PROJECT: 2011 Trout Angler Survey

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LOCATION: All Public Trout Fisheries in Iowa

PERIOD OF RESEARCH: Calendar Year 2011

ABSTRACT – *A comprehensive mail survey was conducted to evaluate the trout fishing activities and preferences of anglers fishing for trout in 2011. Similar surveys have been conducted in 1975, 1980, 1986, 1991, 1996 and 2001 by telephone and in 2006 by mail. A total of 3,870 angler surveys were completed, equaling 10.3% of the 37,512 anglers who purchased trout fees for calendar year 2011. Mean age of all trout anglers was 43.0 years of age, which is similar to what was observed in 2001. Licensed trout anglers spent an estimated 430,031 days trout fishing in Iowa and made 582,851 trips to individual trout fisheries in 2011. Total annual angler trips were determined for each catchable, special, urban winter pond, and put-and-grow trout fishery in Iowa. The average trout angler made 15.5 trips per year to Iowa's trout waters. Overall, trout fishing activity days, angler trips, and, mean days and trips per angler were at or above 2006 levels and comparable to previous years. This trend is also manifested in the percent of anglers fishing and total trips taken to special urban trout fisheries, which have increased significantly since 2001. Trips to urban trout fisheries comprised 12.0% of all trout angler trips. Thirty two percent of trout anglers purchased a trout fee specifically for an urban trout fishery. Angler satisfaction with the overall program was ranked at 8 on a scale of 1 to 10 and angler satisfaction with the amount of public access to trout streams was ranked at 7.5 on the same scale.*

INTRODUCTION

Iowa trout streams have made significant gains in the past thirty years toward self-sustaining trout populations. Still, a large portion of the trout program in Iowa is resultant from some type of trout stocking because successful natural reproduction is insufficient or lacking on many streams. As far back as the 1940s, stocking of catchable-size trout on a frequent basis (put-and-take) dominated Iowa's trout program. Fingerling stockings were added to the program in the 1960s on selected streams to provide limited-use, trophy brown trout fisheries (put-and-grow streams) where anglers had the opportunity to catch stream-reared trout, and occasionally a trophy-size trout. Special regulation fisheries were initiated 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. Iowa currently has seven streams with special regulations. Winter trout fisheries were initiated in the 1980s on small, warm-water, urban lakes to provide ice fishing opportunities for trout. The urban trout program has expanded to 16 urban fisheries in 2011 in an effort to promote fishing and recruit and retain urban anglers. Experimental catch-and-release trout fisheries were established in the 1990s with the following goals: 1) 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; and 3) provide additional opportunities for catching trophy-size trout. Forty years ago, only six streams had trout populations supported solely by natural reproduction. The number of streams with self-sustaining trout populations has increased greatly during the past 20 years as a result of better trout genetics, improved instream habitat and water quality, and best management practices in watersheds. An all-time high of 36 streams (46%) support natural reproduction of trout in 2011, thus, anglers now have greatly increased opportunities to catch truly wild trout in Iowa.

It is important to be aware of angler's attitudes to ensure a close match between types of trout fisheries provided and anglers' use and demand for those types of fisheries. It is also important to gauge the level of user satisfaction with the program, because fisheries managers work to provide a variety of trout fishing opportunities through stocking, special regulations, and wild populations,

A survey of Iowa trout angler activities and preferences has been conducted every five years since 1975, with the most recent in 2011 (Appendix A). Surveys conducted in 1975, 1980, 1986, 1991, 1996 and 2001 (Moeller 1976, 1987, 1992, 1997, 2002; and Paragamian 1983) were telephone surveys. The 2006 survey was redesigned from a telephone survey into a mail survey (Osterkamp and Kopaska 2007). The 2011 survey was slightly modified from the 2006 version. All selected trout privilege purchasers (n=10,000) were sent a postcard with a unique web address, which was their access code to an Internet-based survey. Individuals who had not completed the Internet survey within three weeks after the initial mailing were sent a follow-up mail survey which matched the online survey. The purpose of this report is to summarize data collected in the 2011 survey, discuss survey results and identify trends in trout fishing activities since 1975. These surveys provide angler use, habits and preference information to fisheries managers that are useful in determining goals and best practices for existing and newly developed fisheries.

STUDY AREA

The 2011 trout angler survey collected information concerning the 96 catchable, put-and-grow, naturally reproducing, special regulation and winter trout fisheries in the following counties: Allamakee, Black Hawk, Cerro Gordo, Clay, Clayton, Delaware, Dubuque, Fayette, Howard, Jackson, Lee, Linn, Mitchell, Muscatine, Polk, Pottawattamie, Scott, Story, Wapello, Warren, Webster, Winneshiek and, Woodbury. These fisheries, excluding put-and-grow streams, are either: 1) owned by a public agency and open to public fishing, or 2) on private land where the Iowa Department of Natural Resources (DNR) has informal 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 expressed permission from the landowner each time they fish on that private property.

METHODS AND PROCEDURES

Trout anglers surveyed in 2011 were selected using a stratified random design, with the list being generated from the Electronic Licensing System in Iowa (ELSI). Anglers were geographically stratified, using Iowa's nine climatology

zones, plus a group of nonresident trout anglers (Appendix B). Ten thousand postcards with invitations to participate in the online version of the survey were sent out, approximately one thousand to each region. The five regions in western and southern Iowa had fewer than one thousand privileges sold, therefore they received complete coverage. The remaining four central and north-eastern regions, and nonresidents, were randomly sub-sampled to reflect the number of trout privileges in those regions. Results of the survey were calculated separately for each geographic survey zone, and expanded based on the number of trout anglers each survey response represented from that area. Overall results were then aggregated to derive totals, 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.

This represents a change from previous methodologies (1975-2001), when the survey sample of anglers to interview by telephone was selected from purchasers of trout fishing fees. These previous trout angler surveys instructed individual license vendors to fill out a postcard on 10% of trout stamp purchases identifying the purchaser. Postcards were then mailed to the DNR, and a subsample was randomly selected for the telephone survey. The postcard system did not result in a truly random list of trout anglers, because some vendors rarely filled out the postcards. This resulted in some geographic areas with few or no trout anglers in the sample. In past telephone surveys, northeast Iowa trout hatchery, management and research staff conducted the telephone surveys in January and February of the following year. The 2006 mail survey allowed an order of magnitude greater portion of the trout angler population to be sampled, and the 2011 survey was designed similarly. Appendix A shows a copy of the mail survey form. Responses on completed interview forms were tabulated at the Boone Research station and data computations were performed using Access and Excel software. Variation in previous surveys was presented as a ± 95 percent confidence interval calculated from all surveyed individuals (1975-2001), and from all districts combined (2006).

RESULTS

A total of 37,512 trout fees were sold for the 2011 fishing year. A total of 3,980 angler surveys were completed, representing a sample size of 10.6% of all trout fee purchasers. Each interviewed angler represented 9.7 other 2011 trout anglers. The 2011 percentage of anglers sampled (10.6%) was similar to 2006 (12.5%) and greater 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%)]. Appendix B shows the number of trout fee purchasers and the number of completed surveys by county. Data collected in this survey was expanded to the numbers presented below based on the total number of trout fees sold from the nine zones plus a group of nonresident trout anglers in 2011.

Counties with greater than 1,000 trout anglers in 2011 were: Linn - 3,481, Polk - 3,099, Black Hawk - 2,534, Dubuque - 2,389, Scott - 2,122, Winneshiek - 1,415, and Johnson - 1,215 (Appendix B). These seven counties made up 47% of all trout fee purchasers.

Nonresident trout fee purchasers numbered 3,200 in 2011, representing 8.5% of all trout fees purchased, which is similar to the previous seven surveys. The highest percent

of nonresident trout anglers was 10.1% in 1996. Non-resident anglers accounted for 7.0% of the 2011 respondents, which is similar to the 8.5% of non-resident fee purchasers. Minnesota residents made up 32% of the nonresidents; Illinois, 24%; Wisconsin, 16%; and all other states, 28%. Anglers from 49 states (not Rhode Island) and 4 foreign countries fished for trout in Iowa in 2011.

The mean age of all 2011 trout anglers was 43.5 years, similar to 2006, but was 5.3 years younger than the 48.8 year average in 2001 (Table 1). The mean age of male and female trout anglers was similar, varying by only 2 years. Males continue to dominate the trout fishing public in Iowa where only 14.9% of anglers were female, the same as in 2006. Females purchased trout privileges disproportionately to the number of females (50.5%) in Iowa's population during 2010 (Table 1).

Table 1. Percent and mean age of trout privilege purchasers by gender.

