A 2021 Survey of Iowa Trout Anglers

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Cover photo: Fly fishing on Trout Run, Winneshiek County, by Larry Reis

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Executive Summary

The Iowa Department of Natural Resources conducted a survey of trout anglers in 2021 to assess participation, preferences, and trends in the state's trout program. This survey is part of a long-term data collection effort, with similar surveys conducted every five years since 1975. The 2021 survey, which collected data from 3,596 resident and 447 non-resident anglers, found that the Iowa Trout Program continues to be successful and popular, with a record number of angler trips despite a slight decrease in overall trout stamp sales from the previous year.

Key findings:

- **Angler Demographics and Participation:** A total of 52,490 trout stamps were sold in 2021, the second-highest number on record. The average age of anglers was 45.4 years, and males continued to make up the majority of trout stamp purchasers (82.2%). Anglers spent an estimated 487,409 days fishing and made a record-high 722,578 total trips to the state's trout fisheries. While the average number of trips per angler (13.8) was slightly lower than the long-term average.

- **Fishery Preferences:** The survey revealed varying levels of use across different fishery types. While catchable-stocked streams saw a slight decrease in rank and trip numbers, they still accounted for 19 of the top 20 most visited fisheries. In contrast, restrictive-regulation streams and put-and-grow streams saw an increase in their average rank and trip numbers, a possible reflection of changing angler preferences during the COVID-19 pandemic. Community trout fisheries, located in urban areas, continue to be popular, with a record 35% of trout anglers purchasing a trout stamp specifically for those fisheries.

- **Non-Resident Participation:** Non-resident anglers accounted for 12.5% of all trout stamp sales in 2021, the highest percentage ever recorded. Minnesota, Illinois, and Wisconsin residents made up the majority of non-resident anglers, demonstrating the regional appeal of Iowa's trout program.

- **Importance of coldwater hatcheries:** Catching trout is important to trout anglers and was the third most important attribute of Iowa trout fisheries according to anglers surveyed. The size of trout caught was also important to anglers. In addition to providing catchable-sized trout for stocking into streams and community trout fisheries, Iowa’s coldwater hatcheries raise fingerling Brook Trout that are stocked as part of Iowa Brook Trout restoration efforts. Iowa coldwater hatcheries remain an important part of the Iowa Trout Program.

- **Value of wild places:** Trout anglers prefer wilderness areas with few other anglers. Iowa Trout Program staff should continue to work towards expanding public fishing access to coldwater streams through the Iowa Water Quality and Angler Access Program easements or fee title acquisition.

The data from the 2021 survey provide valuable insights for fisheries managers to continue adapting the program to meet the evolving desires of anglers while balancing stocking efforts with the promotion and management of wild trout populations and community trout fishing opportunities.

Suggested citation format, American Fisheries Society Style Guide:

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Introduction

The Iowa Department of Natural Resources' Trout Program has been stocking Iowa's coldwater streams with trout since the first Brook Trout were stocked in 1875 (Kirby et al. 2020). Since the 1940s, frequent stockings of catchable-size trout (put-and-take) have dominated Iowa's Trout Program. Today, 50 streams still receive catchable-stocked Rainbow Trout. Fingerling trout stockings have also been an important part of the Iowa Trout Program. In the 1960s, fingerling Brown Trout were stocked into select private streams to provide limited pressure, trophy fisheries (put-and-grow streams) where anglers had the opportunity to catch stream-reared trout and an occasional trophy-sized trout. Fisheries were maintained by stockings, with little to no natural reproduction documented. The recent proliferation of naturally reproducing Brown Trout in Iowa streams has greatly reduced the need for continued widespread stocking. Since those original 1875 stockings, Brook Trout have remained an important part of Iowa's Trout Program. Historically, Brook Trout were stocked as both fingerlings and catchable-size trout. Today, fingerling Brook Trout are stocked as part of Iowa's Brook Trout restoration efforts. All three trout species remain an important part of Iowa's Trout Program.

In the past thirty years, the state's trout fisheries have undergone significant changes with many streams developing self-sustaining populations of wild trout. Forty years ago, less than 10 streams had Brown Trout populations supported solely by natural reproduction; however, that number has increased as a result of better trout genetics, improved instream habitat and water quality, and best management practices in watersheds. Seventy-five streams supported some level of Brown Trout reproduction in 2021, providing anglers with increased opportunities to catch truly wild trout in Iowa. Levels of Brook Trout reproduction have also increased, thanks to recent restoration efforts. Only one stream in Iowa was known to have wild Brook Trout prior to 1995. Since then, expanded fingerling stockings have established 20 streams with some level of Brook Trout reproduction by 2021. As restoration stockings continue, the number of streams supporting wild Brook Trout fisheries is also expected to increase. The expansion of truly wild Brook and Brown Trout fisheries has diminished the importance of Iowa's put-and-grow program, as the need for continued fingerling stockings was drastically reduced. In 2021, only 20,750 fingerling Brown Trout and 22,500 fingerling Rainbow Trout were requested for put-and-grow stream stockings.

Restrictive regulations were implemented on some trout fisheries in the late 1970s to add diversity to the program and to meet the desires of a growing number of anglers whose emphasis was on catching quality-size or large numbers of trout rather than harvesting fish. Experimental catch-and-release trout fisheries were established in the 1990s with three main objectives: 1) to protect the growing number of wild, self-sustaining trout populations; 2) improve catch rates for wild fish by increasing the trout density in wild populations; 3) and provide additional opportunities for catching trophy-size trout. Currently, Iowa has 9 streams with restrictive regulations.

Winter trout fisheries were initiated in the 1980s when small, warm-water, urban lakes were stocked with trout to provide ice fishing opportunities for urban anglers. The program quickly became popular among anglers in Iowa's urban centers. In 2016, the urban trout program was renamed the Community Trout Fishing Program; stockings were expanded to 18 fisheries in 2021 in an effort to promote fishing and recruit and retain anglers. The program was also expanded to two stockings per location with one in the fall/winter and one in the winter/spring season. Stockings only occur when water temperatures are 60°F or lower and allow for angling during open water and through the ice.

Effective and efficient management of Iowa's Trout Program relies on a combination of sound biological data as well as an understanding of trout anglers and their preferences. It is important to be aware of angler's attitudes to ensure a close match between types of trout fisheries provided and angler's use and demand for those types of fisheries. It is also important to assess user satisfaction with the program as fisheries managers work to provide a variety of trout fishing opportunities through stocking, restrictive regulations, and wild populations.

A survey of Iowa trout angler activities and preferences has been conducted every five years since 1975. Surveys were conducted via telephone in 1975, 1980, 1986, 1991, 1996 and 2001 (Moeller 1976, 1987, 1992, 1997, 2002; Paragamian 1983). The 2006 survey was redesigned and completed as a mail survey (Osterkamp and Kopaska 2007). Beginning in 2011, select trout fee (hereafter "trout stamp") purchasers (n=10,000) were sent a postcard with a unique web address, that was their access code to an internet-based survey (Steuck and Kopaska 2013). Individuals who had not completed the internet survey within three weeks after the initial mailing were sent a follow-up mail survey that was an abbreviated version of the online survey. The 2021 survey was designed and implemented in a similar manner to the

2011 and 2016 surveys, except that some questions were changed (Appendix A). This report summarizes data collected during the 2021 survey, discusses survey results, and identifies trends in trout fishing activities since 1975. Collectively, these surveys provide fishery managers long-term data on angler use, habits, and preferences that are useful in determining goals and best practices for existing and newly developed fisheries.

Study Area

The 2021 survey of Iowa trout anglers collected information concerning 102 catchable-stocked, put-and-grow, naturally reproducing, restrictive regulation, and community trout fisheries in the Iowa. These fisheries, excluding put-and-grow streams, are either: 1) owned by a public agency and open to public fishing, 2) on private lands with permanent public access provided through formal Iowa Water Quality and Angler Access Program (AAP) easements or 3) provide public access on private lands through informal "handshake" agreements with landowners to allow the public to fish without expressed permission. Put-and-grow streams are primarily on private land and anglers must have permission from the landowner each time they fish on that private property. Historically, the Iowa DNR only developed put-and-grow fisheries on streams where when asked, landowners were willing to allow anglers access to fish.

Methods and Procedures

A subsample of anglers that purchased an Iowa trout stamp in 2021 was selected using a stratified random design. Survey recipients included resident anglers geographically stratified by Iowa's nine climatology zones, plus a group of nonresident trout anglers (Appendix B). Trout anglers were invited to participate following the same methods used in the 2016 trout angler survey (Steuck and Kopaska 2017). Briefly, of the 20,036 individuals initially selected to receive the survey, 803 were removed because the individual had opted out of receiving emails from the DNR or more than one individual used the same email address (e.g., parent and child). To initiate the survey, 18,667 emails were sent. The initial email resulted in 2,220 responses after 3 days, and reminder emails were sent to those that did not initially respond. One week later, another 3,210 responses had been received, and a seconder reminder email was sent to those who had not responded. After ten more days, another 3,714 responses had been received, and a third reminder email was sent to those who had not responded. After another week, we had received a total of 4,108 responses. Sixty-five responses were discarded due to incomplete answers or duplication, yielding 4,043 usable responses (22% response rate), exceeding the targeted sample size of 4,000 trout anglers.

Methodology used in 2006, 2011, 2016 and 2021 were similar but differed from earlier methodologies (1975-2001), when the sample of anglers were interviewed by telephone. The change in 2006 to a mail survey allowed a greater portion of the trout angler population to be sampled, and the 2011, 2016 and 2021 surveys were designed similarly. Appendix A shows a copy of the online survey form. Responses on completed interview forms were tabulated and data computations were performed using Access and Excel software. Variation in earlier surveys was presented as a ± 95 percent confidence interval calculated from all surveyed individuals (1975-2001) but was calculated from all districts combined for surveys beginning in 2006.

Results of the survey were calculated separately for each climatology group and expanded based on the number of trout anglers each survey response represented from that area. Overall results were then aggregated to derive total results for each question (i.e., means were summed and standard errors of the means (SEM) were squared, summed, square root taken, and result multiplied to determine ± 95 percent confidence intervals).

Results

A total of 52,490 trout stamps were sold in 2021 (Figure 1), second only to 55,496 sold in 2020. A total of 3,596 resident and 447 non-resident angler surveys were completed, representing a sample size of 7.7% of all trout stamp purchasers. Although the percentage of trout anglers represented was similar to 2016 (7.7%), it was substantially less than 2011 (10.6%) and 2006 (12.5%), indicating a consistent long-term decline in both response rate and representation of the total trout angler population (Figure 2). Response rate remained higher than all years previous to 2006 [2001 (1.32%), 1996 (1.61%), 1991 (1.43%), 1986 (1.07%), 1980 (1.75%) and 1975 (2.36%)], during which a substantially different methodology was used.

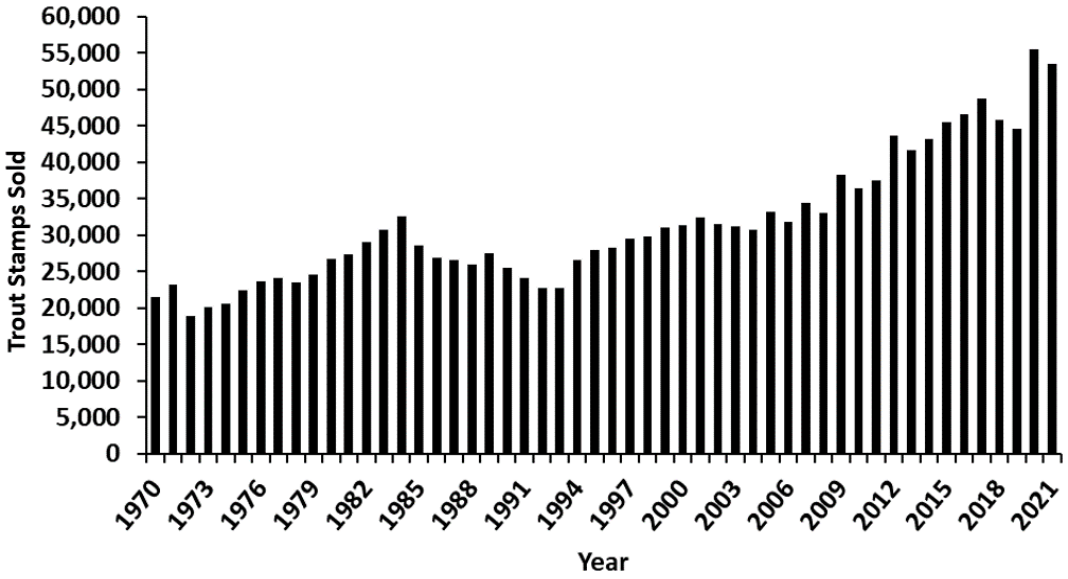

Figure 1. Number of trout stamps sold in Iowa from 1970-2021.

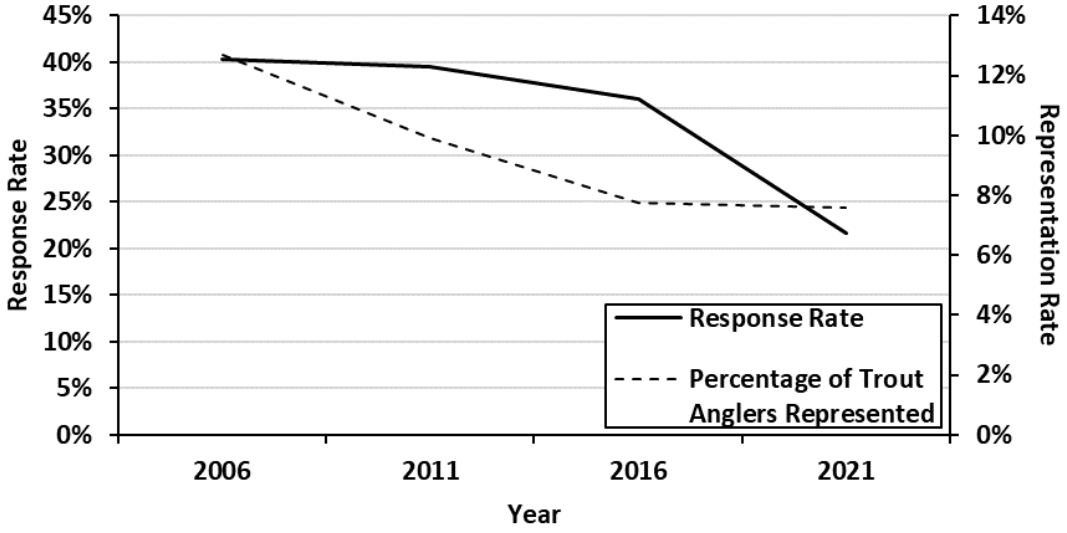

Figure 2. Response rate and percentage of trout anglers represented by survey respondents for Iowa Trout Angler Surveys from 2006-2021.

Anglers from every county in Iowa purchased a trout stamp in 2021, with more sold in eastern Iowa compared to western Iowa (Appendix B). Counties with more than 1,000 trout anglers in 2021 were: Polk - 5,148, Linn - 4,408, Dubuque - 2,988, Black Hawk - 2,873, Johnson - 2,026, Scott - 1,930, Winneshiek - 1,443, Story - 1,347, and Clayton - 1,070 (Appendix B). These nine counties accounted for 44% of all trout stamp purchasers. Data collected in this survey were expanded to the numbers presented herein based on the total number of 2021 trout stamps sold in the nine resident climatology groups plus the nonresident trout angler group.

Nonresident anglers purchased 6,550 trout stamps in 2021, or 12.5% of all trout stamps purchased, a higher percentage than any of the previous nine surveys. The previous highest percentage of nonresident trout stamps purchased was 10.8% in 2016. Non-resident anglers accounted for 11.1% of the 2021 respondents, which is slightly lower than the 12.7% of non-resident trout stamp purchasers. Anglers from 48 states and 4 foreign countries fished for trout in Iowa during 2021. Minnesota, Illinois and Wisconsin residents were the majority of non-resident trout anglers at 31%, 22% and 13% respectively, with the remaining 34% coming from other states or countries.

The mean age of all 2021 trout anglers was 45.4 years, similar to 2006 and 2011, but was 3.4 years younger than the average age of 48.8 years in 2001. The mean age of male and female trout anglers was similar, varying by only 2 years. Although gender distribution in Iowa is nearly equal, males (82.2%) continue to purchase a higher percentage of trout stamps in Iowa than female anglers (17.8%), a trend consistent across recent surveys. Females purchased trout stamps disproportionately to the number of females (50.3%) in Iowa's population according to the 2020 census (Table 1).

