

**A SURVEY OF
KISPIOX RIVER STEELHEAD ANGLERS
DURING THE CLASSIFIED WATERS PERIOD
OF 1997**

K.L. Morten

Skeena Fisheries Report # 115

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Skeena Fisheries Report # 115

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Executive Summary

Interviews

- ◆ Two-hundred and eighty steelhead (*Oncorhynchus mykiss*) anglers were observed by the Interview Teams on the Kispiox River and 183 anglers were approached for an interview.
- ◆ Most anglers (74 percent, 136 anglers) were interviewed in the Woods hole river section, 20 percent (37 anglers) were interviewed in the four mile river section. Fewer anglers were interviewed in the Sweetin River section or the Mitten bridge river section (3 percent, 6 anglers and 2 percent, 4 anglers, respectively).

Angler Characteristics

- ◆ Twenty-eight percent (21 anglers) of anglers interviewed were B.C. residents. Of B.C. residents interviewed, 53 percent were from the Skeena Region. Residents from other areas of B.C. represented 41 percent of B.C. resident angler interviews. Six percent (3 anglers) of B.C. residents did not have a postal code collected and therefore could not be assigned a residence within B.C.
- ◆ One percent (2 anglers) of all anglers interviewed lived in other Canadian provinces and 71 percent (129 anglers) were Non-Canadian residents.
- ◆ More B.C. residents than Non-Canadian residents were interviewed in the shoulder weeks and week 9-5 of the classified waters period. Conversely, more Non-Canadian residents than B.C. residents were interviewed in the middle weeks (excluding 9-5) of the classified waters period. No interviews were conducted in the last week of the classified waters period (10-4).
- ◆ Ninety-six percent of anglers interviewed were male, and only four percent were female. On average, males were 44.5 years old and females were 43.6 years old.
- ◆ On average, Kispiox River steelhead anglers had been angling for 12.1 years. Thirty-three percent of B.C. residents had more than ten years of steelhead angling experience whereas 50 percent (1 angler) of Canadian residents and 39 percent of Non-Canadian residents had more than ten years of steelhead angling experience.
- ◆ Fifty-one percent (89 anglers) of Kispiox River anglers interviewed were a member of at least one conservation club. Non-Canadian residents were more frequently (61 percent) a member of a conservation club than B.C. residents (29 percent). One of two Canadian residents interviewed were members of a conservation club. Of those anglers that were a member of at least one conservation club, most were members of a local country angling club (35 percent), followed by Trout Unlimited (30 percent), 18 percent were members of the B.C. Steelhead Society and a few were members of a

foreign country angling club (10 percent). No anglers interviewed were members of the B.C. Wildlife Federation.

- ◆ Of all anglers interviewed, 15 percent were guided and 85 percent were non-guided. None of the B.C. or Canadian residents were guided, whereas 21 percent (26 anglers) of the Non-Canadian residents were guided.
- ◆ Of all anglers interviewed, fly anglers were more common than gear anglers (84 and 16 percent, respectively). Among gear anglers, B.C. residents were approximately two times more frequent than Non-Canadian residents and Non-Canadian residents were four times more frequent than B.C. residents.
- ◆ Of all anglers interviewed, the majority were shore-access anglers (68 percent), whereas 32 percent gained access by drift boat.
- ◆ Overall, 93 percent of drift boat-access anglers were fly fishing and 80 percent of shore-access anglers were fly fishing. Fishing with gear was more common among shore-access anglers (21 percent) than drift boat-access anglers (7 percent).
- ◆ Three percent of anglers (5 anglers) interviewed were cited for an infraction. Of those anglers with an infraction, four anglers had one infraction and one angler had two infractions (6 percent). Of the anglers with at least one infraction, four were B.C. residents and one was a Non-Canadian resident. All anglers with one infraction were B.C. residents and the angler with two infractions was a Non-Canadian resident.
- ◆ Failure to buy a classified waters license was the most frequently cited infraction (50 percent, 3 of 6 infractions). None of the infractions cited were for illegal guiding.
- ◆ Illegal guiding was not a significant issue although two alleged cases remain under investigation. Only two of 183 anglers interviewed made any mention of illegal guiding as an issue.

Angler Perceptions of Problems and Preferences for Management Strategies

- ◆ The majority of anglers perceived no problems with the overall number of anglers, the number of boat-based anglers or the number of shore-based anglers.
- ◆ Among anglers responding to the question, eight percent (14 anglers) perceived a major problem, 28 percent (46 anglers) perceived a minor problem and 64 percent (107 anglers) perceived no problems with the overall number of anglers on the river. Six percent (10 anglers) perceived a major problem, 19 percent (31 anglers) perceived a minor problem and 75 percent (125 anglers) perceived no problems with the number of boat-based anglers on the river. Four percent (7 anglers) perceived a major problem, 22 percent (35 anglers) perceived a minor problem and 74 percent (124 anglers) perceived no problems with the number of shore-based anglers on the river

- ◆ B.C. residents perceived more major problems with specific concerns asked in the survey (the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers), whereas Non-Canadian residents suggested more other concerns than B.C. residents. In 1997, B.C. residents were concerned with a number of issues (general regulations, gear restrictions and angler numbers) while the majority (80 percent) of Non-Canadian resident concerns regarded the licensing system or fees.
- ◆ The perceptions of problems did not vary among guided status, access method or angling method categories, indicating that residence categories in a limited way, may have shared some of the factors such as angler experience and angling preferences that affected the angler's perception of problems on the river.

Angler Catch and Effort

- ◆ For all anglers interviewed, a total of 661 hours were spent angling, which averaged 3.6 hours of fishing per angler at the time of the interview. Seventy-nine (79) steelhead were caught and released. The observed catch rate for all angler interviews was 0.122 steelhead/hour, or assuming a rod day length of eight hours, 0.98 steelhead/rod day. A total of 98 anglers were observed angling but were not interviewed.
- ◆ Steelhead anglers caught nine other species of fish: one sockeye salmon (*Oncorhynchus nerka*), two coho salmon (*O. kisutch*), one chum salmon (*O. keta*), four pink salmon (*O. gorbuscha*), twenty rainbow trout (*O. mykiss*), six cutthroat trout (*O. clarki*), twenty-seven Dolly Varden/bull trout (*Salvelinus malma/S. confluentus*), two whitefish (*Prosopium* sp.) and two suckers (*Catostomus* sp.).

Abstract

Recreational angler's demographics, angling characteristics, angling methods and steelhead (*Oncorhynchus mykiss*) catch rates were examined with an on-site roving survey of Kispiox River anglers during the classified waters period of September and October, 1997. In addition, anglers were asked about their perceptions of problems with the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers and any other concerns they had on the Kispiox River.

The Kispiox River has traditionally been dominated by non-resident anglers. In 1997, 28 percent of angler interviews were B.C. residents, one percent were Canadian residents (2 anglers) and 71 percent were Non-Canadian residents. Of all anglers, 15 percent were guided and 85 percent were non-guided. None of the B.C. or Canadian residents interviewed were guided anglers, whereas 21 percent of Non-Canadian residents were guided. Fly anglers (84 percent) were more common than gear anglers (16 percent). The majority of anglers interviewed were shore-access anglers (68 percent), while 32 percent gained access from a drift boat.

B.C. residents perceived more major problems with specific concerns asked in the survey (the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers), whereas Non-Canadian residents suggested more other concerns than B.C. residents. In 1997, B.C. residents were concerned with a number issues (general regulations, gear restrictions and angler numbers) while the majority (80 percent) of Non-Canadian resident concerns regarded the licensing system or fees. Anglers within the guided status, access method or angling method categories were similar in their perception of problems with the overall number of anglers, the number of boat-based anglers or the number of shore-based anglers.

For all anglers interviewed, a total of 661 hours were spent angling, which averaged 3.6 hours of fishing per angler at the time of the interview. Seventy-nine (79) steelhead were caught and released. The observed catch rate for all angler interviews was 0.122 steelhead/hour, or assuming a rod day length of eight hours, 0.98 steelhead/rod day. Steelhead anglers caught nine other species of fish: one sockeye salmon (*O. nerka*), two coho salmon (*O. kisutch*), one chum salmon (*O. keta*), four pink salmon (*O. gorbuscha*), twenty rainbow trout (*O. mykiss*), six cutthroat trout (*O. clarki*), twenty-seven Dolly Varden/bull trout (*Salvelinus malma/S. confluentus*), two whitefish (*Prosopium* sp.) and two suckers (*Catostomus* sp.).

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1.0.0 Introduction

The Kispiox River of the Skeena Region is well known for providing a high quality steelhead (*Oncorhynchus mykiss*) recreational fishery. In 1990, the province of B.C. implemented a classified waters system to protect such high quality angling experiences on rivers throughout B.C. The purpose of the classified waters system was to provide a diversity of angling opportunities, maintain a high quality angling experience and to improve regulation of the angling guide industry (ARA Consulting Group 1991). Rivers or sections of rivers were defined as classified waters during critical time periods which usually happened during preferred steelhead angling seasons.

The freshwater recreational fishery in B.C. was estimated to grow in value with a compound annual growth rate of 2.0 percent per year between 1994 and 1999 (Price Waterhouse and ARA Consulting Group Inc. 1996). Local anglers voiced concerns with respect to crowding caused by the growth on the classified waters in the Skeena Region. In response to these concerns, the Skeena Region Fisheries Branch of the Ministry of Environment, Lands and Parks has been reviewing policy and guidelines for angling licenses and the angling use plan on the Kispiox River.

To date, public information was solicited through open houses, public meetings and written submissions on draft angling use plans. The Steelhead Harvest Analysis (SHA) database was used to analyze angler effort and demographics relevant to the angling use plans. Limitations exist with respect to all these forms of data collection: open houses and public meetings often only solicit input from vocal individuals who may represent special interest groups. Also, most of the anglers who fish the Kispiox River do not live in the area where open houses and public meetings are held and therefore do not have the same opportunity to express their views. The SHA database was established by mailing questionnaires to a sample of anglers who purchased a steelhead conservation stamp. However, in recent years, some anglers on classified waters may not have been sampled because they could avoid purchasing a steelhead stamp due to a loophole in the fishing regulations. Also, there is some concern that the SHA results were disproportionately representative of those anglers that actually caught a steelhead. Therefore, it was unknown if the SHA sample was representative of the angling population. The significance, if any, of these positive and negative biases in the SHA database is under review.

Meanwhile, persistent complaints of illegal guiding activities and license non-compliance prompted the province of B.C. to hire River Guardians to accompany Conservation Officers in enforcement duties on the Kispiox River during the classified water period. The addition of the River Guardians provided an opportunity to conduct a roving survey with on-site interviews of anglers. The survey collected information about steelhead anglers' demographics, perceptions of crowding and preferred fisheries management strategies.

2.0.0 Study Area

The Kispiox River flows for about 140 km into the Skeena River at the village of Kispiox, 16 km north of Hazelton B.C. It drains a total area of 2,086 km² and is highly responsive to flood events because it has a low amount of lake influence. Extensive roads from forest harvesting has resulted in significant runoff and siltation during high precipitation events (Anonymous 1996). The frequency of these events can range from none to four of five per year season, seldom lasting less than three or four days or more than 10 to 12 days. The Kispiox River steelhead are known for their world record size.

The Kispiox River is accessible by road from both sides of the river for most of its length and the valley is populated well developed agriculturally. Power boats are prohibited on the river but drift boats are permitted and commonly used by anglers and non-angling recreationists. Over 50 km of the river can be accessed by anglers but most are concentrated within the lower 30 km upstream of the Skeena River (Anonymous 1997b).

Prior to 1997/98 the Kispiox River was one of about 40 class two, classified rivers in the province (Anonymous 1997b). During the classified waters period, angling guides are limited as is the number of days they can guide. Three angling guides are licensed on the river and can provide 393 rod days of guided angling. The Kispiox was classified between September 1 and October 31. In the spring of 1997, the Fisheries Branch eliminated the class 1 and class 2 classified waters designations and referred to them all as classified waters.

Angling restrictions in the Kispiox River are published in the B.C. Freshwater Fishing Regulations Synopsis (Anonymous 1997a). In short, no fishing was permitted from January 1 to June 15. From June 16 through December 31 the river had a bait ban and there was no angling from boats. No power boats were permitted on the Kispiox River. There was a single hook only restriction and all steelhead must be released. In the 1997 classified waters period, non-resident anglers were required to purchase a classified waters license at \$10.00 per day and B.C. residents were required to purchase a classified waters license at \$10.00 per year. At the time of the survey, the Fisheries Branch had proposed to increase the classified waters license from \$10.00 per day to \$40.00 per day for non-resident anglers effective April 1, 1998. Since then, the proposed license fee increase has been canceled.

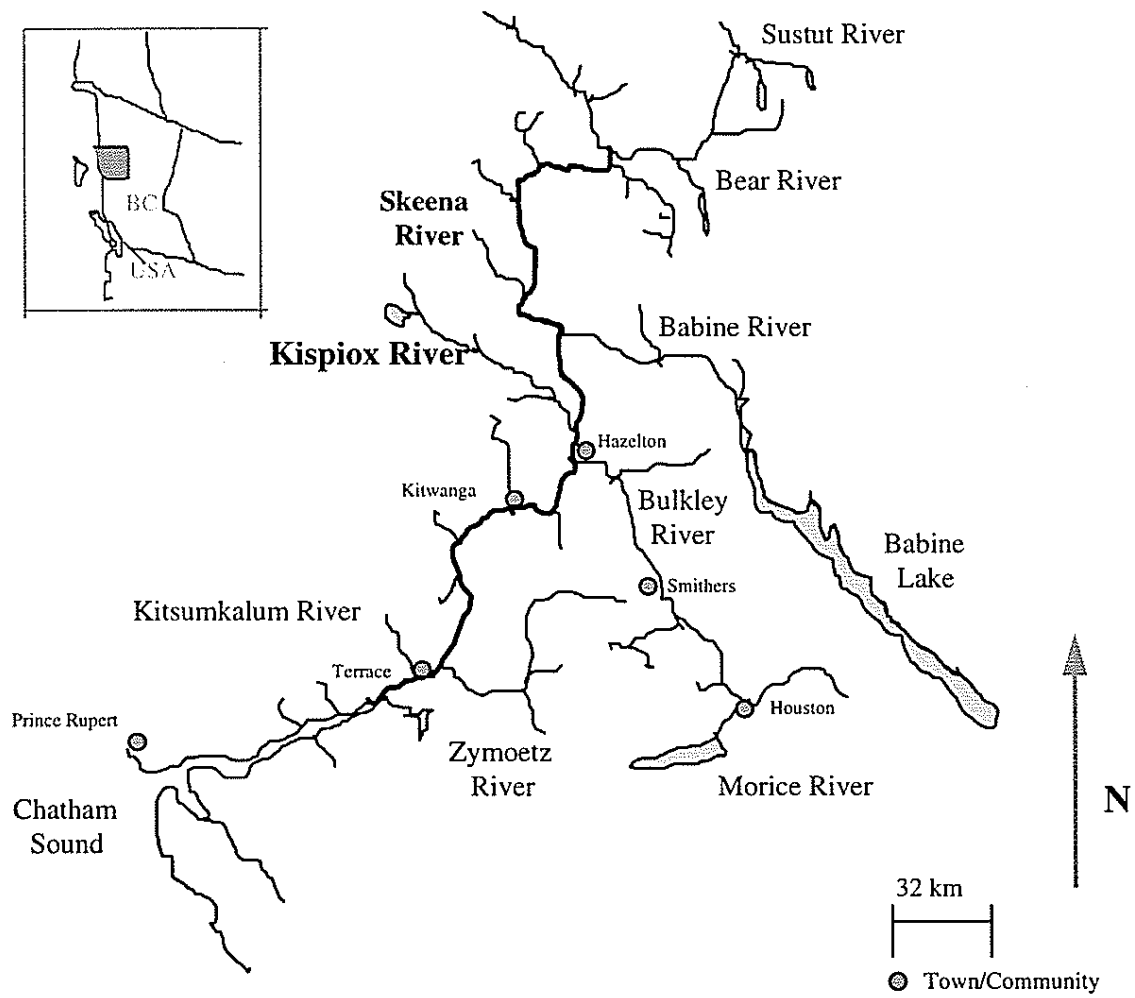


Figure 1. The Skeena River watershed.

