FISHERY DATA SERIES NO. 90-19

OPINIONS AND REGULATORY PREFERENCES OF ANGLERS RESIDENT IN URBAN AND RURAL PORTIONS OF THE TANANA DRAINAGE IN 1988[1]

By

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ABSTRACT

Questionnaires were used to evaluate the motivations, regulatory preferences, and profiles of randomly selected sport fish license holders from rural and urban portions of the Tanana drainage. Questionnaires were successfully delivered to 1,202 anglers and 869 (72.3 percent) of these anglers returned the questionnaires. Almost 70 percent of respondents cited non-catch related motivations as their primary motivation for fishing, but 57 percent of all respondents listed catching fish for either food or sport as either their primary or secondary motivation for fishing. Rural residents were more likely to be food motivated, and urban residents were more likely to be sport motivated. Arctic grayling *Thymallus arcticus* and rainbow trout *Oncorhynchus mykiss* were the first and second most targeted species by anglers. Fishing quality was rated as average by respondents. Respondents who fished more often or who fished off the road system rated fishing quality higher than those who fished less or only fished on the road system. Stocking more fish was the management option aimed at improving fishing that had the highest approval rating (80.4 percent). Minimum length limits were favored by 76.8 percent of respondents, and reduced daily bag limits was the management option with the lowest approval rating (43 percent). Food motivated anglers were more likely to disapprove of restrictive regulations than were sport or non-catch motivated anglers. Survey results suggest that Tanana drainage anglers can be generally grouped into rural anglers who are more likely to be food motivated, are less receptive to restrictive regulations, rate fishing quality higher, and are more likely to target Arctic grayling, and, urban anglers who are more likely to be sport motivated, are more receptive to restrictive regulations, rate fishing quality lower, and are more likely to target rainbow trout.

KEY WORDS: questionnaire, angler attitudes, regulation, angler motives, Tanana drainage.

INTRODUCTION

A majority of all sport fishing effort in northern and interior Alaska (Arctic-Yukon-Kuskokwim Region) occurs in the Tanana drainage, near major population centers (Fairbanks, North Pole, Nenana, Delta Junction, and Tok). At the present time about half of the Tanana drainage angling pressure is directed at stocked fish populations and the other half is supported by wild stocks of Arctic grayling *Thymallus arcticus*, whitefish *Prosopium* sp. and *Coregonus* sp., northern pike *Esox lucius*, burbot *Lota lota*, Pacific salmon *Oncorhynchus* sp. and lake trout *Salvelinus namaycush*. Angling effort in the Tanana drainage has increased 75% since 1977 (Table 1; Mills 1979-1989). While effort has generally increased every year since 1977 (Table 1), harvest has varied and harvest of some wild stocks has even declined (Table 2). Past management actions purposely aimed at reducing harvest of wild stocks consisted of occasional emergency closures and of stocking accessible lakes with rainbow trout *Oncorhynchus mykiss*, coho salmon *O. kisutch*, chinook salmon *O. tshawytscha*, Arctic grayling, Arctic char *Salvelinus alpinus*, lake trout, and inconnu or sheefish *Stenodus leucichthys*.

Conservation problems have led to the imposition of more restrictive regulations for wild stocks in the past few years. Meanwhile, the stocking of accessible lakes has helped to reduce angling pressure on wild stocks. Sport fishing in the Tanana drainage has generally shifted from wild stocks to stocked populations. The proportion of harvest composed of stocked fish has risen from about 15% in 1977 to about 50% in 1988 while the harvest of wild stocks has declined.

Recent declines in both the abundance and the harvest of Arctic grayling have been attributed at least in part to overharvest (Holmes et al. 1986, Clark 1987, Clark and Ridder 1987, 1988), and this has led to: recent reductions in possession limits; further seasonal restrictions; and additional gear type restrictions. Burr (1987 and 1988) found that lake trout stocks were being overharvested. Subsequently, length limits and reductions in bag and possession limits were imposed to decrease harvest of lake trout. Winter harvest of northern pike in Minto Flats exceeded sustainable yield levels (Holmes and Burkholder 1988). Subsequently, seasonal restrictions and reductions in bag and possession limits were imposed to reduce harvest of northern pike. Harvest of whitefish in the Tanana drainage rose almost eightfold from 1977 to 1986 (Table 2). About 70% of this harvest is taken in the Chatanika River spear fishery (Hallberg and Holmes 1987). Estimates of exploitation rates from this fishery were 22% for least cisco and 17% for humpback whitefish in 1986 (Hallberg and Holmes 1987) and 42% for least cisco and 16% for humpback whitefish in 1987 (Hallberg 1988). These high exploitation rates, combined with a 27% decrease in the abundance estimate for least cisco in the Chatanika River spawning population between 1986 and 1987 (Hallberg 1988), led to the implementation of a 15 fish (total whitefish) bag limit in 1988. Evidence of overharvest of lake burbot stocks led to emergency orders in 1986 closing several lakes to the taking of burbot, restrictions on set lines in several lakes, and implementation of bag and possession limits in all lakes. Concern over harvest levels of anadromous salmon in the Chena and Salcha rivers prompted fishery managers to stabilize harvest levels and close

Table 1. Summary of fishing effort, total catch, and average catch per day of fishing effort in the 1977 through 1988 Tanana drainage sport fishery[a].

Year	Number of Anglers	Number of Trips	Total Number of Days Fished	Number of Fish Caught	Average Catch Per Day
1977	ND[b]	ND	99,919	88,938	0.89
1978	ND	ND	119,364	129,789	1.09
1979	ND	ND	98,514	129,042	1.31
1980	ND	ND	131,494	146,981	1.12
1981	ND	ND	115,099	179,986	1.56
1982	ND	ND	150,530	179,122	1.19
1983	ND	ND	145,386	176,110	1.21
1984	19,234	74,248	145,754	178,299	1.22
1985	33,166	117,158	136,422	183,190	1.34
1986	34,835	113,669	144,937	149,202	1.03
1987	35,834	142,116	156,061	139,907	0.90
1988	36,911	151,923	174,554	198,533	1.14

[a] Data taken from Mills (1979-1989). Fishing effort and harvest data for 1977 through 1983 is for the Tanana drainage only; 1984-1988 fishing effort and harvest data applies to all southern drainages of the Yukon River from its confluence with the Tanana River, near Tanana, to the Canadian border; including the entire Tanana River drainage, and the Alaska portion of the White River drainage. The non-Tanana drainage portion of the sport fishery effort and harvest is minor compared to the Tanana drainage portion.

[b] ND = No data. Data was not collected.

Table 2. Harvests in the 1977 through 1988 Tanana drainage sport fishery[a].

Year	Salmon				Lake Trout	Dolly Varden	Rainbow Trout	Arctic Grayling	Whitefish	Sheefish	Northern Pike	Burbot
	Chinook	Coho	Chum	Land-locked								
1977	100	94	300	7,151	1,471	877	5,992	57,793	3,378	158	9,345	1,547
1978	163	139	158	22,412	603	524	6,406	83,275	6,573	234	7,838	1,383
1979	512	25	219	36,073	946	364	5,186	70,243	5,159	279	7,975	1,979
1980	941	67	483	25,733	1,264	524	19,584	80,150	5,958	96	9,452	2,729
1981	763	45	595	57,294	1,721	572	24,571	75,288	4,873	93	9,941	4,122
1982	984	52	698	43,374	3,104	482	26,186	81,753	8,643	127	9,822	3,887
1983	1,048	147	649	34,255	2,937	293	20,664	92,363	8,311	157	10,225	5,040
1984	338	831	585	29,245	2,104	350	34,022	83,626	11,658	338	9,607	5,556
1985	1,356	796	1,255	41,042	2,984	1,230	33,432	63,560	20,230	420	12,090	4,795
1986	781	1,374	693	24,061	713	200	31,270	45,981	26,810	72	11,934	5,142
1987	502	1,231	620	26,566	652	36	31,824	38,480	26,435	235	9,471	3,855
1988	853	2,237	491	32,342	2,221	909	78,345	52,659	11,775	982	11,986	3,733
Means	695	587	562	31,629	1,727	530	26,457	68,764	11,650	266	9,974	3,647

[a] Data taken from Mills (1979-1989). Harvest data for 1977 through 1983 is for the Tanana drainage only; 1984-1988 harvest data applies to all southern drainages of the Yukon River from its confluence with the Tanana River, near Tanana, to the Canadian border; including the entire Tanana River drainage, and the Alaska portion of the White River drainage. The non-Tanana drainage portion of the sport fishery harvest is minor compared to the Tanana drainage portion.

fishing for salmon in these rivers above the downstream end of the spawning areas.

A management goal of Sport Fish Division of the Alaska Department of Fish and Game (ADFG) includes providing a variety of quality angling opportunities to the public while maintaining healthy wild fish stocks. Declines in the abundance and harvest of wild fish stocks in the areas of the Tanana drainage receiving the greatest angling pressure indicate that past management strategies have not succeeded in meeting this goal. Because past management has proven inadequate, Sport Fish Division staff have undertaken studies to develop new management strategies which will attempt to rebuild declining wild stocks while providing a wider variety of angling opportunities to the public.

It is also the goal of Sport Fish Division managers to manage fishery resources in such a way as to provide public benefits by satisfying as large a segment of the public as possible, while still working under the sustainable yield principle. Meeting this goal requires the recognition that the public consists of various user groups, and that these groups have differing, and sometimes conflicting, desires and expectations regarding the management of fisheries resources. Attempting to meet this goal means that the fishery management program is likely to have multiple and diverse objectives.

In order to develop management programs that satisfy as large a segment of the public as possible, public input must be included as one component in forming management policy. It has previously been suggested that preferences and motivations of anglers must be considered in order to develop management plans that are sensitive to the users affected (Duttweiler 1976, Smith 1980). For public input to be of value in shaping management strategies, managers must be able to categorize different user groups, to know the relative size of such user groups, and to know the desires of these user groups regarding the management of fishery resources.

Public input into the regulatory process in Alaska usually consists of advisory committees and members of the public at large providing specific recommendations to the Alaska Board of Fisheries. This system does allow public input to the regulatory process. The opinions of the overall angling public regarding management preferences are augmented through the use of survey questions sent to a random segment of anglers (Reynard and Hilborn 1986, Duttweiler 1976). Questionnaire surveys have been used in the past to determine the motivations and desires of license holders regarding angling (Holmes 1981, 1987, Moeller and Engelken 1972), and to directly measure users preferences for specific management options (Reynard and Hilborn 1986, Harris and Bergerson 1985).

Public input concerning management options was solicited in this study through a postal questionnaire sent to Tanana drainage anglers. The goals of this study were to quantify opinions regarding management options, measure motivations for angling, and monitor other use-related data from Tanana drainage anglers. An additional goal was to define groups of anglers and examine differences in opinions of management options between different groups of anglers. The general and guiding hypothesis is that Tanana drainage anglers can be categorized into user groups based on several factors, and that

these user groups will differ in their desires and opinions regarding management policy.

METHODS

Survey Design

Two surveys were conducted: (1) a random sample of 1988 sport fish license holders with residential zip codes from the Tanana drainage; and (2) a random sample of 1988 sport fish license holders with residential zip codes from rural areas of the Tanana drainage (excluding Fairbanks and Delta). Thus, the first survey included areas targeted in the second survey. No angler was surveyed twice. Results were divided into two categories; responses from urban residents (Fairbanks and Delta) sampled in the first survey and termed "urban areas"; and responses from rural residents from the first survey along with results from the second survey, referred to as "rural areas."

For the first survey, a three page questionnaire (Appendix A) was mailed to 1,028 of the 29,641 license holders in the Tanana drainage (3.5% sample). The second survey consisted of mailing the exact same questionnaire (Appendix A) to 300 of the 6,313 license holders in the rural portion of the Tanana drainage (4.7% sample). Surveys were mailed in early February 1987. All license holders were 16 years of age or older.

In an effort to increase the response rate, the suggestions of Linsky (1975) and Holmes (1987) were followed for enhancing recipient acceptance and cooperation in completing the questionnaire. The questionnaire was short with simple questions. A cover letter was attached to each questionnaire explaining the purpose of the survey and to request cooperation. All selected anglers were first contacted with a postcard a few days prior to the actual mailing of the questionnaires. A stamped return envelope was enclosed with each questionnaire. Finally, a second mailing of letters and questionnaires was sent to non-respondents approximately one month after the first mailing. All cover letters are shown in Appendix B.

Questions

The questionnaire was similar to questionnaires used in previous surveys of Tanana drainage anglers (Holmes 1981, 1987). Ten questions were asked, in three types of format: categorical, rank, and open-ended. Categorical questions allowed respondents only a given choice, for example a "yes" or a "no," or an "approve" or a "disapprove." Rank questions asked the respondents to choose the most important items from a list. Open-ended questions asked for a written response.

Questions asked concerned (1) motivations for sport fishing; (2) type and number of trips to areas in interior and northern Alaska; (3) type of gear used and number of times each gear type was used; (4) species of fish targeted; (5) preferred management options for improving sport fishing; (6) adequacy of access to sport fishing areas; (7) suggestions to improve sport

fishing; (8) perceptions of fishing quality; (9) preferred management options in a conservation emergency; and, (10) background questions.

Hypothesis Testing

Respondents were categorized (to determine relationships between membership in a particular group and responses to survey questions) based on the following criteria:

(a) amount of past fishing experience;
(b) motivation for fishing;
(c) frequency of participation;
(d) military status;
(e) primary species targeted;
(f) urban versus rural residency; and,
(g) means of access to the fishery used.

The exact basis used to categorize respondents is fully defined in Table 3. Questionnaire responses after categorization were used to test hypotheses relating to angler groups and regulations as follows:

(1) Receptiveness to restrictive regulations aimed at improving fishing is not influenced by:

(a) past fishing experience;
(b) motivation for fishing;
(c) frequency of participation;
(d) military status;
(e) primary target species;
(f) perception of fishing quality; or,
(g) urban versus rural residency.

(2) Perception of fishing quality is not influenced by:

(a) past fishing experience;
(b) motivation for fishing;
(c) frequency of participation;
(d) military status;
(e) primary target species;
(f) means of access to fishery; or,
(g) urban versus rural residency.

(3) Primary species targeted by anglers is not influenced by:

(a) motivation for fishing;
(b) frequency of participation;
(c) military status;
(d) means of access to fishery; or,
(e) urban versus rural residency.

Table 3. Criteria used to define categories of 1988 Tanana drainage anglers.

Basis for Categorization	Category Criteria
Years of fishing experience:	less than 15 years, 15 to 29 years, and 30 or more years.
Frequency of participation:	less than 4 trips in 1988, 4 to 8 trips in 1988, and 20 to 29 trips in 1988, and 9 or more trips in 1988.
Military status:	military, or non-military.
Residency status:	urban (Fbks and Delta Jct zip codes) rural (all other zip codes)
Motivation for fishing:	sport motivated; food motivated; non-catch motivated including: enjoying nature, escaping daily pressure, time with family and friends, & enjoying other recreation.
Primary species targeted:	Arctic grayling, rainbow trout, northern pike, salmon, other species.
Means of access to the fishery:	those anglers who took at least one off-road trip; versus, those anglers who took no off-road trips.

(4) A substantial proportion of sport fishermen desire improved access to sport fishing waters, and the desire for improved access is not influenced by:

(a) motivation for fishing;
(b) frequency of participation;
(c) perception of fishing quality; or,
(d) urban versus rural residency.

(5) Motivation for fishing is not related to:

(a) frequency of participation; or,
(b) urban versus rural residency.

Data Analysis

Responses to categorical and rank questions are depicted in tabular and/or graphic form. Answers to open-ended questions are provided in Appendices C and D. Relationships between responses to various questions were examined for significance with chi-square test (Conover 1980). Chi-square tabulations are presented in Appendix E. Chi-square analyses are descriptive of respondents' profiles and preferences, however are not the best statistical method for categorizing users into groups. Answers to questions which ranked first and second (judged to be most important) were tabulated into cells, and these data were used in chi-square analyses. Third order and less rankings (judged to be less important for purposes of this paper) were not examined with chi-square analyses. Significance in this paper is defined as $p \leq 0.10$.

Standard errors for ranked data were calculated as:

$$\text{Standard Error} = \left[\frac{s^2}{n} \right]^{1/2} \tag{1}$$

where:

$$s^2 = \frac{\sum_{i=1}^{k} x^2_i f(x_i)}{n} - \left[\frac{\sum_{i=1}^{k} x_i f(x_i)}{n} \right]^2$$

n = sample size; and,
x_i = the rank of response i; and
$f(x_i)$ = the frequency of $x_i, i=1,\ldots,k$

RESULTS

Survey Response

Of 1,026 questionnaires mailed to sport fish license holders randomly selected from the Tanana drainage, 914 were successfully delivered (Table 4). Of these, 671 were returned, giving a response rate of 73.4%. Of the 300

Table 4. Response of Tanana drainage license holders to the two 1988 postal questionnaires.

Statistic	Tanana Area Survey	Rural Survey	Both Surveys
Number of questionnaires mailed	1,026	300	1,326
Number of questionnaires delivered	914	288	1,202
Percent successfully delivered	89.1%	96.0%	90.6%
Number of questionnaires undeliverable	114	12	126
Percent undeliverable	10.9%	4.0%	9.4%
Number of respondents to the first mailing	470	124	594
Percent response to the first mailing	51.4%	43.1%	49.4%
Number of respondents to the second mailing	201	74	275
Percent response to the second mailing	22.0%	25.7%	22.9%
Total number of respondents	671	198	869
Percent response to both mailings	73.4%	68.8%	72.3%
Number of nonrespondents to questionnaire	243	78	321
Percent nonresponse	26.6%	31.2%	27.7%

questionnaires mailed out to sport fish license holders randomly selected from rural areas of the Tanana drainage, 288 were successfully delivered, and 198 were returned, giving a response rate of 68.8%. Of the 671 questionnaires returned from throughout the Tanana drainage, 90 were from rural areas, so that the final data set consisted of 581 urban respondents and 288 rural respondents.

Survey Question Responses

The average amount of fishing experience of respondents was quite high (24.9 years). Over 31% of all respondents reported having over 30 years of fishing experience. The average number of years of Alaska residency of survey respondents was 14.8. Respondents from rural areas had slightly more fishing experience and slightly longer average residence than did urban respondents (Table 5). While the amounts of residence and fishing experience were only somewhat different, a much higher percentage of rural residents had more than 30 years of fishing experience than did urban residents. A higher percentage of rural residents had also lived in Alaska over 30 years than had urban residents, and over three times the percentage of urban residents had lived in the state less than five years than had rural residents (Figure 1). Military personnel, or dependents, made up 23.5% of all respondents. Of the 201 respondents that were military personnel, or dependents, 182, or 90% were residents of urban areas.

Lures were the most commonly used gear type, and were used at least once by 82% of respondents (Table 6). Bait and flies were the next most commonly used gear types, and were both used on at least one trip by about 50% of respondents. Both spears and set lines were used by about 10% of respondents, and of those anglers that did report using these gear types, most used them on less than five occasions. Differences in gear type use between urban and rural residents was small.

Survey respondents generally rated various aspects of fishing quality about midway between good and fair (Table 7). Overall fishing enjoyment received the best mean rating, and about 80% of respondents rated overall enjoyment as good or excellent. In general, rural anglers rated aspects of fishing quality a little higher than urban anglers, although the average rating of species available was higher for urban residents than for rural residents. Rural residents in particular tended to rate fishing success and fish size satisfaction as excellent much more than urban residents rated these aspects as excellent (Figure 2).

Most fishing trips taken by Tanana drainage anglers were taken using road access (Table 8), despite the fact that most angling opportunities in Tanana drainage waters are not road accessible. Road accessed fishing trips accounted for 64% of all trips taken, with off-road access trips making up 16%, boat access trips making up 16%, and fly-in trips making up only 4% of all fishing trips taken. Of all anglers responding to the survey, 82% took at least one road access trip, 38% took at least one off-road access trip, 42% took at least one boat access trip, and 15% of all anglers took at least one fly-in trip in 1988. The average number of fishing trips taken by rural and

Table 5. Distribution of years of fishing experience and years of Alaska residency.

Number of Years	Fishing Experience						Alaska Residence					
	Urban		Rural		Combined		Urban		Rural		Combined	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-4	44	7.5	7	2.5	51	6.3	187	32.0	26	9.1	213	24.8
5-9	34	5.8	21	7.4	55	6.8	110	18.8	56	19.6	166	19.3
10-14	58	9.9	26	9.1	84	10.4	61	10.4	47	16.4	108	12.6
15-19	84	14.4	22	7.7	106	13.1	66	11.3	48	16.8	114	13.3
20-24	103	17.6	50	17.5	153	18.9	66	11.3	35	12.2	101	11.8
25-29	69	11.8	39	13.6	108	13.3	27	4.3	26	9.1	53	6.2
30 +	131	22.4	121	42.3	252	31.2	56	9.6	48	16.8	104	12.0
Total	523	100.0	286	100.0	809	100.0	573	100.0	286	100.0	859	100.0
Mean:years	23.5		26.3		24.9		13.9		15.8		14.8	
SE:years	0.6		0.9		0.7		0.6		0.9		0.8	

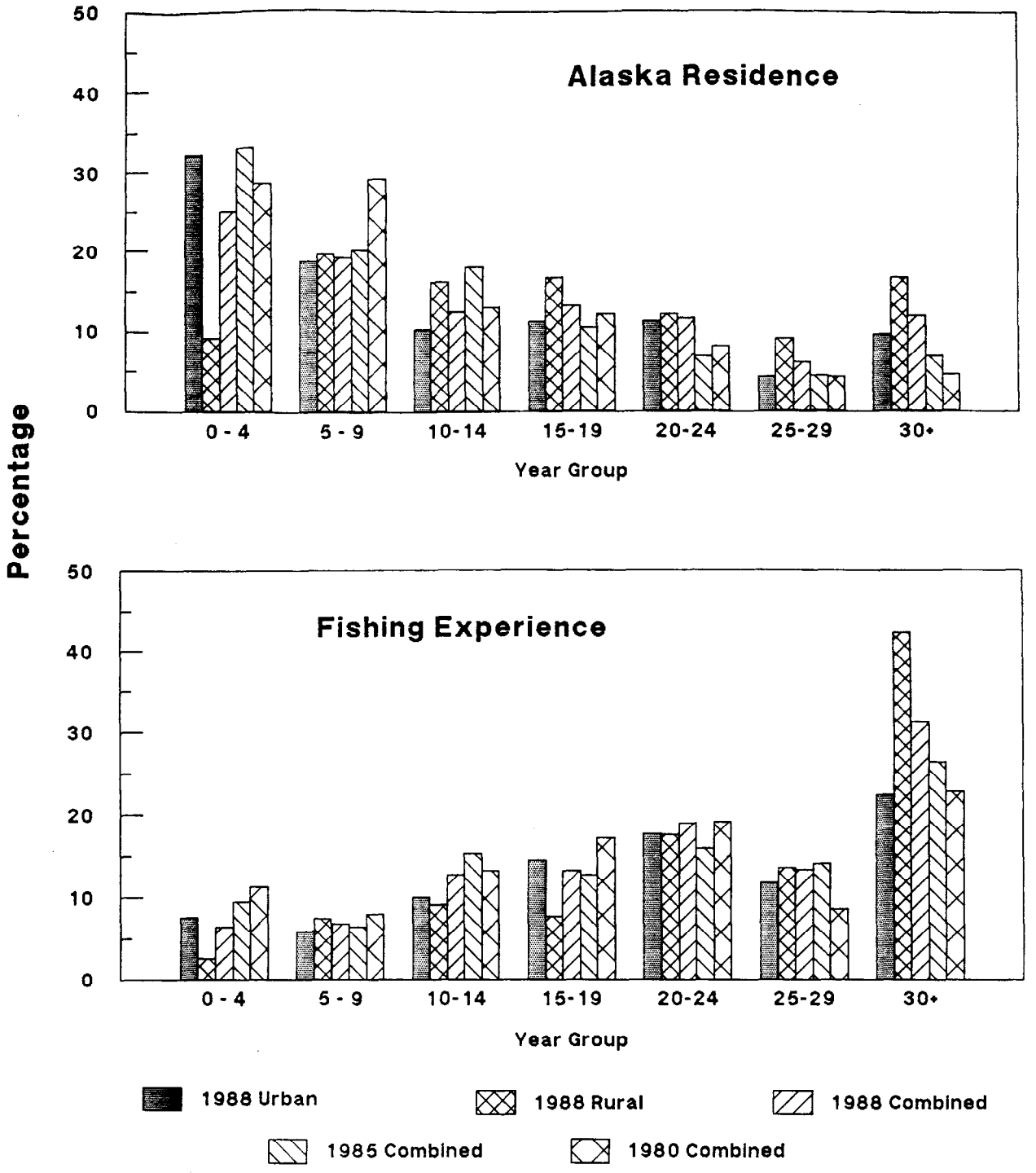

Figure 1. Distribution of years of Alaska residence and fishing experience for rural, urban, and combined Tanana drainage anglers in 1988, and combined Tanana drainage anglers in 1980 and 1985.