Table 1. Gender distribution and mean age by gender of licensed trout anglers in Iowa during 2021. Gender distribution of Iowa population is also shown for reference.

Gender	Percent of Trout Anglers	Mean Age	Percent of Iowa population*
Female	17.8	43.9	50.3
Male	82.2	45.7	49.7

*U.S. Census, 2020, https://data.census.gov

The percent of trout anglers in the 16-29 age range in 2021 (20%) was similar to the percentage in recent surveys (21-22%; 2006, 2011, 2016) and remains similar to the percentage of all Iowans in that age range (21%; Table 2). The percent of 2021 trout anglers in the 30-49 age group was similar to the 2011 and 2016 surveys, but remains below the high of 50% in 2001. The percent of trout anglers >65 years of age (14%) is slightly lower than the percent of Iowa population (15%) yet much greater than the percent of all Iowa anglers (4%; Table 2).

Licensed anglers spent an estimated 487,409 days (SD ± 35) trout fishing in 2021 (Table 3). This is the second-highest number of days trout fishing ever recorded in our survey, with only 2016 having slightly more days recorded trout fishing. Overall, anglers averaged 9.3 days trout fishing in 2021. This is down slightly compared to the last three surveys, but still above the all-time low average of 8.5 days/angler in the 2001 survey. Eight percent of licensed trout anglers never fished in 2011 (Table 4). Fifty-four percent fished five or fewer days in 2021, similar to 2011 and 2016, but up from 45% in 2006. Historically, the percent of anglers that fish 5 or fewer days per year has ranged from 43 to 60%. Seventy-eight percent of licensed trout anglers fished 1 to 15 days during 2011 and 14% fished more than 15 days.

An estimated 722,578 angler trips (SD ± 6,798) were made to the 102 different trout fisheries listed in the 2021 survey (Table 5). This is the highest number of angler trips in a given year ever recorded by this survey. The average number of trips per angler (13.8) in 2021 was lower than the overall mean number of trips per angler (16.5) from 1975 to 2016. Trips to community trout fisheries contributed 94,320 or 13.1% of the total trout angling trips (Figure 3). The five most visited stream fisheries included North Bear Creek, South Bear Creek, Bailey's Ford, Little Paint Creek and Bloody Run-Catchable (Table 6), with nearly 130,939 trips taken to these five streams alone (18% of total trips). North Bear was most popular and was fished by 20.1% of all trout anglers, South Bear by 14.5%, Bailey's Ford by 12.5%, Little Paint by 12.9% and Bloody Run-Catchable by 14.3% of all trout anglers. Several fisheries increased rank in 2021, with the largest increases including French Creek - RReg (+15), Bloody Run - RReg (+13), and Waterloo - RReg (+13). Some of the largest decreases in rank included Dalton Pond (-32), Bigalk (-22), South Cedar (-19), Wapsipinicon River (-19), Yellow River (-15), and Turtle Creek (-13), totaling a decrease of 22,420 angler trips. The decrease in the Yellow River, however, could be attributed to a new public access section of Yellow River, Forest Mills Road, being added to the 2021 survey. Combined, the Yellow River and Yellow River - Forest Mills Road had an estimated 14,308 angler trips in 2021 and would have ranked 13th overall, up from 28th in the 2016 survey.

Angler use in 2021 varied by fisheries management type (i.e., catchable stocked, restrictive regulation, put-and-grow). Catchable stocked streams decreased in rank an average of 4 (range: -12 to +10) compared to the 2016 survey; 66% of catchable stocked streams had a lower rank in 2021 compared to 2016 and averaged 882 fewer trips in 2021 (Table 6). Even with reduced trip numbers, 19 of the top 20 most visited trout fisheries in 2021 were in the catchable stocking program. Restrictive regulation stream ranks increased an average of 10 (range: +4 to +15) since 2016, with all restrictive regulation streams increasing in rank and averaging 2,645 more trips in 2021 compared to 2016. The rank of put-and-grow trout fisheries decreased an average of 2 (range: -15 to +9) but averaged 156 more trips per fishery in 2021. Put-and-grow streams generally have the least amount of angling pressure. In 2021, 9 of the 10 least-visited streams were part of the put-and-grow program and included Grimes Hollow, Miners, Monastery, Ozark Springs, Spring Falls, Teeple, Tributary to Tete de Morts, Turner, and Williams (Table 6). Little Turkey River (SE of Colesburg) in Delaware County was

removed from the 2021 survey due to loss of public access in that section of stream. Anglers gaining access to fish that section in 2021 were still able to report their trips using the Little Turkey R (Delaware, E of Colesburg) location.

The five streams with the highest number of angler trips per mile of stream open to public fishing were the same as in 2016 and 2011, with one exception (Table 6). Top streams included Baileys Ford (30,134 trips/mi), Trout Run (Winneshiek Co.) (16,666 trips/mi), Joy Springs (13,818 trips/mi), and Richmond Springs (13,313 trips/mi). Mill Creek (in Bellevue) was included in the 2021 survey for the first time, and had the third-highest trips per mile recorded (16,070) while Twin Springs dropped from the top five with only 7,994 trips/mi in 2021.

Many anglers fish a stream more than once in a season (Table 6). Turtle Creek has a dedicated group of anglers, making an average of 4.7 trips to the stream in 2021, the most of any catchable stocked stream. Turtle Creek has consistently been at the top of the list with anglers averaging 6.5 trips in 2016, 9.2 trips in 2011, and 9.0 trips in 2006. Waterloo Creek - RReg was the restrictive regulation stream having the highest mean trips per angler at 3.5 whereas the put-and-grow streams Tete de Morts and Turner had the highest overall mean trips per angler (5.0), although overall usage of these streams was very low (< 2,000 trips).

Table 2. Percent of trout anglers by age group, 1975-2021. NA = no data available

Age Group	Year										% of all Iowa anglers	% of Iowa population*
	1975	1980	1986	1991	1996	2001	2006	2011	2016	2021		
<16	NA	NA	NA	NA	NA	NA	2	2	2	1	NA	20
16-29	27	36	21	19	15	7	21	22	22	20	28	21
30-49	35	34	46	48	45	50	41	37	35	38	44	25
50-64	23	19	17	21	24	27	25	27	28	27	24	20
> 65	15	11	16	12	16	16	10	12	13	14	4	15

*U.S. Census, 2020, https://data.census.gov/

Table 3. Total annual trout fishing activity days by licensed trout anglers, 1975-2021.

	Year									
	1975	1980	1986	1991	1996	2001	2006	2011	2016	2021
Number of days	300,985	282,045	373,309	277,389	358,556	277,087	415,595	430,031	489,455	487,409
Number of trout stamps sold	22,354	26,712	26,819	24,059	28,222	32,466	31,842	37,512	46,604	52,490
Mean days fished/angler	13.5	10.6	13.9	11.5	12.7	8.5	13.1	11.5	10.5	9.3

Table 4. Percent of anglers trout fishing at various activity levels in survey years from 1975-2021.

Number of days trout fishing	Year									
	1975	1980	1986	1991	1996	2001	2006	2011	2016	2021
0	7	5	8	13	9	12	7	9	10	8
1-5	36	43	37	37	36	48	38	43	43	46
6-15	32	32	30	26	31	25	33	31	32	32
16-30	16	12	16	17	16	10	14	11	11	10
31-60	7	4	7	6	6	5	5	4	3	3
>60	2	4	2	1	2	<1	2	2	1	1

Table 5. Number of trout angler trips to the catchable, restrictive, and community trout fisheries in survey years from 1975-2021*.

	Year									
	1975	**1980**	**1986**	**1991**	**1996**	**2001**	**2006**	**2011**	**2016**	**2021**
Number of trips	363,145	386,054	521,845	485,186	528,885	373,320	527,673	582,851	720,611	722,578
Number of trout stamps sold	22,354	26,590	26,819	24,059	28,222	32,466	31,842	37,512	46,604	52,490
Trips per angler	16.2	14.5	19.5	20.2	18.7	11.5	16.6	15.5	16.3	13.8

*Data for 1975-2001 does not include trip information to the put-and-grow streams, 2006-2021 data includes put-and-grow streams.

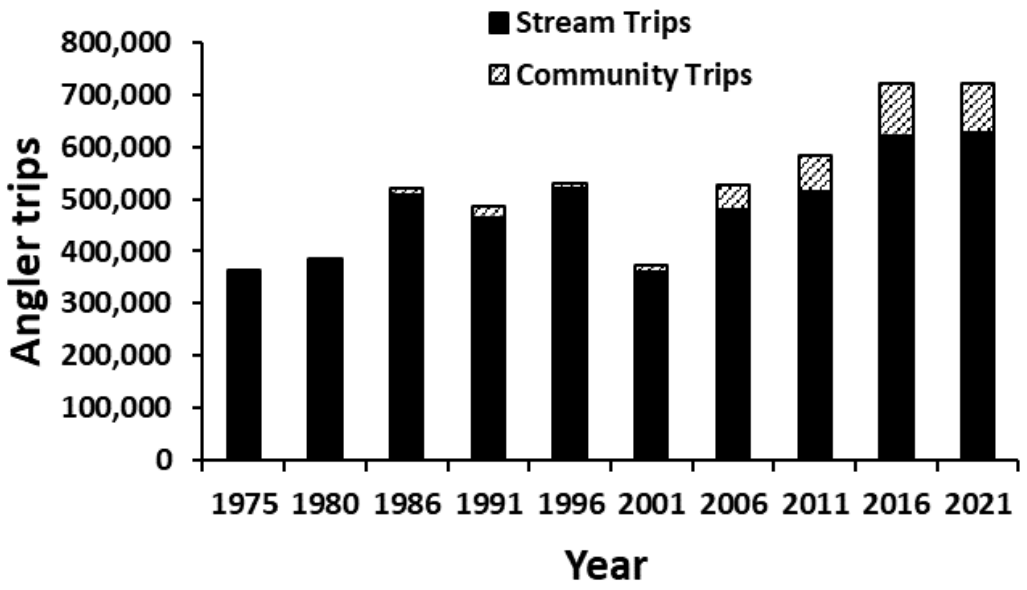

Figure 3. Number of trout angler trips to stream and community trout fisheries in survey years from 1975-2021.

Table 6. Rank of stream trout fisheries in terms of number of angler trips, number of angler trips (± 95% confidence interval), trips per stream mile, mean trips per angler and percent of anglers fishing at least once for each fishery and survey year. * = managed as put-and-grow streams, RReg = streams managed with restrictive regulations, NA = no data available

Fishery	Rank by year			Number of Angler Trips by year			Trips per Stream Mile by year			Mean trips per angler		Percent of anglers fishing at least once	
	2021	2016	2011	2021	2016	2011	2021	2016	2011	2021	2016	2021	2016
North Bear (Winneshiek) *NE of Highlandville*	1	1	1	37,033 (14)	35,286 (24)	29,931 (28)	5,878	5,601	4,751	3.5	3.8	20.1%	20.8%
South Bear (Winneshiek) *Near Highlandville*	2	2	3	24,947 (13)	26,510 (19)	21,877 (15)	4,536	4,820	3,978	3.3	3.6	14.5%	17.3%
Bailey's Ford (Delaware) *S of Manchester*	3	4	2	24,107 (12)	24,669 (24)	23,054 (21)	30,134	30,836	28,818	3.5	3.7	12.5%	11.3%
Little Paint (Allamakee) *Yellow River State Forest*	4	6	8	23,299 (12)	21,504 (23)	18,000 (18)	11,650	10,752	9,000	3.3	3.7	12.9%	10.4%
Bloody Run-Catchable (Clayton) *W of Marquette*	5	9	12	21,553 (10)	17,920 (15)	14,907 (13)	2,536	2,108	1,754	2.7	2.9	14.3%	11.8%
Paint - Big (Allamakee) *near Waterville*	6	16	18	20,289 (16)	13,754 (17)	11,082 (16)	1,187	804	648	3.5	3.3	10.2%	8.2%
Trout Run (Winneshiek) *Decorah Hatchery*	7	3	9	19,999 (19)	25,740 (36)	16,755 (16)	16,666	21,450	13,963	3.1	3.7	11.0%	12.9%
Coldwater (Winneshiek) *E of Kendallville*	8	5	10	19,786 (14)	22,720 (35)	16,462 (21)	10,414	11,958	8,665	3.1	4.1	11.2%	11.0%
Sny Magill (Clayton) *S of McGregor*	9	11	11	18,517 (19)	17,172 (22)	15,830 (25)	3,138	2,910	2,683	3.5	3.4	9.4%	9.0%
Waterloo - Catchable (Allamakee) *W of Dorchester*	10	14	6	18,512 (13)	14,720 (16)	19,332 (54)	1,638	1,303	1,711	3.8	3.6	9.5%	9.5%
Richmond Springs (Delaware) *Backbone State Park*	11	10	7	16,641 (12)	17,261 (16)	18,298 (22)	13,313	13,808	14,638	3.3	3.5	8.9%	9.9%
Swiss Valley (Dubuque) *SW of Dubuque*	12	8	4	16,569 (12)	18,412 (21)	21,212 (45)	2,473	2,748	3,166	3.9	4.5	6.7%	5.5%
Big Mill (Jackson) *W of Bellevue*	13	21	27	13,884 (15)	11,692 (24)	7,458 (16)	3,967	3,340	2,131	4.0	4.2	6.2%	4.1%
Glovers (Fayette) *SE of West Union*	14	12	23	13,829 (13)	15,084 (20)	9,180 (13)	5,532	6,034	3,672	3.3	3.5	6.8%	7.3%
Joy Springs (Clayton) *W of Strawberry Pt*	15	13	19	13,818 (8)	14,804 (15)	10,968 (10)	13,818	14,804	10,968	2.4	2.7	10.2%	9.5%
Middle Bear (Winneshiek)* *N of Highlandville*	16	23	25	13,570 (11)	10,995 (17)	7,953 (10)	4,112	3,320	2,410	3.0	2.8	8.4%	8.4%
Fountain Springs (Delaware) *NE of Greeley*	17	15	13	13,245 (13)	14,181 (17)	13,521 (13)	5,519	5,909	5,634	3.0	3.2	7.5%	7.5%
Trout River (Winneshiek) *SE of Decorah*	18	19	16	13,202 (11)	13,156 (19)	11,622 (19)	1,517	1,512	1,336	2.7	2.9	8.6%	8.8%
Bankston (Dubuque) *NW portion of county*	19	7	14	12,748 (20)	19,536 (28)	12,927 (22)	2,602	3,987	2,638	3.8	5.8	5.1%	4.5%

