WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2021 Stream Survey Trend Report
Waupaca River, Waupaca County
257400

Introduction And Objectives

The Waupaca River is a Class II trout stream, consisting of 64.9 miles of trout water. Located in both Waupaca and Portage Counties, the stream name changes to the Tomorrow River when it crosses into Portage County. The Waupaca River is managed for trophy-sized trout as well as a put and take fishing area located in the City of Waupaca. Several public fishing accesses are located throughout the length of the river, including road crossings and DNR managed property. This trend site is part of the trophy management area, has had past habitat development work done and feral trout are stocked on a fairly regular basis to supplement natural reproduction. Objectives of the surveys are to monitor species composition, relative abundance, and size structure trends over time.

DNR Contact

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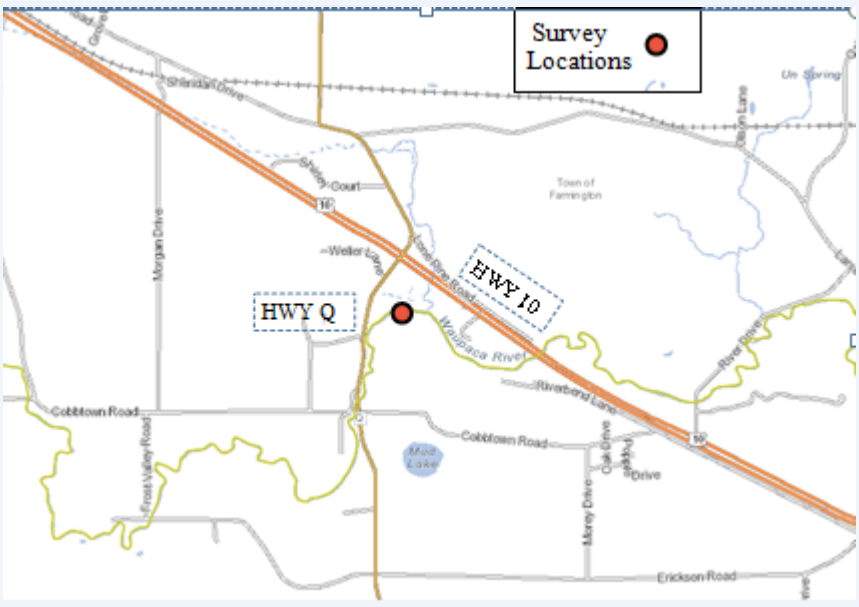
Regulations

Category: Red (Durant Road to River Drive)
Yellow (All except portion listed above)
Daily Bag and Size Limit:
Red: 1 and 18-inch minimum (artificial only)
Yellow: Three and 8-inch minimum

SURVEY INFORMATION

Station	Survey Date	Station Length	Temperature (°F)	GPS (Start/Finish)	Gear	Dippers
Highway Q Trend Site	9/08/2021	4,000 ft.	59	44.3806, -89.1785 44.3740,-89.1852	2 Towed Barge Shockers	6

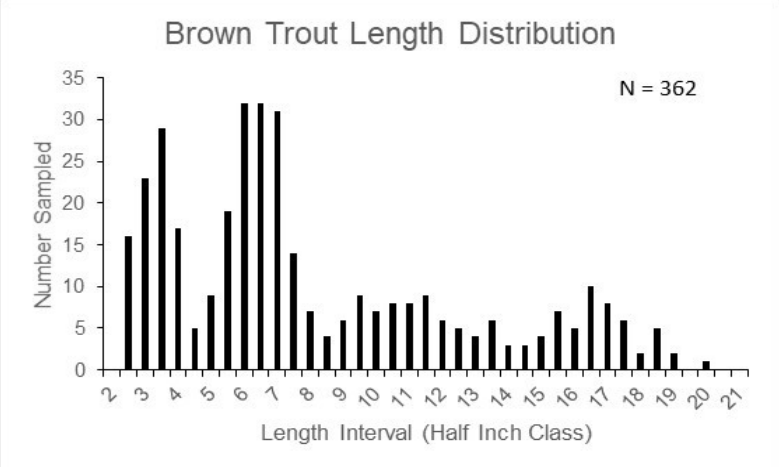


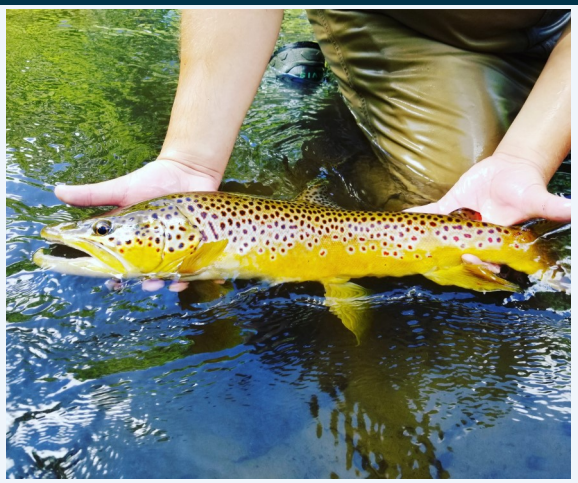
Survey Method

- 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.





