WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2023-2024 Creel Survey Report for the Washburn County Forest Trout Ponds, Washburn County, WI

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Introduction

HISTORY

The Washburn County Forest (WCF) Trout Pond program was initiated by the Wisconsin Department of Natural Resources (DNR) and Washburn County Forestry department in 1996. This program was created to utilize surplus small fingerling brook trout and rainbow trout grown at DNR hatcheries while providing additional put-and-take trout fishing opportunities in small lakes in the Washburn County Forest. Ponds in the WCF were chosen after Spooner Fisheries staff found lakes that were subject to periodic winterkill. Most of the ponds were fishless or had only minnow populations before stocking. These ponds are officially unnamed but have been given unofficial names for convenience (Bass 2005). The pond sizes range from 1 – 10 acres and maximum depth ranges from 7 - 25 ft (Bass 2005). These ponds are also undeveloped and located entirely within the WCF. The number of ponds stocked has ranged from 1 - 18 (Bass 2005). Currently, there are 15 ponds within the WCF that are stocked with brook trout.

The only previous study of the WCF ponds was completed in 2001 and 2002 and documented variable trout abundance between ponds and how this disparity can impact overall survival and growth (Bass 2005). The impact of non-game fish species explained some of the disparity, as ponds with fish typically had lower survival and growth. This study also compared the survival of brook trout vs. rainbow trout. Brook trout generally displayed better over-winter survival than rainbow trout. Alternatively, rainbow trout were thought to survive warmer summer water temperatures better than brook trout. The report concluded that the program was successful and provided a unique opportunity for local trout anglers.

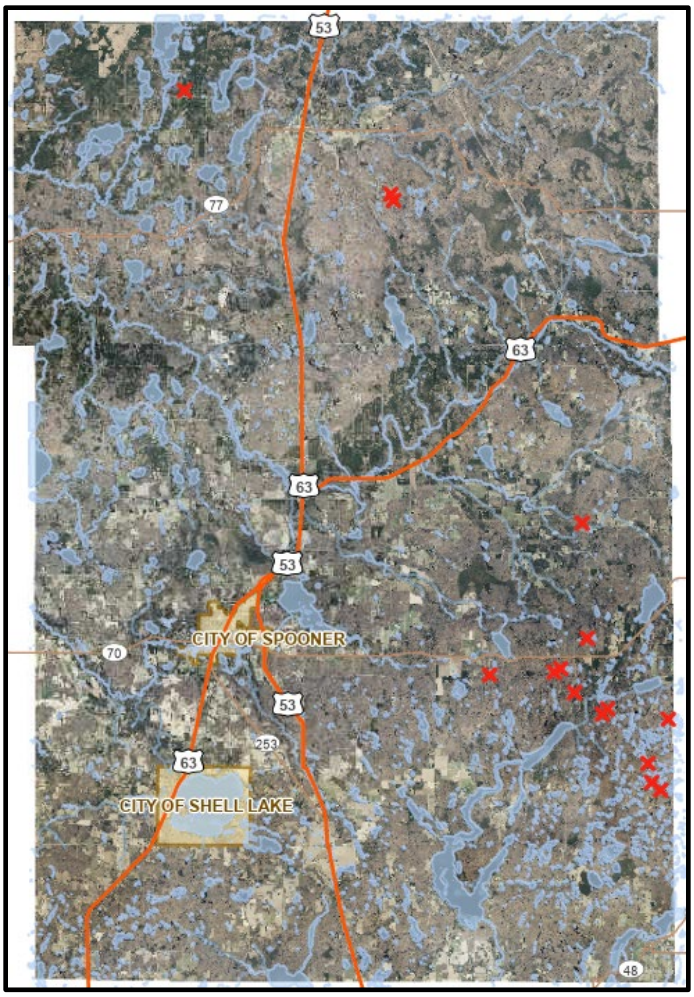

Figure 1. Current locations of stocked trout ponds (denoted by red x's), Washburn County, WI, 2024.

STOCKING

Stocking of the WCF ponds started in 1996. Brook, brown and rainbow trout were experimentally stocked into the ponds before settling on brook trout and rainbow trout, which were most successful. Rainbow trout were stocked in a subset of ponds until 2006. Since 2006, only small fingerling brook trout have been stocked into the WCF trout ponds. The current list of ponds and number of small fingerling brook trout stocked is in Appendix Table 1. These ponds are currently stocked in early spring at a rate between 100 – 400 small fingerling brook trout per acre in accordance with DNR stocking guidelines (<500 small fingerlings/acre). These small fingerlings typically average 2.0 to 2.5 inches at stocking.