Gender	Percent	Mean Age	% of Iowa population**
Female	14.9	42.5	50.5
Male	85.1	44.5	49.5

**U.S. Census, 2010, http://factfinder2.census.gov/

The percent of anglers in the 16–29 year old age bracket (22%) reflected the percentage of Iowa's angling population (21%) the last two surveys whereas the 1996 and 2001 surveys were below that level when compared to all other survey years (Table 2). The portion of 2011 trout anglers in the other age groups was similar to the 2006 survey, although the percent of 30-49 trout anglers has declined since 2001.

Licensed anglers spent an estimated 430,031 days (± 53) trout fishing in 2011 (Table 3). This is an average of 11.5 days spent trout fishing per angler, down from 13.6 in 2006, but an increase from the all-time low average of 8.5 days/angler in the 2001 survey. Fifty-two percent of licensed trout anglers fished five or fewer days in 2011, up from 45% in 2006 but within the range of 43-60 from 1975 to 2011 (Table 4). Roughly 70 % of licensed trout anglers fish 1-15 days. Nine percent of trout fee purchasers did not go trout fishing in 2011.

An estimated 582,851 angler trips (SD ± 1,405) were made to the 96 different trout fisheries in 2011 (Table 5). This is the highest number of angler trips in the eight survey years. The average number of trips per angler (15.5) is one trip/angler below the mean number of trips/angler (16.6) for the eight survey years. Trips to urban fisheries contributed 70,202 or 12% of the total trout angling trips (Figure 1).

North Bear, Bailey's Ford, South Bear and Swiss Valley were the top four most heavily used fisheries in number of angler trips (Table 6). North Bear was fished by 20% of all trout anglers, Bailey's Ford by 10% and South Bear by 17%. Trout Run was fished by 12% of all trout anglers and Bloody Run by 11%.

Swiss Valley and Yellow River more than doubled in the number of angler trips in 2011 and increased in rank from 21st to 4th and 23rd to 5th respectively (Table 6). Little Paint increased in rank from 24th in 2001 to 5th in 2006 and was 8th in 2011. Coldwater rose from a rank of 28th in 2001 to 8th in 2006 and was ranked 10th in 2011. Bankston increased in rank from 22nd in 2006 to 14th in 2011. Fountain Springs increased in rank from 18th in 2001 to 10th in 2006 and is ranked 13th in 2011.

Table 2. Percent of trout anglers by age group, 1975 through 2011.

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

*ELSI, 2006.

**U.S. Census, 2010, http://factfinder2.census.gov/

Table 3. Total annual trout fishing activity days by licensed trout anglers, 1975 to 2011.

	Year							
	1975	1980	1986	1991	1996	2001	2006	2011
Number of days	300,985	282,045	373,309	277,389	358,556	277,087	415,595	430,031
Number of trout stamps sold	22,354	26,712	26,819	24,059	28,222	32,466	31,842	37,512
Mean days fished/angler	13.5	10.6	13.9	11.5	12.7	8.5	13.6	11.5

Table 4. Percent of anglers trout fishing at various activity levels, 1975 to 2011.

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

Table 5. Number of trout angler trips to the catchable, special and urban winter trout fisheries, 1975 to 2011*.

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

* Data for 1975-2001 does not include trip information to the put-and-grow streams, 2006-2011 data includes put-and-grow streams.

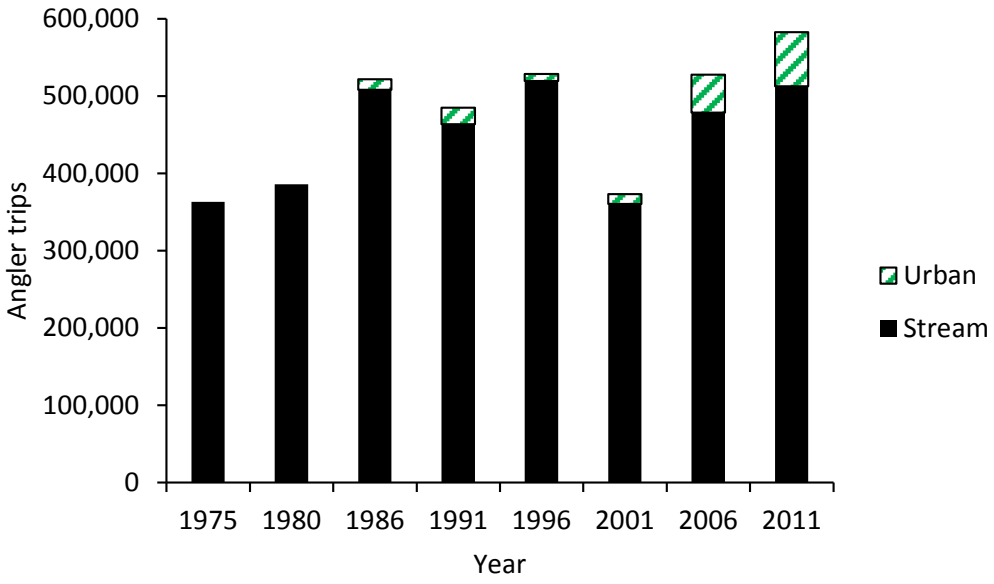

Figure 1. Number of trout angler trips to stream and urban fisheries.

Streams that showed marked decreases in the number of trips and rank included Richmond Springs, Wexford and the Wapsipinicon River (Table 6). Richmond Springs was ranked 1st in 2001, 4th in 2006 and was 7th in 2011. Little Mill dropped from 6th in 2001 to 42nd in 2006 but held near that level at 43rd in 2011.

A decrease in angler trips occurred in all the restrictive regulation streams for this survey period. Special regulation streams with large decreases from 2006 to 2011 included Waterloo (24th to 41st) and Spring Branch (32nd to 50th) Creek and McLoud Run (56th to 76th).

Streams with the least angling pressure tend to be from the put and grow program (17 streams), including Teeple, Miners, Tributary to Tete de Morts, Tete des Morts, Grimes Hollow, Spring Falls, Ten Mile, Ozark Springs, Pine and East Pine (Table 6). Put and take streams with the least angling use and ranked the lowest were Turner (94th), Monastery Creek (91st) and White Pine Hollow (88th). Silver Creek in Allamakee County was discontinued as a public stream in 2010 due to loss of public access.

The six streams with the highest number of angler trips per mile of stream open to public fishing were the same as in 2006. These streams included Baileys Ford (28,818 trips), Richmond Springs (14,638 trips), Trout Run (Winneshiek Co.) (13,963 trips) Turkey River (12,749 trips), Joy Springs (10,968 trips), and, Twin Springs (10,715 trips) (Table 6).

Many anglers fish a stream more than once in a season. When anglers fish a stream at least once, the average number of trips made to that stream can be used to gauge angler use (Table 6). Turtle Creek anglers made an average of 9.2 trips to that stream in 2011 and was the highest average in 2011 and 2006 (9.0 trips). Other streams with high mean trips include Yellow River (6.8), Swiss Valley (6.6), Spring Creek (5.6) Bankston (4.8), Waterloo (4.8), Sny Magill (4.3), Bailey's Ford (4.1), Little Paint (4.0) and North Bear (4.0).

Table 6. Rank of fishery in terms of number of angler trips, number of angler trips (± 95% confidence interval), trips per stream mile, percent of anglers fishing a stream at least once and mean trips per angler, for each fishery and survey year.

