Fishery Data Series No. 91-1

Opinions and Regulatory Preferences of Holders of Sport Fishing Licenses Resident in the Arctic-Yukon-Kuskokwim Area of Alaska in 1988

by

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ABSTRACT

Motivations, regulatory preferences, and profiles of holders of sport fish licenses were examined using a postal questionnaire. Questionnaires were mailed to 507 residents of the Arctic-Yukon-Kuskokwim area, or 13 percent of the area's resident license holders in 1988. Responses were received from 47 percent of the surveyed license holders. Respondents were questioned about other types of fishing in which they had engaged, seasons they had fished, their perceptions of fishing quality, motivations for fishing, number of fishing trips taken, types of access utilized, species targeted, and opinions regarding various fishery management options. Responses were summarized and respondents were categorized into user groups based on criteria such as area of residence and motivation for fishing. Several hypotheses concerning the dependence of respondents' opinions on user group were then tested. Over half of the respondents sport fished during 1988 during the summer only, and 47 percent sport fished during both the summer and the winter. Most respondents participated in other types of fishing (subsistence, personal use, and commercial). Over half of the respondents rated overall enjoyment as excellent. Most respondents were motivated by either obtaining food or non-success reasons, and none of the respondents listed catching a trophy fish as a primary motive for sport fishing. Salmon *Oncorhynchus* species were listed most often as a targeted species, with northern pike *Esox lucius*, Dolly Varden *Salvelinus malma*, Arctic char *Salvelinus alpinus*, Arctic grayling *Thymallus arcticus*, inconnu *Stenodus leucichthys*, and whitefish *Coregonus*, also popular species. Minimum length limits and time/area closures were approved most often as a means to improve fishing and as emergency regulations. Reduced bag limits was also approved as an emergency regulation. A complete closure was the least preferred regulation. With few exceptions, perceptions of fishing quality, opinions regarding restrictive regulations, and opinions regarding opportunities for sport fishing were not significantly dependent on area of residence, other types of fishing engaged in, motivation for fishing, primary target species, frequency of participation, or years of fishing experience.

KEY WORDS: postal questionnaire, sport fishing regulations, angler values, angler motives, angler opinions, Arctic-Yukon-Kuskokwim.

INTRODUCTION

The Arctic-Yukon-Kuskokwim (AYK) management area (Figure 1) covers about 870,000 km^2, encompassing all of Alaska north of the Alaska Range (excluding the Tanana drainage). The sport fish harvest from AYK fisheries consists primarily of coho, pink, and chum salmon *Oncorhynchus kisutch, gorbuscha,* and *keta,* respectively, Dolly Varden *Salvelinus malma* and Arctic char *Salvelinus alpinus*, Arctic grayling *Thymallus arcticus*, northern pike *Esox lucius*, and inconnu *Stenodus leucichthys*. Although angler effort in the AYK area has more than doubled, from 23,242 angler-days in 1977 to 59,005 angler-days in 1988 (Table 1), harvest of most species has remained relatively constant, especially over the five years from 1984 through 1988 (Table 2).

Most AYK sport fisheries are not currently in need of restrictive conservation measures. Due to the remoteness of many of those fisheries, harvests are small, especially compared to fisheries in other parts of Alaska. However, as fisheries close to metropolitan areas and existing road systems become increasingly crowded, use of remote waters may increase. Restrictive regulations may be required in future years for fisheries that have historically had few, if any, regulations. If managers have prior knowledge of the regulatory preferences of user groups, future regulations can be implemented that are the most palatable and least disruptive to the anglers utilizing those fisheries.

The management goal of the Sport Fish Division of the Alaska Department of Fish and Game (ADFG) is to provide the public, on a sustained basis, with a variety of quality angling opportunities while conserving wild stocks of fish. One of the objectives of ADFG fishery managers is to satisfy as large a segment of the angling public as practical. The angling public, however, usually consists of a variety of user groups which have differing, and sometimes conflicting, desires and expectations regarding the management of the fishery resources. To balance the desires of various user groups, while maintaining sustained use of fishery resources, management programs for sport fisheries often have multiple and somewhat diverse objectives, rather than simple objectives such as maximizing total yield of fish flesh in pounds per year.

Fishery managers prefer, and researchers recommend, that the preferences and motivations of anglers be considered when shaping management plans (Duttweiler 1976; Smith 1980). To develop fishery management programs that satisfy as many anglers as possible, managers must use public input as one component of the decision making process. Categorizing various components of the angling public into user groups, and knowing the relative size, desires and opinions of those user groups, may help managers predict the public reaction to proposed regulations. Thus, a knowledge of the users can make fishery management a successful and productive, rather than a disruptive and painful, process.

Public input regarding fisheries management can be gathered in a variety of ways. For example, the formal regulatory process in Alaska includes input by local advisory committees to the Board of Fisheries. Opinions of individuals

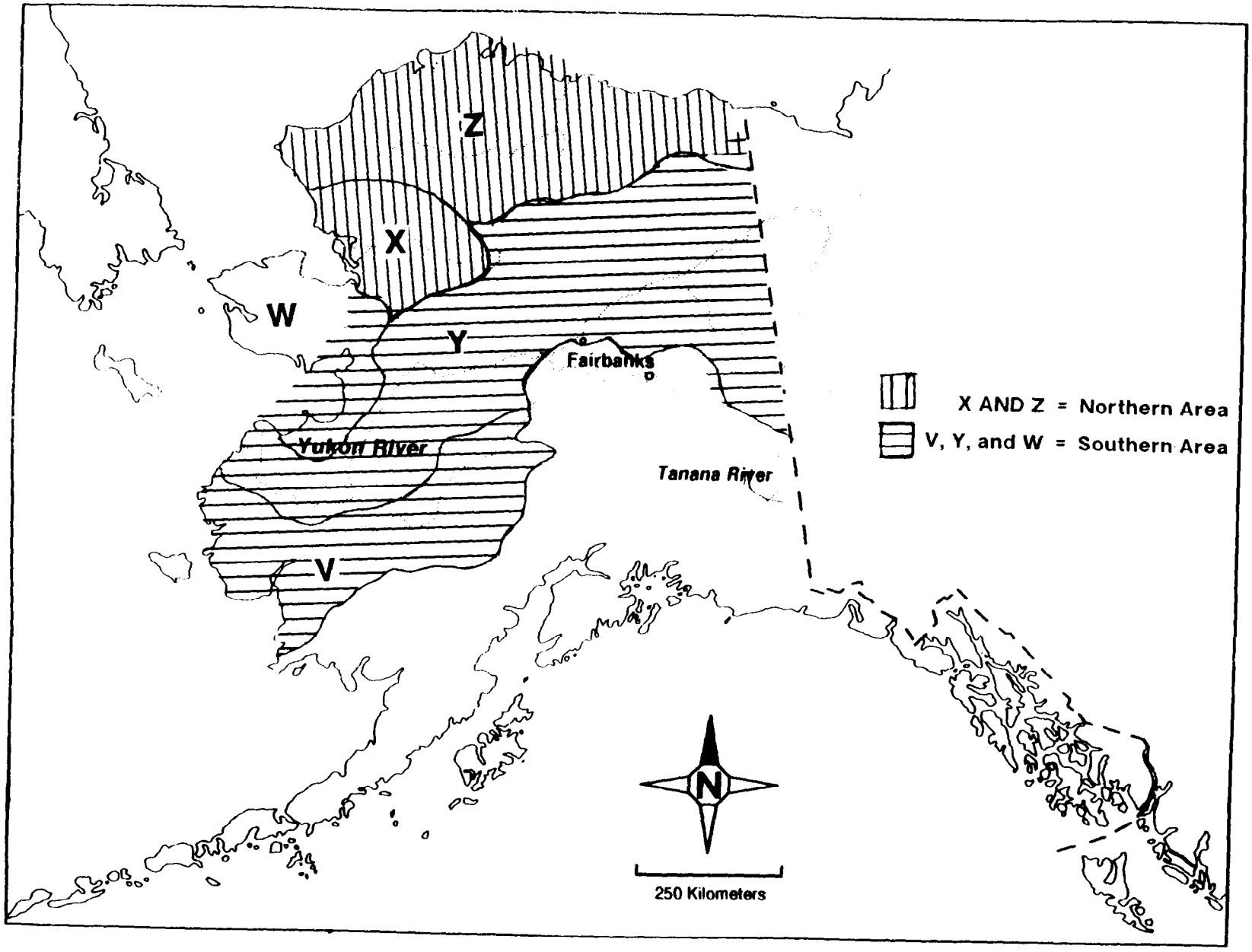

Figure 1. Location of Arctic-Yukon-Kuskokwim management area and survey/study area.

Table 1. Number of angler-days fished in five sub-areas of the Arctic-Yukon-Kuskokwim management area of Alaska from 1977 through 1988[a].

Year	Subareas of the AYK Management Area					Total AYK Area	Total Alaska
	Lower Yukon	Seward Peninsula	Northwest Alaska	South Brooks	North Brooks		
1977	7,337	7,828	3,487	2,156	2,434	23,242	1,198,486
1978	8,616	8,379	4,997	2,714	1,422	26,128	1,285,063
1979	11,331	8,725	2,593	3,407	1,526	27,582	1,364,739
1980	11,209	7,968	3,841	3,612	2,142	28,772	1,488,962
1981	10,605	10,879	5,219	4,483	2,601	33,787	1,420,172
1982	16,162	13,198	6,840	7,182	4,879	48,261	1,623,090
1983	16,528	16,944	7,963	6,921	5,619	53,975	1,732,528
1984	14,597	17,436	7,791	5,121	8,344	53,289	1,866,837
1985	12,484	19,919	6,701	6,867	4,490	50,461	1,943,069
1986	11,842	18,107	6,313	8,735	4,779	49,776	2,071,412
1987	18,958	21,413	10,221	5,200	5,256	61,048	2,152,886
1988	26,171	20,278	5,279	4,736	2,541	59,005	2,311,291

[a] Mills 1979-1989.

Table 2. Sport harvest of some fish species in the Arctic-Yukon-Kuskokwim management area of Alaska from 1984 through 1988.[a]

	Sport Harvest in Numbers of Fish												
Year	Coho Salmon	Pink Salmon	Chum Salmon	Chinook Salmon	Sockeye Salmon	Dolly Varden/ Arctic Char	Arctic Grayling	Northern Pike	Rainbow Trout	Lake Trout	Whitefish	Burbot	Smelt	Inconnu
1984	11,205	8,712	2,689	1,481	650	12,882	15,516	3,610	1,455	1,520	234	377	0	3,609
1985	2,796	1,206	1,781	1,331	169	13,430	17,666	3,613	659	2,370	630	420	8,750	2,100
1986	7,319	3,404	3,643	2,079	439	10,173	19,744	7,062	504	2,537	4,960	469	464	3,649
1987	7,210	1,322	2,148	1,691	1,364	12,333	19,476	4,751	592	461	724	162	7,080	2,362
1988	9,713	3,859	3,201	1,292	1,528	11,238	16,302	7,838	1,599	509	1,855	145	2,476	2,239

[a] Mills 1985 - 1989.

can be obtained through the use of survey questions (Renyard and Hilborn 1986; Duttweiler 1976). Questionnaires have been used in the past to determine motivations and desires of anglers regarding their fishing experience (Holmes 1981, 1987; Moeller and Engelken 1972), and to directly measure angler preference for specific regulatory or management options (Renyard and Hilborn 1986; Harris and Bergersen 1985; Mills 1986).