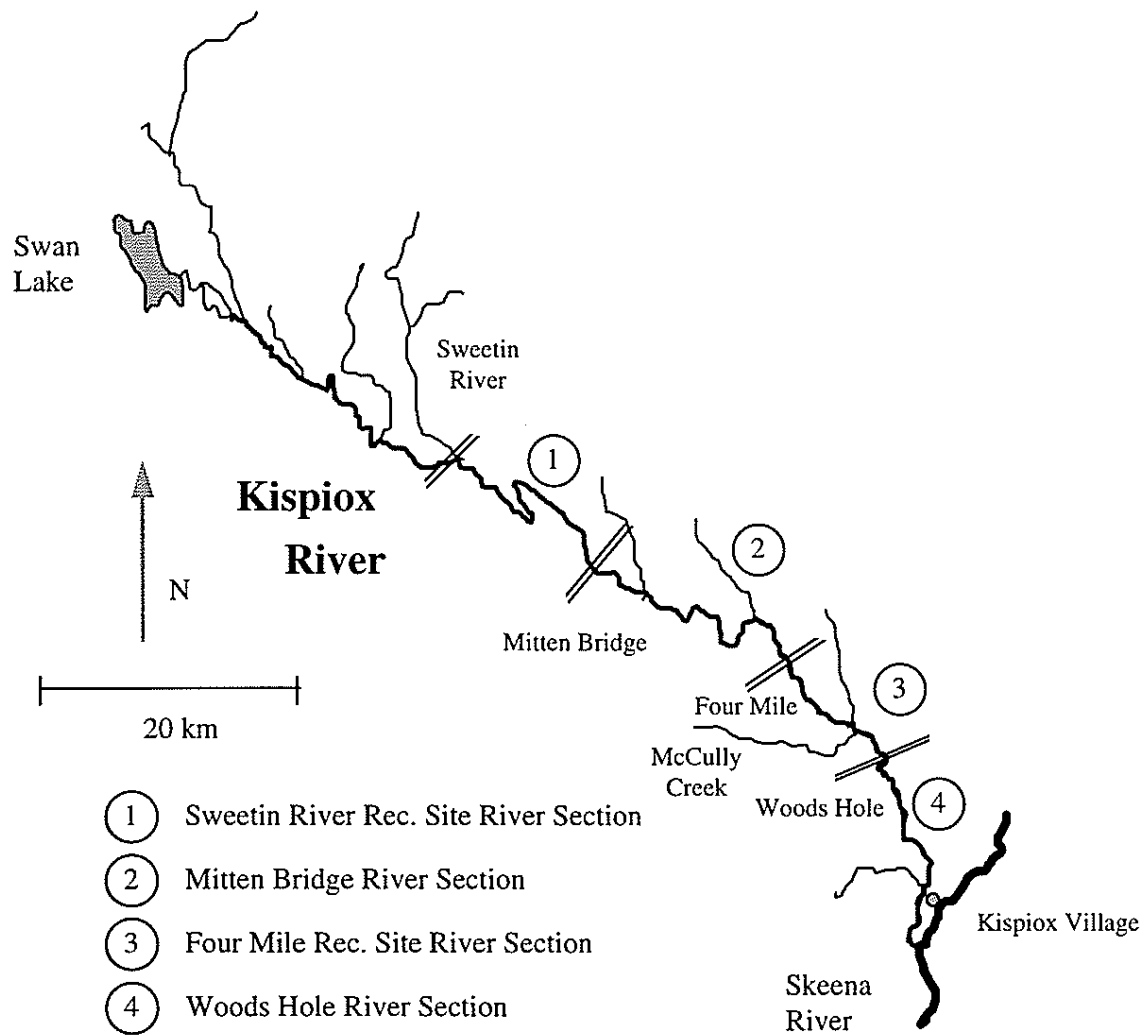


Figure 2. The Kispiox River sections used for analysis.

3.0.0 Methods

3.1.0 Interviews Conducted

3.1.1 Field Interview Methods

The province of B.C. hired River Guardians to accompany Conservation Officers in enforcement duties on the Kispiox River during the classified waters period in 1997. 'Deputy Conservation Officer' status was obtained for each River Guardian, which allowed them to address license violations under the *Wildlife Act*. An agreement between the Conservation Officer Services and the Fisheries Branch of the B.C. Ministry of Environment, Lands and Parks enabled the Fisheries Branch to collect information from steelhead anglers regarding their perceptions of problems on the river. The short interview was designed by the Fisheries Branch, Cascadia Natural Resource Consulting and the Conservation Officer Service.

A roving design was used to conduct on-site interviews. The interviewing was conducted in small teams of River Guardians and/or Conservation Officers (herein Interview Team). Drift boat-access anglers and shore-access anglers were asked to complete a short interview while angling. The Interview Team completed two forms while on the river: the angler interview form and the angler count form (Appendix 1).

The Interview Team collected information on the residence of the anglers, conservation club membership, years steelhead angling, hours angling that day, catch of all species, perceptions of problems with the overall number of anglers, the number of boat-based anglers, the number of shore-based anglers and any other concerns the angler had on the river and suggested management strategies around those issues. The Interview Team also recorded information about weather, the angler's access method (drift boat or shore), angling method (fly or gear), gender and other data collected from the angler's license, such as name, birthdate, residence, license type, if guided or non-guided, the number of classified days purchased and used and the number and type of angling infractions that were cited (if any). All data was recorded on the angler interview form.

In addition, the Interview Team completed an angler count form every time they were on the river. The date, time at start of interviewing stint, time at finish of interviewing stint, location at start, location at finish, total anglers interviewed, total anglers observed, the initials of the Interview Team and any additional comments were recorded on the angler count form.

Interviews were conducted in the classified waters period from September 1 through October 31, 1997. Because the primary duty of the River Guardians and Conservation Officers was to provide an enforcement presence, a strict sampling schedule could not be used and therefore, a convenience sample of anglers was collected. The Interview Team used drift boat and truck patrol to interview as many anglers as possible. The angler was

approached and asked for their cooperation to complete the interview. The Interview Team proceeded with the interview and then asked to see the angler's license, and if needed, cited them for any infractions. If the anglers did not agree to the interview, had already completed the interview or there was a language barrier, the Interview Team only recorded data on the weather, access method, angling method, gender, hours fished, catch and license details.

3.1.2 Relevant Definitions

B.C. Resident: The anglers' permanent residence was within B.C. The angler must have been present in B.C. for at least six months during the 12 months immediately prior to purchasing an angling license (Anonymous 1997a).

Canadian Resident: The anglers' permanent residence was outside of B.C. but within Canada. The angler resided outside of B.C. for more than six months during the 12 months prior to purchasing an angling license (Anonymous 1997a).

Non-Canadian Resident: The anglers' permanent residence was outside of Canada. The angler resided outside of Canada for more than six months during the 12 months prior to purchasing an angling license (Anonymous 1997a).

Non-Resident Angler: The anglers' permanent residence was outside of B.C. Non-Resident anglers were not specific to the Non-Canadian or Canadian residence status. The non-resident angler status was used in many of the statistical analyses to meet sample size requirements.

Rod Day: Eight hours of angler effort constituted one rod day.

3.1.3 Analysis Methods

Several sources were used to report the number of anglers observed and where and when the Interview Team(s) were on the river. The angler count data forms were used to summarize the total anglers observed and the approximate time the Interview Team(s) spent interviewing each week (see Appendix 5). The number of angler interview forms completed was used to summarize the number of anglers interviewed by week (Table 1) and river section (Table 2; Figure 2).

Table 1. The specific dates included in the weeks used for analysis.

Week	Dates
9-1	Sept. 1 - Sept. 6
9-2	Sept. 7 - Sept. 13
9-3	Sept. 14 - Sept. 20
9-4	Sept. 21 - Sept. 27
9-5	Sept. 28 - Oct. 4
10-1	Oct. 5 - Oct. 11
10-2	Oct. 12 - Oct. 18
10-3	Oct. 19 - Oct. 25
10-4	Oct. 26 - Nov. 1 ¹

1. No interviews were conducted in week 10-4.

The river sections used for analysis were similar to those used in the 1996 creel survey (Tallman 1997). The area between Kispiox Village and the Sweetin River recreational site was stratified into four zones, the Sweetin River section covered 22 kilometers between the

Sweetin campsite and the Mitten bridge. The Mitten bridge river section covered 20 kilometers from Mitten bridge to the four mile recreational site and the four mile river section included 18 kilometers between the four mile recreational site (also called the upper Kispiox recreation site) and Woods hole. The Woods hole river section was the area between Woods hole and Kispiox village where the Kispiox River flows into the Skeena River.

Table 2. The Kispiox River sections used for analysis.

	River Section	Label ¹
1	Sweetin River Rec. Site - u/s Mitten Bridge	Sweetin River section
2	Mitten Bridge - u/s Four Mile Rec. Site ²	Mitten Bridge river section
3	Upper Kispiox Rec. Site-u/s Woods Hole	Four Mile river section
4	Woods Hole-Mouth	Woods hole river section

1. The label is the phrase that refers to the river section in the remaining portion of the report.

2. The four mile recreational site is also know as the Upper Kispiox River recreational site.

For Kispiox River angler interviews, nonresponse bias was checked by testing differences of those anglers that responded to all questions with those that refused to complete the interview, or could not complete the interview because of a language barrier. Several comparisons were made in order to ensure that responses provided by anglers who completed the interview were not significantly different from those not completing the interview (residence, guided status, age, hours fished). It was possible to check for a nonresponse bias because Interview Teams collected catch and data from the angling license even if the angler did not agree to the interview. Residence and guided status were compared with a Pearson chi-square test and differences in age or hours fished were determined with a Mann Whitney U test. Canadian and Non-Canadian residents were combined to form one group of non-residents to increase sample size for statistical analyses because only two Canadian residents were interviewed.

3.2.0 Angler Characteristics

3.2.1 Angler Demographics

Anglers were approached once for an interview, with the exception of one Non-Canadian resident angler who was approached twice. The percentage and number of anglers interviewed was summarized by residence categories. Angler residency was determined from the angling license. For B.C. residents, the postal code was used to determine if the angler was from the Skeena Region or remaining areas in the province. In addition, the date of birth was collected from the angler license. Age categories were summarized by male and female anglers.

Anglers were asked, "How many years have you been steelhead fishing?" The years of steelhead angling experience was summarized by residence categories. The mean years steelhead angling by B.C. residents, Canadian residents and Non-Canadian residents were compared with a one-way ANOVA. A Levene test for homogeneity of variances between years was performed to test if the assumption of equal variances were met. Because the one-way ANOVA is so robust, it still operates well even when there is heterogeneity among variances (Zar 1984). Consequently, a one-way ANOVA was used to compare the years

steelhead fishing between resident categories. A five percent ($P \leq 0.05$) level of significance was used to analyze test results. Additional Bonferonni and Tukey HSD *post hoc* tests determined which residence categories were significantly different from each other.

Anglers were asked, “*Are you a member of a conservation club or organization? If YES, what organization?*” Responses were summarized by the percentage of anglers belonging to at least one type of conservation club. A chi-square test of homogeneity was used to compare the frequency of membership in a conservation club with residence categories and guided status. Canadian and Non-Canadian residents were combined to form one group of non-residents to increase sample size for statistical analyses because only two Canadian residents were interviewed. For 2x2 contingency tables (one degree of freedom), a Yates correction for continuity was used when necessary (Zar 1984).

3.2.2 Angling Methods and Licenses

The Interview Team recorded guided status (non-guided or guided) from the angler’s license which was summarized by angler residence. The angling method (fly or gear) and access method (drift boat or shore anglers) were recorded by the Interview Team and summarized by angler residence and guided status. In addition, angling method was summarized by access method. Canadian and Non-Canadian residents were combined to form one group of non-residents to increase sample size for statistical analyses because only two Canadian residents were interviewed. A chi-square test of homogeneity was used to compare frequencies for all summaries and a Yates correction for continuity was used when necessary (Zar 1984).

The Interview Team recorded the angler’s license class and the number of classified days purchased and used from the angler’s license. The license class (one day, eight day and annual) and the number of classified days purchased and used were summarized by residence category and guided status.

Anglers were not required to purchase all the classified waters days at one time, nor were they required to carry all the used classified waters licenses they purchased with them. Therefore, the Interview Team recorded the number of classified days purchased by the angler just prior to the day the angler was interviewed. When an angler was carrying previous classified waters licenses, the Interview Team also recorded the number of classified waters days purchased from the additional licenses. It was not possible to determine the total number of days fished by individual non-resident anglers over the duration of their visit.

3.2.3 Angler Compliance with Regulations

The number and type of infractions cited by the Interview Teams were recorded on the angler interview form. The frequency of infractions were summarized by angler residence, river section and week. The type of infraction was summarized by angler residence and guided status.

3.3.0 Angler's Perceptions of Problems and Preferences for Management Strategies

The Interview Team asked anglers;

"On the Kispiox River to what degree do you perceive steelhead angler management problems about each of the following concerns?"

Do you perceive the;

- | | | | |
|--|----------|---------------|---------------|
| 1. Number of boat based anglers to be; | NO PROB. | A MINOR PROB. | A MAJOR PROB. |
| 2. Number of shore-based anglers to be | NO PROB. | A MINOR PROB. | A MAJOR PROB. |
| 3. Overall number of anglers to be; | NO PROB. | A MINOR PROB. | A MAJOR PROB. |
| 4. Other Concerns _____; | NO PROB. | A MINOR PROB. | A MAJOR PROB. |

If the angler perceived a problem about any of the above concerns they were asked to suggest a management strategy to deal with the problem. Anglers were also asked about any other concerns they perceived on the river and management strategies to deal with those concerns.

The major, minor and no problem categories (for the number of boat-based, the number of shore-based and the overall number of anglers) were summarized by residence categories, guided status, access method and angling method. For small samples, the major and minor problems were grouped and compared to no problems within each of the categories using a chi-square test of homogeneity and when necessary, a Yates correction for continuity (Zar 1984). Canadian and Non-Canadian residents were also combined to form one group of non-residents to increase sample size for statistical analyses because only two Canadian residents were interviewed. The management strategies suggested by anglers were summarized for all three concerns.

Other concerns were summarized in several ways because there was a wide variety of responses. Each response was categorized into one of 23 'response groups' and then groups were placed into one of five broader categories: regulation issues, fee issues, angler number issues and guiding issues (see Appendix 4 for details). The response within each broader category was summarized by the anglers' residence categories and guided status. The suggested management strategy was listed for each of these concerns. Management strategies were not subdivided by residence or guided status because of small samples.

The overall perceptions of problems on the river was assessed by summing the percentage of major and minor problems for all three concerns (the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers). The frequency of major and minor problems was summarized for each residence category and guided status. Canadian and Non-Canadian residents were combined to form one group of non-residents to increase sample size for statistical analyses because only two Canadian residents were interviewed. A Mann-Whitney U test was used to compare difference in the number of major and minor problems between B.C. residents and non-residents and between guided and non-guided anglers. The overall number of major and minor problems were also summarized by week and river section.

3.4.0 Anglers Catch and Effort

The Interview Team asked anglers, “How many hours have you fished today?” and “What type of fish have you landed today? How many did you keep or release?” The hours angling, steelhead landed, Dolly Varden/bull trout (*Salvelinus malma/S. confluentus*) kept and released and other species kept and released were recorded on the angler interview form. Typically, anglers were not interviewed at the end of the angling day (trip) and therefore incomplete angler catch and effort data were collected. Thus, the mean of the ratios was used instead of the ratio of the means since anglers were sampled while they were still fishing, implying probabilities were proportional to their trip length (Pollock *et al.* 1994; Jones *et al.* 1995; Pollock *et al.* 1997). Also, short incomplete trips (< 0.5 hr.) were excluded to prevent the variance from being influenced by extreme catch rates that may occur during short trips (Pollock *et al.* 1994; Hoenig *et al.* 1997). Catch rate (\hat{R}) was estimated by:

Equation 1

$$\hat{R} = \frac{\sum_{i=1}^n c_i / L_i}{n}$$

where \hat{R} = catch rate of the sample, n = the number of sampling units (interviews), L_i = the length of the fishing trip at the time of the interview and c_i = the catch for the i th sampling unit (angler interview).

For steelhead, catch rate, steelhead caught and effort (in hours) were summarized by week, river section, angler residence, guided status, access method and angling method. For all other species, fish caught, catch rate (in hours) and the fish per rod day were summarized. Fish per rod day was the catch rate multiplied by eight hours of effort, since eight hours was representative of the typical rod day during the classified waters period (R.S. Hooton personal communication).

