figure 3. Images of gravel chub (left) and rainbow darter (right) from 2025 surveys at Turtle Creek.

Summary

Turtle Creek has a diverse warmwater fish community and supports a popular smallmouth bass fishery. Gravel chub is still abundant in Turtle Creek. This rare species is only found in a select few streams in southern Wisconsin, and it prefers areas with strong currents and small, gravel substrate. The presence of gravel chub and a high species richness in Turtle Creek indicates a balanced, healthy ecosystem. Hornyhead chubs and common shiners are high in abundance which serve an excellent food source for predatory species like smallmouth bass. Habitat types on Turtle Creek can rapidly change. For example, the Carvers Rock Road station transitions from a wide, shallow stream with slow current to a narrow stream with swift current. The wide sections of Turtle Creek typically have a sandy bottom with aquatic vegetation while the narrow portions have deeper water with rocky substrate. These variations in habitat help contribute to a high species richness.

Since establishing trend surveys on Turtle Creek, higher numbers of smallmouth bass are consistently found at Carvers Rock Road. This is largely due to the diverse habitats found at Carvers Rock Road that favor multiple year classes of smallmouth bass throughout their life cycle. Plenty of cover is available for YOY smallmouth bass to avoid predators at Carvers Rock Road including woody debris, rocky substrate and aquatic vegetation. Riffles with gravel followed by deep pools and current breaks are found at Carvers Rock Road which serve as ideal habitat for adult smallmouth bass to thrive and successfully reproduce. In contrast, Turtle Creek near Smith Road supports smallmouth bass, however; this section of stream can be monotonous and devoid of habitat features which results in lower smallmouth bass abundance.

Smallmouth Bass continue to have successful natural reproduction and recruitment in Turtle Creek each year which translates into a fishable population of adults. Each spring smallmouth bass are observed on Turtle Creek protecting their nests in

current breaks or along the river margins. In other Wisconsin rivers such as the Wolf River and Embarrass River, smallmouth bass are known to make large seasonal migrations (Langhurst and Schoenike 1990). In 1999 the only dam on Turtle Creek, the Shopiere Dam, began to fail so it was removed. Therefore, it's plausible that smallmouth bass abundance on Turtle Creek may fluctuate during certain seasons throughout the year because fish from the Rock River are able to freely migrate to and from the creek.

Acknowledgements

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Table 1. Summary of total catch, catch-per-unit effort (CPUE), length (inches) and mean length sampled during the 2025 electrofishing survey of Turtle Creek at Carvers Rock Road in Rock County, Wisconsin.

SPECIES	TOTAL CAPTURED	CPUE (FISH/MILE)	LENGTH RANGE	MEAN LENGTH
Common shiner	115	465.4		
White sucker	94	378.2		
Northern hog sucker	78	313.8		
Rock bass	106	213.2	2.8 – 9.9	5.7
Smallmouth bass	97	195.1	2.7 – 19.0	8.6
Hornyhead chub	41	165.0		
Banded darter	36	144.8		
Gravel chub	30	60.4		
Central stoneroller	14	56.7		
Spotfin shiner	13	52.3		
Bluntnose minnow	10	40.5		
Golden redhorse	10	40.5		
Sand shiner	6	24.1		
Stonecat	6	24.1		
Johnny darter	5	20.1		
Bigmouth shiner	3	12.1		
Freshwater drum	3	12.1		
Rosyface shiner	3	12.1		
Bluegill	4	8.0		
Shorthead redhorse	2	8.0		
Yellow bullhead	2	8.0		
Blackside darter	1	4.0		
Common carp	1	4.0		
Creek chub	1	4.0		
Fantail darter	1	4.0		
Rainbow darter	1	4.0		
Largemouth bass	1	2.0		3.8

Table 2. Summary of total catch, catch-per-unit effort (CPUE), length (inches) and mean length sampled during the 2025 electrofishing survey of Turtle Creek at Smith Road in Rock County, Wisconsin.

SPECIES	TOTAL CAPTURED	CPUE (FISH/MILE)	LENGTH RANGE	MEAN LENGTH
Hornyhead chub	133	535.1		
White sucker	118	474.8		
Common shiner	99	398.3		
Northern hog sucker	52	209.2		
Banded darter	43	173.0		
Rock bass	62	124.7	2.1 – 8.9	5.8
Central stoneroller	21	84.5		
Spotfin shiner	21	84.5		
Smallmouth bass	33	66.4	3.0 – 19.1	7.2
Gravel chub	25	50.3		
Bluntnose minnow	10	40.2		
Rainbow darter	5	20.1		
Golden redhorse	4	16.1		
Fantail darter	3	12.1		
Rosyface shiner	3	12.1		
Common carp	2	8.0		
Stonecat	2	8.0		
Bluegill	2	4.0	4.3 – 4.6	4.5
Johnny darter	1	4.0		
Shorthead redhorse	1	4.0		
Black crappie	1	2.0		8.8
Largemouth bass	1	2.0		7.2
Walleye	1	2.0		14.1