The intent of this study was to survey holders of sport fish licenses to augment other sources of public input for the development of recreational and other fishery management plans. The goal of this study was to determine if those license holders could be categorized into user groups based upon their responses to the survey questions, and to determine if the user groups had differing desires and opinions regarding management policy.

METHODS

Survey Design and Questions

A questionnaire was mailed to 507 randomly selected holders of 1988 sport fish licenses with residential zip codes in portions of the AYK Region exclusive of the Tanana drainage and Seward Peninsula. In similar studies, Viavant and Clark (1990) and Arvey (1990) examined the regulatory preferences of sport fish license holders from the Tanana drainage and the Seward Peninsula, respectively. The 507 license holders represented 13.2% of the 3,829 individuals who purchased sport fish licenses in 1988 and resided in the AYK area. All license holders were at least 16 years old. Anglers were asked to confine their answers to fishing activities that took place during 1988 in waters north of the Alaska Range.

The questionnaire was designed to reduce non-response, since non-response can cause significant bias, even with response rates as high as 70% (Brown and Wilkins 1978). The survey methods used were those suggested by Linsky (1975) and were identical to those of an earlier survey of anglers in interior Alaska (Holmes 1987). The questionnaire was relatively short with simple questions (Appendix A). An attached cover letter (Appendix B) explained the purpose of the survey and requested the cooperation of selected license holders. Two days prior to mailing the questionnaire, all license holders sampled were sent a postcard (Appendix B) which explained that they had been selected to take part in the survey. A second letter (Appendix B) and questionnaire were sent to all non-respondents one month after the first mailing.

A total of 12 questions was asked, in three formats: categorical, rank, and open-ended (Appendix A). Categorical questions allowed respondents two or more given choices: for example "yes" or "no", or "approve", "disapprove", or "no opinion". Rank questions asked the respondents to rank or choose items from a list. Open-ended questions required a written response. Categorical and rank questions concerned other types of fishing in which the license holders were engaged (personal-use, subsistence, and commercial), the seasons that fishing took place, perceptions of fishing experience, motivations for fishing, number of trips taken using various means of access to the fishery, species targeted, opinions regarding various management options for regulation

of sport fisheries, and the number of years that respondents had sport fished in Alaska and elsewhere. Open-ended questions asked for specific recommendations for improving sport fishing, and improving access to waters of the AYK area.

Hypothesis Testing

The general hypothesis tested in this study was that definable user groups exist among license holders, and that those user groups have different opinions regarding angling opportunities and fishery management. License holders were categorized into user groups to test for differences in responses to opinion questions according to the following criteria:

1. area of residence (northern area or southern area);
2. other types of fishing (subsistence, commercial, or personal use);
3. motivation for fishing (non-success, sport, or food);
4. frequency of participation (0 trips, 1-4 trips, 5-9 trips, 10-14 trips, or >14 trips);
5. primary target species (Arctic grayling, various species of salmon, Dolly Varden/Arctic char, northern pike, inconnu, or other species); and,
6. years of fishing experience (0-9 years, 10-19 years, 20-29 years, 30-39 years, 40-49 years, >49 years).

The northern area was defined as areas X and Z used in the 1988 version of the statewide harvest survey (Mills 1989). The southern area was defined as areas V and Y, and portions of W (Mills 1989), exclusive of the Seward Peninsula (Figure 1). Respondents were grouped into three motivation categories: non-success ("escaping pressure", "enjoying nature", "other recreation", and "family and friends" pooled), sport ("fishing for sport" and "getting a trophy fish" pooled), and food. Only the motive that was listed as primary was used to categorize respondents into the three motivation categories.

To determine if opinions of respondents were dependent on user group, several null hypotheses were tested.

1. Angler perception of fishing quality was not dependent on:
   a. area of residence;
   b. other types of fishing;
   c. motivation for fishing;
   d. frequency of participation;
   e. primary target species; or,
   f. years of fishing experience.

2. Angler receptiveness to restrictive regulations was not dependent on:
   a. area of residence;
   b. other types of fishing;
   c. motivation for fishing;
   d. frequency of participation;
   e. primary target species; or,
   f. years of fishing experience.

3. Angler opinion of whether or not sport fishing should be improved was not dependent on:
   a. area of residence;
   b. other types of fishing;
   c. motivation for fishing;
   d. frequency of participation;
   e. primary target species; or,
   f. years of fishing experience.

4. Angler opinion of whether or not access was adequate was not dependent on:
   a. area of residence;
   b. other types of fishing;
   c. motivation for fishing;
   d. frequency of participation;
   e. primary target species; or,
   f. years of fishing experience.

Anglers were asked to rate three aspects of fishing quality (fishing success, satisfaction with fish size, and overall enjoyment) as excellent (1), good (2), fair (3), or poor (4). Respondents were also asked to order from most preferred to least preferred five potential emergency regulations (minimum length limits, reduced bag limits, catch and release, time/area closures, and gear restrictions).

Data Analysis

Percent response to the questionnaire and to individual questions were initially summarized by northern area, southern area, and areas combined. Mean ranks (μ) were calculated as the means of probability distributions (Freund 1984):

$$\mu = \sum x \cdot f(x) \qquad (1)$$

where:

x = rank; and,
$f(x)$ = probability of x.

Variances (s^2) of mean ranks were calculated as variances of probability distributions (Freund 1984):

$$s^2 = \sum (x - \mu)^2 \cdot f(x) \qquad (2)$$

where the standard deviation of the sample was the square root of the variance, and the standard error (SE) of the mean was the standard deviation divided by the square root of n (n = sample size).

Dependence between user groups and response to a given question was examined using the chi-square test for independence (Conover 1980). Significance was defined as $P \leq 0.05$. Sample sizes varied for each question and chi-square test due to non-response to individual questions.

RESULTS

Survey Response and Potential Bias

Of the 507 questionnaires initially mailed out, 465 (91.7%) were assumed to have been successfully delivered and 42 were returned as undeliverable. Prior to the second mailing, 156 completed questionnaires were returned, and 82 were returned after the second mailing, giving a total response of 238 or 51.2% (Table 3). Potential survey bias due to differential responses to the first versus the second mailing was analyzed with chi-square tests (groupings used to test for response bias were the same as those used in the other chi-square tests). Based on the chi-square tests, return of the completed questionnaire was not significantly dependent on area of residence, other types of fishing, motivation, frequency of participation, primary target species, or years of fishing experience (Table 4). Therefore, responses from both mailings were pooled for all further analyses.

Responses to Survey Questions

Almost two-thirds (64%) of the survey respondents sport fished in 1988 (Table 5). Of the respondents that did sport fish in 1988, 59% reported fishing during the summer only, 4% during the winter only, and 47% during both the summer and the winter. A large percentage of survey respondents also participated in other types of fishing. Of the 238 respondents, 59% participated in subsistence fishing, 40% in commercial fishing, and 53% in personal use fishing (Table 5).

Respondents generally rated fishing quality as good on a scale of (1) excellent, (2) good, (3) fair, and (4) poor (Table 6). Mean ranks of fishing success and satisfaction with fish size were about 2.1 (good). Over half of the respondents rated overall enjoyment as excellent, and few rated any of the aspects as poor.

Respondents whose motivation for sport fishing was obtaining food made up 42% of all respondents answering the question concerning motivation for fishing. The motive listed second most frequently was enjoying nature (19%). None of the respondents indicated "catching a trophy fish" as their primary motive, and only three chose it as a secondary motive. Fishing for sport was also low on the list of motives, with only 8% choosing it as a primary motive. Enjoying nature and getting out with family and friends were listed by many respondents as either a primary or secondary motive (Table 7).

Survey respondents took an average of 8.7 sport fishing trips in 1988. Respondents from the northern area took slightly more trips than those from the southern area (Table 8). Respondents took the highest average number of trips (5.0) by river boat or canoe. Off-road trails were the next most popular form of access, with an average of 1.8 trips taken in 1988. Flying-in was the least popular means of access with an average of only 0.5 trips taken in 1988. Of the respondents who took at least one sport fishing trip during

Table 3. Responses of license holders to two mailings of the postal questionnaire.

Statistic	Northern Area	Southern Area	Total
Number of questionnaires mailed	141	366	507
Number of questionnaires returned as undeliverable	9 (6.4)[a]	33 (9.0)	42 (8.3)
Total number of questionnaires delivered	132 (93.6)	333 (91.0)	465 (91.7)
Number of respondents to the first mailing	48 (36.4)	108 (32.4)	156 (33.5)
Number of respondents to the second mailing	23 (17.4)	59 (17.7)	82 (17.6)
Total number of respondents	71 (53.8)	167 (50.2)	238 (51.2)
Number of "no responses" to questionnaire	61 (46.2)	166 (49.8)	227 (48.8)

[a] Percentages in parentheses.

Table 4. Chi-square tests of dependence of return of the questionnaire to first and second mailings.

User Group	Dependence/ No Dependence	χ^2	df	$P >$	$P <$
Fishing Experience	no dependence	5.68	3	0.10	0.25
Frequency of Participation	no dependence	6.49	4	0.10	0.25
Motivation for Fishing	no dependence	0.38	2	0.75	0.90
Other Types of Fishing	no dependence	1.80	2	0.25	0.50
Primary Target Species	no dependence	2.98	5	0.50	0.75
Area of Residence	no dependence	0.19	1	0.50	0.75

Table 5. Numbers and percentages of respondents who sport, subsistence, commercial, or personal use fished during 1988.

	Northern Area		Southern Area		Areas Combined	
Fishing Category	No.	Percent	No.	Percent	No.	Percent
Sport Fishing	53	75	99	59	152	64
Summer Only	26	49	63	64	89	59
Winter Only	3	6	3	3	6	4
Both	29	55	43	43	72	47
Subsistence Fishing	34	48	106	63	140	59
Commercial Fishing	26	37	69	41	95	40
Personal Use Fishing	40	56	85	51	125	53

Table 6. Ratings by respondents of some aspects of the quality of sport fishing in 1988.

Fishery Quality	Category	Rating[a] 1 No.	1 %	2 No.	2 %	3 No.	3 %	4 No.	4 %	Total	Mean Rank	SE of Mean Rank
Fishing Success												
	North	21	32	22	34	17	26	5	8	65	2.1	0.1
	South	30	23	60	47	28	22	10	8	128	2.1	0.1
	Combined	51	26	82	42	45	23	15	8	193	2.1	0.1
Fish Size												
	North	20	31	27	42	16	25	2	3	65	2.0	0.1
	South	34	27	52	41	31	25	9	7	126	2.1	0.1
	Combined	54	28	79	41	47	25	11	6	191	2.1	0.1
Overall Enjoyment												
	North	37	57	17	26	6	9	5	8	65	1.7	0.1
	South	61	48	41	32	18	14	7	6	127	1.8	0.1
	Combined	98	51	58	30	24	13	12	6	192	1.7	0.1

[a] 1 = excellent; 2 = good; 3 = fair; and 4 = poor.

Table 7. Primary and secondary motives for sport fishing by respondents.

