Angling Guide Data Summary for the 2007/2008 Licence Year Skeena River Watershed

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EXECUTIVE SUMMARY

Guided angler data in annual guide reports provide information on angler demographics, effort and catch for waters and over time. Angling guide reports for the Skeena watershed submitted for the 2007/2008 licence year were entered in the *Angling Guide Management System* (AGMS), a database developed by BC Environment which contained historical angling guide reports for the 1990/1991 to the 2001/2002 licence years. Data for the 2002/2003 to 2006/2007 and the 2008/2009 licence years are intended to be entered in future years. This report provides a general summary of the 2007/2008 angling guide reports, with some comparisons to historical data contained in AGMS.

A total of 38 angling guides reported operations in the Skeena watershed in 2007/2008, with eight guides operating in only unclassified waters, 11 guides operating in only classified waters, and 19 guides operating in both classified and unclassified waters. Angling guides reported 11,066 guided angling days for the Skeena watershed (rivers and lakes) in 2007/2008, the fifth highest number of guided rod days for the 13 licence years in AGMS. Fishing in classified waters accounted for most of the guided angling days (60.7%) in 2007/2008 with most guided angling days in the Babine and Skeena section 2. Guided angling days in unclassified waters were predominantly in the Skeena mainstem section 3, Babine (outside the classified waters period), and unclassified Skeena tributaries. Historically, guided angling effort in AGMS exhibited a bi-modal distribution with an early peak between weeks 27 and 31 (July 15th to August 18th), and a later peak between weeks 37 and 31 (September 23rd to October 26th). However, in 2007/2008 guided angling effort exhibits a unimodal distribution with a broader peak between weeks 28 and 43 (July 22nd to November 10th). This shift from a bimodal to unimodal distribution of guided angling effort appears to be due to a shift of guided angling to unclassified Skeena section 3 in weeks 31 to 37. Overall, 14,380 fish were reported captured by guided anglers in 2007/2008, including steelhead (4,239), pink salmon (3,297), rainbow trout (2,708), sockeye (1,550), coho (1,200), chinook (581), cutthroat trout (380), bull trout (211), Dolly Varden (29), lake trout (18), chum (15), and whitefish (1).

The classified waters period in most Skeena waters coincides with time periods when steelhead are expected to be present, except for classified waters that remain classified year round, and Skeena River mainstem sections which has an earlier classified waters period to bracket steelhead and pacific salmon migration times. Over half of the guided angler effort in 2007/2008 were spent in classified waters (6719 days, 61%), which was the eighth highest of the 13 years in the AGMS database and resulted in the capture of 87% of steelhead. 80% of pink salmon, 76% of sockeye salmon and 71% of chinook salmon reported by guided anglers in 2007/2008. Guided angling effort in classified waters was concentrated primarily Skeena River section 2 (classified from July 1st to September 30th) for pacific salmon, and the Babine (classified from September 1st to October 31st) for steelhead. In addition to the Skeena River section 2 and the Babine, guided angler effort in the classified periods in the Bulkley, Sustut and Kitsumkalum were also significant, and accounted for 30% of guided angling effort, with steelhead appearing to be the main target species. Guided angler effort for the Kitsumkalum in the spring (weeks 10 to 21) has increased in recent years, was higher in 2007/2008 than in previous years, and resulted in the capture of both winter run steelhead as well as bull trout (68% of total catch). In 2007/2008, steelhead CPUE was highest in the Babine and Bulkley classified waters, which is consistent with historic information in AGMS.

In 2007/2008, guided anglers were reported to spend 4,347 days angling in unclassified waters in the Skeena watershed, based on angling guide reports, and captured primarily rainbow trout and coho salmon. Guided angler effort Skeena River section 3 was highest for all unclassified waters, and resulted primarily in the capture of pink, sockeye and coho salmon. Guided fishing effort in the Babine was second highest for unclassified waters and resulted primarily in the catch of rainbow trout, with some sockeye. Unclassified Skeena River tributaries had the third highest guided fishing effort in 2007/2008, with primarily coho and rainbow trout captured. Guided fishing effort in unclassified waters accounted for 39% of the total guided angling effort, and resulted in the capture of 99.9% of rainbow trout, 60.8% of coho, and 24% of sockeye salmon. Guided angling effort in unclassified waters peaked between weeks 21 to 39 (May 21st to October 13th), in the 2007/2008 licence year. The majority of guided angling in unclassified waters was accounted for by guided angling in Skeena section 3 in weeks 26 to 39 (June 25th to October 13th). Guided angling effort in unclassified in the Babine peaked between weeks 21 and 31 (May 21st to August 18th) and appeared to target rainbow trout. Guided angler effort in unclassified waters in 2007/2008 was within the range reported for these waterbodies in historical AGMS data, except for Skeena mainstem sections 1 and 3, which showed a marked increase in guided angling effort in 2007/2008 over historical levels.