FISHING REGULATIONS

There is no size limit and a five fish daily bag limit on brook trout in the WCF trout ponds. These ponds also follow the inland gamefish season extending from the first Saturday in May through the first Sunday in March.

Although the WCF trout ponds have been stocked for many years and appeared to have supported popular fisheries, there has not been a formal evaluation of angler use of these stocked ponds. This report summarizes the results of a passive creel survey using kiosk stations at a subset of the WCF trout ponds. The objective was to assess angler effort, catch and harvest of brook trout to guide future management of these fisheries and the WCF trout pond program.

Methods

Creel kiosk stations were set at fixed locations near WCF pond access points, with the goal of intercepting trout anglers. Kiosks were deployed at Aurora Pond, Big Sticks Pond, Fontinalis Lake, Otter Pond and Stride and Glide Lake. These ponds were chosen to represent a variety of distances (0.03 - 0.70 miles) from the closest road access. Creel cards were available to anglers in a mailbox at the top of each kiosk and completed questionnaires were placed into the bottom locked drop box. Kiosks were placed beside the regulation sign at each lake adjacent to the access trail. Six questions were asked to capture information regarding angler effort (daily and seasonal), distance from home (i.e. willingness to travel), angler catch and harvest (Figure 2).

Figure 2. Kiosk setup at lake access points on right and creel survey questionnaire on left.

Creel kiosks were deployed August 28, 2023 and removed January 31, 2024 (a period of 5 months and 4 days). This period was selected to target the fall and early winter angling that is most popular for WCF trout ponds due to trout growing to a catchable size and being more active in fall and early winter. All five ponds were successfully creeled the entire time period without any damaged or stolen creel boxes.

Metrics characterizing angler use, catch and harvest were calculated using angler responses to creel questions. Each creel questionnaire was assumed to be completed by a single angler unless responses suggested otherwise. Fishing effort was characterized by using multiple metrics including total number of angler visits and hours, angler hours/acre of surface water, mean fishing trip hours, mean distance traveled to fish and the number of out of state anglers. The mean distance traveled to fish was calculated by using the angler's ZIP code and measuring from the center of that town to nearest trout pond access.

Angler success was calculated using mean catch and harvest per effort and catch and harvest per acre of surface water. Both catch and harvest were calculated to incorporate harvest-oriented anglers vs. catch and release anglers. Passive creel surveys typically sample a subset of anglers due to nonreporting or because some anglers may not intercept the kiosk. An analysis of combined camera and kiosk estimates from three northeastern Wisconsin inland trout stocked lakes (Little Cub Lake, Logger Lake and Sand Lake; Florence and Forest counties) during 2022 showed on average it took 9.07 anglers to complete a single creel questionnaire (Gregory Matzke; Wisconsin DNR; personal communication). Using this rate, we estimated total catch and harvest using a nonreporting rate of 9.07 anglers to 1 completed questionnaire.

Results

There were 92 questionnaires completed by trout anglers through the sampling period. One hundred anglers were counted as participating in the creel (some cards were noted as groups). Otter Pond had the most recorded angler visits (36), followed by: Fontinalis (22), Big Sticks (21), Stride and Glide (13) and Aurora (8). A total of 253 angler hours were fished. Otter Pond had the most angler effort (75.5 hours), followed by: Fontinalis (58), Big Sticks (50), Stride and Glide (29) and Aurora (19.5). There were 378 total brook trout reported caught with 93 reported over 9 inches (25%). Otter Pond had the most fish caught (195), followed by Fontinalis (90), Stride and Glide (49), Big Sticks (35) and Aurora (9). There were 186 trout reported to be harvested,

meaning 49% of trout caught were harvested at the ponds. Of the 186 trout harvested, 50% of those were reported to be over 9 inches.

Using the non-reporting rate, we estimated an average effort of 81.8 hours/acre for the WCF ponds creeled in this survey. The total estimated catch was 133.9 fish/acre. The estimated catch of trout over 9 inches was 33.0 fish/acre. The total harvest was estimated at 67.0 fish/acre. Average angler success rate was estimated at 2 hours/fish caught and ranged from 0.25 to 8 hours to catch a fish. Table 1 and 2 denote the different metrics for fishing effort, catch and harvest for each for the five trout ponds creeled.

Table 1. Fishing effort metrics estimated from the WCF trout pond kiosk creel survey during 2023-2024.