Table 6. Distribution of use of different sport fish gear types by urban and rural Tanana drainage anglers in 1988.

Gear Type	Angler Type	Measure	Fishing Trips Taken in 1988						
			0	1-4	5-9	10-15	15+	1+	Total
Lure	Urban	No.	91	211	111	78	81	481	572
		%	15.9	36.9	19.4	13.6	14.2	84.1	100.0
	Rural	No.	61	81	48	28	55	212	273
		%	22.3	29.7	17.6	10.3	20.1	77.7	100.0
	Combined	No.	152	292	159	106	136	693	845
		%	18.0	34.6	18.8	12.5	16.1	82.0	100.0
Bait	Urban	No.	272	170	56	34	41	301	573
		%	47.5	29.7	9.7	5.9	7.2	52.5	100.0
	Rural	No.	148	62	28	14	25	129	277
		%	53.4	22.4	10.1	5.1	9.0	46.6	100.0
	Combined	No.	420	232	84	48	66	430	850
		%	49.4	27.3	9.9	5.6	7.8	50.6	100.0
Fly	Urban	No.	277	150	47	45	54	296	573
		%	48.3	26.2	8.3	7.8	9.4	51.7	100.0
	Rural	No.	150	57	19	27	23	126	276
		%	54.4	20.7	6.7	9.8	8.4	45.6	100.0
	Combined	No.	427	207	66	72	77	422	849
		%	50.3	24.4	7.8	8.5	9.0	49.7	100.0
Set-line	Urban	No.	524	36	8	8	2	55	579
		%	90.6	6.2	1.4	1.4	0.4	9.4	100.0
	Rural	No.	243	19	7	1	5	32	275
		%	88.4	6.9	2.5	0.4	1.8	11.6	100.0
	Combined	No.	767	55	15	9	7	87	854
		%	89.8	6.4	1.8	1.2	0.8	10.2	100.0
Spear	Urban	No.	515	52	7	3	0	62	577
		%	89.3	9.0	1.2	0.5	0	10.7	100.0
	Rural	No.	263	13	1	0	1	15	278
		%	94.5	4.7	0.4	0	0.4	5.5	100.0
	Combined	No.	778	65	8	3	1	77	855
		%	91.0	7.6	0.9	0.4	0.1	9.0	100.0

Table 7. Ratings of some aspects of sport fishery quality in 1988 in interior and northern Alaska.

Fishery Quality Aspect	Angler Type	Measure	Angler Responses: Excellent 1	Good 2	Fair 3	Poor 4	Totals	Weighted Average
Fishing success	Urban	No.	57	226	174	85	542	2.53
		%	10.5	41.7	32.1	15.7	100.0	
	Rural	No.	49	100	70	36	255	2.36
		%	19.2	39.2	27.5	14.1	100.0	
	Combined	No.	106	326	244	121	797	2.48
		%	13.3	40.9	30.6	15.2	100.0	
Fish size	Urban	No.	48	195	201	91	535	2.63
		%	9.0	36.4	37.6	17.0	100.0	
	Rural	No.	44	89	84	30	247	2.40
		%	17.8	36.0	34.0	12.1	100.0	
	Combined	No.	92	284	285	121	782	2.56
		%	11.8	36.3	36.4	15.5	100.0	
Species available	Urban	No.	79	243	162	49	533	2.33
		%	14.8	45.6	30.4	9.2	100.0	
	Rural	No.	39	94	78	34	245	2.44
		%	15.9	38.4	31.8	13.9	100.0	
	Combined	No.	118	337	240	83	778	2.37
		%	15.2	43.3	30.8	10.7	100.0	
Overall fishing enjoyment	Urban	No.	176	255	89	22	542	1.92
		%	32.5	47.0	16.4	4.1	100.0	
	Rural	No.	103	100	35	13	251	1.83
		%	41.0	39.8	13.9	5.3	100.0	
	Combined	No.	279	355	124	35	793	1.89
		%	35.2	44.8	15.6	4.4	100.0	

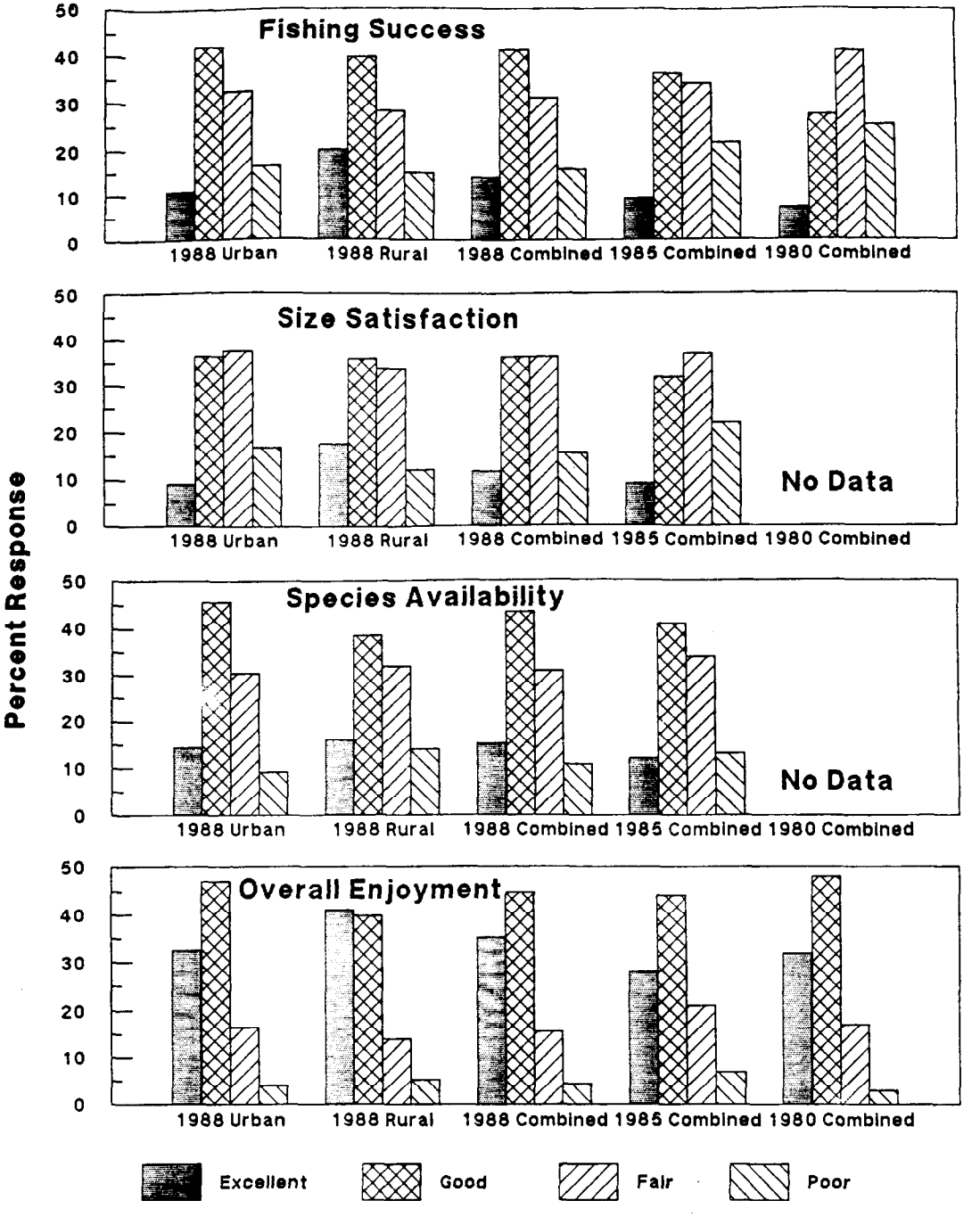

Figure 2. Ratings of various aspects of fishing quality by urban, rural, and combined Tanana drainage anglers in 1988, and combined Tanana drainage anglers in 1980 and 1985.

Table 8. Average number of fishing trips using various means of access taken by urban and rural Tanana drainage residents in 1988.

Means of Access	Average Number of Fishing Trips (standard error)		
	Urban Residents (N=584)	Rural Residents (N=286)	All Respondents (N=870)
Road	8.08 (0.49)	6.43 (1.02)	7.54 (0.44)
Boat	1.58 (0.15)	2.51 (0.33)	1.89 (0.18)
Off-road Surface	1.43 (0.15)	2.83 (0.33)	1.89 (0.16)
Air	0.37 (0.06)	0.54 (0.12)	0.43 (0.06)
All Means of Access	11.46 (0.54)	12.31 (0.86)	11.74 (0.56)

urban anglers was similar. Rural residents took fewer road access trips, and more off-road, boat, and fly-in access trips than urban residents (Figure 3).

Arctic grayling was the species most commonly fished for by Tanana drainage anglers, with 38.1% of all respondents listing Arctic grayling as their primary target species (Table 9). Rainbow trout was the next most commonly targeted species, and was fished for as a primary target species by 27.5% of all survey respondents. Differences in the percentages of rural and urban anglers targeting various species were not large. A slightly larger percentage of rural anglers listed Arctic grayling as their primary target species than did urban anglers, and a somewhat higher percentage of urban anglers listed rainbow trout as their primary target species than did rural anglers. Differences in the percentages of urban and rural anglers targeting other species were small. Further analyses of these results are presented later.

An open-ended question asked what survey respondents thought should be done to improve the quality of fishing in the Tanana drainage. The most common response (29.7%) was to stock more fish, with instituting more restrictive regulations (20.2%) the next most common response (Table 10). Other common responses were to improve and increase road access, and to stock new species. Differences in the percentage of rural and urban respondents making various suggestions were generally small (Figure 4).

The most commonly stated motive for fishing was enjoying nature, and the second most common motive given was enjoying family and friends (Table 11). Motivations not directly involving the catching of fish accounted for 69.8% of respondents' primary motivation for fishing and 63.7% of respondents' secondary motivation for fishing. Catching fish for sport and food were the third and fourth most often stated primary motivations for fishing, and 57% of all respondents listed catching fish for food or sport as either their primary or secondary motivation for fishing. The percentages of respondents listing various motivations for fishing were similar for urban and rural anglers, except that the percentage of rural residents listing food as their primary motivation was twice that of urban residents. Conversely, the percentage of urban residents listing sport as their primary motivation for angling was 1.5 fold higher than the percentage of rural residents listing that motivation (Figure 5).

Anglers were asked to give their opinions of various management options designed to improve fishing by providing more, larger, or different kinds of fish. Stocking more fish was the option approved of by the highest percentage of anglers, followed by having a minimum length limit (Table 12). Reduced daily bag limits was the option receiving the lowest percent approval. Catch and release fishing and limiting bait fishing also had low approval ratings, but because many respondents had no opinion regarding these options, the percentage of respondents disapproving these management options was lower than the percentage disapproving the option of reducing daily bag limits. There were some differences between rural and urban residents regarding approval and disapproval of these management options, although most differences were small (Figure 6). Rural anglers tended not to approve of length limits or restricting the use of bait as much as urban anglers, and tended to disapprove

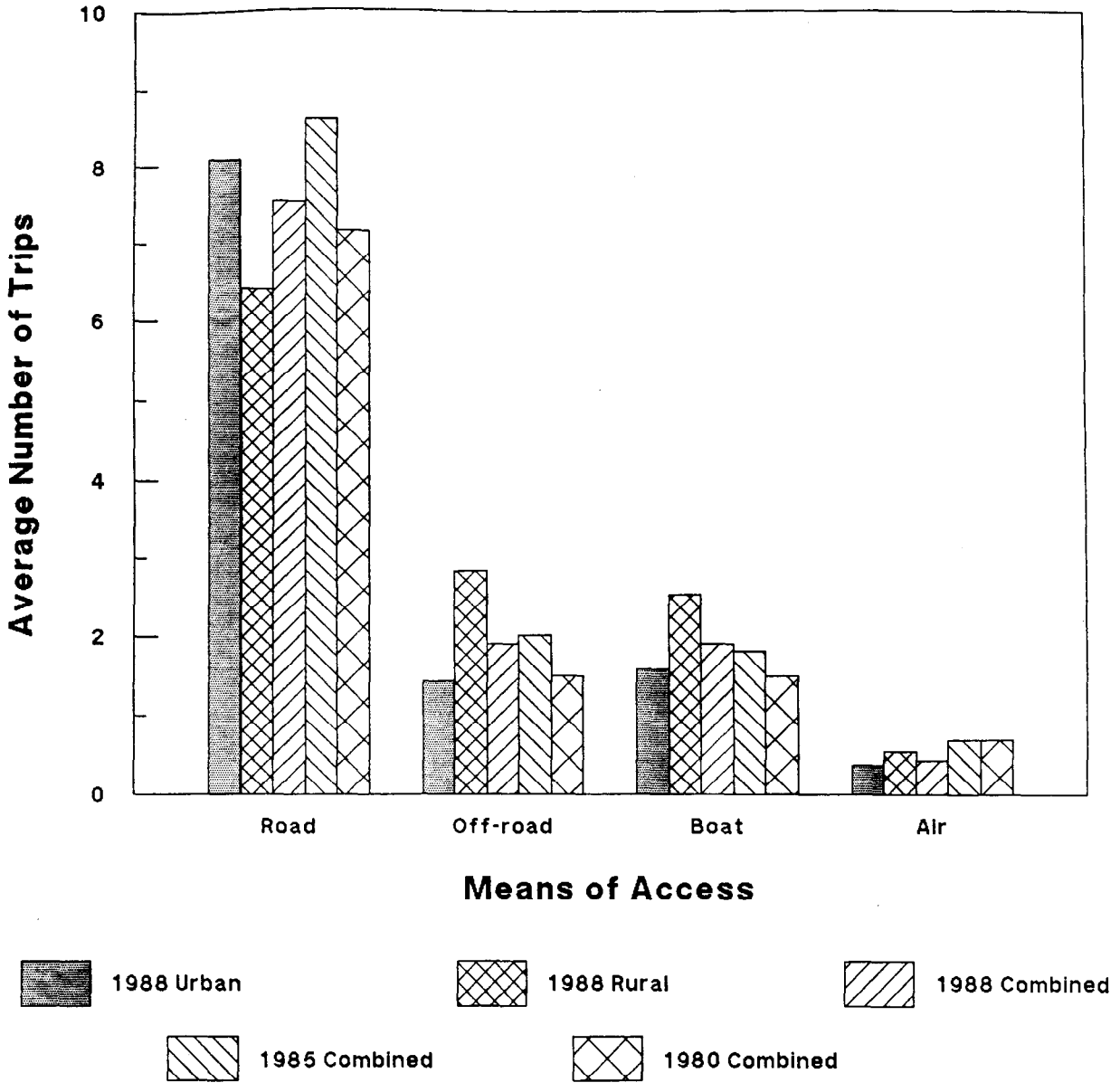

Figure 3. Average number of fishing trips using various means of access taken by urban, rural and combined Tanana drainage anglers in 1988, and combined Tanana drainage anglers in 1980 and 1985.

Table 9. Species of fish targeted by anglers from urban and rural portions of the Tanana drainage during 1988.

Species	Urban		Rural		Both	
	Number	Percent	Number	Percent	Number	Percent
Species Fished for Most Often:						
Arctic grayling	189	35.0	111	44.8	300	38.1
rainbow trout	163	30.3	54	21.8	217	27.5
northern pike	54	10.0	28	11.3	82	10.4
unspecified salmon	55	10.2	18	7.3	73	9.3
lake trout	20	3.7	8	3.2	28	3.6
coho salmon	19	3.5	9	3.6	28	3.6
chinook salmon	17	3.0	8	3.2	25	3.2
burbot	11	2.0	7	2.8	18	2.3
whitefish species	1	0.2	4	1.6	5	0.6
other species	11	2.0	1	0.4	12	1.4
subtotal	540	100.0	248	100.0	788	100.0
Species Fished for Second Most Often:						
Arctic grayling	106	22.6	48	22.0	154	22.5
rainbow trout	106	22.6	39	17.9	145	21.1
unspecified salmon	77	16.4	24	11.0	101	14.7
coho salmon	51	10.9	26	11.9	77	11.2
northern pike	47	10.0	30	13.8	77	11.2
lake trout	25	5.3	14	6.4	39	5.7
burbot	13	2.8	10	4.6	23	3.3
chinook salmon	18	3.8	2	0.9	20	2.9
whitefish species	12	2.6	7	3.2	19	2.7
other species	14	3.0	18	8.3	32	4.7
subtotal	469	100.0	218	100.0	687	100.0
Species Fished for Third Through Sixth Most Often:						
northern pike	45	21.4	15	14.9	60	19.3
unspecified salmon	35	16.7	16	15.8	51	16.4
Arctic grayling	27	12.9	13	12.9	40	12.9
whitefish species	28	13.3	11	10.9	39	12.5
rainbow trout	20	9.5	5	5.0	25	8.1
burbot	18	8.6	6	5.9	24	7.7
coho salmon	11	5.2	9	8.9	20	6.4
lake trout	5	2.4	7	6.9	12	3.9
chinook salmon	2	1.0	3	3.0	5	1.6
other species	19	9.0	16	15.8	35	11.2
subtotal	210	100.0	101	100.0	311	100.0

Table 10. Response of urban and rural residents of the Tanana drainage when asked in 1988 how they thought sport fishing in interior Alaska could be improved.

Suggested Method to Improve Sport Fishing	Urban (N=374) No.	Urban (N=374) %	Rural (N=189) No.	Rural (N=189) %	Combined (N=563) No.	Combined (N=563) %
Stock more fish	104	27.8	63	33.3	167	29.7
More restrictive regulations	79	21.1	35	18.5	114	20.2
Improve and increase road access	55	14.7	26	13.8	81	14.4
Stock new species	44	11.7	14	7.4	58	10.3
O.K. as is; do nothing	32	8.6	22	11.6	54	9.6
Restrict various user groups	27	7.2	20	10.6	47	8.3
Better enforcement of regulations	33	8.8	13	6.9	46	8.2
Improve the regulation book	24	6.4	11	5.8	35	6.2
Less restrictive regulations	24	6.4	10	5.3	34	6.0
Provide more and larger fish	14	3.7	4	2.1	18	3.2
Improve camping areas	12	3.2	6	3.2	18	3.2
Decrease crowding	10	2.7	3	1.6	13	2.3
Reduce mining siltation	6	1.6	2	1.0	8	1.4
More fishing areas close to town	4	1.1	2	1.0	6	1.1

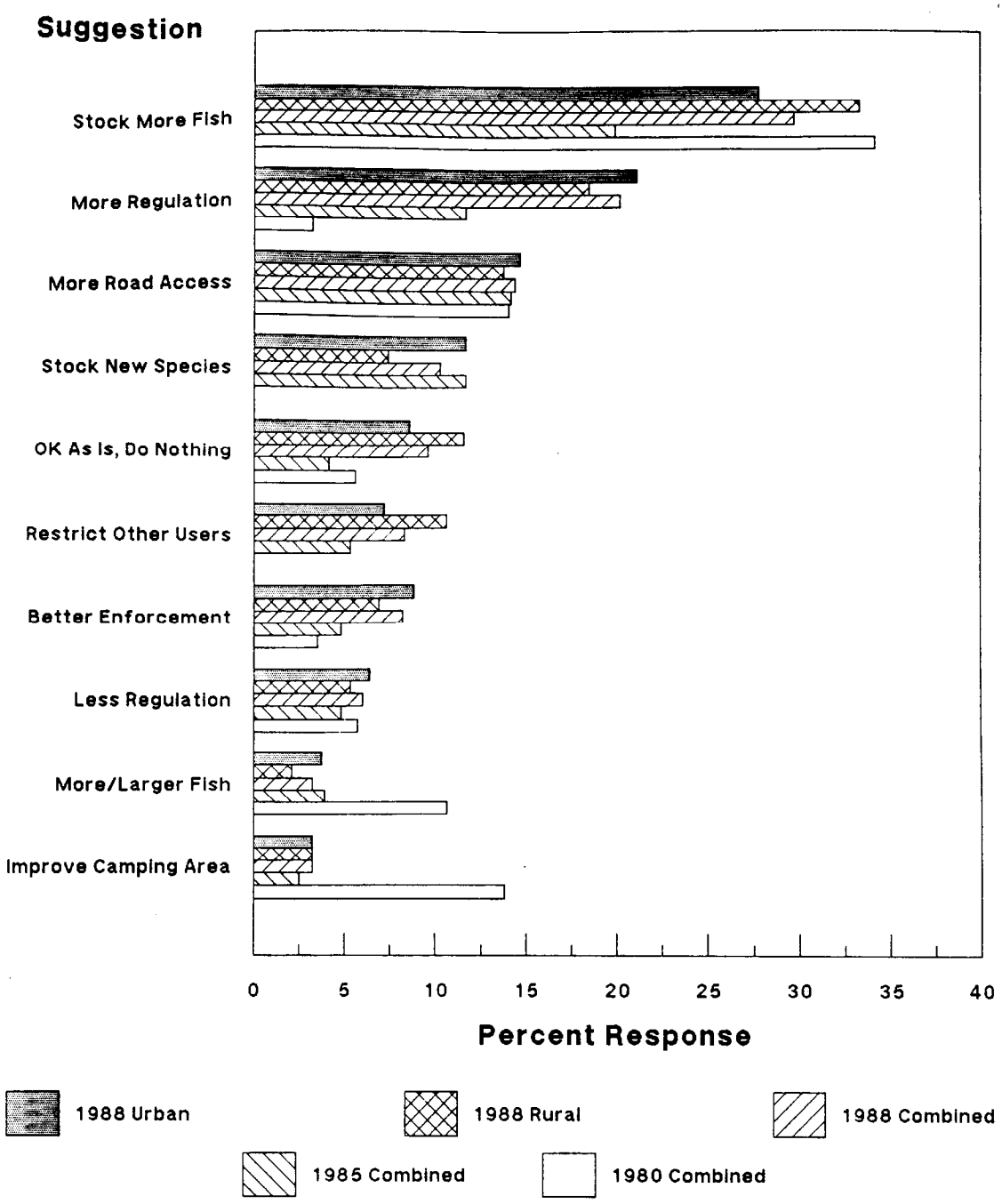

Figure 4. Suggestions made to improve sport fishing by urban, rural, and combined Tanana drainage anglers in 1988, and by combined Tanana drainage anglers in 1980 and 1985.

Table 11. Response of rural and urban Tanana drainage anglers when asked to give their primary and secondary motivations for sport fishing in 1988.