	Rank by year			Number of angler trips by year			Trips per stream mile by year			Percent of anglers fishing at least once	Mean trips per angler
Fishery	2011	2006	2001	2011	2006	2001	2011	2006	2001	2011	2011
North Bear (Winneshiek) NE of Highlandville	1	1	2	29,931 (28)	30,469 (2,228)	29,123 (9,743)	4,751	4,836	6,472	20.1%	4.0
Bailey's Ford (Delaware) S of Manchester	2	3	17	23,054 (21)	19,463 (2,384)	9,459 (4,135)	28,818	24,329	9,717	10.0%	4.1
South Bear (Winneshiek) Highlandville	3	2	3	21,877 (15)	24,907 (1,922)	21,497 (7,634)	3,978	4,529	4,387	16.6%	3.8
Swiss Valley (Dubuque) SW of Dubuque	4	21	9	21,212 (45)	10,288 (1,879)	13,813 (8,027)	3,166	1,536	4,456	4.9%	6.6
Yellow River (Allamakee) Postville to mouth	5	23	NA	19,601 (81)	8,710 (2,529)	NA	632	281	NA	4.9%	6.8
Waterloo - Catchable (All) W of Dorchester	6	7	5	19,332 (54)	17,649 (2,074)	16,382 (7,778)	1,711	1,562	4,201	9.8%	4.8
Richmond Springs (Delaware) Backbone Pk	7	4	1	18,298 (22)	19,298 (2,566)	29,273 (15,965)	14,638	15,438	24,394	10.5%	3.5
Little Paint (Allamakee) Yellow R Forest	8	5	24	18,000 (18)	18,603 (2,332)	5,796 (2,907)	9,000	9,302	2,520	10.3%	4.0
Trout Run (Winneshiek) Decorah Hatchery	9	6	12	16,755 (16)	17,885 (2,640)	11,781 (6,066)	13,963	14,905	5,891	11.9%	3.4
Coldwater (Winneshiek) E of Kendallville	10	8	28	16,462 (21)	14,919 (1,949)	4,532 (2,660)	8,665	7,852	1,511	10.0%	3.8
Sny Magill (Clayton) S of McGregor	11	11	13	15,830 (25)	14,485 (1,925)	10,828 (6,117)	2,683	2,455	2,707	7.3%	4.3
Bloody Run-Catchable (Clayton) W of Marquette	12	12	23	14,907 (13)	14,114 (1,677)	5,830 (2,773)	1,754	1,661	3,887	11.0%	3.2
Fountain Springs (Delaware) NE of Greeley	13	10	18	13,521 (13)	14,540 (2,023)	8,586 (4,227)	5,634	6,058	6,133	7.6%	3.0
Bankston (Dubuque) NW portion of county	14	22	20	12,927 (22)	9,878 (1,764)	7,161 (5,031)	2,638	2,016	7,968	4.3%	4.8
Turkey River (Clayton) Big Spring Hatchery	15	9	10	12,748 (22)	14,564 (1,984)	12,410 (6,529)	12,749	14,564	8,273	7.4%	3.8
Trout River (Winneshiek) SE Decorah	16	14	19	11,622 (19)	13,467 (1,984)	7,566 (3,970)	1,336	1,548	2,522	9.8%	2.8
Turtle (Mitchell) N of St Ansgar	17	17	38	11,091 (23)	12,505 (4,643)	2,003 (2,476)	4,108	4,631	910	4.5%	9.2
Paint - Big (Allamakee) near Waterville	18	18	31	11,082 (16)	12,347 (1,708)	3,250 (2,011)	648	722	500	7.6%	3.2
Joy Springs (Clayton) W of Strawberry Pt	19	13	11	10,968 (10)	13,988 (1,689)	12,132 (6,225)	10,968	13,988	15,165	8.6%	2.4
Twin Springs (Winneshiek) W edge Decorah	20	16	21	10,715 (14)	12,560 (2,060)	6,751 (4,948)	10,715	12,560	11,252	8.1%	3.6
Grannis (Fayette)E of Fayette	21	15	33	10,633 (12)	13,278 (1,833)	3,029 (1,600)	7,089	8,852	1,211	7.3%	2.7
Twin Bridges (Delaware)W of Colesburg	22	27	NA	9,478 (21)	7,187 (1,643)	NA	10,532	7,986	NA	4.5%	3.4
Glovers (Fayette) SE of West Union	23	19	NA	9,180 (13)	10,572 (1,531)	NA	3,672	4,229	NA	6.2%	3.0
Maquoketa R (Clay_Del) NW of Backbone Pk	24	26	39	8,220 (14)	7,203 (1,125)	1,814 (1,382)	2,740	2,401	302	4.7%	3.2
Middle Bear (Winneshiek) N of Highlandville	25	20	NA	7,953 (10)	10,327 (1,267)	NA	2,410	3,129	NA	7.8%	3.0

Table 6. Continued

Fishery	Rank by year			Number of angler trips by year			Trips per stream mile by year			Percent of anglers fishing at least once	Mean trips per angler
	2011	2006	2001	2011	2006	2001	2011	2006	2001	2011	2011
Bigalk (Howard) N of Cresco	26	31	NA	7,560 (20)	6,312 (1,082)	NA	6,300	5,260	NA	3.9%	3.9
Big Mill (Jackson) W of Bellevue	27	29	4	7,458 (16)	6,690 (1,230)	18,429 (10,750)	2,131	1,912	23,036	3.9%	3.3
Banner Lake South	28	NA	NA	7,156 (16)	NA	NA	NA	NA	NA	5.1%	5.0
North Prairie Lake	29	NA	25	7,100 (24)	NA	5,437 (3,344)	NA	NA	NA	2.7%	4.2
Lake of the Hills	30	NA	NA	7,012 (18)	NA	NA	NA	NA	NA	2.3%	5.2
Heritage Pond	31	NA	22	6,571 (12)	NA	6,213 (6,374)	NA	NA	NA	2.5%	4.2
Spring (Mitchell) W of Orchard	32	28	NA	6,209 (12)	7,156 (2,091)	NA	1,940	2,236	NA	3.7%	5.6
Otter (Fayette) W of Elgin	33	33	27	6,110 (21)	5,728 (943)	4,893 (6,026)	711	666	576	3.7%	3.2
Buck (Clayton) E of Garnavillo	34	34	32	5,984 (16)	5,475 (1,085)	3,134 (2,302)	1,032	944	1,306	3.8%	3.0
French Creek, Spec Reg (All) NW of Lansing	35	30	7	5,311 (11)	6,525 (780)	15,275 (8,567)	885	1,087	3,394	4.9%	2.6
Ada Hayden	36	NA	NA	5,156 (31)	NA	NA	NA	NA	NA	2.5%	4.2
Prairie Park Pond	37	NA	NA	5,129 (10)	NA	NA	NA	NA	NA	2.3%	3.3
DMACC Pond	38	NA	NA	5,084 (15)	NA	NA	NA	NA	NA	2.5%	4.4
Greater Ottumwa Park Pond	39	NA	NA	5,011 (40)	NA	NA	NA	NA	NA	2.8%	11.2
Clear (Allamakee) near Lansing	40	45	NA	5,006 (24)	4,047 (1,030)	NA	1,788	1,445	NA	2.6%	4.2
Waterloo - Spec Reg (Alla) SE of Dorchester	41	24	15	4,908 (12)	8,268 (1,220)	10,406 (5,230)	3,506	5,906	7,433	4.8%	2.9
Patterson (Allamakee) NW of Waukon	42	25	36	4,826 (9)	8,174 (3,276)	2,074 (1,509)	832	1,409	830	5.6%	2.4
Little Mill (Jackson) W of Bellevue	43	42	6	4,753 (10)	4,245 (781)	15,350 (8,632)	1,320	1,179	10,233	2.7%	3.3
Bloody Run-Special Reg W of Marquette	44	44	16	4,547 (10)	4,087 (584)	9,746 (15,107)	1,819	1,635	2,320	4.0%	2.5
Bacon Creek Lake	45	NA	NA	4,495 (13)	NA	NA	NA	NA	NA	4.0%	9.6
Bohemian (Winneshiek) E of Protivin	46	37	NA	4,342 (13)	4,844 (1,031)	NA	3,618	4,037	NA	2.3%	3.4
Bear (Fayette) N of Arlington	47	35	NA	4,109 (10)	5,239 (870)	NA	1,027	1,310	NA	4.1%	2.3
Brush (Jackson) NE of Andrew	48	39	14	3,978 (15)	4,742 (820)	10,517 (6,075)	1,047	1,248	7,011	2.2%	3.0
Scharnberg Park Pond	49	NA	NA	3,675 (14)	NA	NA	NA	NA	NA	4.5%	7.2
Spring Branch-Spec Reg (Del) SE Manchester	50	32	8	3,672 (11)	5,870 (1,579)	14,867 (7,636)	1,266	2,024	6,758	2.9%	3.0
North Canoe (Winneshiek) N of Decorah	51	41	NA	3,528 (10)	4,276 (839)	NA	1,176	1,425	NA	4.0%	2.2

Table 6. Continued.