Fishery	Rank by year			Number of Angler Trips by year			Trips per Stream Mile by year			Mean trips per angler		Percent of anglers fishing at least once	
	2021	2016	2011	2021	2016	2011	2021	2016	2011	2021	2016	2021	2016
Grannis (Fayette) *E of Fayette*	20	17	21	11,535 (9)	13,443 (18)	10,633 (12)	7,690	8,962	7,089	2.6	3.1	7.4%	7.7%
Waterloo - RReg (Allamakee) *SE of Dorchester*	21	34	33	10,963 (15)	6,879 (16)	4,908 (12)	7,831	4,913	3,506	3.5	3.4	5.9%	4.3%
Bloody Run - RReg (Clayton) *W of Marquette*	22	35	36	10,830 (11)	5,831 (12)	4,547 (10)	4,332	2,333	1,819	2.8	2.5	7.0%	4.5%
French Creek - RReg (Allamakee) *NW of Lansing*	23	38	31	10,689 (9)	5,325 (12)	5,311 (11)	1,782	887	885	2.4	2.3	8.1%	4.7%
Maquoketa R (Clayton/Delaware) *NW of Backbone State Park*	24	27	24	10,654 (10)	8,621 (17)	8,220 (14)	3,551	2,874	2,740	2.9	2.8	6.5%	5.4%
Bear (Fayette) *N of Arlington*	25	30	38	9,911 (13)	8,388 (18)	4,109 (10)	2,478	2,097	1,027	2.6	3.1	7.1%	5.4%
Canoe Creek (Winneshiek) *N of Decorah*	26	NA	NA	9,536 (8)	NA	NA	5,298	NA	NA	2.3	NA	7.3%	NA
Turkey River (Clayton) *At Big Spring Hatchery*	27	18	15	9,429 (11)	13,210 (20)	12,748 (22)	9,429	13,210	12,749	3.1	3.3	5.2%	6.6%
Bear (Clayton)* *N of Edgewood*	28	37	42	9,234 (11)	5,592 (17)	3,441 (8)	2,565	1,553	956	2.5	2.8	6.9%	4.4%
Otter (Fayette) *W of Elgin*	29	24	29	9,135 (13)	10,563 (24)	6,110 (21)	1,062	1,225	711	3.1	4.2	4.7%	4.1%
Yellow River (Allamakee) *Forest Mills Road access*	30	NA	NA	8,589 (11)	NA	NA	5,577	NA	NA	2.9	NA	3.0%	NA
Buck (Clayton) *E of Garnavillo*	31	31	30	8,337 (16)	8,151 (20)	5,984 (16)	1,437	1,405	1,032	3.3	2.9	4.3%	4.4%
Twin Springs (Winneshiek) *W edge Decorah*	32	20	20	7,994 (23)	13,048 (26)	10,715 (14)	7,994	13,048	10,715	2.8	3.2	5.0%	7.9%
Patterson (Allamakee) *NW of Waukon*	33	29	34	6,846 (11)	8,467 (19)	4,826 (9)	1,180	1,460	832	2.9	3.2	4.6%	5.5%
Twin Bridges (Delaware) *W of Colesburg*	34	26	22	6,436 (12)	10,512 (33)	9,478 (21)	7,151	11,680	10,532	2.8	3.9	3.8%	4.4%
Little Mill (Jackson) *W of Bellevue*	35	32	35	6,425 (8)	8,066 (23)	4,753 (10)	1,785	2,241	1,320	3.2	4.1	3.6%	3.0%
Little Turkey R (Delaware) *E of Colesburg*	36	40	46	6,413 (9)	4,770 (14)	2,931 (8)	2,565	9,541	5,862	2.6	2.8	4.3%	3.1%
Spring Branch - RReg (Delaware) *SE of Manchester*	37	45	40	6,322 (9)	4,409 (16)	3,672 (11)	2,180	1,520	1,266	2.9	2.9	3.9%	2.5%
Turtle (Mitchell) *N of St Ansgar*	38	25	17	6,317 (16)	10,516 (38)	11,091 (23)	2,340	3,895	4,108	4.7	6.5	2.8%	4.2%
North Canoe (Winneshiek)* *N of Decorah*	39	44	41	6,301 (9)	4,445 (10)	3,528 (10)	2,100	1,482	1,176	3.1	2.4	3.8%	4.0%
Coon (Winneshiek) *NE of Freeport*	40	49	47	6,198 (11)	3,401 (11)	2,785 (12)	2,817	1,546	1,266	2.4	2.3	4.4%	2.9%

Fishery	Rank by year			Number of Angler Trips by year			Trips per Stream Mile by year			Mean trips per angler		Percent of anglers fishing at least once	
	2021	2016	2011	2021	2016	2011	2021	2016	2011	2021	2016	2021	2016
Bohemian (Winneshiek) *E of Protivin*	41	33	37	6,038 (13)	7,849 (29)	4,342 (13)	5,032	6,541	3,618	3.5	4.2	2.6%	3.1%
Mink (Fayette) *N of Wadena*	42	52	49	5,741 (11)	3,332 (11)	2,588 (9)	2,609	1,515	1,177	3.1	2.3	3.0%	2.7%
Yellow River (Allamakee)* *Postville to mouth*	43	28	5	5,719 (11)	8,559 (15)	19,601 (81)	139	276	632	3.2	2.9	5.2%	5.0%
Bigalk (Howard) *N of Cresco*	44	22	26	5,141 (9)	11,648 (36)	7,560 (20)	4,284	9,706	6,300	2.6	4.6	3.3%	4.4%
Mill Creek (Jackson) *In Bellevue*	45	NA	NA	4,821 (9)	NA	NA	16,070	NA	NA	3.3	NA	2.5%	NA
Hickory (Allamakee) *NE of Luana*	46	50	44	4,399 (11)	4,401 (14)	3,134 (21)	1,333	1,031	950	3.1	2.8	2.4%	2.1%
Clear (Allamakee)* *E of Dorchester*	47	53	54	4,318 (9)	3,075 (15)	1,997 (9)	1,136	809	526	2.1	2.5	3.6%	2.5%
Clear (Allamakee) *near Lansing*	48	41	32	4,075 (11)	4,743 (18)	5,006 (24)	1,455	1,694	1,788	2.7	4.0	2.8%	2.6%
Casey Springs (Winneshiek)* *N of Decorah*	49	59	56	3,428 (9)	2,441 (20)	1,688 (10)	1,4288	1,017	704	2.2	3.1	3.0%	1.9%
Brush (Jackson) *NE of Andrew*	50	42	39	3,348 (7)	4,678 (20)	3,978 (15)	881	1,231	1,047	2.6	3.0	2.3%	2.2%
Spring (Mitchell) *W of Orchard*	51	43	28	3,237 (7)	4,612 (13)	6,209 (12)	1,012	1,441	1,940	3.8	4.2	1.8%	3.1%
Ensign Hollow - RReg (Clayton) *S of Volga*	52	56	50	2,881 (8)	2,574 (9)	2,476 (12)	823	736	708	2.1	2.0	2.5%	2.1%
Trout Run (Allamakee)* *SW of Lansing*	53	48	45	2,786 (7)	3,620 (20)	3,103 (14)	2,786	3,620	3,104	2.2	2.5	2.5%	2.8%
McLoud Run (Linn) *in Cedar Rapids*	54	57	61	2,648 (7)	2,574 (15)	1,061 (6)	1,103	1,072	442	2.8	3.8	1.8%	1.3%
Wexford (Allamakee) *N of Harpers Ferry*	55	51	52	2,333 (7)	3,350 (19)	2,422 (8)	569	817	591	2.3	2.4	1.9%	2.3%
West Canoe (Winneshiek) *N of Decorah*	56	46	43	2,300 (8)	3,729 (17)	3,261 (16)	383	NA	544	2.1	2.8	2.0%	3.0%
South Pine - RReg (Winneshiek) *NE of Decorah*	57	66	60	2,187 (7)	1,328 (11)	1,247 (7)	810	492	462	1.8	1.9	2.2%	1.4%
South Cedar (Clayton) *SW of Garnavillo*	58	39	53	2,175 (9)	4,922 (24)	2,091 (11)	572	1,295	550	2.7	4.0	1.4%	1.6%
North Cedar (Clayton)* *SW of McGregor*	59	47	51	2,089 (8)	3,673 (31)	2,433 (33)	454	798	529	2.3	3.3	1.5%	1.6%
Pine (Allamakee/Winneshiek)* *E of Sattre*	60	62	57	1,819 (7)	1,534 (8)	1,399 (7)	395	334	304	2.0	2.2	1.8%	1.6%
Ram Hollow (Delaware)* *SE of Colesburg*	61	61	63	1,797 (5)	1,668 (13)	980 (9)	2,994	2,779	1,635	2.0	2.8	1.5%	1.0%

Fishery	Rank by year			Number of Angler Trips by year			Trips per Stream Mile by year			Mean trips per angler		Percent of anglers fishing at least once	
	2021	2016	2011	2021	2016	2011	2021	2016	2011	2021	2016	2021	2016
Pine Spring Ck - RReg (Winneshiek) *N of Decorah*	62	NA	NA	1,720 (5)	NA	NA	860	NA	NA	1.7	NA	1.7%	NA
Burr Oak (Mitchell)* *NE of Osage*	63	64	58	1,655 (10)	1,463 (7)	1,371 (9)	662	585	549	2.7	2.6	1.2%	1.6%
Mossy Glen (Clayton)* *Strawberry Point*	64	65	59	1,620 (5)	1,403 (9)	1,354 (12)	1,157	1,002	967	1.9	2.3	1.5%	1.6%
Tete des Morts (Jackson)* *St Donatus*	65	67	73	1,615 (16)	1,250 (19)	437 (14)	490	379	133	5.0	3.8	0.5%	0.5%
Little Maquoketa R (Dubuque)* *Epworth*	66	60	62	1,417 (4)	2,344 (23)	1,035 (8)	373	617	272	1.7	3.0	1.4%	1.3%
South Fork Big Mill (Jackson)* *W of Bellevue*	67	58	65	1,354 (8)	2,488 (20)	776 (9)	1,505	2,764	862	2.6	3.8	0.9%	1.0%
Dalton Pond (Jackson) *E of Preston*	68	36	48	1,346 (8)	5,669 (28)	2,755 (11)	NA	NA	NA	2.8	6.6	0.9%	1.3%
Ten Mile (Winneshiek)* *NW of Decorah*	69	70	69	1,207 (9)	999 (10)	598 (5)	355	294	176	1.7	2.0	1.4%	1.4%
East Pine (Winneshiek)* *W of Burr Oak*	70	63	66	1,107 (5)	1,481 (15)	767 (9)	231	308	160	1.6	3.3	1.2%	0.8%
Pine (Winneshiek)* *N of Bluffton*	71	71	67	1,068 (5)	863 (10)	691 (5)	95	76	61	1.7	2.2	1.1%	0.9%
Lansing WMA Creek (Allamakee) *N of Lansing*	72	NA	NA	989 (7)	NA	NA	589	NA	NA	2.1	NA	0.8%	NA
White Pine Hollow (Dubuque)* *Luxemburg*	73	73	71	906 (7)	596 (8)	523 (6)	245	161	141	2.1	2.1	0.7%	0.5%
Wapsipinicon River (Mitchell) *N of McIntire*	74	55	64	891 (6)	2,696 (38)	954 (6)	495	1,498	530	2.2	4.1	0.7%	1.2%
Miners (Clayton)* *W of Guttenberg*	75	69	78	792 (17)	1,050 (22)	141 (3)	176	233	32	4.0	4.5	0.3%	0.4%
Grimes Hollow (Delaware)* *E of Colesburg*	76	75	72	765 (6)	519 (9)	468 (5)	637	519	469	2.2	2.3	0.6%	0.6%
Monastery Creek (Dubuque)* *SW of Dubuque*	77	68	74	608 (4)	1,099 (12)	288 (3)	3,040	5,496	1,440	1.7	2.9	0.6%	0.7%
Williams Creek (Allamakee)* *NW of Luana*	78	77	75	515 (9)	270 (14)	221 (6)	271	142	116	3.5	2.5	0.2%	0.2%
Chihak Creek (Howard) *South of Cresco*	79	NA	NA	430 (5)	NA	NA	1,433	NA	NA	2.1	NA	0.3%	NA
Spring Falls (Delaware)* *W of Colesburg*	80	74	70	376 (12)	595 (16)	528 (5)	501	793	704	4.0	3.8	0.2%	0.3%
Tributary-Tete des Morts (Dubuque)* *StDonatus*	81	72	76	276 (4)	783 (16)	180 (4)	276	783	181	2.6	4.9	0.2%	0.2%
Turner (Fayette)* *St Lucas*	82	78	77	272 (7)	239 (10)	156 (4)	247	217	143	5.0	3.2	0.1%	0.2%

Fishery	Rank by year			Number of Angler Trips by year			Trips per Stream Mile by year			Mean trips per angler		Percent of anglers fishing at least once	
	2021	2016	2011	2021	2016	2011	2021	2016	2011	2021	2016	2021	2016
Ozark Springs (Jackson)* *N of Canton*	83	79	68	223 (7)	107 (3)	651 (13)	319	153	931	3.4	1.8	0.1%	0.2%
Teeple (Allamakee)* *SW of Waukon*	84	76	79	186 (3)	373 (12)	119 (3)	43	87	28	1.9	3.3	0.2%	0.2%
Little Turkey R (Delaware)* *SE of Colesburg*	NA	54	55	NA	2,887 (14)	1,869 (9)	NA	1,443	935	NA	2.8	NA	1.8%

Fishing pressure on the community trout fisheries decreased slightly in 2021, even though an additional location was added (Figure 4; Table 7). Prior to 2021, the annual number of angler trips to community trout fisheries had been increasing since 1996 as interest in the program increased and additional locations were stocked (Figure 4). Trips to community trout fisheries decreased slightly to 13.1% of all trout angler trips in 2021, down from 13.8% of all trips in 2016 but still greater than rates observed in 2011 (12%) and 2006 (9%; Figure 3). The number of community trout fisheries available to anglers has slowly increased from a single fishery in Waterloo stocked for anglers in 1986 to 18 stocked across the state in 2021 (Figure 4; Table 7). In 2021, the most visited community trout fisheries included Ada Hayden Lake and Lake Petocka whereas Discovery Park Pond and East Lake Park Pond received the fewest estimated angler trips (Table 7).

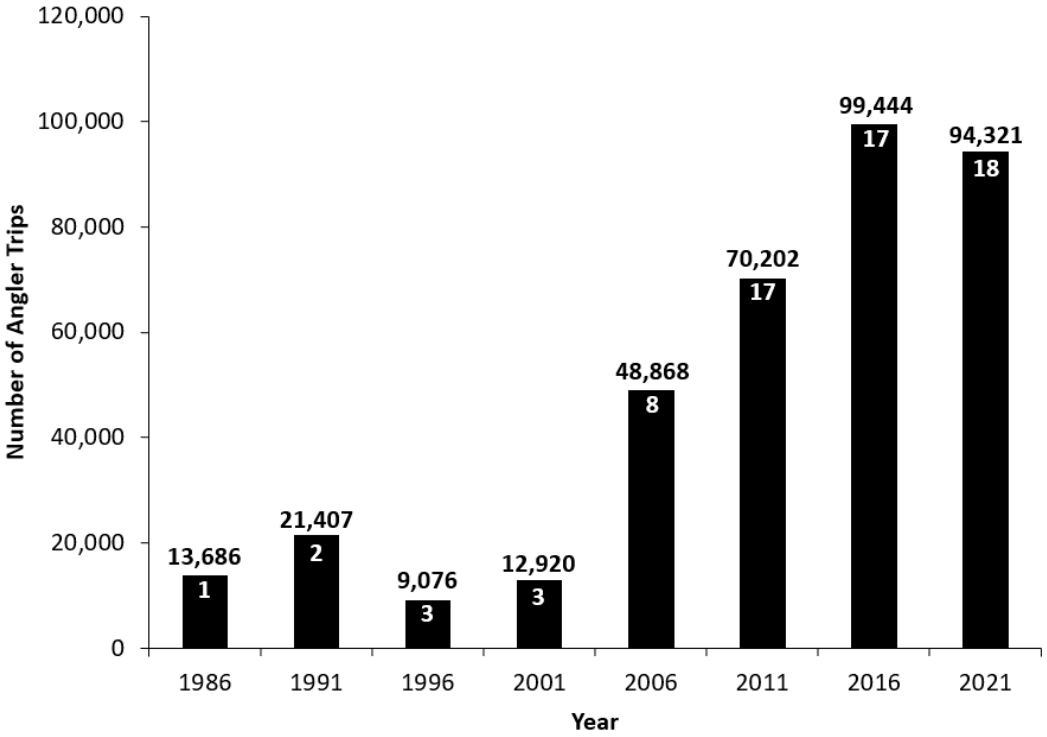

Figure 4. Estimated angler trips to community trout fisheries in survey years from 1986-2021. Number of community fisheries stocked is shown within bars.

Anglers that visit community trout fisheries tend to fish the same water body more than once in a season. Greater Ottumwa Park Pond anglers made an average of 9.7 trips to the pond, the highest of any community fishery (Table 8). Greater Ottumwa Park Pond also had the highest return rate of any community fishery in 2016 (12.9 trips) and 2011 (11.2 trips). Other fisheries with high mean trips per angler in 2021 included Big Lake Park (9.2 trips), Moorland Park Pond (8.4 trips), and Sand Lake (7.4 trips). Angler return rates were lowest for Discovery Park Pond at 2.9 mean trips per angler. Distance to another trout fishery or perceived quality of local fisheries may influence angler return rates to community fisheries and should be investigated in future surveys.

Community trout fisheries are typically located in areas that are not adjacent to traditional trout waters, and some anglers may only fish for trout at these locations. In earlier surveys, anglers were asked if they fished only the community trout fisheries; individuals answering yes made up 3.5% of all trout anglers in 2001, 1.5% in 1996, and 6.0% in 1991. In the 2006, 2011, and 2016 surveys, a similar question asked the angler if they purchased a trout stamp specifically for a community trout fishery. Twenty-six percent of respondents answered yes in 2006, 32% in 2011, and 30% in 2016 (Table 9). The number of anglers buying a trout stamp specifically for a community trout fishery increased to 35% in 2021. The percentage of anglers that buy a trout stamp specifically for a community fishery varies across the state, ranging from 28% in the east-central Iowa climatology region to 65% in the northwest Iowa zone.