SIZE AND ABUNDANCE (CPUE) METRIC - BROWN TROUT										
Year	Average Length (Inches)	Length Range (Inches)	Number Sampled	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)
1994	7.2	(3.2-14.2)	347	470	168	254	188	78	20	0
1995	8.5	(3.2-15.6)	256	346	60	275	206	127	28	4
1996	8.0	(3.0-17.6)	252	341	138	203	176	92	56	9
1997	7.3	(2.7-17.6)	204	276	118	156	112	112	31	14
1998	8.6	(2.6-19.6)	217	294	34	242	156	78	39	14
1999	9.1	(2.1-19.9)	272	368	57	299	219	154	86	12
2000	8.7	(2.2-20.9)	390	528	125	378	272	214	125	23
2001	7.3	(2.4-21.0)	354	478	149	274	143	98	77	28
2002	8.9	(2.8-18.2)	273	369	42	302	191	134	60	27
2006	9.6	(2.7-19.2)	299	405 (70th)	18	353 (80th)	288 (85th)	165 (85th)	78 (90th)	30 (95th)
2007	8.8	(2.6-19.6)	251	340 (65th)	27	258 (75th)	181 (75th)	138 (80th)	67 (85th)	16 (90th)
2008	8.2	(2.3-20.2)	375	507 (75th)	70	332 (80th)	227 (80th)	162 (85th)	108 (90th)	27 (95th)
2009	6.1	(2.0-19.8)	642	847 (85th)	381	350 (80th)	174 (70th)	125 (75th)	88 (85th)	34 (95th)
2010	6.8	(2.1-18.5)	310	419 (70th)	158	204 (70th)	108 (65th)	88 (75th)	58 (85th)	23 (95th)
2011	6.8	(2.2-20.5)	222	426 (70th)	215	186 (65th)	121 (65th)	140 (80th)	63 (85th)	29 (95th)
2012	8.5	(1.1-20.9)	319	421 (70th)	34	290 (75th)	216 (80th)	140 (80th)	73 (90th)	22 (90th)
2013	9.0	(2.2-21.3)	330	435 (70th)	70	340 (80th)	248 (80th)	161 (85th)	107 (95th)	26 (95th)
2014	7.0	(2.9-20.4)	413	545 (75th)	235	257 (75th)	145 (70th)	121 (80th)	91 (90th)	29 (95th)
2015	5.5	(2.1-18.5)	264	348 (65th)	183	153 (60th)	42 (45th)	16 (40th)	12 (50th)	12 (85th)
2016	7.5	(3.2-19.6)	244	322 (65th)	13	222 (70th)	108 (65th)	75 (70th)	24 (65th)	8 (75th)
2017	8.5	(2.7-20.0)	454	599 (75th)	112	445 (80th)	342 (85th)	189 (85th)	88 (90th)	17 (90th)
2018	9.8	(2.7-20.3)	445	587 (75th)	66	517 (85th)	401 (90th)	311 (95th)	170 (95th)	34 (95th)
2019	7.6	(2.2-17.7)	354	467 (70th)	204	251 (75th)	169 (75th)	141 (80th)	106 (90th)	32 (95th)
2021	8.4	(2.6 - 20.5)	362	478 (74th)	90	322 (80th)	178 (77th)	144 (84th)	102 (93rd)	66 (99th)

Summary

- Results from the 2021 survey showed that total brown trout numbers were up slightly from the past couple of years but still very close to the long term average for this site. Total densities remain high but only rank in the 74th percentile when compared to streams throughout the state of Wisconsin.
- Similar to total densities of brown trout, densities of most adult size classes (i.e., ≥6 inches) were slightly higher than the last couple of years, but remain close to long term averages for this site. Densities of brown trout ≥12 inches continue to remain high, showing the trophy potential for this site. High water due to record rainfall over the last few years has likely provided access to additional habitat in other sections of the river where trout normally would not have access.
- Catch rates of young of year (YOY) brown trout in 2021 (i.e., 90 per mile of electrofishing) were near the average for the station since surveys started in 1994. High water resulted in abundant flooded grasses and shallow undercut banks along the edges of the river, providing optimal YOY habitat.
- To supplement natural reproduction, the WDNR stocks feral large fingerling brown trout in this section of the river. Results from historical surveys have shown that stocked and clipped brown trout from 2018-2020 have accounted for as much as 30% of the adult population. In recent years, survey results have shown that brown trout have been naturally producing strong year classes and thus indicating stocking may no longer be necessary.
- Over the last couple of years, the Wild Rose habitat crew has been working to repair some of the skyhook overhead covers that were installed throughout the trend site in 1995, replacing them with more traditional lunker structures. This work should be completed in the next couple of years after the habitat crew completes rebuilding the last two structures.