Fishery	Rank by year			Number of angler trips by year			Trips per stream mile by year			Percent of anglers fishing at least once	Mean trips per angler
	2011	2006	2001	2011	2006	2001	2011	2006	2001	2011	2011
Bear (Clayton) N of Edgewood	52	48	NA	3,441 (8)	3,195 (712)	NA	956	888	NA	3.7%	2.2
West Canoe (Winneshiek) N of Decorah	53	40	30	3,261 (16)	4,607 (1,071)	3,334 (2,946)	544	768	775	2.9%	3.5
Blue Pit	54	NA	NA	3,189 (11)	NA	NA	NA	NA	NA	2.6%	4.1
Hickory (Allamakee) NE of Luana	55	55	NA	3,134 (21)	2,359 (529)	NA	950	715	NA	1.9%	3.1
Trout Run (Allamakee) SW of Lansing	56	47	NA	3,103 (14)	3,511 (1,175)	NA	3,104	3,511	NA	2.6%	2.6
Little Turkey R (Delaware) E of Colesburg	57	46	37	2,931 (8)	3,550 (768)	2,058 (1,750)	5,862	7,101	2,572	2.7%	2.0
Coon (Winneshiek) NE of Freeport	58	49	40	2,785 (12)	3,140 (612)	1,625 (1,172)	1,266	1,427	903	2.9%	2.1
Dalton Pond (Jackson) E of Preston	59	52	26	2,755 (11)	2,682 (825)	4,992 (2,949)	NA	NA	NA	1.3%	3.9
Wilson Lake	60	NA	NA	2,751 (11)	NA	NA	NA	NA	NA	2.3%	7.8
Discovery Park Pond	61	NA	NA	2,602 (12)	NA	NA	NA	NA	NA	1.2%	3.8
Mink (Fayette) N of Wadena	62	50	NA	2,588 (9)	3,069 (717)	NA	1,177	1,395	NA	1.9%	2.3
Ensign Hollow - Spec Reg (Clayton) S Volga	63	57	35	2,476 (12)	1,980 (372)	2,185 (1,892)	708	566	2,185	1.9%	2.8
North Cedar (Clayton) SW of McGregor	64	62	NA	2,433 (33)	1,523 (448)	NA	529	331	NA	1.6%	2.7
Wexford (Allamakee) N of Harpers Ferry	65	38	NA	2,422 (8)	4,749 (1,013)	NA	591	1,158	NA	2.1%	2.5
Petoka Lake	66	NA	NA	2,098 (8)	NA	NA	NA	NA	NA	1.3%	2.9
South Cedar (Clayton) SW of Garnavillo	67	54	34	2,091 (11)	2,469 (820)	2,330 (2,311)	550	650	1,553	1.4%	2.6
Clear (Allamakee) E of Dorchester	68	53	NA	1,997 (9)	2,611 (599)	NA	526	687	NA	2.2%	2.2
Big Lake Park	69	NA	NA	1,966 (9)	NA	NA	NA	NA	NA	2.3%	7.2
Little Turkey R (Delaware) SE of Colesburg	70	58	NA	1,869 (9)	1,933 (798)	NA	935	966	NA	1.3%	2.4
Casey Springs (Winneshiek) N of Decorah	71	59	NA	1,688 (10)	1,744 (664)	NA	704	726	NA	2.1%	2.2
Pine (Allamakee_Winneshiek) E of Satire	72	60	NA	1,399 (7)	1,736 (558)	NA	304	377	NA	1.9%	2.0
Burr Oak (Mitchell) NE of Osage	73	51	NA	1,371 (9)	3,061 (2,146)	NA	549	1,224	NA	1.2%	3.7
Mossy Glen (Clayton) Strawberry Point	74	64	NA	1,354 (12)	1,467 (433)	NA	967	1,048	NA	1.2%	2.4
South Pine-Spec Reg (Winn) NE of Decorah	75	63	NA	1,247 (7)	1,507 (455)	NA	462	558	NA	1.5%	2.2
McLoud Run (Linn) in Cedar Rapids	76	56	NA	1,061 (6)	2,209 (424)	NA	442	920	NA	1.0%	2.0
Little Maquoketa R (Dubuque) Epworth	77	67	NA	1,035 (8)	986 (266)	NA	272	260	NA	0.7%	2.3

Table 6. Continued.

Fishery	Rank by year			Number of angler trips by year			Trips per stream mile by year			Percent of anglers fishing at least once	Mean trips per angler
	2011	2006	2001	2011	2006	2001	2011	2006	2001	2011	2011
Ram Hollow (Delaware) SE of Colesburg	78	68	NA	980 (9)	876 (237)	NA	1,635	1,460	NA	1.0%	1.8
Wapsipinicon River (Mitchell) N of Mclntire	79	43	NA	954 (6)	4,213 (2,186)	NA	530	2,341	NA	1.3%	2.4
South Fork Big Mill (Jackson) W of Bellevue	80	66	NA	776 (9)	1,389 (481)	NA	862	1,543	NA	0.6%	2.3
East Pine (Winneshiek) W of Burr Oak	81	69	NA	767 (9)	876 (348)	NA	160	182	NA	0.7%	2.1
Pine (Winneshiek) N of Bluffton	82	61	NA	691 (5)	1,578 (449)	NA	61	140	NA	1.2%	1.5
Ozark Springs (Jackson) N of Canton	83	NA	NA	651 (13)	NA	NA	931	NA	NA	0.7%	1.7
Moorland Park Pond	84	NA	NA	622 (15)	NA	NA	NA	NA	NA	0.4%	3.3
Ten Mile (Winneshiek) NW of Decorah	85	65	NA	598 (5)	1,389 (403)	NA	176	408	NA	1.1%	1.7
Copper Creek Lake	86	NA	NA	579 (9)	NA	NA	NA	NA	NA	0.5%	3.3
Spring Falls (Delaware) W of Colesburg	87	72	NA	528 (5)	536 (156)	NA	704	715	NA	0.6%	1.6
White Pine Hollow (Dubuque) Luxemburg	88	75	NA	523 (6)	473 (195)	NA	141	128	NA	0.5%	1.9
Grimes Hollow (Delaware) E of Colesburg	89	70	NA	468 (5)	821 (353)	NA	469	821	NA	0.4%	1.8
Tete des Morts (Jackson) St Donatus	90	74	NA	437 (14)	481 (339)	NA	133	146	NA	0.2%	4.9
Monastery Creek (Dubuque) SW of Dubuque	91	NA	NA	288 (3)	NA	NA	1,440	NA	NA	0.4%	1.4
Williams Creek (Allamakee) NW of Luana	92	71	NA	221 (6)	600 (231)	NA	116	316	NA	0.3%	1.7
Tributary-Tete des Morts(Dubuque) StDonatus	93	78	NA	180 (4)	245 (113)	NA	181	245	NA	0.4%	1.7
Turner (Fayette) St Lucas	94	73	NA	156 (4)	536 (200)	NA	143	488	NA	0.3%	1.9
Miners (Clayton) Guttenberg	95	77	NA	141 (3)	245 (89)	NA	32	54	NA	0.4%	1.2
Teeple (Allamakee) SW of Waukon	96	76	NA	119 (3)	252 (86)	NA	28	59	NA	0.2%	1.0
Silver (Allamakee)	NA	36	29	NA	4,899 (743)	3,628 (1,905)	NA	2,333	1,451	NA	NA

Fishing pressure on the urban winter trout fisheries in 2011 increased to 70,202 trips from 48,868 trips in 2006 and 12,920 trips in 2001 (Table 7). Trips to urban winter trout fisheries increased from 9% of all trout angler trips in 2006 to 12% in 2011 (Figure 1). The number of urban fisheries available to anglers had slowly increased from 1986 through 2001 from 1 to 3 urban fisheries and has recently been expanded to 8 locations in 2006 and 17 in 2011 (Table 7; Figure 2). Banner Lake, North Prairie Lake, Prairie Park Pond, and Heritage Pond ranked the highest whereas Moorland Park Pond and Copper Creek Lake ranked the lowest in estimated angler trips to winter urban trout fisheries (Table 7). Copper Creek Lake has been proposed as an urban trout fishery, but has not yet received a trout stocking, so its low ranking is expected.

Table 7. Total estimated angler trips to the urban winter trout fisheries, 1986 to 2011.

	Year					
Fishery	1986	1991	1996	2001	2006	2011
Ada Hayden Lake (Ames)						5156
Bacon Creek Lake (Sioux City)					3,905	4495
Banner Lake (Indianola)					14,903	7,156
Big Lake Park (Council Bluffs)					3,645	1,967
Blue Pit (Mason City)		12,307	1,865	1,270	7,629	3,189
Copper Creek Lake (Pleasant Hill)						579
Discovery Park Pond (Muscatine)						2,602
DMACC Pond (Ankeny)						5,084
Heritage Pond (Dubuque)			3,543	6,213	6,919	6,571
Greater Ottumwa Park Pond (Ottumwa)						5,012
Lake of the Hills (Davenport)					3,961	7,013
Lake Sauganash (Council Bluffs)					2,320	
Mitchell Lake (Waterloo)	13,686	9,100				
Mooreland Park Pond (Ft. Dodge)						622
North Prairie Lake (Cedar Falls)			3,668	5,437	5,586	7,101
Petoka Lake (Bondurant)						2,098
Prairie Park Pond (Cedar Rapids)						5,129
Scharnberg Park Pond (Spencer)						3,676
Wilson Lake (Ft. Madison/Burlington)						2,752
Total	13,686	21,407	9,076	12,920	48,868	70,202

In previous surveys, anglers were asked if they fished only the winter trout fisheries. Those individuals who answered yes made up 3.5% of all trout anglers in 2001, 1.5% in 1996 and 6.0% in 1991. In the 2006 and 2011 survey, a similar question was asked; "Did you (the angler) purchased your trout privilege specifically for a winter urban trout fishery?" Those answering yes comprised 26% of respondents in 2006 and 32% in 2011 (Table 8).