Table 7. Estimated angler trips to community trout fisheries in survey years from 1986-2021. NS = not stocked

Fishery *City*	Year							
	1986	**1991**	**1996**	**2001**	**2006**	**2011**	**2016**	**2021**
Ada Hayden Lake *Ames*	NS	NS	NS	NS	NS	5,156	7,844	10,934
Bacon Creek *Sioux City*	NS	NS	NS	NS	3,905	4,495	4,500	2,517
Banner Lake *Indianola*	NS	NS	NS	NS	14,903	7,156	7,244	7,043
Big Lake Park *Council Bluffs*	NS	NS	NS	NS	3,645	1,967	2,839	3,717
Blue Pit *Mason City*	NS	12,307	1,865	1,270	7,629	3,189	4,236	7,597
Copper Creek Lake *Pleasant Hill*	NS	NS	NS	NS	NS	579	NS	NS
Discovery Park Pond *Muscatine*	NS	NS	NS	NS	NS	2,602	2,734	1,536
DMACC Pond *Ankeny*	NS	NS	NS	NS	NS	5,084	NS	NS
East Lake Park Pond *Mt Pleasant*	NS	NS	NS	NS	NS	NS	NS	757
Heritage Pond *Dubuque*	NS	NS	3,543	6,213	6,919	6,571	13,260	6,913
Greater Ottumwa Park Pond *Ottumwa*	NS	NS	NS	NS	NS	5,012	6,239	3,396
Lake of the Hills *Davenport*	NS	NS	NS	NS	3,961	7,013	4,155	NS
Lake Sauganash *Council Bluffs*	NS	NS	NS	NS	2,320	NS	NS	NS
Liberty Centre Pond *North Liberty*	NS	NS	NS	NS	NS	NS	NS	6,196
Mitchell Lake *Waterloo*	13,686	9,100	NS	NS	NS	NS	NS	NS
Mooreland Park Pond *Fort Dodge*	NS	NS	NS	NS	NS	622	5,179	5,552
North Prairie Lake *Cedar Falls*	NS	NS	3,668	5,437	5,586	7,101	5,214	5,064
Petoka Lake *Bondurant*	NS	NS	NS	NS	NS	2,098	6,219	9,194
Prairie Park Pond *Cedar Rapids*	NS	NS	NS	NS	NS	5,129	9,187	6,546
Sand Lake *Marshalltown*	NS	NS	NS	NS	NS	NS	3,332	4,796
Scharnberg Park Pond *Spencer*	NS	NS	NS	NS	NS	3,676	4,124	4,731
Terra Lake *Johnston*	NS	NS	NS	NS	NS	NS	NS	4,584
Terry Trueblood Lake *Iowa City*	NS	NS	NS	NS	NS	NS	8,583	NS
Wilson Lake *Ft. Madison/Burlington*	NS	NS	NS	NS	NS	2,752	4,555	3,248
Total Trips	**13,686**	**21,407**	**9,076**	**12,920**	**48,868**	**70,202**	**99,444**	**94,321**

Table 8. Rank of community trout fisheries in terms of number of angler trips, number of angler trips (± 95% confidence interval), mean trips per angler, and percent of anglers fishing at least once for each fishery and survey year. NS = not stocked

Fishery *City*	Rank by year			Number of Angler Trips by year		Mean trips per angler		% anglers fishing at least once	
	2021	2016	2011	2021	2016	2021	2016	2021	2016
Ada Hayden *Ames*	1	4	5	10,934 (32)	7,844 (37)	5.3	4.4	4.1%	2.9%
Petoka Lake *Bondurant*	2	7	14	9,194 (11)	6,219 (14)	5.0	4.1	3.9%	2.9%
Blue Pit *Mason City*	3	12	11	7,597 (12)	4,236 (11)	6.7	5.0	2.5%	2.5%
Banner Lake South *Carlisle*	4	5	1	7,043 (6)	7,244 (29)	4.2	4.9	3.9%	4.0%
Heritage Pond *Dubuque*	5	1	4	6,913 (12)	13,260 (36)	4.0	6.0	2.5%	2.9%
Prairie Park Pond *Cedar Rapids*	6	2	6	6,546 (11)	9,187 (29)	4.7	6.0	2.6%	2.1%
Liberty Centre Pond *North Liberty*	7	NS	NS	6,196 (12)	NS	6.2	NS	1.9%	NS
Moorland Park Pond *Ft. Dodge*	8	9	16	5,552 (26)	5,179 (18)	8.4	6.3	1.4%	2.6%
North Prairie Lake *Cedar Falls*	9	8	2	5,064 (8)	5,214 (17)	3.3	3.2	2.3%	2.2%
Sand Lake *Marshalltown*	10	15	NS	4,796 (15)	3,332 (24)	7.4	5.4	1.3%	0.9%
Scharnberg Park Pond *Spencer*	11	14	10	4,731 (11)	4,124 (8)	6.7	7.0	1.6%	5.0%
Terra Lake *Johnston*	12	NS	NS	4,584 (6)	NS	3.4	NS	2.8%	NS
Big Lake Park *Council Bluffs*	13	16	15	3,717 (12)	2,839 (6)	9.2	8.2	1.2%	2.9%
Greater Ottumwa Park Pond *Ottumwa*	14	6	8	3,396 (15)	6,239 (17)	9.7	12.9	1.0%	2.9%
Wilson Lake *Ft Madison/Burlington*	15	10	12	3,248 (8)	4,555 (12)	6.8	10.6	1.4%	2.5%
Bacon Creek Lake *Sioux City*	16	11	9	2,517 (8)	4,500 (13)	6.1	10.2	1.0%	4.1%
Discovery Park Pond *Muscatine*	17	17	13	1,536 (6)	2,734 (14)	2.9	3.6	1.0%	1.2%
East Lake Park Pond *Mt Pleasant*	18	NS	NS	757 (7)	NS	3.2	NS	0.6%	NS
Terry Trueblood Lake *Iowa City*	NS	3	NS	NS	8,583 (22)	NS	5.3	NS	2.4%
Lake of the Hills *Davenport*	NS	13	3	NS	4,155 (15)	NS	3.3	NS	1.7%
DMACC Pond *Ankeny*	NS	NS	7	NS	NS	NS	NS	NS	NS
Copper Creek Lake *Pleasant Hill*	NS	NS	17	NS	NS	NS	NS	NS	NS

Table 9. Percent of anglers that specifically purchased a trout stamp for a community trout fishery across survey years.

	Year			
	2021	**2016**	**2011**	**2006**
Yes	35	30	32	26
No	65	70	68	74

The estimated number of angling trips to trout fisheries with restrictive regulations (e.g., length limits, gear restrictions, or catch-and-release only) decreased from 2001 to 2011 but has been increasing since. Two additional streams managed with restrictive regulations were added between the 2016 and 2021 survey periods, when Brook Trout catch-and-release restrictions were placed on newly-acquired public access areas on Pine Spring Creek and Casey Springs (Figure 5). A total of 51,668 angler trips were taken to restrictive regulation streams in 2021, accounting for 7.2% of all trips taken to trout streams in 2021. This is a substantial increase from the number of angler trips taken to restrictive regulation streams in 2006, 2011, and 2016, but similar to the number of trips taken in 2001.

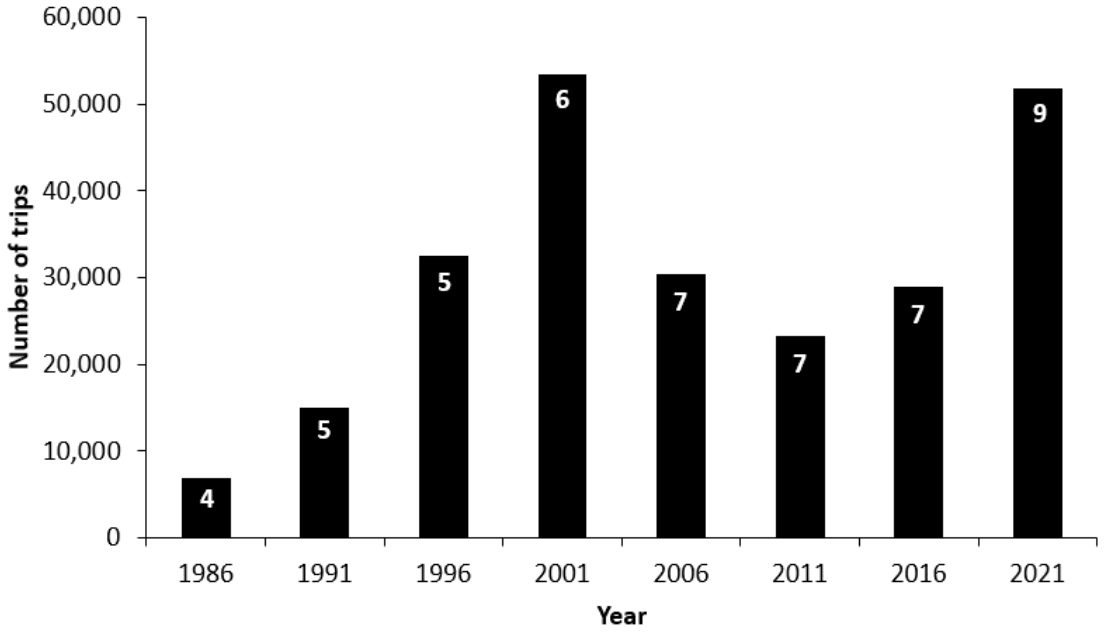

Figure 5. Estimated number of trips to trout fisheries managed with restrictive regulations during survey years 1986-2021. Number of trout fisheries with restrictive regulations shown in bar.

Restrictive regulation streams receiving the most visits in 2021 were Waterloo (10,963 trips), Bloody Run (10,830 trips), French Creek (10,689 trips), and Spring Branch (6,322 trips; Table 10). Streams managed with restrictive regulations specifically for Brook Trout have become more popular in recent years. South Pine Creek was visited 2,187 times by anglers in 2021, up from 1,328 and 1,247 trips in 2016 and 2011, respectively. Two streams opened to public fishing prior to the 2021 survey, Casey Springs and Pine Spring Creek hosted 3,428 and 1,720 anglers, respectively. All restrictive regulation streams had increased usage during the 2021 survey period. The number of trips to the restrictive regulation portion of French Creek had the largest increase between 2016 and 2021, with 5,364 more trips. It should be noted that French Creek had restrictive regulations only on the upper portion during the 1986 through 1996 survey years, while the entire stream was managed with restrictive regulations for the 2001 through 2016 surveys.

Table 10. Estimated number of trips to the trout fisheries with restrictive regulations, survey years 1986-2021. -- = not managed under restrictive regulations during that survey year

Stream	Year							
	1986	1991	1996	2001	2006	2011	2016	2021
Waterloo Creek	--	--	--	10,406	8,268	4,909	6,879	10,963
Bloody Run	2,093	1,939	8,889	9,746	4,087	4,548	5,831	10,830
French Creek*	743	1,939	8,268	15,275	6,525	5,311	5,325	10,689
Spring Branch	3,848	8,727	13,552	14,867	5,728	3,673	4,409	6,322
Ensign Hollow	--	1,566	932	2,185	1,980	2,477	2,574	2,881
McCloud Run	--	--	--	--	2,209	1,062	2,574	2,648
South Pine Creek	--	--	808	909	1,507	1,247	1,328	2,187
Casey Springs	--	--	--	--	--	--	--	3,428
Pine Spring Creek	--	--	--	--	--	--	--	1,720
Upper Swiss Valley	--	820	--	--	--	--	--	--
South Fork Big Mill	67	--	--	--	--	--	--	--
Total Trips	**6,751**	**14,991**	**32,449**	**53,388**	**30,304**	**23,227**	**28,920**	**51,668**
% of Total Trips	**1.3**	**3.1**	**6.1**	**14.3**	**5.3**	**4.0**	**4.0**	**7.2**

*Only upper portion under restrictive regulation 1986-1996, entire stream under restrictive regulation 2001-2016

Trout anglers were asked to rate their satisfaction with the number of trout streams managed with restrictive regulations on a scale of 1 to 10, with a rating of 1 being very dissatisfied, 5 being neutral, and a rating of 10 being very satisfied. Trout anglers appear to be satisfied with the number of streams managed under restrictive regulations with 47% providing a rating of 5 (neutral) and an additional 46% rating this question a 6 or higher (satisfied or highly satisfied; Figure 6). The mean trout angler satisfaction rating when asked about the number of streams managed with restrictive regulations was 6.1 with a median rating of 5.

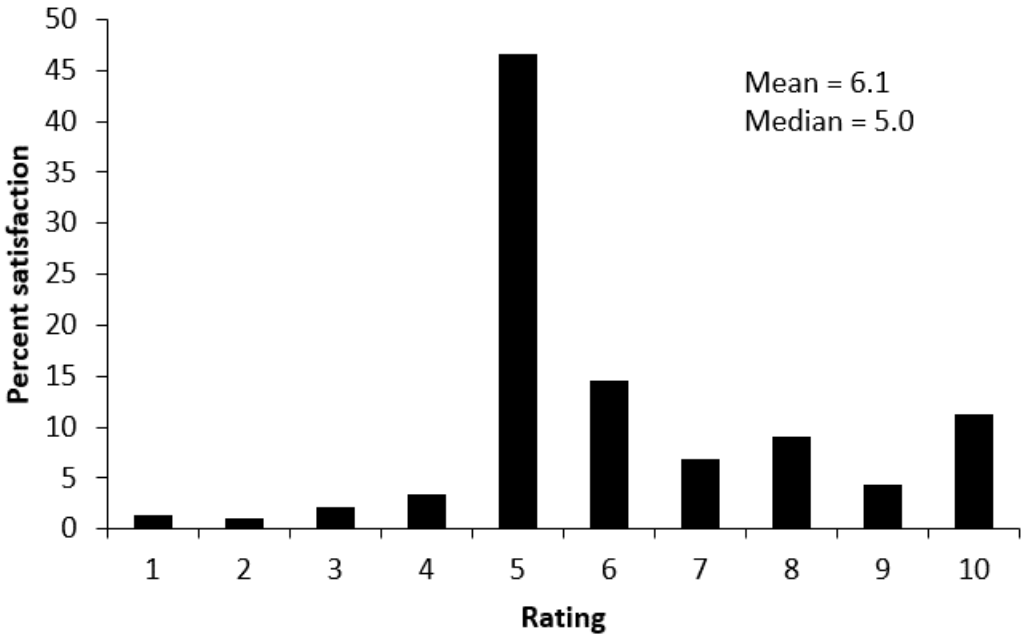

Figure 6. Trout angler satisfaction rating when asked about the number of trout streams managed under restrictive regulations in 2021. A rating of 1 was very dissatisfied, 5 being neutral, and a rating of 10 was very satisfied.

Anglers made an estimated 73,993 angling trips to 27 put-and-grow (fingerling stocked) streams in 2021, up over 9,000 trips compared to 2016 and the highest number of trips every recorded (Table 11). Put-and-grow streams receiving the most angler trips in 2021 included the Yellow River (Postville to Mouth and Forest Mills Road Access; 14,307 trips combined), Middle Bear (13,570), and Bear (Clayton Co) with 9,234 estimated angler trips (Table 5). Streams with less than 300 total angler trips in 2021 included Tributary to Tete des Morts (Dubuque), Turner (Fayette), Ozark Springs (Jackson), and Teeple (Allamakee). The mean number of trips per angler to put-and-grow streams was 2.7 trips per angler in 2021, similar to the long term (1986-2016) average of 2.8 trips per angler.

Table 11. Angler trips and mean trips per angler to put-and-grow trout streams in survey years, 1975-2021. NA = no data available

	Year									
	1975	**1980**	**1986**	**1991**	**1996**	**2001**	**2006**	**2011**	**2016**	**2021**
Total trips	2,041	NA	3,563	1,128	3,605	4,314	53,909	56,959	64,967	73,993
Mean trips/angler	6.3	NA	3.2	2.5	2.5	3.0	3.2	2.3	2.9	2.7

Harvest, and/or catch-and-release, is an important component of any fishery and was addressed with the following question in the surveys from 1996 through 2016, “Of the trout you caught, which describes the number released?” In 2021, the question was updated to read “Of all the trout you caught in 2021, how many did you release?” Since 2006, the percent of anglers that release “all” or “most” trout has been increasing and reached an all-time high of 54% in 2021 whereas the number of anglers that harvest “all” or “most” has been declining with the all-time low of 30% also recorded during the 2021 survey (Table 12). Nonresident anglers were more likely than residents to release trout, with 69% releasing “all” or “most” of the trout caught; resident anglers released “all” or “most” of their trout 50% of the time.

