

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Gordon Creek Creel Survey

Dane and Iowa Counties, Wisconsin 2022



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EXECUTIVE SUMMARY

Creel surveys are used by Wisconsin Department of Natural Resources (DNR) staff to estimate a number of angler metrics. This survey was intended to evaluate participation in trout fishing by anglers on Gordon Creek in Wisconsin's Dane and Iowa counties, where we surveyed a twelve-mile section along Gordon Creek to estimate angler effort, catch, harvest and record various angler demographics and preferences.

Four different time periods were compared during this study: Early catch and release season (from April-early May), opening weekend (May 7-8), May (post-opening weekend) and June. Angler effort was highest during the opening weekend compared to all other time periods during this study. Early catch and release season total effort (hours) was 650.1, opening weekend total effort (hours) was 153.5, May total effort (hours) was 467, and June total effort (hours) was 315.8. When comparing these time periods in terms of relative angler effort in hours/mile/day, opening weekend was highest at 6.34 compared to 2.09 during early catch and release season, 2.57 in May and 2.61 in June.

Overall, catch rates for trout were moderate while harvest rates were low on Gordon Creek. Opening weekend catch rates of brown trout were the lowest of the four time periods. The opening weekend catch rate was 1.03 brown trout per hour and 0.03 brook trout per hour. The early catch and release season catch rate was relatively high at 1.58 brown trout per hour compared to 0.006 brook trout per hour. May had the highest catch rates overall with anglers catching 1.73 brown trout per hour and 0.08 brook trout per hour. June catch rates declined with 1.25 brown trout per hour caught, compared to 0 brook trout per hour. Overall harvest rates for trout were very low, and brown trout were the only species harvested based on angler interviews during this creel survey. Opening weekend and May harvest rates were identical with anglers harvesting 0.19 brown trout per hour. Harvest rates declined substantially in June, exhibiting a harvest rate of only 0.05 brown trout per hour.

Angler demographic and preference information was also gathered during interviews. The majority of anglers were male fly fisherman over the age of 35 that traveled less than 50 miles to fish Gordon Creek and reside in either Dane or Iowa counties. Most of these anglers did not have a preference on species of fish they preferred to catch, and most of the anglers did not plan to harvest fish. Overall, only 14% of anglers fishing planned on harvesting fish during this survey. The majority of anglers were also either very satisfied or satisfied with trout management both on Gordon Creek (84%) and in the greater southwestern Wisconsin region (89%).

INTRODUCTION

Creel surveys are used by Wisconsin Department of Natural Resources (DNR) staff to estimate a number of angler participation metrics. These can include parking area car counts, directed effort, catch, harvest and various angler demographics. The results of these surveys help staff determine how to better manage the resources by identifying needs such as regulation changes, stocking, improving habitat and angler access.

This survey was intended to evaluate participation by anglers on Gordon Creek in Dane and Iowa counties, Wisconsin. We evaluated a twelve-mile section along Gordon Creek to estimate angler effort, catch and harvest. We also asked questions about angler demographics, preferences and satisfaction.

Gordon Creek has excellent stream access due to nine road-stream crossings and approximately 10.3 miles of DNR and Dane County streambank easements. DNR streambank easements allow anglers to access the stream and traverse the land within 66 feet of the stream along each bank while the Dane County easements range anywhere between 16.5 and 66 feet.

OBJECTIVES

- 1) Estimate angler effort, catch and harvest on Gordon Creek during both early catch and release season and during the regulation harvest season.
- 2) Quantify angler demographics and preferences on Gordon Creek and for southwestern Wisconsin streams.

METHODS

Creel surveys were conducted along Gordon Creek from April 1 during the early catch and release season to June 15 into the harvest season. The opening date of trout harvest season began on May 7. We used the instantaneous count method with a stratified random sampling of different time periods to count vehicles and anglers. To assign creel shifts, all weekend days and a random selection of three out of five weekdays were selected. The time periods were randomly chosen for either morning or evening shifts.

Morning shifts began at 6 a.m., and evening shifts began at 2 p.m. Creel shifts were 6 hours in length. Instantaneous counts were made at the start of the shift and at each 2-hour interval after that until the conclusion of the shift. This created four-time blocks of 2 hours each for the instantaneous counts. Vehicles at known access points and along the route that were likely fishing were counted.

INTERVIEWS

Between the instantaneous counts, the creel clerk roamed the stream to conduct angler interviews. Potential anglers were interviewed, and those who were still fishing were given a business reply mail postcard and a pencil to record the rest of their trip and end time (Figure 1). This was done to increase the number of completed trip interviews.

We asked for the number of anglers per vehicle, length of time fishing, demographic information, catch and harvest data and six angler preference questions: 1) Do you prefer to catch a specific species of trout? 2) Do you intend to harvest any trout today? 3) What is the minimum size trout that you would keep for eating? 4) How satisfied are you with the trout management on Gordon Creek? 5) How satisfied are you with overall trout management in southwestern Wisconsin? 6) Why did you select this location to fish today?

DATA ANALYSIS

Fishing effort, catch, and harvest were estimated for four time periods: 1) Early catch and release season (April 1-May 6), 2) opening weekend (May 7-8), 3) May (May 9 - 31) and 4) June (1-15). Fishing effort for the opening weekend was calculated using the formula:

$$[N \sum (C_i T_i)] (A_{owed}) (OWED)$$

Where

N = Number of car counts possible per day

C = Mean number of cars present at each car count period

T = Time interval represented by each car count period, either 1 or 2 hours

S = Number of streams in the group

A_{owed} = Mean number of anglers per car on opening weekend

OWED = Number of days in opening weekend

Fishing effort for early catch a release season, the remainder of May post opening weekend and June were calculated using:

$$[N \sum (C_i T_i)] (A_{wd}) (WD) + [N \sum (C_i T_i)] (A_{we}) (WE)$$

Where

A_{wd} = Mean number of anglers per car on weekdays

A_{we} = Mean number of anglers per car on weekend days

WD = Number of weekdays in the period

WE = Number of weekend days in the period

For each time period, mean catch and harvest rates were calculated from anglers' interviews who had completed their trip or returned a postcard at the end of their

fishing trip. Trout catch and harvest were estimated by multiplying the mean species catch or harvest rate for that time period by the estimated effort for that period.

Trips per mile per day was also calculated as an estimation of effort. This was calculated by first taking the length of trips (hours)/completed interviews to estimate mean trip length. Total angler effort (hours)/mean trip length was then used to calculate the number of trips. Trips/mile/day was finally calculated by taking the number of trips divided by 12.1 (stream length surveyed) and the number of days during the creel period.