Type of Motivation	Primary Motive						Secondary Motive					
	North		South		Both		North		South		Both	
	n	%	n	%	n	%	n	%	n	%	n	%
Success Oriented												
Sport	8	15	6	5	14	8	4	8	5	5	9	6
Trophy	0	0	0	0	0	0	1	2	2	2	3	2
Food	22	41	50	43	72	42	9	18	18	17	27	17
Non-Success Oriented												
Escaping Pressure	5	9	5	4	10	6	3	6	3	3	6	4
Enjoying Nature	9	17	23	20	32	19	10	20	25	24	35	22
Other Recreation	6	11	13	11	19	11	4	8	22	21	26	17
Family & Friends	4	7	19	16	23	14	20	39	30	29	50	32
Total Responding to Question[a]	54		116		170		51		105		156	

[a] The answers of 66 respondents to the primary motivation question (17 from the northern area and 49 from the southern area) could not be coded; two respondents did not answer the question. The answers of 80 respondents to the secondary motivation question (20 from the northern area and 60 from the southern area) could not be coded; two respondents did not answer the question.

Table 8. Numbers of fishing trips by various types of access taken by respondents during 1988.

Type of Access	Northern Area			Southern Area			Areas Combined		
	Number	Avg.	SE	Number	Avg.	SE	Number	Avg.	SE
River boat/Canoe	345	4.9	1.20	842	5.04	0.92	1,187	5.0	0.74
Off-road Trails	145	2.0	0.65	283	1.69	0.40	428	1.8	0.34
Marine Waters	109	1.5	0.62	74	0.44	0.30	183	0.8	0.28
Road	54	0.8	0.29	97	0.58	0.19	151	0.6	0.16
Fly-in	66	0.9	0.34	49	0.29	0.08	115	0.5	0.12
Total All Trips	719	10.13	1.63	1,345	8.05	1.15	2,064	8.7	0.94

1988, most took one to four trips or more than 14 trips (Table 9). Thirty-nine percent of the respondents took no sport fishing trips during 1988.

Thirty-three percent of the respondents listed various salmon species as their primary target. Of the respondents listing a target species, 47% listed salmon at least once (Table 10). Northern pike, Arctic grayling, Dolly Varden/Arctic char, inconnu, and whitefish were also popular (Table 10). Questionnaire respondents averaged 19.1 years of fishing experience, with most having less than 30 years experience (Table 11).

Survey respondents were asked if they approved, disapproved, or had no opinion of various management options aimed at improving sport fishing. Minimum length limits and time/area closures were approved of most often (Table 12). About one third of the respondents disapproved of reducing bag limits and about one third disapproved of catch and release regulations (Table 12). A high percentage of respondents either had no opinion or did not answer the question. For example, 43% had no opinion and 42% did not respond to the questions concerning reducing bag limits and catch and release, respectively. For all questions concerning regulations to improve fishing, at least 30% of the respondents had no opinion or gave no response (Table 12).

Survey respondents were also asked to rank several regulatory options that might be implemented in a conservation emergency to prevent overharvest of a fishery resource. Respondents were asked to rank the six options from most preferable (1) to least preferable (6). Reduced bag limits, season/area closures, and length limits were the regulation proposals which were most favored, while complete fishery closures, catch and release, and gear restrictions were the least favored (Table 13). Length limits and season/area closures were ranked most preferable by 22% and 24% of the respondents, respectively, while complete closures were ranked least preferable by 40% of the respondents (Table 14).

Respondents from the northern and southern areas had similar opinions regarding whether or not sport fishing in AYK waters should be improved. Sixty-percent of the respondents from both areas answered that sport fishing should not be improved. Of the 238 respondents from the two areas combined, 143 (60%) felt that sport fishing should not be improved, while only 66 (28%) felt that sport fishing should be improved (Table 15). Twenty-nine respondents did not answer the question. Respondents were also asked if access to sport fishing waters was adequate. Eighty-percent of the respondents from the northern area and 74% of the respondents from the southern area felt that access was adequate. Of the 238 respondents from both area, 180 (76%) felt that access was adequate, and only 22 (9%) felt that access was not adequate (Table 15). Thirty-six respondents did not answer the access question.

Few respondents felt that sport fishing and access should be improved. However, many provided a variety of suggestions and personal opinions regarding fishing in the AYK area (Appendix C). Many of the answers were difficult to categorize, but several common themes were seen in the responses. For example, nine respondents wrote in anti-sport fishing comments and eight wrote in "leave us alone" type responses. Other common themes included

Table 9. Distribution of number of fishing trips taken by respondents.

Number of Fishing Trips	Northern Area		Southern Area		Areas Combined	
	Number	Percent	Number	Percent	Number	Percent
0 Trips	20	28	73	44	93	39
1 - 4 Trips	15	21	32	19	47	20
5 - 9 Trips	9	13	18	11	27	11
10 - 14 Trips	12	17	17	10	29	12
> 14 Trips	15	21	27	16	42	18
> 0 Trips	51	72	94	56	145	61
Total	71		167		238	

Table 10. Species targeted by respondents during 1988.

Species	Northern Area		Southern Area		Areas Combined	
	Number	Percent	Number	Percent	Number	Percent
Species fished for most often:						
Salmon[a]	15	26	43	36	58	33
Northern pike	3	5	31	26	34	19
Arctic grayling	8	14	13	11	21	12
Inconnu	15	26	7	3	19	11
Dolly Varden/ Arctic char[b]	11	19	7	6	18	10
Other Species[c]	5	9	22	18	27	15
Total Responding to Question	57	100	120	100	177	100
Species fished for - any preference:						
Salmon[a]	40	56	72	43	112	47
Northern pike	15	21	83	50	98	41
Dolly Varden/ Arctic char[b]	40	56	48	29	88	37
Arctic grayling	28	39	58	35	86	36
Inconnu	26	37	27	16	53	22
Whitefish[d]	11	16	38	23	49	21
Total Responding to Question	71	100	167	100	238	100

[a] Includes chinook, coho, sockeye, chum, and pink salmon, and unspecified species of salmon.

[b] Includes Arctic Dolly Varden/Arctic char and Dolly Varden.

[c] Includes lake trout, burbot, all other species of whitefish, halibut, tomcod, and herring. Because these species were listed fewer than ten times as a primary target, they were grouped together.

[d] Includes humpback whitefish, least cisco, round whitefish, and unspecified whitefish.

Table 11. Years of fishing experience of respondents.

Number of years	Northern Area		Southern Area		Both Areas	
	Number	Percent	Number	Percent	Number	Percent
0 - 9	13	21.0	44	31.2	57	28.1
10 - 19	9	14.5	34	24.1	43	21.2
20 - 29	16	25.8	31	22.0	47	23.2
30 - 39	15	24.2	19	13.5	34	16.7
40 - 49	6	9.7	9	6.4	15	7.4
> 49 years	3	4.8	4	2.8	7	3.4
Total	62	100.0	141	100.0	203	100.0

Table 12. Responses of anglers when asked their opinions of various fishing regulations designed to improve fishing.

Regulation	Angler Type	Approve No.	Approve %	Disapprove No.	Disapprove %	No Opinion No.	No Opinion %	Total
Min. Length Limit								
	North	25	40	23	37	15	24	63
	South	72	50	33	23	38	27	143
	Combined	97	47	56	27	53	26	206
Reduce Bag Limit								
	North	13	21	28	45	21	34	62
	South	47	33	48	34	46	33	141
	Combined	60	30	76	37	67	33	203
Catch and Release								
	North	14	23	26	43	21	34	61
	South	49	35	50	35	46	30	142
	Combined	63	31	76	37	67	32	203
Time/Area Closures								
	North	27	42	26	36	14	22	64
	South	74	51	50	29	28	19	144
	Combined	101	49	76	31	42	20	208
Bait Restrictions								
	North	22	34	23	35	20	31	65
	South	48	34	44	31	50	35	142
	Combined	70	34	67	32	70	34	207

Table 13. Numbers and percentages (in parentheses) of anglers ranking their preferences regarding six potential emergency regulations that could be implemented to prevent over-harvest.

Potential Emergency Regulation	Angler Type	Ranking[a] 1	2	3	4	5	6	Total	Mean Rank	SE of Mean Rank
Length Limit										
	North	8 (17)	14 (29)	7 (15)	7 (15)	5 (10)	7 (15)	48	3.1	0.2
	South	30 (26)	15 (13)	19 (16)	17 (15)	20 (17)	16 (14)	117	3.3	0.2
	Combined	38 (23)	29 (18)	26 (16)	24 (15)	25 (15)	23 (14)	165	3.2	0.1
Close the Fishery										
	North	6 (14)	2 (5)	6 (14)	3 (7)	7 (16)	20 (45)	44	4.4	0.3
	South	23 (20)	9 (8)	12 (10)	11 (9)	16 (14)	45 (39)	116	4.1	0.2
	Combined	29 (18)	11 (7)	18 (11)	14 (9)	23 (14)	65 (41)	160	4.2	0.2
Restrict Gear Types										
	North	6 (13)	7 (15)	9 (20)	10 (22)	10 (22)	4 (9)	46	3.5	0.2
	South	9 (8)	17 (14)	23 (19)	32 (27)	18 (15)	19 (16)	118	3.8	0.1
	Combined	15 (9)	24 (15)	32 (20)	42 (26)	28 (17)	23 (14)	164	3.7	0.1
Reduce Bag Limits										
	North	9 (20)	15 (33)	12 (26)	6 (13)	4 (9)	0 (0)	46	2.6	0.2
	South	21 (18)	28 (24)	29 (25)	20 (17)	15 (13)	2 (2)	115	2.9	0.1
	Combined	30 (19)	43 (27)	49 (25)	26 (16)	19 (12)	2 (1)	161	2.8	0.1
Catch and Release Only										
	North	8 (17)	3 (7)	5 (11)	13 (28)	11 (24)	6 (13)	46	3.7	0.2
	South	13 (11)	10 (9)	21 (18)	21 (18)	26 (22)	25 (22)	116	4.0	0.2
	Combined	21 (13)	13 (8)	26 (16)	34 (21)	37 (23)	31 (19)	162	3.9	0.1
Season/Area Closures										
	North	15 (32)	6 (13)	6 (13)	6 (13)	7 (15)	7 (15)	47	3.1	0.3
	South	28 (24)	35 (30)	12 (10)	13 (11)	18 (16)	10 (9)	116	2.9	0.2
	Combined	43 (26)	41 (25)	18 (11)	19 (12)	25 (15)	17 (10)	163	3.0	0.1

[a] Most preferred = 1; least preferred = 6.

Table 14. Numbers and percentages of respondents ranking six potential regulations as their most preferred and least preferred in emergency situations[a].

Potential Regulation	Areas Combined		Northern Area		Southern Area	
	Most Preferred	Least Preferred	Most Preferred	Least Preferred	Most Preferred	Least Preferred
Length Limit	38 (23)	23 (14)	8 (17)	7 (15)	30 (26)	16 (14)
Close the Fishery	29 (18)	65 (41)	6 (14)	20 (46)	23 (20)	45 (39)
Restrict Gear Types	15 (9)	23 (14)	6 (13)	4 (9)	9 (8)	19 (16)
Reduce Bag Limits	30 (19)	2 (1)	9 (20)	0 (0)	21 (18)	2 (2)
Catch and Release Only	21 (13)	31 (19)	8 (17)	6 (13)	13 (11)	25 (22)
Season/Area Closures	43 (27)	17 (11)	15 (32)	7 (15)	28 (24)	10 (9)

[a] Percentages in parentheses.

Table 15. Numbers and percentages of respondents who felt that sport fishing should or should not be improved, and who felt that access is or is not adequate.