Table 12. Relative number of trout released for each category of release by successful anglers (percent of total) in survey years, 1996-2021.

Number Released	Year					
	1996	**2001**	**2006**	**2011**	**2016**	**2021**
None	24	14	17	17	15	11
Some	24	22	33	32	27	19
About half	24	17	19	17	17	15
Most	17	20	15	17	17	20
All	11	27	16	17	24	34

Anglers fishing for trout in Iowa use bait, lures, or flies. Recent surveys asked anglers to identify the type of terminal tackle they primarily used, and the percent of anglers using each tackle type are shown below (Table 13). The percentage of anglers using primarily bait has generally decreased since 1991, with the lowest use recorded in 2021. Conversely, use of artificial lures has been generally increasing since the 1990s. The percent of anglers that use flies was highest in 2001 before dropping during subsequent survey periods. Fly use has been increasing since the 2006 survey period. Nonresident anglers used flies at the highest rate (49%) and bait less often (23%), compared to resident anglers.

Table 13. Type of terminal tackle primarily used by all trout anglers (percent of total) during survey periods 1991-2021.

	Year					
	1991	**2001**	**2006**	**2011**	**2016**	**2021**
Bait	60	43	48	47	41	35
Artificial lures	33	31	37	38	39	41
Flies	7	26	15	15	20	24

Trout angler surveys from 1975 through 2001 asked anglers, yes or no, “are you satisfied with the quality of trout fishing in Iowa?” Responses indicated favorable levels of satisfaction with the quality of trout fishing in Iowa (Table 14). The

2006 through 2021 surveys modified the question to be quantifiable, and asked anglers to rate their level of satisfaction with various aspects of the trout program on a scale of 1 to 10. The scale indicated that a rating of 1 was very dissatisfied, and a rating of 10 was very satisfied. Similar to previous surveys, trout anglers were very satisfied with this program in 2021 (Figure 7, bottom panel) with a mean and median rating of 7.8 and 8, respectively. The median remained unchanged but the mean satisfaction rating was down slightly from the 2011 and 2016 ratings (8.0). Overall, 83.7% of trout anglers were satisfied or very satisfied with Iowa's program; an additional 12.5% were neutral with the program. Only 3.8% of anglers responded that they were dissatisfied or very dissatisfied with the Iowa Trout Program. Satisfaction with Iowa's trout program was similar in 2021 and 2016 (Figure 7).

Table 14. Percent angler response to whether they are satisfied with the quality of trout fishing in Iowa for survey years 1975-2001.

	Year					
	1975	**1980**	**1986**	**1991**	**1996***	**2001****
Satisfied	74	85	90	89	93	95
Not satisfied	26	15	10	11	7	5

*An additional three responses (out of 453 total) responded, "No opinion."
**An additional nine responses (out of 428 total) responded, "No opinion."

Trout anglers were asked to rate their satisfaction with the amount of public access available on trout streams on a scale of 1 to 10, with a rating of 1 being very dissatisfied, 5 being neutral, and a rating of 10 being very satisfied. Overall, trout anglers are satisfied to very satisfied with the amount of public access to trout streams with 73% rating this question a 6 or higher (Figure 8). Few anglers (12%) were dissatisfied or very dissatisfied with the amount of public access to trout streams. The 2021 mean and median satisfaction ratings for amount of public access to trout streams were 7.1 and 7.0, respectively, but down from a mean and median of 7.5 and 8 in the 2016 survey.

Trout anglers were asked how strongly they support always announcing stockings of trout streams on a scale of 1 to 10, with 1 indicating no support for announced trout stocking, 5 indicating no preference, and 10 indicating strong support for always announcing the date and location of stocking on trout streams. Anglers were not supportive of always announcing trout stockings with 47% noting limited or no support (mean: 4.4; Figure 9). Only 30% supported always announcing trout stockings. Anglers that purchased a trout stamp specifically for a community fishery had a higher average rating (5.0) of announced stream stockings than those that did not (4.1). Anglers were also asked how strongly they support unannounced stocking of trout streams. Anglers were more supportive of unannounced stockings with 59% expressing support for them whereas only 17% did not support unannounced stream stockings (24% had no preference; Figure 10). Those anglers that purchased a trout stamp specifically for a community fishery were less supportive (mean=6.5) of unannounced stockings compared to anglers that did not (mean=7.0).

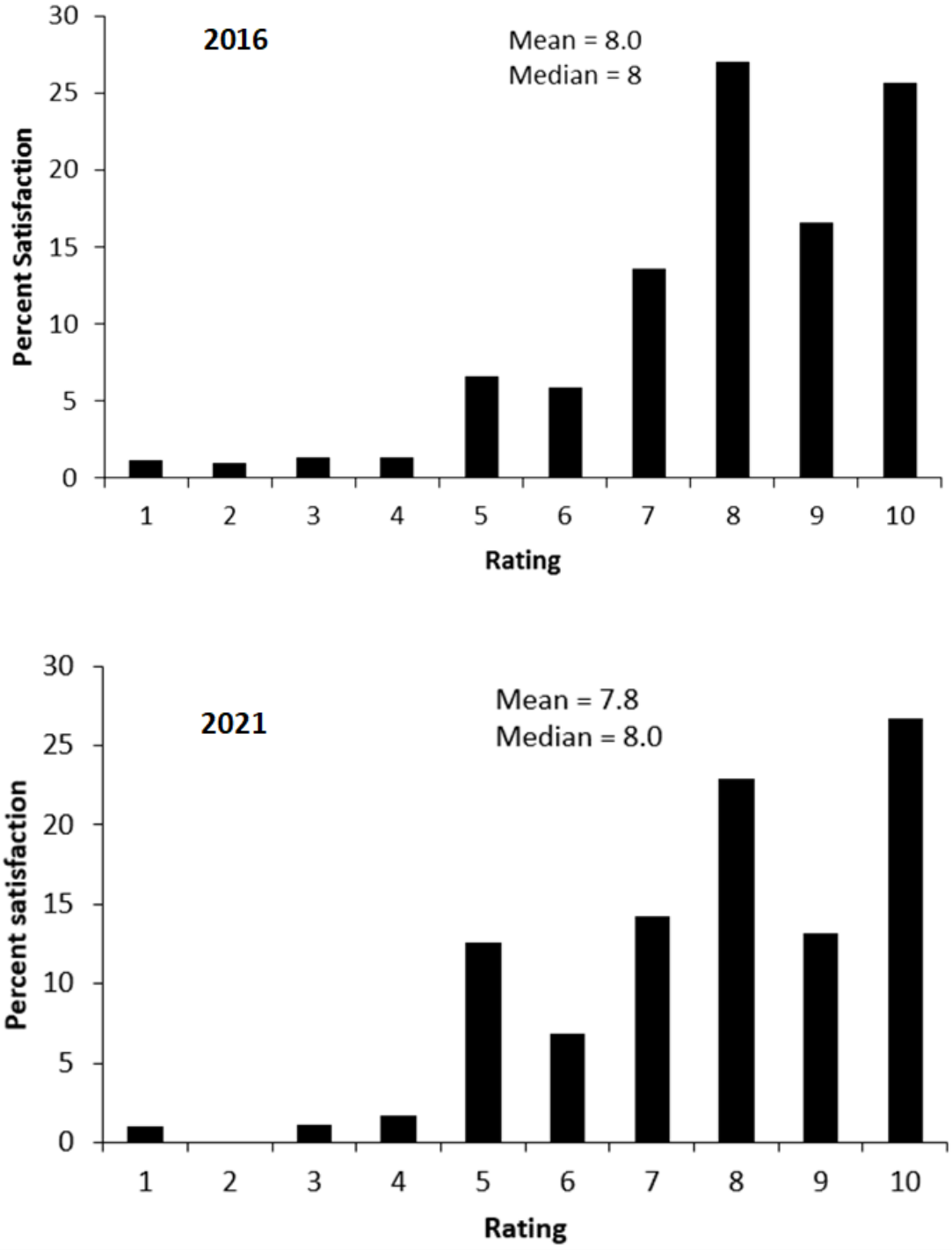

Figure 7. Trout angler satisfaction rating of the 2016 and 2021 Iowa Trout Program. A rating of 1 was very dissatisfied, 5 was neutral, and a rating of 10 was very satisfied.

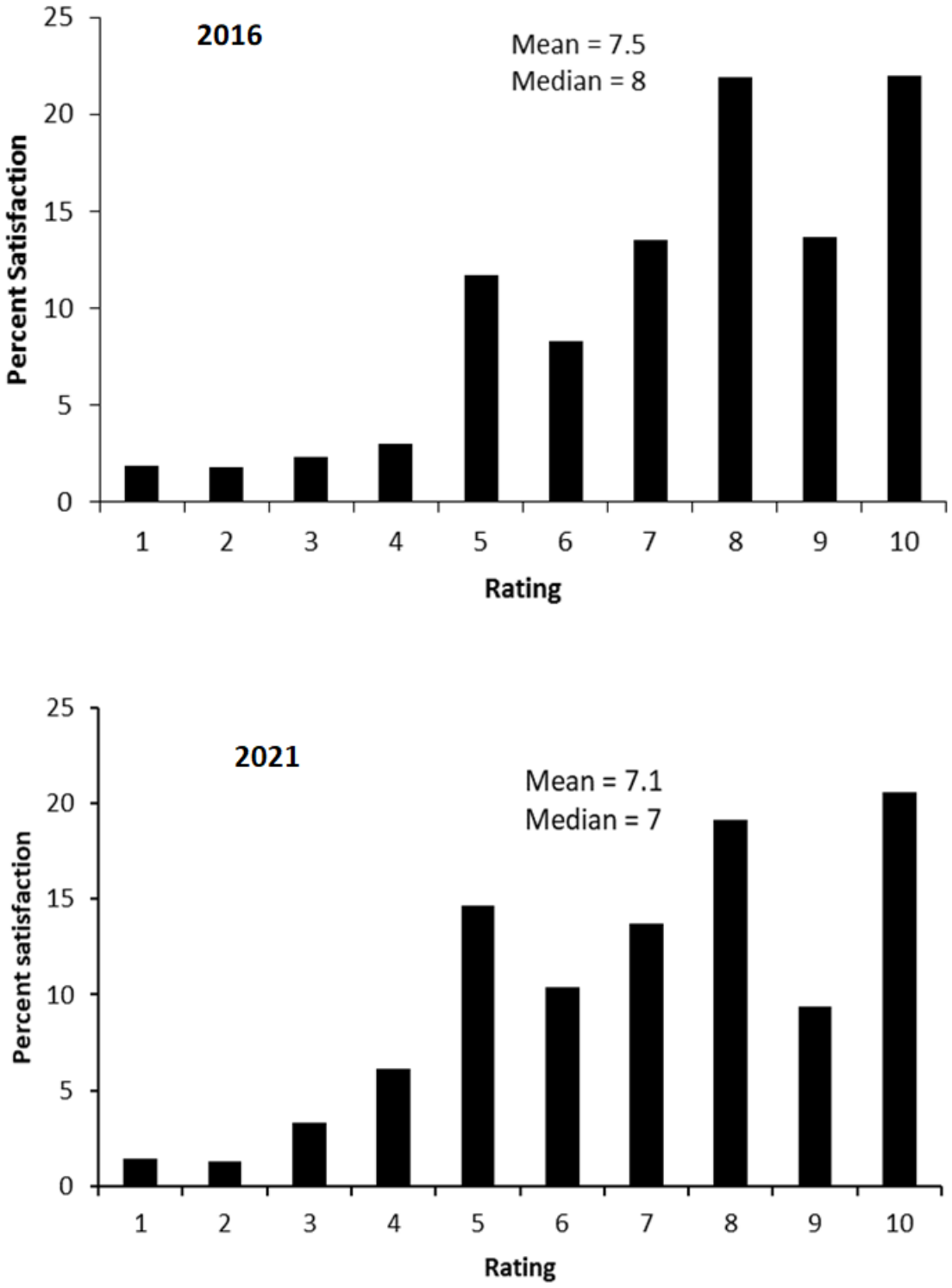

Figure 8. Trout angler satisfaction with the amount of public access to trout streams in 2016 and 2021. A rating of 1 was very dissatisfied and a rating of 10 was very satisfied.

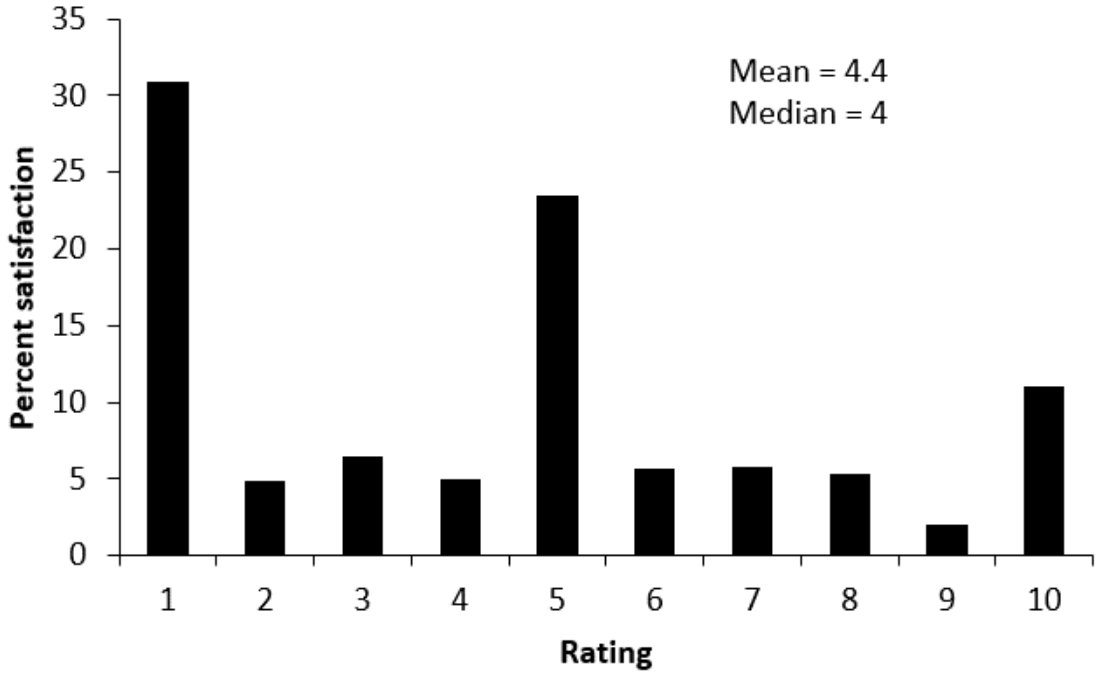

Figure 9. Trout angler support for the announced stocking of trout streams. A rating of 1 indicates no support for announced trout stocking and a 10 indicates strong support for always announcing the date and location of stocking on trout streams.