FISHING EFFORT	AURORA	BIG STICKS	FONTINALIS	OTTER LAKE	STRIDE AND GLIDE
Estimated Angler Visits	72	*190*	*200*	*326*	*118*
Estimated Total Angler Hours	*177*	*454*	*526*	*685*	*263*
Estimated Angler hours/acre	*44*	*70*	*131*	*134*	*29*
Mean Trip Hours	2.9	*3.1*	*2.9*	*2.7*	*2.2*
Mean Travel Distance	*65.7*	*52.3*	*47.8*	*46.7*	*53.6*
Out of State Anglers	*0*	*3*	*2*	*4*	*2*

Table 2. Catch and harvest metrics estimated from the WCF trout pond kiosk creel survey during 2023-24.

CATCH AND HARVEST	AURORA	BIG STICKS	FONTINALIS	OTTER	STRIDE AND GLIDE
Mean Catch/Hour	0.8	*0.8*	*2.2*	*2.8*	*2.3*
Mean Harvest/Hour	*0.2*	*0.6*	*0.7*	*1.7*	*0.4*
Estimated Total Catch	*82*	*317*	*816*	*1769*	*444*
Estimated Total Catch/Acre	20.4	*48.8*	*204.1*	*346.8*	*49.4*
Estimated Total Catch >9"/Acre	4.5	*16.7*	*43.1*	*92.5*	*8.1*
Estimated Total Harvest/Acre	*6.8*	*37.7*	*86.2*	*197.4*	*7.1*

Anglers reported being from 15 Wisconsin counties (Figure 3) and two other states (Minnesota and Florida). Washburn County was the most common angler group (44%), followed by Barron County (19%) and Minnesota (16%). After removing the Florida questionnaire (1,616 miles) as an outlier, the distance traveled to fish WCF

trout ponds ranged from 8.2 to 258.0 miles. Anglers traveled an average of 50.5 miles to fish these ponds. Anglers also favored lakes closer to the access as there was a negative trend in angler visits as distance from the access increased (Figure 4).

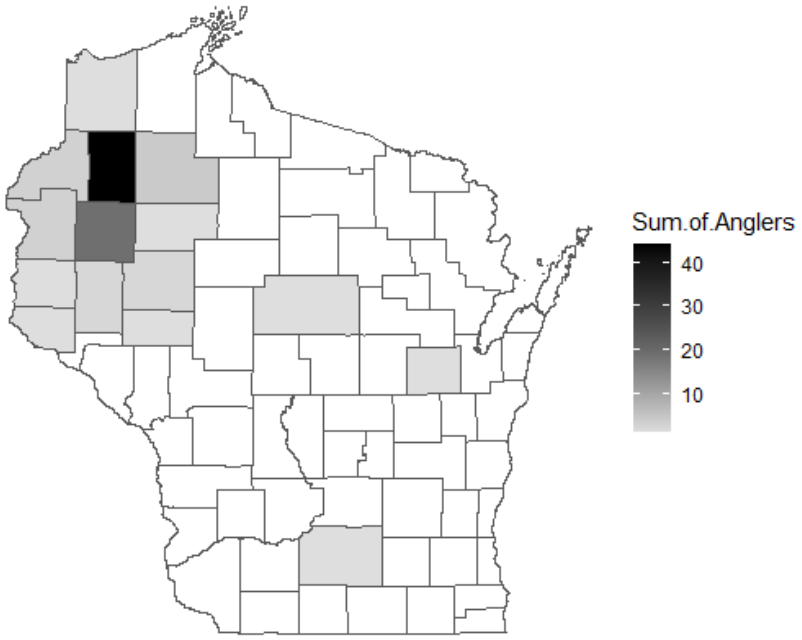

Figure 3. Map of Wisconsin county residency of anglers that fished the Washburn County Forest trout ponds in 2023-2024.