Type of Motivation	Primary Motive						Secondary Motive					
	Urban		Rural		Combined		Urban		Rural		Combined	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Sport	99	17.7	32	11.7	131	15.8	95	17.4	41	15.5	136	16.8
Food	60	10.7	60	22.0	120	14.4	110	20.1	55	20.8	165	20.3
Non-success	400	71.6	181	66.3	581	69.8	343	62.5	168	63.7	511	71.9
Enjoying nature	193	34.5	86	31.5	279	33.5	123	22.5	71	26.9	194	23.9
Family & friends	111	19.9	61	22.3	172	20.7	100	18.2	48	18.2	148	18.2
Escaping pressure	63	11.3	22	8.1	85	10.2	58	10.6	20	7.6	78	9.6
Other recreation	33	5.9	12	4.4	45	5.4	62	11.3	29	11.0	91	11.2
Totals	559	100.0	273	100.0	832	100.0	548	100.0	264	100.0	812	100.0

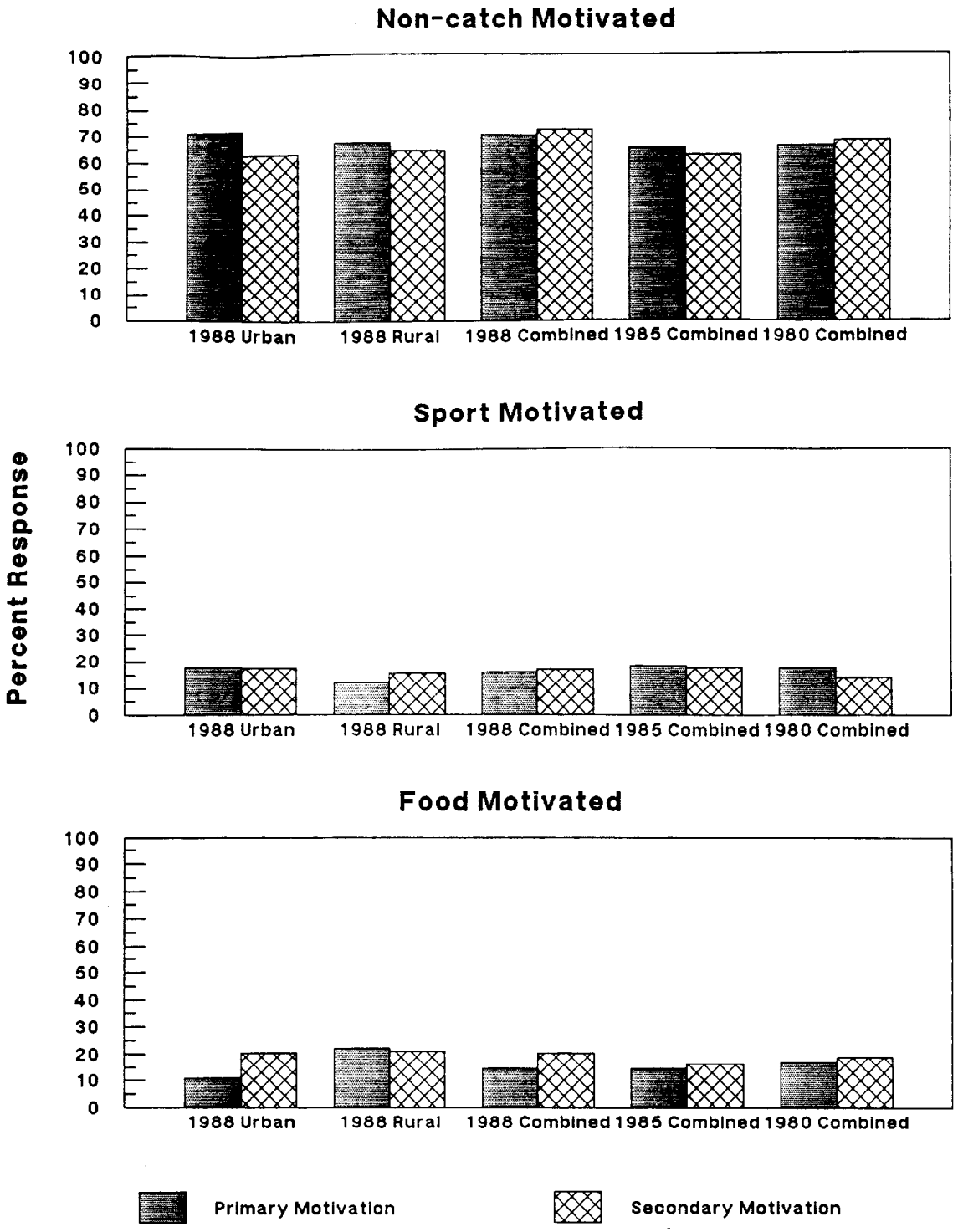

Figure 5. Primary and secondary motivation for fishing given by urban, rural, and combined Tanana drainage anglers in 1988, and by combined Tanana drainage anglers in 1980 and 1985.

Table 12. Response of urban and rural Tanana drainage anglers in 1988 when asked their opinions of various fishing regulations designed to improve fishing by providing larger, more, or different kinds of fish.

Potential Regulation	Angler Type	Approve No.	Approve %	Disapprove No.	Disapprove %	No Opinion No.	No Opinion %	Totals No.	Totals %
Stock More Fish	Urban	472	82.4	25	4.4	76	13.2	573	100.0
	Rural	210	76.4	19	6.9	46	16.7	275	100.0
	Combined	682	80.4	44	5.2	122	14.4	848	100.0
Have a Minimum Length Limit	Urban	464	80.3	56	9.7	58	10.0	578	100.0
	Rural	193	69.7	42	15.2	42	15.1	277	100.0
	Combined	657	76.8	98	11.5	100	11.7	855	100.0
Stock New Fish Species	Urban	395	68.9	75	13.1	103	18.0	573	100.0
	Rural	172	62.3	39	14.1	65	23.6	276	100.0
	Combined	567	66.8	114	13.4	168	19.8	849	100.0
Close Season at Certain Times or in Certain Areas	Urban	304	53.3	165	29.0	101	17.7	570	100.0
	Rural	140	50.4	80	28.8	58	20.9	278	100.0
	Combined	444	52.4	245	28.9	159	18.7	848	100.0
Catch and Release Only	Urban	262	45.8	169	29.5	141	24.7	572	100.0
	Rural	121	43.8	82	29.7	73	26.5	276	100.0
	Combined	383	45.2	251	29.6	214	25.2	848	100.0
Limit Use of Bait at Certain Times or in Certain Areas	Urban	270	48.0	158	28.2	134	23.8	562	100.0
	Rural	107	38.9	72	26.2	96	34.9	275	100.0
	Combined	377	45.0	230	27.5	230	27.5	837	100.0
Reduce Daily Bag Limits	Urban	256	44.9	219	38.4	95	16.7	570	100.0
	Rural	109	39.2	119	42.8	50	18.0	278	100.0
	Combined	365	43.0	338	39.9	145	17.1	848	100.0

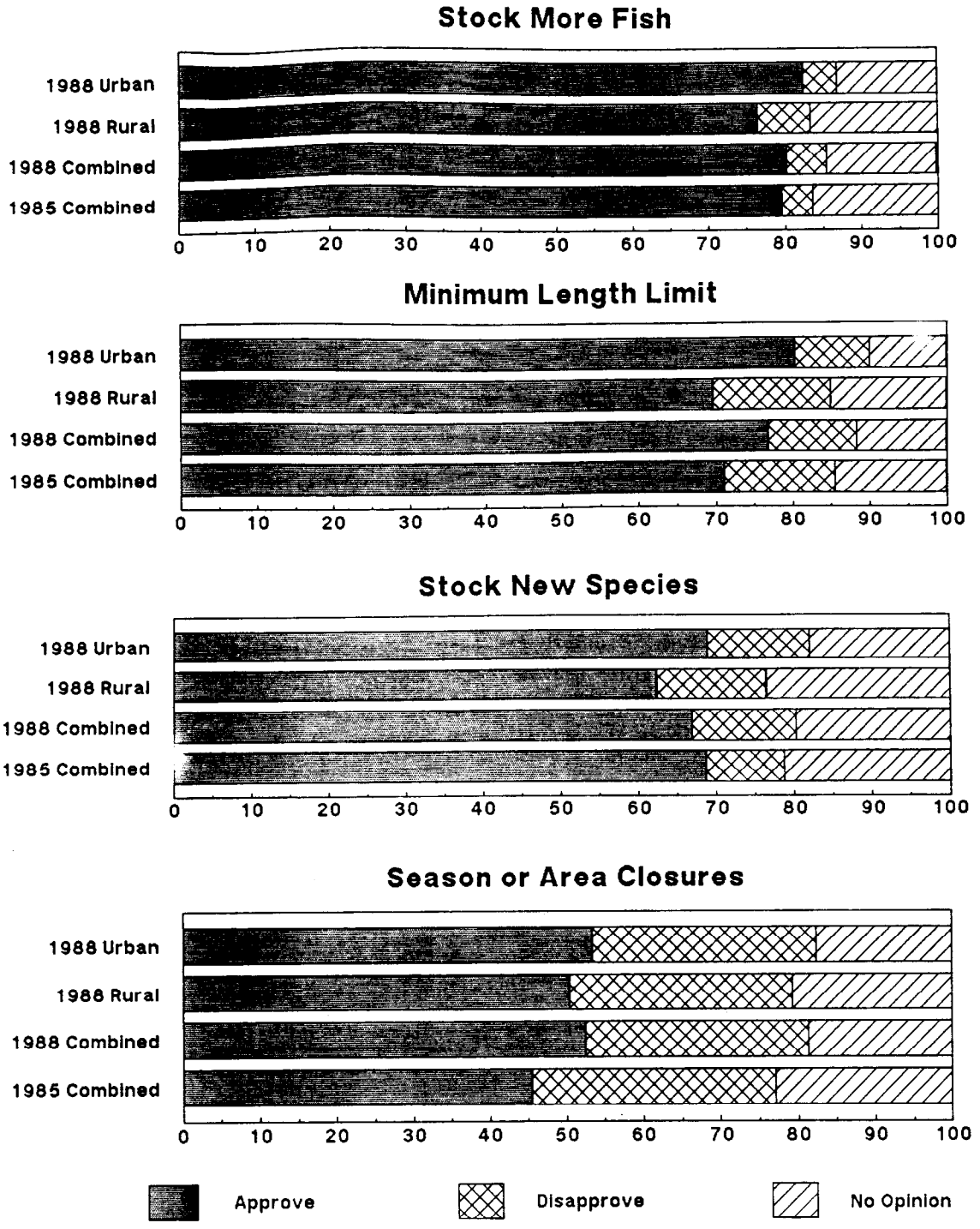

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Figure 6. Opinions of various management options aimed at improving sport fishing given by urban, rural, and combined Tanana drainage anglers in 1988, and by combined Tanana drainage anglers in 1980 and 1985.

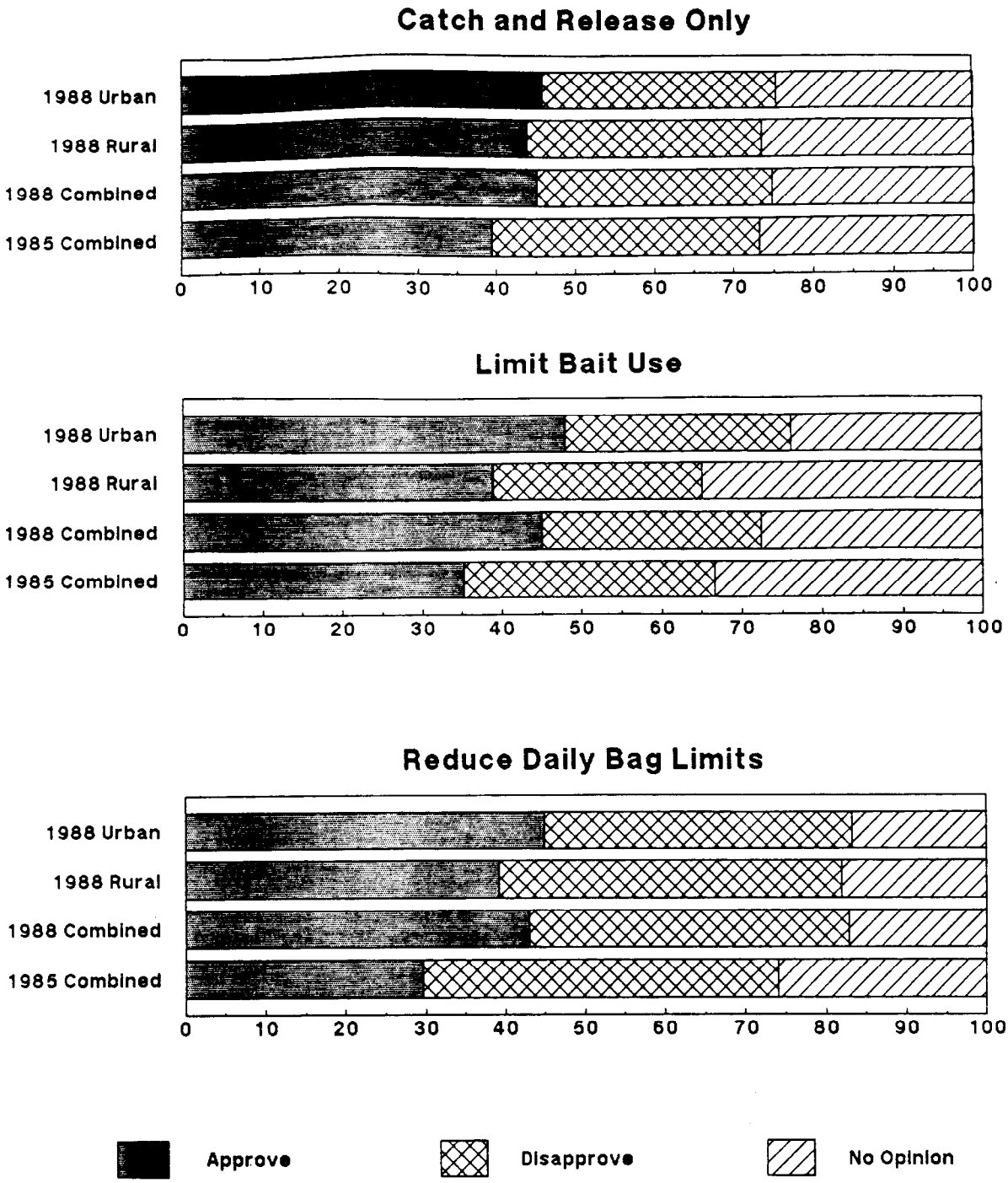

Figure 6. (page 2 of 2)

of reducing bag limits more than urban anglers. A lower percentage of rural anglers than urban anglers approved of all the management options in part because rural anglers had a higher tendency to have no opinion regarding the management options.

Anglers were also asked to rank several types of emergency regulations that might be used to reduce overharvest. Imposing length limits was the regulation with the lowest mean rank (most preferable), followed by reducing bag limits (Table 13). The regulation with the least preferable mean rank was closing the fishery, and catch and release fishing received the second least preferable mean rank. Differences between the rankings of these emergency regulations between rural and urban anglers were minor (Figure 7).

Respondents were asked if access to sport fishing was adequate, and what they recommended to improve access to area sport fishing. Most respondents (67.4%) felt that access to area sport fishing waters was adequate. The most commonly given suggestion regarding improving access to area fishing waters was to build more roads to remote areas. The next most commonly given suggestion was to improve or increase campgrounds and parking areas. Other suggestions given included improving boat launches, more ATV trails, more or better maps, trail signs, and publications, and more non-motorized trails (Table 14). Complete responses to the question are provided in Appendix C.

Hypothesis Testing

Various hypotheses were tested in an effort to define groups of sport fishermen. Actual contingency tables for these hypothesis tests are provided in the 92 tables included as Appendix E.

Opinions Regarding Restrictive Regulations:

Respondents' opinions of length limits, reduced bag limits, and catch and release regulations were not related to amount of previous fishing experience ($p > 0.229$ for all tests, Appendices E1 - E3). Respondents with 30 or more years of fishing experience were more likely to approve of, and less likely to have no opinion of, seasonal closures than respondents with less than 15 years of fishing experience ($\chi^2 = 10.10$, D.F. = 4, $p = 0.04$; Appendix E4). Similarly, respondents with less than 15 years of fishing experience were less likely to approve of bait restrictions than respondents with 30 or more years of fishing experience ($\chi^2 = 8.77$, D.F. = 4, $p = 0.07$; Appendix E5).

Anglers' opinions of the management options listed in the survey were related to the angler's motivation for fishing. Food motivated anglers were more likely to disapprove of length limits than were sport or non-catch motivated anglers ($\chi^2 = 15.37$, D.F. = 4, $p = <0.01$; Appendix E6). Food motivated anglers were also much more likely to disapprove, and less likely to approve, of reduced bag limits than sport or non-catch motivated anglers ($\chi^2 = 27.90$, D.F. = 4, $p = <0.01$; Appendix E7). Respondents who were food motivated also disapproved of catch and release fishing more than sport motivated respondents ($\chi^2 = 18.54$, D.F. = 4, $p = <0.01$; Appendix E8). Sport motivated anglers were more likely to disapprove of seasonal closures than non-catch or food motivated anglers ($\chi^2 = 12.83$, D.F. = 4, $p = 0.01$; Appendix E9), and food

Table 13. Response of urban and rural Tanana drainage anglers in 1988 when asked to rank their preferences regarding six potential emergency regulations that could be implemented to prevent overharvest.

Potential Emergency regulation	Angler type	Number (%) of Responses: Preferred → → → → → → Not Preferred 1	2	3	4	5	6	Total Sample Size	Mean Rank	SE
Length Limit	Urban	179 (35.5)	130 (27.5)	86 (17.0)	57 (11.3)	32 (6.3)	21 (4.2)	505 (100.0)	2.4	0.1
	Rural	92 (38.3)	55 (22.9)	38 (15.8)	31 (12.9)	18 (7.5)	6 (2.5)	240 (100.0)	2.4	0.01
	Combined	271 (36.4)	185 (24.8)	124 (16.6)	88 (11.8)	50 (6.7)	27 (3.7)	745 (100.0)	2.4	0.01
Reduce Bag Limits	Urban	115 (22.9)	144 (28.7)	124 (24.7)	67 (13.4)	35 (7.0)	16 (3.2)	501	2.6	0.01
	Rural	51 (21.6)	68 (28.8)	54 (22.8)	33 (14.0)	24 (10.2)	6 (2.5)	236	2.7	0.1
	Combined	166 (22.5)	212 (28.8)	178 (24.2)	100 (13.6)	59 (8.0)	22 (2.9)	737 (100.0)	2.7	0.1
Season Closures at Certain Times or Areas	Urban	72 (14.3)	89 (17.7)	76 (15.1)	86 (17.1)	139 (27.6)	41 (8.2)	503	3.5	0.1
	Rural	41 (17.1)	46 (19.2)	43 (17.9)	47 (19.6)	47 (19.6)	16 (6.7)	240	3.3	0.2
	Combined	113 (15.2)	135 (18.2)	119 (16.0)	133 (17.9)	186 (25.0)	57 (7.7)	743 (100.0)	3.4	0.1
Restrict Gear Types	Urban	50 (10.0)	67 (13.4)	112 (22.4)	141 (28.3)	85 (17.0)	44 (8.8)	499	3.6	0.1
	Rural	20 (8.4)	37 (15.5)	47 (19.7)	59 (24.8)	55 (23.1)	20 (8.4)	238	3.6	0.1
	Combined	70 (9.5)	104 (14.1)	159 (21.6)	200 (27.1)	140 (19.0)	64 (8.7)	737	3.6	0.1
Catch & Release	Urban	56 (11.2)	48 (9.6)	65 (13.0)	90 (18.0)	115 (23.0)	125 (25.0)	499	4.1	0.1
	Rural	28 (11.8)	27 (11.4)	31 (13.1)	44 (18.6)	46 (19.4)	61 (25.7)	237	4.0	0.2
	Combined	84 (11.4)	75 (10.2)	96 (13.0)	134 (18.2)	161 (21.9)	186 (25.3)	736 (100.0)	4.0	0.1
Fishery Closure	Urban	38 (7.6)	26 (5.2)	38 (7.6)	55 (11.0)	91 (18.2)	251 (50.3)	499	4.8	0.1
	Rural	15 (6.4)	8 (3.4)	20 (8.6)	20 (8.6)	43 (18.4)	128 (54.7)	234	5.0	0.1
	Combined	53 (7.2)	34 (4.6)	58 (7.9)	75 (10.2)	134 (18.3)	379 (51.8)	733 (100.0)	4.9	0.1

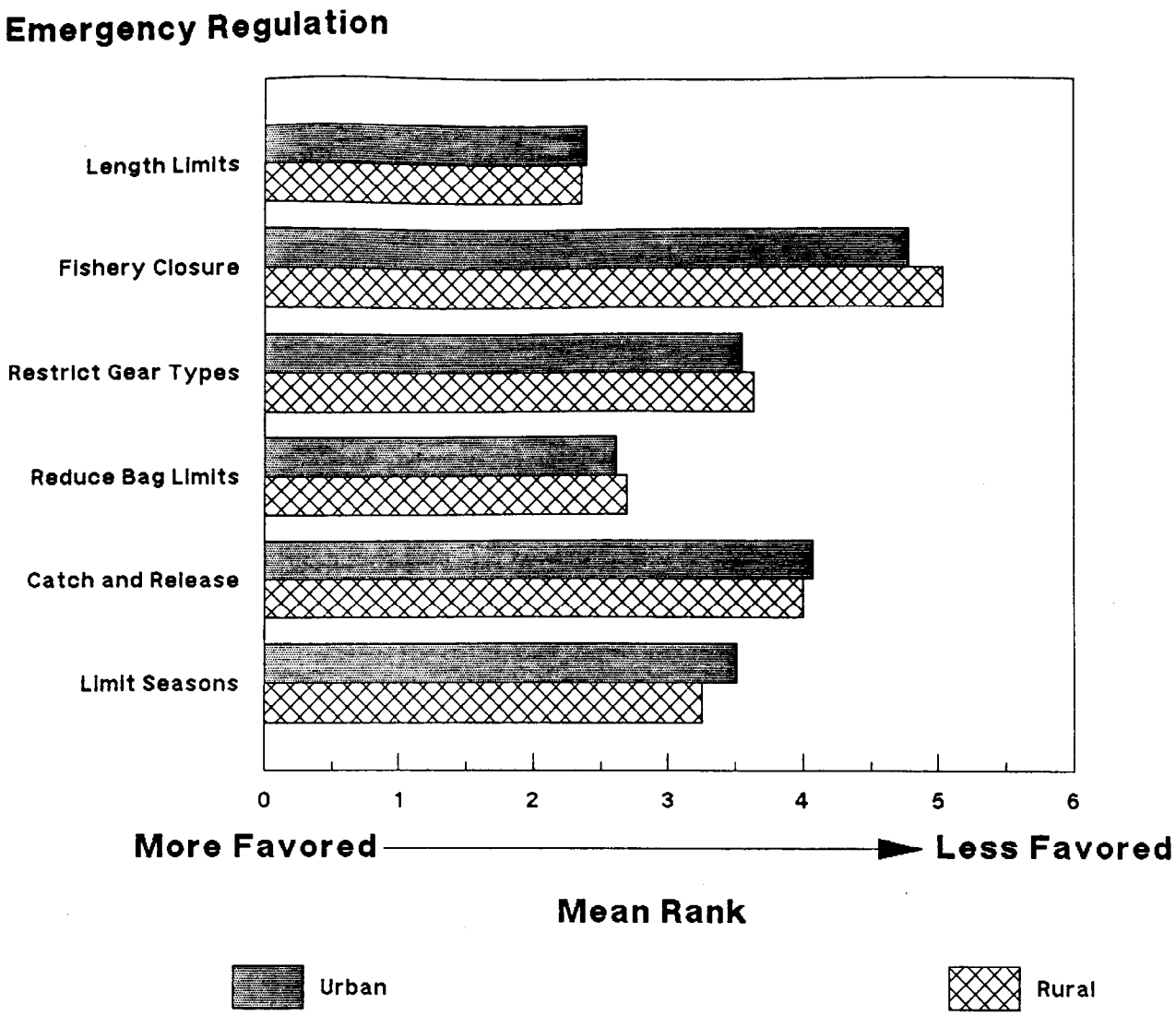

Figure 7. Mean rank given by urban and rural Tanana drainage anglers in 1988 to various management options that might be imposed in a conservation emergency to prevent overharvest.

Table 14. Response of urban and rural residents of the Tanana drainage in 1988 when asked if access to fishing areas was adequate, and if not, what specific improvements to access they recommended[a].

Recommendations Concerning Access Improvement Projects	Respondents With This Recommendation: Urban No.	Urban %	Rural No.	Rural %	Combined No.	Combined %
Build more roads to remote areas	49	37.4	23	41.1	72	38.5
Improve/increase parking areas and campgrounds	25	19.0	6	10.7	31	16.6
Improve/increase boat launches	13	9.9	5	8.9	18	9.6
More four wheel drive/ATV trails	10	7.6	2	3.6	12	6.4
More/better maps, trail signs, publications	8	6.1	3	5.4	11	5.9
Less roads/trails	4	3.1	7	12.5	11	5.9
More non-motorized trails	6	4.6	3	5.4	9	4.8
Other	16	12.3	7	12.4	22	12.3
Totals	131	100.0	56	100.0	187	100.0

[a] A total of 276 (32.6%) respondents answered no, access to area waters is not adequate and 571 (67.4%) respondents answered yes, access to area waters is adequate. Only the recommendations concerning specific access improvement projects are summarized in this table; other and more complete responses to the question are provided in Appendix C.

motivated anglers disapproved of restrictions on bait use more than sport of non-catch motivated anglers (χ^2 = 9.44, D.F. = 4, p = 0.05; Appendix E10).