Demographics and angler preference questions were combined for all time periods and summarized for each stream group.

RESULTS

During this survey, we completed 52 creel shifts along Gordon Creek over the course of 11 weeks. All creel survey shifts were completed without any major issues or setbacks. We completed 216 angler interviews and handed out 142 postcards to anglers. In total, we received 64 postcard returns for a return rate of 45%.

EFFORT, CATCH AND HARVEST

Angler effort in total hours was high overall in April and early May during the catch and release season for trout compared to both May and June (Figure 2). Effort during April and early May during weekdays and weekends totaled 650.1 hours. May and June were both lower in comparison with 467 and 316 angler hours, respectively. Opening weekend in May was much lower; however, only two days were accounted for. These can't necessarily be compared similarly given that the number of creel and angling days between periods differed; therefore, we chose to standardize and use angler hours/mile/day to compare between creel periods. When using angler hours/mile/day, this translates to a much higher effort overall on opening weekend. Angler hours/mile/day was 6.34 during the opening weekend compared to 2.09 during the early catch and release season, 2.57 in May and 2.61 in June (Figure 2).

Early catch and release season included April and the first week in May up until the season opener on May 7. Total angler effort (hours) for both vehicle and walk-in anglers was 650.1 (Figure 3). Weekend angler hours made up 371 hours compared to 279 hours during the weekdays. When assessing the early season as angler hours/mile/day, this came out lower than the other periods at 2.09 hours/mile/day (Table 1; Figure 2). Angler trip times during the early season from completed trips and postcards averaged 2.95 hours, with a total of 165.13 hours based on 56 interviews. When calculating trips/mile/day, this came out to 0.52 (Figure 4).

Opening weekend (May 7-8) had a total effort (hours) of 153.5 (Figure 3). When comparing this as angler hours/mile/day, this translated to 6.34, much higher than any of the other time periods during the creel survey (Table 1; Figure 2). Angler trip times during the opening weekend averaged 2.75 hours, with a total of 63.27 hours based on 23 angler interviews. When calculating trips/mile/day, this came out to 2.2 (Figure 4).

During the month of May (excluding the first week and opening weekend) angler effort in hours totaled 467 (Figure 3). Two hundred sixty-five hours were logged during the weekends compared to 202 hours during the weekdays. Total effort in hours/mile/day totaled 2.57 (Table 1; Figure 2). This was the second-highest period overall during the study. Average trip times were longer in May compared to other time periods, averaging 3.39 hours per trip. Total hours fished was 94.98 based on 28 interviews conducted and when assessing trips/mile/day this came out to 0.49 (Figure 4).

June exhibited lower estimates of total effort (hours) compared to other months with a total of 315.8 angler hours (Figure 3). However, this time period was also shorter than the early catch and release season and May. 176.1 hours were logged during the weekends compared to 139.7 during the weekdays. When calculating hours/mile/day, this came out to 2.61 (Table 1; Figure 2). Average angler trip lasted 3.21 hours with a total of 73.88 hours fished based on 23 interviews conducted. Trips/mile/day was estimated at 0.55 during June (Figure 4).

Opening weekend catch rates of brown trout were the lowest of the four time periods (Table 2). The opening weekend catch rate was 1.03 brown trout per hour and 0.03 brook trout per hour. A few anglers also mentioned catching rainbow trout. This is possible, although rather likely a case of misidentification given that rainbow trout have not been stocked since 2019 in Gordon Creek, and the older stocked brood fish don't tend to survive long and carry over from year to year. Early catch and release season catch rates were relatively high at 1.58 brown trout per hour compared to 0.006 brook trout per hour. May had the highest catch rates overall, with anglers catching 1.73 brown trout per hour and 0.08 brook trout per hour. As expected, June catch rates declined, with 1.25 brown trout per hour caught, compared to zero brook trout per hour.

Overall harvest rates for trout were very low (Table 2). Brown trout were the only species harvested based on angler interviews during this creel survey. Opening weekend and May harvest rates were identical, with anglers harvesting 0.19 brown trout per hour (Table 3). Harvest rates declined substantially in June, exhibiting a harvest rate of only 0.05 brown trout per hour.

ANGLER DEMOGRAPHICS AND PREFERENCES

Overall, 216 interviews were conducted during the creel survey of Gordon Creek in 2022. Of these interviews conducted, 204 (94%) were male participants, compared to 12 females (6%). The majority of the anglers surveyed were between 36 and 60 years of age, accounting for 38% of all surveyed (Figure 5). This was followed by anglers in the 60+ category at 33%. Anglers from 18 to 35 years old accounted for 27% of the interviewees, while the remaining category of anglers less than 18 years old accounted for only 2%.

The distance traveled by anglers to fish Gordon Creek varied, although the difference between each of the groups was minimal (Figure 6). Between the three groups, 0-25, 26-50, and >50 miles traveled, the difference was less than 3% overall. Thirty-three percent of anglers traveled less than 25 miles, 35% traveled between 26 and 50 miles, and 32% of anglers traveled greater than 50 miles. These anglers also came from numerous counties throughout Wisconsin as well as other states. Fifteen different counties from Wisconsin were recorded during the creel survey. Non-residents accounted for 35 of the interviews and included anglers from Arizona, California, Florida, Illinois, Minnesota and North Carolina.

Fly fishing was by far the most utilized method for fishing Gordon Creek. Fly anglers accounted for 70% of the overall bait type used during this survey. This was followed by artificial bait (spinners, jigs, etc.) at 19% and worms at 11% (Figure 7). Preference for species of fish varied overall (Figure 8). The preference for “none” dominated at 52%. This was followed by brook trout at 21%, brown trout at 20% and rainbow trout at 4%. A preference for a combination of those species made up the other 3% of responses. The minimum size of preferred harvest also varied widely from 7 inches all the way up to 20 inches (Figure 9), although the majority of responses came in at the 8-12-inch range, making up 59% of responses. Sixty individuals insisted that they would never harvest a fish.

During this survey, creel clerks also asked about general management satisfaction of Gordon Creek as well as southwestern Wisconsin. Overall, anglers were very satisfied with the management of the trout resources. On Gordon Creek specifically, 54% of anglers were very satisfied, 30% were satisfied, 15% were neutral, 1% were dissatisfied, and no anglers were very dissatisfied (Figure 10). For overall management in southwestern Wisconsin, 60% of anglers were very satisfied, 29% were satisfied, 10% were neutral, 1% were dissatisfied, and no anglers were very dissatisfied (Figure 11).