Estimated number of angling trips to trout fisheries with restrictive regulations (i.e., length limits or catch and release regulations) decreased from 2001 to 2011 while the number of streams with restrictive regulations has increased from 4 to 7 during

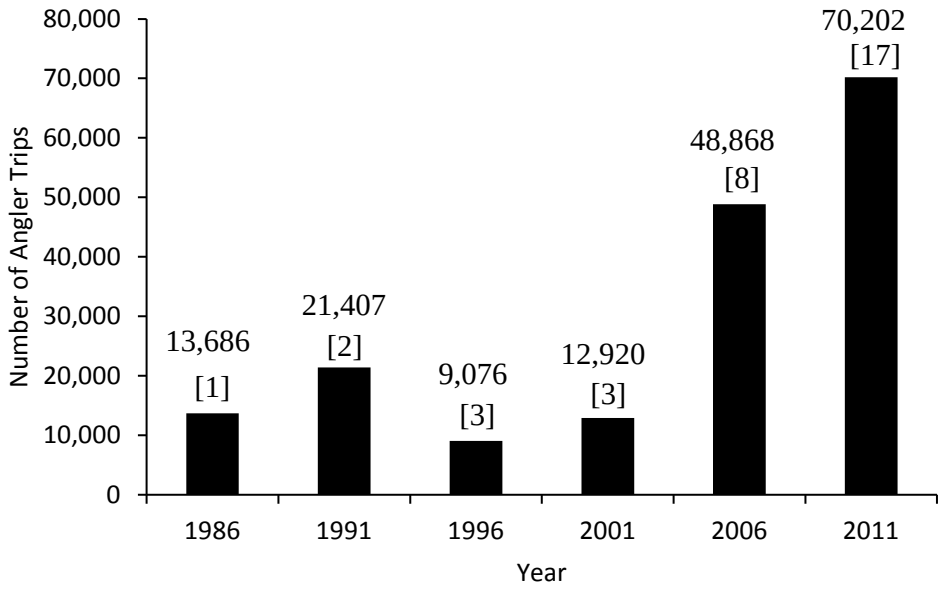

Figure 2. Estimated angler trips to urban winter trout fisheries, 1986-2011. Number of urban fisheries in brackets above bars.

this time period (Figure 3). A total of 23,227 angler trips (4.0% of all trips) were taken to restrictive regulation streams in 2011 whereas 30,304, angler trips (5.3% of all trips) were made in 2006, compared to 53,388 trips (14.3% of all trips) in 2001 (Table 9). Streams with restrictive regulations receiving the most visits were French (5,311 trips), Waterloo (4,909 trips), and Bloody Run (4,548 trips) in 2011. South Pine, a remote brook trout stream with difficult angler access, still received over 1,200 angler trips. Most (5 of 7) restrictive regulation streams have decreased in usage since 2001. Bloody Run and Ensign Hollow increased angler trips in the 2011 survey. It should be noted that French Creek had special regulations only on the upper portion during the 1986, 1991 and 1996 survey years, while the entire stream was under special regulations for the 2001 and 2006 surveys. Trout anglers were asked to rate their satisfaction with the amount of special (restrictive) regulations on trout streams in the 2011 survey on a scale of 1 to 10. The scale indicated a rating of 1 was very dissatisfied and a rating of 10 was very satisfied. Trout anglers indicated they are satisfied to very satisfied with the amount of special regulations on trout streams as 69% rated this question a 7 or higher (Figure 4). The mean rating from trout anglers on special regulations was 7.4 and the median was 8.

Table 8. Percent of anglers that specifically purchased a trout privilege for an urban trout fishery.

	Year	
	2006	2011
Yes	26	32
No	74	68

Anglers made an estimated 56,959 angling trips to 28 put-and-grow (fingerling stocked) streams in 2011, which was similar to the trips taken to the 26 put-and-grow streams in 2006 (53,909 angling trips) (Table 10). This is a large increase compared to the 1975 to 2001 surveys when there were 6 put-and-grow streams available

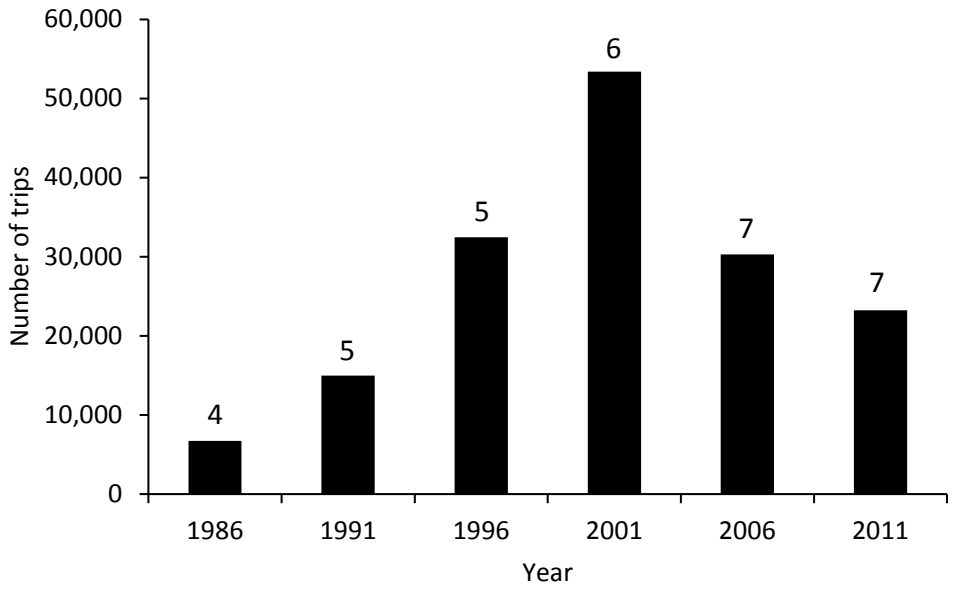

Figure 3. Estimated number of trips to trout fisheries with restrictive regulations, 1986-2011. Number above bar is the number of fisheries with special regulations.

Table 9. Estimated number of trips to the trout fisheries with restrictive regulations, 1986 to 2011.

	Year					
	1986	1991	1996	2001	2006	2011
Waterloo	--	--	--	10,406	8,268	4,909
French*	743	1,939	8,268	15,275	6,525	5,311
Spring Branch	3,848	8,727	13,552	14,867	5,728	3,673
Bloody Run	2,093	1,939	8,889	9,746	4,087	4,548
McCloud Run	--	--	--	--	2,209	1,062
Ensign Hollow	--	1,566	932	2,185	1,980	2,477
South Pine	--	--	808	909	1,507	1,247
Upper Swiss Valley	--	820	--	--	--	--
South Fork Big Mill	67	--	--	--	--	--
Total	6,751	14,991	32,449	53,388	30,304	23,227
% of Total Trips	1.3	3.1	6.1	14.3	5.3	4.0

*Only upper portion under special regulation 1986-1996, entire stream under special regulation 2001-2011

to anglers. The mean number of trips per angler to put-and-grow streams has averaged 3.3 trips from 1975 through 2011 and was 2.3 trips per angler in 2011.