Respondents who went fishing less than four times had no opinion of length limits more often than anglers who went on nine or more fishing trips, and were less likely to approve of length limits than anglers who took four to eight, or nine or more, trips in 1988 (χ^2 = 16.54, D.F. = 4, p = <0.01; Appendix E11). Anglers' opinions of reduced bag limits and amount of participation in the fishery were unrelated (Appendix E12). Respondents who took less than four fishing trips were more likely to disapprove of catch and release fishing than anglers who took four to eight, or nine or more, fishing trips (χ^2 = 8.02, D.F. = 4, p = 0.09; Appendix E13). Respondents who went on nine or more fishing trips in 1988 were more likely to disapprove and less likely to have no opinion of seasonal closures than anglers who took four to eight, or less than four, trips in 1988 (χ^2 = 10.52, D.F. = 4, p = 0.03; Appendix E14). Anglers who took nine or more trips in 1988 were also more likely to disapprove, and less likely to have no opinion, of bait use restrictions than anglers who took four to eight, or four or less, trips in 1988 (χ^2 = 11.19, D.F. = 4, p = 0.02; Appendix E15). There was no significant relationship between military status and anglers' opinions of any of the various restrictive regulations that might be imposed in order to improve the quality of fishing (Appendices E16-E20).

Primary target species was related to anglers' opinions of length limits and bait use restrictions, but was not significantly related to opinions of reduced bag limits, catch and release fishing, or seasonal closures (Appendices E22-E24). Respondents who targeted Arctic grayling were more likely to approve, and less likely to disapprove, or have no opinion, of length limits than anglers who targeted other species (χ^2 = 14.33, D.F. = 8, p = 0.07; Appendix E21). Respondents who targeted Arctic grayling or northern pike were less likely to disapprove of bait use restrictions than respondents who targeted rainbow trout or salmon, and Arctic grayling anglers were also less likely to have an opinion about bait use restrictions than anglers targeting other species (χ^2 = 32.92, D.F. = 8, p = <0.01; Appendix E25).

Respondents who rated fishing success as poor were less likely to approve of catch and release fishing than respondents who rated fishing success as excellent or good (χ^2 = 16.94, D.F. = 6, p = <0.01; Appendix E28). Anglers' ratings of fishing success were not significantly related to opinions of length limits, reduced bag limits, seasonal closures, or bait use restrictions (Appendices E26, E27, E29, E30). There was no relationship between anglers' ratings of size satisfaction and opinions of length limits, reduced bag limits, catch and release fishing, or bait use restrictions (Appendices E31-E33, E35). Respondents who rated size satisfaction as good or fair were less likely to disapprove of seasonal closures than anglers who rated size satisfaction as either excellent or as poor (χ^2 = 11.90, D.F. = 6, p = 0.06; Appendix E34).

Respondents who rated species availability as excellent or good had no opinion of length limits more often than anglers who rated species availability as fair or poor (χ^2 = 18.87, D.F. = 6, p = <0.01; Appendix E36). There was no significant relationship between anglers' ratings of species availability and

their opinions of reduced bag limits, seasonal closures, or bait use restrictions (Appendices E37, E39, E40), however, anglers who rated species availability as excellent were less likely to have no opinion regarding catch and release fishing than those who rated species availability as good, fair, or poor (χ^2 = 11.59, D.F. = 6, p = 0.07; Appendix E38). Respondents who rated overall fishing enjoyment as fair or poor were more likely to disapprove of catch and release fishing than those respondents who rated overall fishing enjoyment as good or excellent (χ^2 = 24.61, D.F. = 6, p = <0.01; Appendix E43). There was no significant relationship between anglers' rating of overall fishing enjoyment and their opinions of length limits, reduced bag limits, seasonal closures, or bait use restrictions (Appendices E4, E42, E44, E45).

Urban residents were more likely to approve, and less likely to have no opinion, of length limits than rural residents (χ^2 = 11.19, D.F. = 2, p = <0.01; Appendix E46). Urban anglers were also more likely to approve and less likely to have no opinion of bait use restrictions than rural respondents (χ^2 = 11.32, D.F. = 2, p = <0.01, Appendix E50). There was no significant relationship between anglers' category of residence and their opinions of reduced bag limits, catch and release fishing, or seasonal closures (Appendices E47-E49).

Perceptions of Fishing Quality:

Respondents ratings of aspects of fishing quality were not significantly related to their amount of past fishing experience (Appendices E51-E54). Sport motivated anglers were less likely to rate fishing success as poor than food or non-catch motivated anglers, and food motivated anglers were more likely to rate fishing success as excellent than sport or non-catch motivated anglers (χ^2 = 17.29, D.F. = 6, p = <0.01; Appendices E55). There was no significant relationship between respondents' motivation for fishing and their ratings of size satisfaction, species availability, or overall fishing enjoyment (Appendices E56-E58).

Respondents who took nine or more fishing trips in 1988 were more likely to rate fishing success as excellent or good and less likely to rate fishing success as fair or poor than respondents who took four to eight, or less than four, fishing trips in 1988 (χ^2 = 67.55, D.F. = 6, p = <0.01; Appendix E59). Similarly, respondents who took less than four fishing trips in 1988 were also less likely to rate size satisfaction as excellent or good than anglers who took four to eight, or nine or more, fishing trips in 1988 (χ^2 = 12.62, D.F. = 6, p = <0.05; Appendix E60). Respondents who fished less (zero to three trips in 1988) also rated overall fishing enjoyment fair and poor more often, and excellent less often, than those respondents who took nine or more fishing trips in 1988 (χ^2 = 42.11, D.F. = 6, p = <0.01; Appendix E62). Anglers' ratings of species availability was not significantly related to the number of fishing trips taken in 1988 (Appendix E61).

Respondents' military status was not significantly related to their ratings of aspects of fishing quality (Appendices E63-E66). Anglers who targeted rainbow trout rated size satisfaction fair and poor more often than anglers targeting other species (χ^2 = 19.98, D.F. = 12, p = 0.07; Appendix E68). Anglers who

targeted rainbow trout were less likely to rate overall fishing enjoyment as excellent than anglers who targeted other species (χ^2 = 24.39, D.F. = 12, p = 0.02; Appendix E70), however, this result may not be valid, since several cells had expected values less than five. Primary target species and respondents' ratings of fishing success and species availability were not significantly dependent (Appendices E67, E69).

Respondents who took at least one off-road trip in 1988 rated fishing success as excellent more, and as poor less, than anglers who did not take any off-road trips in 1988 (χ^2 = 20.69, D.F. = 3, p = <0.01; Appendix E71). Respondents who took at least one off-road trip in 1988 also rated size satisfaction as excellent more, and as poor less, than anglers who did not take any off-road trips in 1988 (χ^2 = 37.75, D.F. = 3, p = <0.01, Appendix E72). There was no significant relationship between type of access used and anglers' ratings of species availability (Appendix E73). Respondents who took at least one off-road trip in 1988 were more likely to rate fishing success as excellent more, and as poor less, than anglers who did not take any off-road trips in 1988 (χ^2 = 22.36, D.F. = 3, p = <0.01; Appendix E74).

Residence category was generally related to anglers' ratings of fishing quality. Respondents from rural areas rated fishing success as excellent more often than anglers from urban areas (χ^2 = 11.63, D.F. = 3, p = <0.01; Appendix E75). Respondents from rural areas also rated size satisfaction as excellent more often than anglers from urban areas (χ^2 = 14.41, D.F. = 3, p = <0.01; Appendix E76). Anglers' ratings of species availability were not significantly related to residence category (Appendix E77). Ratings of overall fishing enjoyment were related to residence category, with rural residents rating fishing success as excellent more often than anglers from urban areas (χ^2 = 6.73, D.F. = 3, p = 0.08; Appendix E78).

Primary Species Targeted:

There was no relationship between primary target species of respondents and their motivation for fishing or number of fishing trips taken in 1988 (Appendices E79, E80). Military personnel and dependents were more likely to target rainbow trout and salmon and less likely to target Arctic grayling than non-military respondents (χ^2 = 65.57, D.F. = 4, p = <0.01; Appendix E81). Anglers who took at least one off-road trip in 1988 were more likely to target Arctic grayling and northern pike and less likely to target rainbow trout and salmon than anglers who did not take any off-road trips in 1988 (χ^2 = 26.79, D.F. = 4, p = <0.01; Appendix E82). Respondents from rural areas targeted Arctic grayling more and rainbow trout less than respondents from urban areas (χ^2 = 9.69, D.F. = 4, p = 0.05; Appendix E83).

Opinions Regarding Access:

Respondents' opinions regarding the adequacy of access to area fisheries was not significantly related to motivation for fishing, respondents' degree of participation in the fishery, or respondents' residence category (Appendices E84, E85, E90). Respondents who rated fishing success as excellent were more likely to feel that access was adequate than anglers who rated fishing success as fair or poor (χ^2 = 9.56, D.F. = 3, p = 0.02; Appendix E86) Anglers who

rated size satisfaction, species availability, and overall fishing enjoyment as excellent were also more likely to feel that access was adequate than those that rated these aspects of fishing quality as fair or poor (χ^2 = 13.67, D.F. = 3, p = <0.01 for size satisfaction; χ^2 = 21.11, D.F. = 3, p = <0.01 for species availability; and χ^2 = 29.73, D.F. = 3, p = <0.01 for overall fishing enjoyment; Appendices E87-E89).

Motivation for Fishing:

Respondents who were sport motivated were less likely to take zero to three trips and were more likely to take nine or more trips than respondents who were non-catch or food motivated (χ^2 = 10.16, D. F. = 4, p = 0.04; Appendix E91). Rural residents were more likely to be food motivated and less likely to be sport motivated than urban residents (χ^2 = 19.81, D.F. = 2, p = <0.01; Appendix E92).

DISCUSSION

Survey Response and Design

Response rate (72.3%) to this postal questionnaire was relatively high. Response rate to Mills' (1989) most recent postal survey of Alaskan sport fishermen was 56.8%. Response rate to Holmes' (1987) survey of Tanana drainage anglers was 70.2%.

Prior studies (Brown and Wilkins 1978) found that non-response can cause significant bias in survey data, even with response rates as high as 70%, such as occurred with this survey. It is possible that non-respondents may have motivations, opinions regarding management options, or other attributes and opinions that differ significantly from anglers that did respond to this survey. In future surveys, it would be useful to conduct surveys of randomly selected non-respondents to determine if bias due to non-response exists. Bias in individual question responses can be affected by the design of the questionnaire. In particular, the order in which questions appear can affect response (Scheaffer et al. 1986). In future surveys it would be useful to test for such potential bias and correct for it by altering the ordering of questions in random subsets of the survey.

Errors in angler recall have also been found to be a source of error in survey data (Atwood 1956, Wright 1978). Because recall of information regarding fishing activities is likely to become less accurate as the time interval between fishing and responding to questions increases (Harris and Bergerson 1985), it is important to send the survey out just after the time interval in question such as occurred with this survey.

The questions included in the survey were selected for several reasons. Questions were chosen in order to make comparisons with ADFG surveys made in the past or in other areas. Questions were chosen because they had proved useful in categorizing users or determining regulatory preferences in previous studies of angler survey data (Moeller and Engelken 1972, Duttweiler 1976, Holmes 1981, Harris and Bergerson 1985, Reynard and Hilborn 1986).

Survey Question Responses

Almost one-third of all respondents reported having over 30 years of fishing experience, while only 13.2% reported living in Alaska over 30 years. This is probably because many people move to Alaska with lots of previous fishing experience, but it also may indicate that younger license holders are less likely to respond to the survey than older license holders. Data on the age of respondents was not collected. The differences in the average amount of fishing experience and Alaskan residency between urban and rural residents was small, but the distributions into year groups was quite different (Figure 1). Almost twice as many rural residents reported having over 30 years fishing experience as urban residents, and three times as many urban residents reported having zero to four years of fishing experience and Alaskan residency as was the case for rural residents. More respondents reported having 30 or more years of both fishing experience and Alaska residency in 1988 than in the 1980 or 1985 surveys, and less reported having zero to four years of both fishing experience and Alaska residency than in the 1980 or 1985 surveys (Figure 1). It is possible that these changes are due to Alaska having a less transient population in recent years.

It is surprising that the differences in gear type usage between urban and rural users was not larger, since both motivation for fishing and species targeted differed significantly between the two groups. More rural residents listed not using the gear type at all than was the case for urban residents for all gear types but set lines. However, these differences were small.

Tanana drainage anglers rated various aspects of fishing quality as about average. Overall fishing enjoyment was rated higher than any specific aspect of fishing quality. These ratings were somewhat lower than the ratings given for a similar question by anglers residing on the Seward Peninsula (Viavant and Clark in press). This could be a result of differing expectations of Tanana drainage anglers, or it could be that there is a greater amount of angling opportunity and less angling pressure in the Seward Peninsula. Rural residents rated all aspects of fishing quality except species availability higher than urban residents. This is not a surprising result, since fishing pressure on wild stocks is lower in rural areas, and stocked species are probably not as available to rural anglers. Ratings of fishing success were slightly higher for 1988 than was the case in the 1980 survey or the 1985 survey, but ratings of other aspects of fishing quality did not differ much between the 1988 survey and the 1980 or 1985 surveys (Figure 2).

Most fishing trips involved road access. This is probably due to the cost and time involved going fishing using other modes of access. While the average number of boat and off-road access trips was much lower than the average number of road access trips, almost half as many respondents took at least one boat or off-road trip as took at least one road trip. Rural anglers took less road trips and more trips by means of non-road access than urban anglers, probably because of the differences in availability of roads, boats, and off-road vehicles between urban and rural communities, and not due to differences in anglers desires regarding what type of access to use. Differences in the average number of trips taken by various means of access were small between

1988 and earlier surveys. The average number of trips taken by road, off-road, and boat access have increased slightly since 1980, and the average number of trips taken using fly-in access has fallen slightly since 1985 (Figure 3).

Arctic grayling were targeted by more respondents than were any other species, and rainbow trout were the next most commonly targeted species. Rural anglers targeted more on Arctic grayling and less on rainbow trout than did urban respondents. Over half of all rural respondents reported targeting rainbow trout. Many rural communities in this survey are relatively close to lakes that are stocked with rainbow trout. Differences between urban and rural residents in other target species were small, except that burbot were targeted by 40% more rural anglers than urban anglers. This is consistent with the fact that rural anglers tend to be food motivated more than urban anglers. There have been some changes in species targeted between 1988 and earlier surveys. The percentage of respondents who targeted Arctic grayling fell from 1980 to 1985, and again from 1985 to 1988. During this same time, the percentage of respondents targeting rainbow trout has increased for each survey (Figure 8). These changes are probably due to changes in availability of the two species because of the ADFG stocking program and because of restrictive regulations implemented to protect wild Arctic grayling in recent years.

Stocking more fish was suggested by 167 respondents as a way of improving fishing in interior Alaska. This is probably because many Tanana drainage anglers are used to fishing for stocked species. The next most commonly given response to the question of how to improve fishing was to have more restrictive regulations. Thirty-five rural and 79 urban respondents listed this recommendation. On the other hand, only 27 urban and 20 rural residents suggested restricting other user groups. This was a much lesser percentage than the 36.7% of Seward Peninsula anglers that made a similar suggestion in the Seward Peninsula angler survey (Viavant and Clark in press). Recreational users of Tanana drainage fisheries are probably less likely to be aware of, much less feel competition with, subsistence or commercial users than recreational users on the Seward Peninsula, and this could explain the different responses from the two areas regarding restricting other user groups. The percentage of respondents in the Tanana drainage suggesting more restrictive regulations increased from 1980 to 1985, and again from 1985 to 1988 (Figure 4), probably a recognition by these anglers that overfishing of wild stocks has had a negative effect on recreational fishing in area waters. The percentage of respondents suggesting better enforcement of regulations also increased for each successive survey. This could indicate a perception of increased fishing pressure and an increased awareness of the potential need for conservation among the angling public.

Over twice the percentage of rural respondents listed food as their primary motivation for fishing as did urban residents. This difference was primarily made up by the lower proportion of rural anglers who were sport motivated. Urban and rural residents listed non-catch related motives in similar proportions, although a higher proportion of urban residents listed escaping pressure. Respondents' secondary motivations for fishing were more similar between the two residency categories. There was very little change in the

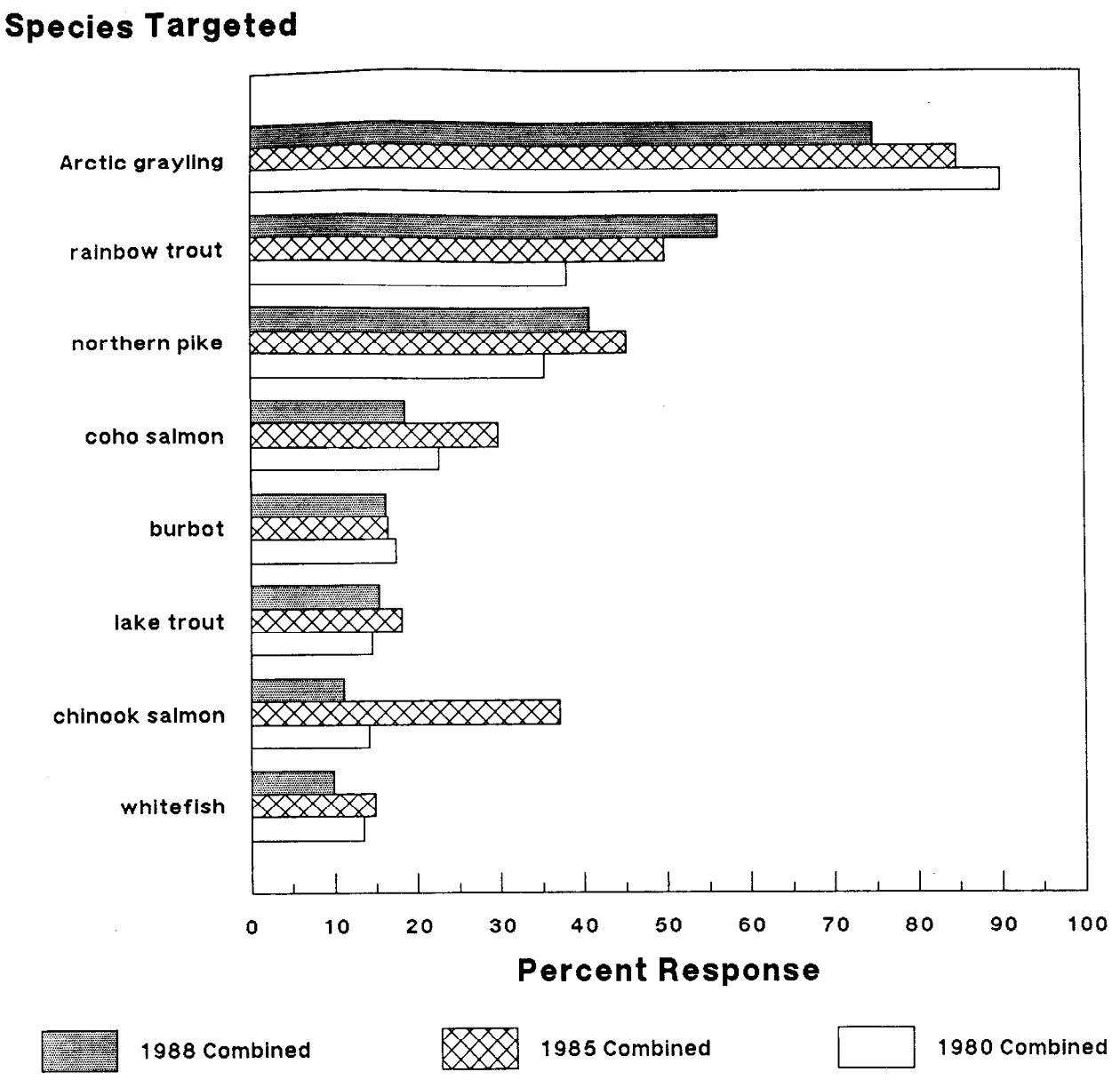

Figure 8. Anglers in 1980, 1985, and 1988 that targeted various sport fish species.

proportion of respondents with different motivations between the different survey years (Figure 5).

Stocking more fish was approved of by the highest percentage of respondents as a management option aimed at improving fishing. Stocking new species was also approved of by a majority of respondents. While stocking fish has the obvious effect of making more fish available, the benefits of restrictive regulations may not be as clear to all anglers. Even so, most of the potential restrictive regulations that might be imposed to improve fishing had similar approval rates (about 50%), except for minimum length limits, which was approved of more than any other restrictive management option. Rural respondents tended to approve of all the options less than urban respondents, including stocking, and also tended to have no opinion of the options more than was the case for urban respondents. The potential regulation with the lowest approval rating was the one with the most obvious effect of limiting catch, and that was reducing daily bag limits. This, combined with the low approval rating of catch and release fishing, indicates that catch (to take home) is important to many respondents. There was an increase in approval rating of all restrictive regulations between 1985 and 1988 (Figure 6). This again is an indication that the angling public is becoming more aware of the potential need for conservation measures as fishing pressure increases.

Respondents were also asked to rank several potential regulations (from most favorable to least favorable) that might be imposed in a conservation emergency in order to prevent overharvest. Respondents again gave the least favorable rankings to those regulations that would prevent the actual harvest of fish (complete fishery closure and catch-and-release fishing). This is another indication that, although most respondents gave non-catch related motives for fishing, the actual catching (and harvesting) of fish is important to most respondents.

Hypotheses

Responses to several questions within the questionnaire were used in an attempt to group survey respondents. This was done to determine what criteria could be used as a valid basis for defining user groups having different desires regarding fisheries management. Some criteria used for grouping respondents separated users consistently while others were rarely useful for this purpose.

The factors that separated users by their opinions of restrictive regulations most were anglers' motivation for fishing, frequency of participation, and area of residence (urban versus rural). The factors that separated anglers the most in terms of their ratings of fishing quality were area of residence, frequency of participation, and the means of access to the fishery. Although many factors considered in this study were interrelated, two groupings of respondents that emerged from the survey were:

1. rural anglers who were more often food motivated, were less receptive to restrictive regulations, rated fishing better, and were less likely to target rainbow trout; and,

2. urban anglers who were more likely to be sport motivated, were more receptive to restrictive regulations, rated fishing quality lower, and were less likely to target Arctic grayling.

Respondents with more fishing experience (30 years or more) approved of seasonal closures and bait use restrictions more than anglers with less experience, but experience was not related to ratings of fishing quality or to opinions of any other potential regulations. This difference could be related to age, since more experienced anglers are necessarily older anglers. It could also be that more experienced anglers are more aware of the potential need for conservation measures, just by virtue of their years of experience. In general, the amount of previous fishing experience was not useful in categorizing anglers.

Motivation for fishing was related to opinions of all regulations presented in the survey, and was probably one of the best criteria to use for grouping anglers regarding their opinions of regulations. Food motivated anglers disapproved of all regulations that would limit or eliminate catch while still allowing fishing to take place more than was the case for sport or non-catch motivated respondents. Sport motivated anglers disapproved of seasonal closures more than food or non-catch motivated anglers. Differences in opinions of regulatory options were between food and non-food motivated anglers and between sport and non-sport motivated anglers, and these differences did not separate non-catch from catch motivated anglers.

Sport motivated anglers rated fishing success as poor less often than food or non-catch motivated anglers. This could indicate that the catching of fish (fishing success) is important to non-catch motivated anglers, even though they list non-catch related factors as a primary motivation for fishing. It is possible that sport motivated anglers are better at catching fish, or that they are less disappointed when they are unsuccessful, than is the case for non-sport motivated anglers. There were no relationships between motivation and ratings of size satisfaction, species availability, or overall fishing enjoyment.

Motivation for fishing was not related to primary species targeted. This was surprising, since similar surveys of Tanana drainage anglers (Holmes 1987) and Seward Peninsula anglers (Viavant and Clark in press) found that motivation was related to species targeted. Motivation for fishing was also not related to opinions of whether or not access to area waters was adequate. Rural residents were food motivated more, and sport motivated less, than was the case for urban anglers. This result was expected, given the traditions of harvesting fish for food in rural areas of Alaska.