DISCUSSION

OBJECTIVE 1: Estimate angler effort, catch and harvest on Gordon Creek during both early catch and release season and during the regulation harvest season.

Gordon Creek is largely known to be a productive trout fishery in southwestern Wisconsin. Given that this stream is close to Madison, fishing pressure has increased over the years with the extensive watershed and in-stream habitat restoration projects, resulting in increased trout population levels. Overall, Gordon Creek has approximately 10.3 miles of public DNR and Dane County streambank easements throughout the watershed, which makes it an excellent choice for anglers targeting public waters.

In general, angler effort was moderate along Gordon Creek compared to other recent comparable creel surveys in Wisconsin. Opening weekend efforts exhibited significant increases compared to the other time periods during this study (Table 1). This corresponds to similar increases in opening weekend observed during other creel surveys such as the Rush River in 2022, but much lower than that of Big Green River in 2023. This increase in effort on opening weekend is interesting given that only 14% of anglers interviewed suggested that they would harvest trout during their trip. One reason we may have seen this increase is the fact that weather was pleasant and cooperative on both days of opening weekend, whereas if the weather was unfavorable, we may have seen less effort overall, given the short duration. Another likely reason we see this increase is the tradition of the annual weekend of both the fishing season opener for general inland lakes as well as the trout harvest season. So, even though anglers may not be intending to harvest fish, the “opening weekend” tradition is apparent along our streams in southwestern Wisconsin.

Beyond opening weekend, effort remained stable along Gordon Creek during April, May (post-harvest season) and early June. This is closely related to the many reasons anglers chose to fish this stream. In fact, 58% of anglers responded that the reason they chose to fish Gordon Creek was because it was either “close to home” or their “favorite spot.” This also corresponds well to the 68% of anglers who drove less than 50 miles to fish this stream. Which for many anglers that traveled from Dane County and the greater Madison area (74%), is close to home compared to other desirable fishing locations in the Driftless Area. Therefore, for Gordon Creek it seems that proximity to Dane County and the greater Madison area likely plays a role in the amount of fishing effort this stream endures.

The catch rate for anglers fishing Gordon Creek was similar to other previous creel surveys conducted by the DNR (Table 2). The early season catch rate was 1.6 trout per hour, opening weekend was 1.08 trout per hour and May and June were 1.81 and 1.25 trout per hour, respectively. These steady catch rates can be associated with the steady population levels observed in Gordon Creek. Over the years, adult brown trout in Gordon creek have been found at or above the median value for Driftless Area streams. These population levels can be attributed to good habitat and watershed conditions, leading to consistent recruitment and population levels over time. The apparent catch and release ethic seen may also play a role in the steady numbers of adults available for anglers to catch in Gordon Creek.

As expected, the harvest of trout was relatively low in Gordon Creek throughout the survey. Opening weekend and May were identical at 0.19 fish per hour harvested. This was lower than the average harvest rate of other Wisconsin creel surveys at 0.28 (opening weekend) and 0.31 (May) trout per hour harvested (Table 2). Once again, this low harvest rate was expected, given the largely catch and release ethic that is present in the trout fishing community. However, we still observed and interviewed harvest-oriented anglers that tend to use live bait and harvest a few fish, which can be sustainable for moderate to high abundance populations such as Gordon Creek.

OBJECTIVE 2: Quantify angler demographics and preferences on Gordon Creek and for southwestern Wisconsin streams.

Of all the anglers interviewed, 94% of anglers were men, most of which were over the age of 35, similar to the creel survey conducted by Rowe et al. 2017. Only 13% of anglers interviewed were from out of state, with 87% residing in Wisconsin. Not surprisingly, Dane County represented the largest proportion of anglers, with 74% of anglers residing in the county. Those fishing Gordon Creek traveled from a variety of locations to fish with an overwhelming amount (68%) travelling less than 50 miles.

When asked about which species of fish anglers preferred, the overwhelming response was “no preference.” This goes to show that the typical angler fishing Gordon Creek is just out to enjoy fishing and catch whichever species bites. One interesting fact to note is that brook trout came in second at 21% as anglers preferred species, even though brown trout is the dominant species in Gordon Creek with very few brook trout, which are only found in the upper reaches and it’s tributary German Valley Creek. Similarly, during the Fitchburg creel survey in 2017, 76% of anglers responded that they had no preference for a specific species, showing that many of our anglers are just out to catch trout in general rather than being species-specific anglers.

When asked about bait/tackle, fly fishermen were the most represented group, with 70% of anglers fly fishing. This makes sense, given the local fly-fishing community and the attraction for many anglers in the Driftless Area. This was very different from the creel survey by Rowe et al. in 2017, where they found only 8% of anglers were utilizing fly fishing as their main method. The main difference between these two creels is that those streams were mainly stocked with put-and-take domestic fish, and harvest was one of the main reasons anglers were fishing those streams. The use of live bait on Gordon Creek (12%) represents a similar amount of anglers that had the intention to harvest (14%). Once again, this was much lower than anglers in the Fitchburg (60%) and Poynette (77%) groups who were fishing with the intent to harvest trout. When asked about the minimum size acceptable for harvest, 33% of anglers did not give a size but rather said they would never harvest a trout. For those that selected a size, 10 inches and 12 inches were the main length categories, making

up 29% of responses. Overall, 88% of responses were between 8 and 12 inches, which also reflects our county base regulation of three trout over 8 inches. Suggesting that even if our minimum length limit for trout was lifted, anglers would self-regulate based on size by only harvesting fish greater than those lengths.

Anglers were also asked about their satisfaction with trout management both in Gordon Creek and in the greater southwestern Wisconsin area. 84% of anglers were either very satisfied or satisfied with management on Gordon Creek, and 89% were either very satisfied or satisfied with trout management overall in southwestern Wisconsin, which is much higher satisfaction than was previously documented by Petchenik et al. in 2014.

