WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2021 Stream Survey Report
Radley Creek, Waupaca County
259300

Introduction And Objectives

The entire 11.5 miles of Radley Creek are classified as Class I trout water, with brown trout as the dominant salmonid. Brook trout are present in lower numbers but are relegated to the extreme headwater reaches. Trout populations are supported entirely by natural reproduction with no stocking. Habitat development projects have been completed in several areas throughout the stream including the trend survey site. Fishing access is very good through multiple DNR-manage properties. Objectives of the rotation surveys are to monitor species composition, relative abundance and size structure.

DNR Contact

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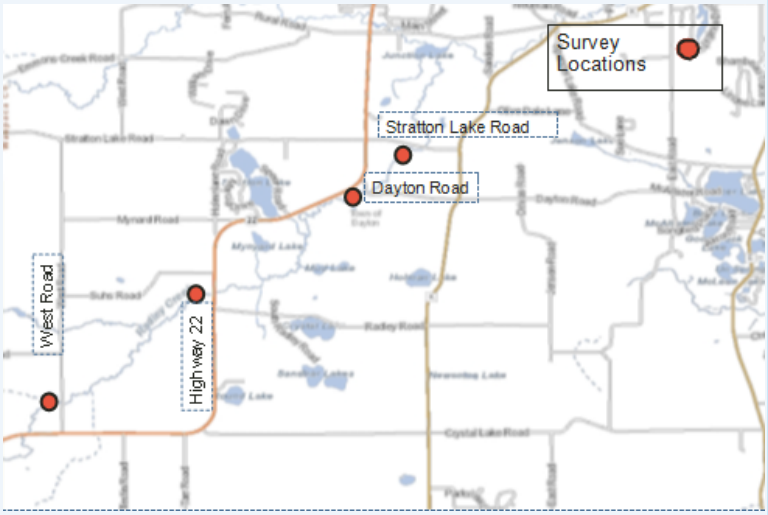
Regulations

Category: Yellow
Daily Bag and Size Limit:
Three and 8-inch minimum

SURVEY INFORMATION

Station	Survey Date	Station Length	Temperature (°F)	Mean Stream Width	GPS (Start/Finish)	Gear	Dippers	IBI
West Road	7/28/2021	354 ft	55	10.2 ft	44.26198, -89.21425 44.26176, -89.21526	Barge Shocker	3	NO
Highway 22	7/28/2021	2000 ft	54	-	44.2767,-89.1681 44.2759,-89.1928	Barge Shocker	3	NO
Dayton Road	8/26/2021	688 ft	59	19.7 ft	44.28982, -89.16309 44.28991, -89.16497	Barge Shocker	3	YES
Stratton Lake Road	8/26/2021	560 ft	60	15.7 ft	44.29613, -89.15363 44.29589, -89.15502	Barge Shocker	3	NO



Survey Method

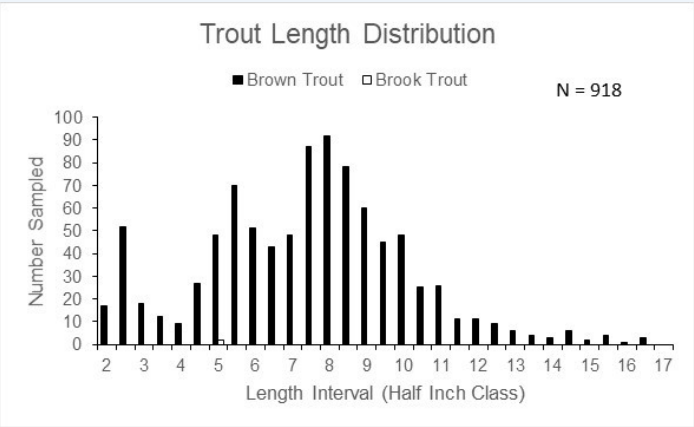
- All streams are sampled according to DNR wadeable streams monitoring protocols.
- All sampling stations are electrofished with either a towed barge shocker or backpack shocker.
- Sampling distance is at least 35 times the mean stream width or a minimum of 330 feet (i.e., 100 meters).
- All trout are 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)
West Road	2	5.3	5.2 - 5.3	30 (18th)	0	30 (28th)	-	-	-

BROWN 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	>6" CPUE (PCTL)	>8" CPUE (PCTL)	>10" CPUE (PCTL)	>12" CPUE (PCTL)	>15" CPUE (PCTL)
West Road	147	6.9	2.3 - 15.9	2193 (95th)	268	1238 (97th)	701 (96th)	239 (92nd)	89 (91st)	15 (88th)
Highway 22	581	7.6	2.0 - 16.9	1534 (92nd)	190	1085 (96th)	710 (96th)	267 (93rd)	77 (89th)	16 (88th)
Dayton Road	121	8.6	2.8 - 15.5	929 (86th)	31	837 (93rd)	576 (88th)	192 (89th)	61 (85th)	8 (77th)
Stratton Lake Road	67	8.7	3.4 - 16.8	632 (80th)	47	566 (88th)	405 (90th)	160 (86th)	57 (84th)	9 (79th)



SPECIES COMMUNITY AND IBI FOR DAYTON RD			
Species Sampled	Total	IBI Score	Integrity Rating
Brown Trout	121	40	Fair
White Sucker	58		
Common Shiner	107		
Hornyhead Chub	41		
Mottled Sculpin	28		
Largescale Stoneroller	1		
Rock Bass	4		
Bluntnose Minnow	1		

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.

Summary

- Brown Trout were found in moderate to high densities at all four of the stations with the total brown trout CPUE ranking out in the 80th thru 95th percentiles when compared to trout streams throughout Wisconsin. Brown Trout 10+ inches ranked above the 86th percentile at every station. YOY brown trout were captured at West Road and HWY 22 in moderate numbers, while the stations at Dayton and Stratton Lake Roads were low densities of YOY.
- The Highway 22 station saw a drastic improvement in number of brown trout since the last survey in 2019.
- Brown trout populations are doing well throughout the Radley Creek system and provide both opportunities to catch quantity and quality sizes. Brook trout are present, but the high numbers of brown trout appear to be impacting brook trout numbers year over year.
- The IBI scores suggests this stream is a fair coldwater stream near Dayton Road and the WI Streams Natural Community Model considers this a cool - cold headwater stream. Habitat is well protected by the large tracts of state owned land. Lower reaches of the creek have received a lower score, but still manage to be in the fair category. Agriculture and recent sediment deposits may be having an impact on the fishery and the habitat.