Respondents who went fishing less than four times in 1988 approved of length limits and catch and release fishing less often than did anglers who went fishing more often. Respondents who took nine or more fishing trips in 1988 disapproved of seasonal closures more often than did anglers who took less than nine trips. Previous angler surveys (Holmes 1987, Viavant and Clark in press) found that the amount of participation in the fishery was related to motivation, with sport motivated anglers fishing more often than food or non-catch motivated anglers. Anglers' opinions of regulations and their

participation in the fishery could be due to anglers' motivations. One inconsistent result was that anglers who fished nine or more times disapproved of bait use restrictions more often than did anglers who fished less. In this study, food motivated anglers (who were found to fish less than sport motivated anglers in previous studies) were the group more likely to disapprove of bait use restrictions.

Respondents who fished less than four times rated fishing success, size satisfaction, and overall fishing enjoyment lower than anglers who fished more often. Holmes (1987) found that sport motivated anglers fished more often and rated fishing quality higher than non-sport motivated anglers. People who fish less often may have unrealistic expectations regarding their catch compared with people who fish more often. People who fish more often may also simply be better anglers, since fishing more often means having more experience.

Frequency of participation was not related to species targeted or to opinion of the adequacy of access to fishing. Sport motivated anglers took more fishing trips than non-sport motivated respondents, which is consistent with an earlier survey of Tanana drainage anglers (Holmes 1987) and with a similar Seward Peninsula survey (Viavant and Clark in press).

Military status was not related to opinions of regulations. This is a little surprising, since Holmes (1987) found that military personnel were more likely to be sport motivated than food or non-catch motivated, and motivation was related to opinions of most regulations. While military personnel are also likely to differ from non-military respondents in age (and therefore experience) and in length of residency, Holmes (1987) did not report any relationship between age, experience, or length of residency and motivation for fishing.

Military personnel did not differ from non-military respondents in their ratings of fishing quality. Military personnel targeted rainbow trout and salmon more and Arctic grayling less than non-military respondents. This could be because both of the largest military bases in the Tanana drainage are located close to waters that are stocked with rainbow trout and coho salmon.

Anglers targeting Arctic grayling approved of length limits and were less likely to disapprove of bait use restrictions more often than was the case for anglers targeting other species. While it seems that this result could be related to motivation, species targeted was not related to angler's motivation for fishing.

Respondents targeting rainbow trout rated size satisfaction and overall fishing enjoyment lower than anglers targeting other species. This is probably because stocked rainbow trout rarely reach large sizes, and fishing for stocked species takes place in waters that are more likely to be crowded (since most stocked waters are road accessible). Anglers whose primary target was salmon rated size satisfaction higher than anglers targeting other species, and this is probably because anadromous salmon are generally large fish, compared to commonly caught fresh water species. On the other hand, landlocked coho and chinook salmon that are stocked, rarely reach a size

comparable to several wild stock species in the Tanana drainage such as Arctic grayling or northern pike.

There was no pattern of relationships between ratings of fishing quality and opinions of regulations, except that anglers who rated several aspects of fishing quality as fair or poor tended to disapprove of catch and release fishing. It is understandable that respondents unhappy with fishing would be less receptive to restrictive regulations than anglers more satisfied with fishing.

Anglers who rated all aspects of fishing quality as excellent consistently felt that access to fishing was adequate more often than anglers who rated fishing quality as fair or poor. This is rational, because if respondents were unhappy with the fishing they were doing, they might be expected to want access to different areas.

Respondents who took at least one off-road trip rated all aspects of fishing quality (except species availability) higher than those who only fished road accessible waters. This indicates that respondents believe that fishing is better, fish are bigger, and the experience in generally more enjoyable in more remote waters in the Tanana drainage. Anglers who took at least one off-road fishing trip targeted Arctic grayling and northern pike more than rainbow trout or salmon. This makes sense, since rainbow trout are only available in stocked waters, and most salmon caught in the Tanana drainage are caught from road accessible streams (Mills 1989).

Rural residents approved of length limits and bait restrictions less than urban residents. This is probably because rural residents are more often food motivated than urban residents, and perhaps more likely to care if a regulation would limit or eliminate the opportunity for harvest. Rural residents rated all aspects of fishing quality (except species availability) higher than urban residents. This probably reflects better fishing in rural areas due to less fishing pressure rather than differing expectations of fishing quality.

Rural anglers targeted Arctic grayling more than urban anglers. Urban anglers targeted rainbow trout more often than rural anglers. This could be related to availability. However, since many respondents classified as rural live on the road system near stocked waters, it could be that urban and rural anglers target different species, regardless of availability. Rural and urban anglers did not have differing opinions of the adequacy of access to sport fishing waters.

Urban residents approved of length limits and bait use restrictions more than was the case for rural residents. Rural residents were more likely to be food motivated than urban residents, but did not differ from urban residents in opinions of reduced bag limits or catch and release fishing. Residency status was related to species targeted and to motivation for fishing, and both of these factors contribute to receptiveness of restrictive regulations.

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APPENDIX A

THE QUESTIONNAIRE ON SPORT FISHING - TANANA AREA

QUESTIONNAIRE ON FRESHWATER SPORT FISHING

Instructions:

This questionnaire should be filled out only by the person to whom it is addressed, even if he or she fished little or not at all in 1988. Please limit all answers to Sport Fishing done in Freshwater during 1988 in Interior or Northern Alaska. For simplicity we are considering Northern and Interior Alaska to include all waters north of the Alaska Range. Please read each question carefully and answer to the best of your memory. After completion, return the questionnaire in the envelope provided.

Thank you for your assistance.

1. Here are some general reasons people have given for going fishing. Please indicate the first and second most important reason why you go sport fishing. *(Please place a "1" in the space for the most important reason and a "2" in the space for the second most important reason)*

_____ Getting away from daily pressures.

_____ Getting out and enjoying nature.

_____ Catching fish for sport.

_____ Enjoying other recreational activities *(For example: hiking, camping, or canoeing)*.

_____ Catching fish for food.

_____ Getting out with family and friends.

2. Please estimate how many sport fishing trips you made to each of the following types of areas in Interior and Northern Alaska in 1988.

_____ Fly-in lakes or streams *(For example: Volkmar Lake or Brooks Range Lakes)*.

_____ Lakes or streams reached by riverboat or canoe *(For example: Goodpaster River or George Lake)*.

_____ Lakes or streams reached by road *(For example: Birch Lake or Chena River)*.

_____ Lakes or streams reached by offroad trails using ATV, Snowmaching, Ski, or Walking *(For example: Koole Lake or Beaver Creek)*.

3. How many times in 1988 did you sport fish using the following types of gear?

Bait [ ] Lure [ ] Fly [ ] Spear [ ] Set Line [ ]

4. Please list the types of fish you sport fished for in 1988 in Interior and Northern Alaska. *(List the species you fished for most as number 1, next most as number 2, etc.)*

1. _____ 4. _____

2. _____ 5. _____

3. _____ 6. _____

5. On certain waters different management changes or fishing regulations can improve fishing by providing larger, more, or different kinds of fish. What is your feeling toward each of these ways of possibly improving sport fishing quality. *(Please place an X in the appropriate box)*

	Approve	No Opinion	Disapprove
Have a minimum length limit	☐	☐	☐
Reduce daily bag limits	☐	☐	☐
Stock new types of fish	☐	☐	☐
Have catch and release fishing	☐	☐	☐
Close fishing seasons at certain times or in certain areas	☐	☐	☐
Limit bait fishing at certain times or in certain areas	☐	☐	☐
Stock more fish	☐	☐	☐

6. Is public access to fishing areas adequate? Yes ☐ No ☐

IF NO, please list specific recommendations for ways or areas you feel access to sport fishing could be improved.

_____

_____

_____

7. What would you like to see done to improve sport fishing in Interior and Northern Alaska?

_____

_____

_____

8. Please rate your sport fishing experiences in Interior and Northern Alaska during 1988 on the following 4 point scale:

1 = Excellent	2 = Good	3 = Fair	4 = Poor

a. Your fishing success in 1988. ☐

b. Your satisfaction with the size of fish you caught in Interior and Northern Alaska in 1988. ☐

c. The species of fish available in Interior and Northern Alaska in 1988. ☐

d. Your overall fishing enjoyment in 1988. ☐

9. In the event of a conservation emergency, what type of regulation would you prefer to see implemented to reduce overharvest of fish. *(Please rank the following options from 1 to 6 with the most desirable regulation listed number 1 and the least desirable regulation listed number 6)*

Length Limits ..... ☐

Reduced Daily Bag Limits . ☐

Close the Fishery ... ☐

Allow Only Catch and Release Fishing ..... ☐

Restrict Gear Types (ex. No Bait) ..... ☐

Close Fishing Seasons at Certain Times or in Certain Areas ... ☐

10. Background questions:

a. How many years have you been fishing? _____Years

b. How many years have you lived in Alaska? _____Years

c. Are you in the military or a military dependent? Yes ☐ No ☐

APPENDIX B

COVER LETTERS SENT WITH ANGLER QUESTIONNAIRE

Dear Alaskan Angler,

You have been selected to participate in a survey of Northern Alaskan fishermen being performed by the Alaska Department of Fish and Game. Within the next few days, you will receive a survey questionnaire in the mail.

Your cooperation will be greatly appreciated.

Sincerely,

Rocky Holmes

Rocky Holmes
Research Supervisor
Sport Fish Division

STEVE COWPER, GOVERNOR

DEPARTMENT OF FISH AND GAME

1300 COLLEGE ROAD
FAIRBANKS, ALASKA 99701-1599

February 1, 1989

Dear Alaskan Sport Fisherman:

The Alaska Department of Fish and Game is conducting research on sport fishing in Interior and Northern Alaska. Our goal is to maintain and improve the quality of the important sport fishing resources of the area. To reach this goal, we need to know what resident anglers think about the quality and management of the resource. This is an opportunity for you to participate in the decision making process.

Your name has been randomly selected from a list of Northern Alaskan license holders. Would you please take a few minutes to answer the attached questionnaire? Your opinions are important in making the survey comprehensive and accurate. Be assured that all individual responses will remain confidential.

Thank you for your help.

Sincerely,

Rocky Holmes

Rocky Holmes
Research Supervisor
Sport Fish Division
(907) 456-8819

STEVE COWPER, GOVERNOR

DEPARTMENT OF FISH AND GAME

1300 COLLEGE ROAD
FAIRBANKS, ALASKA 99701-1599

Dear Alaskan Sport Fisherman:

We have not yet received your completed questionnaire on freshwater fishing. Since you are a part of a random sample of fishermen, your opinions are important in making the results accurate and complete.

Even if you did not fish in 1988, we need your opinions. Would you please take a few minutes to answer and return the questionnaire?

If you have already returned your questionnaire, please disregard this letter and accept our thanks.

Sincerely,

Rocky Holmes

Rocky Holmes
Research Supervisor
Sport Fish Division
(907) 456-8819

11-K17LH

APPENDIX C

RECOMMENDATIONS FOR IMPROVING ACCESS TO SPORT FISHING IN THE TANANA DRAINAGE (QUESTION 6)

This appendix contains responses to question number 6 in the survey which reads: "Is public access to fishing areas adequate?" ____Yes ____No

If No, please list specific recommendations for ways or areas you feel access to sport fishing could be improved.

The following responses were taken from urban areas of the Tanana drainage.

000. Provide more roads into areas. If one has handicaps or has an age problem, hiking in is ridiculous.

001. Add access for the handicapped at our lakes and rivers.

001. Increase access numbers and related parking areas.

002. ATV access in the pipeline corridor above the Yukon would open up some good fishing holes and lighten up pressure close to the road.

002. Need more roads into remote areas.

003. More room to move into areas to launch boats, or just move in general.

006. More landing strips for wheel planes to land next to remote strips. A lot of people own land planes and no floats.

017. Easier access to currently inaccessible areas by road.

019. More is better.

019. More roads into remote areas. More boat launches.

035. More trails available for use with ATV's.

050. More stocking efforts and access to more areas needed. More variety of fish made available.

054. Off-road access is not adequate. Open roads, trails, and landing areas.

088. More camping spots on lakes.

094. More dirt trails to and from fishing areas.

114. Public lands and waters should be <u>actively</u> protected for the public from local vandals who lawlessly destroy private property of fishermen to discourage their presence. Also a road here and there might help, since not all of us can afford riverboats and airplanes.

123. I came to Alaska to get away from roads and big cities. I would like to see half of the roads we now have blocked or destroyed.

130. Give away detailed maps on how to get to offroad lakes. Make trails to these lakes for hikers, ATV's, and canoes.

149. Cut more unpaved access roads.

152. Should expand road system to areas off the Haul Road, Rich., Denali Park, etc. Open areas for campers as well as fishermen and hunters.

159. Stock more lakes and rivers close to roads. Not everyone can afford a fly-in trip or can own an ATV.

170. There is too much isolation that only the rich man can get to and that is not fair to the common working man.

179. If possible, a better boat ramp should be installed at the Elliott Highway Campground on the Chatanika River and dredge out slough bottom to the river entrance.

182. Have roads made for ordinary vehicles. Some fishing areas are only accessible by ATV's or boats.

187. On the Kenai River system, the restrictions placed on public use is too restrictive.

192. Making roads available to areas where some Alaskans can go. Fear of fly-in trips prohibit access to our own lakes.

197. More maps and information available.

213. Now is the time to secure access for the future on Salcha, Chena, etc. Don't be like Montana where in some places you can reach a stream in only one or two places in an entire drainage because everything else is private property. Especially popular areas like the Chena and Salcha and even the Chatanika if you look towards the future.

222. Fishing access is quite good for lakes that are reasonably close to roads and I would not like to see it changed. If access is improved to areas that are a little remote the experience of fishing in the relative wilderness would be lost. One example is Tangle Lakes versus Glacier, Landmark Gap and Sevenmile lakes. The contrast in <u>quality of experience</u> is remarkable and should remain that way.

224. Have more "close-in" areas developed for family type outings at state camps or park sites.

231. Need more roads.

236. I think there should be more access roads and boat ramps for fishing on the Kenai and Russian rivers. I think that the state should have at least two more fish hatcheries (salmon). This would increase revenue by commercial and sport fishermen to the state's economy.

253. In some areas the roads are very poorly maintained and not enough room for much camping to enjoy the lakes. When you finally get to the lake, the access area is so small. There is only room for a small amount of people.

255. More information and road signs.

257. Possibly build some small roads to places where many people use ATV's or walk to such as where people go king salmon fishing on the Salcha River by the Munson Slough turn off.

265. Need more information on areas and best routes to areas that are not clear on the maps.

268. I think there should be more access because all of the good areas have the catch-and-release program. It should just be closed at certain times of the year.

275. Build some dirt roads that bring people closer to fly-in lakes. Some of us don't have the funds that enable us to make these trips.

281. Easily accessed areas should be more heavily stocked. Chena and Chatanika rivers should be stocked with trout, maybe they would taste better than the lake raised rainbows (colder water). By July you can't catch much in these rivers, even with hiking for awhile.

282. Nothing really can be done unless many more roadways are constructed. Not just in the Interior, but statewide. We will always have an access problem, as large as this state is. But that may be the only thing that preserves this great place to live!

290. Build access roads and parking facilities.

306. As military and tourists increase Alaskans are being left out with no place to even park on the road system.

307. I would, and do, walk up to a mile to reach offroad lakes and streams but have a feeling that there are lots of good places I miss. How about an area wide map of some kind? You could sell it. It wouldn't have to be free.

316. Would like more foot trails to streams and rivers near roads.

316. Public areas/access needs to be enlarged.

321. More trails. Try and ease pressure from road accessible streams.

322. More roadways or ATV trails.

327. Too many areas are not accessible by everyone, but we're having to pay a private boat to take us upstream to fish. Fishing becomes entirely too expensive.

337. The only lakes accessible by road have no fish.

337. Need more roads into areas without them.

339. Trails or roads to lesser remote areas.

346. I feel that the Interior should develop it's fishing access with more walking and hiking trails.

351. Put in more trail markers and trails.

359. Better camping areas for picnicing and motor home hookups all over the state. We are supposed to be high tourist industry in Alaska and we have no way to cater to them. We need better campgrounds along the road.

367. Better roads.

380. More access in the form of boat landings, camp areas, and boat trailer parking. All areas I've visited throughout Alaska are too small for our short season.

387. Need better road access to some of the now inaccessible lakes that require flying in to.

393. Open more areas around lakes for camping and parking.

401. Build a few more dirt roads to lakes and rivers or mark trails for ATV's.

403. More places around Fairbanks.

411. More roads to more lakes. For as many lakes as we have there aren't many roads to them.

421. Improve existing areas and access to those areas. The Chena Hot Springs Road Campgrounds are a nice feature. Similar areas would be nice at high use areas, i.e. Chatanika R. behind Murphy Dome.

430. I like the privacy enjoyed in places that take some effort to get to. But love the convenience and beauty of Chena lakes and rivers too.

434. More roads to small lakes.

449. More roads to small lakes on the Richardson and Parks highways.

454. Public access is fairly adequate; however, an example of improvement would be to improve, by grading, the access road off Murphy Dome to Chatanika River which also would provide better access to Minto Flats and other rivers in that area.

459. Road accessible streams and lakes are overfished. Remote areas need to be opened up with a realistic road network to distribute the fishing pressure.

469. More roads and/or hiking trails to good streams.

475. Open new trails and tell the Natives to leave us alone!

480. Improve access for fishing opportunities.

481. Improve road access.

501. Build a better road into Minto Flats.

512. Roads into more lakes and more accessibility roads to fishing spots on rivers.

515. Due to a lack of information I visited ADFG and discovered there to be limited sport fishing access via small aircraft w/o floats. Would love to fly into areas with small strips available for public landing. Consider a couple small air strips, please.

518. Tanana Flats and Minto Lakes need more and better maintained roadways.

522. Reopen the George Lake Lodge boat ramp.

527. Most places the answer is yes, but there are still some sections of Alaska that are over-regulated for the types of vehicles and boat motors that can be used.

527. I know there is a small effort to increase access and campgrounds, etc. But there are very few accesses or campgrounds on places like the Jim River, Koyukuk, or Salcha. Seems the state of Alaska does not want to build a road. In the summertime the Chena River is full of campers and fishermen. It has been for 10 years. Yet to put in a road takes and act of the Federal Government so Alaska sportsmen have to spend the big bucks to do much of anything.

543. Develop more roads and boat launch facilities at lakes that are reasonably close to existing roads.

545. Need more roads or trails.

548. Some sort of access to Minto Lakes that would avoid New Minto and provide a road not requiring 4WD and monster mud tires. Some type of publication giving information on road access to fishing areas to even out the pressure.

548. Easy access will ruin good fishing in Alaska.

558. Higher percentage of campsites available for use in conjunction with sport fishing are few and far between, also too small. Paxson Lake facility, with the new expansion, is a very good facility.

560. I'm not sure what can be done to help the problem but those areas you can get to without a boat or some extraordinary means of transportation seldom have any fish.

576. Grade road to Quartz Lake.

582. Most people fishing in Alaska go to areas accessible by road. I would like to see improved road access to more places especially in the Interior and with some tourists in mind.

604. Improved boat ramp at Paxson.

613. Need more lodges with road access to remote lakes.

621. Need more access for 4-wheel vehicles.

632. Improve some access roads to fishing areas.

640. Build more roads in Alaska.

643. More campground access to lakes and streams for motor homes. New and improved boat landings. Upgrading of roads (Bennett Rd.). More access off road systems, with secondary roads to disperse the pressure to accessible areas.

667. State ownership of river boundaries (Copper River Native owned lands; Native Land Claims - what about White man land claims?) lower Gulkana boat ramps.

677. Better access to the Gulkana River, from Paxson to Glennallen. The access to the river at Glennallen has been closed the last two (?) years as well as the camping area. And better access to fishing areas by ATV or offroad trails.

678. More user access to areas north of Yukon Bridge and access roads into the Alaska range areas on both sides (Delta and Healy).

684. The road that leads into Quartz Lake is dangerous in the winter.

690. Increase boat launching areas at Chena and Birch lakes.

691. It would be helpful if trails were marked, e.g. Rainbow Lake trial has several crossings. A first timer can really get turned around. More trails to lakes where flying in is the only way to get there right now e.g., Forrest Lake - snowmachining depends on river conditions.

693. Too much access creates more problems in Fish and Game management.

696. Need more and better roads. Why pay for someone to fly you in? I would rather pay for a good campsite.

699. Sourdough Creek Campground could be larger. BLM was giving $100.00 tickets for parking off the road (waterfowl habitat).

717. There needs to more vehicle access to lakes and streams.

720. Most sport fishing in the Interior is not accessible to the average person. Most places you need a plane or a jet boat.

724. A road to the slough west of Eielson AFB, across the Richardson Highway.

725. The problem is the road system in Alaska is very underdeveloped. Until our road system is extended good access to fishing will not be available. I do not own an airplane, riverboat, or ATV. I am afraid that I am just like 90% of the residents of this state.

727. Closer road access and more parking areas.

739. Improve the landings going down to the rivers.

763. I feel that with the growing number of people in the Interior most camping and access areas could be enlarged to accommodate them.

769. Access to interior lakes is very poor. Launching is good but parking at Birch is very poor. Harding L., with the improvements made this past summer has improved somewhat, but is still marginal at best. Grade gravel roads more than once a year or at least fill holes with gravel.

779. Alaska will always remain a "rich man's" playground as long as access roads are limited and so many thousands of acres are "protected" from the common (middle class) sportsmen.

794. More roads to lakes.

805. Would like to see road access to rivers (e.g. Chatanika) improved.

811. Boat ramps are bad. There's no place to clean fish at public lakes.

816. Stock more accessible places with larger species and install a catch and release so you get trophy fish that those without planes do not have access to now.

830. Improve road access to rivers so that cars can drive closer.

834. Marked trails and roadside parking areas at trail heads.

844. More canoe landings are needed on the Chatanika River.

851. Road improvements (Murphy Dome Rd.), docking facilities, secure parking areas.

858. Public access needs to maintained to as many sport fishing areas as possible within the state. Corridors across private holdings need to be established so that sport fishing waters aren't locked up by being inaccessible to the public. Examples include state lands made available to private ownership through subdivision sales, lottery sales, open to entry staking, etc. Also, lands conveyed to native ownership should have some public access corridors.

864. ADFG must advocate access, especially in Area Plan documents, Refuge Legislation, and actively encourage DOT road construction into new areas. Broaden the area of access in northern Alaska.

865. All over Alaska, if you're not well off access is very limited.

870. Clear trails from streams to an access road for ATV's.

874. More trails to certain off-road creek and river systems.

879. I am not too familiar with public fishing for I generally go out in Bush areas but what of public access I've seen - seems adequate!

882. Having to pay to reach certain areas to private owners sucks! More state roads to such areas. More public trails, etc. to lakes, rivers, etc.

892. Paxson Lake boat launch should be expanded. The Paxson Lake campgrounds are nice but there's no boat launch or access to the lake. Quartz Lake has good access but the boat launch area is too small during heavy usage. Make ramp to off-load two boats at a time instead of just one.

895. Put in more roads.

895. Access across Native Land Claim lands.

899. Open a canal at Harding lakes. Make a 200 spot camping facility. Stock more fish in fisheries between Fairbanks and Delta to service the people around them. You're the ones with all the training. You should know. Don't ask a carpenter to fix a plane. Less red tape. Lots of big fish, lots of happy faces.

908. Keep Shaw Creek closed in the springtime.

925. More ATV trails to remote lakes.

936. Most places that you can get to are fished too hard.

966. Public access to Birch Lake could be better. There are no signs indicating where the boat ramp is. There is not much parking there either.

975. Would like to see the Dalton Highway opened to controlled fishing either with a limit or catch-and-release program. People could check in and out by signature at the check point north of Coldfoot. Fish and Game troopers should make irregular spot inspections, daily when possible, once weekly required. But when permission is asked for fishing this area, a letter of permission should be granted for access. Time limits could be imposed.

988. I would like to see more access points into the Chatanika River. There aren't enough areas where a family can reach the river unless you climb down and back up a mountain.