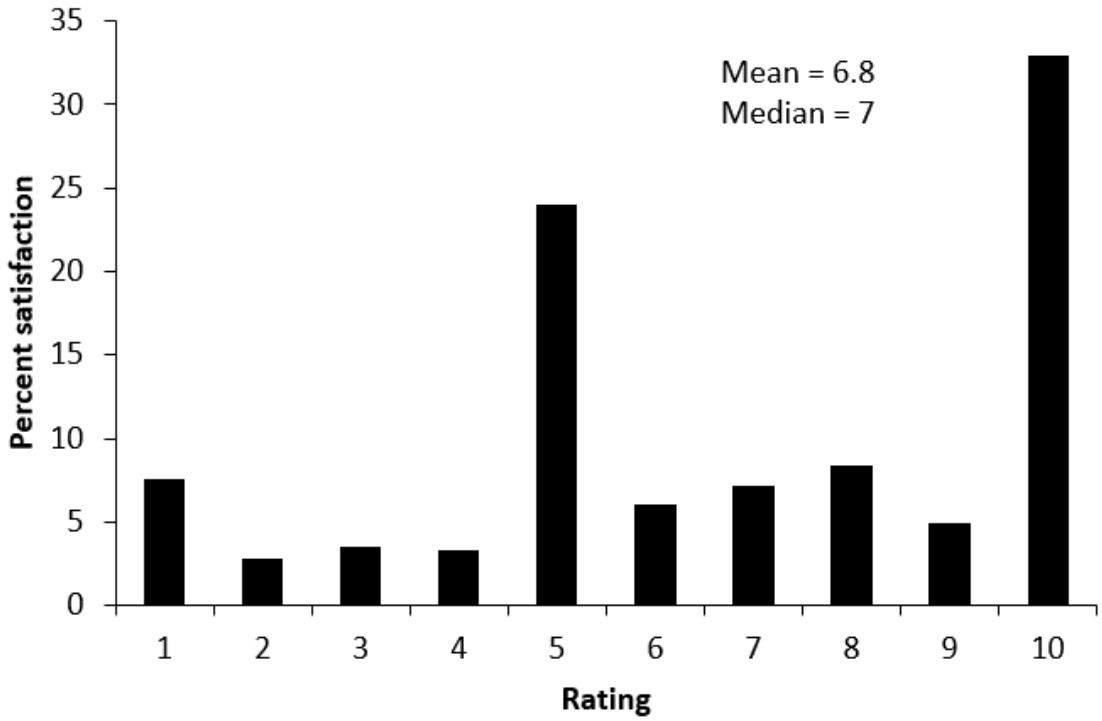

Figure 10. Trout angler support for the unannounced stocking of trout streams. A rating of 1 indicates no support for unannounced trout stocking and a 10 indicates strong support for not announcing the date and location of stocking on trout streams.

During 2020 and 2021, all trout stockings were unannounced due to the COVID-19 pandemic. The 2021 survey asked anglers "All trout stockings were unannounced in 2021 and received the same number of trout and frequency of stockings as in previous years. Do you feel that your trout fishing trips were: better, about the same, or not as good?" Most anglers (67%) thought their fishing trips were about the same as previous years, even with all unannounced stockings. Fifteen percent thought their trips were not as good whereas 19% felt their 2021 trips were better.

Trout program staff were also interested in the importance of amenities or features when anglers were planning their fishing trips. Anglers were asked: "Overall, on a scale of 0 to 6, rate the importance of/preference for the following amenities/features when considering where to go trout fishing." A rating of 0 meant the amenity/feature was not at all important whereas a rating of 6 meant it was very important or preferred. Amenities such as availability of restrooms, camping, playgrounds and picnic areas, streams close to paved roads, announced stockings, family fishing events, and catch-and-release areas were generally not important to trout anglers (Figure 11). The three most important features when anglers were considering where to go trout fishing were few other anglers present (mean=4.1), being in a wilderness scenic area (mean=4.0), and the number of trout caught (mean=3.8), although these were only somewhat important. The same three features were also ranked most important by trout anglers in 2016 (Steuck and Kopaska 2017).

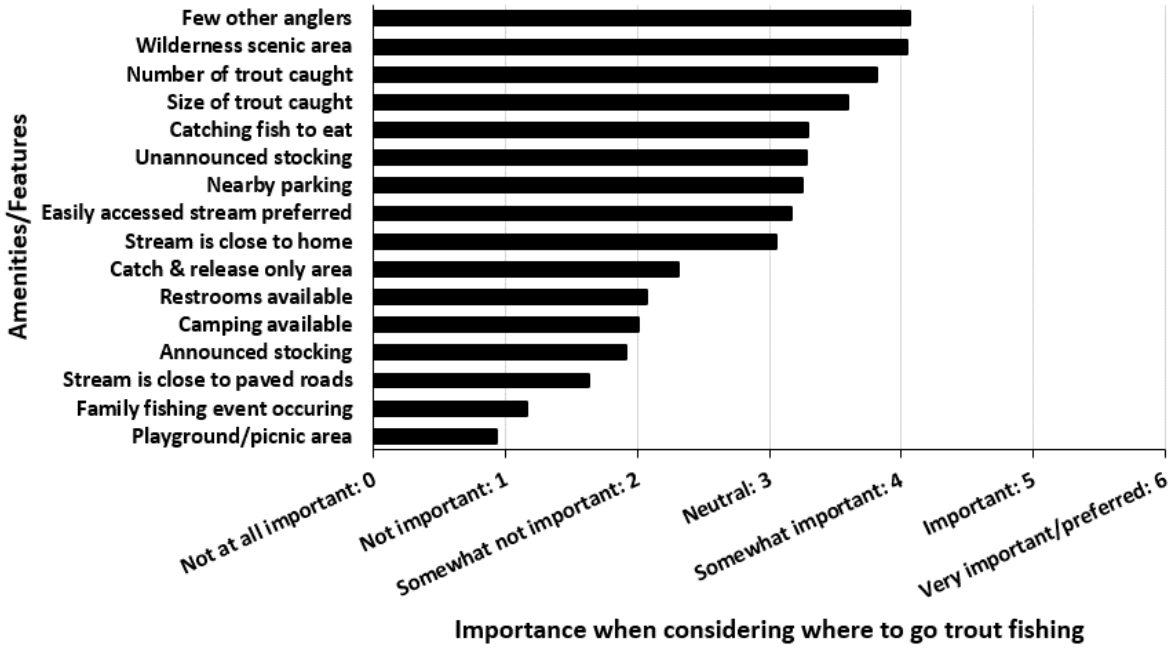

Figure 11. Mean importance to anglers of amenities and features associated with trout fisheries when rated from not at all important (0 rating) to very important/preferred (6 rating).

When examining the importance of the same features between angler genders, similar trends emerge. Family fishing events and playgrounds or picnic areas are similarly unimportant to both female and male anglers (Figure 12). Wilderness scenic areas and few other anglers are the most important features for both female and male anglers when considering where to go trout fishing. Paved road access, easy stream access, restroom availability, announced stockings, and catching fish to eat were more important (>0.5 mean rating difference) to female anglers than their male counterparts. Male anglers considered catch-and-release only areas more important (> 0.5 mean rating difference) than their female counterparts when considering where to fish.

Anglers that purchased a trout stamp specifically for a community trout fishery preferred different amenities or features compared to other trout anglers. Anglers stating that they purchased a trout stamp specifically for a community trout fishery valued stocking locations close to home and on paved roads, family fishing events, announced stockings, and availability of restrooms (> 0.5 mean rating difference) compared to anglers that did not (Figure 13). Similar to other trout anglers, anglers focused on community trout fisheries also considered wilderness or scenic area, few other anglers, and number of trout caught as the top three most important features they considered when deciding where to go trout fishing. However, anglers who purchased a trout stamp specifically for a community trout fishery rated almost every amenity higher than their counterparts, except for the presence of wilderness/scenic area, few other anglers, unannounced stocking, and catch and release-only areas.

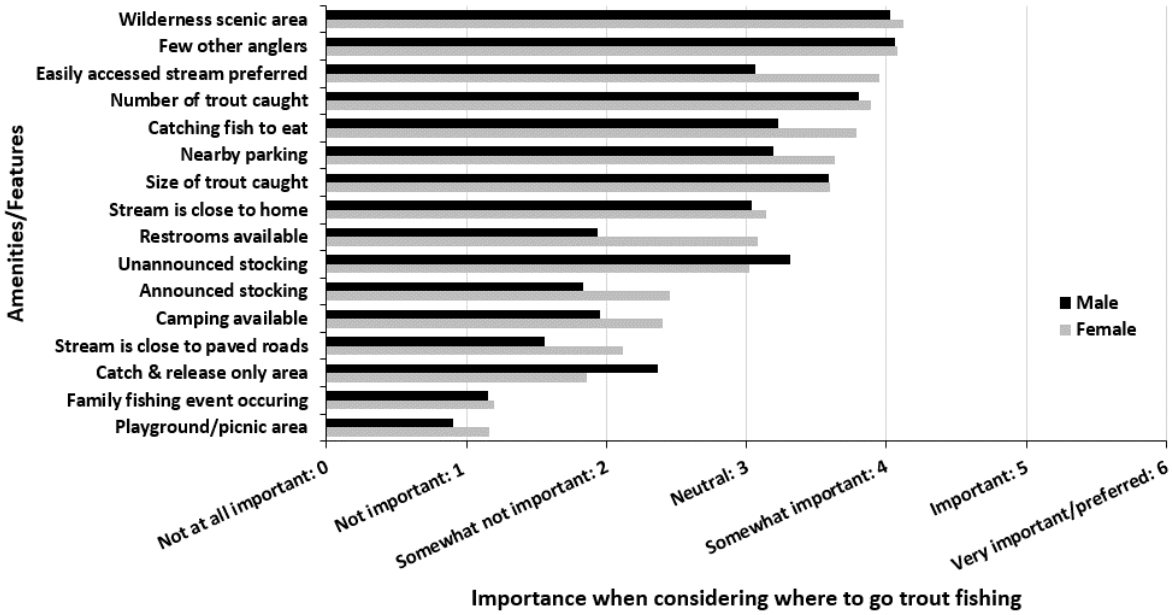

Figure 12. Mean importance to anglers of amenities and features associated with trout fisheries, by gender, when rated from not at all important (0 rating) to very important/preferred (6 rating).

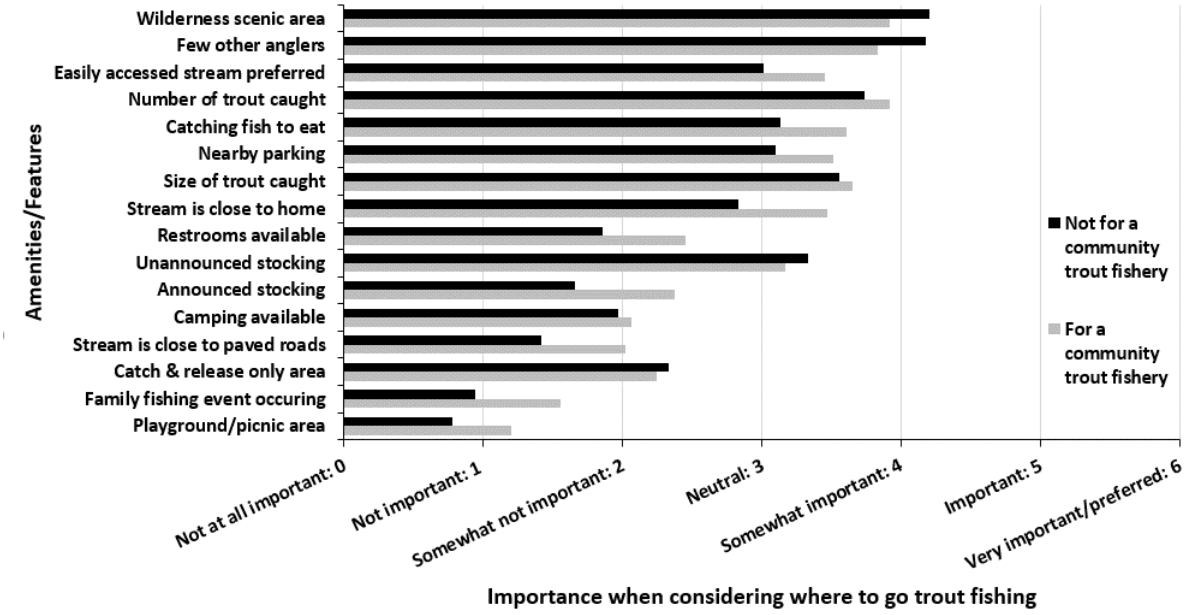

Figure 13. Mean importance to anglers of amenities and features associated with trout fisheries, between those that purchased a trout stamp specifically for a community trout fishery and those that did not, when rated from not at all important (0 rating) to very important/preferred (6 rating).

Trout anglers were asked to report the number of days fished each month. The highest fishing pressure occurred April through October with May having the overall highest fishing activity (13.8% of all trips; Figure 14). This trend mirrors data from the previous trout angler survey, with May also having the highest number of days fished in 2016. Across all zones and non-residents, days fished typically increased in the spring and then decreased in the fall; however, days fished in January and February were greater than number of days in December with non-residents and across all zones likely reflecting the influence of community trout stockings. Anglers from the Northeast zone fished more days each month than any other group, except in January, when anglers from the Central zone exceeded Northeast angler effort by about 600 days.

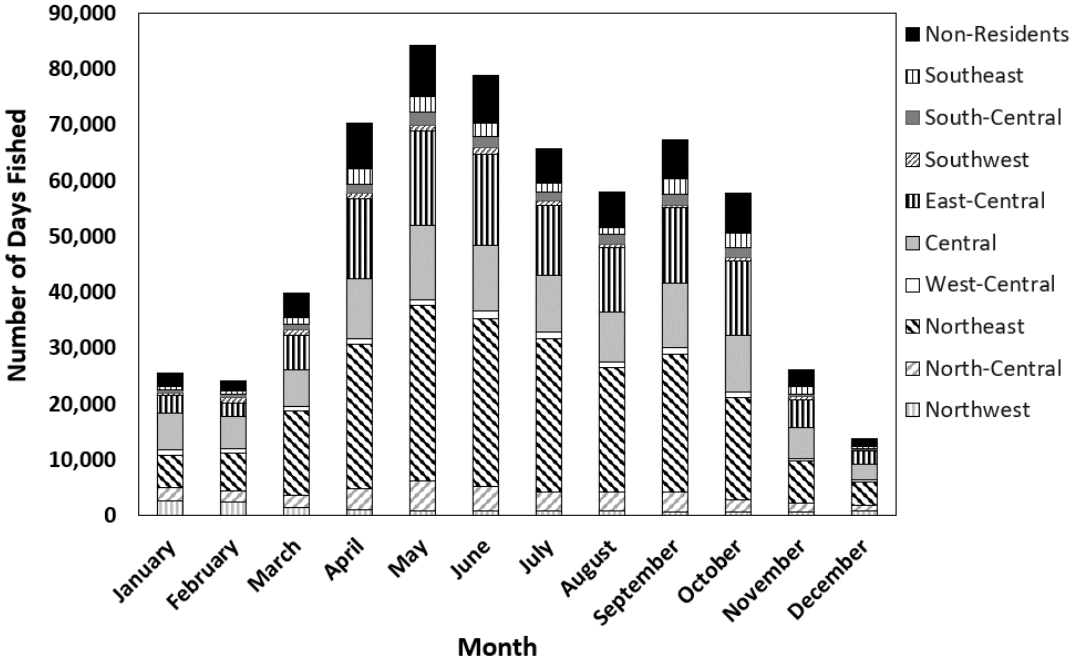

Figure 14. Number of days trout anglers fished in Iowa each month of 2021. Data is shown for nonresident anglers and by each Iowa climatology zone.

Discussion

The 2021 Trout Angler Survey provided a unique opportunity to examine trout angler fishing preferences during the worldwide COVID-19 pandemic that was officially declared in March 2020 by the World Health Organization and continued until 2023 when the global public health emergency was ended (Pan American Health Organization, no date, accessed August 2025). As access to everyday activities (e.g., sporting events, school activities) was limited by the pandemic and the public was encouraged to social distance, many turned to angling as a safe alternative (Midway et al. 2021). This trend was observed in Iowa as well. Most Iowa trout streams are located in remote areas of the state, providing an opportunity for anglers to safely get outdoors while still following health directives. The 2021 license year recorded one of the highest numbers of trout stamps ever sold in Iowa, second only to 2020 when 55,496 trout stamps were sold (Figure 1); both years coincided with the peak of the COVID-19 pandemic. Even though license sales increased compared to 2016, anglers took slightly fewer trips to trout streams in 2021 (Table 3).

Trout anglers spent slightly fewer days fishing in 2021 compared to 2016 (Table 3), but logged more trips in 2021 than in any other survey year (Table 5). Further, 2021 accounted for the highest number of trout stamps sold since 1970 (Figure 1). Record sales of trout stamps may be a result of several internal factors including consistent hatchery production and stocking of a quality product by hatchery staff, development of diverse trout angling opportunities (i.e., catchable stocking, put-and-grow, restrictive regulations, and community trout fisheries), continued increases in the number of streams with natural reproduction, and continued popularity of community trout fisheries and corresponding family fishing events. The largest external factor impacting 2021 license sales was likely the pandemic and the shift away from group activities to more solitary activities such as fishing. The Iowa unemployment rate also increased to over 11% in early 2020 before dropping back to below 4% by the start of 2021 (Iowa Workforce Development 2021), providing many Iowans with free time to take up or return to activities like fishing. Construction trades are a top occupation for anglers nationwide (Responsive Management 2013) and Iowa construction activity remained low to start 2021 before beginning to recover (U.S. Bureau of Labor Statistics, no date, accessed August 2025). This overall increase in free time likely influenced the increase in trout fishing activities and license sales in 2021.