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 2011, "Of the trout you caught, which describes the number released?" Responses were similar to those of the 2006 survey with 32% of successful anglers released "some" of their trout (Table 11). The percent of anglers

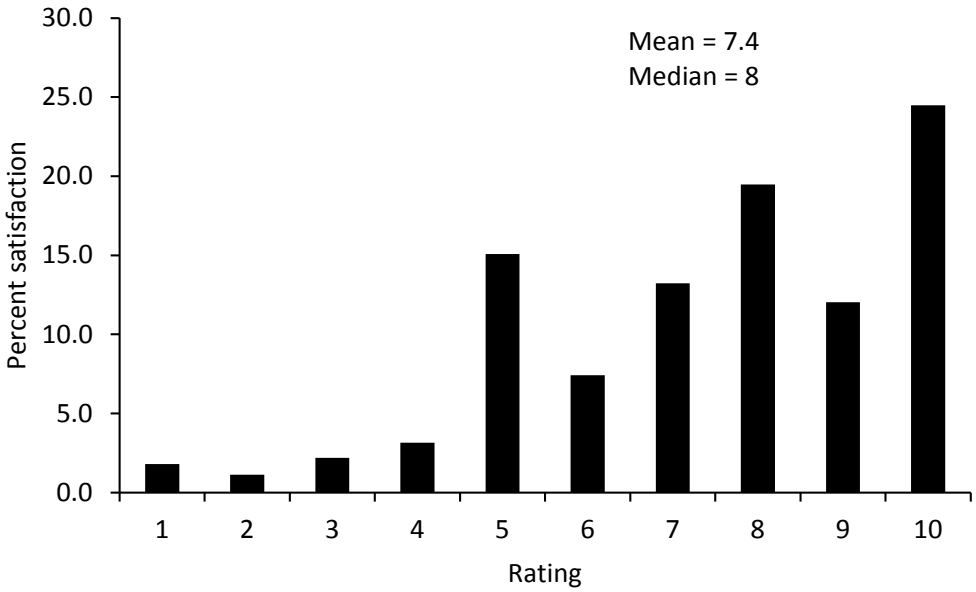

Figure 4. Trout angler satisfaction rating of with the amount of special (restrictive) regulations on trout streams. 1=very dissatisfied, 10=very satisfied.

Table 10. Put-and-grow trout stream statistics, 1975 to 2011.

	Year							
	1975	1980	1986	1991	1996	2001	2006	2011
N angler trips	2,041	N/A	3,563	1,128	3,605	4,314	53,909	56,959
Mean trips per angler	6.3	--	3.2	2.5	2.5	3.0	3.2	2.3

Table 11. Relative number of trout released for each category of release by successful anglers (in percent), 1996-2011.

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

releasing “none”, “about half”, “most” and “all” of their trout was 17% for each category.

Many anglers use a combination of bait, lures and flies while fishing for trout and interviewees in 1991 and 2001 through 2011 surveys were asked to identify the type of terminal tackle they primarily used (Table 12). Responses were similar to those of the 2006 survey with 47% of the anglers primarily using bait. The percent of anglers primarily using flies changed from 7% in 1991 to 26% in 2001 then decreased to 15 in 2006 and 2011. The percent of anglers using bait in 1991 was 60% and then decreased to a range of 43-48% in the 2001 through 2011 surveys.

Surveys during 1975 through 1991 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 13). The 2006 and 2011 surveys changed the question to be

Table 12. Percent type of terminal tackle primarily used by trout anglers, 1991 to 2011.

	Year			
	1991	2001	2006	2011
Bait	60	43	48	47
Artificial lures	33	31	37	38
Flies	7	26	15	15

quantifiable, and asked anglers to rate their level of satisfaction with 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 are very satisfied with this program (Figure 5). The mean rating from all trout anglers on trout program satisfaction was 8.0; the median was 8; both similar to the 2006 survey (mean=7.6; median=8).

Trout anglers were asked to rate their satisfaction with the amount of public access trout streams in the 2011 survey on a scale of 1 to 10. The scale indicated a rating of 1 was very dissatisfied and a rating of 10 was very satisfied. Trout anglers indicated they are satisfied to very satisfied with the amount of public access to trout streams as 71% rated this question a 7 or higher (Figure 6). The mean rating from trout anglers on the amount of public access was 7.5 and the median was 8.

Trout anglers surveyed in 2011 were asked if they fished for species other than trout. Responses indicated that 84% of anglers fish for species other than trout (Table 14).

Table 13. Percent angler response to whether they are satisfied with the quality of trout fishing in Iowa, 1975 to 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.”

Table 14. Response of trout anglers (percent) who fished for species other than trout in 2011.

Yes	84
No	16

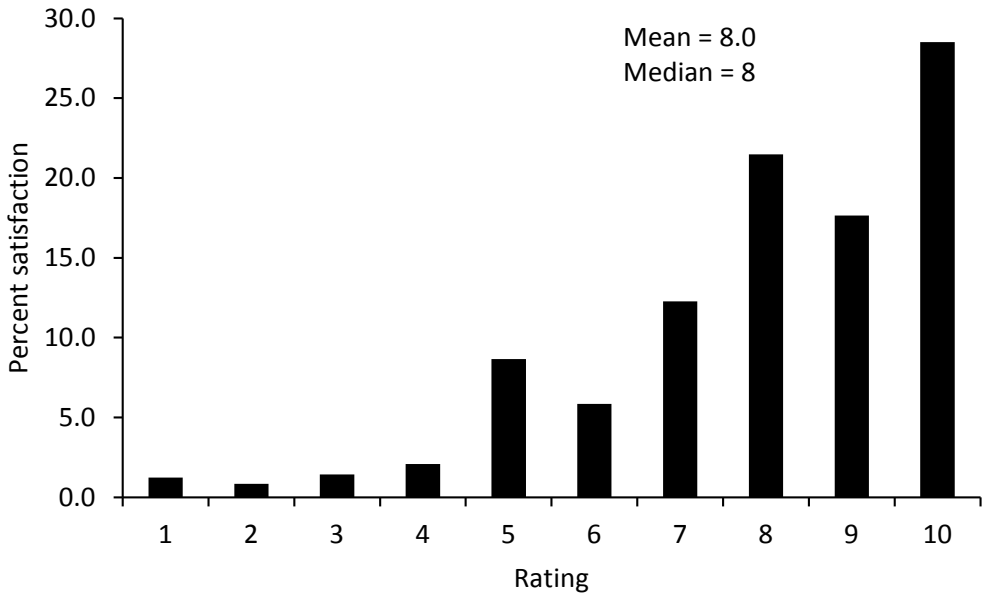

Figure 5. Trout angler satisfaction rating of the trout program. 1=very dissatisfied, 10=very satisfied.

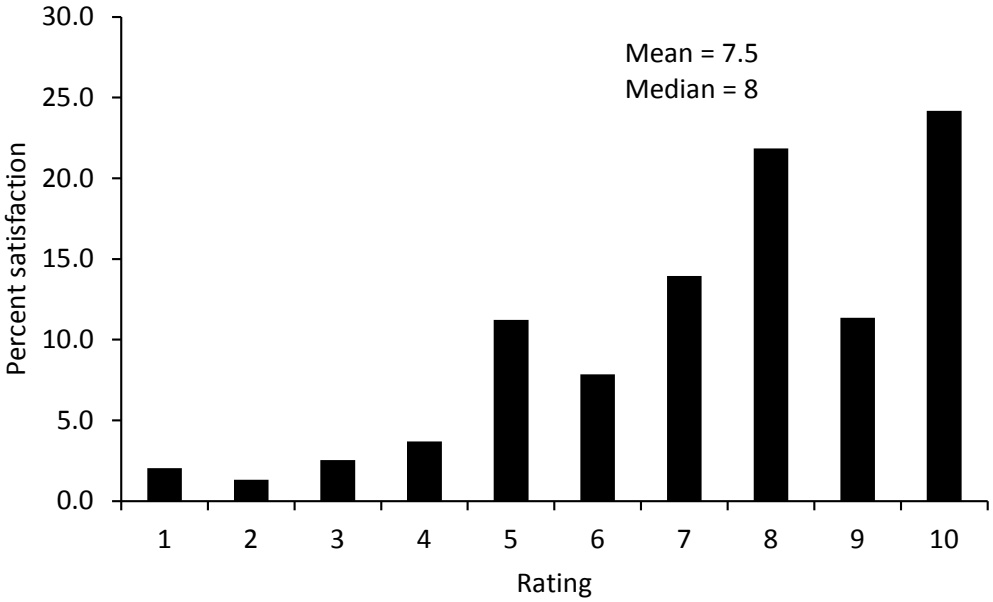

Figure 6. Trout angler satisfaction rating of the amount of public access to trout streams. 1=very dissatisfied, 10=very satisfied.