995. Better maintained boat landings. For example the Tanana River at the Richardson Highway, otherwise it's just fine.

998. The roads are not very well marked for motorists. Maps to fishing areas should be published if they haven't been already. For those of us with no access to boats or airplanes, road access would be greatly appreciated!

The following responses were taken from rural areas of the Tanana drainage.

010. Build more roads to lakes and rivers.

011. Larger parking areas.

037. Boat ramps are poor to non-existent i.e. 4x4 required in most places to launch a boat.

037. State purchase of corridors to cross private or native land to make access available. Publicize areas of fishing.

046. Road improvement and better parking.

054. More roads to open more lakes and streams.

066. More access to fishing near highways and boat ramps.

086. Add more boat launching areas and improve those now existing. Open up the lands locked up by the Federal Government. Provide access into all wilderness areas to allow the older Alaskans access to hunting and fishing that is now reserved for the rich and young.

095. Quartz Lake could have a road around the west shore along with another campground in this area. This would take the pressure off the existing campground. The new campground will really help but we need more on this lake.

146. I like the ruggedness and especially when people aren't around. I hunted alone, six days and six nights out in the woods. Never had I enjoyed myself more. I even was chased by a grizzly.

155. Larger camping areas.

173. Public landings and maps improved.

175. In many areas where only ATV's can reach a lake, a slightly improved, gravel cut could make it accessible to 4-wheel drives.

204. I would like to see more land travel opened to lakes and rivers in the Tok area.

208. I resent sport fishermen asking for more roads to their fishing areas so they can drive right up to it instead of flying or hiking.

214. Better maps of where lakes are found and better trails or roads to them, especially in the Fort Greely area.

218. I would like to see more adequate access to the Tanana River in the George Lake area. The only public access now is off Cummings Rd. or at Cathedral Rapids. There needs to be better access developed near the Alaska Highway at a site such as where the old George Lake Lodge was located.

239. It's their problem to find access, not the state.

275. More roads and trails.

373. One of the problems is too much access. People come in with ATV's and motor homes and big riverboats to ruin the quality of experience and habitat of game! We don't need more roads, ramps, docks, campgrounds, trails, etc. to make access easier for slobs with coolers of beer. I can only get away from them by walking where they can't go or by taking a canoe through difficult terrain. Don't take this away too! Nothing ruins my quality of experience more than a motor home pulling a big riverboat powered by Twin 50 hp jets!

413. Four Mile Lake on the Taylor Highway.

445. If you improve access, fishing pressure will increase and fishing deteriorate.

456. In several areas roads are not maintained or there are no roads at all. Not everyone can afford to fly-in. Lakes which need roads: 7 Mile Lake, Butte Lake, all on the Denali Hwy. These lakes are used by lots of families. Also need to be stocked with rainbow, etc. Thank you.

506. I feel roads should be put in or improved and public access landings and camping areas put in.

530. A road from Haines to Juneau and a road to Cordova.

580. Build a better road to Herman Shores' cabin on Clear and Julian creeks.

584. Some of the closer lakes could be made a little more accessible.

609. We need more access roads and parking areas and boat ramps.

613. Establish access to areas such as Gardner Creek and Little Scottie Creek from the highway to launch canoes and such.

643. Open more trails and roads.

664. Well I say "yes" because if you are too lazy to walk, ride, or hike, to someplace for some good old relaxing sport fishing I guess you don't want to go fishing bad enough and it would probably benefit those who say "no" to get off of their lazy butts and get some exercise while enjoying what there is to see.

688. Natives in Mentasta Village are charging license fees to fish Salana River as state built and maintained road crosses their land. The state should look into the legality of this! (Right to Access)?

688. Need safe boat ramps and better access through native lands. More roads.

712. Build decent roads.

715. Should have more roads to close-in lakes such as 4 Mile, Donna, etc.

740. Some areas are blocked off by native land allotments. Looking at a map at the corridor of NLA I wonder if the allotments were purposely made to deny non-native access. In the past this has raised questions like: can I fish now? At times it confuses the issue.

758. Need access to 4 Mile Lake on the Taylor Highway. Also need access to Robertson lakes by Robertson River.

779. Need easy canoe launch to gain access to George Lake and other off road fisheries. Not everyone should be forced to use "Imperial Star Cruisers" to be on the river. Drift boats and canoe access should be developed.

801. I oppose native groups closing access to fishing areas.

804. We don't need more roads to fishing holes. The country is all torn up as it is.

804. Roads need to be improved.

808. This section of the state just has difficult access without a plane.

812. Need a good trail system so more lakes could be reached for families that can't afford ATV's or fly-ins.

818. Providing more pull-off areas along the road system.

853. Rising living costs prohibit me from spending necessary money for fly-in trips. Lakes like Quartz are being fished heavily. No fun anymore to beat the crowds there. We need to develop access to smaller lakes and relieve the pressure.

859. Better trails, more roads, parking spots, and public facilities such as waste bins and outhouses.

860. The old boat launch at Paxson is awful and the new ramp is closed.

878. I would like to see more lakes opened as the way Jan Lake has been with good summer season maintained road i.e. George and Lisa lakes.

878. Remove fences on the Salcha River. Is there not public right-of-way along the river's edge?

918. It appears there are still many smaller lakes with some access to the highway system that could be stocked. The Department should recognize that there are fishermen outside of the cities.

936. More road access.

942. Build more roads into the lakes, instead of all trails. Don't charge for campgrounds.

945. State insurance harassment of small fly-in planes make cost for my family too expensive. Other heavy state requirements have put small plane operators out of business. It only favors big bucks and ex-governors.

954. It would be good if one were able to get a reliable map with trails marked in it. Some trails into back country lakes are pretty difficult to hike on because of marshes and boggy ground. Perhaps some base gravel would improve the trails depending on location, length, and funds available.

957. Create more public access on largest rivers and lakes.

979. Landing access on some rivers and lakes could be improved i.e. state boat landing in Tanana just west of George Lake lodge.

APPENDIX D

SUGGESTIONS FOR ADDITIONAL ACTIONS THE ALASKA DEPARTMENT OF FISH AND GAME SHOULD TAKE REGARDING SPORT FISHING IN THE TANANA DRAINAGE (QUESTION 7)

This appendix contains responses to question number 7 in the survey which reads: "What would you like to see done to improve sport fishing in Interior and Northern Alaska?"

The following responses were taken from urban areas of the Tanana drainage.

000. Stock local lakes, with easy access, with bigger and more fish to relieve pressure at other locations. Work on the Chena, Chatanika, and Salcha salmon runs.

001. Fewer regulations. If a species is proven to be in danger of reproducing an adequate return for the following year, then close the body of water and restock it. Limiting the fishermen by rules of catch-and-release, tackle, or bag limit is to limit their freedom of choice! Either close and enhance or let the people fish.

006. Stock Chena River with trout.

006. Deregulate. By the time you figure where and what's legal you're too tired to fish.

008. Stricter enforcement of the daily limit authorizations, harsher penalties for those who do not follow laws and those who do not have licenses who are cheating the system!

009. Better sport fishing hot line (more up to date). Simplified rules and regulations (table form; pocket sized reference). More species introduced.

016. Stock more fish.

017. Eliminate subsistence fishing.

019. One year eligibility, <u>military</u> included!

025. Try to introduce different kinds of fish.

032. Remove "no motor" restriction - Chena Lakes could allow electric trolling motors with no harm to water or shoreline.

035. Stock more lakes with walleyes. Less restrictions on ATV's.

042. Leave some lakes with pike or other types.

042. Improve habitat for grayling and rainbow trout. One way would be to limit use of motorboats in areas such as Chatanika and the upper Chena River.

045. I would really like to see walleyes introduced into Alaska's waters.

050. Introduce more variety of fish such as walleye, bass, catfish, etc.

057. Eliminate the practice of sudden closures. Make regulations more understandable.

066. Minimum length limits with reduced "bag" limits. Motor size limitations on smaller lakes, e.g. Quartz. Single barbless hooks for easy fish release.

067. Limit fishing on streams which are experiencing too much use.

076. Plant walleye and grayling.

079. I feel letting pike prosper in some local lakes would reduce the impact on the planted ones. Establish a pike lake close to the roadside.

090. Clean up fishing areas accessible by road.

093. Less confusing regulations e.g. you can only keep certain fish in certain rivers (Chena). It would be nice to be able to fish all species throughout.

098. Leave it the way it is.

114. Salcha River king salmon limit in ONE, but subsistence fish wheels in the Tanana just below the hole are raking in the salmon like there is no tomorrow. ONE? Why does one man have more rights than another?

117. Enforce mandatory 3-day weekends six times a summer.

121. Make the personal use periods longer than 1 or 2 days at a stretch.

123. Closing some areas at certain times to allow fish to multiply and get bigger. Or go to just catch and release.

123. Limit access. This is Alaska, not New York. It should be remote. Triple Wildlife Protection's budget and enforce existing laws. Abolish the Game and Fish Board and let Fish and Game set management policy based on biological data, not politics.

130. Limit the size of silver salmon caught. Stock lakes away from public access. Tag more fish and offer prizes like fishing equipment instead of money.

132. I wouldn't change a thing!

137. Stock a greater amount of rainbow trout in readily accessible streams and rivers.

144. More stocking of the smaller streams and ponds in the North Star Borough.

152. Additional stocking of fish. Review lakes and streams for adaptability.

158. No sport fishing for military for two years.

158. Stock walleye.

159. Close fishing while they're spawning. Last season at Chena Lakes it made easy pickings and it doesn't let their numbers grow by themselves.

160. Easier to understand regulations.

163. Encourage my boss to give me more time off.

173. Better information on locale and technique. I looked for Fish and Game maps and pamphlets and was disappointed in their quality. It would make it easier for the novice Alaskan fisherman like I was (and still am to a great degree) to enjoy the resource.

174. Severe and enforced penalties for littering. It is rampant and it is done by those who supposedly enjoy the outdoors.

179. Ban airboats. Prohibit ice fishing for pike on Chatanika River and Minto Flats drainage for 3 years until stock has regained pre-1985 population size.

180. More information available to the sport fisherman regarding good vs. bad areas to fish, breeding times, etc.

183. Put all military in the lakes and rivers with the fish and have no bag limit on them and no size limit.

186. Have a minimum length limit.

187. There should be more information distributed on fishing in the Interior so that residents do not believe you must go to Southcentral or Southeast to catch fish.

189. Convince the military people to abide by the limits.

190. Follow advice from Fish and Game Advisory Board.

192. More game wardens to stop the taking of fish over the limit as I have observed frequently. More road access to favorite spots. Due to the weather never close seasons as it's our only recreation we get in Alaska. We are not the Lower 48 as far as regulations go.

193. Stock lakes and streams close in so they aren't so fished out and it will have the added plus of keeping people out of more remote areas, thus protecting them from abuse.

194. Stock more fish in river areas "interior."

196. Stock the Chena with more king salmon. Don't stock northern Alaskan rivers with fish from the lower 48!

200. Nothing at all. It's fine as it is.

201. Have a "no limit" on fishing, especially on salmon. You should fish even with your hands if you have to. I mean I see fish dying in waters at 2". Why can't you grab them out of the water? They are going to die anyway.

202. More stocked fish and better enforcement at lakes.

206. Stock more valuable fish and allow fish to multiply. Limit the bag.

209. Nothing except good management of existing resources. Do <u>not</u> improve access.

213. Less advertisement of hot spots for fishing. Let people find them themselves - make it a sport!

213. Limit harvest before it is too late. Don't let people feed their dogs whitefish until it's too late. Try thinking ahead and stay ahead of foreseeable problems.

214. Make good fishing spots easier to get to.

215. I feel most fish are fished out before they have a chance to grow and mature. A size limit needs to be increased and strictly enforced. Also, stock in areas not so accessible and allow fish to filter into the more accessible areas. By this time many will have grown.

222. Have (if there is not one already) a pamphlet made up indicating what areas are stocked, where they are, and how to get there.

224. I feel sport fishing in Alaska meets the needs of all. The Department of Fish and Game is doing a superb job.

225. More access by roads and trails.

231. More stocking of lakes.

234. I believe that not making non-stocked lakes such as Minto Flats so accessible by putting in new roads like the one off the back of Murphy Dome would keep fishing pressure at a minimum.

236. Increase stocking of fish to the lakes around Delta and Fairbanks.

245. Forbid all motorized boats for sport fishing purposes.

253. Length limits.

253. Maintain better roads, better access to lakes and larger areas for camping. Most lakes are only accessible on one side.

255. I feel that the fishing in Alaska is good the way it is.

255. Most of all, more new stocked lakes, more fish stocked, better access or improved roads and trails. Better signs or maps.

257. Would bass (small mouth) and crappies survive in lakes such as across from Eielson AFB (Rainbow or Scout Lake)?

261. Stop people from feeding sport fish to their dogs.

275. Close the season for trout during the spawn. See if we could introduce some catfish into the lakes and streams.

276. Knock off regulations! Limit fishing seasons but not nit-noid rules like barbed hooks, no live bait. Give us a time allowed for fishing and let us fish!

281. How about stocking walleyes in Dune Lake? Rainbows in the rivers? We need better fishing to get our market share of those tourist dollars - what else do we have to attract them?

283. Something needs to be done to limit the amount of fish being taken. I seem to be catching fewer and smaller fish than I used to. This almost sounds like a contradiction.

284. I would like to see more people release fish as I do when fishing is not a resource of food to their families. This would be more enjoyable for many fishermen if they would just try to let them go. You feel fantastic when you see one swim away!

285. Close the Chena River drainage for several years to increase fish population.

290. Do not increase fishing license fee.

297. Have a minimum length so places like Birch Lake will have bigger fish.

300. Stock perch in lakes.

300. More awareness signs and literature, i.e. "Please keep out streams and trails clean," 'Pick up litter, leave it like you found it," etc. Also, more enforcement crews if possible.

306. Chena River salmon levels improved by hatchery egg boxes. Sheefish returned to Chena. Clear Hatchery enlargement.

307. Easier access by road and more stocking and tight limits on overfished areas.

308. Catch and release in areas with good access.

311. Put out more information on the locations and types of fish for newcomers (or anyone) to Alaska.

312. Less rainfall.

316. More access points by foot or in areas that are not fragile environmentally, by ATV, to spread out the fishing pressure.

316. Increase the fees for nonresident licenses.

317. More access by ATV, etc.

319. Stock lakes with more fish. Increase number of family recreation areas with "fishing" access.

319. Enforce #5 so that #9 will not be necessary.

321. Try and prevent overfishing in those area where there is too easy access by public. Have certain areas which you can "overstock" e.g., a "kids only" area so youth can get involved. Chena Lakes area would be a good example for this.

328. Limit number of boats on Kenai. Stricter enforcement of bag limits at Chitina.

329. I would like to see the introduction of the walleye to lakes like Harding or Birch.

337. Stock northern pike in Birch, Harding and Quartz lakes.

339. More variety of fish and more road access.

340. I've only been here for not quite a year yet but last summer was some of the best fishing I've ever done. No need to change a thing.

340. After stocking areas with trout or grayling close certain areas for 1 year to prevent over-fishing and increase the number of fish the following year.

348. Keep Chitina/Copper River open for dip netting during the week.

351. Build more fish hatcheries. More intense enforcement, hire more game wardens.

352. More roads.

359. Stop dumping waste into the Chena River. Regulate and police mining outfits in the Chatanika River. Still muddy after all these years.

359. Stock different kinds of fish. Try sunfish or crappie. Stock northern pike in gravel pits, they're great fun.

360. Enforce catch and release regulations in some areas for a set period to allow the fish population to improve and continue stocking fish in high use areas.

371. Nothing. People who want to fish can get there, and it's better untouched.

371. Stop publicizing fishing spots. Let public find out on their own. If they are interested they can find out!

382. More areas for catch and release.

387. The size of trout and silvers increased.

395. Limit seasons to certain times. Monitor ice fishing more closely.

399. Stock northern pike in a lake accessible by car. Get a better understanding of pike in interior lakes.

401. Plant walleye pike.

408. Have more catch and release fishing in heavily fished areas.

411. Walleye pike would be a great addition to our selection. Thanks for the char.

413. I would like to see places where kids can catch fish easily.

416. Hire more Fish and Game officers to check on catch limits.

421. Keep stocking existing systems. Work on legislature to allow the importing of walleye, or other game fish if they would not be detrimental to existing stocks. Increase license fees. Create trophy areas if stocks are available. Keep up the good work.

427. Encourage "catch and release" fishing and especially of grayling in accessible areas.

431. More limits on burbot and pike to allow more fish and thus more fishermen the opportunity to catch a nice fish.

441. Once again because of the poor fishing in Fairbanks the cost of fishing, especially for salmon, is quite expensive. I would like to see the limit raised.

443. Expand the areas in which to fish for salmon. Then reduce the catch limit. Also, when a stream is stocked have a one year "no fishing" to allow the fish to grow.

444. Keep speedboats off fishing rivers.

446. Limit size and do more stocking.

453. It is already adequate for the fishing I do. I have not been disappointed with the current opportunities.

459. Prohibit placer mining!!! Increase escapement of Yukon/Tanana kings. Allow catch-and-release fishing for kings in upper Chena with flies only. Disband the 6th Light Infantry Division. Close Eielson AFB. Accelerate the Greenhouse effect. Move to Bristol Bay.

459. Make quality fishing areas more accessible to the public.

462. Make the fishing season longer.

469. Better supervision of snag fishing and bag limits. I see people elbow fishing during salmon runs and 75% take all they can snag while a few of us stay honest and go home empty handed. It burns me up.

474. Stop subsistence fishing except in cases of real need.

480. Keep campers separate from canoeists at Paxson Lake.

485. Hold down daily limits.

486. On some of the bigger rivers and lakes have boat rental shops for people who don't own boats, don't want to tow theirs far, or don't have the right boat for the body of water they want to fish on.

488. More campgrounds for overnight and daily "picnic" trips.

494. Stock additional species. Have length limits in specific high use areas.

495. Stock more fish.

499. Campaign to make people more aware of their <u>litter</u>!

502. Close Minto. It's a waste of time and money. I've fished there 33 years. Close areas that are short of fish for a period of time. Reduce bag limit.

504. Have better overnight facilities.

511. Control bag and size limits. More catch and release to stabilize the fishery.

512. Need to open Minto to pike even if limit is only 2 fish over 36" or whatever - need to open this area! Stock pike in Harding Lake, rainbow population is low anyhow!

515. Keep better track of non-resident and resident licenses! Too many non-residents getting resident licenses!

515. More information available to the public (not necessarily in the form of tourist information); and, as mentioned in answer to question 6, more air strips here and there.

517. Improved management through know how.

522. Eliminate catch-and-release as this increases mortality of the unharvested fish.

522. Hatch more kings in the upper Chena to increase the return.

527. New counting techniques so as not to kill and waste so many fish. No reactive regulating and more logically thought out plans for regulations. If you want to know how many fish are in a lake that's fished - ask! Surveys could tell you a lot about the fish population.

527. More access of course. Possibly close some places for up to two years at a time and do some more stocking.

533. Stock more fish, then limit fishing in that area to allow stocking to take hold.

543. More fish. Less people.

543. Plant more streams and lakes with a wider variety of fish such as trout, char, salmon.

545. Open pike fishing on Chatanika River to ice fishermen again and check limits more often.

548. Less limits on where and when one can fish.

549. Regulations established so fish will increase in size.

557. Stock larger fish. Set minimum size limit.

558. Re-stocking trout more often.

560. The suggestions you made in Section 5 should help.

565. When I fish its hard to find out or determine if a certain area is open or if there is a size limit, etc. A 24-hour recorded phone line for fish reports and restrictions on rivers would be nice.

573. Make a minimum size requirement so we will have larger fish to catch in the future.

573. Continued efforts to increase size and number and variety.

576. Lower limits. Better stocking programs. Close seasons.

578. Instruction courses for familiarization with rules and regulations.

580. The use of barbless hooks only on bait and lure hooks in areas where there is a minimum length limit on fish.

582. I would like to see more areas opened to fishing along all the road systems. If necessary, to protect the fish populations, size limits and no bait rules should be used. Also fish should be allotted to the common use as in the state constitution.

583. More fish farms. I believe some of the money received through commercial fishing activities should be used in Sport Fish Division because commercial fishing activities directly affect sport fishermen by limiting our bag limit and forcing us to buy fish.

586. I think that if more areas were closed, say every 2 or 3 years, it would increase the amount of fish. Then the certain areas would increase gradually over a period of time. Fishing is one of the most favorite pastime recreations for family fun and sport and should be the fisherman's goal to maintain and preserve.

586. Stock more fish in Harding Lake and Birch Lake if they have the capacity for additional fish.

587. I think resident Alaskans should be able to drive up into the Brooks Range and beyond to go fishing (all the way up the Haul Road).

588. Improve campgrounds.

589. Limit the horsepower on boats in lakes that are stocked.

589. Rules and regulations followed more closely by fishermen e.g. people keeping 6 inch rainbows at Quartz Lake.

592. Better map explanation of boundaries or make the bag limits all uniform in all places so there is no question.

594. Establish and <u>enforce</u> size limits as opposed to reducing bag limits as was done at George Lake (it now doesn't make sense to go there). My primary interest is pike fishing, and I couldn't even guess the number of carcasses I have seen lying on the banks of streams and lakes which obviously came from <u>very</u> small fish. In George Lake, where the fishing has steadily been declining, there is a limit on pike in excess of 30" in length. This is good, but it is really only a half-measure. Pike are a slow-growth fish, and to limit the large ones, while at the same time allowing very small fish to be kept seems at the very least to be counter-productive. Why not keep the limit on pike over 30" down to 1 or 2 (sensible) while at the same time making <u>any</u> pike under 20" or 24" an illegal fish? This is a <u>sensible</u> approach and would make a trip to

lakes like George Lake once more a worthwhile and enjoyable experience for interior anglers.

599. Stock more fish.

601. Stock more fish. Stock more types of fish. Less restriction on types of gear. Increase daily limits (for some types).

602. Less people.

608. Stock more remote lakes ("fly-in", snow machine, etc.).

612. I really like the approach to stocking more and different types of fish in new areas. A varied catch is a worthwhile idea.

613. Re-stock the fishing areas.

613. More fishing events such as derbies with tagged fish.

617. I am not a very experienced or knowledgeable fisher in general or in Alaska so I am not very qualified to answer this, but perhaps it would be useful to have a booklet on some areas to fish, access to those areas, what fish are there at different times of year, what bait and lures are most successful - for us beginners.

619. More stocking and a decrease in the amount of subsistence fishing. In some lakes there are more set lines than fish. This takes away any chance of sport fishing.

627. Limit use of barbed hook to open season for grayling.

632. Stock walleye perch.

636. More types of fish. Stocking of local streams and lakes has been a help.

636. Stock walleye in some lakes. Open the Dalton Highway to recreational travel. Put on fishing seminars.

640. Build more fish hatcheries.

642. Close fishing in stocked water for at least 30 days after stocking. Stock with larger fish.

643. Close all Interior spawning streams to the taking of salmon. Educate people to the slow growth rate of the Interior fishery!

649. Better boat ramps.

651. Place size limitations of 12" minimum. Have more field officers. Drop licensing age to 10 or 12 years old.

654. Try a few new species - walleyed pike, maybe. The rainbows in Piledriver Slough were a good start.

654. I think fishing is fine and Fish and Game has done a great job.

667. More stocking of lakes inaccessible by road (Koole, Bluff Cabin, Donna Lakes) policing of limits (ice houses) and Copper River subsistence fishing.

670. I would like to see more rainbow trout introduced into the streams in the Interior if they wouldn't interfere with the fish already present.

671. Improve "normal" vehicular access for the less serious fisherpersons.

673. Better road conditions.

677. No improvements needed. Fishing is excellent.

678. Consistent regulations which are enforced for more than a season at a time. Increase substantially the price of sport fishing permits for out-of-state residents.

681. Raise G.I. license fees to that of non-resident. They're the problem with littering and non-respect for others.

682. Start the kings at Clear Air Force Base again please.

684. Take pressure off grayling. This is a unique fish.

684. More fishing opportunities in different waters, stock more fish, but put length limits on them.

684. Just control those activities that interfere with natural stocks, e.g. stream pollution.

686. I usually try to fish remote areas and am not sure what would improve them. Leaving it alone seems okay. Some of the freshwater lakes could be restocked when overfished.