This closely aligns with the DNR's two major goals in the Wisconsin Inland Trout Management Plan. Goal 1 is to protect, enhance and restore sustainable cold-water aquatic habitats and ecosystems. Gordon Creek has had numerous restorations conducted throughout the stream, increasing both riparian and instream habitat. Goal 2 refers to protecting, developing, enhancing and restoring trout populations and trout angling opportunities for the diverse preferences and needs of our participants. Gordon Creek is a great example, with ample public access provided by the streambank easement program and the ability for the DNR to conduct restorations along these lands. Over time, the trout fishery has also been improved through these enhanced land use practices and habitat protections. This, in turn, leads to higher natural reproduction and recruitment to the fishery, which also leads to more favorable catch rates and higher angler participation and satisfaction. Overall, this gives us confidence knowing that our current management strategies are benefitting our trout populations in Gordon Creek and throughout southwestern Wisconsin.

Table 1. Comparison of angler effort in previous Wisconsin trout creel surveys. Average, minimum and maximum values exclude current Gordon Creek study.

Creel Survey	Early Season (hours/mile/day)	Opening Weekend (hours/mile/day)	May (hours/mile/day)	June (hours/mile/day)
Gordon Creek 2022	2.09	6.34	2.57	2.61
Big Green River 2023	8.4	30.7	9	5.26
West Fork Kickapoo 2022	2.7	15.3	6.3	
Rush River 2022		6.98	1.77	1.82
Poynette area streams 2018		4.9	2.1	1
Fitchburg area streams 2018		4.9	0.9	0.2
Bohemian Valley 2016			6.4	
Timber Coulee 2016			8.7	
White River 2004		18.46	3	
White River 2005		13.97	5.8	
White River 2014		3.24	1.2	
White River 2015		11.97	1.4	
Average	5.55	12.27	4.23	2.07
Min	2.7	3.24	0.9	0.2
Max	8.4	30.7	9	5.26

Table 2. Comparison of angler catch and harvest rates in previous Wisconsin trout creel surveys. Catch and harvest rates are for all species combined. Average, minimum and maximum values exclude current Gordon Creek study.

Creel Survey	Early Season Catch Rate	Opening Weekend Catch Rate	May Catch Rate	June Catch Rate	Opening Weekend Harvest Rate	May Harvest Rate	June Harvest Rate
Gordon Creek 2022	1.6	1.08	1.81	1.25	0.19	0.19	0.05
Big Green River 2023	1.83	1.06	1.57	1.28	0.23	0.17	0.15
West Fork Kickapoo 2022	1.82	2.34	2.08		0.46	0.07	
Rush River 2022		1.48	2.03	2.62	0	0.17	0.36
Poynette 2018		1.25	2.21	1.83	0.64	0.82	0.42
Fitchburg 2018		1.25	1.95	2.29	0.42	1.17	0
Bohemian Valley 2016			1.3			0.15	
Timber Coulee 2016			1.5			0	
White River 2004		0.45	0.82		0.23	0.35	
White River 2005		0.53	0.77		0.35	0.26	
White River 2014		0.03	0.14		0.01	0.05	
White River 2015		0.23	0.58		0.14	0.15	
Average	1.83	0.96	1.36	2.01	0.28	0.31	0.23
Min	1.82	0.03	0.14	1.28	0	0	0
Max	1.83	2.34	2.21	2.62	0.64	1.17	0.42

Table 3. Catch and harvest rates for specific species during the Gordon Creek creel survey.

	Brown Trout Catch Rate (Trout/Hour)	Brown Trout Harvest Rate (Trout/Hour)	Brook Trout Catch Rate (Trout/Hour)	Brook Trout Harvest Rate (Trout/Hour)	Number of Observations (Completed Interviews)
Early Catch and Release					
Season	1.58	0	0.006	0	56
Opening Weekend	1.03	0.19	0.03	0	23
May	1.73	0.19	0.08	0	28
June	1.25	0.05	0	0	23

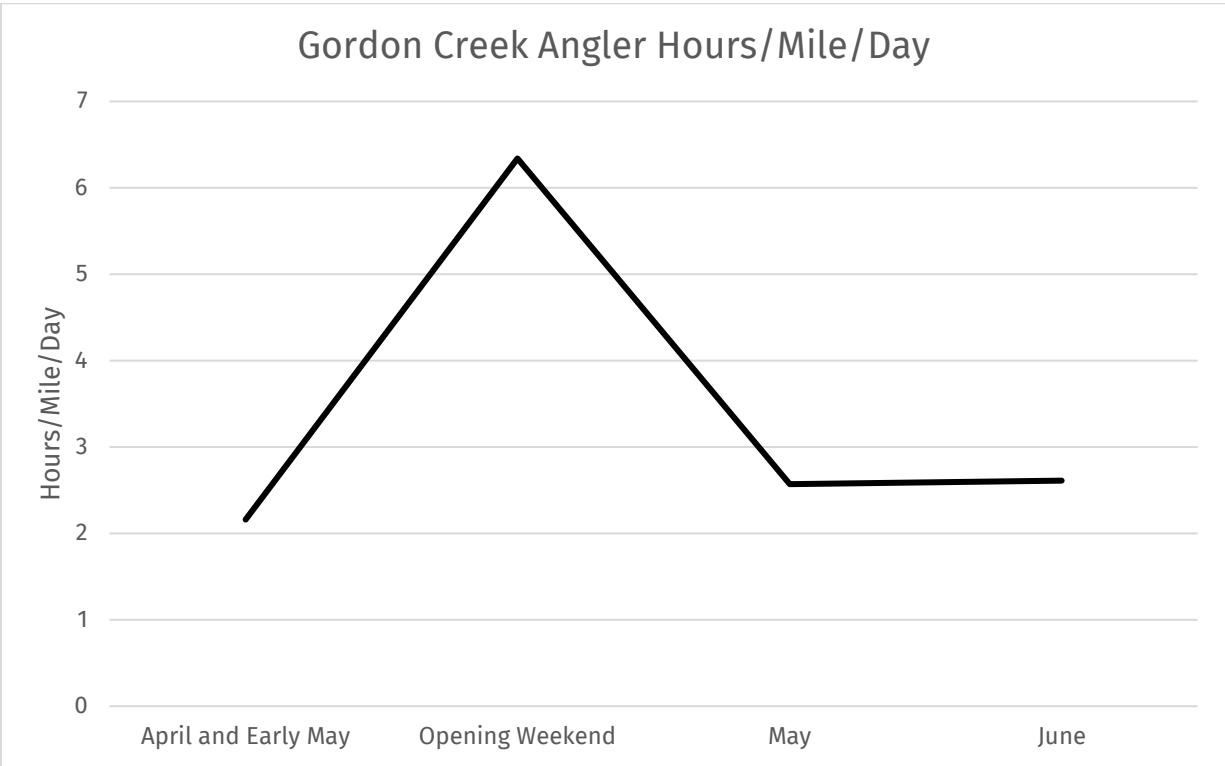


Figure 2. Angler effort in hours per mile per day calculated during the four time periods on Gordon Creek.