4.0.0 Results

4.1.0 Interviews

Two-hundred and eighty anglers were observed by the Interview Team on the Kispiox River (Table 3). One-hundred and eighty-three anglers were approached for an interview and one angler refused to complete the interview. The remaining 182 anglers at least partially completed the interview. Of those, three anglers (two percent) did not know enough English to complete all of the questions. One Non-Canadian resident was interviewed twice.

Overall, the Interview Team approached about 65 percent of anglers observed (Table 3). Thirty percent of interviews were completed on weekend days (Saturday and Sunday) and 70 percent were completed on week days. Seventy-two percent of all interviews were conducted in September, the remaining were conducted in October. Less time was spent interviewing in October because of poor water conditions. Weeks 9-5, 10-2, 10-3 and 10-4 were documented as having several days when the river was 'out' or turbid. No interviews were conducted in the last week of the classified period because of turbid water conditions.

Table 3. The number of anglers observed, the percentage of observed anglers interviewed and the total anglers interviewed on the weekday or weekend within each week.

Week	Approximate Time on River ³	Anglers Observed	Percentage Interviewed	Percentage Interviews Initiated		
				Total (n)	Weekday (n)	Weekend (n)
9-1	11.3 hr	20 ¹	100.0 ¹	10.9 (20)	60.0 (12)	40.0 (8)
9-2	15.0 hr	60	75.0	24.6 (45)	24.6 (45)	20.0 (9)
9-3	19.5 hr	60	53.0	18.6 (34)	18.6 (34)	14.7 (5)
9-4	18.3 hr	60	56.9	18.0 (33)	18.0 (33)	42.4 (14)
9-5 ²	5.5 hr	13	69.2	4.9 (9)	4.9 (9)	100.0 (9)
10-1	14.0 hr	37	56.8	11.5 (21)	11.5 (21)	47.6 (10)
10-2 ²	6.5 hr	15	53.3	4.4 (8)	4.4 (8)	0.0 (0)
10-3 ²	21.5 hr.	20	65.0	7.1 (13)	7.1 (13)	0.0 (0)
10-4 ²	0.0 hr	0	0.0	0.0 (0)	0.0 (0)	0.0 (0)
Total	111.7 hr	285	65.4	100 (183)	69.9 (128)	30.1 (55)

1. Week 9-1 anglers observed was not complete, therefore the anglers interviewed was used for the anglers observed.

2. Each week had at least one day when the water was recorded as turbid or the river was 'out'.

3. See appendix 5.0 for details of the calculation of time spent interviewing.

In weeks 9-2, 10-3 and 9-5 the Interview Team contacted more than 60 percent of anglers observed for interviews (Table 3, Figure 3). In weeks 9-3, 9-4, 10-1 and 10-2 the Interview Team interviewed more than 50 percent of anglers observed. The number of anglers observed was positively correlated with the number of anglers interviewed in each week and indicated good temporal representation of anglers observed (Pearson Correlation $R = 0.961$, $P \leq 0.001$). A small number of anglers were observed and interviewed in weeks 9-5 and 10-2 because the river was 'out' and poor fishing conditions existed. Generally, poor water conditions were prevalent in October and thus, few anglers were observed and interviewed in weeks 10-1, 10-2, 10-3 and 10-4.

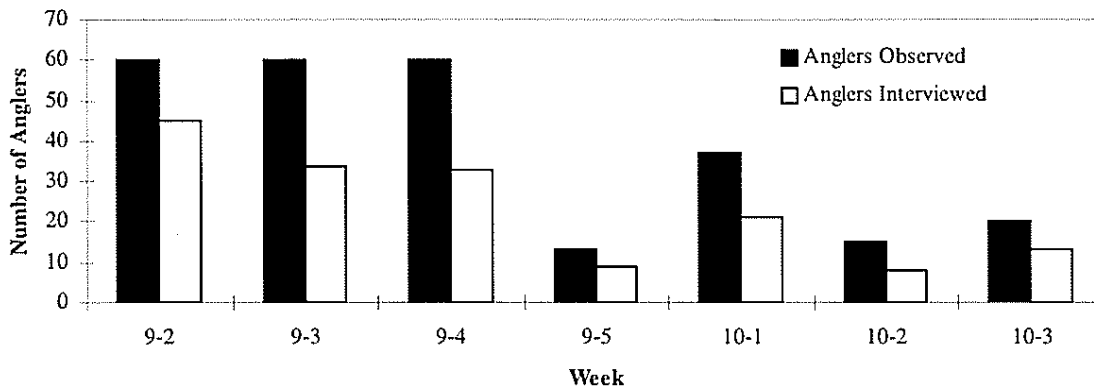


Figure 3. The number of anglers observed and interviewed within each week.

The spatial distribution of interviewed anglers was not equal throughout the Kispiox River (Table 4). Most anglers (74 percent) were interviewed in the Woods hole river section and fewer (20 percent) were interviewed in the four mile river section. Fewer anglers were interviewed in the Sweetin River section or the Mitten bridge river section (3 percent, 6 anglers and 2 percent, 4 anglers respectively). The sampling effort was proportional to the perceived distribution of fishing effort.

Table 4. The percentage and number (n) of interviews initiated within each river section.

	River Section (Label)	Percentage (n) of Interviews Initiated ¹
1	Sweetin River	3.3 (6)
2	Mitten Bridge	2.2 (4)
3	Four Mile	20.2 (37)
4	Woods Hole	74.3 (136)

A non-response bias check was completed for those anglers that only partially completed the on-site interview. Respondents and non-respondents were similar in the number of hours fished (Mann Whitney U = 137, df=1, $P \leq 0.152$) and angler age (Mann Whitney U = 331, df=1, $P \leq 0.849$). Sample sizes were too small to statistically test nonresponse error in guided status or residence categories. Although all non-respondents were non-guided, Non-Canadian residents. There were more Non-Canadian residents that did not complete the whole survey (because they could not speak English) than B.C. residents or Canadian residents.

4.2.0 Angler Characteristics

4.2.1 Angler Demographics

Twenty-eight percent (51 anglers) of all anglers interviewed were B.C. residents (Table 5). Of all B.C. residents interviewed, 53 percent (27 anglers) were from the Skeena Region. Residents from other areas of B.C. represented 41 percent of all B.C. resident angler interviews. Six percent (3 anglers) of B.C. residents did not have a postal code collected and therefore could not be assigned a residence within B.C. One percent (2 anglers) of all

anglers interviewed lived in other Canadian provinces and 71 percent (129 anglers) were Non-Canadian residents (Table 5).

Table 5. The percentage of Kispiox River anglers interviewed within each residence category.

Anglers Residence ¹	Percentage of Angler Interviews Initiated (n)
B.C. Resident Total	28.0 (51)
Skeena Region	52.9 (27)
Other areas of the Province	41.2 (21)
Unknown (postal code not collected)	5.9 (3)
Canadian Resident	1.1 (2)
Non-Cdn. Resident	70.9 (129)

1. One angler could not be assigned to a residence category.

More B.C. residents than Non-Canadian residents were interviewed in the week 9-1, 9-5 and 10-3 in the classified waters period (Figure 4). Conversely, more Non-Canadian residents were interviewed than B.C. residents in weeks 9-2 to 9-4, 10-1 and 10-2 of the classified waters period (Figure 4). Canadian residents were interviewed only in weeks 9-1 and 10-2. Few anglers were interviewed in weeks 9-5 and 10-2 because the river was 'out' and poor angling conditions existed.

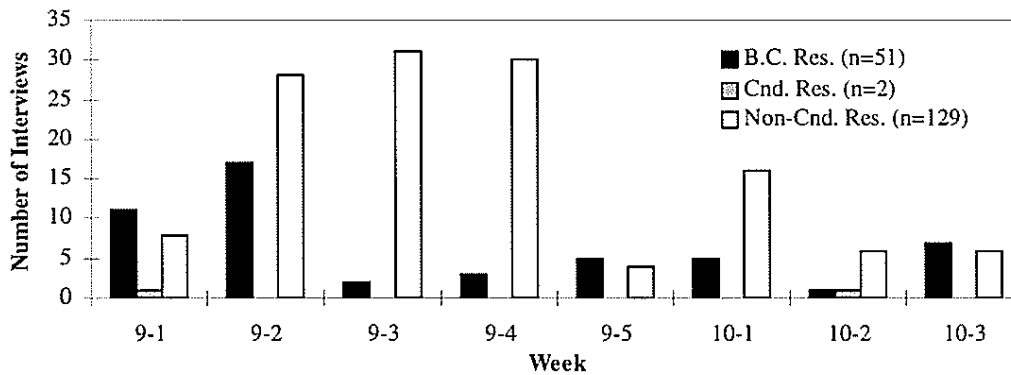


Figure 4. The number of B.C. residents, Canadian residents and Non-Canadian residents interviewed within each week.

Fewer B.C. residents (25 percent, 34 anglers) were interviewed than Non-Canadian residents (74 percent, 99 anglers) in the lower river sections on the river (four mile and Woods hole river sections; Figure 5). All anglers interviewed in the upper river section (Sweetin River section) were B.C. residents (100 percent, 6 anglers). Equal numbers of B.C. resident and Non-Canadian resident anglers were interviewed in the Mitten bridge river section. Canadian anglers were interviewed only the Woods hole river section.

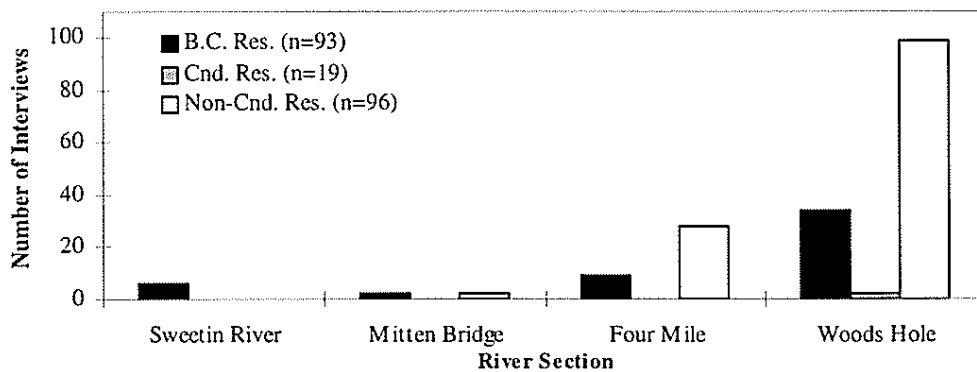


Figure 5. The number of B.C. residents, Canadian and Non-Canadian residents interviewed within each river section.

Ninety-six percent of anglers were male (172 anglers) and only four percent (7 anglers) were female (Table 6). On average, males were 45 years old and females were 44 years old.

Table 6. The percentage of male and female anglers within each age category and the mean age of male and female anglers interviewed.

Age Categories	Percentage of Male Anglers (n)	Percentage of Female Anglers (n)
under 16	< 1.0 (1)	0.0 (0)
17-24	2.9 (5)	14.3 (1)
25-34	25.6 (44)	0.0 (0)
35-44	21.5 (37)	28.6 (2)
45-54	23.3 (40)	0.0 (0)
55-64	19.2 (33)	42.9 (3)
65+	7.0 (12)	0.0 (0)
Total	96.1 (172)	3.9 (7)
Mean Age	44.5	43.6

On average, Kispiox River steelhead anglers had been angling for 12.1 years (Table 7). Thirty-three percent of B.C. residents had more than ten years of steelhead angling experience, whereas 50 percent (1 angler) of Canadian residents and 39 percent of Non-Canadian residents had more than ten years of steelhead angling experience. Consequently, the years of steelhead angling experience differed significantly between B.C. residents, Canadian residents and Non-Canadian residents (ANOVA $F = 1349.2$, $df = 2$, $P \leq 0.020$). This result indicated that at least one of the residence categories (and not necessarily all of the residence categories) was different in mean years angling experience from another residence category. Further *post hoc* tests (Bonferonni and Tukey HSD) suggested Non-Canadian residents had more years of steelhead angling experience than B.C. residents (Tukey HSD = 5.62, $P \leq 0.012$). No differences in years steelhead angling experience were found between B.C. residents and Canadian residents (Tukey HSD = 11.32, $P \leq 0.499$) or between Canadian residents and Non-Canadian residents (Tukey HSD = 5.46, $P \leq 0.826$).

Table 7. The percentage of years steelhead angling experience within each residence category.

Residence	Percentage of Anglers in Years Angling Experience Categories (n)						Mean* (total n)
	1	2-5	6-10	11-15	16-20	21+	
B.C. Resident	9.8 (5)	31.4 (16)	25.5 (13)	11.8 (6)	7.8 (4)	13.7 (7)	11.8 (51)
Canadian Resident	50.0 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	50.0 (1)	13.0 (2)
Non-Cdn. Resident	21.8 (26)	25.2 (30)	12.6 (15)	7.4 (10)	9.2 (11)	22.7 (27)	12.2 (119)
Total	18.6 (32)	26.7 (46)	16.3 (28)	9.3 (16)	8.7 (15)	620.3 (35)	12.1 (172)

*SE of the mean for B.C. resident, Canadian resident and Non-Cdn. resident and total were 1.66, 12.00, 1.20 and 0.97, respectively.

Fifty-one percent of Kispiox River anglers (89 anglers) were members of a conservation club. Of those, 86 percent (77 anglers) were members of at least one club, 8.5 percent (7 anglers) were members of two clubs and 5.3 percent (5 anglers) were members of three or more clubs. Twenty-nine percent of B.C. residents (15 anglers), 50 percent (1 anglers) of Canadian residents and 61 percent of Non-Canadian residents (72 anglers) were members of at least one conservation club. More non-residents (Canadian and Non-Canadian grouped together because low sample sizes) were members of a conservation club than B.C. residents (chi-square $\chi^2 = 12.52$, $df=1$, $P < 0.0005$). Eighty-nine percent of guided anglers (23 anglers) were members of a conservation club while 45 percent of non-guided anglers (64 anglers) were members of a conservation club. More guided anglers interviewed were members of a conservation club than non-guided anglers (chi-square $\chi^2 = 15.12$, $df=1$, $P < 0.0005$).

Of those anglers that belonged to least one conservation club, most were members of a local country angling club (35 percent), followed by Trout Unlimited (30 percent), the B.C. Steelhead Society (18 percent) and a few were members of a foreign country angling club (10 percent; Table 8). No anglers interviewed were members of the B.C. Wildlife Federation.

Table 8. Of the five most frequently mentioned conservation clubs, the percentage of all anglers that were a member of at least one conservation club and the percentage of all anglers that were members of all anglers that were interviewed.

Conservation Club ¹	Percentage of Anglers that were a member of at least one conservation club (n)	Percentage of Anglers that answered the question(n)
Other angling club (local)	35.2 (31)	34.8 (31)
Trout Unlimited	29.5 (26)	29.2 (26)
Steelhead Society	18.2 (16)	18.0 (16)
Federation of Fly Fishers	13.6 (12)	13.5 (12)
Foreign Country Fishing Club	10.2 (9)	10.1 (9)

1. The complete list of conservation clubs mention was listed in appendix 2.0.

4.2.2 Angling Methods and Licenses

Of all anglers interviewed, 15 percent (26 anglers) were guided and 85 percent (148 anglers) were non-guided. None of the B.C. or Canadian residents were guide, whereas 21 percent (26 anglers) of the Non-Canadian residents were guided (Table 9). Non-residents

were more likely to be guided anglers than B.C. residents (chi-square $\chi^2 = 10.4$, $df=1$, $P \leq 0.001$). Fifteen percent of anglers interviewed in the first four weeks of the classified waters period were guided anglers and similarly, 16 percent of anglers interviewed in the last four weeks of the classified waters period were guided anglers. All guided anglers were interviewed in the Woods hole (73 percent, 19 anglers) and four mile (27 percent, 7 anglers) river sections.

Table 9. The percentage of guided and non-guided anglers within each residence category.