690. Stock more of the lakes. Also open a lake or small pond for children up to the age of 10 to fish in.

691. I think walleye, sauger, and yellow perch would do extremely well in this type of environment. They are fast reproducers and excellent eating. Harding, Birch, and Quartz lakes would be excellent lakes for them.

693. Stock more fish; limit size and limit for lake trout (this is an important sport fish). Have a dedicated fund for certain species of fish.

696. Improve campsites or don't charge for the unimproved ones.

699. Tighter control against salmon snaggers at Chatanika River.

702. Make fishing licenses free. Charge big oil the difference.

703. Wider variety of fish in greater areas.

706. I am not the sport fishing enthusiast that I'd like to be due to work commitments, so can't really complain.

707. Increase stocking of fish.

707. More stocked lakes. Close different lakes at different times for short periods (1 or 2 years at a time).

710. Close areas for periods to build up fisheries such as the Chena River.

710. Raise bag limits, slightly raise length limits.

711. In my opinion the sport fishing in interior Alaska is very good.

717. Designate some streams for fly fishing only.

721. Keep everything the way it is now, no changing.

723. Easier access to remote fishing sights by bulldozing new roads.

725. Stock more of the gravel pits along our highways which are easily accessed.

728. Personally, more fish should be stocked in all areas of the interior and northern Alaska. It would also be helpful to have more tournaments and possibly a series of T.V. shows revolving around sport fishing in interior and northern Alaska.

731. More variety of fish in lakes and streams.

731. Limit outboard horsepower on rivers and lakes (40 hp is plenty).

734. More species, larger bag limit, tours of the fishery and more support for the hatchery in Valdez.

737. You should try stocking northern walleye in some lakes.

739. If you're going to close down fishing in an area such as pike fishing, close it to everyone including the eskimos.

740. I'd like to see more stocking and continued limited access to some areas.

747. Reduce bag limits for northern pike in Minto Flats. Shorter season.

748. Increase stocking. Regulate equipment type. Restrict length of seasons, especially "subsistence" seasons.

750. I feel that subsistence and commercial fishing are tied together. They all should be regulated, and managed better.

751. I would like to see more enforcement of the present laws, even if the cost of a fishing license would have to be increased to pay for it.

751. Realistic bag limits are #1 on my list: whitefish - 10 per day per person is great; trout limit at lakes - aggregate limit at 10 per day per person (strict enforcement). More enforcement of regulations. More personnel. Make military personnel bear a more fair share of financial responsibility. Stock more salmon in the Chena to enhance its return of catchable salmon. Stock Arctic char in Harding Lake if possible and enhance Harding Lake by more stocking of trout.

755. Make it more fun to be at a place where we can catch 'em, cook 'em, and eat 'em and a campsite.

757. Plant walleye pike in landlocked lakes.

762. Instead of length limits try SLOT - Length limits.

762. Don't require a sport license for hunters, trappers, and remote area residents to just catch a few fish for the pan or pot!!!

763. Give better maps and descriptions of landmarks and boundaries for people not familiar with the areas, e.g. you mention certain boundaries in print, but you can't find them on your maps.

763. Possibly close some areas for a certain period of time to give the fish time to replenish themselves.

764. Establish catch-and-release areas with single barbless hooks or fly fish only.

770. Remove restrictions on sport fishing.

772. Bigger and more fish in the rivers.

772. To use live bait for pike spearing in a few lakes, or all lakes that we spear pike in. Would like to hear from Fish and Game on this question. Thanks.

775. I'm new to the Interior and I'm just learning about the area so I'm really enjoying the opportunity to learn the area and I'm satisfied with the chance to fish.

779. Based on the very successful red fishery established at Summit Lake, there must be many other similar settings where a quality Interior salmon fishery could be established.

780. I am pleased with present conditions.

785. I would like to see a 2 or 3 year halt to fishing to build up fish populations and sizes.

789. Stock yellow perch in lakes noted for pike, such as Birch Lake, or Harding Lake. It will increase the pike population and add a secondary sport fish to catch.

796. Increase the rate for "outside" fishermen.

798. Stock more fish.

801. Larger size hatchery fish and a barbless hook law on some lakes. Rewrite the law on live bait. It is too hard to understand for the most part.

806. Cut more roads into areas.

811. Improve access to certain areas and make good regulations to curb overfishing.

812. More information about good fishing spots.

816. Promote trophy fishing only in some accessible areas.

824. I like the idea of stocking rivers with rainbow or some type of trout. Also grayling shouldn't be closed during the spawn but should be limited to fly fishing only during this time.

831. Stock more fish in gravel pits along highways.

833. Enforce the bag limit game laws!

834. Size limits could help the fish multiply on their own at high-use areas. Stocking could help lakes like Birch but "out-of-the-way" areas should be open for native fish.

835. Having someone to enforce current laws in popular fishing areas would be a good start. Preserve surrounding area of woods; no litter.

836. More remote lakes stocked.

838. It's hard to think of anything that would improve nature. As far as your Department of Fish and Game is concerned you've been most helpful in providing information about where to fish.

841. Stocking of fish taking place more frequently in lakes that see heavier fishing/more fish caught, e.g. Chena lakes, ice fishing.

844. Stop mining.

844. Clean up the Chena River.

846. Open pike fishing on the Chatanika River drainage. Reduce bag limit and use a minimum length restriction.

849. I do not approve of stocking lakes accessible only by air. Those fortunate enough to afford that mode of transportation already have top-notch natural fisheries available to them.

851. Continue and increase monitoring efforts.

854. Have more catch-and-release on the waters that have been over-fished in recent years.

855. Have concerned sportsmen be deputy Fish and Game to help enforce regulations. Make summers longer. Keep non-residents off lakes and streams.

856. Improve northern pike fishing. Stock more lakes with larger fish. Improve access to a few more lakes.

858. Introduce new species of fish. I support your efforts to establish a rainbow trout fishery in Piledriver Slough. If the program is successful then maybe it could be expanded to include the Salcha River. Designate certain areas as trophy fishing areas with catch-and-release only (single barbless hooks on artificial flies and lures only). It would be interesting to see if such a management approach would actually create a trophy fish population: what would the density of fish in the area become? How long would it take to develop a trophy fish population?, etc. Improve compliance with existing regulations by posting those areas subject to restrictions. An example is the Piledriver Slough area which is artificial fly and lure only but is not posted. I have seen people use bait on several occasions. They probably wouldn't if it was posted. You could probably save money and employee man-hours by enlisting the help of local sport fishing clubs to help with the posting.

859. Biological regulation of the conditions of streams. Also, prosecute people who litter.

864. Better access advocacy. Take on ADFG Habitat on this issue and win one for sportsmen.

865. More roads to good fishing areas.

865. In readily accessible areas reduced bag limits are preferred, but in remote areas the fisheries should be closed (i.e. no one wants to travel 150 - 200 miles to catch 3 fish.

868. It's not just sport fishing for the family. It's for food too!

870. We need to change the length limits so the fish are bigger than 12 inches.

871. Close the season for seven years in Minto Flats.

876. Rather than close fishing use catch-and-release. I enjoy fishing for sport.

879. Where I go few people go so I'd like to see remote areas go back to the old limits! I have seen decline through the years - so you people probably have just reasons for limits! I personally disagree greatly with the catch-and-release law because I have seen through the years, especially in populated fishing areas, a fairly large number of times, fish lying along the shore torn up by careless, so called "sport fishermen." I feel it is a definite shame for this sort of thing and, sorry to say, have no answer but I truly believe I will see much more of it with a catch-and-release law. As much as I hate to see it I believe fishing should close completely if it has to come to a catch-and-release law.

892. More stocked lakes and new types of fish. More access to other lakes.

894. Stock more lakes.

895. Stock more fish. Improve campsites.

895. Abolish the $.25 license - it's ABSURD! Increase stocking along roadside areas.

897. Do whatever you need to do to get the size of trout bigger, e.g. Birch Lake.

899. Save money on mail that people don't answer. Put your high-tech education to work on more fish, more planting, fisheries, etc. If we knew so much we'd have your jobs. Bigger fish in Chena, Quartz, and Birch lakes. Pike, char, burbot, etc. stocked in Harding with boat docks and launches at each. Gill netters in streams like Minto Flats and Chitina don't let many fish by.

901. Re-do subsistence laws to tighten up <u>who</u> can! And <u>how much</u> they can!

901. Stock more lakes like Dune Lake, some accessible by ATV or snow machine. Minimum size and lower bag limits on pike and sheefish statewide. More salmon runs created by hatchery releases in Chena and Salcha rivers.

915. The present system seems to be working well. The public is informed in a timely manner of fishing conditions as they change. The seasons and size limits apply to each species which is good.

918. Re-stock Tangle Lakes.

920. Stock more gravel pits. Keep the rivers clean.

925. An Interior fish hatchery. Simple (less confusing), but consistent rules.

928. Keep the tourists out or limit the areas they can fish at.

934. Have a minimum size requirement. By only killing large fish you'll always have large fish to catch.

937. Longer fishing season. Different stock.

944. More stocking. More control on high seas.

948. Minimum size on lake trout and char in some of the more heavily fished Brooks Range lakes. Regulation of the number of large pike taken out of heavily fished areas along the Yukon and Tanana (though maybe subsistence use has been more responsible for the apparent decrease in size of "trophy" pike in the last 20 years. Stocking char in lakes with appropriate habitat where they are currently absent.

950. Teach me how to fish!

950. Reduce commercial catch of Tanana (Yukon) bound salmon. Everyone knows the extent of poaching by subsistence fishermen, and more enforcement is needed. Reduce pike limits.

958. Too many small fish are allowed to be kept so not very many get large.

962. Why are ADFG and FRED so disdainful of the idea of walleye?

966. Define areas for non-residents/tourists to fish at. This would leave areas for residents/subsistence fishing open.

966. Bring back northern pike and whitefish to Birch Lake. Why is the fishing not good at Lost Lake?

975. More sponsored children tournaments or children's day fishes, something to encourage children and still involve parents. Fishing within a family is always memorable even when things don't go too good.

985. Close down fishing in area streams for one year so the size and amount of fish can be improved.

987. I haven't had enough experience of fishing in Alaska to have formed an opinion on improvements yet, but the Department of Fish and Game appears to be doing a lot of hard work and improvements to sport fishing as of this time.

988. Need "fly fishing only" areas for not only grayling, but also rainbow trout with length limits to encourage some quality trips in accessible areas.

989. No changes seem necessary!

995. See my income rise to a level where I could afford the toys to transport me to better fishing.

995. Encourage natural reproduction with stocking of same species if absolutely necessary. Restrict development of new highway access points. This is the Arctic with its associated slow growth. This should be acknowledged. Also, restricted access does help in encouraging more knowledge and planning.

999. Let Interior fishermen possibly have longer to fish salmon during "weekend time only." Maybe a day longer due to the distance we have to drive. Re-stock Donna Lake with more rainbows.

The following responses were taken from rural areas of the Tanana drainage.

000. Reduce daily limits in heavily fished areas.

007. Stop military from fishing.

011. Stock new kinds of fish in lakes.

012. Stock more fish in areas that are easily accessible to people.

021. More fish farms to produce market products and leave the natural fish for the sportsman.

026. Some easy access pike lakes for each heavily populated area, i.e. Fairbanks, Delta, Anchorage, Glennallen, etc.

028. Continue sport fishing hatcheries programs such as the facility at Clear AFS.

037. Establish more northern pike waters. Introduce blue gill fish in Quartz Lake and others where they could cohabit with rainbows and silvers.

039. I think it's fine.

046. Minimize Fish and Game.

054. By all means keep subsistence fishing and put in roads for access to more lakes and streams.

056. Plant fish in more lakes.

057. Limit harvest. Limit seasons.

064. Length limits imposed on certain species. Enhanced stocking in high pressure areas.

066. More access. More boat ramps near highway lakes and stocking of fish in these lakes.

075. Sometimes the best way to improve something is not to try to improve it.

078. Maintain a policy to keep federal government out of Fish and Game management of any kind i.e. National Park Service.

079. Stock more fish.

080. Stock more fish.

085. Head and tail must be intact to transport. Higher out-of-state fees for all game. Length limits put on northern pike.

097. More enforcement of laws even though its difficult.

106. I think it's great now. Keep the Sierra Club out!

109. Let us catch more king salmon like the coastal rivers.

111. Better access to non-accessible lakes.

112. Stock more catchable size fish.

119. Stock more fish, more size limits.

129. Stock some rainbow trout in areas closer to Fairbanks.

142. I am pleased overall but would like to see better access roads on some lakes and streams.

146. Limit fishing areas to fishing only on even years for some rivers, lakes, etc., and some on odd years e.g. 88, 90, 92 and 89,91,93. Fishing populations have a better chance to grow and be left wild and free from pressure.

151. Monitor increasing pollution such as Clearwater Creek in the Delta area. Continued spawning migration closures.

155. I am more of a catch-and-release person so would like to see more of that. But a size limit is needed and in heavier fished areas have more checks of bag limits. Larger fines are needed for offenders at Quartz Lake and other easily accessible lakes.

158. Put in more boat launch areas on the interior lakes.

159. I would like to see the State keep a close eye on bag limits, and also do some fish counting so we don't deplete our stock.

171. No more access improvements. Part of the sport is getting where the fish are.

173. Stock more fish, catch and release.

173. Restocking. What happened to the idea of stocking walleye pike in northern Alaska?

175. Any way to improve the Arctic char or rainbow fishing in the Interior?

175. Increase fish population to some landlocked lakes. Try introduction of German brown trout to southern Interior lakes and creeks.

185. I feel the introduction of new species would be about the only way to improve what is already an excellent sport fishing program.

198. Stock more fish in streams and creeks around the Nenana area.

205. Prevent overfishing by non-subsistence and non-resident fishermen.

207. If possible I would like to see larger fish stocked.

207. More stocking in Interior lakes.

208. I resent regulations on my whitefish net under ice as well as in sloughs stating that I can't catch any pike. I can't tell the pike not to go in my net and I enjoy eating the pike. I don't have the time to stand on shore and catch my fish with a pole. I need to catch a quantity at once so I can pressure cook and seal them in glass jars and use them next winter for food.

208. Continued, rational management.

214. Improve access to Interior lakes available so use or demand is spread out.

218. Stop trying to improve nature. It's the ultimate balance made by a far superior hand. Each time man steps in the after effects are enormous.

218. Consistent stocking to keep rainbow populations up in Jan Lake, Quartz Lake, Paxson, etc.

226. Stock more fish and close areas until fish have a chance to get to fair size.

228. Improve boat launching and parking facilities.

234. Stock with jumbo trout or genetically non-reproductive trout or a different species. Open up "military only" lakes to the public. It's my dollars used to stock and pay personnel.

234. On Clearwater River limit the horsepower on boats. On Birch Lake no fishing during break up. On Volkmar Lake size limits minimum or maximum.

238. Get rid of catch and release programs. Stock pike and other fish more.

241. Stock more fish. Many areas have little large fish left to catch. Quartz Lake is a prime example.

247. Have boat rentals on accessible lakes.

250. Stock lakes easily accessible to the fishing public with native species.

253. No stocking.

253. I would like to see more fish like trout and salmon stocked in new areas along the Parks Highway.

265. More fish stocked in gravel pits along the roads and tell people what pits are stocked (the pits are numbered). Also, tell people which lakes are stocked with which fish.

284. Less government involvement.

289. I would like the Fish and Game Dept. to stock more of the lakes at fishing resorts since this is our living at the lodges.

307. I think it's just fine.

311. Burn people who throw trash into lakes and along the rivers.

322. Nothing, leave everything as is.

329. Tell the outsiders they have good fishing at their home country.

350. Stock with bigger fish.

351. Stock certain "de<u>fish</u>ent" areas.

355. I would like to see you increase some of the limits on some of the types of fish.

358. Fly-in fishing limited or make it the same as sport hunting; not to be done on the same day.

387. Rely more on "old timers" opinions and not so much on "statistics."

413. Close some areas to restock and grow.

430. Limit commercial fishing so that you won't have so many limitations on sport fishing.

473. I would like to see more Fish and Game cops be able to reach more fishing areas so they can patrol the area.

479. I think the fishing here is just fine.

491. Set length limits on all fish. Each year I see hundreds of small fish killed that I would be ashamed to take home.

505. I would like to see more planting in lakes and streams of new types of fish (i.e. rainbows and sheefish).

506. More stocking in area lakes and rivers.

508. Limit winter ice fishing by nets.

512. Stock more fish in roadside lakes.

530. Much better enforcement of environmental quality standards, e.g. industrial pollution.

544. I know this isn't Interior, however, I do a lot of fishing in the Kenai area. This is where my biggest complaint comes from. The mouth of the Kenai River was opened to commercial netting and dip netting for the general public during the second red salmon run. Then the Russian River was closed early for those people wanting to use single barbed flies. Don't you think those nets hurt the population more than the flies? I believe if you do anything to the fishing seasons it should be to shorten them. But do this at the start of the season, not during it.

565. Don't stock lakes as often.

568. More stocking and a little better access to the lakes.

572. Stocking more streams and lakes along roads and off.

576. Stock areas accessible from highways for use by tourists, thereby relieving other less accessible areas for residents.

580. Public reports of type and locations of stocking done by ADFG.

584. The lakes should be stocked again e.g. Jan Lake, Four Mile Lake, Mineral lakes.

586. Have more catch-and-release fishing. Tighter controls on fish wheels (so fish don't rot). Disperse more information on Interior fishing.

594. Lock up the mosquitoes, gnats, and flies. Give me more time to go.

604. Stock more fish and more variety of fish like trout and lake trout.

608. Stock rainbows in the Goodpaster River.

609. Number one priority is to publicize how much of an impact on the economy sport fishing represents! Sport fishermen never get their share of the funds!

623. Other than cheaper fly-in trips I think it is pretty good right now. Wish I could see more kings in the Gulkana. Fishing there is getting worse.

626. Stock more fish.

630. Stock more fish.

640. Stock more lakes with rainbow trout.

643. Stricter penalties for illegally caught fish. More Fish and Wildlife officers on lakes and streams.

646. Perhaps develop boat access campsites to lesson pressure on car access sites and control areas of camps this way. People are apt to stop at a cleared tent site and it may also reduce fire hazards.

646. Some kind of regulation to improve the average size of burbot and pike.

660. Check Lake Minchumina and fish for toxic chemicals resulting from spills on and near runway.

663. See more catch and release fishing.

664. Nothing. It's great the way it is because you get alot more enjoyment with something you had to work to get and it will keep our lake and stream sites cleaner. I should request some trash barrels or something of that nature so people at least have a place to dispose of their trash.

665. I think things are going as well as could be expected. There's always room for improvement, but I think the state is doing a good job.

670. Limit the number of licenses to non-residents and make sure each has the regulations and knows the penalties for breaking them.

673. Limit commercial fishing.

682. Stock more lakes.

685. I think more streams should be opened to go fishing at certain places in the Interior.

688. Stock more fish. Better access.

688. Abolish fees charged by Native Corporations to fish waters on their land.

712. Increase the bag limit.

723. Make the Fishing Regulations Manual easier to understand.

723. Too much public access is being implemented by Tetlin Wildlife Refuge people. There is a danger of tourists with no stake in the area overfishing the area.

731. Stock more and different kinds of fish. Thank you.

734. Don't overfish the waters and lakes of Alaska.

740. Stock more lakes. Access through native land. Increase non-resident fees. Education on fish handling (to reduce mortality in catch-and-release) and cooking of fish.

747. More access to lakes and streams. More camping areas.

758. Better access to lakes that aren't too far off main highways or roads and we need more tent camping areas on these beaches.

764. Cut down on tourist limits and/or raise the cost of their licenses.

764. Spend less money on paper pushing like this.

778. Larger and more grayling.

779. Open more access to off-road fishing. I've noticed more trails around Paxson and hope to try them next summer.

782. Restock more lakes and streams.

784. Stock more rainbow trout in more lakes.

801. Introduce new species. Stock new spots.

802. Prosecute offenders to the full extent of the law.

803. I believe a number of lakes should be stocked, and possibly some river systems. However, I am a bit concerned by the effects this might have on native species of fish.

804. We need to stock more fish in all the lakes and let them grow and not open it as soon as you plant the fish.

804. Improve roads, stock more fish, certain limits on certain fish, e.g. trout at Quartz.

808. More stocking. Less restrictions.

818. More stocking of streams and lakes along the road system. Perhaps stocking salmon in some streams like the Healy River.

824. Re: "minimum length limit" and "catch and release fishing." People should be taught on the proper release of fish so there would be a better fish survival rate and those fish caught in such a way that their release would not allow them to survive be kept as part of the bag limit.

824. I am well satisfied with the program as I mostly catch and release with barbless flies.

829. More fish. Less people.

839. Keep a close watch on easily impacted species such as lake trout. Cut bag limits down before a major decline has occurred. Promote catch-and-release.

853. Reduce the number of salmon harvested in the ocean so more fish would be available in the interior rivers. Try to increase salmon running up the Tanana and Chena rivers.

853. A secondary road system for lakes such as Bluff Cabin, Big and Little Donna (these types of lakes).

856. Expand the stocking program. More information on easy access to good fishing.

859. A much better stocking program. Every year more fish are taken out and none put in. Especially in remote areas like the Denali Hwy. area. It's different down south around Wasilla. There Fish and Game stocks all of the time. More fish stocking for sport in the Interior. With as many people that come to the Cantwell, Denali area it would benefit us greatly. These people invariably ask, "Where are the fish?" The Denali Highway area is shrinking in fish population and variety. Grayling are nice, but how about some more lake trout or even rainbows or landlocked silvers? Thank you.

862. Publicize what fish can be caught at what areas and with what bait/lures.

863. Construction of ATV trails to those lakes that would be accessible that are now not fished at all, but would offer great fishing.

867. Stocking certain lakes with non-native species appears to be a success - perhaps enhancement of native fish populations in certain "higher-use" waters needs consideration.

873. Increase the size of hatcheries that are doing the most to raise and rear fish from stock.

873. More public information on where and how, particularly to stocked areas to limit waste and utilize the stocked fish. "Eat what you catch" rules. No fishing for fishing's sake. No food waste allowed.

883. Maintain water quality. Start a farm pond program: small ponds, small fish, small kids, big enjoyment.

886. Stock more fish in the stream along the Parks Highway.

887. Limit bag limit in northern sport fishing lakes and rivers so precious sport fish are not fished out by food fishers.

892. Always regulate our streams and waters whenever they run low with fish to keep us with plenty in the future.

898. Have more boat launching ramps in areas that are inaccessible.

898. Do not open season until species have spawned. Restrict motor size on some small rivers (e.g. Clearwater) so it would be safer for family outings and fly fishing without having to worry about twin eightys running over you. Airboats are also too noisy and should have more restrictions on them.

902. Pay attention to the biologists!

908. I am quite happy with the quality of "fish management" in the Interior as it is now.

917. Enforce the Game laws that are established. Make use of the barbless hooks in more places. More information about the fish species and numbers of the reproduction rates of the species.

918. Stock fish in lakes.

918. Stock more fish in area lakes and streams. Should make more of an effort to provide more "catchable-keepable" fish during stocking.

923. Less regulations as a whole. I feel it's getting too confusing on limits, length, etc.

926. More advertising to stop pollution and leaving litter (fishing line and wrappers the lures come in). Need to see rules of the road for boaters.

942. More fish.

945. Enforce fishing penalties for the poor and rich as well. You only need to read the local paper. You rich get caught and off you go! Yet poor dump slop gets the book. The law (?) is not enforced for ALL!

948. Everything is fine and dandy right now.

953. Cut down on horsepower on outboards and inboards on the rivers.

956. More ways to improve the fish population.

960. Stock natural lake fish, i.e. walleye, crappie, bass, sunfish, and lake trout (if they will survive).

963. Enforcement of fishing laws around big towns.

972. More stocking of fish in lakes and streams.

974. For the amount of fishing I do I am pretty satisfied with the current laws. Commercial fishermen though, put more pressure on the fishing industries.

979. Presently I can't see making changes. The system in effect now seems to be working. Don't fix something that isn't broke.

979. Close "bottleneck" areas when fish are migrating upstream, i.e. Tanana Bridge and the mouth of Shaw Creek.

979. Circumvent Native closures of public access to public waters.

980. Stop fishing during spawning cycle of rainbows on Quartz Lake and other accessible lakes or make this time catch and release only.

