WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2021 Stream Survey Report
Blake Creek, Waupaca County
280900

Introduction And Objectives

The Blake Creek consists of 8.54 miles of Class II trout water and 5.34 miles of Class I trout water in Waupaca County. The Blake Creek is a tributary to the North Branch Little Wolf River, and provides spawning and nursery habitat for trout populations. Fishing access consists of eleven road crossings. Objective of the rotation surveys are to determine species composition, relative abundance and size structure for trout and other game species.

DNR Contact

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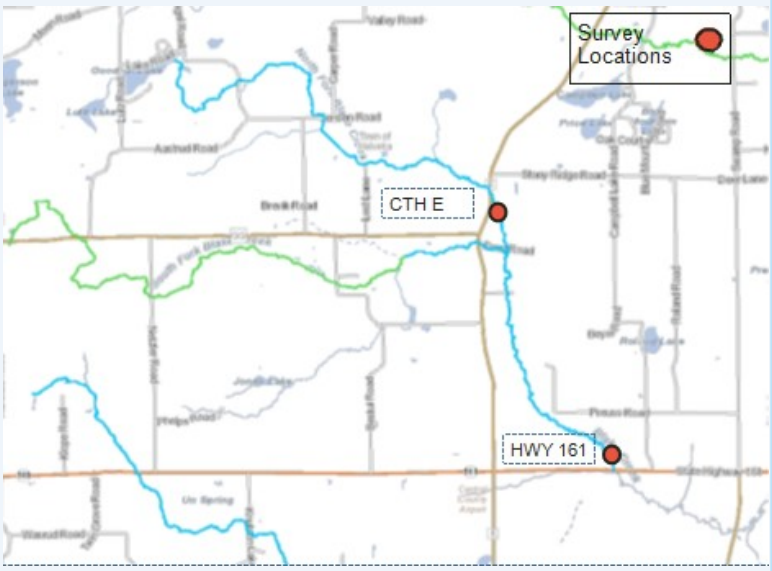
Regulations

Category: Green
Daily Bag and Size Limit:
Five and no size

SURVEY INFORMATION

Station	Survey Date	Station Length	Temperature (°F)	Mean Stream Width	GPS (Start/Finish)	Gear	Dippers	IBI
CTH E	7/22/2021	330 ft	60	8.2 ft	44.54419, -89.02076 44.54486, -89.02096	Backpack Shocker	1	Yes
HWY 161	7/26/2020	666 ft	68	18.0 ft	44.51103, -89.00149 44.51246, -89.00182	Barge Shocker	3	No



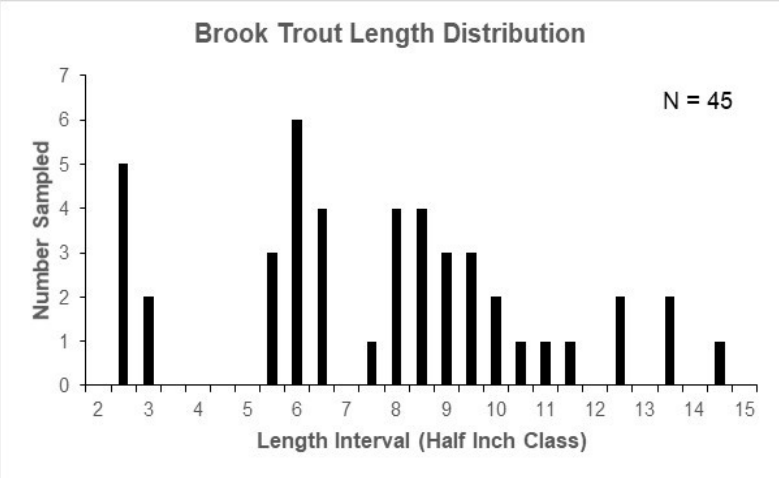
Survey Method

- All streams are sampled according to DNR wadable streams monitoring protocols.
- All sampling stations are electrofished with either a towed barge shocker or backpack shocker.
- Sampling distance is at least 35 times the mean stream width or a minimum of 330 feet (i.e., 100 meters).
- All trout are counted and measured and all other species are counted in order to calculate an Index of Biotic Integrity (IBI) score.
- Metrics used to describe trout populations include average length, catch per unit effort (CPUE) and length frequency distribution.

Metric Descriptions

- **Catch per unit effort (CPUE)** is a method of quantifying fish population relative abundance. For all trout surveys, we typically quantify CPUE as the number of a given size class of trout captured per mile of stream. CPUE indexes are compared to other trout streams throughout Wisconsin by what percentile (PCTL) they fall out in. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state. CPUE percentiles can also be used to categorize trout abundance as low density (<33rd percentile), moderate density (33rd - 66th percentile), high density (66th - 90th percentile) and very high density (>90th percentile).
- **Length frequency distribution** is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals.
- **Index of Biotic Integrity (IBI)** is a rating of environmental quality based on the fish assemblage. Scores of 90 - 100 indicate excellent stream quality, while scores less than 30 indicate poor stream quality. Our analysis utilizes the IBI for Wisconsin coldwater streams. Coldwater streams in Wisconsin are those in which the maximum daily mean water temperature is usually <22°C (71.6°F). A coolwater stream IBI may also be used when a stream doesn't fit the temperature criteria for a coldwater stream.

BROOK TROUT SIZE AND ABUNDANCE (CPUE) METRICS									
Station	Total Number Sampled	Average Length (inches)	Length Range (inches)	CPUE (No. per Mile) Statewide Percentile in Parentheses					
				Total CPUE (PCTL)	YOY CPUE	≥5" CPUE (PCTL)	≥8" CPUE (PCTL)	≥10" CPUE (PCTL)	≥12" CPUE (PCTL)
CTH E	31	6.6	2.6 - 11.0	496 (71st)	112	384 (84th)	192 (68th)	16 (82nd)	-
HWY 161	14	10.7	6.4 - 14.6	111 (38th)	-	111 (54th)	95 (86th)	71 (97th)	40 (99th)



Mottled sculpin (pictured above) is a small nongame species commonly found in coldwater streams. Similar to trout they require colder temperatures, are considered thermally intolerant and their presence can be indicative of healthier environmental quality.

SPECIES COMMUNITY AND IBI FOR CTH E			
Species Sampled	Total	IBI Score	Integrity Rating
Brook Trout	31	70	Good
Mottled Sculpin	5		
Creek Chub	5		
White Sucker	3		
Central Mudminnow	7		

Summary

- Trout were found in moderate to high densities at the CTH E station with the total brook trout CPUE ranking out in the 71st percentile when compared to trout streams throughout Wisconsin. At least two distinct year classes of brook trout were captured at the CTH E station. No YOY trout were captured at the HWY 161 station, but larger trout 10+ inches ranked above the 90th percentile. Poor habitat and warmer water temperatures in this section of stream was likely a contributing factor to the lack of trout and spawning activity.
- The CTH E station was last sampled in 1996, while the HWY 161 station was sampled in 2009. Size structure has improved and numbers of brook trout at HWY 161 were higher than in 2009, 2003 and 2014.
- Brook trout young of year (YOY) were captured in moderate densities at the CTH E station. Cold water, but lack of spawning substrate at this sample station suggest this stretch of stream has marginal habitat for trout spawning.
- The IBI scores suggests this stream is a good coldwater stream and the WI Streams Natural Community Model considers this a cool - cold headwater stream. Habitat improvements in the upper sections of this stream could result in better conditions for trout.