	Percentage of Anglers	
	Guided (n)	Non-Guided (n)
B.C. Resident	0.0 (0)	100 (49)
Canadian Resident	0.0 (0)	100 (2)
Non-Cdn Resident	21.1 (26)	78.9 (97)

Of all anglers, fly anglers were more common than gear anglers (84 and 16 percent, respectively, Table 11). Sixty-one percent of B.C. residents were fly anglers, while 39 percent were gear anglers (Table 10). Of all Non-Canadian residents, 94 percent were fly anglers while 6 percent were gear anglers. Of the two Canadian residents that were interviewed one each were fly and gear angling. The ratio of fly to gear anglers differed between B.C. resident and non-resident anglers (chi-square $\chi^2 = 25.77$, $df=1$, $P < 0.0005$). Among gear anglers B.C. residents were two times more frequent than non-residents and among fly anglers non-residents were almost four times as frequent as B.C. residents (Table 10).

Table 10. The percentage of fly and gear anglers and drift boat-access and shore-access anglers in each residence and guided status category.

	Percentage of Anglers		Percentage of Anglers	
	Drift Boat Access	Shore Access	Fly Anglers	Gear Anglers
B.C. Resident	15.7 (8)	84.3 (43)	60.8 (31)	39.2 (20)
Canadian Resident	50.0 (1)	50.0 (1)	50.0 (1)	50.0 (1)
Non-Cdn. Resident	39.4 (50)	60.6 (77)	93.7 (119)	6.3 (8)
Guided	96.2 (25)	3.8 (1)	88.0 (22)	12.0 (3)
Non-Guided	76.9 (113)	23.1 (34)	84.4 (124)	15.6 (23)

The majority of anglers interviewed were shore-access anglers (67 percent, Table 11), whereas 33 percent gained access by drift boat (52 anglers). Eighty-four percent of B.C. residents, 50 percent of Canadian residents (1 angler) and 61 percent of Non-Canadian residents were shore-access anglers (Table 10). Similarly, 16 percent of B.C. residents, 50 percent of Canadian residents (1 angler) and 39 percent of Non-Canadian residents gained river access with a drift boat. The frequency of drift boat-access and shore-access methods differed between B.C. resident and non-resident anglers (chi-square $\chi^2 = 8.38$, $df=1$, $P \leq 0.004$).

Eighty-eight percent of guided anglers were fly fishing and 84 percent of non-guided anglers were fly fishing (Table 10). Small sample sizes did not permit a statistical test of guided status and angling method. Most guided anglers interviewed accessed the river by

drift boat (96 percent) while only four percent accessed the river from shore. In contrast, 23 percent of non-guided anglers accessed the river by drift boat whereas 77 percent accessed the river from shore. Guided anglers accessed the river differently than non-guided anglers (chi-square $\chi^2 = 19.2$, $df=1$, $P < 0.0005$).

Overall, 93 percent of drift boat-access anglers were fly fishing and 80 percent of shore-access anglers were fly fishing (Table 11). Fishing with gear was more common among shore-access anglers (21 percent) than drift boat-access anglers (7 percent). The composition of fly and gear anglers differed by access method (chi-square $\chi^2 = 4.25$, $df=1$, $P \leq 0.039$; Table 11).

Table 11. The percentage of fly and gear anglers that gained access to the river by drift boat and shore.

Gear Type	Drift Boat Access (%)	Shore Access (%)	Total (%)
Fly	93.0 (53)	79.5 (97)	83.8
Gear	7.0 (4)	20.5 (25)	16.2
Total (%)	31.8	68.2	100.0

All B.C. resident anglers purchased an annual angling license (36 anglers; Table 12). Fifty-eight percent of Non-Canadian residents bought annual licenses, while 66 percent bought eight day licenses and 6 percent bought 1 day angling licenses. All Canadian residents bought eight day licenses (2 anglers). Small sample sizes did not permit a statistical test of residence status and license class. Guided anglers were less likely to buy an annual license than non-guided anglers (chi-square $\chi^2 = 40.44$, $df=2$, $P \leq 0.0005$).

Table 12. The percentage of anglers with a one day, eight day and annual license within each residence and guided status category.

	Percentage of Anglers in License Class		
	1 Day (n)	8 Day (n)	Annual (n)
B.C. Resident	0.0 (0)	0.0 (0)	100.0 (36)
Canadian Resident	0.0 (0)	100.0 (2)	0.0 (0)
Non-Cdn. Resident	5.5 (7)	36.2 (46)	58.3 (74)
Guided	3.8 (1)	80.8 (21)	15.4 (4)
Non-Guided	4.4 (6)	19.3 (26)	76.3 (103)

Anglers were not required to purchase all the classified waters days at one time, nor were they required to carry all of their used classified waters licenses they purchased with them. Therefore, the data represented the number of classified days purchased by the angler just prior to the day the angler was interviewed. All Non-Canadian residents that purchased a one-day angling license purchased one day of classified waters angling at the time of the interview.

Table 13. The number of classified waters days purchased at the time of the interview in each license class for Canadian and Non-Canadian residents.

License Class	Classified Waters Days Purchased (n)							
	1 Day	2 Day	3 Day	4 Day	5 Day	6 Day	7 Day	8 Day
Canadian Resident								
1 Day	0	0	0	0	0	0	0	0
8 Day	0	0	0	0	0	0	0	2
Annual	0	0	0	0	0	0	0	0
Non-Cdn. Resident								
1 Day	7	0	0	0	0	0	0	0
8 Day	22	14	6	0	1	0	0	3
Annual	29	22	5	11	1	0	0	3

The number of classified waters days purchased with an eight day license varied among residence categories (Table 13, Figure 6). More Non-Canadian residents purchased one, two or three days of classified waters angling than other days of classified waters angling. The two Canadian residents interviewed purchased eight days of classified waters angling (Table 13, Figure 6).

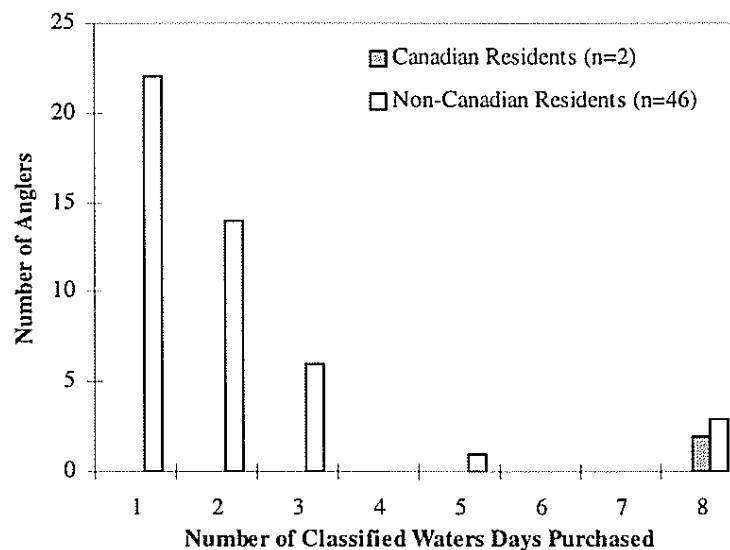


Figure 6 The number of classified waters days purchased at the time of the interview by those anglers with an eight day angling license within each residence category.

All guided anglers that bought an annual angling license purchased one, two or three days of classified waters angling (Figure 7). Most non-guided anglers purchased two days of classified waters angling but anglers also purchased one, three, five and eight days of classified waters angling.

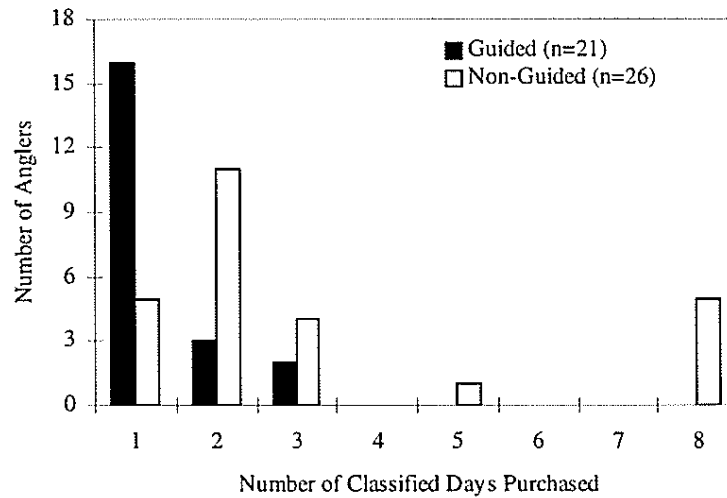


Figure 7. The number of classified waters days purchased at the time of the interview by those anglers with an eight day angling license by guided and non-guided anglers.

Most Non-Canadian residents who bought annual angling licenses purchased four days or less of classified waters angling and few purchased five or eight days of classified waters angling (Table 13, Figure 8).

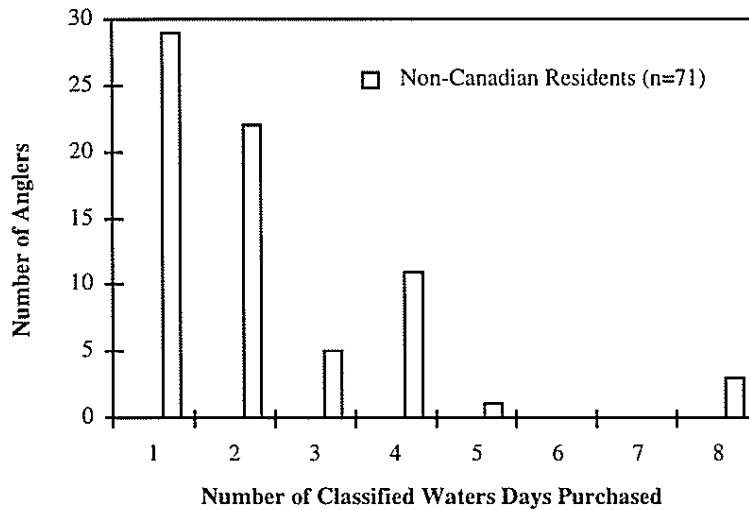


Figure 8. The number of classified waters days purchased at the time of the interview by those anglers with an annual angling license within each residence category.

All of the guided anglers that purchased annual angling licenses purchased one day classified angling waters angling (Figure 9). Conversely, non-guided anglers that bought annual angling licenses purchased one, two, three and four days of classified waters angling

(Figure 9). In addition, a few non-guided anglers purchased five and eight days of classified waters angling.

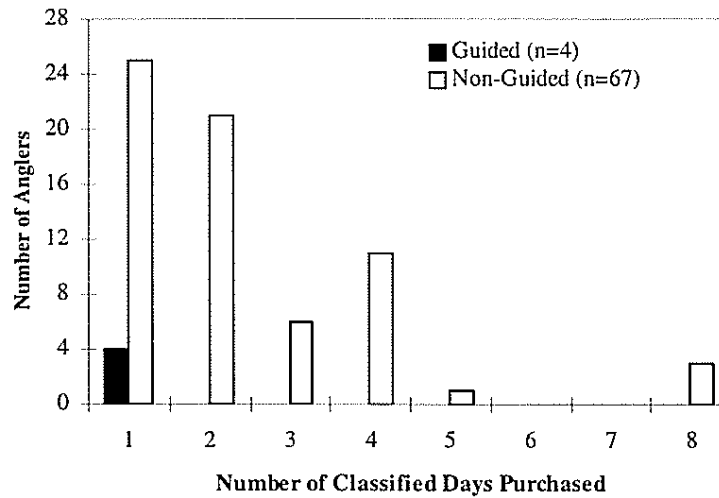


Figure 9. The number of classified waters days purchased at the time of the interview by those anglers with an annual angling license by guided and non-guided anglers.

4.2.3 Angler Compliance with Regulations

Three percent of anglers (5 anglers) interviewed were cited for an infraction (Table 14). Of those anglers with an infraction, four anglers had one infraction and one angler had two infractions (6 percent). Of anglers who had at least one infraction, four were B.C. residents and one was a Non-Canadian resident. All anglers with one infraction were B.C. residents and the angler with two infractions was a Non-Canadian resident.

Table 14. The percentage of anglers with an infraction and the percentage of offending anglers with one or two infractions.

	Percentage of Anglers
Anglers with Infractions	2.7 (5)
1 Infraction	80.0 (4)
2 Infractions	20.0 (1)

Failure to purchase a classified waters license was the most frequently cited infraction (50 percent, Table 15). Sixty-seven percent of the failure to purchase a classified waters license citations were given to B.C. residents (2 anglers cited) which represented four percent of all B.C. residents interviewed. The remaining citation for not having a classified waters license was given to a Non-Canadian resident. Two anglers were cited for failing to produce a license (one B.C. resident and one Non-Canadian resident) and one B.C. resident used prohibited gear. None of the anglers interviewed failed to purchase a steelhead stamp or were cited for illegal guiding. None of the guided anglers interviewed were cited with an infraction. Two occurrences of illegal guiding and one occurrence of an angling guide

failing to comply with the terms of the angling guide license are currently under investigation (Kalina 1997).

Table 15. The type and frequency of angler infractions of all angler interviews on the Kispiox River.

Type of Infraction	Percentage of Anglers with Infractions (n)			
	Total	B.C. Residents	Canadian Residents	Non-Cdn. Resident
No classified waters license	60.0 (3)	3.90 (2)	0.0 (0)	0.80 (1)
Failure to carry/produce license	40.0 (2)	1.96 (1)	0.0 (0)	0.80 (1)
Prohibited gear	20.0 (1)	1.96 (1)	0.0 (0)	0.0 (0)

4.3.0 Anglers Perceptions of Problems and Preferences for Management Strategies

4.3.1 Problems and Management Strategies for the Overall Number of Anglers

Among anglers that completed the question, eight percent (14 anglers) perceived a major problem, 28 percent (46 anglers) perceived a minor problem and 64 percent (107 anglers) perceived no problems with the overall number of anglers on the river. One angler responded they were on the river for the first time and did not answer the question. Thirty-five percent of anglers perceived at least a minor problem with the overall number of anglers on the river.

Fourteen anglers perceived a major problem with the overall number of anglers on the Kispiox River (Table 16, Figure 10). Of B.C. residents, 18 percent perceived a major problem with the overall number of anglers on the Kispiox River while 33 percent perceived a minor problem. One of two Canadian residents perceived a major problem, and the other perceived no problems with the overall number of anglers on the river. Four percent of Non-Canadian residents perceived a major problem and 25 percent perceived a minor problem with the overall number of anglers. Angler perceptions of problems with the overall number of anglers on the Kispiox River differed between B.C. residents and non-residents (chi-square $\chi^2 = 11.24$, $df=2$, $P \leq 0.004$).

Among guided anglers, 12 percent (3 anglers) perceived a major and 24 percent (6 anglers) perceived minor problem with the overall number of anglers on the river (Table 16, Figure 10). Seven percent and 28 percent of non-guided anglers perceived major and minor problems (respectively) with the overall number of anglers on the river. Angler perceptions of problems with the overall number of anglers on the Kispiox River did not differ between guided and non-guided anglers (chi-square $\chi^2 = 0.000$, $df=1$, $P \leq 1.00$).

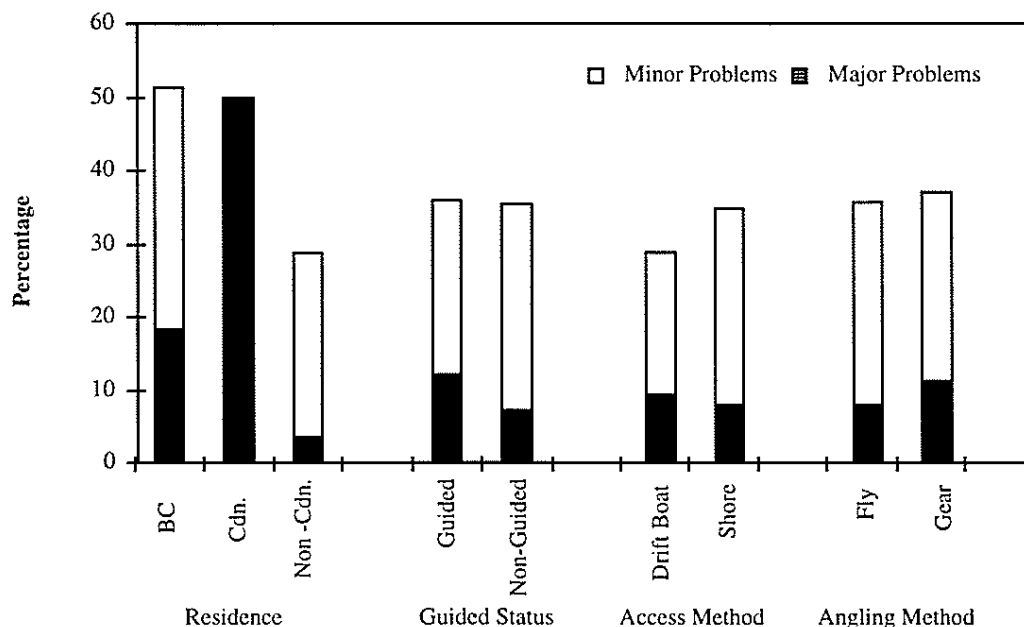


Figure 10. The percentage of anglers that perceived a minor or major problem with the overall number of anglers within each residence category, guided status, access method and angling method.