	Northern Area		Southern Area		Areas Combined	
Question	No.	Percent	No.	Percent	No.	Percent
Should Sport Fishing Be Improved?						
Yes	21	33	45	31	66	32
No	43	67	100	69	143	68
Total	64	100	145	100	209	100
Is Access Adequate?						
Yes	57	90	123	88	180	89
No	6	10	16	12	22	11
Total	63	100	139	100	202	100

limiting one or more license groups (sport, subsistence, or commercial). Twelve respondents expressed a desire for more stocking or hatchery programs, and five respondents felt that increased enforcement was necessary (Appendix C).

Hypotheses by User Group

Hypotheses were tested to determine if perceptions of fishing quality, opinions regarding restrictive regulations, and opinions regarding opportunities for sport fishing were significantly dependent on user group. All frequencies for each chi-square test performed are given in Appendix D.

Perceptions of Fishing Quality:

Perception of fishing success was not significantly dependent on area of residence, other types of fishing, motivation for fishing, primary target species, or years of fishing experience (Table 16). Perception of fishing success was significantly dependent on frequency of participation ($P < 0.01$). Respondents who had taken more than 14 trips were more likely to rate their fishing success as excellent, while respondents who had taken 14 trips or fewer were more likely to rate their success as good (Figure 2).

Perception of satisfaction with fish size was not significantly dependent on area of residence, other types of fishing, motivation for fishing, or primary target species (Table 16), but was significantly dependent on fishing experience ($P < 0.005$) and frequency of participation ($P < 0.025$). Respondents who had taken less than five fishing trips were more likely to rate their satisfaction with fish size as good or fair, while respondents who had taken five trips or more were likely to rate their satisfaction with fish size as excellent or good (Figure 2). Respondents who had more than nine years of fishing experience were more likely to rate their satisfaction with fish size as excellent or good, while those with 9 years or less experience were more likely to rate their satisfaction with fish size as good or fair (Figure 3).

Perception of overall enjoyment was not significantly dependent on area of residence, other types of fishing, or primary target species (Table 16), but was significantly dependent on motivation for fishing ($P < 0.01$), frequency of participation ($P < 0.025$), and fishing experience ($P < 0.025$),. Respondents who made 15 trips or more were much more likely than respondents who made less than 15 trips to rate their overall enjoyment as excellent (Figure 2). Respondents who had 10-19 years experience were more likely to rate their overall enjoyment as excellent (Figure 3). Respondents with non-success or sport motives were more likely to rate their overall enjoyment as excellent, while food-motivated respondents were more likely to rate their overall enjoyment as good (Figure 4).

Opinions Regarding Restrictive Regulations:

Angler receptiveness to restrictive regulations was not significantly dependent on area of residence, other types of fishing, motivation for fishing, frequency of participation, primary target species, or fishing

Table 16. Chi-square tests of angler perception of fishing quality compared to fishing category.

Fishing Category	Dependence/ No Dependence	χ^2	df	$P >$	$P <$
Fishing Success					
Area of Residence	no dependence	2.37	3	0.25	0.50
Other Types of Fishing	no dependence	2.85	6	0.75	0.90
Motivation for Fishing	no dependence	5.33	6	0.50	0.75
Primary Target Species	no dependence	15.11	15	0.25	0.50
Frequency of Participation	dependence	31.37	12	0.005	0.01
Fishing Experience	no dependence	15.03	9	0.05	0.10
Fish Size					
Area of Residence	no dependence	1.45	3	0.50	0.75
Other Types of Fishing	no dependence	3.26	6	0.75	0.90
Motivation for Fishing	no dependence	2.12	6	0.90	0.95
Primary Target Species	no dependence	13.43	15	0.50	0.75
Frequency of Participation	dependence	25.80	12	0.01	0.025
Fishing Experience	dependence	24.00	9	0.001	0.005
Overall Enjoyment					
Area of Residence	no dependence	3.35	3	0.25	0.50
Other Types of Fishing	no dependence	0.60	6	0.995	0.999
Motivation for Fishing	dependence	17.66	6	0.005	0.01
Primary Target Species	no dependence	12.95	15	0.50	0.75
Frequency of Participation	dependence	25.69	12	0.01	0.025
Fishing Experience	dependence	20.36	9	0.01	0.025

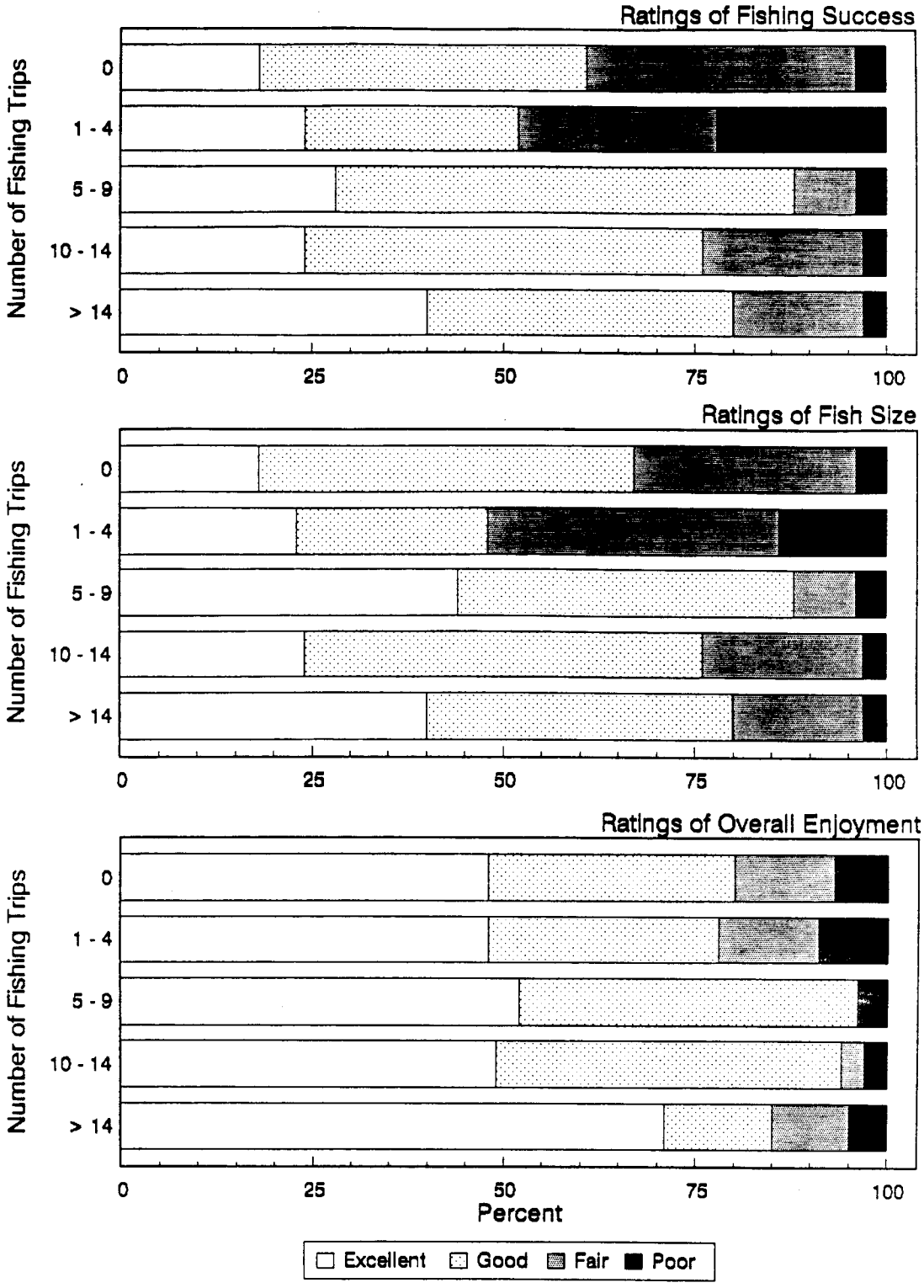

Figure 2. Percent of respondents' rating fishing success, fish size, and overall enjoyment as excellent, good, fair, or poor.

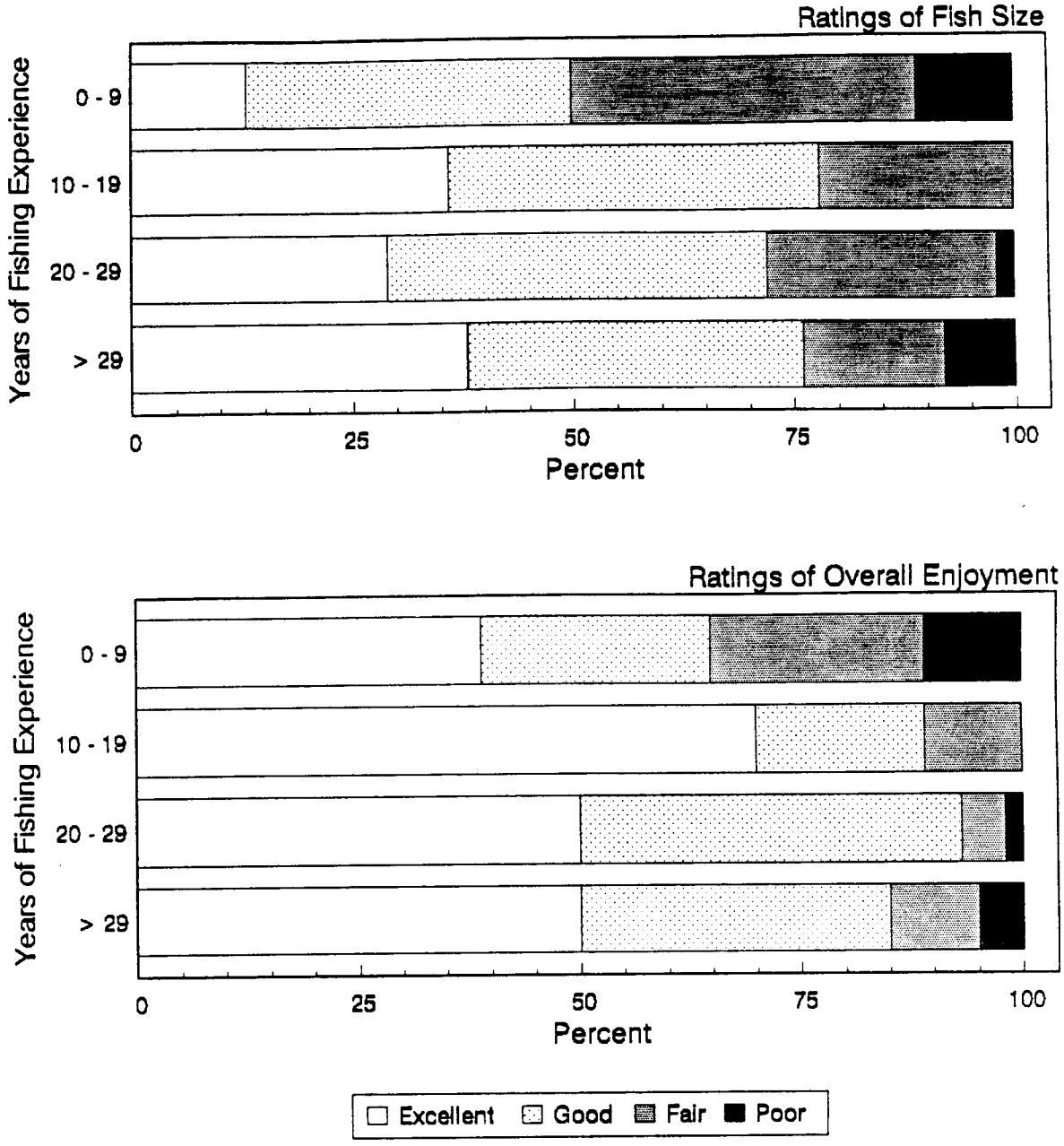

Figure 3. Percent of respondents' rating fish size and overall enjoyment as excellent, good, fair, or poor.