995. Stock more fish. Let more salmon pass commercial nets. Make greenbelt around waters.

APPENDIX E

CONTINGENCY TABLES OF QUESTIONNAIRE DATA

This appendix contains data used for various chi-square tests reported in the text of the report. These cross tabulations of respondent data are presented in tabular format via the following 92 tables, all with an "E" prefix.

Appendix E1. Respondents' opinions of length limits versus years of fishing experience.

Respondent Opinion	Years of Fishing Experience 0-14	15-29	30 +	Total
Approve	136	287	223	91
No opinion	24	34	37	646
Disapprove	17	37	37	95
Total	177	358	297	832

Appendix E2. Respondents' opinions of reduced bag limits versus years of fishing experience.

Respondent Opinion	Years of Fishing Experience 0-14	15-29	30 +	Total
Approve	69	149	143	361
No opinion	35	63	43	141
Disapprove	70	146	108	324
Total	174	358	294	826

Appendix E3. Respondents' opinions of catch and release fishing versus years of fishing experience.

Respondent Opinion	Years of Fishing Experience 0-14	15-29	30 +	Total
Approve	70	171	136	377
No opinion	55	88	65	208
Disapprove	51	101	89	241
Total	176	360	290	826

Appendix E4. Respondents' opinions of seasonal closures versus years of fishing experience.

Respondent Opinion	Years of Fishing Experience 0-14	15-29	30 +	Total
Approve	82	179	176	437
No opinion	40	67	45	152
Disapprove	53	110	73	236
Total	175	356	294	825

Appendix E5. Respondents' opinions of bait use restrictions versus years of fishing experience.

Respondent Opinion	Years of Fishing Experience 0-14	15-29	30 +	Total
Approve	63	167	139	369
No opinion	56	89	80	225
Disapprove	56	96	69	221
Total	175	352	288	815

Appendix E6. Respondents' opinions of length limits versus motivation for fishing.

Respondent Opinion	Motivation for Fishing Non-catch	Sport	Food	Total
Approve	463	102	136	639
No opinion	62	12	19	93
Disapprove	50	16	21	87
Total	575	130	114	819

Appendix E7. Respondents' opinions of reduced bag limits versus motivation for fishing.

Respondent Opinion	Motivation for Fishing			
	Non-catch	Sport	Food	Total
Approve	275	44	30	349
No opinion	96	24	18	138
Disapprove	199	60	66	325
Total	570	128	114	812

Appendix E8. Respondents' opinions of catch and release fishing versus motivation for fishing.

Respondent Opinion	Motivation for Fishing			
	Non-catch	Sport	Food	Total
Approve	272	68	32	372
No opinion	141	31	33	205
Disapprove	160	29	47	236
Total	573	128	112	813

Appendix E9. Respondents' opinions of seasonal closures versus motivation for fishing.

Respondent Opinion	Motivation for Fishing			
	Non-catch	Sport	Food	Total
Approve	311	60	57	428
No opinion	111	17	24	152
Disapprove	146	53	33	232
Total	568	130	114	812

Appendix E10. Respondents' opinions of bait use restrictions versus motivation for fishing.

Respondent Opinion	Motivation for Fishing			
	Non-catch	Sport	Food	Total
Approve	267	60	39	366
No opinion	156	29	35	220
Disapprove	139	38	40	217
Total	562	127	114	803

Appendix E11. Respondents' opinions of length limits versus number of fishing trips taken in 1988.

Respondent Opinion	Number of Fishing Trips			
	0-3	4-8	9+	Total
Approve	169	206	282	657
No opinion	43	28	26	97
Disapprove	24	32	37	93
Total	236	266	345	847

Appendix E12. Respondents' opinions of reduced bag limits versus number of fishing trips taken in 1988.

Respondent Opinion	Number of Fishing Trips			
	0-3	4-8	9+	Total
Approve	104	113	145	362
No opinion	51	41	51	143
Disapprove	82	107	145	334
Total	237	261	341	839

Appendix E13. Respondents' opinions of catch and release fishing versus number of fishing trips taken in 1988.

Respondent Opinion	Number of Fishing Trips 0-3	4-8	9+	Total
Approve	94	116	170	380
No opinion	57	75	80	212
Disapprove	82	71	94	247
Total	233	262	344	839

Appendix E14. Respondents' opinions of seasonal closures versus number of fishing trips taken in 1988.

Respondent Opinion	Number of Fishing Trips 0-3	4-8	9+	Total
Approve	126	132	184	442
No opinion	49	59	48	156
Disapprove	60	69	113	242
Total	235	260	345	840

Appendix E15. Respondents' opinions of bait use restrictions versus number of fishing trips taken in 1988.

Respondent Opinion	Number of Fishing Trips 0-3	4-8	9+	Total
Approve	97	109	171	377
No opinion	78	73	75	226
Disapprove	57	77	93	227
Total	232	259	339	830

Appendix E16. Respondents' opinions of length limits versus military status.

Respondent Opinion	Military Status		
	Military	Non-military	Total
Approve	487	164	651
No opinion	79	17	96
Disapprove	73	18	91
Total	639	199	838

Appendix E17. Respondents' opinions of reduced bag limits versus military status.

Respondent Opinion	Military Status		
	Military	Non-military	Total
Approve	286	78	364
No opinion	106	36	142
Disapprove	243	82	325
Total	635	196	831

Appendix E18. Respondents' opinions of catch and release fishing versus military status.

Respondent Opinion	Military Status		
	Military	Non-military	Total
Approve	283	95	378
No opinion	156	55	211
Disapprove	194	48	242
Total	633	198	831

Appendix E19. Respondents' opinions of seasonal closures versus military status.

Respondent Opinion	Military Status		
	Military	Non-military	Total
Approve	344	96	440
No opinion	113	41	154
Disapprove	178	59	237
Total	635	196	831

Appendix E20. Respondents' opinions of bait use restrictions versus military status.

Respondent Opinion	Military Status		
	Military	Non-military	Total
Approve	278	94	372
No opinion	182	44	226
Disapprove	164	58	222
Total	624	196	820

Appendix E21. Opinions of minimum length limits versus primary fish species targeted by fishermen.

Respondent Opinion	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Approve	246	161	93	64	44	608
No opinion	24	24	18	10	11	87
Disapprove	22	31	15	7	7	82
Total	292	216	126	81	62	777

Appendix E22. Opinions of reduced bag limits versus primary fish species targeted by fishermen.

Respondent Opinion	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Approve	135	84	44	44	24	331
No opinion	49	39	20	11	9	126
Disapprove	108	91	59	27	29	314
Total	292	214	123	82	62	773

Appendix E23. Opinions of catch and release fishing versus primary fish species targeted by fishermen.

Respondent Opinion	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Approve	142	93	61	34	26	358
No opinion	69	57	26	27	15	194
Disapprove	80	65	36	20	22	223
Total	291	215	123	81	63	773

Appendix E24. Opinions of seasonal closures versus primary fish species targeted by fishermen.

Respondent Opinion	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Approve	162	106	61	50	26	405
No opinion	56	41	27	9	10	143
Disapprove	76	67	34	22	26	225
Total	294	214	122	81	62	773

Appendix E25. Opinions of bait use restrictions versus primary fish species targeted by fishermen.

Respondent Opinion	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Approve	144	90	52	45	23	354
No opinion	96	49	28	17	16	206
Disapprove	48	74	40	18	23	203
Total	288	213	120	80	62	763

Appendix E26. Opinions of minimum length limits versus respondents' ratings of fishing success.

Respondent Attitude	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	88	262	179	89	618
No opinion	7	31	30	16	84
Disapprove	11	28	30	15	84
Total	106	321	239	120	786

Appendix E27. Opinions of reduced bag limits versus respondents' ratings of fishing success.

Respondent Attitude	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	42	147	101	46	336
No opinion	12	53	42	24	131
Disapprove	51	119	96	47	313
Total	105	319	239	117	780

Appendix E28. Opinions of catch and release fishing versus respondents' ratings of fishing success.

Respondent Attitude	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	51	166	105	37	359
No opinion	24	65	69	36	194
Disapprove	30	88	66	43	227
Total	105	319	240	1116	780

Appendix E29. Opinions of seasonal closures versus respondents' ratings of fishing success.

Respondent Attitude	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	52	175	130	53	410
No opinion	17	59	44	23	143
Disapprove	36	87	65	38	226
Total	105	321	239	114	779

Appendix E30. Opinions of bait use restrictions versus respondents' ratings of fishing success.

Respondent Attitude	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	45	153	108	43	349
No opinion	22	90	62	36	210
Disapprove	35	74	66	36	211
Total	102	317	236	115	770

Appendix E31. Opinions of minimum length limits versus respondents' ratings of size satisfaction.

Respondent Attitude	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	73	231	210	92	606
No opinion	6	31	34	14	85
Disapprove	13	19	36	13	81
Total	92	281	280	119	772

Appendix E32. Opinions of reduced bag limits versus respondents' ratings of size satisfaction.

Respondent Attitude	Rating of Size Satisfaction Angler				
	Excellent	Good	Fair	Poor	Total
Approve	41	116	116	58	331
No opinion	7	55	48	17	127
Disapprove	43	110	113	43	309
Total	91	281	277	118	767

Appendix E33. Opinions of catch and release fishing versus respondents' ratings of size satisfaction.

Respondent Attitude	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	41	134	137	44	356
No opinion	22	69	67	33	191
Disapprove	27	79	74	42	222
Total	90	282	278	119	769

Appendix E34. Opinions of seasonal closures versus respondents' ratings of size satisfaction.

Respondent Attitude	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	49	155	142	56	402
No opinion	10	63	52	19	144
Disapprove	31	65	86	40	222
Total	90	283	280	115	768

Appendix E35. Opinions of bait use restrictions versus respondents' ratings of size satisfaction.

Respondent Attitude	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	39	126	131	48	334
No opinion	24	77	71	34	206
Disapprove	4	750	753	34	208
Total	87	278	277	116	758

Appendix E36. Opinions of length limits versus respondents' ratings of species availability.

Respondent Attitude	Rating of Species Availabilty by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	103	262	170	68	603
No opinion	5	31	41	7	84
Disapprove	10	39	25	7	81
Total	118	332	236	82	768

Appendix E37. Opinions of reduced bag limits versus respondents' ratings of species availability.

Respondent Attitude	Rating of Species Availabilty by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	62	145	88	36	331
No opinion	15	54	44	11	124
Disapprove	39	130	105	35	309
Total	116	329	237	82	764

Appendix E38. Opinions of catch and release fishing versus respondents' ratings of species availability.

Respondent Attitude	Rating of Species Availabilty by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	62	145	114	36	357
No opinion	17	84	67	21	189
Disapprove	38	101	55	25	219
Total	117	330	236	82	765

Appendix E39. Opinions of seasonal closures versus respondents' ratings of species availability.

Respondent Attitude	Rating of Species Availabilty by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	63	181	117	40	401
No opinion	17	69	41	13	140
Disapprove	36	80	79	28	223
Total	116	330	237	81	764

Appendix E40. Opinions of bait use restrictions versus respondents' ratings of species availability.

Respondent Attitude	Rating of Species Availabilty by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	58	150	101	34	343
No opinion	22	86	70	24	202
Disapprove	33	89	64	23	209
Total	113	325	235	81	754

Appendix E41. Opinions of length limits versus respondents' ratings of overall fishing enjoyment.

Respondent Attitude	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	224	227	90	23	614
No opinion	26	37	17	7	87
Disapprove	29	33	15	4	81
Total	279	347	122	34	782

Appendix E42. Opinions of reduced bag limits versus respondents' ratings of overall fishing enjoyment.

Respondent Attitude	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	122	155	44	14	335
No opinion	44	52	26	7	129
Disapprove	111	137	53	13	314
Total	277	344	123	34	778

Appendix E43. Opinions of catch and release fishing versus respondents' ratings of overall fishing enjoyment.

Respondent Attitude	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	135	170	48	7	360
No opinion	63	94	31	7	195
Disapprove	78	82	44	20	224
Total	276	346	123	34	779

Appendix E44. Opinions of seasonal closures versus respondents' ratings of overall fishing enjoyment.

Respondent Attitude	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	144	186	60	19	409
No opinion	49	66	25	5	145
Disapprove	82	96	37	9	224
Total	275	348	122	33	778

Appendix E45. Opinions of bait use restrictions versus respondents' ratings of overall fishing enjoyment.

Respondent Attitude	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Approve	131	155	50	14	350
No opinion	74	94	31	10	209
Disapprove	65	97	38	9	209
Total	270	346	119	33	768

Appendix E46. Opinions of length limits versus respondents' residence category.

Respondent Attitude	Residence Category of Respondent		
	Urban	Rural	Total
Approve	464	194	658
No opinion	58	42	100
Disapprove	54	40	94
Total	576	276	852

Appendix E47. Opinions of reduced bag limits versus respondents' residence category.

Respondent Attitude	Residence Category of Respondent		
	Urban	Rural	Total
Approve	256	109	365
No opinion	95	50	145
Disapprove	217	118	335
Total	568	277	845

Appendix E48. Opinions of catch and release fishing versus respondents' residence category.

Respondent Attitude	Residence Category of Respondent		
	Urban	Rural	Total
Approve	262	121	383
No opinion	141	73	214
Disapprove	167	81	248
Total	570	275	845

Appendix E49. Opinions of seasonal closures versus respondents' residence category.

Respondent Attitude	Residence Category of Respondent		
	Urban	Rural	Total
Approve	304	140	444
No opinion	101	58	159
Disapprove	163	79	242
Total	568	277	845

Appendix E50. Opinions of bait use restrictions versus respondents' residence category.

Respondent Attitude	Residence Category of Respondent		
	Urban	Rural	Total
Approve	270	107	377
No opinion	134	95	229
Disapprove	156	72	228
Total	560	274	834

Appendix E51. Respondents' amount of fishing experience versus ratings of fishing success.

Respondent's Experience	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 14 years	15	67	54	33	169
15 - 29 years	47	145	105	50	347
30 + years	44	114	85	37	280
Total	106	326	244	120	796

Appendix E52. Respondents' amount of fishing experience versus ratings of size satisfaction.

Respondent's Experience	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 14 years	18	63	59	24	164
15 - 29 years	37	126	124	59	346
30 + years	37	95	102	37	271
Total	92	284	285	120	781

Appendix E53. Respondents' amount of fishing experience versus ratings of species availability.

Respondent's Experience	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 14 years	25	73	51	12	161
15 - 29 years	45	153	111	35	344
30 + years	48	110	78	36	272
Total	118	336	240	83	777

Appendix E54. Respondents' amount of fishing experience versus ratings of overall fishing enjoyment.

Respondent's Experience	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 14 years	52	83	26	6	167
15 - 29 years	132	146	53	14	345
30 + years	95	126	44	15	280
Total	279	355	123	35	792

Appendix E55. Respondents' motivation for fishing versus ratings of fishing success.

Motivation for Fishing	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Non-catch	66	220	157	95	538
Sport	13	57	45	6	121
Food	20	40	31	17	108
Total	99	317	233	118	767

Appendix E56. Respondents' motivation for fishing versus ratings of size satisfaction.

Motivation for Fishing	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Non-catch	57	190	195	84	526
Sport	11	44	47	19	121
Food	19	42	30	14	105
Total	87	276	272	117	752

Appendix E57. Respondents' motivation for fishing versus ratings of species availability.

Motivation for Fishing	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
Non-catch	76	241	158	48	523
Sport	21	38	41	19	119
Food	15	47	34	10	106
Total	112	326	233	77	748

Appendix E58. Respondents' motivation for fishing versus ratings of overall fishing enjoyment.

Motivation for Fishing	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Non-catch	188	249	73	24	534
Sport	42	54	22	4	122
Food	38	43	21	5	107
Total	268	346	116	33	763

Appendix E59. Number of fishing trips taken in 1988 versus respondents' ratings of fishing success.

Number of Fishing Trips	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 3 trips	22	47	66	55	190
4 - 8 trips	30	107	84	45	266
9 + trips	54	172	93	21	121
Total	106	326	243	121	796

Appendix E60. Number of fishing trips taken in 1988 versus respondents' ratings of size satisfaction.

Number of Fishing Trips	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 3 trips	13	56	74	38	181
4 - 8 trips	36	97	89	39	261
9 + trips	43	130	122	44	339
Total	92	283	285	121	781

Appendix E61. Number of fishing trips taken in 1988 versus respondents' ratings of species availability.

Number of Fishing Trips	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 3 trips	20	82	54	25	181
4 - 8 trips	44	112	72	30	258
9 + trips	54	143	113	28	338
Total	118	337	239	83	777

Appendix E62. Number of fishing trips taken in 1988 versus respondents' ratings of overall fishing enjoyment.

Number of Fishing Trips	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
0 - 3 trips	47	80	45	16	188
4 - 8 trips	80	136	36	12	264
9 + trips	151	138	43	7	339
Total	278	354	124	35	791

Appendix E63. Respondents' military status versus ratings of fishing success.

Military Status	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Military	77	243	183	93	596
Non-military	29	82	60	28	199
Total	106	325	243	121	795

Appendix E64. Respondents' military status versus ratings of size satisfaction.

Military Status	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Military	73	208	210	92	583
Non-military	19	75	74	29	197
Total	92	283	284	121	780

Appendix E65. Respondents' military status versus ratings of species availability.

Military Status	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
Military	86	243	180	69	578
Non-military	31	93	60	14	198
Total	117	336	240	83	776

Appendix E66. Respondents' military status versus ratings of overall fishing enjoyment.

Military Status	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Military	207	260	98	28	593
Non-military	71	94	26	7	198
Total	278	354	124	35	791

Appendix E67. Respondents' ratings of fishing success versus primary fish species targeted by fishermen.

Respondent's Rating	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Excellent	43	25	21	12	4	105
Good	125	86	52	31	27	321
Fair	86	76	28	26	22	238
Poor	39	24	20	11	10	104
Total	293	211	121	80	63	768

Appendix E68. Respondents' ratings of size satisfaction versus primary fish species targeted by fishermen.

Respondent's Rating	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Excellent	34	22	16	11	8	91
Good	114	64	57	21	22	278
Fair	101	86	29	36	25	277
Poor	39	36	18	10	7	110
Total	288	208	120	78	62	756

Appendix E69. Respondents' ratings of species availability versus primary fish species targeted by fishermen.

Respondent's Rating	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Excellent	42	23	24	13	11	113
Good	123	101	54	27	25	330
Fair	88	69	31	26	19	233
Poor	31	16	10	11	8	76
Total	284	209	119	77	63	752

Appendix E70. Respondents' ratings of overall fishing enjoyment versus primary fish species targeted by fishermen.

Respondent's Rating	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Excellent	109	58	50	26	31	274
Good	133	113	53	33	18	350
Fair	37	34	18	13	13	115
Poor	12	5	3	6	1	27
Total	291	210	124	78	63	766

Appendix E71. Type of access to fishery used versus respondents' ratings of fishing success.

Type of Access Used	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
No off-road	24	88	78	57	247
Some off-road	82	238	166	64	550
Total	106	326	244	121	797

Appendix E72. Type of access to fishery used versus respondents' ratings of size satisfaction.

Type of Access Used	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
No off-road	14	86	78	63	241
Some off-road	78	198	207	58	541
Total	92	284	285	121	782

Appendix E73. Type of access to fishery used versus respondents' ratings of species availability.

Type of Access Used	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
No off-road	31	102	75	34	242
Some off-road	87	235	165	49	536
Total	118	337	240	83	778

Appendix E74. Type of access to fishery used versus respondents' ratings of overall fishing enjoyment.

Type of Access Used	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
No off-road	60	122	46	18	246
Some off-road	218	233	78	17	546
Total	278	355	124	35	792

Appendix E75. Residence category versus respondents' ratings of fishing success.

Residence Eategory	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Urban	57	266	174	85	542
Rural	49	100	70	36	255
Total	106	326	244	121	797

Appendix E76. Residence category versus respondents' ratings of size satisfaction.

Residence Category	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Urban	48	195	201	91	535
Rural	44	89	84	30	247
Total	92	284	285	121	782

Appendix E77. Residence category versus respondents' ratings of species availability.

Residence Category	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
Urban	79	243	162	49	533
Rural	39	94	78	34	245
Total	118	337	240	83	778

Appendix E78. Residence category versus respondents' ratings of overall fishing enjoyment.

Residence Category	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Urban	176	255	89	22	542
Rural	103	100	35	13	251
Total	279	355	124	35	793

Appendix E79. Respondents' motivation for fishing versus primary fish species targeted by fishermen.

Motivation for Fishing	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Non-catch	205	149	75	57	44	530
Sport	42	38	21	13	11	125
Food	43	25	19	10	7	104
Total	290	212	115	80	62	759

Appendix E80. Number of fishing trips taken in 1988 versus primary fish species targeted by fishermen.

Number of Trips Taken	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
0 - 3 trips	73	44	39	14	13	183
4 - 8 trips	98	70	41	25	25	259
9 + trips	129	101	45	43	25	343
Total	300	215	125	82	63	785

Appendix E81. Respondents' military status versus primary fish species targeted by fishermen.

Military Status	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Non-military	259	125	84	61	56	585
Military	36	87	40	20	7	190
Total	295	212	124	81	63	775

Appendix E82. Type of access to the fishery used versus primary fish species targeted by fishermen.

Type of Access Used	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
No off-road	84	86	45	11	12	238
Some off-road	216	130	80	71	51	548
Total	300	216	125	82	63	786

Appendix E83. Respondents' residence categories versus primary fish species targeted by fishermen.

Residence Category	Primary Fish Species Targeted by Fishermen					
	Grayling	Rainbow Trout	Salmon	Northern Pike	Other	Total
Urban	189	163	91	54	43	540
Rural	111	54	35	28	20	248
Total	300	217	126	82	63	788

Appendix E84. Type of access to the fishery used versus motivation for fishing.

Type of Access Used	Motivation for Fishing			
	Non-catch	Sport	Food	Total
No off-road	119	27	33	179
Some off-road	454	100	80	634
Total	573	127	113	813

Appendix E85. Type of access to the fishery used versus number of fishing trips taken in 1988.

Type of Access Used	Number of Fishing Trips Taken in 1988			
	0 - 3 trips	4 - 8 trips	9 + trips	Total
No off-road	45	59	89	193
Some off-road	190	204	254	648
Total	235	263	343	841

Appendix E86. Respondents' opinions of the adequacy of access to area sport fishing waters versus ratings of fishing success.

Opinion of Access Adequacy	Rating of Fishing Success by Angler				
	Excellent	Good	Fair	Poor	Total
Not Adequate	14	73	70	27	184
Adequate	89	249	173	89	600
Total	103	322	243	116	784

Appendix E87. Respondents' opinions of the adequacy of access to area sport fishing waters versus ratings of size satisfaction.

Opinion of Access Adequacy	Rating of Size Satisfaction by Angler				
	Excellent	Good	Fair	Poor	Total
Not Adequate	10	59	81	31	181
Adequate	80	223	201	85	589
Total	90	282	282	116	770

Appendix E88. Respondents' opinions of the adequacy of access to area sport fishing waters versus ratings of species availability.

Opinion of Access Adequacy	Rating of Species Availability by Angler				
	Excellent	Good	Fair	Poor	Total
Not Adequate	15	68	67	30	180
Adequate	100	268	167	50	585
Total	115	336	234	80	765

Appendix E89. Respondents' opinions of the adequacy of access to area sport fishing waters versus ratings of overall fishing enjoyment.

Opinion of Access Adequacy	Rating of Overall Fishing Enjoyment by Angler				
	Excellent	Good	Fair	Poor	Total
Not Adequate	48	76	51	8	183
Adequate	228	273	70	25	596
Total	276	349	121	33	779

Appendix E90. Respondents' opinions of the adequacy of access to area sport fishing waters versus residence category.

Opinion of Access Adequacy	Residence Category		
	Urban	Rural	Total
Not Adequate	136	58	194
Adequate	435	218	653
Total	571	276	847

Appendix E91. Number of fishing trips taken in 1988 versus motivation for fishing.

Number of Trips Taken	Motivation for Fishing			
	Non-catch	Sport	Food	Total
0 - 3 trips	167	25	38	230
4 - 8 trips	191	42	28	261
9 + trips	221	62	53	336
Total	579	129	53	827

Appendix E92. Residence category versus motivation for fishing.

Residence Category	Motivation for Fishing			
	Non-catch	Sport	Food	Total
Urban	401	98	60	559
Rural	182	32	59	273
Total	583	130	119	832