WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Prairie River Post Habitat Improvement Survey Report
Prairie River, Lincoln County

Waterbody Code: 1481200

Introduction And Objectives

The Prairie River starts near Elcho, WI at the outlet of Horseshoe Lake in northwestern Langlade County. It flows southwesterly into Lincoln County where it flows through Gleason, WI and later joins the Wisconsin River in Merrill, WI. The Prairie River is a class one trout stream that is home to naturally reproducing populations of brook and brown trout. The Prairie River has a history of negative impacts from logging, agricultural practices, and beaver activity. Fish habitat impairments included: widening and shallowing of the stream channel and loss of complex wood and rock habitat. In 2015 and 2016 the Wisconsin Department of Natural Resources (WDNR) conducted a stream habitat improvement project on the Prairie River. The project site was located on the Prairie River Fishery Area property off of State Highway 17, between Neuwirth Road and Hackbarth Drive. This project was 4,895 feet in length and included the following work: tag alder brushing, channel shaping to deepen and narrow the stream channel resulting in the creation of point bars, wing dam repairs, the installation of 12 whole trees, the installation of 261 small rocks and 235 large rocks.

The following report summarizes changes in the trout populations relative abundance and size within the project area.

WDNR Contact

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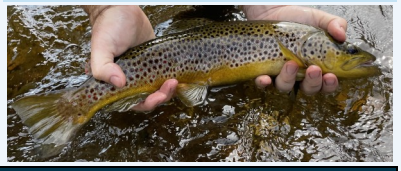
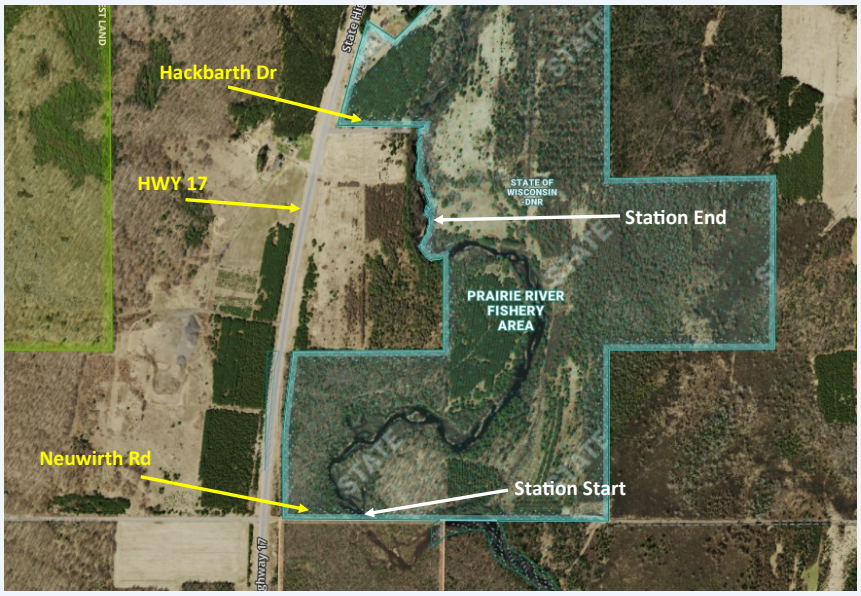
Regulations

Category: **Red**

Daily Bag and Size Limit:
3 trout in total: brown and rainbow trout over 12", brook trout over 8"



SURVEY INFORMATION						
Station	**Survey Date**	**Station Length (ft.)**	**Water Temp (° F)**	**GPS (Start/End)**	**Gear**	**Netters**
Gleason School Forest to Hackbarth Drive	06/15/2015 (Pre Survey) 08/28/2023 (Post Survey)	4,895	61 & 63 (2015) 56 & 61 (2023)	45.36528, -89.46287 (Start) 45.37190, -89.46094 (End)	Towed Barge Stream Shocker	2



Survey Methods

- This stream was sampled according to WDNR wadeable streams monitoring protocols
- This was a new station 4,895 feet in length, established to evaluate the response of trout populations to the habitat improvement project
- All trout and sport fish were counted and measured; All other species were noted on a scale of relative abundance
  - Present (1-9)
  - Common (10-99)
  - Abundant (100 or more)
- Metrics used to describe trout populations include length range, length frequency distribution, catch per unit effort (CPUE), and Relative Stock Density (RSD)

Metric Descriptions

- **Catch per unit effort (CPUE)** is a method of quantifying fish population's relative abundance. For all trout surveys, we typically quantify CPUE as the number and size of trout captured per mile of stream. CPUE indexes are compared to statewide streams using percentiles (PCTL). For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.
- **Length frequency distribution** describes trout size structure. It is the number of trout captured grouped by half-inch size intervals.
  - **Young of the year (YOY)** are trout that are less than 4 inches in length.
  - **Adults** are trout that are at least 4 inches and greater in length.
- **Relative stock density (RSD)** the percentage of trout that meet a minimum length (4 inches for stream trout) that are also over a quality size for that species. For example, RSD8 is the percentage of brook trout captured that were 8 inches and longer out of all brook trout captured that were at least 4 inches long (typically age 1 and older adult fish).