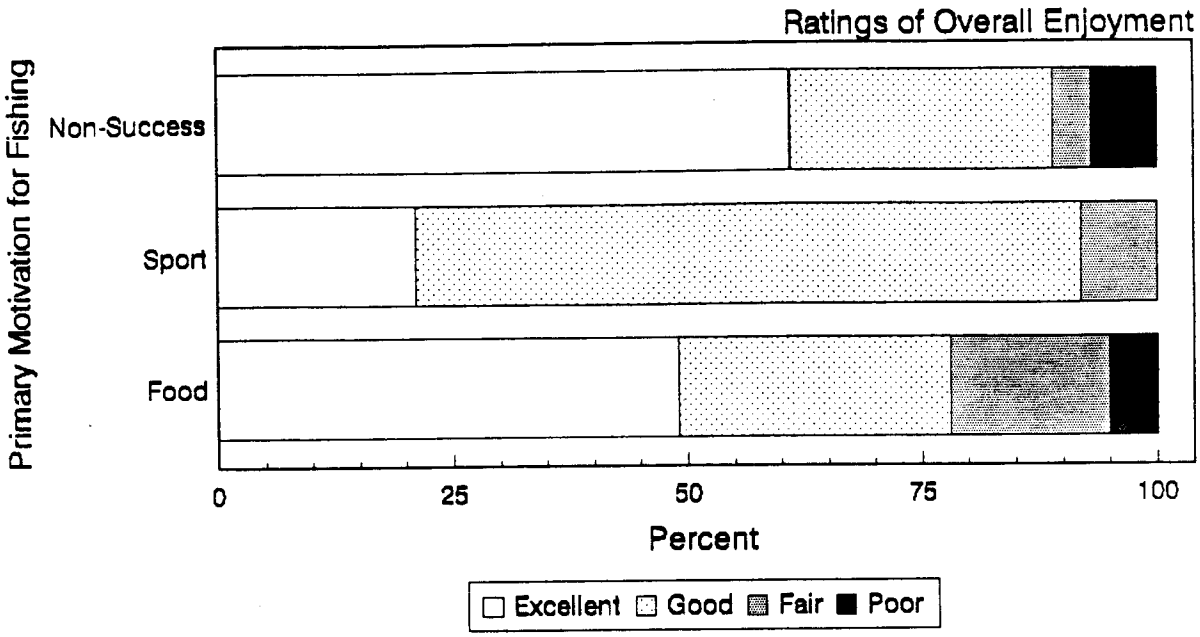

Figure 4. Percent of respondents' rating overall enjoyment as excellent, good, fair, or poor.

experience (Table 17), except for receptiveness to minimum length limits, which was significantly dependent on motivation for fishing ($P < 0.01$). Almost 60% of respondents with non-success motivations approved of minimum length limits, while respondents in the other motivation groups were evenly distributed between all three answers (approve, disapprove, no opinion) (Figure 5).

Opinions Regarding Opportunities for Sport Fishing:

Neither opinions of whether or not sport fishing needed improving in AYK area waters nor opinions of whether or not access was adequate were significantly dependent on fishing experience, frequency of participation, motivation for fishing, other types of fishing, primary target species, or area of residence (Table 18).

DISCUSSION

Survey Design

Non-response can cause significant bias in survey results. For example, Harris and Bergersen (1985) found that surveys may overestimate fishery usage unless corrections are made for differences between respondents and non-respondents. With a response of only 51%, similar results could be expected with the AYK survey: opinions of respondents may have differed significantly from opinions of non-respondents. Telephone interviews of non-respondents, which Harris and Bergersen (1985) used to supplement mail-in questionnaires, could not be utilized to detect and correct bias due to non-response in this study because the questionnaire was sent to residents of rural areas of Alaska where telephone service is scarce.

Errors in recall may also bias survey data (Atwood 1956; Wright 1978). Recall of fishing activities is likely to become less accurate as the time between fishing and responding to a questionnaire increases (Harris and Bergersen 1985). By conducting the survey shortly after the period of interest, which included the winter of 1988, inaccurate answers due to recall error were minimized. In addition, few of the questions in this study called for recall of accurate numerical data. Rather, since most questions concerned general information about the respondents' licenses, opinions, and regulatory preferences, error in recall probably had minimal effect in this particular survey.

Definitions of important phrases, careful wording of questions, and easy directions for answering questions, are essential for a survey to accurately reflect the opinions of anglers. Most importantly, a clear legal definition of sport fishing should have been included at the beginning of the survey, but unfortunately, there is no clear definition for the term "sport fishing" at this time. Responses to the survey revealed the ambiguity inherent in the term sport fishing and the regional, social, and cultural interpretations of sport fishing. Many respondents seemed to define sport fishing in terms of motive: sport fishing to them meant fishing for fun. For others, sport fishing was defined by the type of gear that was used, and for others, sport

Table 17. Chi-square tests of angler receptiveness to several restrictive regulations compared to fishing category.

Fishing Category	Dependence/ No Dependence	χ^2	df	$P >$	$P <$
Minimum length limit					
Area of Residence	no dependence	4.09	3	0.25	0.50
Other Types of Fishing	no dependence	5.25	4	0.25	0.50
Motivation for Fishing	dependence	11.57	4	0.005	0.01
Primary Target Species	no dependence	8.11	10	0.50	0.75
Frequency of Participation	no dependence	14.22	8	0.05	0.10
Fishing Experience	no dependence	2.01	6	0.90	0.95
Reduction of Bag Limit					
Area of Residence	no dependence	3.67	3	0.25	0.50
Other Types of Fishing	no dependence	4.47	4	0.25	0.50
Motivation for Fishing	no dependence	0.54	4	0.95	0.975
Primary Target Species	no dependence	16.39	10	0.05	0.10
Frequency of Participation	no dependence	8.35	8	0.25	0.50
Fishing Experience	no dependence	1.48	6	0.95	0.975
Catch and Release					
Area of Residence	no dependence	2.69	3	0.25	0.50
Other Types of Fishing	no dependence	0.63	4	0.95	0.975
Motivation for Fishing	no dependence	8.03	4	0.05	0.10
Primary Target Species	no dependence	9.99	10	0.25	0.50
Frequency of Participation	no dependence	6.40	8	0.50	0.75
Fishing Experience	no dependence	5.24	6	0.50	0.75
Time/Area Closures					
Area of Residence	no dependence	1.55	3	0.50	0.75
Other Types of Fishing	no dependence	3.68	4	0.25	0.50
Motivation for Fishing	no dependence	3.80	4	0.25	0.50
Primary Target Species	no dependence	16.93	10	0.05	0.10
Frequency of Participation	no dependence	12.78	8	0.10	0.25
Fishing Experience	no dependence	2.61	6	0.75	0.90
Bait Restrictions					
Area of Residence	no dependence	0.53	3	0.90	0.95
Other Types of Fishing	no dependence	1.45	4	0.75	0.90
Motivation for Fishing	no dependence	6.90	4	0.10	0.25
Primary Target Species	no dependence	3.20	10	0.975	0.99
Frequency of Participation	no dependence	4.50	8	0.75	0.90
Fishing Experience	no dependence	8.84	6	0.10	0.25

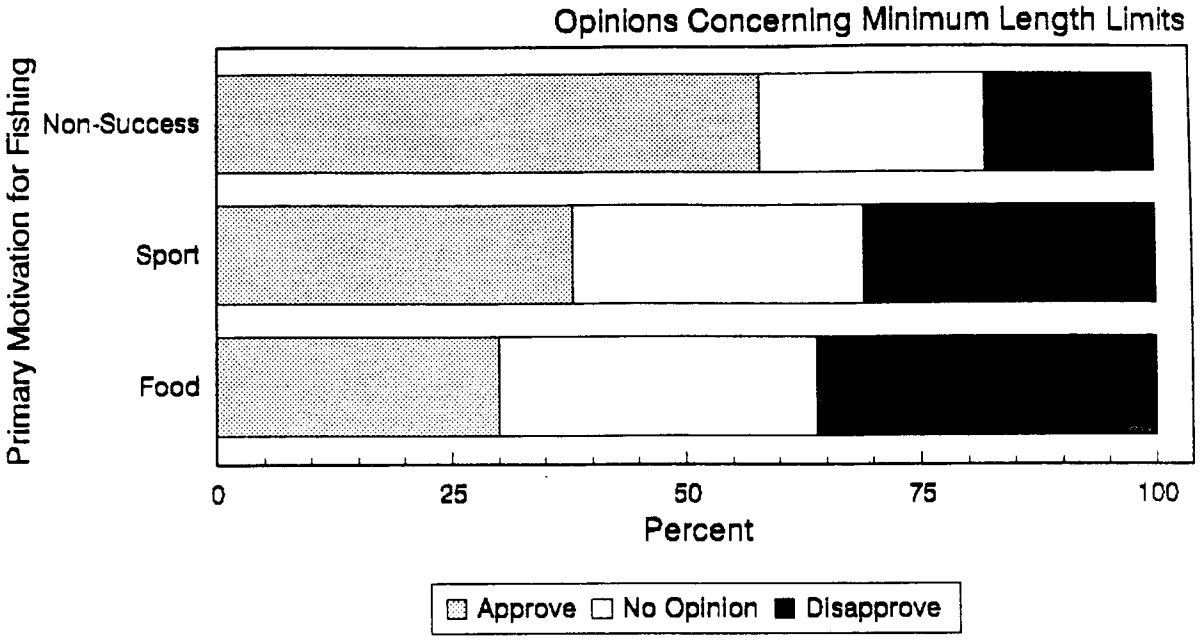

Figure 5. Percent of respondents who approved, had no opinion, or disapproved of minimum length limits.

Table 18. Chi-square tests of angler opinion concerning whether or not sport fishing should be improved and whether or not access is adequate compared to fishing category.

Fishing Category	Dependence/ No Dependence	χ^2	df	$P >$	$P <$
Improve Fishing?					
Area of Residence	no dependence	0.06	1	0.75	0.90
Other Types of Fishing	no dependence	2.25	2	0.75	0.90
Motivation for Fishing	no dependence	5.38	2	0.05	0.10
Primary Target Species	no dependence	2.58	5	0.75	0.90
Frequency of Participation	no dependence	2.25	4	0.50	0.75
Fishing Experience	no dependence	1.10	3	0.75	0.90
Access Adequate?					
Area of Residence	no dependence	0.18	1	0.50	0.75
Other Types of Fishing	no dependence	1.24	2	0.50	0.75
Motivation for Fishing	no dependence	2.60	2	0.25	0.50
Primary Target Species	no dependence	4.01	5	0.50	0.75
Frequency of Participation	no dependence	7.37	4	0.10	0.25
Fishing Experience	no dependence	2.02	3	0.50	0.75

fishing was the antithesis of subsistence fishing. All questionnaires were sent to people who had actually bought sport fishing licenses, but sport fish licenses are required to personal use fish in Alaska, and some license holders may purchase licenses to support fisheries conservation rather than to participate in sport fishing. Therefore, the purchase of a sport fishing license was not necessarily indicative of the fishing activities of the purchaser. For example, many people wrote very emphatic responses to the first question on the questionnaire (did you sport fish during 1988) and to the open-ended questions, saying that they never fished for sport, only for food.