Nine percent (5 anglers) of drift boat-access anglers perceived a major problem and 29 percent perceived a minor problem with the overall number of anglers on the river (Table 16, Figure 10). Eight percent of shore-access anglers perceived a major problem and 27 percent perceived a minor problem with the overall number of anglers on the river. Angler perceptions of problems toward the overall number of anglers on the river did not differ between drift boat and shore-access anglers (chi-square $\chi^2 = 0.181$, $df=1$, $P \leq 0.671$).

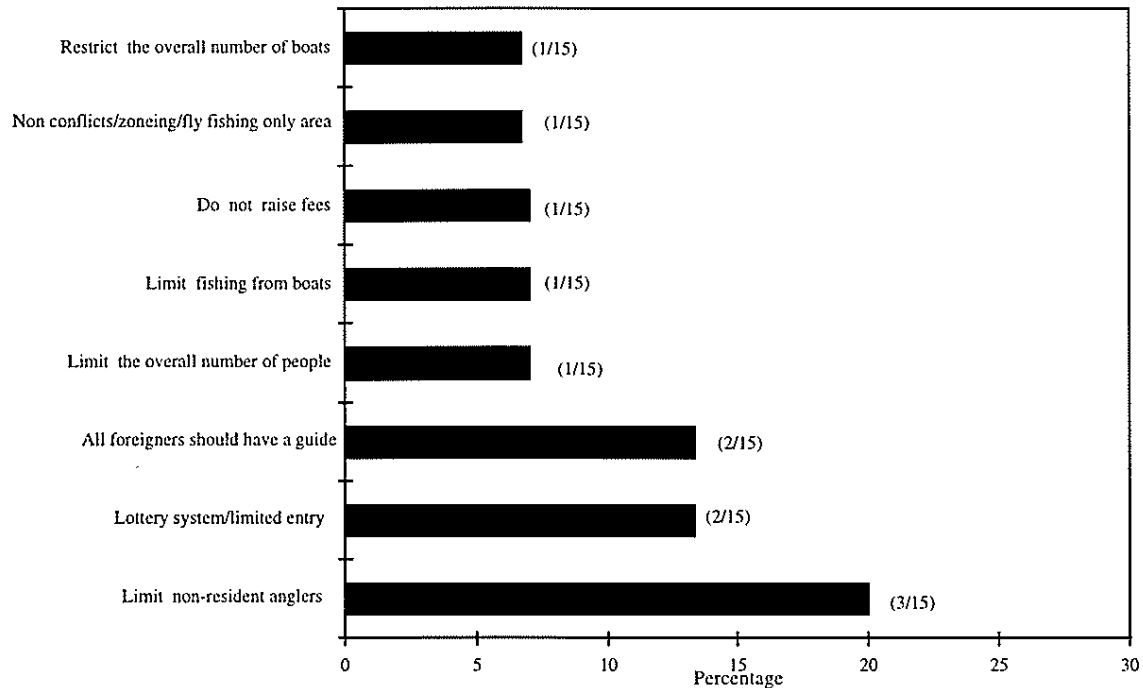
Eight percent of fly anglers and 11 percent of gear anglers perceived a major problem with the overall number of anglers on the river (Table 16, Figure 10). Similarly, 28 percent and 26 percent of fly and gear anglers (respectively) perceived a minor problem with the overall number of anglers on the river. Angler perception of problems with the overall number of anglers on the river were similar among fly and gear anglers (chi-square $\chi^2 = 0.023$, $df=1$, $P \leq 0.879$).

Table 16. The percentage of anglers that perceived major, minor and no problems with the overall number of anglers within each residence category, guided status category, access method and angling method.

	Percentage of Anglers with			Chi Square Value, df (significance level) ¹
	Major Problems (n)	Minor Problems (n)	No Problems (n)	
Residence				
B.C. Resident	18.4 (9)	32.7 (16)	49.0 (24)	$\chi^2 = 11.24, df=1, P \leq 0.879$
Cdn. Resident	50.0 (1)	0.0 (0)	50.0 (1)	
Non-Cdn. Resident	3.5 (4)	25.2 (29)	71.3 (82)	
Guided				$\chi^2 = 0.000, df=1, P \leq 1.000$
Guided	12.0 (3)	24.0 (6)	64.0 (16)	
Non-Guided	7.2 (10)	28.1 (39)	64.7 (90)	
Access Method				$\chi^2 = 0.181, df=1, P \leq 0.671$
Drift Boat	9.1 (5)	29.1 (16)	61.8 (34)	
Shore	8.0 (9)	26.8 (30)	65.2 (73)	
Angling Method				$\chi^2 = 0.023, df=1, P \leq 0.879$
Fly fishing	8.0 (11)	27.5 (35)	63.0 (17)	
Gear fishing	11.1 (3)	25.9 (7)	64.5 (89)	

¹ Values are for comparison of major, minor problems with no problems within each group. Yates correction for continuity was used for guided because $df=1$ and $|f_{11}f_{22}-f_{12}f_{21}|$ was not $\leq n/2$.

Anglers suggested twelve management strategies to deal with the overall number of anglers on the Kispiox River. Fifteen anglers responded to the question, although three responses were not management strategies but comments on the overall number of anglers on the river (Figure 11). Three anglers suggested to limit non-resident angler numbers two anglers each suggested to implement a lottery/limited entry system and to have all anglers be guided. In addition, restricting the overall number of boats, limiting fishing from boats (already a regulation, stated by a non-resident angler), limiting the overall number of anglers, not raising fees, and managing for a no-conflict area/zoning were mentioned by one angler each.



4.3.2 Problems and Management Strategies for the Number of Boat-Based Anglers

Among anglers that completed the question, six percent (10 anglers) perceived a major problem, 19 percent (31 anglers) perceived a minor problem and 75 percent (125 anglers) perceived no problems with the number of boat-based anglers on the river. One angler responded they were on the river for the first time and did not answer the question. Twenty-five percent of anglers perceived at least a minor problem with the number of boat-based anglers on the river.

Ten anglers perceived a major problem with the number of boat-based anglers (Table 17, Figure 12). Ten percent of B.C. resident anglers perceived a major problem and 20 percent perceived a minor problem with the number of boat-based anglers on the Kispiox River. No Canadian resident anglers perceived a major or minor problem with the number of boat-based anglers. Four and 18 percent of Non-Canadian residents perceived a major and minor problem with the number of boat-based anglers on the river, respectively. Angler perceptions of problems with the number of boat-based anglers were similar between residence categories (chi-square $\chi^2 = 2.35$, $df=2$, $P \leq 0.309$).

Twelve percent of the guided anglers perceived a major problem and 16 percent perceived a minor problem with the number of boat-based anglers on the river (Table 17; Figure 12). Five and 18 percent of the non-guided anglers perceived a major problem and minor problem (respectively) with the number of boat-based anglers. Angler perceptions of problems with the overall number of anglers on the Kispiox River were similar between guided and non-guided anglers (chi-square $\chi^2 = 0.041$, $df=1$, $P \leq 0.839$).

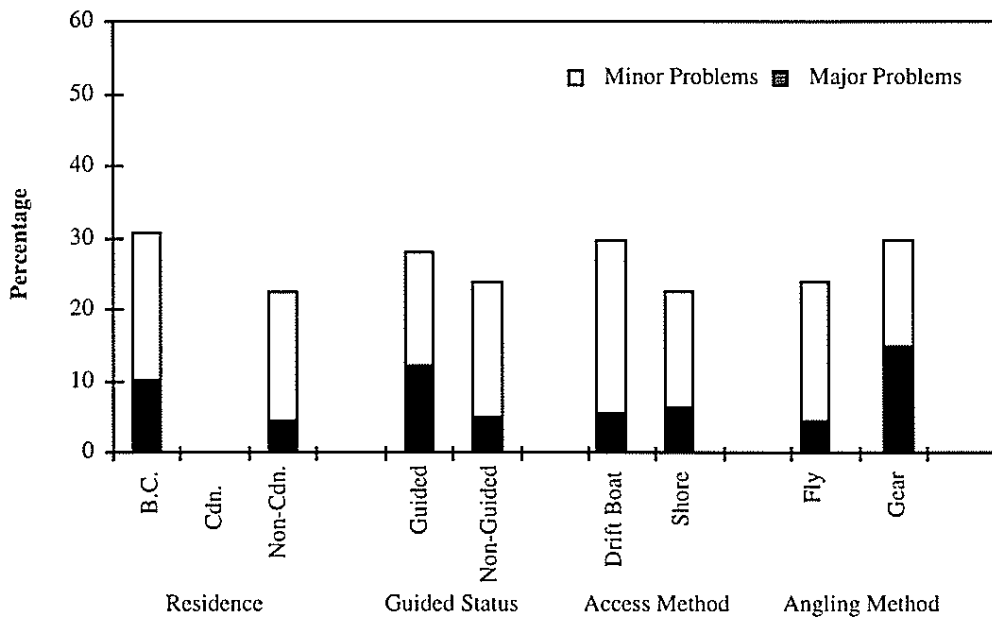


Figure 12. The percentage of Kispiox River anglers perceiving a major problem with the number of boat based anglers.

Six percent (5 anglers) of drift boat-access anglers perceived a major problem and 24 percent perceived a minor problem with the number of boat-based anglers on the river (Table 17, Figure 10). Six percent of shore-access anglers perceived a major problem and 16 percent perceived a minor problem with the number of boat-based anglers on the river. Angler perceptions of problems toward the number of boat-based anglers on the river were similar between drift boat and shore-access anglers (chi-square $\chi^2 = 0.584$, $df=1$, $P \leq 0.445$).

Four percent of fly anglers and 15 percent of gear anglers perceived a major problem with the number of boat-based anglers on the river (Table 17, Figure 10). In contrast, 20 percent and 15 percent of fly and gear anglers (respectively) perceived a minor problem with the number of boat-based anglers on the river. Angler perception of problems with the number of boat-based anglers on the river were similar among fly and gear anglers (chi-square $\chi^2 = 0.148$, $df=1$, $P \leq 0.530$).

Table 17. The percentage of anglers that perceived major, minor and no problems with the number of boat-based anglers within each residence category, guided status category, access method and angling method.

	Percentage of Anglers with			Chi Square Value, df (significance level) ¹
	Major Problems (n)	Minor Problems (n)	No Problems (n)	
Residence				
B.C. Resident	10.2 (5)	20.4 (10)	69.4 (34)	$\chi^2 = 2.35, df=2, P \leq 0.309$
Cdn. Resident	0.0 (0)	0.0 (0)	100.0 (2)	
Non-Cdn. Resident	4.3 (5)	18.3 (21)	77.4 (89)	
Guided				$\chi^2 = 0.041, df=1, P \leq 0.839$
Guided	12.0 (3)	16.0 (4)	72.0 (18)	
Non-Guided	5.0 (7)	18.7 (26)	76.3 (106)	
Access Method				$\chi^2 = 0.584, df=1, P \leq 0.445$
Drift Boat	5.5 (3)	41.9 (13)	70.9 (39)	
Shore	6.3 (7)	58.1 (18)	77.7 (87)	
Angling Method				$\chi^2 = 0.148, df=1, P \leq 0.530$
Fly fishing	4.3 (6)	19.6 (27)	76.1 (105)	
Gear fishing	14.8 (4)	14.8 (4)	70.4 (19)	

¹ Values are for comparison of major, minor problems with no problems within each group. Yates correction for continuity was used for guided, access method and angling method because df=1 and $|f_{11}f_{22}-f_{12}f_{21}|$ was not $\leq n/2$.

Anglers suggested seven management strategies to deal with the number of boat-based anglers on the Kispiox River. Eleven anglers responded to the question, although four responses were not a management strategies but comments on the number of boat-based anglers on the river (Figure 13). Three anglers suggested limiting the number of non-resident anglers and two anglers suggested limiting the number of boat on the river. In addition, one angler each suggested to manage for a no conflicts or fly only section/season and to establish a limited entry or lottery system (Figure 13).

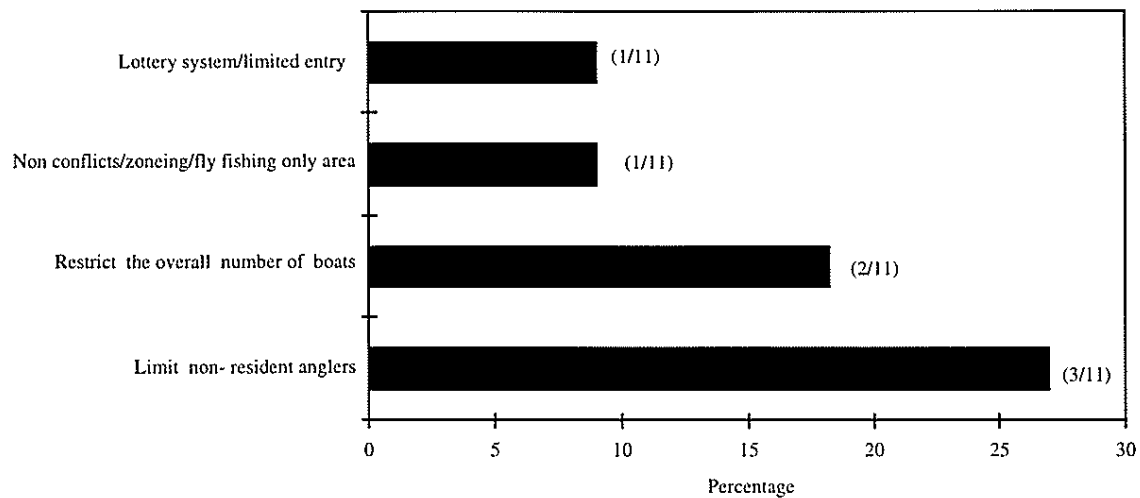


Figure 13. The preferred management strategies of anglers who perceived a problem with the number of boat-based anglers.

4.3.2 Problems and Management Strategies for the Number of Shore-Based Anglers

Among anglers that completed the question, four percent (7 anglers) perceived a major problem, 22 percent (35 anglers) perceived a minor problem and 74 percent (124 anglers) perceived no problems with the number of shore-based anglers on the river. One angler responded they were on the river for the first time and did not answer the question. Twenty-six percent of anglers perceived at least a minor problem with the number of shore-based anglers on the river.

Seven anglers perceived a major problem with the number of shore-based anglers (Table 18, Figure 12). Ten percent of B.C. resident anglers perceived a major problem and 27 percent perceived a minor problem with the number of shore-based anglers on the Kispiox River. No Canadian resident anglers perceived a major problem or minor problem with the number of shore-based anglers. Seventeen and 19 percent of Non-Canadian residents perceived a major and minor problem with the number of shore-based anglers on the river. Angler perceptions of problems with the number of shore-based anglers were similar between residence categories (chi-square $\chi^2 = 3.29$, $df=2$, $P \leq 0.070$).

None of the guided anglers interviewed perceived a major problem and 24 percent perceived a minor problem with the number of shore-based anglers on the river (Table 18; Figure 12). Four and 21 percent of the non-guided anglers perceived a major problem and minor problem (respectively) with the number of shore-based anglers. Angler perceptions of problems with the overall number of anglers on the Kispiox River were similar between guided and non-guided anglers (chi-square $\chi^2 = 0.017$, $df=1$, $P \leq 0.900$).