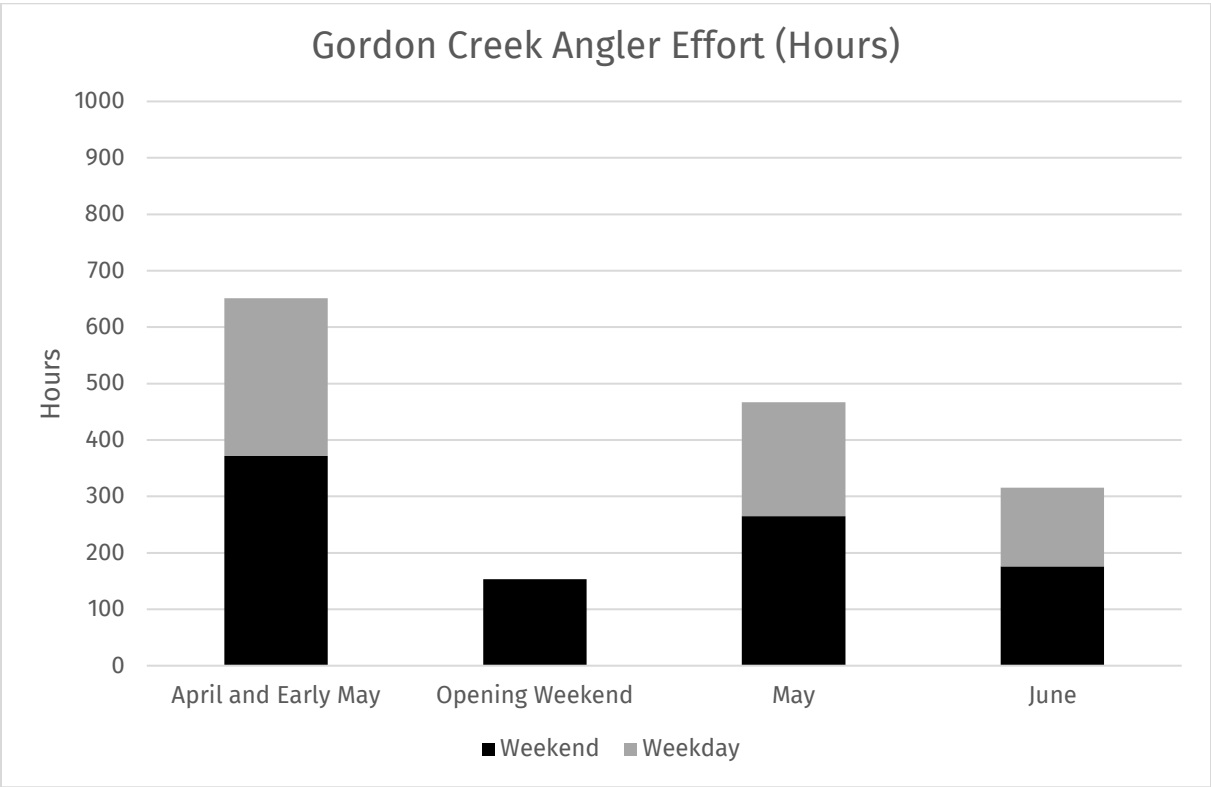


Figure 3. Total estimated angler effort (hours) calculated during the four time periods on Gordon Creek.

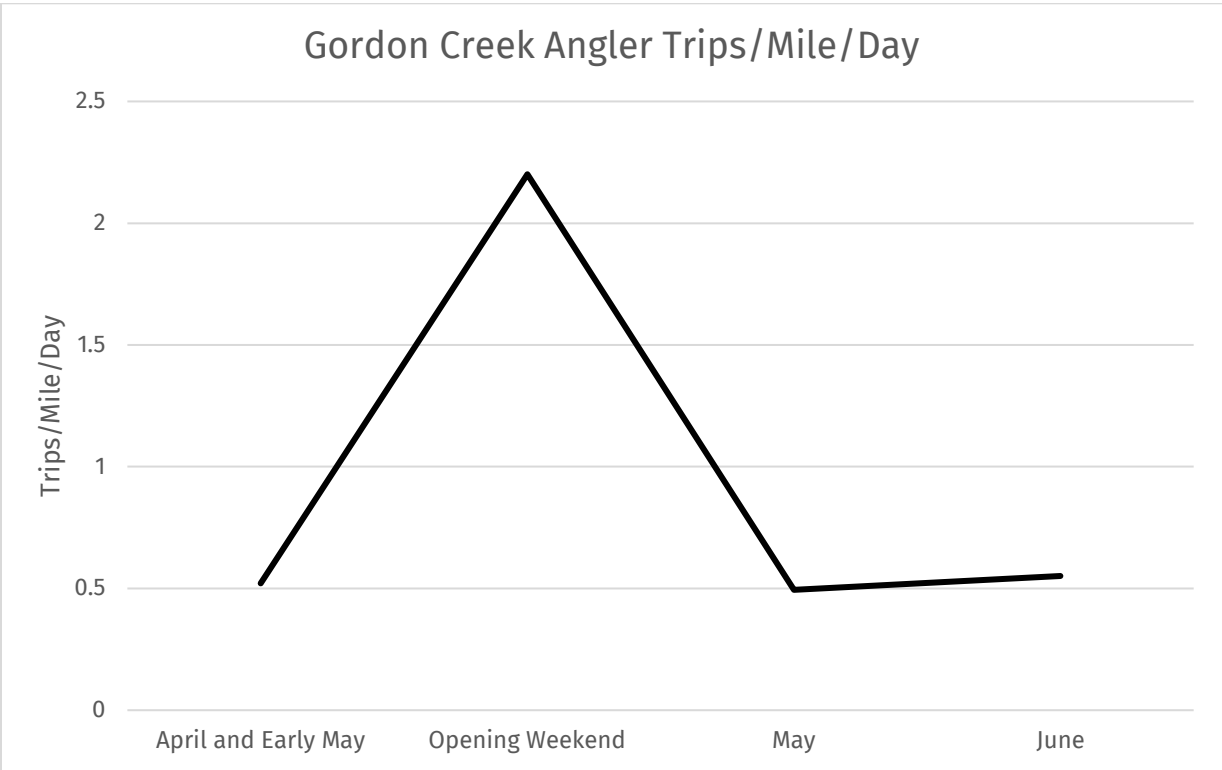


Figure 4. Angler effort in trips per mile per day calculated during the four time periods on Gordon Creek.