Wording of questions is also important for the results of a study to accurately reflect the views of respondents. The question that probably caused the most confusion in this questionnaire was question 5 (Appendix A). Although in most cases the term "sport fishing" in the questionnaire was used in the legal sense, question 5 asked respondents to give their motives for "sport fishing". But one of the choices was "catching fish for sport". A better wording might have been "catching fish for fun". Many respondents also appeared to be confused about the directions for answering question 5. The question listed seven possible motives for sport fishing and asked respondents to put a numeral one next to the most important motive and a numeral two next to the second most important motive. Unfortunately, many respondents wrote numeral ones next to several motives, or wrote a numeral one next to the most important motive and then numeral twos next to several other motives. Although only two respondents did not answer that question at all, the answers of 66 respondents to the primary motivation portion could not be coded, and the answers of 80 respondents to the secondary motivation portion could not be coded. Those responses that could not be coded could not be included in the analysis. Conducting a trial survey with a draft questionnaire could minimize confusing questions, increasing the number of responses to each question.

Respondent Profile

A typical respondent to the AYK survey sport fished during 1988, fished in the summer only or in both summer and winter, and fished under subsistence, personal use, or commercial regulations, in addition to sport fish regulations. The typical respondent felt fishing success and fish size was good, and rated overall enjoyment of sport fishing as excellent. Catching fish for sport was not generally the reason respondents sport fished, rather, obtaining food, enjoying nature, or being with family or friends was more likely the motivation behind sport fishing. The typical respondent made eight or nine sport fishing trips during 1988, most likely by river boat or canoe, targeted salmon or northern pike, and had about 19 years of fishing experience.

In general, AYK respondents approved of minimum length limits and time/area closures as management options for improving sport fishing or as emergency regulations, and also approved of reduced bag limits as an emergency regulation. An overwhelming majority of the respondents felt that sport fishing in the AYK region should not be improved and that access to sport fishing waters was adequate.

Hypotheses by User Group

With few exceptions, perceptions of fishing quality, opinions regarding restrictive regulations, or opinions regarding opportunities for sport fishing were not significantly dependent on area of residence, other types of fishing engaged in, motivation for fishing, primary target species, frequency of participation, or years of fishing experience. Particularly noteworthy is that, with the exception of minimum length limits, opinions of respondents concerning regulations were not significantly dependent on motivation for fishing. In a similar study of anglers from the Tanana drainage of Alaska, Viavant and Clark (1990) found that motivation for fishing was one of the best criteria for grouping respondents. Despite the findings of "no dependence" for most tests in this study, results presented here should not be construed to indicate that anglers from the AYK region are a homogeneous group. On the contrary, for many questions, respondents were split almost evenly between possible answers. The diversity of opinions held by respondents is also evident in the responses to the open-ended questions. The conflict between, and opposing views of, sport, subsistence, and commercial users that is prevalent in many areas of Alaska were evident in answers to open-ended questions in this survey. The two open-ended questions concerned enhancement and access, but many respondents used it as a means of airing their views on other topics. Although respondents were categorized by a total of six different criteria, none were truly suitable for predicting the opinions and preferences of anglers in the AYK area. Perhaps factors not considered in this questionnaire should be included in future surveys For example, cultural background, income level, or length of residency in the AYK region or Alaska may be more indicative of the opinions and preferences of anglers from the AYK region.

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APPENDIX A

THE QUESTIONNAIRE ON SPORT FISHING - AYK AREA

QUESTIONNAIRE ON SPORT FISHING - NORTHERN ALASKA

Instructions:

This questionnaire should be filled out only by the person to whom it is addressed, even if he or she sport fished little or not at all in 1988. Please limit all answers to **Fishing** during calender year 1988 in Northern Alaska. For simplicity we are considering Northern 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, please return the questionnaire in the envelope provided.

Thank you for your assistance.

1. Did you **sport fish** in Northern Alaska during 1988? ___Yes ____No

2. Did you **sport fish** during summer, winter, or both? (*please place an "X" in the appropriate box*)

   Summer ☐ Winter ☐ Both ☐

3. Did you engage in other types of fishing in Alaska during 1988? (*please place an "X" in the appropriate box for each question*)

	Yes	No
a. Subsistence Fishing	☐	☐
b. Commercial Fishing	☐	☐
c. Personal Use Fishing	☐	☐

4. Please rate your **sport fishing** experiences in Northern Alaska Waters on the following 4 point scale:

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

a. Your fishing success in Northern Alaska Waters	☐
b. Your satisfaction with the size of fish you caught in Northern Alaska Waters	☐
c. Your overall fishing enjoyment in Northern Alaska Waters	☐

5. Here are some general reasons that people have given for going **sport fishing**. Please indicate the first and second most important reasons 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 next most important reason*)

_____Getting away from daily pressures.

_____Getting out and enjoying nature.

_____Catching fish for sport.

_____Catching a trophy fish.

_____Enjoying other recreational activities (ex. camping or boating).

_____Catching fish for food.

_____Getting out with family and friends.

6. Please estimate how many **sport fishing trips** you made to each of the following types of Northern Alaska Waters during 1988.

_____Marine waters (For example: Prudhoe Bay).

_____Fly in lakes or streams (For example: Chandler Lake).

_____Lakes or streams reached by riverboat or canoe (For example Dall River).

_____Lakes or streams reached by road (For example: Yukon River Bridge).

_____Lakes or streams reached by offroad trails using ATVs, Snowmachines, Skis, or Walking (For example: Upper Beaver Creek).

7. Please list the types of fish you **sport fished** for in Northern Alaska waters during 1988. (*List the species you fished for most as 1, next most sought after species as 2, etc.*)

1. _____ 4. _____

2. _____ 5. _____

3. _____ 6. _____

8. 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 the following ways of possibly improving **sport fishing** in Northern Alaska Waters? (*please place an "X" in the appropriate space*)

	Approve	No Opinion	Disapprove
Have a minimum length limit	☐	☐	☐
Not have a minimum length limit	☐	☐	☐
Reduce daily bag limits	☐	☐	☐
Increase daily bag limits	☐	☐	☐
Have "catch and release fishing"	☐	☐	☐
Have fishing season closures at certain times or in certain areas	☐	☐	☐
Limit bait fishing at certain certain times or in certain areas	☐	☐	☐

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 ..... ☐

Reduce 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. Do you feel that **sport fishing** in Northern Alaska Waters **should be improved**? _____Yes ____No

If Yes, what would you like to see done **to improve sport fishing** in Northern Alaska Waters?

_____

_____

_____

_____

_____

11. Is **access to Northern Alaska sport fishing waters** adequate? ___Yes ___No

If No, please provide specific **recommendations for access improvement** projects that you think the Department of Fish and Game should start.

_____

_____

_____

_____

_____

12. Background questions:

a. How many years have you been sport fishing? _____Years

b. How many years have you sport fished in Alaska? _____Years

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,

Bill Arvey
AYK Area Biologist
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,

Bill Arvey

Bill Arvey
Area Biologist
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
Research Supervisor
Sport Fish Division
(907) 456-8819

11-K17LH

APPENDIX C

RECOMMENDATIONS TO IMPROVE SPORT FISHING AND ACCESS IN AYK

This appendix contains responses to questions 10 and 11. In the survey Question 10 reads: "Do you feel that sport fishing in Northern Alaska Waters should be improved? _____ Yes _____ No

If Yes, what would you like to see done to improve sport fishing in Northern Alaska Waters?

Question 11 reads: "Is access to Northern Alaska sport fishing waters adequate? _____ Yes _____ No

If No, please provide specific recommendations for access improvement projects that you think the Department of Fish and Game should start.

Q10 and Q11 preceding the recommendation refers to question 10 and 11, respectively.

The three digit number preceding these actual comments are the last three digits of the number on the respondent's fishing license.

Q10 205 I don't fish for sport, but only to eat what I can manage to catch. I also think some of your rules concerning what gets tangled in my whitefish net are ridiculous. I don't think pike can be taught to read so when I put out a whitefish net and catch pike, I plan to continue eating them. This survey seems to be a waste of time as none of the subsistence users have a change to voice or influence the data you are collecting. I for one feel that getting enough to eat on a fairly regular basis is far more important then "getting away from pressures, sport, catching trophies on recreation".

Q11 802 Need more roads to lakes.

Q10 532 Subsistence only not sport. The idea of open and closing of the fishing days should be three days in a row and not spread apart to where you have to go up and down the river so much. It's not only dangerous, but waste of gas and money and open hours should be earlier in the day instead 6 p.m. when the wind starts picking up.

Q10 328 I feel it should be left the way it is in N. W. Ak.

Q11 328 Not necessary in this area. It's all up to nature.

Q10 422 More publicity.

Q10 112 Just leave it alone!

Q11 112 Leave it alone - people want to fish let them get there the way we have to!

Q10 827 Check with the fish guides to make sure that they catch and release and that they obey the bag limits.

Q10 225 Stocked with hatchery fish (fingerlings) on a yearly basis.

Q10 221 Limit commercial fishing, allow sport fishing to open well in advance of commercial periods; especially for deep sea fishing.

Q11 206 Quinhagak is a prime example, have to fly to get there (I use my own plane) once there, the locals may or most likely will not approve of you being there. My answer is to always use a local person and his boat and give the guy a hundred dollar bill a day. Therefore you can fish in the good spots and not worry about being attached (shot). Some type state program should be implemented to help appease the local people in village areas or to help understand the "kusaks" have the right to fish in their river and catch few of their fish. Another possibility would be for state representatives to not just make available, but go to Quinhagak and explain and/or help them start there own outfitting or guide service.

Q10 519 The subsistence use or gill nets reduces the pike population - particularly the largest which are heavy feeders are grayling and whitefish. This improves both number of those two species plus prevention too many pike from ultimately cannibalism each other. Rod and reel on pike is bad at best and can be intensely destructive. Grayling are extremely opportunistic in their feeding habits. I know they can and do eat a lot of salmon eggs and small fish. Although there is question as to how much damage they do the salmon, because they made use of such a wide variety of available food that other species do not, they contribute a valuable food resource that would not exist without them. It seems to me that in terms of lbs. of food per acre it requires a balance of pike, grayling and whitefish in the smaller lakes and tributaries. The most certain and obvious sign of a mis-managed fish resource is the absence of whitefish in lakes and sloughs due to an excess of extra large pike. At the same time, pike should not be obliterated as, in addition to their value for food they also act as a control. My experience is that good management of pike assures a good supply of both whitefish and grayling. From the sport fishing point of view, strict control of pike fishing will increase both number and size of grayling which is also a good sport fish. Subsistence use of gill nets will assuredly destroy trophy size pike to the benefit of all other types of fishing, - sport, commercial and subsistence. No management means "boom and bust". No management of sport pike fishing quickly destroys the ecosystem of the whole. Obviously, I believe that both the various species of fish and the various methods of harvesting and using them require evaluation and management as a whole.