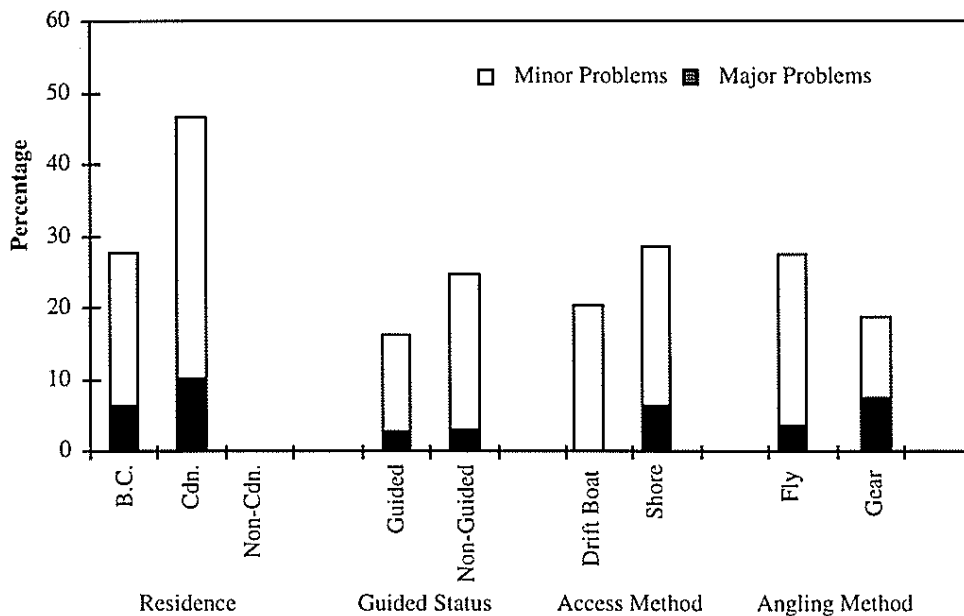


Figure 14. The percentage of Kispiox River anglers perceiving major and minor problems with the number of shore-based anglers.

None of the drift boat-access anglers perceived a major problem and 20 percent perceived a minor problem with the number of shore-based anglers on the river (Table 18, Figure 14). Six percent of shore-access anglers perceived a major problem and 22 percent perceived a minor problem with the number of shore-based anglers on the river. Angler perceptions of problems toward the number of shore-based anglers on the river were similar between boat and shore-access methods (chi-square $\chi^2 = 1.01$, $df=1$, $P \leq 0.316$).

Four percent of fly anglers and seven percent of gear anglers perceived a major problem with the number of shore-based anglers on the river (Table 18, Figure 14). In comparison, 24 and 11 percent of fly and gear anglers (respectively) perceived a minor problem with the number of shore-based anglers on the river. Angler perception of problems with the number of shore-based anglers on the river were similar among fly and gear anglers (chi-square $\chi^2 = 0.542$, $df=1$, $P \leq 0.461$).

Table 18. The percentage of anglers that perceived major, minor and no problems with the number of shore-based anglers within each residence category, guided status category, access method and angling method.

	Percentage of Anglers with			Chi Square Value, df (significance level) ¹
	Major Problems (n)	Minor Problems (n)	No Problems (n)	
Residence				
B.C. Resident	10.2 (5)	26.5 (13)	63.3 (31)	$\chi^2 = 3.290$, $df=1$, $P \leq 0.070$
Cdn. Resident	0.0 (0)	0.0 (0)	100.0 (2)	
Non-Cdn. Resident	17.2 (2)	19.1 (22)	79.1 (91)	
Guided				
Guided	0.0 (0)	24.0 (6)	76.0 (19)	$\chi^2 = 0.017$, $df=1$, $P \leq 0.900$
Non-Guided	4.3 (6)	20.9 (29)	74.8 (104)	
Access Method				
Drift Boat	0.0 (0)	20.0 (11)	80.0 (44)	$\chi^2 = 1.005$, $df=1$, $P \leq 0.316$
Shore	6.3 (7)	22.3 (25)	71.4 (80)	
Angling Method				
Fly fishing	3.6 (5)	23.9 (33)	72.5 (100)	$\chi^2 = 0.542$, $df=1$, $P \leq 0.461$
Gear fishing	7.4 (2)	11.1 (3)	81.5 (22)	

¹ Values are for comparison of major, minor problems with no problems within each group. Yates correction for continuity was used for access method and angling method because $df=1$ and $|f_{11}f_{22} - f_{12}f_{21}|$ was not $\leq n/2$.

Only four anglers suggested management strategies for problems with the number of shore-access anglers. One angler suggested limiting the number of non-resident anglers, another suggested a fly only or zoning/no conflict area and another suggested implementing a limited entry or lottery system. The fourth angler did not offer a management strategy only a comment on the situation.

4.3.4 Other Concerns and Management Strategies

Eighty-three steelhead angler management concerns were mentioned. Eighteen percent of the concerns were made by B.C. residents (15 responses), one percent were made by Canadian residents (1 response) and 81 percent were made by Non-Canadian residents (67 responses). All concerns were categorized in one of five broader categories, regulation

issues, access issues, fee/license issues, angler number issues and guiding issues. Of all anglers, 47 percent (39 responses) of concerns mentioned regarded regulations, one percent (1 response) regarded access, 39 percent (33 responses) regarded fees/licenses, eight percent (7 responses) regarded angler numbers and four percent (3 responses) regarded guiding issues.

Sixty-four percent (9 responses) of B.C. resident responses, none of the Canadian responses and 43 percent (29 responses) of Non-Canadian responses regarded regulations (Table 19). The majority of B.C. resident responses were in regard to general regulations and a few regarded the licensing system, the lack of a fly only section and enforcement. In contrast, almost all of the Non-Canadian resident responses were concerned with the licensing system and a few responses regarded general regulations. Several guided anglers were concerned with the licensing system. The most suggested management strategies included; to have the classified waters license not be river specific, to zone or add a section of river for fly fishing only, and not to segregate residents and non-residents (Table 19).

Table 19. Other regulation issues mentioned by anglers with suggested management strategies within each residence and guided status category.

Regulation Issues	Percentage of Responses (n)					Suggested Management Strategies (All)
	B.C.	Cdn.	Non-Cdn.	Guided	Non-Guided	
Total	64.3 (9)	0.0 (0)	43.3 (29)	28.6 (2)	48.6 (36)	
Licensing System	14.2 (2)	0.0 (0)	32.8 (22)	28.6 (2)	28.9 (22)	♦ Class. license should not be river specific (15)
Lack of Fly Only Section	7.1 (1)	0.0 (0)	0.0 (0)	0.0 (0)	1.4 (1)	♦ Zone, manage for no conflicts, add fly fishing only zone. (1)
Enforcement	7.1(1)	0.0 (0)	0.0 (0)	0.0 (0)	1.4 (1)	♦ More enforcement(1)
General Regs.	28.6 (4)	0.0 (0)	7.5 (5)	0.0 (0)	14.9 (11)	♦ Zone, manage for no conflicts, add fly fishing only zone (3) ♦ Do not segregate residents and non-residents (3) ♦ Limit non-resident angler numbers (1) ♦ Should be able to keep steelhead (1) ♦ Do not have all non-resident anglers guided (1)
Gear Restrictions	7.1 (1)	0.0 (0)	0.0 (0)	0.0 (0)	1.4 (1)	♦ Have a barbless hook regulation (1)

One non-guided, Non-Canadian resident was concerned with the lack of access on the river (Table 20). The angler's management strategy was to increase the access.

Table 20. Other access issues mentioned by anglers with suggested management strategies within each residence and guided status category.

Access Issues	Percentage of Responses (n)					Suggested Management Strategies (All)
	B.C.	Cdn.	Non-Cdn.	Guided	Non-Guided	
Total	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	1.4 (1)	
Access Issues	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	1.4 (1)	♦ Increase access (1)

Almost half of Non-Canadian responses (48 percent, 32 responses) and the one response given by a Canadian resident concerned fees. Most of the Non-Canadian resident responses concerned the proposed license fee increase a few responses suggested that licenses were too expensive and the poor vendor education when selling the licenses. Three guided anglers were concerned about the license fee increase. Most management strategies suggested not to increase fees while one angler suggested it was reasonable to raise fees.

Table 21. Other fee issues mentioned by anglers with suggested management strategies within each residence and guided status category.

Fee Issues	Percentage of Responses (n)					Suggested Management Strategies (All)
	B.C.	Cdn.	Non-Cdn.	Guided	Non-Guided	
Total	0.0 (0)	100.0 (1)	47.8 (32)	4.3 (3)	40.5 (30)	
Proposed License Fee Increase	0.0 (0)	100.0 (1)	44.8 (30)	4.3 (3)	37.8 (28)	♦ Do not raise fees (24) ♦ It is OK to raise fees (1) ♦ Class. license should not be river specific (1) ♦ Limit non-resident anglers (1) ♦ Do not segregate non-resident and resident anglers (1)
Licenses are too expensive	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	1.4 (1)	
Vendor Issues	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	1.4 (1)	♦ More vendor education (1)

Eight percent of responses (7 responses) were concerned with the number of anglers on the river (Table 22). Twenty-nine percent (4 responses) of B.C. resident responses concerned angler number issues two regarded garbage and two regarded the lack of angler education and etiquette. Non-Canadian angler responses regarded fly and gear conflict, non-resident anglers (1 European angler complained there were too many Americans) and crowding. One guided angler was concerned with fly and gear conflicts.

Table 22. Other anglers number issues mentioned by anglers with suggested management strategies within each residence and guided status category.

Angler Number Issues	Percentage of Responses (n)					Suggested Management Strategies (All)
	B.C.	Cdn.	Non-Cdn.	Guided	Non-Guided	
Total	28.6 (4)	0.0 (0)	4.5 (3)	14.3 (1)	8.1 (6)	
Fly/gear conflicts	0.0 (0)	0.0 (0)	1.5 (1)	14.3 (1)	0.0 (0)	
Non-resident anglers	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	8.1 (1)	♦ Lottery/limited entry system (1)
Garbage/littering / camp-site garbage	14.3 (2)	0.0 (0)	0.0 (0)	0.0 (0)	16.2 (2)	♦ Clean up garbage (1)
Angler Education/Etiquette	14.3 (2)	0.0 (0)	0.0 (0)	0.0 (0)	16.2 (2)	♦ Publish article on angler education, etiquette (2)
Crowding	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	8.1 (1)	♦ Classified license should not be river specific (1)

Responses that regarded guiding issues constituted four percent of all responses offered by anglers. Two responses concerned illegal guides, one each from a B.C. resident and guided Non-Canadian resident. In addition, one Non-Canadian resident response regarded the number of guides on the river (too many). No management strategies were suggested.

Table 23. Other guiding issues mentioned by anglers with suggested management strategies within each residence and guided status category.

Guiding Issues	Percentage of Responses (n)					Suggested Management Strategies (All)
	B.C.	Cdn.	Non-Cdn.	Guided	Non-Guided	
Total	7.1 (1)	0.0 (0)	3.0 (2)	14.3 (1)	2.7 (2)	
Too many guides	0.0 (0)	0.0 (0)	1.5 (1)	0.0 (0)	1.4 (1)	
Illegal guides	7.1 (1)	0.0 (0)	1.5 (1)	14.3 (1)	0.0 (0)	

Eighteen responses regarding steelhead abundance issues were also mentioned as other concerns from anglers. The majority (67 percent, 12 concerns) were mentioned by B.C. residents, who were concerned with native fishing (1 response), low numbers of fish (5 responses), commercial fishing (2 responses) and habitat/forestry issues (4 responses). Three Non-Canadian resident responses regarded commercial fishing, one response regarded low numbers of fish and two responses were about habitat/forestry issues.

4.3.5 Angler Perceptions of all Major and Minor Problems

The sum of the number of major and minor problems of all three concerns (the overall number of anglers on the river, the number of boat-based anglers and the number of shore-based anglers) was examined within each residence category, guided status category, week and river section.

Fourteen percent of all anglers (23 anglers) had at least one major problem. Nine percent (15 anglers) reported one major problem, five percent (8 anglers) reported two major problems and no anglers reported three major problems. Nineteen percent of B.C. residents had one major problem and an additional ten percent had two major problems (Table 24). Four percent of Non-Canadian residents had one major problem and three percent had two major problems. None of the Canadian resident anglers perceived major problems on the Kispiox River. Nine percent of non-guided anglers perceived one major problem and four percent perceived two major problems, whereas eight percent of the guided anglers perceived one major problem and eight percent perceived two major problems on the Kispiox River. The frequency of major problems differed between B.C. resident and non-resident anglers (Mann Whitney U = 2304, $P < 0.00005$). In contrast, the frequency of problems between guided and non-guided anglers was similar (Mann Whitney U = 1676.5, $P \leq 0.637$).

Thirty-seven percent of anglers (62 anglers) had at least one minor problem (Table 24). Fourteen percent (24 anglers) reported one minor problem, 15 percent (25 anglers) reported two minor problems and eight percent (13 anglers) reported three minor problems. The frequency of minor problems was similar between B.C. resident and non-resident anglers

and between guided and non-guided anglers (Mann Whitney U = 2557.5, $P \leq 0.295$, Mann Whitney U = 1678.5, $P \leq 0.753$, respectively).

Table 24. The percentage of anglers with one, two or three major and minor problems (the sum of and anglers major or minor problems with the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers on the river) within each residence and guided status category.

	Percentage of Major Problems (n)			Percentage of Minor Problems (n)		
	1	2	3	1	2	3
Residence						
B.C. Resident	19% (9)	10.4% (9)	0% (0)	21% (10)	15% (7)	8% (4)
Canadian Resident	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
Non-Cdn. Resident	4% (5)	3% (3)	0% (0)	12% (14)	15% (17)	8% (9)
Statistical Result	Mann Whitney U = 2203.5, $P < 0.0005$			Mann Whitney U = 2557.5, $P \leq 0.295$		
Guided¹						
Guided	8.0% (2)	8.0% (2)	0% (0)	4% (1)	24% (6)	4% (1)
Non-Guided	9% (13)	4% (10)	0% (0)	16% (22)	13% (18)	9% (12)
Statistical Result	Mann Whitney U = 1676.5, $P \leq 0.637$			Mann Whitney U = 1678.5, $P \leq 0.753$		

1. Three anglers were not assigned to a guided status category, fifty percent had one major problem (1 angler).

The percentage of minor problems reported within each week relative to all anglers interviewed was more than the percentage of major problems reported within each week (Figure 15). Major problems were only reported in weeks 9-1 through 9-4 and week 10-3. The minor problems reported was highest in week 9-5, there were more minor problems than interviews which indicated those anglers interviewed had multiple minor problems. There were more minor problems reported in September (half of week 9-5 and weeks 10-1, 10-2 and 10-3) than October. Although, less interviews were conducted in October (48 interviews) due to poor angling conditions relative to September (137 interviews).

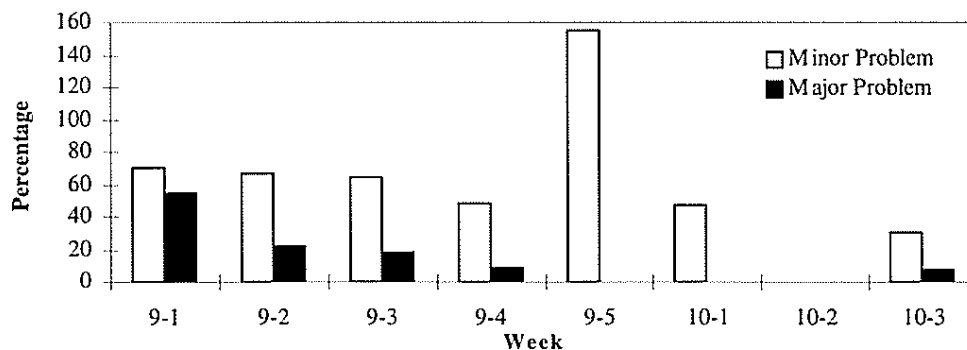


Figure 15. The percentage of major or minor problems with the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers relative to all anglers interviewed within each week.

The percentage of minor problems reported within each river section relative to all anglers interviewed was more than the percentage of major problems reported within each river section (Figure 16). There were no major problems reported in the Sweetin River or Mitten bridge river sections although relatively few interviews were done there. The four mile and Woods hole river sections had relatively similar frequencies of major problems relative to

all anglers interviewed within that river section. Although there were three times more interviews completed in the Woods hole river section than the four mile river section.