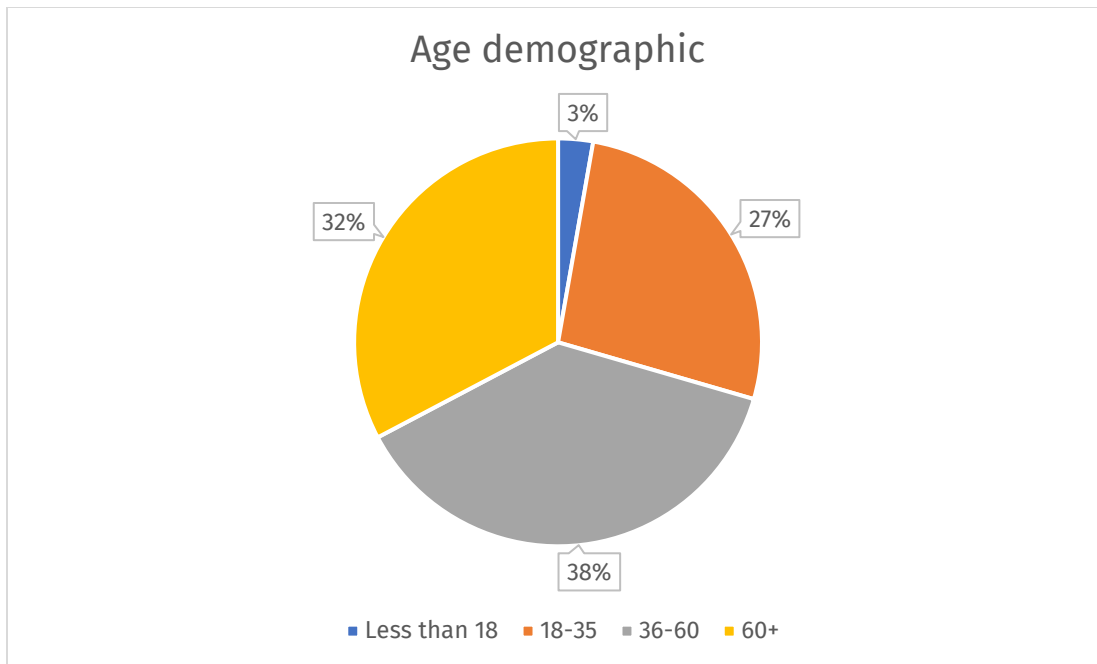


Figure 5. Percentage of age groups of anglers interviewed during the creel survey in 2022.

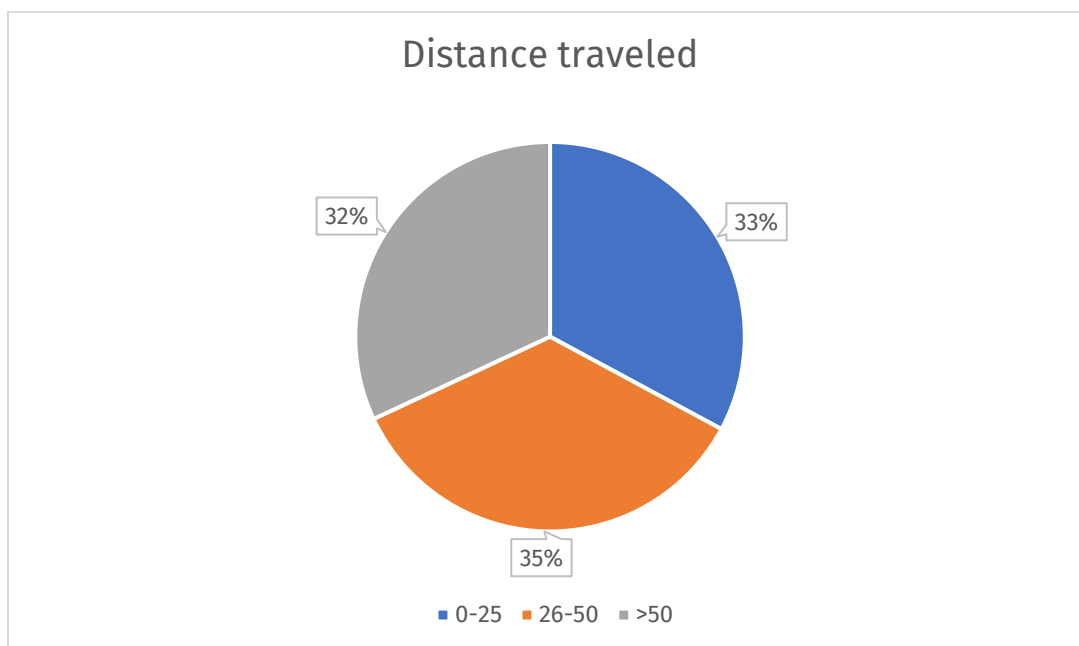


Figure 6. Percentage of distance traveled in miles to fish during the creel survey in 2022.