Q11 519 Don't see why it should be improved as the present condition are acting as a reservoir and also in steady subsistence use which does not destroy the resource but even adds to it.

Q11 411 There are times us native people to fish an not to fish is on spring time to dry fish for food and late fall to dry and put away fish for winter use.

Q11 474 Build roads.

Q10 358 Change regulations according to the way it has an impact environmentally each year.

Q11 410 In the far north where there are no roads, I doubt anything can be done except by the fisherman owning or renting a boat or plane.

Q10 400 I love it as it is.

Q10 540 They don't have sport fishing in this part, until then no comment...

Q10 067 I only sport fish because using a rod and reel for subsistence is not recognized as legal. I feel that sport is not an appropriate use for any fish and game resource, especially in areas where people depend on that resource for their sustenance. Sportsman should have the lowest priority use of fish resources in rural Alaska.

Q10 837 I live and fish in rural Alaska - I'm quite satisfied with sport fishing regulations as they are.

Q10 201 Limited sport fishing in area.

Q11 201 Limited fishing in area where fish are low.

Q11 451 Access is fine for local residents but non-area residents who don't have access means (i.e. boat & motor) is limited.

Q10 380 Fishing is excellent, doesn't need improvement.

Q11 380 Access to my fishing spot is just a walk away.

Q11 756 Most of the good areas are hard to get to and it would cost the state of Alaska to much money to do to much up-grading other than to transplant some other species of good eating and sport fish.

Q11 675 Reduce fish catching and baits.

Q10 046 Stop high seas pirates! During early sixties we used to get plenty of kings at Salmon River south of Nikolai. Limit commercial openings at Bethel so a substantial number of salmon could start up river during peak runs.

Q10 636 Reducing from 5 kings per day to 1 king per day is too drastic, especially when one commercial or subsistence net can catch more kings than all of sport fishermen on the Unalakleet River that day. I set a subsistence net and took more kings then before. Several other did also.

Q10 921 Fine the way it is.

Q11 921 More access would mean more pressure.

Q10 241 More biological study on the fish determine where they go, how many are there, how many are taken out, etc.

Q10 165 Limit the number of fishing guides allowed in a specific area an watch them more closely. Most of my personal fishing experience has been on the Holitna River (drains into Kuskokwim, mouth at Sleetmute) where fishing has really changed and environment is drastically showing effects of fishing guide (hunting too) since it first went into the country 10 years ago. Holitna is a very important wildlife habitat - in fact the homesteaders (I'm not one) screamed "wetland" often enough to close the area for further state land openings but Fish and Game and DNR have not worked together to protect the wildlife (fur, fish, game) size of boats and outboards has adversely affected the river banks as well as the garbage left by campers. It's an odd situation - Fish and Game has a weir at the headwaters, DNR listened to outcries of a few homesteaders to keep out other land claimers but the two state agencies don't seem to be working together to preserve the Holitna habitat!!

Q10 498 Places where sport fishing is fished allot, they should build a fish hatchery to improve the fish population.

Q11 171 I don't think that the state has any business concerning itself with access for sport purpose.

Q10 807 Increase in less sought after species (sheefish for example & northern pike). Also introduce muskies & the small tiger pike (i.e. caught in Lakes Michigan & Erie) in enclosed lakes or enclosed ponds of interior Alaska.

Q11 807 No road please! Keep Alaska wilderness alive! If the fishings good they'll find a way to get there.

Q10 442 State needs to advertise more to tourist Yukon River areas to take pressure off coastal areas.

Q10 708 I am concerned about to many char being taken by salmon nets off Kotzebue during the salmon season. I want to be sure that Noatak River char are receiving adequate protection for continued trophy fishing. The same hold, true for the sheefish going into the Selawik River. I hear Kotzebue people use drift nets or set nets for them and many are wasted, nets not pick up.

Q10 444 I'm satisfied with sport fishing as it is now - we need to guard against erosion of the present enjoyable fishing to be had here.

Q10 223 I this is about northern Alaska waters if you do sport fishing you should start fishing for food if that's the problem we fish for food in the winter.

Q11 223 I fish for food and for the winter. I don't sport fish, sorry.

Q10 901 Stocking of red and silvers in the Kobuk River area - change release dates for hatchery on Noatak - larger sheefish aren't going up the Kobuk during the early spring.

Q10 665 Hatchery programs for western Alaska (Norton Sound, Kotzebue, etc), since severely cold winters seem to substantially reduce later year harvest levels. Restrict grayling harvest substantially, if anticipated result would be larger grayling.

Q10 847 I feel that sport fishing can be improved by placing more "guidelines" on subsistence (net) fishing in specific areas related to specific rivers and streams.

Q10 600 Transplant in lake and streams walleye and forget the trout let the military plant trout on there res. and not let the military on our fisheries - example Quartz Lake.

Q10 169 Clean camp site after fishing.

Q10 837 More control on the commercial harvests and subsistence nets. More presence of game officers. Post notices - community awareness. Installation of fish counters. Posted phone for game/fish violations.

Q10 136 Villagers and village cooperating should be encouraged to set up sport fishing guiding services to enhance the local economy and provide for employment.

Q10 153 I don't know enough but like the idea of catch and release - so more people can participate.

Q10 803 In the Norton Sound waters around Unalakleet, the sports fisherman are not hurting the fishing, it is the subsistence fishermen that is not limited to any bag limits, they are definitely hurting the Alaska waters. They should limit subsistence fishermen.

Q10 748 Consider letting commercial fishermen do subsistence fishing only on the off days - when commercial period is closed! Restrict the use of any type of net close to the mouth of a river. (close meaning 1/2 mile)

Q10 392 Just enforce existing regs. I do not see protection in the field checking licenses or bag limits.

Q10 769 Only in areas easily accessible and overfished by sportsmen.

Q10 521 Plant fish.

Q10 202 Our village is trying to transport salmon to our area so we can start up a fish hatchery. That would improve all salmon sport fishing in this area.

Q10 714 Replace salmon in the Takotna River area - NOW!

Q10 260 Boundaries are very hard to know where to fish if you are not familiar with the area. Regulations sometimes to confusing.

Q10 790 Stop letting Japan getting into the fishing areas where there not suppose to be getting into.

Q10 629 Open more location for fishing but have season open at a certain time and closed a a certain data, and have rest room and benches that would surely improve the fishing. Some time it give's family people a chance and sit down while fishing.

Q11 629 Start making roads leading to out of reach area, stream or lakes.

Q10 507 Have the gold miners clean up their mining afterwards.

Q11 786 Leave the lakes and land the way they are given to us from "mother nature".

Q10 704 See that the people of the land are taken care of first. I don't care who catches the biggest I'm concerned for the people that use the fish for a living in Alaska.

Q10 440 Litter barrels along the riverbanks for garbage disposal. A fine should be impeached if caught littering.

Q10 482 Only Indians.

Q10 885 I feel sport fishing in Northern Alaska is excellent - State funds should be directed elsewhere.

Q10 123 Manage subsistence use - waste by this activity should be eliminated.

Q10 389 Keep the money for hatcheries flowing so they will help improve the waters.

Q10 154 For Fish and Game to watch people closely who sell fish without a license.

Q10 861 I had to buy sport fishing license, to freeze or dry fish for winter food. Not good at rod & reeling. I didn't want to get caught without license we Eskimos don't waste our catch of fish, its the white people who sport fishing and let their catch go, or let their fish dry in grass in the sun that 1 year, when their was lot a white

people sport fishing. You might think this is weird but Eskimos don't wash their catch of fish they dry and freeze for winter food.

Q10 312 Would be better then using big nets to catch fish, so that every Alaskan can get satisfied with what they catch in sport fishing. And let all the net fishing to another spot! Don't let people catch more than what they want.

Q10 295 In northern & western Alaska, for villages that have only means of air transportation, their means to sustain themselves and provide for themselves should not be hindered by sport fishing. Some villages have 86% unemployment rate and need to subsistence & commercial fish.

Q11 295 Air only. The Department should not encourage or start making it easier for outside people to start infiltrating into areas of villages with serious depressed economy. We have hard enough time to feed our families without having to add more burden by getting in additional types of fishing. We cannot afford to have the only fish we might have at the table for family of ten hurt or taken away by someone wanting to spend $5,000 just to catch one fish.

Q10 817 With the advent of more tourist sport fishing business's it will probably have to be more improved or regulated.

Q11 817 I'm not sure just what could be done but if more people could get to harder to reach places it would take pressure off the most accessible fishing holes. Most people can't afford to charter planes to go fishing. Maybe in some areas trails for ATVs?

Q10 511 Limit the time for sports fishing. Fish may be damaged during sports fishing.

Q10 333 I think rivers and common lakes should be patrolled more and violators fined. If you don't have money for this patrolling, cut upper administration positions. I think there's allot of people making lots of money in upper management also everything is complicated to a point that it doesn't get done in a cost effective way.

Q10 681 I don't have enough information to answer such as: Go sport fishing in various regions - i.e. demand on. I believe where the demand is the greatest, the money should be spent taking into consideration cost effectiveness - weather, travel, facilities, etc.

Q10 782 Look at possibility of stocking some lakes in the Galena area. Note: I have lived in Alaska all my life and most of my life in Western Interior Alaska. I do feel sport fishing is a great recreational activity and do support it, though I have always gone fishing with a primary interest for food. Thank you.

Q10 670 Control access to preserve quality.

Q10 714 In certain areas, ADF&G should limit the amount of sport fishermen allowed to fish. Certain rivers are so crowded with lines and poles from fishermen that you can't even enjoy fishing.

Q10 539 Reduce daily limits and size limits also; limit access: by permit only in heavily fished areas (Walker Lake) (Peters and Chamberlin Lakes) (Illusive Lake) (Iniakuk) - head water lakes of the Alatna and Killik.

Q11 539 Limit use of ATV's and snowmachines in winter. Possibly permit only for heavily fished lakes on North side of the Range (Brooks). Natives should be subject to same laws as non-natives.

Q10 909 To have more time on sport fishing.

Q10 503 More areas could be stocked.

Q11 503 Make possible trails to remote creeks and lakes.

Q10 806 I only fish to feed my family not sports fish as you call it.

Q10 257 Better hooks.

Q10 331 Let the fishing periods have more periods so the people who don't catch enough they might catch more so they won't be so broke.

Q10 262 More adapt members of game board. Specific regulations set for specific areas. Catch and release - major. Limit - exercised.

Q11 262 Not enough State and Federal support in Ed. grants for villages and non-profit or for profit village organizations. I don't sport fish.

APPENDIX D

CONTINGENCY TABLES OF QUESTIONNAIRE DATA

Appendix D1. Respondents' rating of fishing success versus area of residence.

	Area of Residence	
Rating	North	South
Excellent	21	30
Good	22	60
Fair	17	28
Poor	5	10

Appendix D2. Respondents' rating of fish size versus area of residence.

	Area of Residence	
Rating	North	South
Excellent	20	34
Good	27	52
Fair	16	31
Poor	2	9

Appendix D3. Respondents' rating of overall enjoyment versus area of residence.

	Area of Residence	
Rating	North	South
Excellent	37	61
Good	17	41
Fair	6	18
Poor	5	7

Appendix D4. Respondents' rating of fishing success versus other fishing activities.