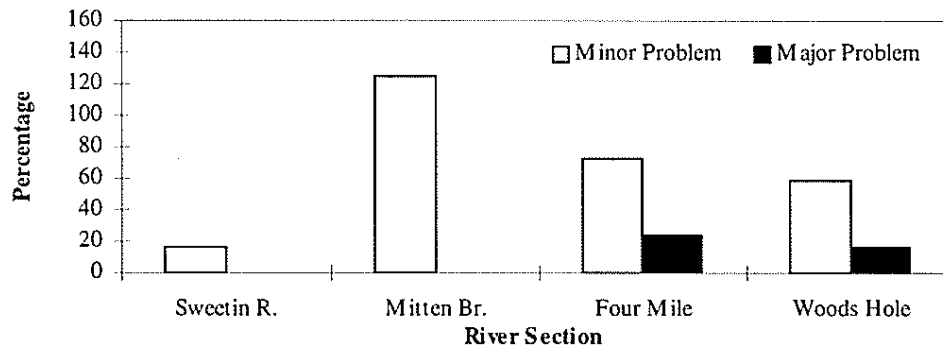


Figure 16. The percentage of major and minor problems with the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers relative to all anglers interviewed within each river section.

4.4.0 Angler Catch and Effort

A total of 661 hours were spent fishing by Kispiox River steelhead anglers which averaged 3.63 hours of fishing per angler at the time of the interview (Table 25). Seventy-nine steelhead were caught and released. At the time of the interview, 127 anglers caught nothing, 31 anglers caught one steelhead, 13 anglers caught two steelhead, four anglers caught three steelhead, one angler caught four steelhead and one angler caught six steelhead. An additional 102 anglers were observed but not interviewed, therefore their catch was unknown.

The catch rate was calculated by summing the steelhead caught for interviews of 0.5 hr (30 minutes) or more. Five percent of interviews (9 interviews) were eliminated because they had been on the river for less than 30 minutes. The catch rate for all angler interviews was 0.122 steelhead/hour or 0.98 steelhead/rod day.

Catch rates were estimated for all weeks during the classified waters period by grouping all river sections together (Table 25). Weeks 10-1 and 9-2 produced the highest catch rate on the Kispiox River (1.22 and 1.20 steelhead/rod day, respectively) followed by week 9-3 (1.10 steelhead/rod day) and week 9-4 (1.07 steelhead/rod day; Table 25). Of weeks when interviewing was completed, weeks 9-5 and 9-1 had the lowest catch rate (0.59 and 0.38 steelhead/rod day, respectively). Weeks 9-5, 10-2, and 10-3 had several days when the river was 'out' or turbid and fishing was poor, therefore only a few interviews were completed in those weeks and no interviews were conducted in week 10-4.

Table 25. The steelhead caught, hours fished, catch rate and steelhead per rod day within each week.

Week	Steelhead Caught	Total Hours Fished	Catch Rate (SD) ¹	Steelhead per Rod Day
9-1	3	73.5	0.048 (0.127)	0.38
9-2	25	205.8	0.150 (0.289)	1.20
9-3	9	85.5	0.137 (0.337)	1.10
9-4	16	119.0	0.134 (0.196)	1.07
9-5	8	39.0	0.074 (0.169)	0.59
10-1	14	92.0	0.153 (0.232)	1.22
10-2	2	18.0	0.075 (0.117)	0.60
10-3	2	28.0	0.080 (0.210)	0.64
10-4	0	0.0	0.000 (0.000)	0.00
Total	79	660.8	0.122 (0.250)	0.98

1. The average of the individual catch rates for each angler for each week, ignoring all short trips (less than 0.5 hour).

Catch rates were estimated for river sections during the classified waters period by grouping all weeks together. The highest catch rate was in the Sweetin River section (1.33 steelhead/rod day) followed by the Woods hole river section (1.11 steelhead/rod day) and the four mile river section (0.61 steelhead/rod day, Table 26). The lowest catch rate was in the Mitten bridge area (0.00 steelhead/rod day) where no steelhead were caught among the six anglers interviewed.

Table 26. The steelhead caught, hours fished, catch rate and steelhead per rod day within each river section.

Kispiox River Section	Steelhead Caught	Total Hours Fished	Catch Rate (SD) ¹	Steelhead per Rod Day
Sweetin River	1	5.00	0.1667 (0.289)	1.33
Mitten Bridge	0	13.00	0.000 (0.000)	0.00
Four Mile	11	129.00	0.076 (0.175)	0.61
Woods Hole	67	513.75	0.139 (0.271)	1.11
Total	79	660.75	0.122 (0.250)	0.98

1. The average of the individual catch rates for each angler for each week, ignoring all short trips (less than 0.5 hour).

Among residence categories, B.C. residents interviewed had the highest catch rate (1.11 steelhead/rod day), followed by Non-Canadian residents (0.94 steelhead/rod day) and the two Canadian residents that were interviewed did not catch any steelhead (Table 27). The catch rate of guided anglers was higher than non-guided angler catch rates (1.16, 0.98 steelhead/rod day, respectively). Drift boat and shore-access anglers had similar catch rates (1.07 and 1.02 steelhead/rod day, respectively).

Table 27. The steelhead caught, hours fished, catch rate and steelhead per rod day within each residence, guided status, access method and angling method category.

	Steelhead Caught	Total Hours Fished	Catch Rate (SD) ¹	Steelhead per Rod Day
Residence				
B.C. Resident	24	160.0	0.149 (0.296)	1.19
Cdn. Resident	0	12.0	0.000 (0.000)	0.00
Non-Cdn. Resident	55	487.25	0.117 (0.235)	0.94
Guided				
Guided	20	144.50	0.145 (0.170)	1.16
Non-Guided	59	540.25	0.123 (0.267)	0.98
Access Method				
Drift Boat	33	297.25	0.134 (0.184)	1.07
Shore	46	363.50	0.128 (0.281)	1.02
Angling Method				
Fly fishing	64	562.75	0.120 (0.241)	0.96
Gear fishing	14	88.0	0.148 (0.311)	1.18

1. The average of the individual catch rates for each angler for each week, ignoring all short trips (less than 0.5 hour).

Twenty-seven Dolly Varden/bull trout were caught and of those, 25 were released and two were kept. The catch rate for all anglers interviewed was 0.42 Dolly Varden/bull trout/rod day. Steelhead anglers caught eight other species of fish, one sockeye salmon (*O. nerka*), two coho salmon (*O. kisutch*), one chum salmon (*O. keta*), four pink salmon (*O. gorbuscha*), twenty rainbow trout (*O. mykiss*), six cutthroat trout (*O. clarki*), two whitefish (*Prosopium* sp.) and two suckers (*Catostomus* sp.).

Catch rates were highly variable between species (Table 28). Dolly Varden/bull trout had the highest catch rate (0.42 fish/rod day) followed by rainbow trout (0.30 fish/rod day) whitefish (0.098 fish/rod day). Comparatively, suckers, coho salmon and pink salmon had low catch rates (0.019, 0.016, and 0.004, respectively).

Table 28. The number caught, catch rate and fish per rod day by species.

Species ²	Number Caught	Catch Rate (fish/hr) ¹	Fish per Rod Day
Sockeye	1	0.0005	0.039
Coho	2	0.0020	0.016
Pink	4	0.0056	0.004
Rainbow	20	0.0377	0.302
Cutthroat	6	0.0079	0.064
Dolly Varden/bull trout	27	0.0519	0.415
Whitefish	2	0.0122	0.098
Sucker	2	0.0024	0.019

1. The average of the individual catch rates for each angler for each week, ignoring all short trips (less than 0.5 hour).

2. One chum salmon was caught but the anglers was fishing for 15 minutes or less so catch rates were not calculated.

5.0.0 Discussion

5.1.0 Interviews

On-site interviews using a roving design were used to examine Kispiox River angler characteristics, angling methods, perceptions of problems on the river and steelhead catch rates. Angler catch was estimated with catch rates from on-site interviews.

The non-response bias check indicated that all non-respondents were Non-Canadian resident anglers (3 anglers) although sample sizes were too small to determine if they differed significantly. This was indicative of the language barrier as more Non-Canadians could not understand English enough to complete the whole interview. Because the Interview Team still collected license details and catch (when possible), those data were relatively free of non-response bias. Therefore, the perceptions of problems on the river could therefore slightly under-represent Non-Canadian resident perceptions. Generally, the data were representative of the anglers that were interviewed on the Kispiox River in the classified waters period of 1997.

5.2.0 Angler Characteristics

The proportion of B.C. residents has ranged from 20 to 38 percent of anglers interviewed in past studies while the proportion of Non-Canadian residents ranged from 48 to 63 percent. In 1997, 28 percent of anglers interviewed were B.C. residents, 71 percent were Non-Canadian residents and one percent were Canadian residents. In 1969, Pinsent (1970) reported 37 percent of the Kispiox River anglers interviewed were B.C. residents, whereas 63 percent were non-residents (no distinction was made between Canadian and Non-Canadian residents). Wright (1975) found that 20 percent of anglers interviewed in the fall of 1974 were B.C. residents, 32 percent were Canadian residents and 48 percent were Non-Canadian residents. In 1975, Whately (1977) reported 36 percent were B.C. residents, 10 percent were Canadian residents and 54 percent were Non-Canadian residents. More recently, in the fall of 1989, 30 percent of anglers were B.C. residents, eight percent were Canadian residents and 62 percent were Non-Canadian residents (Lewynsky and Olmsted 1990). Similarly, in 1996, 35 percent of anglers were B.C. residents, four percent were Canadian residents and 62 percent were Non-Canadian residents (Tallman 1997).

Table 29. A summary of the composition of angler residence, angling method, conservation club member and steelhead catch rate for previous angler surveys on the Kispiox River.

Year of study and Reference	Months	Angler Residence (%)	Angling Method	Conservation Club Member (%)	Catch rate (sth/rod day)
1969 Pinsent 1970	Oct., Nov.	37% B.C. Res. 63% Non-Res.	NA	NA	0.42
1974 Wright 1975	Sept., Oct., Nov.	20% B.C. Res. 32% Cdn. Res. 48% Non-Cdn. Res.	30% Fly 70% Lure	45 %	NA
1975 Whately 1977	Autumn 1975	36% B.C. Res. 10% Cdn. Res. 54% Non-Cdn. Res.	24% Fly 76% Lure	NA	0.25
1989 Lewynsky and Olmsted 1990	Sept., Oct.	30% B.C. Res. 8% Cdn. Res. 62% Non-Cdn. Res. approx.	80% Fly 20% Lure approx. (non-guided)	20% B.C. Res. 45% Non-Res. (all rivers)	0.56 Sept. 0.72 1st half Oct. 1.71 2nd half Oct.
1996 Tallman 1997	Sept., Oct.	35% B.C. Res. 4% Cdn. Res. 62% Non-Cdn. Res.	80% Fly 20% Lure approx.	NA	0.82
1997 Current Study	Sept., Oct.	28% B.C. Res. 1% Cdn. Res. 71% Non-Cdn. Res.	84% Fly 16% Gear	29% B.C. Res. 50% Cdn. Res. 61% Non-Cdn. Res.	0.98

The steelhead harvest analysis (SHA) reported similar results of angler residence composition. Between 1983 and 1992 (no data for 1989), B.C. residents composed between 42 and 62 percent of anglers and since then the percentage of B.C. residents ranged from 32 to 44 percent (1992-1995; Anonymous 1996). In past years of the SHA, the Non-Canadian residents compose the majority of anglers on the Kispiox River. The SHA estimated that Non-Canadian residents composed between 30 and 61 percent of all anglers between 1983 and 1995. The percentage of Non-Canadian resident anglers increased from approximately 35 percent in the 1980s to 56 percent more recently (1993-1995; Anonymous 1996). The percentage of Canadian residents has remained relatively constant with an average of about 10 percent from 1983 to 1995. In 1996, the SHA reported 69 percent were Non-Canadian anglers, 4.5 percent were Canadian anglers and 27.5 percent were B.C. resident anglers.

The percentage of male and female anglers (96 percent male, 4 percent female) was similar to the results of Wright (1975) for steelhead anglers in the fall of 1974 (94 percent male and 7 percent female). The mean age of 1997 classified waters period steelhead anglers (male 44.5 and female 43.6 years old) were also similar to the mean of 44 years old in 1974 steelhead anglers (Wright 1975).

The proportion of guided anglers interviewed in 1997 was similar to recent estimates of guided anglers in other years. Fifteen percent of anglers were guided in 1997 and in 1996

15 percent of anglers interviewed were guided. In 1989, Lewynsky and Olmsted (1990) found only eight percent of Kispiox River anglers were guided.

The proportion of fly anglers increased from earlier angler surveys on the Kispiox River (Table 32). The proportion of fly to gear anglers in 1997 was similar to the proportion of fly to gear anglers among anglers in the fall of 1996 and 1989. In 1997, 84 percent of anglers interviewed during the classified waters period were fly anglers while 16 percent were gear anglers. In 1996, 80 percent of anglers were fly anglers and 40 percent were gear anglers (Tallman 1997). Similarly in 1989, approximately 78 percent of anglers were fly anglers, whereas 22 percent were gear (lure) anglers (Lewynsky and Olmsted 1990). Prior to 1989, the majority of anglers were gear anglers. In 1975, 24 percent of steelhead anglers were fly anglers and 76 percent were gear (lure) anglers (Whately 1977). Also, in 1974, Wright (1975) found 30 percent of steelhead anglers were fly anglers and 70 percent were gear (lure) anglers.

The membership of Kispiox River anglers in a conservation club had increased slightly from past angler surveys (Table 32). In 1997, 51 percent of anglers interviewed were members of a conservation club. In 1974, 45 percent of all anglers interviewed were members of a conservation club (Wright 1975). The slight increase in the proportion of Non-Canadian residents probably accounted for part of the increase in the percentage of anglers that were members of a conservation club. In 1997, more Canadian residents (50 percent) and Non-Canadian residents (61 percent) were members of a at least one conservation club than B.C. residents (29 percent). Lewynsky and Olmsted (1990) had similar results for 1989 anglers; 20 percent of B.C. residents were members of a conservation club while 45 percent of non-residents were members of a conservation club.

Most angling infractions were committed by B.C. residents (66 percent, 4 infractions) followed by Non-Canadian residents (33 percent, 2 infractions). Neither of the two Canadian residents interviewed was cited for an infraction. Two citations (33 percent, 2 infractions) given to B.C. residents were for not having a classified waters license. Nineteen-ninety seven (1997) was the first year that non-guided B.C. residents were required to purchase a classified waters license for class two classified rivers. Thus, the infractions indicated that it took some time for the B.C. residents to adjust to the new regulation.

In the past several years, there were concerns that steelhead anglers did not buy a steelhead conservation stamp and had been angling for steelhead (Anonymous 1996). In 1997, none of the anglers interviewed were cited for not having a steelhead stamp. The effort estimates for the 1997 SHA (not yet compiled) for the Kispiox River should be more accurate because none of the anglers interviewed were cited for not having a steelhead stamp. This result cannot be generalized to past years because of the increased publicity regarding enforcement effort on the Kispiox River. The knowledge of increased enforcement may have caused anglers who may not have purchased a steelhead stamp in the past to purchase a steelhead stamp in 1997 and comply with the regulations.

Infractions were cited throughout the classified waters period. One citation was given in each week 9-2, 9-5 and 9-3 and two were given in week 10-1. Spatially, all infractions were given in the Woods hole river section. No infractions were cited for illegal guiding although two suspected cases remain under investigation.

5.3.0 Angler Perceptions of Problems and Preferences for Management Strategies

Anglers perceptions of problems with the number of other anglers on the river are indicative of crowding concerns. Density is a physical concept relating the number of people in a certain amount of space. Crowding has psychological meaning; it is a negative and a subjective evaluation of density level (Manning 1996). Thus, density may increase to a point where it is perceived to interfere with one's activities and at that point crowding occurs (Manning 1986). In the case of anglers on the Kispiox River, the perception of a major problem or a specific concern was indicative of that problem interfering with an anglers activities. After an angler has perceived a major problem they may employ a coping mechanism. The angler could change their perception of the area (product shift) or change the way they use the area (displacement; Shelby *et al.* 1988).

A variety of factors could affect an angler's perception of problems on the Kispiox River: motivations for angling, preferences for angling, expectations of the trip, experience angling, attitudes of the angler, angler demographics, characteristics of other anglers encountered, and other situational variables (Manning 1986). Residence groups, guided status, access method and angling method are ways to group anglers into categories that may share some of the above factors that could affect an angler's perception of problems on the river.