DISCUSSION

Concerns that results of previous surveys did not address the full breadth of trout angling participants led to the revision of the trout survey in 2006. Sample size was increased to ensure that the sample of trout anglers interviewed represented a true sample of trout anglers in the various geographic areas. The transition to ELSI has provided more data about angling participants. The historic paper license system could only identify where the trout fee was sold, not the residence of the purchaser, so there was no way of knowing the number of trout anglers by county of residence. No effort was made to ensure the proper percent of interviews were made based on the total number of trout fee purchasers. Telephone numbers could not be determined for a significant portion of the anglers on the list; plus, significant percentages of anglers could not be contacted by telephone for a variety of reasons. In addition, previous surveys (1975-2001) did not include an unknown number of trout anglers who were not required to purchase the trout fee. These included anglers who immediately release all trout caught, residents and non-residents less than 16 years old, and members of landowner/tenant families who fish for trout on property they own/rent. The trout fee rule was changed after the 2001 survey to require individuals to purchase a trout stamp in order to fish for or possess trout. The ELSI system now identifies all trout fee purchasers and their mailing address. The change to a mail survey and the ability to query the ELSI database provided a random sub-sample of trout fee purchasers from each geographic area. This method also allowed a much larger sample of trout fee purchasers than in past surveys, improving the statistical reliability of the survey results.

It stands to reason that the counties with the greatest populations would purchase the greatest number of trout privileges (Appendix B). However, western Iowa counties with large populations still had low numbers of privilege purchases, even though increased opportunities are available nearby via winter urban trout fisheries. The 17 winter urban trout fisheries are located within 15 miles of at least one of the 26 major cities in Iowa except Clinton and Newton, thus helping bolster trout privilege sales in urban counties. Winneshiek County is the lone exception likely due to its location in the heart of trout stream country.

Gender and age differences of trout privilege purchasers has changed little over time (Tables 1, 2). Notably, only 14.9% of anglers were female, which is disproportionately small compared to the number of females in Iowa's population (50%). This is a potential marketing area to focus on for trout privilege sales and fishing licenses.

Trout anglers spent more days fishing and took more trips in 2011 than in any other survey year (Tables 3, 5). In addition, 2011 accounted for the second highest number of trout privilege sales (37,512) recorded (Record=38,270 in 2009). Several factors may be attributed to this increase and more likely can be attributed to a combination of the following: hatchery staff produce and stock a quality product; a diversity of trout angling opportunities are provided (put and take, put and grow, restrictive regulations, urban winter); there has been an increase in the number of urban fisheries; poor economies often coincide with increased fishery use; and high price of vehicle fuel. Rather than traveling out of state, anglers may be staying in Iowa to recreate and angling is a relatively inexpensive recreational activity.

As noted in the results, the rank of streams based on the number of angler trips changes each survey year (Table 6). Changes in the rank of streams and in the estimated number of trips taken to individual streams from the 2001, 2006, and 2011 surveys should be viewed in light of the survey methodology changes that occurred during those time frames. Results indicate that less than 20% of streams had mean number of estimated trips in 2011 that lied outside of the range of values (mean±confidence interval) from the 2001 and 2006 surveys. The changes in survey methodology have resulted in more reliable estimates and tighter confidence intervals. Changes in stream ranks based on angling trips may be a result of more streams with improved trout populations. Factors contributing to these improvements may include changes in the stocking of catchable-sized fish, watershed improvement, riparian corridor management, bank stabilization, instream habitat restoration, and wild fingerling stocking. The number of high quality streams has continually increased over the last 4 survey years and anglers are able to experience quality fishing at many areas in Northeast Iowa.

A substantial increase in angler trips to put-and-grow streams occurred from 2001 to 2006 due to the increase in the number of put-and-grow streams in the program (Table 6). Angler trips to these streams decreased from 2006 to 2011 likely due to the effort anglers go through to find the landowners, ascertain permission and the increase in the number of streams with quality trout populations.

The number of anglers purchasing trout privileges specifically for winter urban trout fisheries (Table 8), and the large increase in trips to winter urban trout fisheries (Table 7), is likely a result of the new winter urban trout fisheries that were developed between 2001 and 2011. The urban program was expanded from 3 fisheries in 2001 to 8 fisheries 2006 and to 17 fisheries in 2011 (Figure 2). This addition in urban fisheries increased the number of trips to urban fisheries from 12,920 in 2001 to 48,868 in 2006 and to 70,202 in 2011. Even though 32% of trout privilege purchasers specifically purchased a trout privilege for and urban trout fishery (Table 8), only 12% of the trout angling trips were to urban trout fisheries. The fact that 68% of trout anglers take 88% of trips to streams indicate that this groups is likely more dedicated to their sport. However, the fact that the smaller urban trout program accounts for 32% of privilege sales indicates that program has a very high return on investment.

Most (5 of 7) restrictive regulation streams have decreased in usage since 2001 even though the number of streams with restrictive regulations increased from 4 to 7 during this period (Figure 3; Table 9). Surveyed anglers are satisfied with the amount of restrictive regulation streams (Median=8; Figure 4) and the decrease in angler trips to streams with restrictive regulations is likely due to the increase in the number of streams with quality trout populations regardless of if the streams have restrictive regulations or not.

Overall angler satisfaction with the quality of the trout program and angler access is high. Past surveys on angler satisfaction with the trout program indicated a 95% satisfaction. The current rating scale will give a more accurate measure of satisfaction. The scale used indicated that a rating of 1 was very dissatisfied, and a 10 was very satisfied. The most recent survey suggest that 80% of trout privilege purchasers are satisfied with the program rating satisfaction with the overall program a

7 or higher and 71% of the respondents rating satisfaction with angler access a 7 or higher.

Additional comments were received from many survey respondents. Angler access, stocking and improved habitat were noted by respondents. Many anglers also commented that an increased presence of law enforcement is needed at all trout fisheries.

Significant increases in both trout angler satisfaction and the number of streams that have brown and/or brook trout populations supported solely by natural reproduction since 1975, are strong evidence that the trout program is thriving and growing amidst change. It is impossible to identify specifically which factors have caused specific increases, and, to what degree. It is likely a combination of the following factors that have contributed significantly: 1) in-stream and corridor habitat improvement on public and private trout stream lands, 2) providing a diversity of trout fishing opportunities for anglers to choose from, 3) production of high quality trout stocks by the three trout hatcheries, 4) land acquisition of quality trout stream lands, 5) stocking of wild strains of brown and brook trout fingerlings in selected streams, and, 6) an increase in the number of trout stream watershed initiatives and farm program components that are designed to improve water quality. All trout program staff and administrators should continue to place emphasis on maintaining and improving these initiatives.

The expiration of continuous sign up conservation reserve program (CRP) incentives may have a detrimental effect on the improvements to the public trout streams over the last thirty years. The magnitude of the loss of CRP in the watersheds of Iowa's coldwater trout streams will contribute to the decrease in water quality and trout natural reproduction. Best management practices on public and private trout streams should be expanded and at a minimum, continued at the current level.

RECOMMENDATIONS

1. Continue to place a high priority on the implementation of habitat improvement projects on both private and public trout waters.

2. Continue to protect coldwater resources on private lands through conservation easements.

3. Continue to place emphasis on: 1) the number of trout stream watershed initiatives and farm program components that are designed to improve water quality, 2) in-stream and riparian corridor habitat improvement on public and private trout stream lands, 3) land acquisition or easements of quality trout stream lands, 4) production of high quality trout stocks by the three trout hatcheries, 5) stocking of wild strains of brown and brook trout fingerlings in selected streams, 6) providing a diversity of trout fishing opportunities.

4. Continue to evaluate the success of restrictive regulation trout fisheries with an emphasis on locating these opportunities geographically throughout the coldwater region.

5. Continue to evaluate reducing the number of catchable trout produced and stocked on a stream by stream basis, making reductions according to angler use and attitudes as well as trout natural reproductive success in streams.

6. Continue to evaluate the success and location of urban trout fisheries to recruit and retain trout anglers. Also, evaluate if anglers recruited by urban trout fisheries participate in other trout fishing opportunities.

7. Continue an increased presence of law enforcement on trout stocking days to reduce violations of trout fishing regulations.

8. Conduct a similar trout angler survey for calendar year 2016.

9. Discuss the benefits of mailing out a log book to anglers prior to the season so anglers can accurately record activity throughout the year. This would be similar to the bow-hunters survey conducted by the Wildlife Bureau and past Fisheries Bureau anglers' diary programs.

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Appendix A. 2011 Iowa trout angler survey.

Survey Instructions:

Please return this survey, or complete the online version, by December 1, 2011. This is a machine-read form, so do not make any marks on this form other than to respond in the specified areas. When filling out the survey, please use a blue or black ink ballpoint pen, not a marker that might bleed through the paper. Please write within the lines in boxes that request a number to be entered, and mark the other boxes with an "X" inside the box supplied. Thank you.