	Other Fishing Activities		
Rating	Personal Use	Subsistence	Commercial
Excellent	30	28	14
Good	49	52	39
Fair	22	29	18
Poor	7	6	5

Appendix D5. Respondents' rating of fish size versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Excellent	32	31	18
Good	49	49	30
Fair	21	28	22
Poor	6	6	6

Appendix D6. Respondents' rating of overall enjoyment versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Excellent	58	58	38
Good	29	32	23
Fair	14	17	11
Poor	7	7	4

Appendix D7. Respondents' rating of fishing success versus primary motivation for fishing.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Excellent	19	4	16
Good	37	7	24
Fair	11	2	17
Poor	6	1	2

Appendix D8. Respondents' rating of fish size versus primary motivation for fishing.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Excellent	24	3	18
Good	29	6	24
Fair	14	4	15
Poor	5	1	2

Appendix D9. Respondents' rating of overall enjoyment versus primary motivation for fishing.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Excellent	44	3	29
Good	20	10	17
Fair	3	1	10
Poor	5	0	3

Appendix D10. Respondents' rating of fishing success versus primary target species.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Excellent	13	7	5	7	5	11
Good	21	15	13	7	5	10
Fair	13	8	3	3	5	4
Poor	8	1	0	2	2	1

Appendix D11. Respondents' rating of fish size versus primary target species.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Excellent	13	7	9	9	4	9
Good	20	15	9	5	7	11
Fair	16	8	3	3	4	4
Poor	5	1	0	1	2	2

Appendix D12. Respondents' rating of overall enjoyment versus primary target species.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Excellent	26	20	12	12	6	15
Good	17	7	8	3	8	8
Fair	7	3	1	1	1	2
Poor	4	1	0	2	2	1

Appendix D13. Respondents' rating of fishing success versus number of fishing trips taken.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Excellent	9	11	7	7	17
Good	22	13	15	15	17
Fair	18	12	2	6	7
Poor	2	10	1	1	1

Appendix D14. Respondents' rating of fish size versus number of fishing trips taken.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Excellent	9	10	11	7	17
Good	25	11	11	15	17
Fair	15	17	2	6	7
Poor	2	6	1	1	1

Appendix D15. Respondents' rating of overall enjoyment versus number of fishing trips taken.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Excellent	26	21	13	14	30
Good	17	13	11	13	6
Fair	7	6	0	1	4
Poor	4	4	1	1	2

Appendix D16. Respondents' rating of fishing success versus number of years of fishing experience.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Excellent	6	14	9	18
Good	19	15	22	18
Fair	17	6	9	11
Poor	4	1	3	6

Appendix D17. Respondents' rating of fish size versus number of years of fishing experience.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Excellent	6	13	12	20
Good	17	15	18	20
Fair	18	8	11	8
Poor	5	0	1	4

Appendix D18. Respondents' rating of overall enjoyment versus number of years of fishing experience.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Excellent	18	25	21	26
Good	12	7	18	18
Fair	11	4	2	5
Poor	5	0	1	3

Appendix D19. Respondents' opinion of minimum length limit as a means of improving sport fishing versus area of residence.

	Area of Residence	
Rating	North	South
Approve	25	72
No Opinion	15	38
Disapprove	23	33

Appendix D20. Respondents' opinion of reduction of bag limits as a means of improving sport fishing versus area of residence.

	Area of Residence	
Rating	North	South
Approve	13	47
No Opinion	21	46
Disapprove	28	48

Appendix D21. Respondents' opinion of catch and release as a means of improving sport fishing versus area of residence.

	Area of Residence	
Rating	North	South
Approve	14	49
No Opinion	21	43
Disapprove	26	50

Appendix D22. Respondents' opinion of time/area closures as a means of improving sport fishing versus area of residence.

	Area of Residence	
Rating	North	South
Approve	27	74
No Opinion	14	28
Disapprove	23	22

Appendix D23. Respondents' opinion of bait restrictions as a means of improving sport fishing versus area of residence.

	Area of Residence	
Rating	North	South
Approve	22	48
No Opinion	20	50
Disapprove	23	42

Appendix D24. Respondents' opinion of minimum length limits as a means of improving sport fishing versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Approve	48	56	44
No Opinion	32	30	26
Disapprove	37	37	16

Appendix D25. Respondents' opinion of reduction of bag limit as a means of improving sport fishing versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Approve	28	40	30
No Opinion	43	38	22
Disapprove	45	44	31

Appendix D26. Respondents' opinion of catch and release as a means of improving sport fishing versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Approve	36	37	27
No Opinion	33	34	26
Disapprove	47	50	30

Appendix D27. Respondents' opinion of time/area closures as a means of improving sport fishing versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Approve	54	62	47
No Opinion	29	22	13
Disapprove	34	40	25

Appendix D28. Respondents' opinion of bait restrictions as a means of improving sport fishing versus other fishing activities.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Approve	37	40	30
No Opinion	44	40	31
Disapprove	36	43	24

Appendix D29. Respondents' opinion of minimum length limit as a means of improving sport fishing versus other fishing activities.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Approve	46	5	18
No Opinion	19	4	21
Disapprove	15	4	22

Appendix D30. Respondents' opinion of reduction of bag limit as a means of improving sport fishing versus other fishing activities.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Approve	21	4	18
No Opinion	25	3	20
Disapprove	33	4	24

Appendix D31. Respondents' opinion of catch and release as a means of improving sport fishing versus other fishing activities.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Approve	28	6	14
No Opinion	24	4	16
Disapprove	27	2	32

Appendix D32. Respondents' opinion of time/area closures as a means of improving sport fishing versus other fishing activities.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Approve	41	7	27
No Opinion	12	4	13
Disapprove	27	2	23

Appendix D33. Respondents' opinion of bait restrictions as a means of improving sport fishing versus other fishing activities.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Approve	36	3	16
No Opinion	21	5	22
Disapprove	23	5	25

Appendix D34. Respondents' opinion of minimum length limits as a means of improving sport fishing versus other fishing activities.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Approve	27	15	8	6	9	13
No Opinion	15	6	4	3	4	7
Disapprove	14	11	8	9	4	4

Appendix D35. Respondents' opinion of reduction of bag limit as a means of improving sport fishing versus other fishing activities.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Approve	21	7	5	1	5	4
No Opinion	14	13	9	4	6	8
Disapprove	21	11	6	13	5	12

Appendix D36. Respondents' opinion of catch and release as a means of improving sport fishing versus other fishing activities.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Approve	11	10	8	4	6	12
No Opinion	20	10	5	6	4	5
Disapprove	25	12	8	8	3	8

Appendix D37. Respondents' opinion of time/area closures as a means of improving sport fishing versus other fishing activities.

	Primary Target Species					
Rating	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Approve	30	12	9	6	10	13
No Opinion	9	3	6	2	3	8
Disapprove	18	17	6	10	3	5

Appendix D38. Respondents' opinion of bait restrictions as a means of improving sport fishing versus other fishing activities.

	Primary Target Species					
Rating	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Approve	18	8	6	5	6	10
No Opinion	20	10	6	6	6	9
Disapprove	19	13	9	7	4	7

Appendix D39. Respondents' opinion of minimum length limits as a means of improving sport fishing versus other fishing activities.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Approve	34	24	16	12	11
No Opinion	20	8	6	8	11
Disapprove	12	13	5	8	18

Appendix D40. Respondents' opinion of reduction of bag limit as a means of improving sport fishing versus other fishing activities.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Approve	23	12	7	8	10
No Opinion	24	12	12	7	12
Disapprove	18	21	7	12	18

Appendix D41. Respondents' opinion of catch and release as a means of improving sport fishing versus other fishing activities.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Approve	24	13	8	6	12
No Opinion	21	18	7	6	12
Disapprove	20	15	12	14	15

Appendix D42. Respondents' opinion of time/area closures as a means of improving sport fishing versus other fishing activities.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Approve	36	16	15	13	21
No Opinion	17	9	6	4	6
Disapprove	13	20	5	12	15

Appendix D43. Respondents' opinion of bait restrictions as a means of improving sport fishing versus other fishing activities.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Approve	22	18	8	7	15
No Opinion	24	16	7	10	13
Disapprove	18	12	11	12	14

Appendix D44. Respondents' opinion of minimum length limits as a means of improving sport fishing versus other fishing activities.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Approve	24	20	22	25
No Opinion	13	12	10	12
Disapprove	15	8	11	16

Appendix D45. Respondents' opinion of reduction of bag limits as a means of improving sport fishing versus other fishing activities.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Approve	14	13	14	15
No Opinion	17	14	13	16
Disapprove	21	12	16	21

Appendix D46. Respondents' opinion of catch and release as a means of improving sport fishing versus other fishing activities.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Approve	17	8	18	16
No Opinion	19	11	12	16
Disapprove	16	18	15	21

Appendix D47. Respondents' opinion of time/area closures as a means of improving sport fishing versus other fishing activities.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Approve	26	21	23	26
No Opinion	11	7	6	12
Disapprove	15	12	17	15

Appendix D48. Respondents' opinion of bait restrictions as a means of improving sport fishing versus other fishing activities.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Approve	13	15	22	19
No Opinion	23	14	9	15
Disapprove	16	11	15	18

Appendix D49. Number of positive and negative responses to the question "should sport fishing be improved?" versus area of residence.

	Area of Residence	
Rating	North	South
Yes	21	45
No	43	100

Appendix D50. Number of positive and negative response to the question "is access adequate?" versus area of residence.

	Area of Residence	
Rating	North	South
Yes	57	123
No	6	16

Appendix D51. Number of positive and negative response to the question "is improve fishing?" versus area of residence.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Yes	37	37	19
No	78	88	65

Appendix D52. Number of positive and negative response to the question "is access adequate?" versus area of residence.

	Other Types of Fishing		
Rating	Personal Use	Subsistence	Commercial
Yes	95	110	76
No	13	14	6

Appendix D53. Number of positive and negative responses to the question "is improve fishing?" versus area of residence.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Yes	23	7	15
No	52	6	52

Appendix D54. Number of positive and negative responses to the question "is access adequate?" versus area of residence.

	Primary Motivation for Fishing		
Rating	Non-Success	Sport	Food
Yes	70	12	56
No	3	2	6

Appendix D55. Number of positive and negative responses to the question "is improve fishing?" versus area of residence.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Yes	20	12	6	3	7	9
No	34	22	15	13	10	18

Appendix D56. Number of positive and negative responses to the question "is access adequate?" versus area of residence.

Rating	Primary Target Species					
	Salmon	Northern Pike	Arctic Grayling	Inconnu	Arctic Char/ Dolly Varden	Other Species
Yes	46	29	17	13	17	25
No	5	2	3	3	1	1

Appendix D57. Number of positive and negative responses to the question "is improve fishing?" versus area of residence.

Rating	Number of Fishing Trips				
	0	1 - 4	5 - 9	10 - 14	> 14
Yes	23	12	11	9	11
No	47	32	15	19	30

Appendix D58. Number of positive and negative responses to the question "is access adequate?" versus area of residence.

	Number of Fishing Trips				
Rating	0	1 - 4	5 - 9	10 - 14	> 14
Yes	55	38	22	27	38
No	11	6	3	0	2

Appendix D59. Number of positive and negative responses to the question "is improve fishing?" versus area of residence.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Yes	18	13	12	19
No	34	25	33	34

Appendix D60. Number of positive and negative responses to the question "is access adequate?" versus area of residence.

	Number of Years of Fishing Experience			
Rating	0 - 9	10 - 19	20 - 29	> 29
Yes	42	37	40	42
No	6	2	5	7