Most of the guided anglers in 2007/2008 in the Skeena watershed were non-resident aliens, with some non-resident anglers, and few BC resident anglers, which is consistent with historical information in AGMS for the 1998/1999 to 2001/2002 licence years. Annually, non-resident alien guided angler days accounted for an average of 79.3% of the total guided angler days, with a low of 73.6 in 1999/2000, and a high of 87.9% in 2007/2008. The proportion of angler days by non-resident alien anglers in classified waters was higher than the proportion of non-resident alien anglers among all Skeena waters, averaging 91 % of the total guided angler days, with a high of 94% in the 2001/2002 licence year, and a low of 87% in the 1998/1999 licence year. Half of the guided angling effort of non-resident anglers, and 93% of the guided angling effort of BC anglers were spent in unclassified waters, while 38% of non-resident alien guided angler days were spent in unclassified waters. Compared to historical information on angler residence in AGMS, more of the non-resident alien anglers fished in unclassified waters than in previous years, and this apparent shift of some non-resident alien anglers toward unclassified waters particularly in Skeena section 3 to target pacific salmon coincides with increased guided angling effort in weeks 33 to 36, resulting in a unimodal distribution of weekly angler effort in 2007/2008 compared to the historically bimodal distribution of weekly angling effort.

TABLE OF CONTENTS

List of Tables

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

Angling guides, including those guiding in the Skeena River watershed, submit annual reports on their guiding activities to BC Environment. Angling guides self-report details on their clients' effort, catch and demographics. The accuracy of the data depends entirely on the cooperation of the guides, and data do not represent the demographics, effort or catch of non-guided anglers. The intent of this information is to provide the province with information on guided angler demographics, effort and catch.

Historically, the Skeena Region has taken the initiative to capture the angling guide information digitally by entering information provided in hardcopy reports into the *Angling Guide Management System* (AGMS). The AGMS Microsoft Access (Version 97) database was initially designed from 1990 to 1993, and was revised in 1998 (DeGisi 1998). The database has the capability of capturing both license information for each guide, and guide activity information, but has not been updated to a newer version of Microsoft Access. Angling guide data was entered into AGMS by MoE Skeena Regional staff for the 1990/1991 to the 2001/2002 license years, but subsequent angling guide reports were not entered due to time and budget constraints. Following recommendations provided by the *Skeena Independent Science Review Panel* (Walters et al 2008), the 2007/2008 guide report data for the Skeena River watershed were entered into the AGMS for this preliminary update and summary of the status of angling guide activities in the Skeena Watershed. In addition, Skeena watershed data for the 2002/2003 to 2006/2007 and the 2008/2009 license year are intended to be entered in 2010.

Due to budget constraints in the 2008/2009 fiscal year, the objectives of this project were limited to:

- Data update of the AGMS database with 2007/2008 angling guide reports for the Skeena Region,
- A general summary of the angling guide data for the Skeena Watershed in 2007/2008, and
- An overview of steelhead angling data for 2007/2008 relative to temporal, spatial, and angler demographic trends identified in previously entered data (i.e. 1990/1991 to 2001/2002 license years).

1.1 Background Information

The Skeena River drains the second largest watershed in British Columbia (Gottesfeld et al 2002), and provides world renowned sport-fishing opportunities (Dolan 2008). The Skeena watershed is bordered by the Nechako Plateau to the west, the Skeena Mountains to the north and the Coast Range to the south, and drains into Hecate Strait on the west coast of British Columbia near the port of Prince Rupert (Gottesfeld et al 2002, Walters et al 2008). The watershed provides habitat for a variety of anadromous and resident fish species, including all five species of pacific salmon. The sport-fishery in the watershed targets salmonid species, primarily anadromous Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), sockeye (*O. nerka*), and steelhead (*O. mykiss*), and non-anadromous cutthroat trout (*O. clarki*), rainbow trout (*O. mykiss*), Dolly Varden (*Salvelinus malma*) and bull trout (*S. confluentus*). For the purpose of this report, catch data analysis focused on steelhead catch in classified and unclassified waters, and project specific background information on Skeena steelhead and classified waters are provided in the following sections.