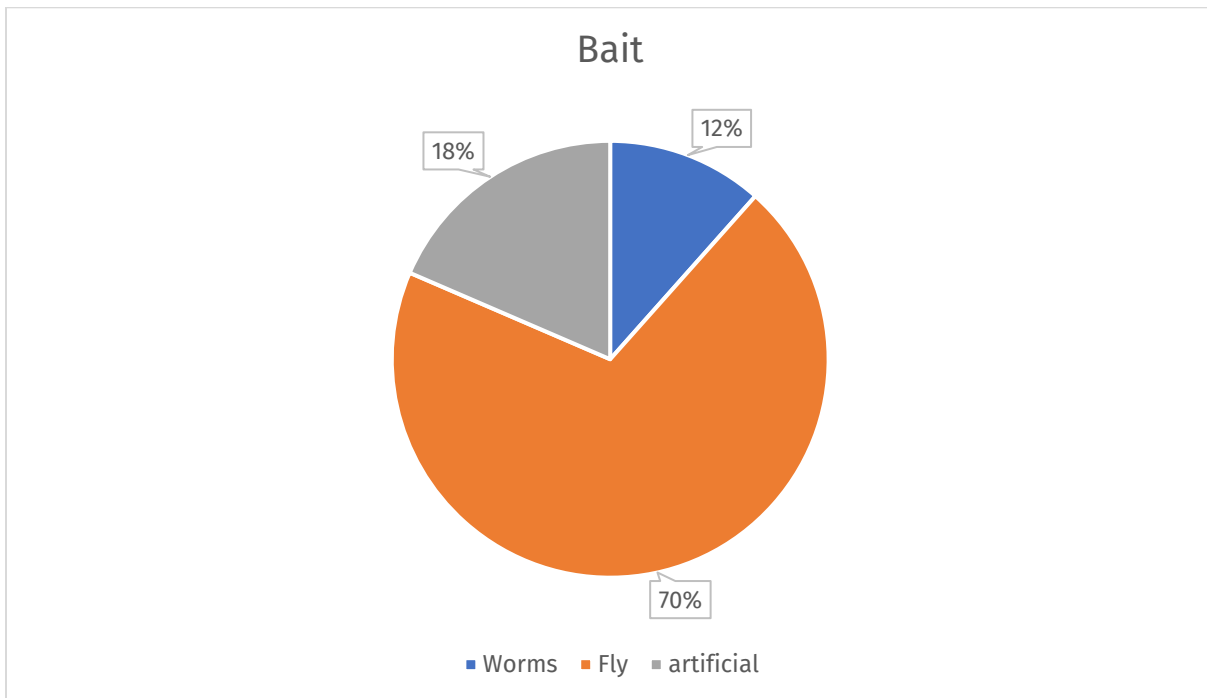


Figure 7. Percentage of baits used while fishing during creel survey in 2022.

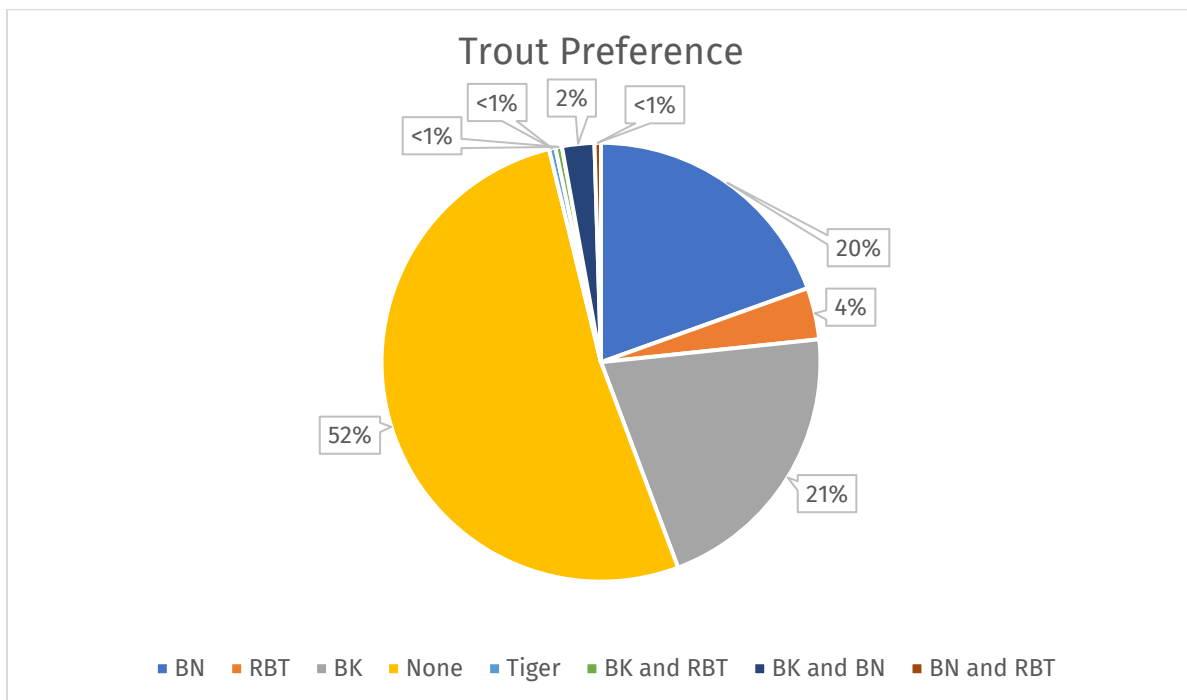


Figure 8. Angler responses for preference of specific trout species during creel survey in 2022.

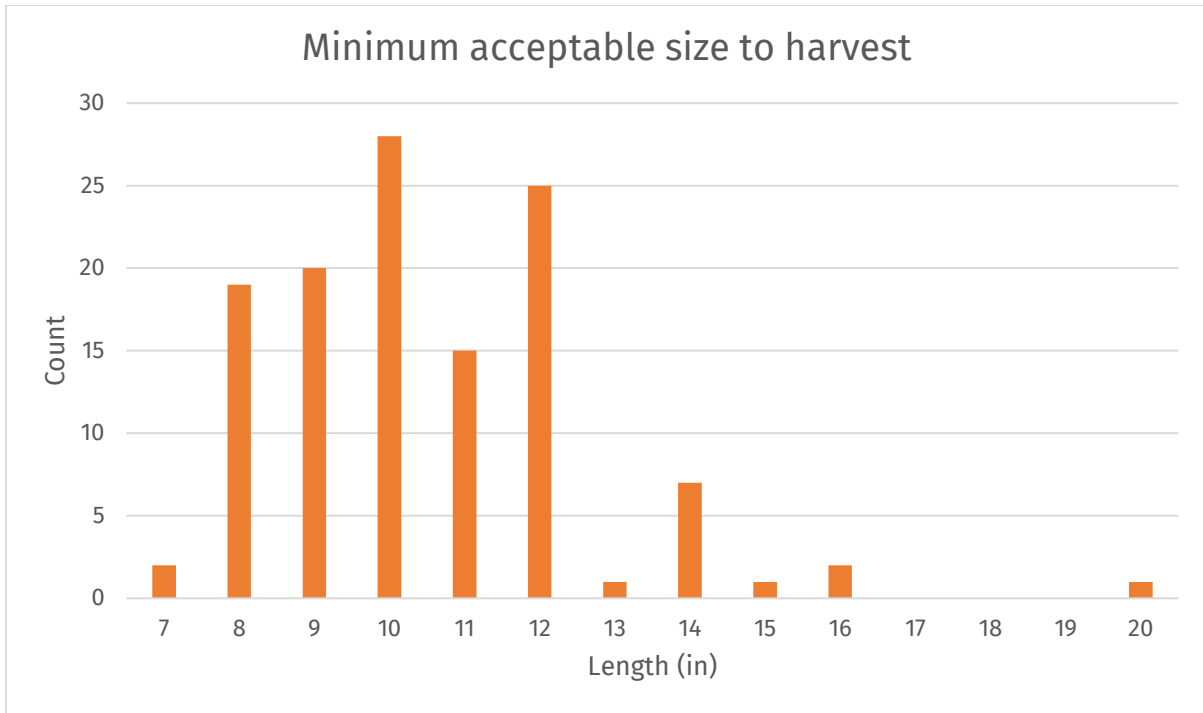


Figure 9. Angler preference for minimum length for harvesting trout during creel survey in 2022.