Anglers appeared to frequent less popular streams in 2021, possibly planning their fishing trips while also being cognizant of social distancing recommendations. Generally low to moderate use, restrictive regulation streams had increased angler usage in 2021, with over 51,000 angler trips recorded (Figure 5). As a result, the rank of restrictive regulation streams increased by an average of 10, compared to 2016. For example, anglers took an estimated 10,689

trips to French Creek, up from 5,325 trips in 2016, a change in rank of +15 (38th to 23rd). Overall, restrictive regulation streams averaged 2,645 more angler trips per stream in 2021 compared to 2016. At the same time, many of the more popular streams saw a reduction in angler trips in the 2021 survey. Seven of the top ten streams from the 2016 trout survey had lower estimated angler trips in 2021, with Bankston and Trout Run receiving a total of 12,529 fewer angling trips (Table 6). Overall, catchable stocked streams experienced an average reduction in rank of 4, with an estimated average reduction of 882 angler trips across that segment of streams. This reduction could be directly related to attempts to social distance, but could have also been caused by a temporary change in how trout stockings were announced. During the pandemic, all trout stockings transitioned to unannounced stockings, and that change may have deterred some anglers from fishing as much as they had in the past. Finally, the relative popularity of put-and-grow and wild trout streams decreased by an average ranking of 2 although the number of trips to those streams increased, on average, by 156 trips per stream. Although North and South Bear Creeks remain the two most-visited trout streams in Iowa, anglers also appeared to seek out less popular streams while spending time on the water, possibly trying to social distance.

Age and gender differences of trout stamp purchasers have changed little over time (Table 1 and Table 2). The average age of Iowa trout anglers has remained constant around 45 years of age over the past few survey periods. The age distribution of trout anglers is also similar to the overall age distribution in Iowa except there are more trout anglers in the 30-49 and 50-64 age groups than expected. Notably, only 17.8% of anglers were female (up from 16.9% of anglers in 2016), which is disproportionately small compared to the number of females in Iowa's population (50.5%). This continues to be a potential user group to focus on for trout stamp and fishing license sales.

The Community Trout Fishing Program remains an important part of the larger Iowa Trout Program. An additional fishery was added to the program for 2021, with 18 fisheries receiving trout as part of the program. The number of anglers purchasing a trout stamp specifically for community trout fisheries increased to an all-time high of 35% in 2021 (Table 9); however, the total number of angler trips taken to community trout fisheries decreased slightly in 2021 to 94,312 trips (Figure 4). The promotion of the stocking events by DNR Communications staff and the promotion of the family fishing events by our city and county partners likely contributed to past increases in angler trips to community fisheries. During the pandemic, announcement of stockings after-the-fact and less promotion of these events likely reduced participation. Looking ahead, continuing to strengthen these partnerships and promoting these fisheries should increase participation. Even though 35% of trout anglers specifically purchased their trout stamp for a community trout fishery (Table 9), only 13% of the trout angling trips in 2021 were to community trout fisheries. The fact that the smaller community trout fishing program accounts for 35% of all trout stamp sales indicates that the program has a very high return on investment and might be introducing anglers to trout fishing so they can eventually take these skills to other trout fisheries.

Nine streams in Iowa are managed with restrictive regulations that include catch-and-release, artificial lures only, 14-inch minimum length limit, or some combination. In some cases, the restrictive regulations apply to all trout species or they are species specific (e.g., Brook Trout only). A substantial increase in the number of angler trips on restrictive regulation streams occurred from 2016 (28,920) to 2021 (51,668), with 2021 trips totaling nearly as high as the number of trips observed in 2001 (53,388; Table 10). Angler trips to restrictive regulation streams are an even smaller proportion (7.4%) of the total stream trips compared to the put-and-grow fisheries (10.2%). Ninety-three percent of surveyed anglers were neutral or satisfied with the amount of restrictive regulation streams (Median=5, Mean=6.1, Figure 6), although the median ranking has decreased since 2016 (Median=8). The increase in angler trips to streams with restrictive regulations in 2021 may have been a result of anglers looking for more remote and less popular streams to fish during the pandemic.

In 2021, anglers were again asked to rank the importance of various amenities or features when considering where to go trout fishing. "Wilderness scenic area" and "few other anglers" are important features of trout streams according to anglers surveyed in both 2016 and 2021 (Figure 11; Steuck and Kopaska 2017). This is not surprising since many of Iowa's trout streams are in some of the most remote, scenic places in the state. Remote streams with few other anglers were especially important in 2021 as anglers looked for ways to go fishing while navigating the challenges of the COVID-19 pandemic. Program staff should consider the importance of these features as they plan management actions along trout streams. Actions that maintain wilderness or scenic conditions along streams should be promoted. Staff should

also continue to focus on acquiring additional public access to trout streams so anglers pursuing trout in Iowa can always find places to fish where there are few other anglers. Angling success (i.e., number of trout caught, size of trout caught, catching fish to eat) was also considered a somewhat important feature of trout fisheries. Throughout its history, the Iowa Trout Program has focused on connecting anglers with trout. Early on, catchable and fingerling trout stockings were used to provide a variety of quality angling experiences (Kirby et al. 2020). Today, wild populations of Brown Trout are thriving in Iowa streams, and coupled with continued catchable-sized Rainbow Trout stockings, are providing exceptional trout angling experiences and leading to high angler satisfaction ratings (Figure 7).

When considering the importance of features and amenities by angler gender, notable differences emerge. Female anglers prioritize accessibility-related features such as restrooms, easy stream access, nearby parking, proximity to paved roads, and camping availability (Figure 12). They also place more value than their male counterparts on announced stockings and the opportunity to catch fish for consumption. To effectively serve all trout anglers, new access area development should consider these gender-specific priorities when possible.

Anglers that purchased a trout stamp specifically for a community trout fishery consider some amenities more important than other trout anglers, but overall they value the same trout fishery amenities or features. Announced stocking are important for anglers pursuing trout in community fisheries, since the fisheries do not support trout year-round and angler success depends on stocking. Although announced stockings generally create excitement around the stocking event, unannounced stockings may also provide value to the Community Trout Fishing Program. Differences in angler use and use patterns should be compared for announced and unannounced stockings. In general, anglers that purchased a trout stamp specifically for a community trout fishery rated amenities and features as being more important than their counterparts, with the exception of features most closely associated with remote trout angling opportunities. This echoes findings from numerous outdoor recreation studies (Krogman and Stubbs 2021; Krogman et al. 2023) that have shown location amenities to be more important to users in urban areas than rural areas. Many of the community trout fisheries are in urban areas where many users are present, so restroom facilities are an important amenity to those anglers. If fisheries do not have adequate restroom facilities, then temporary options should be explored. Holding a family fishing event in conjunction with community trout stockings is often considered important by fishery managers, but anglers that purchased a trout stamp specially for a community trout fishery did not rate family fishing events as very important (mean=1.5, i.e., not important to somewhat not important) when considering where to go trout fishing. Future assessments of the effectiveness of family fishing events for angler recruitment or reactivation should be considered.

Tackle primarily used by trout anglers and the proportion of trout released by successful anglers has steadily changed over the last 25 years (Table 12 and Table 13). The proportion of trout anglers using bait has generally declined across survey years while the number using artificial lures and flies has increased. This move away from bait towards artificial lures and flies also coincides with a shift from harvest-oriented angling towards a catch-and-release focus. These changes could also be a result of angler motivation to complete the survey. If fly anglers are more avid than bait anglers, they may be more likely to complete the survey. Further, as survey delivery shifted from paper to digital format, certain groups of anglers may be less likely to participate. These potential influences on our results should be considered in future surveys.

The number of anglers releasing “most” or “all” trout they catch increased from 41% to 54% during the 2016 to 2021 period. In 1996, only 28% of anglers released “most” or “all” of the trout they caught while 48% released “some” or “none” of their captured trout. In 2021, only 30% of successful anglers harvested most of their trout (“none” or “some” released). This may reflect a shift towards a catch-and-release ethic prevalent across many segments of recreational fishing (Policansky 2002). This may also highlight the increased quality of Iowa trout populations and trout fishing. Even when anglers harvest a limit of trout, they may still release most of the trout they catch, depending on how many fish are caught in a day. Likely, this observed change in release rates is a combination of shifting angler preferences and increased angler success rates, but more information is needed to fully understand angler harvest attitudes.

Non-resident anglers have different harvest preferences compared to resident anglers, and are more likely to release “all” or “most” of their trout (69% of responses) compared to resident anglers (52% of responses). Non-residents traveling to Iowa to fish trout may be more experienced anglers that are less focused on harvest and place more

importance on fishing in new and unique areas. They are also less likely to have cold storage available for their catch, so may be more likely to release their fish. Roughly 69% of all trout anglers released half or more of their trout in 2021 (Table 12), an increase from 50%, 51%, and 58% in 2006, 2011, and 2016, respectively. Further, 66% and 71% of trout anglers in the 2007 and 2018 Iowa Statewide Angler Surveys also indicated they release about half or more of their trout (Responsive Management 2008, 2019). Overall, many trout anglers have adopted a catch-and-release ethic or only harvest some trout during their Iowa fishing trips, and based on our survey results, interest in catch-and-release angling shows an increasing trend.

Overall angler satisfaction with the trout program and the amount of public angler access is high. Past surveys on angler satisfaction with the trout program that asked yes or no, are you satisfied with the quality of trout fishing in Iowa indicated a 95% satisfaction rate and a generally increasing satisfaction rate through time (Table 14). The current rating scale gives a more accurate measure of satisfaction where a rating of 1 is very dissatisfied and a 10 is very satisfied. The 2021 survey suggests that 76.9% of trout stamp purchasers are satisfied with the program, rating satisfaction with the overall program a 7 or higher (Figure 7). An additional 19.4% had a neutral response (5 or 6 rating). Anglers were also generally satisfied with the amount of public access to trout streams (Figure 8). Nearly 63% of the respondents rated satisfaction with angler public access a 7 or higher, with an additional 25% providing a neutral response to the question (rating 5 or 6). Both the mean and median of angler responses in 2021 (Mean=7.1, Median=7) had decreased slightly from 2016 (Mean=7.5, Median=8; Figure 8) even though the DNR and conservation partners acquired over 8 miles of AAP easements and nearly 3 miles of trout stream public access through fee title acquisition during the period of 2016 through 2020.

The COVID-19 pandemic rapidly changed how Trout Program staff were able to interact with the public. In an effort to maintain angling opportunities while also protecting staff by reducing potential interactions with anglers, all trout stream stockings in 2020 and 2021 were unannounced. This was a substantial change from the traditional approach of announcing several stream stockings each week during the summer stocking season (Kirby et al. 2020). As a result, we asked anglers how they felt about announced stockings, and found that anglers generally supported unannounced stockings more so than announced stockings (Figure 9 and Figure 10). Anglers' shift away from a reliance on announced stockings could be caused by several factors. Fingerling stockings of Brown Trout have resulted in the development and expansion of wild trout fisheries in nearly all coldwater streams in Northeast Iowa, providing anglers with a constant source of trout in streams. In some areas, wild populations can exceed 2,000 trout per mile of stream (Iowa DNR, unpublished data). Therefore, anglers can experience excellent trout fishing even when they aren't targeting stocked fish. There is also an emerging interest in wild trout among a segment of anglers. These anglers prefer to target wild, stream-reared trout over those raised in a hatchery. As angler preferences have evolved, their reliance on announced stocking has decreased. Announced stockings, however, still provide an important resource for many trout anglers in Iowa. For new or inexperienced trout anglers, seeing fish stocked may improve their confidence and overall experience in the field. Many anglers, especially young anglers, enjoy seeing trout stocked and often have better luck catching hatchery-raised trout. Finally, stocking of catchable trout provides a great opportunity for Trout Program staff to interact with anglers on the trout streams. Looking ahead, adjustments to the trout stocking calendar may be warranted. Fewer announced stockings would improve schedule flexibility for hatchery staff. It would also force some anglers to fish without following the stocking calendar; however, program staff should be aware that changes to the stocking calendar could deter some anglers and reduce the popularity of the trout program. Overall, angler preferences may be shifting away from announced stockings, but these stockings are still an important part of the Iowa Trout Program. Diverse trout angling opportunities is one reason the Iowa Trout Program remains a very popular Fisheries Bureau program.

It is important to know when trout anglers are fishing so Trout Program staff can stock hatchery-reared Rainbow Trout during times when they are most likely to be utilized by anglers. The highest trout fishing pressure in Iowa occurs April through October encompassing the same months that coldwater streams are stocked with catchable-sized trout and the weather is most conducive to fishing (Figure 14). April, May, and June receive the highest trout fishing pressure and that trend is similar to other fisheries in Iowa (Hawkins and Shoo 2015; Hawkins 2016; Wallace and Mork 2016). Raising Rainbow Trout to a catchable size cost $1.83 per fish (Iowa Department of Natural Resources 2022). In 2021, the Trout Program spent over $760,000 rearing catchable-size Rainbow Trout for Iowa put-and-take fisheries, so it is important to stock these fish when there is a high likelihood of them being caught and utilized by anglers.

The number of streams that support natural reproduction of trout may contribute to angler use and satisfaction. The number of streams supporting some form of trout natural reproduction has increased from 5 streams in 1985 to 88 streams in 2021 (Iowa Department of Natural Resources, unpublished data). Of those, 61 streams have consistent natural reproduction and do not require additional stockings to maintain trout populations. The majority of trout natural reproduction in Iowa is attributed to Brown Trout, but there are about 20 locations that also support Brook Trout reproduction. In some locations, both Brook Trout and Brown Trout populations are maintained with natural reproduction within the same stream. Consistent trout reproduction reduces the need for continued conspecific stockings, allowing Trout Program staff to direct efforts to other coldwater conservation needs.

When trout reproduction was rare in Iowa, the put-and-grow program provided additional trout angling opportunities. Trout Program staff focused on working with landowners to stock fingerling trout on private property so long as the landowner would allow access when asked by anglers. This program provided expanded angling opportunities for many years. Put-and-grow streams were also highlighted and promoted in Iowa DNR print materials like the Iowa trout map. Through time, the expansion of wild, naturally reproducing and self-sustaining trout populations quickly reduced the importance of the put-and-grow program and the time staff spent on it. As part of the transition, most Brown Trout fisheries that were once stocked and labeled as put-and-grow are now referred to as wild trout fisheries with populations maintained by natural reproduction. As a result, the put-and-grow program is being phased out and is no longer referenced on Trout Program publications. Although put-and-grow stockings are no longer an important part of the Iowa Trout Program, their historical importance should not be overlooked. They provided popular trout angling opportunities during a period of limited options and were critical to the development of the wild trout fisheries that anglers enjoy today.

There are many challenges on the horizon for trout fisheries in Iowa. For example, expanding interest in trout fishing may place additional pressure on Iowa's trout fisheries. Changing precipitation patterns that lead to more extreme flooding and drought cycles may impair stream habitats, destroy past habitat improvement work, and reduce wild trout populations. Changing landowner preferences may also reduce the miles of trout stream on private property open to public fishing. To counter these challenges and improve the effectiveness of the Iowa Trout Program, we recommend the following actions:

1. Protect coldwater resources on private lands through conservation and AAP easements.
2. Support habitat improvement projects on public trout waters.
3. Continue to produce a high-quality product at our trout hatcheries.
4. Expand our Brook Trout restoration efforts in suitable streams.
5. Continue to look for new ways to provide diverse trout fishing opportunities.
6. Evaluate the effectiveness of restrictive regulations on trout fisheries.
7. Continuously evaluate the number of catchable-size Rainbow Trout produced and stocked program-wide and on a stream-by-stream basis, making reductions or additions according to angler use and attitudes as well as the abundance of wild trout.
8. Evaluate the ability of community trout fisheries to recruit and retain trout anglers.
9. Evaluate tools for recruiting new trout anglers, including underrepresented female anglers and younger participants.
10. Work with DNR Law Enforcement to increase their presence on trout streams.
11. Conduct a trout angler survey for calendar year 2026.