To complete this survey online, enter this address into your web browser:
http://www.surveymonkey.com/s/IowaTrout?c=

2011 Iowa Trout Angler Survey

1. In all of 2011, how many days did you spend trout fishing in Iowa? ☐☐☐ (If 0, skip to question 3.)

2. Of all the trout you caught in 2011, which of the following words best describes the number you released?
If no trout were caught, skip to question 3.

☐ None ☐ Some ☐ About Half ☐ Most ☐ All

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

☐ Bait ☐ Artifical Lures ☐ Flies

4. Do you fish for species other than trout? ☐ Yes ☐ No

5. Did you purchase a trout stamp specifically for an urban area trout fishery? ☐ Yes ☐ No

6. Overall, on a scale of 1 to 10, how satisfied are you with the amount of public access to trout streams?

very dissatisfied 1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7 ---- 8 ---- 9 ---- 10 ***very satisfied***

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

7. Overall, on the same scale, how satisfied are you with the number of special regulations on trout streams?

very dissatisfied 1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7 ---- 8 ---- 9 ---- 10 ***very satisfied***

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

8. Overall, on a scale of 1 to 10, how satisfied are you with the trout program?

very dissatisfied 1 ---- 2 ---- 3 ---- 4 ---- 5 ---- 6 ---- 7 ---- 8 ---- 9 ---- 10 ***very satisfied***

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

If you fished for trout in 2011, please continue with the survey below and on the back of this page. If you did not fish for trout in 2011, you have completed the survey! Thank you!

9. Indicate the number of days you fished each urban trout lake in 2011.

No. days	Location (lake)	No. days	Location (lake)
☐☐☐	Ada Hayden Lake (Ames)	☐☐☐	Lake of the Hills, West Lake Park (Davenport)
☐☐☐	Bacon Creek Lake (Sioux City)	☐☐☐	Moorland Park Pond (Ft. Dodge)
☐☐☐	Banner Lake South at Summerset State Park	☐☐☐	North Prairie Lake (Cedar Falls)
☐☐☐	Big Lake Park (East and West L.) (Council Bluffs)	☐☐☐	Greater Ottumwa Park Pond (Ottumwa)
☐☐☐	Blue Pit (Mason City)	☐☐☐	Petoka Lake (Bondurant)
☐☐☐	Copper Creek Lake (Pleasant Hill)	☐☐☐	Prairie Park Pond (Cedar Rapids)
☐☐☐	Discovery Park Pond (Muscatine)	☐☐☐	Scharnberg Park Pond (Spencer)
☐☐☐	DMACC Pond (Ankeny)	☐☐☐	Wilson Lake (Ft. Madison/Burlington)
☐☐☐	Heritage Pond (Dubuque)		

Please turn the page to complete the survey.

10. Indicate the number of days you fished each stream or lake in 2011 *(Put and Grow Streams in italics)*

No. days	Location (stream/lake)	No. days	Location (stream/lake)
☐☐☐	Bailey's Ford (Delaware) S of Manchester	☐☐☐	North Bear (Winneshiek) NE of Highlandville
☐☐☐	Bankston (Dubuque) NW portion of county	☐☐☐	*North Canoe (Winneshiek) N of Decorah*
☐☐☐	*Bear (Clayton) N of Edgewood*	☐☐☐	*North Cedar (Clayton) SW of McGregor*
☐☐☐	Bear (Fayette) N of Arlington	☐☐☐	Otter (Fayette) W of Elgin
☐☐☐	Big Mill (Jackson) W of Bellevue	☐☐☐	*Ozark Springs (Jackson) N of Canton*
☐☐☐	Bigalk (Howard) N of Cresco	☐☐☐	Paint - Big (Allamakee) near Waterville
☐☐☐	Bloody Run-Catchable (Clayton) W of Marquette	☐☐☐	Patterson (Allamakee) NW of Waukon
☐☐☐	Bloody Run-Special Reg W of Marquette	☐☐☐	*Pine (Allamakee/Winneshiek)E of Sattre*
☐☐☐	Bohemian (Winneshiek) E of Protivin	☐☐☐	*Pine (Winneshiek) N of Bluffton*
☐☐☐	Brush (Jackson) NE of Andrew	☐☐☐	*Ram Hollow (Delaware) SE of Colesburg*
☐☐☐	Buck (Clayton) E of Garnavillo	☐☐☐	Richmond Springs (Delaware) Backbone Pk
☐☐☐	*Burr Oak (Mitchell) NE of Osage*	☐☐☐	Sny Magill (Clayton) S of McGregor
☐☐☐	*Casey Springs (Winneshiek) N of Decorah*	☐☐☐	South Bear (Winneshiek) Highlandville
☐☐☐	*Clear (Allamakee) E of Dorchester*	☐☐☐	South Cedar (Clayton) SW of Garnavillo
☐☐☐	Clear (Allamakee) near Lansing	☐☐☐	*South Fork Big Mill (Jackson) W of Bellevue*
☐☐☐	Coldwater (Winneshiek) E of Kendallville	☐☐☐	South Pine-Spec. Reg. (Winn.) NE of Decorah
☐☐☐	Coon (Winneshiek) NE of Freeport	☐☐☐	Spring (Mitchell) W of Orchard
☐☐☐	Dalton Pond (Jackson) E of Preston	☐☐☐	Spring Branch-Spec.Reg.(Del) SE Manchester
☐☐☐	*East Pine (Winneshiek) W of Burr Oak*	☐☐☐	*Spring Falls (Delaware) W of Colesburg*
☐☐☐	Ensign Hollow - Spec. Reg. (Clayton) S Volga	☐☐☐	Swiss Valley (Dubuque) SW of Dubuque
☐☐☐	Fountain Springs (Delaware) NE of Greeley	☐☐☐	*Teeple (Allamakee) SW of Waukon*
☐☐☐	French Creek, Spec.Reg. (All.) NW of Lansing	☐☐☐	*Ten Mile (Winneshiek) NW of Decorah*
☐☐☐	Glovers (Fayette) SE of West Union	☐☐☐	*Tete des Morts (Jackson) St. Donatus*
☐☐☐	Grannis (Fayette)E of Fayette	☐☐☐	*Tributary-Tete des Morts(Dubuque) St.Donatus*
☐☐☐	*Grimes Hollow (Delaware) E of Colesburg*	☐☐☐	Trout River (Winneshiek) SE Decorah
☐☐☐	Hickory (Allamakee) NE of Luana	☐☐☐	*Trout Run (Allamakee) SW of Lansing*
☐☐☐	Joy Springs (Clayton) W of Strawberry Pt	☐☐☐	Trout Run (Winneshiek) Decorah Hatchery
☐☐☐	*Little Maquoketa R.(Dubuque) Epworth*	☐☐☐	Turkey River (Clayton) Big Spring Hatchery
☐☐☐	Little Mill (Jackson) W of Bellevue	☐☐☐	*Turner (Fayette) St. Lucas*
☐☐☐	Little Paint (Allamakee) Yellow R. Forest	☐☐☐	Turtle (Mitchell) N of St. Ansgar
☐☐☐	Little Turkey R. (Delaware) E of Colesburg	☐☐☐	Twin Bridges (Delaware)W of Colesburg
☐☐☐	*Little Turkey R. (Delaware) SE of Colesburg*	☐☐☐	Twin Springs (Winneshiek) W edge Decorah
☐☐☐	Maquoketa R. (Clay/Del) NW of Backbone Pk	☐☐☐	Wapsipinicon River (Mitchell) N of McIntire
☐☐☐	McLoud Run (Linn) in Cedar Rapids	☐☐☐	Waterloo - Catchable (All.) W of Dorchester
☐☐☐	*Middle Bear (Winneshiek) N of Highlandville*	☐☐☐	Waterloo - Spec. Reg. (Alla.) SE of Dorchester
☐☐☐	*Miners (Clayton) Guttenberg*	☐☐☐	West Canoe (Winneshiek) N of Decorah
☐☐☐	Mink (Fayette) N of Wadena	☐☐☐	Wexford (Allamakee) N of Harpers Ferry
☐☐☐	*Monastery Creek (Dubuque) SW of Dubuque*	☐☐☐	*White Pine Hollow (Dubuque) Luxemburg*
☐☐☐	Mossy Glen (Clayton) Strawberry Point	☐☐☐	*Williams Creek (Allamakee) NW of Luana*
		☐☐☐	*Yellow River (Allamakee) Postville to mouth*

This is the end of the survey and we want to thank you for your time and assistance. Good luck in all your fishing this year.

Appendix B. Trout privileges sold by county, by geographically stratified region and samples per region, 2011.