BROOK TROUT SIZE AND ABUNDANCE (CPUE) METRICS										
Station	Total Number Sampled	CPUE (No. per Mile)						Statewide Percentile		
		Adult	YOY	6"+	8"+	10"+	12"+	YOY CPUE	≥8"CPUE	≥12"CPUE
Gleason School Forest to Hackbarth Drive (2015 Survey)	228	217.9	28.0	116.5	32.4	8.6	2.2	65th	70th	90th
Gleason School Forest to Hackbarth Drive (2023 Survey)	685	518.0	167.0	359.2	138.1	38.8	5.4	80th	90th	90th

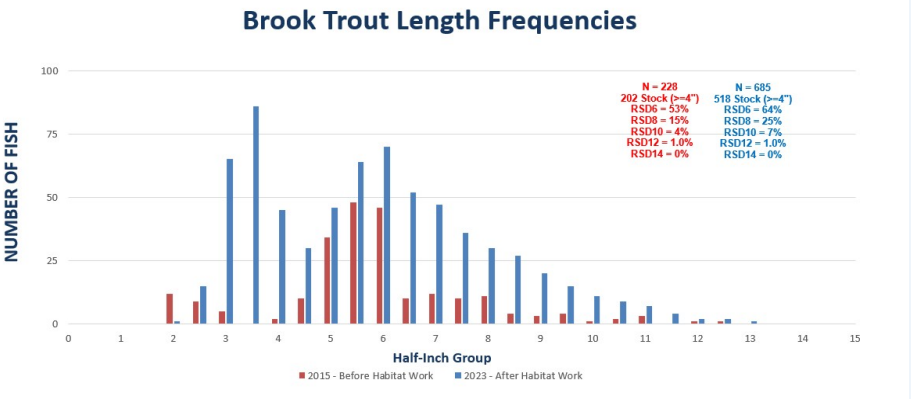


Photo Credit: Wisconsin DNR

BROWN TROUT SIZE AND ABUNDANCE (CPUE) METRICS										
Station	Total Number Sampled	CPUE (No. per Mile)						Statewide Percentile		
		Adult	YOY	8"+	12"+	16"+	20"+	YOY CPUE	≥12"CPUE	≥18"CPUE
Gleason School Forest to Hackbarth Drive (2015 Survey)	74	46.4	33.4	9.7	5.4	2.2	0.0	75th	60th	60th
Gleason School Forest to Hackbarth Drive (2023 Survey)	396	308.5	118.7	213.6	107.9	35.6	3.2	80th	90th	95th

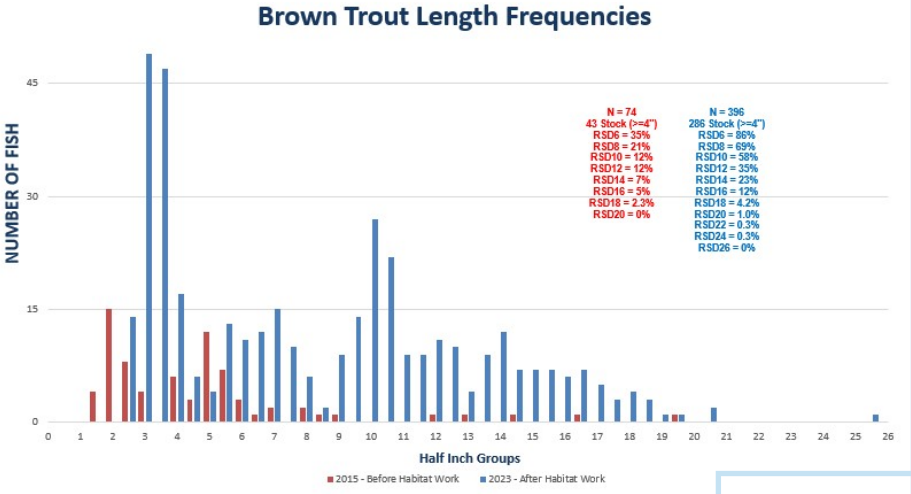


Photo Credit: Wisconsin DNR

Summary

- In the 2023 post habitat evaluation survey, increases in relative abundance and size structure were observed for brook and brown trout.
  - YOY brook trout CPUE increased 496%
  - Adult brook trout CPUE increased 156%
  - The percentage of 8 inch (legal) and larger brook trout (RSD8) increased from 15% in 2015 to 25% in 2023
  - YOY brown trout CPUE increased 255%
  - Adult brown trout CPUE increased 565%
  - The percentage of 12 inch (legal) and larger brown trout (RSD8) increased from 12% in 2015 to 35% in 2023
  - Trophy class brown trout (≥ 18 inch CPUE) increased 1,073%
- Overall, the 2015-2016 habitat improvement project restored and increased cover and deep pool habitat preferred by adult trout. The trout populations responded with increased abundance, reproduction and size quality.