Finally, future assessments of Iowa's trout fisheries may require an adjustment in methodology. Although a consistent approach has been successfully used to gather updated information over the past decades, responsiveness to the Iowa Trout Angler Survey has slowly declined over the years (Figure 2). This trend has been observed across many natural resource surveys and may be related to survey fatigue in general. As trout angling continues to grow in popularity, the percentage of trout anglers represented by the survey's current methodology (i.e., a sample size of 4,000 trout anglers) likewise continues to decline. In addition, certain survey approaches may be subject to nonresponse bias, self-selection bias, recall bias, and under- or over-representation of certain demographic groups. For example, trout anglers who are less avid may be less likely to respond to a survey, which could skew trip estimation to favor the habits of more avid trout anglers (i.e., nonresponse bias). The potential effect on estimates of this nonresponse bias has never been

examined in previous Iowa Trout Angler Surveys. As another example, those who responded in previous surveys may be more likely to respond again, skewing data in their favor (i.e., self-selection bias). This is especially likely in this survey design due to the targeting of *all* trout stamp holders in certain regions, rather than using completely random samples of those regions. Those who had the opportunity to respond in those regions could have made sure they responded every year. Again, the potential effect on estimates of over-coverage of these individuals has not been examined. Finally, surveying once at the end of the calendar year could reduce accuracy of trip recall, especially for trips that occurred many months earlier. As the number of trout streams and community ponds grows, the survey burden of reporting trip quantities and travel behaviors also grows (see Appendix A). Adjusting survey methodology to derive travel metrics from an alternative data source could reduce survey burden. An update in methodology may provide the opportunity to not only enhance response rates and gather more accurate and representative data about trout fisheries in Iowa, but also the opportunity to address new questions and explore new facets of trout fishing, such as its essential role in supporting community fisheries.

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Appendix A. Questions included in the 2021 Iowa trout angler survey.

1. In all of 2021, how many days did you spend trout fishing in Iowa?

Please enter a number

2. Did you purchase a trout stamp specifically for a community/urban area trout fishery?

Yes No

3. All trout stockings were unannounced in 2021 and received the same number of trout and frequency of stockings as in previous years. Do you feel that your trout fishing trips were: (select only one)

Better About the Same Not as Good

4. How strongly do you support the ANNOUNCED stocking of trout streams? On a scale of 1 to 10, with 1 indicating no support for announced trout stocking and 10 indicating strong support for always announcing the date and location of stocking on trout streams.

1 - no support 5 - no preference 10 -strong support

5. How strongly do you support the UNANNOUNCED stocking of trout streams? On a scale of 1 to 10, with 1 indicating no support for unannounced trout stocking and 10 indicating strong support for not announcing the date and location of stocking on trout streams.

1 - no support 5 - no preference 10 - strong support

6. Overall, on a scale of 1 (very dissatisfied) to 10 (very satisfied), how satisfied are you with the trout program?

1 - very dissatisfied 5 - neutral 10 - very satisfied

7. Overall, on a scale of 1 (very dissatisfied) to 10 (very satisfied), how satisfied are you with the amount of public access to trout streams?

1 - very dissatisfied 5 - neutral 10 - very satisfied

8. Overall, on a scale of 1 (very dissatisfied) to 10 (very satisfied), how satisfied are you with the number of special regulations streams?

1 - very dissatisfied 5 - neutral 10 - very satisfied

9. Of all the trout you caught in 2021, how many did you release?

○ None ○ Some ○ About half ○ Most ○ All

10. What do you primarily use to fish for trout: bait, artificial lures or flies? (Select only one)

○ Bait ○ Artificial Lures ○ Flies

11. Overall, on a scale of 0 to 6, rate the importance of/preference for the following amenities/features when considering where to go trout fishing? IF USING A MOBILE DEVICE TO COMPLETE THIS SURVEY, THIS QUESTION IS MOST EASILY VIEWED BY TURNING DEVICE SIDEWAYS

	Not at all important 0	1	2	3	4	5	Very important/preferred 6
Access: Stream is close to home	○	○	○	○	○	○	○
Nearby parking	○	○	○	○	○	○	○
Stream is close to paved roads	○	○	○	○	○	○	○
Easily accessed stream preferred (e.g. mowed paths)	○	○	○	○	○	○	○
Amenities: Restrooms available	○	○	○	○	○	○	○
Camping available	○	○	○	○	○	○	○
Playground/picnic area	○	○	○	○	○	○	○
Family fishing event occurring	○	○	○	○	○	○	○
Wildness/scenic area	○	○	○	○	○	○	○
Fishing: Announced stocking	○	○	○	○	○	○	○
Unannounced stocking	○	○	○	○	○	○	○
Few other anglers	○	○	○	○	○	○	○
Catch & release only area	○	○	○	○	○	○	○
Size of trout caught	○	○	○	○	○	○	○
Number of trout caught	○	○	○	○	○	○	○
Catching fish to eat	○	○	○	○	○	○	○

For the next question, please use whole numbers to indicate how many days you fished in each month of the year. If you fished more than one stream/lake in one day, that would just be a "1" for that day. Also, if you only fished for a few hours, that would also be "1" day. Add up your total days for your monthly totals.

12. Indicate the number of days you spent trout fishing in each month of the year.

January

February

March

April

May

June

July

August

September

October

November

December

For the next few questions, please use whole numbers to indicate how many days you fished at each place. Days simply means the number of times you fished at each stream/lake. If you fished more than one stream/lake in one day, each of those streams/lakes would get a "1" for that day. Also, if you only fished for a few hours, that would also be "1" day.

13. Indicate the number of days you fished for trout at each community/urban trout lake in 2021. It is not necessary to enter a 0 for lakes you did not fish.

Ada Hayden Lake (Ames)

Bacon Creek Lake (Sioux City)

Banner Lake South at Summerset State Park

Big Lake Park (East and West Lakes)(Council Bluffs)

Blue Pit (Mason City)

Discovery Park Pond (Muscatine)

East Lake Park Pond (Mt. Pleasant)

Heritage Pond (Dubuque)

Lake Petocka (Bondurant)

Liberty Centre Pond (North Liberty)

Moorland Park Pond (Ft. Dodge)

North Prairie Lake (Cedar Falls)

Ottumwa Park Pond (Ottumwa)

Prairie Park (Cedar Bend, Cedar Rapids)

Sand Lake (Marshalltown)

Scharnberg Park Pond (Spencer)

Terra Lake (Johnston)

Wilson Lake (Ft. Madison/Burlington)

14. Indicate the number of days you fished each stream or lake in 2021. It is not necessary to enter a 0 for streams/lakes you did not fish. (Page 1 of 4, streams starting with letters A-E)

*indicates put and grow streams

Bailey's Ford (Delaware Co.) south of Manchester

Bankston (Dubuque Co.) northwest portion of county

*Bear (Clayton Co.) north of Edgewood

Bear (Fayette Co.) north of Arlington

Big Mill (Jackson Co.) west of Bellevue

Bigalk (Howard Co.) north of Cresco

Bloody Run - catchable (Clayton Co.) west of Marquette

Bloody Run - special regulations (Clayton Co.) west of Marquette

Bohemian (Winneshiek Co.) east of Protivin

Brush (Jackson Co.) north of Andrew

Buck (Clayton Co.) east of Garnavillo

*Burr Oak (Mitchell Co.) northeast of Osage

Canoe Creek (Winneshiek Co) northeast of Decorah

*Casey Springs (Winneshiek Co.) north of Decorah

Chihak Creek (Howard Co) south of Cresco

*Clear (Allamakee Co.) east of Dorchester

Clear (Allamakee Co.) near Lansing

Coldwater (Winneshiek Co.) east of Kendallville

Coon (Winneshiek Co.) northeast of Freeport

Dalton Pond (Jackson Co.) east of Preston

*East Pine (Winneshiek Co.) west of Burr Oak

Ensign Hollow - special regulations (Clayton Co.) south of Volga

15. Indicate the number of days you fished each stream in 2021. It is not necessary to enter a 0 for streams you did not fish. (Page 2 of 4, streams starting with letters F-M)

*indicates put and grow streams

Fountain Springs (Delaware Co.) northeast of Greeley

French Creek - special regulations (Allamakee Co.) northwest of Lansing

Glovers (Fayette Co.) southeast of West Union

Grannis (Fayette Co.) east of Fayette

*Grimes Hollow (Delaware Co.) east of Colesburg

Hickory (Allamakee Co.) northeast of Luana

Joy Springs (Clayton Co.) west of Strawberry Point

Lansing Wildlife Management Area (Allamakee Co.)

*Little Maquoketa River (Dubuque Co.) near Epworth

Little Mill (Jackson Co.) west of Bellevue

Little Paint (Allamakee Co.) Yellow River State Forest

Little Turkey River (Delaware Co.) east of Colesburg

Maquoketa River (Clayton/Delaware Cos.) northwest of Backbone State Park

McLoud Run (Linn Co.) in Cedar Rapids

*Middle Bear (Winneshiek Co.) north of Highlandville

Mill Creek (Jackson County) in Bellevue

*Miners (Clayton Co.) near Guttenburg

Mink (Fayette Co.) north of Wadena

*Monastery Creek (Dubuque Co.) southwest of Dubuque

Mossy Glen (Clayton Co.) near Strawberry Point

16. Indicate the number of days you fished each stream in 2021. It is not necessary to enter a 0 for streams you did not fish. (Page 3 of 4, streams starting with letters N-S)
*indicates put and grow streams

North Bear (Winneshiek Co.) northeast of Highlandville

*North Canoe (Winneshiek Co.) north of Decorah

*North Cedar (Clayton Co.) southwest of McGregor

Otter (Fayette Co.) west of Elgin

*Ozark Springs (Jackson Co.) north of Canton

Paint - Big (Allamakee Co.) near Waterville

Patterson (Allamakee Co.) northwest of Waukon

*Pine (Allamakee/Winneshiek Cos.) east of Sattre

*Pine (Winneshiek Co.) north of Bluffton

Pine Spring Creek (Winneshiek Co.) north of Decorah, Seed Savers Exchange property

*Ram Hollow (Delaware Co.) southeast of Colesburg

Richmond Springs (Delaware Co.) in Backbone State Park

Sny Magill (Clayton Co.) south of McGregor

South Bear (Winneshiek Co.) near Highlandville

South Cedar (Clayton Co.) southwest of Garnavillo

*South Fork Big Mill (Jackson Co.) west of Bellevue

South Pine - special regulations (Winneshiek Co.) northeast of Decorah

Spring (Mitchell Co.) west of Orchard

Spring Branch - special regulations (Delaware Co.) southeast of Manchester

*Spring Falls (Delaware Co.) west of Colesburg

Swiss Valley (Dubuque Co.) southwest of Dubuque

17. Indicate the number of days you fished each stream in 2021. It is not necessary to enter a 0 for streams you did not fish. (Page 4 of 4, streams starting with letters T-Z)
*indicates put and grow streams

*Teeple (Allamakee Co.) southwest of Waukon

*Ten Mile (Winneshiek Co.) northwest of Decorah

*Tete des Morts (Jackson Co.) near St. Donatus

*tributary to Tete des Morts (Dubuque Co.) near St. Donatus

Trout River (Winneshiek Co.) southeast of Decorah

*Trout Run (Allamakee Co.) southwest of Lansing

Trout Run (Winneshiek Co.) at Decorah Trout Hatchery

Turkey River (Clayton Co.) at Big Spring Hatchery

*Turner (Fayette Co.) near St. Lucas

Turtle (Mitchell Co.) north of St. Ansgar

Twin Bridges (Delaware Co.) west of Colesburg

Twin Springs (Winneshiek Co.) west edge of Decorah

Wapsipinicon River (Mitchell Co.) north of McIntire

Waterloo - catchable (Allamakee Co.) west of Dorchester

Waterloo - special regulations (Allamakee Co.) southeast of Dorchester

West Canoe (Winneshiek Co.) north of Decorah

Wexford (Allamakee Co.) north of Harpers Ferry

*White Pine Hollow (Dubuque Co.) near Luxemburg

*Williams Creek (Allamakee Co.) northwest of Luana

Yellow River (Allamakee Co) public access at Forest Mills Rd

*Yellow River (Allamakee Co.) Postville to mouth

18. If you would like to be sent a verification that you are entered for the prize drawing, or if you would like a copy of the survey results, please enter your email address in the box provided:

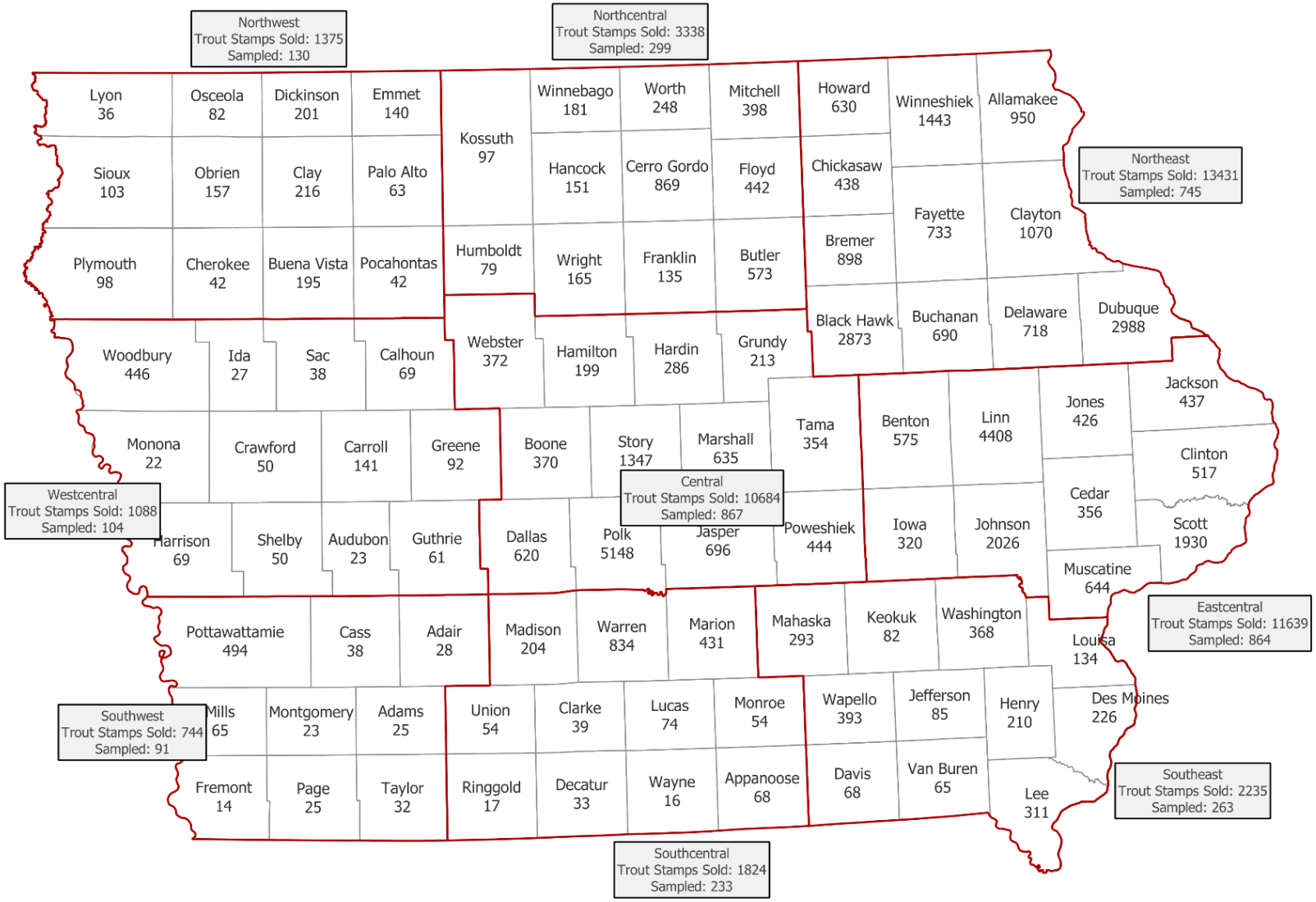
Email address

Verify email address

19. Thank you for completing this survey. If you have any further comments regarding Iowa's trout program, please share them in the comment box below.

Thank you for your participation in this survey, which also enters you into our prize drawing. No purchase or consideration is necessary for entry in the drawing. You may enter by simply clicking the "Done" button below. Rules for the drawing are available at 2021 Iowa Trout Survey webpage.

Appendix B. Trout stamps sold by Iowa county and climatology region and number of anglers sampled from each region in the 2021 trout angler survey. Of the additional 6,132 anglers with non-Iowa addresses, another 447 anglers were sampled.



Appendix C. Iowa population by county in 2021.