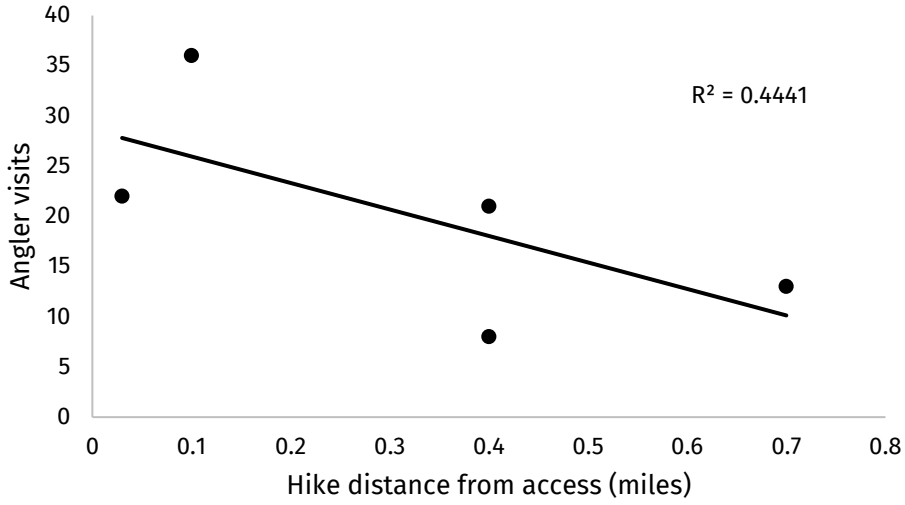

Figure 4. Hike distance from the access to pond plotted against angler visits in 2023 for the Washburn County Forest trout ponds.

Seasonal fishing effort was highest during the month of December followed by October and January (Figure 5).

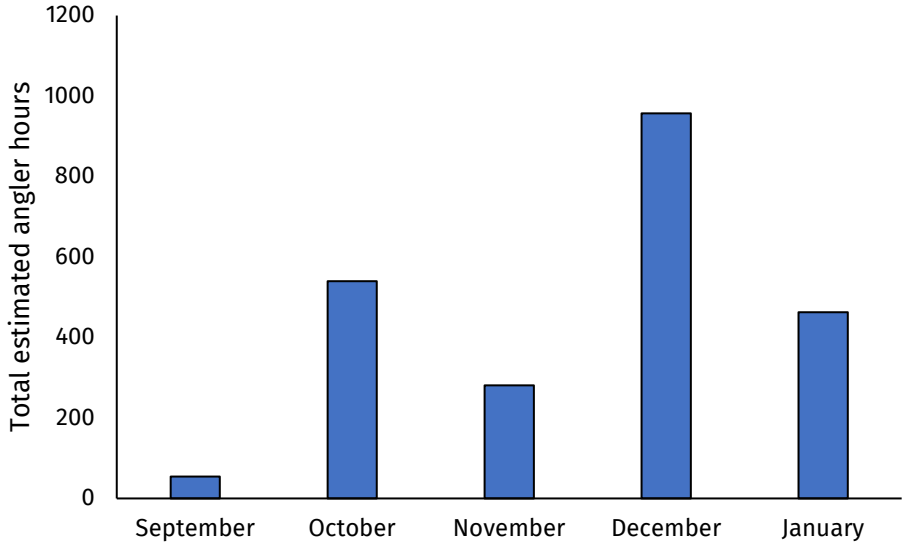

Figure 5. Total estimated angler hours by month for Washburn County Forest trout ponds.

Discussion

The WCF trout pond program has provided a unique put-grow-take angling opportunity in Washburn County for 28 years. This creel survey was the first attempt to quantify angler effort, catch and harvest of trout in the WCF trout ponds. This passive creel survey documented high usage for the ponds during the five-month sampling period. The average angler effort for the ponds (81.8 hours/acre) was 2.6 times greater during a 5-month period than the Washburn County average (31.1 hours/acre) for Ceded Territory creeled lakes during a 10-month period (Kufahl 2024). Overall, there was also a 49% harvest rate for brook trout caught meaning that most anglers were harvesting the fish they caught.

Otter Pond led the WCF ponds creeled in all categories. Otter had the highest estimated effort , catch and harvest/hour. Fontinalis was second in all of these categories. The remaining ponds had less angler effort and harvest. Angler effort and harvest is likely to change annually based on the abundance of trout and if holdover trout are present. This is somewhat unpredictable based on the prey resources, winter severity and other factors that impact the overall survival and growth of the small fingerling brook trout stocked in each pond (Bass 2005). Holdover trout are a unique part of the WCF trout ponds and a large percentage (50%) of the fish harvested were considered age-1 or older trout (>9 inches).

Unfortunately, it is difficult to predict how often and which ponds will have age-1 trout. Similar to stocking success, a wide number of variables impact whether the trout over winter and grow to larger sizes.

The WCF trout ponds closest to the road access had the most fishing effort. However, Aurora pond (0.4 miles) had the lowest amount of effort and harvest even though it was a closer hike than Stride and Glide (0.7 miles). This demonstrates that anglers are willing to put in a hike if they think they can be more successful at one pond over another. In addition to hiking distance, anglers traveled a large distance on average from their residences to fish the WCF ponds (50.5 miles). This is a greater average travel distance than averages reported for put-take trout lakes in Barron and Polk counties (range: 4.1 – 42.1 miles;; Broadway 2023). Depending on the lake chosen, it appears that anglers are willing to travel to and hike into these lakes to catch put-grow-take brook trout.