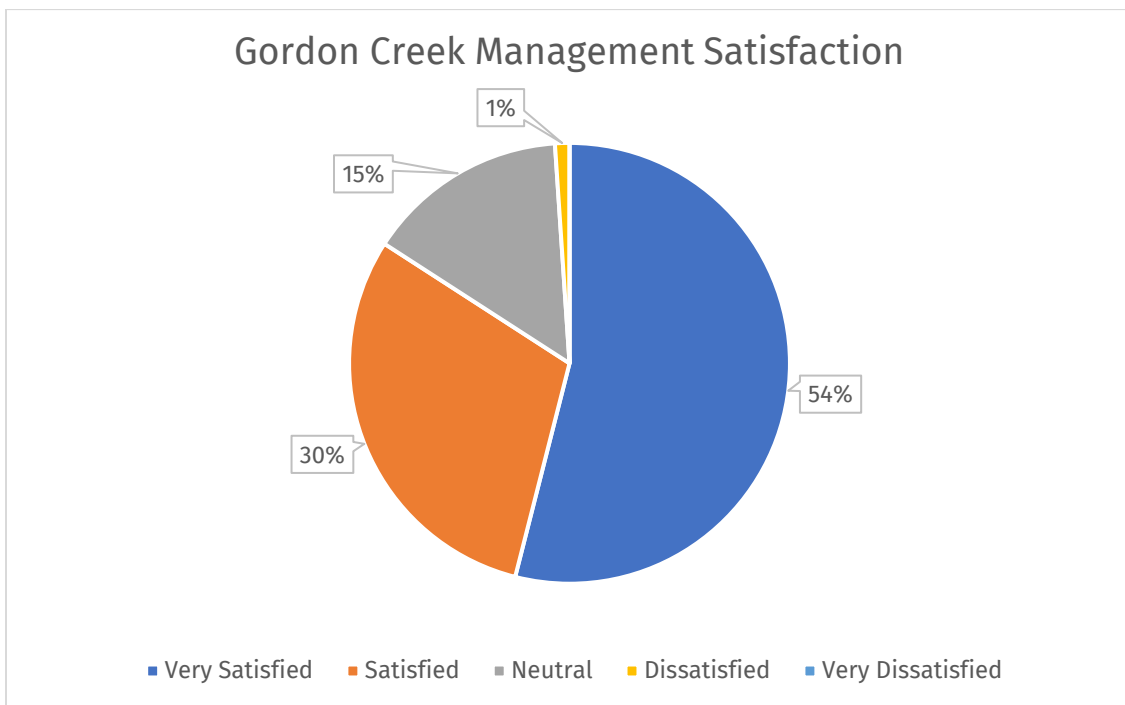


Figure 10. Angler responses on satisfaction level of fisheries management on Gordon Creek.

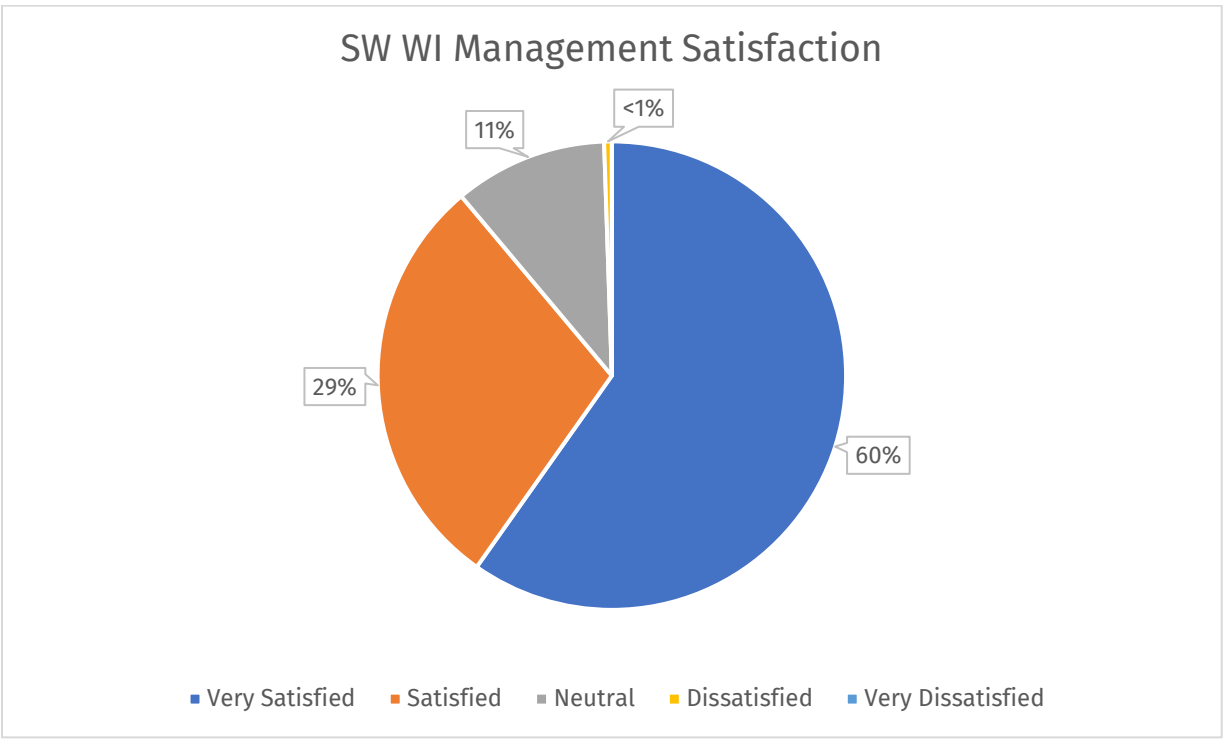


Figure 11. Angler responses on satisfaction level of fisheries management in southwestern (SW) Wisconsin.