The majority of anglers had no problems with any of the issues investigated. Forty-nine percent of B.C. residents interviewed, 50 percent (1 of 2 anglers) of Canadian residents and 71 percent of Non-Canadian residents had no problems with the overall number of anglers on the river. Sixty-nine percent of B.C. residents, 100 percent (2 of 2 anglers) of Canadian residents and 77 percent of Non-Canadian residents had no problems with the number of boat-based anglers. Similarly, 63 percent of B.C. residents, 100 percent (2 of 2 anglers) of Canadian residents and 79 percent of Non-Canadian residents had no problems with the number of shore-based anglers. The overwhelming majority of anglers did not perceive problems with the overall number of anglers, the number of boat-access anglers or the number of shore-access anglers.

Considering all concerns investigated, slightly more anglers perceived a major problem with the overall number of anglers (8 percent of all anglers, 14 responses) and the number of boat-based anglers (6 percent of all anglers, 10 responses) than the number of shore-based anglers (4 percent of all anglers, 7 responses). More anglers perceived a minor problem with the overall number of anglers (27 percent, 46 anglers) than the number of shore-based anglers (21 percent, 36 anglers) or the number of boat-based anglers (19 percent, 31 anglers) Together, more anglers perceived at least a minor problem with the

overall number of anglers (35 percent) than the number of shore-based anglers (28 percent) or the number of boat-based anglers (25 percent).

B.C. residents perceived more problems on the Kispiox River than Canadian or Non-Canadian residents. Twenty-nine percent of B.C. residents had at least one major problem with the concerns (overall number of anglers, the number of boat-based anglers, the number of shore-based anglers). In contrast, seven percent of Non-Canadian residents had at least one major problem with the three concerns. One of the two Canadian anglers perceived one major problem with the concerns. Although, when concerns were examined individually there were no differences in the perceptions of problems between B.C. residents and non-residents with the overall number of anglers on the river, the number of boat-based anglers and the number of shore-based anglers.

The contribution of additional concerns varied by residence category. Eighteen percent of the additional concerns were suggested by B.C. residents (29 percent of all B.C. residents). Similarly, 81 percent were suggested by Non-Canadian residents (52 percent of all Non-Canadian residents) and one percent of additional concerns were suggested by Canadian residents (50 percent of all Canadian residents).

Most additional angler concerns regarded regulations and fees. Of all anglers, 47 percent (39 responses) of concerns mentioned regarded regulations, one percent (1 response) regarded access, 39 percent (33 responses) regarded fees/licenses, eight percent (7 responses) regarded angler numbers and 4 percent (3 responses) regarded guiding issues. Sixty-four percent (9 responses) of B.C. resident concerns regarded regulations. Most B.C. residents had concerns with the regulations in general, the licensing system, gear restrictions, enforcement and the lack of a fly only section. Forty-three percent of Non-Canadian resident concerns regarded regulations and most responses regarded the licensing system and general regulations. None of the B.C. resident responses regarded fees, in contrast 48 percent of Non-Canadian resident concerns and the one Canadian resident response concerned fees. More specifically, the majority of Canadian and Non-Canadian residents concerns with fees regarded the proposed license fees increase.

Twenty-nine percent of B.C. resident response regarded the number of anglers on the river whereas 5 percent of Non-Canadian angler concerns considered the number of anglers as a problem. Seven percent of B.C. residents (1 responses) and three percent of Non-Canadian resident (2 responses) concerns regarded guiding issues. One B.C. resident and one Non-Canadian resident were concerned with illegal guides and an additional Non-Canadian response stated there were too many guides.

The additional concerns question added some insight to the perceptions of problems within each residence category. In 1997, B.C. residents were concerned with a number of issues (general regulations, gear restrictions and angler numbers) while the majority (80 percent) of Non-Canadian resident concerns regarded the licensing system or fees. All Canadian residents responses regarded the license fees (1 response, 100 percent). This may explain why B.C. residents perceived more major problems regarding all concerns that were

investigated (the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers). These problems were specific to 1997 because during the classified waters period there was an impending increase in fees from \$10 per day to \$40 per day for Canadian and Non-Canadian residents to purchase classified waters licenses. Since then, the fee increase has been canceled and will not be implemented in the foreseeable future.

The overall number of problems with the issues investigated was small in comparison to those anglers that had no problems. B.C. residents perceived more major problems with specific concerns asked in the survey (the overall number of anglers, the number of boat-based anglers and the number of shore-based anglers), whereas Non-Canadian residents suggested more other concerns than B.C. residents. There were no differences in the perceptions of major problems between residence categories when individual concerns (the overall number of anglers, the number of boat-based anglers or the number of shore-based anglers) were investigated. Anglers within the guided status, access method or angling method categories were similar in their perception of problems with the overall number of anglers, the number of boat-based anglers or the number of shore-based anglers. Therefore, residence categories and in a limited way, may have shared some of the factors, such as angler experience and angling preferences, that affected the angler's perception of problems on the river.

5.4.0 Angler Catch Rate and Effort

The observed catch rate for all anglers interviewed in 1997 (0.98 steelhead per rod day) was slightly higher than past estimates (Table 29). In 1969, steelhead anglers caught 0.42 steelhead per rod day (Pinsent 1970). Whately (1977) reported steelhead anglers caught 0.245 steelhead/rod day in 1975. In 1989, the catch rate varied by the time in the classified waters period, the catch rate in September (0.56 steelhead/rod day) was lower than the catch rate in the first (0.72 steelhead/rod day) and second half of October (1.71 steelhead/rod day; Lewynsky and Olmsted 1990).

6.0.0 Recommendations

1. The Fisheries Branch should continue to administer a survey of Kispiox River anglers to monitor any changes in angler effort, catch, demographics, angling characteristics, anglers' perceptions of problems and compliance with regulations. Additional information will aid the Fisheries Branch in the planning necessary to protect the quality of angling experiences offered by the classified waters designation.
2. Angler effort and catch estimates should be compared with similar data derived from angling guide reports and the SHA.
3. Aerial counts are recommended to determine effort within each pre-determined river section for the classified waters period. If aerial counts cannot be conducted, progressive counts by the Interview Team could be used to estimate daily effort within the river section, provided a pre-determined schedule with timed check points is adhered to. The sampling should occur on a random sample of days and random directions of travel, when possible.
4. Surveys should be conducted in week 10-4 to be representative of the whole classified waters period.
5. Anglers should also be contacted at the end of their trip to compare catch rate estimates between complete and incomplete trips. This would assess the amount of incomplete trip interview bias in catch rate estimation.

7.0.0 Acknowledgments

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9.0.0 Appendices

Appendix 1.0 The angler interview form and angler count data form.

River _____

Interviewer Initials _____

Reach/Location _____

Time _____ Date _____

Part 1 Observations

Weather Conditions (circle one) SUN MIXED OVERCAST RAIN
 Water Conditions (circle as many as apply) HIGH MODERATE LOW TURBID CLEAR
 Gender (circle one) MALE FEMALE
 Type of Angler at time of interview: BOAT--JET FLY
 (Circle one in each column) BOAT--DRIFT GEAR
 BANK

Part 2 Situational Angler Questions

Hello, my name is _____. I am a Conservation Officer for the B.C. Ministry of Environment Lands and Parks. We are collecting information from anglers on classified rivers in the Skeena Region. Would you be willing to answer a few questions for me? The interview will last only 5 minutes and all your answers will be confidential.
 YES NOT APPLICABLE REFUSED → REASON, if refused _____

Are you a member of a conservation club or organization?
 NO YES If YES, what organization? _____

How many years have you been steelhead fishing? _____ YEARS

How many hours have you fished today? _____ HOURS

Part 3 Catch Data

What type of fish have you landed today? How many _____ did you keep or release?

Species	#		Species	#		Species	#	
STHD		LANDED	DV/BT		KEPT	OTHER (Specify) _____		KEPT
					RELEASED			RELEASED

Part 4 Management Questions

On the _____ River to what degree do you perceive steelhead angler management problems about each of the following concerns?

If a major problem, what type of management strategy do you suggest?
Ex. restrict the level of use, the number on non-resident anglers, the number of guided anglers or the type of angler

Do you perceive the: *Circle One*

1. Number of boat-based anglers to be; NO PROB. A MINOR PROB. A MAJOR PROB. _____

2. Number of shore based anglers to be; NO PROB. A MINOR PROB. A MAJOR PROB. _____

3. Overall number of anglers to be; NO PROB. A MINOR PROB. A MAJOR PROB. _____

4. Other Concerns _____; NO PROB. A MINOR PROB. A MAJOR PROB. _____

Part 5 Licence Data

Licence Data--All data should be collected from angling licence- Please copy data directly from licence!!!

Name	_____
Angler Licence #	_____
Classified licence #	_____
Guided? (circle one) If YES by Who?	NO YES Who? _____
Residency (circle one) IF B.C. resident get postal code	B.C. RESIDENT → postal code _____ NON RESIDENT NON RESIDENT ALIEN

Licence Class (circle one)	1 DAY 8 DAY ANNUAL
Classified Days purchased/used	____ DAYS PURCHASED ____ DAYS USED
Year of Birth	19____
Violations? if YES describe	NO YES--Describe _____ _____

Please describe any additional comments concerning the angler interview here or on the back of this sheet

Appendix 2.0 The conservation clubs mentioned.

A total of 173 Kispiox River anglers answered the question and 89 anglers were a member of at least one conservation club.

Table A1. The type of conservation club anglers were a member with the percentage and number of responses.

Conservation Club	Percentage of Anglers that were a member of at least one conservation club (n)	Percentage of Anglers that answered the question(n)
Other angling club (local)	35.2 (31)	34.8 (31)
Trout Unlimited	29.5 (26)	29.2 (26)
Steelhead Society	18.2 (16)	18.0 (16)
Federation of Fly Fishers	13.6 (12)	13.5 (12)
Foreign Country Fishing Club	10.2 (9)	10.1 (9)
North Atlantic Salmon Federation	8.0 (7)	7.9 (7)
Other Environmental Group	5.7 (5)	5.6 (5)
Nature Conservancy	4.5 (4)	4.5 (4)
Ducks Unlimited	3.4 (3)	3.4 (3)
Kispiox Protection Society	2.3 (2)	2.5 (2)
Greenpeace	1.1 (1)	1.1 (1)
Driftfishers	1.1 (1)	1.1 (1)
American Fisheries Society	1.1 (1)	1.1 (1)
World Wildlife Fund	1.1 (1)	1.1 (1)

Appendix 3.0 A summary of weather and water conditions during the classified waters period.

Each 'X' represents what at least one Interview Team member recorded that the weather or water conditions were for that day. For example, on September 2 Interview Team recorded that it was mixed and overcast. The river was flowing at low height and was clear.

Table A2. A summary of weather and water conditions that were observed by the Interview Team by date.

Week	Date	Weather				Water					Comments
		Sun	Mixed	Overcast	Rain	High	Mod.	Low	Turbid	Clear	
9-1	902		X	X				X		X	
	904	X	X					X		X	
	905	X		X	X			X		X	
	906		X		X			X		X	
9-2	908	X	X					X		X	
	909	X						X		X	
	911		X	X	X			X		X	
	912	X	X	X				X		X	
	913		X	X				X		X	
9-3	915			X	X			X		X	
	916	X	X	X				X		X	
	917		X					X		X	
	918	X	X	X				X		X	
	919				X			X	X	X	
	920		X	X			X	X	X	X	
9-4	921		X				X			X	
	922		X	X			X			X	
	923		X					X		X	
	925	X	X				X	X		X	
	926			X	X		X	X		X	
	927		X	X	X		X	X		X	
9-5	1004	X					X			X	1002 Blow out of River
10-1	1005		X	X	X		X			X	
	1006		X	X			X			X	
	1007			X			X			X	
	1008			X			X			X	
10-2	1013			X	X		X	X	X	X	1015 Blow out of River
10-3	1021			X	X	X	X		X		Turbid conditions after this point

Appendix 4.0 The method of grouping 'other issues' mentioned by Kispiox River anglers.

The five broad categories of management issues were numbered below, with the bulleted items representing each of the twenty-three response groups that were included within each of those five issues.

1. Regulations issues included:
 - Gear use-should be barbless hooks only.
 - Regulations
 - Lack of fly only section
 - Licensing system
 - Enforcement
 - Fly/gear conflicts
2. Access issues included:
 - Access issues (in general)
 - Boats
3. Fee issues included:
 - Proposed license fee increase
 - Licenses are too expensive
4. Guiding issues included:
 - Too many guides
 - Fisheries managers are eliminating guides
 - Illegal guides
5. People/Density issues included:
 - Fly/gear conflicts
 - Non-Resident anglers
 - Angler education/etiquette
 - Crowding
 - Garbage/littering
6. Other issues included:
 - Native fishing
 - Commercial fishing
 - Forestry/Habitat
 - Enhancement
 - Low numbers of fish

Appendix 5.0 A summary of the time spent interviewing by the Interview Teams.

Table A3. The date, week, time at start of interviewing stint, time at finish of interviewing stint, minutes interviewing, reach location at start, reach location at finish, the total anglers interviewed and observed and comments on the time estimation in minutes summarized from the angler count data forms.

Week	Date	Time @ Start	Time @ Finish	Min.	Reach @ Start	Reach @ Finish	Total Anglers Interviewed / Observed	Comments
9-1	902			40*	Powerline Hole	Mouth	4/4	estimated 10 min./angler
	904			10*			1/1	estimated 10 min./angler
	905	1300	1600	180	Rodeo Grounds	Kispiox village/mouth	5/5	
	906	1030	1430	240	Upper Kispiox Rec. Site	Woods hole	2/2	2 anglers interviewed/observed
	906	1430	1800	210	Woods hole	Kispiox village/mouth	6/6	were not recorded.
		Total Week 1		680			20/20	
9-2	908	1300	1700	240	Lodge	Mouth	10/10	
	911	1400	1800	240	Woods hole	Mouth	9/15	
	912	1300	1600	180	Potato Patch	Mouth	13/26	
	913	800	1000	120	Potato Patch	Mouth	5/5	
	913	1000	1200	120	Mouth	Jim Sales	4/4	4 angler interviewed were not recorded
		Total Week 2		900			45/61	
9-3	915	1330	1600	150	Rest Haven	Upper Kispiox Rec. Site	0/3	
	915	1200	1330	90	Kispiox Bridge	Rest Haven	3/6	
	916	930	1400	270	Rodeo Grounds	Mouth	19/22	
	917	1800	2000	120	Woods hole	Rodeo Grounds	1/1	
	918	1100	1400	180	Potato Patch	Mouth	5/16	
	919	1300	1800	300	Mouth	Jim Sales	1/7	
	920	1300	1400	60	Kispiox Bridge	Mouth	5/5	
			Total Week 3		1170			34/60
9-4	921			20*		Sweetin	2/2	estimated 10 min./angler
	922	1500	1700	120	Mouth	Potato Patch	5/8	
	923	1300	1500	120		Cullen Creek	2/2	
	925	1200	1500	180	Potato Patch	Mouth	8/20	
	926	1200	1630	270	4 mile	Woods hole	5/9	
	927	1430	1700	210	Potato Patch	Mouth	5/9	
	927	1700	2000	180	Mouth	Woods hole	6/10	

Week	Date	Time @ Start	Time @ Finish	Min.	Reach @ Start	Reach @ Finish	Total Anglers Interviewed / Observed	Comments
		Total Week 4		1100			33/60	
9-5	1002	Blow out of River					0/0	
	1004	1230	1800	330	Mouth	Jim Sales	9/13	
		Total Week 5		330			9/13	
10-1	1005	1030	1700	390	Rodeo Grounds	Mouth	10/16	
	1006	1600	1800	120	Potato Patch	Mouth	5/7	
	1007	1300	1600	180	Rest Haven	4 Mile	3/8	
	1008	1200	1430	150	Mouth	Jim Sales	3/6	
		Total Week 6		840			21/37	
10-2	1012	1630	1830	120	Mouth	Woods hole	0/2	
	1013	1230	1700	270	Woods hole	Mouth	8/13	
	1015	Blow out of River		0			8/15	
		Total Week 7		390				
10-3	1021	900	1400	300	Mouth	Sweetin Rec. Site	8/8	
	1021	1400	1730	210	4 Mile	Woods hole	5/5	
	1022	900	1400	300	Mouth	Resthaven	0/4	
	1025	1000	1800	480	Mouth	Resthaven	0/3	
		Total Week 8		1290			13/20	
		Total All Weeks		6700	minutes		183/285	
		Total All Weeks		111.667	hours			

The total 6,700 minutes was divided by 60 to equal 111.67 hours.

* The times with stars are those that were estimated see the comments section for explanations