Seasonal usage for the WCF trout ponds differs from most put-and-take trout fisheries in Wisconsin. The highest angler effort was documented in December, followed by October and January. This is contrary to most put-and-take fisheries which typically receive the most angling effort in May and June closest to gamefish season opener (Broadway 2022; Rowe et al. 2021). This trend likely has to do with the size at stocking. Small fingerlings are not catchable size at opener, being stocked at 2.3 inches; however, these fish reach 7-9 inches by late fall and holdover trout commonly exceed 14.0 inches (Bass 2005). Anglers have reported brook trout up to 17.0 inches. It appears anglers are targeting the first October cool down (when trout are becoming more active) then fishing the ponds through fall and the early ice period. The 2023-2024 season was also unique, due to record warm temperatures and low snowfall (NOAA 2023). This unique situation made the trout ponds more accessible longer than they may have been during a normal winter where heavy snowfall may limit access. Also, during a normal winter, dissolved oxygen levels typically drop and cause fish to become inactive and some lakes may even experience winterkill later in the winter. In 2023, trout may have been active for a longer period, extending the anglers ability to catch trout through the ice.

This survey and its results are somewhat limited by bias in our sampling design. For example, we were not able to quantify a survey specific non-reporting rate without employing the use of trail cameras. We intentionally chose not to deploy cameras due these small lakes having multiple access points for anglers. In addition, all of the WCF ponds are located entirely on public Washburn County Forest land, meaning our cameras would also capture images of hunters, hikers, foragers, etc., possibly creating potential issues with camera upkeep. We did get reports from other trout anglers of non-reporting and documented sled tracks in the snow to some ponds

without a questionnaire completed. These observations led us to believe that the usage of the 9.07 anglers per 1 completed creel questionnaire non-reporting rate was a fair application. Though as stated by Broadway (2023), it would be better to have a more accurate measurement of non-reporting for these fisheries. It would have also been beneficial to include a question on the number of anglers on the questionnaire. There were multiple questionnaires where multiple anglers were represented for one creel questionnaire. There may have been more instances of this that went unreported. In summary, the overall participation in this passive creel survey was positive and allowed us to capture data that had not been previously collected for the WCF trout ponds.

This passive creel survey allowed us to learn more about the usage of the WCF trout ponds for low cost and effort. We documented that all five ponds were angled during the five-month study period. Angler effort and harvest were both high. In addition, anglers traveled a large average distance and would hike to fish the WCF trout ponds. This survey provides further support and evidence to continue these trout stockings at their current rates.

Recommendations:

1) The WCF trout ponds were heavily used by anglers. Annual trout stockings should continue at the current rates. This product has proven success and is much cheaper than catchable size trout to produce.
2) A liberal bag limit should continue. A no-minimum length limit and 5-fish bag limit allow anglers the ability to fully utilize the stocked trout.
3) This survey should be replicated in 2033. If possible, a different subset of trout ponds should be used. This recommendation would also match the current trout stocking guidance (FM Handbook 620).

Acknowledgements

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Appendix

Appendix Table 1. Washburn County Forest trout ponds stocked with small fingerling brook trout in 2023.

Pond Name	Strain	Number stocked	Average size (inch)
PRICELESS	ST. CROIX DOMESTIC	600	2.3
SOLAR	ST. CROIX DOMESTIC	600	2.3
POWERLINE	ST. CROIX DOMESTIC	750	2.3
OTTER	ST. CROIX DOMESTIC	800	2.3
KRILL	ST. CROIX DOMESTIC	800	2.3
ALEVIN	ST. CROIX DOMESTIC	450	2.3
STICKS	ST. CROIX DOMESTIC	450	2.3
BIG STICKS	ST. CROIX DOMESTIC	700	2.3
HAM	ST. CROIX DOMESTIC	800	2.3
FONTINALIS	ST. CROIX DOMESTIC	600	2.3
AURORA	ST. CROIX DOMESTIC	600	2.3
LITTLE TELSTAR	ST. CROIX DOMESTIC	750	2.3
STRIDE & GLIDE	ST. CROIX DOMESTIC	900	2.3
ALPINE	ST. CROIX DOMESTIC	450	2.3
SHADOW	ST. CROIX DOMESTIC	700	2.3