1.1.1 SKEENA STEELHEAD

Steelhead is one of the main target species for recreational fisheries in the Skeena watershed, and unlike pacific salmon, the management of steelhead falls under provincial jurisdiction. There is limited information on steelhead abundance for the Skeena watershed. Three long-term projects that have included enumeration of steelhead in the Skeena watershed are the Tyee Test Fishery (near Prince Rupert), the Sustut steelhead fence (near Johanson Creek), and the Moricetown tagging project at Moricetown Canyon (Walters et al 2008). Fisheries management strives to balance the conservation of fish, with resource use. For management purposes, the wild salmon policy groups steelhead into two Conservation Units based on life history characteristics (i.e. adult run timing): winter run steelhead (adults enter freshwater in November to March) and summer run steelhead (adults enter freshwater in July and August, and spend the fall and winter in freshwater prior to spawning) (Gottesfeld et al 2002). Summer run steelhead are found throughout the Skeena watershed, and are the dominant life history, while winter run steelhead are limited to coastal portions of the watershed (i.e. downstream of Terrace) (Gottesfeld et al. 2002). Sportfishing in the lower portion of the Skeena Watershed (e.g. Skeena 1, Kitsumkalum) target both, steelhead and pacific salmon, while the majority of angling effort in mid- and upper sections of the Skeena watershed target steelhead.

1.1.2 CLASSIFIED WATERS

For the purpose of angling management, the Skeena system has been divided into four sections of the Skeena River mainstem (Figure 1) and 14 major tributaries (Figure 2) for angling management boundaries: Skeena 1-4, Ecstall, Exchamsiks, Gitnadoix, Lakelse, Kitsumkalum (*alias* Kalum), Zymoetz (*alias* Copper), Kitwanga, Kitseguekla, Bulkley, Morice, Babine, Kluatantan, and Sustut rivers. Fishing regulations for these waters are described in the annual *Freshwater Fishing Regulations Synopsis* (B.C. Environment 2008a) and include the designation of unclassified and classified waters in order to protect high quality recreational fisheries (Morten and Parken 1998). The classified waters status are given to specific locations and time periods with Class I waters being generally remote locations and Class II waters being more accessible but still providing quality angling experience (Dolan 2008). At Class I or Class II waters, non-guided anglers can fish with a special ―Classified Waters License", but angling guides require licensed rod days for classified waters to bring customers who also have a Classified Waters License. In 2007/2008, there were four Class I waters and thirteen Class II waters in the Skeena watershed (*see* Table 1). A CAP for guided angler effort (i.e. maximum number of client rod days) has been set for each classified waterbody (Table 1). Each year, individual angler guide license applications are allocated a portion of the total cap (rod days) for their requested classified waters, based on their guiding licence, but are also permitted to guide on unclassified waters. The purpose of the designating classified waters with special license requirements has been to improve the maintenance of quality angling experience (Dolan 2008).

Figure 1. The Skeena River watershed, showing the four section of the mainstem Skeena River, and the two sections of the Zymoetz River (Dolan 2008).

Table 1. Summary of major waters, location, and classified waters designation for the Skeena River watershed.

Waterbody Name	Watershed Code	Description	Classified Waters (BC Environment 2008a)	Max Number (CAP)[1]	
				Guides	Guided rod days
Skeena 1	400	From mouth to Exchamsiks River confluence			
Skeena 2	400	From Exchamsiks to 1.5 km above Kitsumkalum River	**Class II** July 1 – Sept 30	17	4687
Skeena 3	400	1.5 km above Kitsumkalum to 1.5 km above Zymoetz			
Skeena 4	400	1.5 km upstream of Zymoetz to headwaters	**Class II** July 1 – Oct 31	10	1000
Skeena Tributaries	400-XXXX	Includes tributaries except those listed below	**Class II** all year Ecstall R., **Class II** all year Kitwanga R., **Class II** all year Kluatantan R. **Class I** all year Gitnadoix River	4 0 2 5	163 0 55 300
Exchamsiks	410	Includes tributaries			
Lakelse	420	Includes tributaries	**Class II** all year	0	0
Kitsumkalum	430	Includes tributaries	**Class II** all year	13	959
Zymoetz 1	440	Includes tributaries	**Class I** Sept 1 – Oct 31 above Limnonite Creek	5	200
Zymoetz 2	440	Includes tributaries	**Class II** Sept 1 – Oct 31 below Limnonite Creek	3	250
Kitseguekla	450	Includes tributaries	**Class II** all year	0	0
Bulkley	460	Includes tributaries except Morice and Suskwa River	**Class II** Sept 1 – Oct 31 **Class II** all year Suskwa River	7 0	1504 0
Morice	460-600600	Includes tributaries	**Class II** Sept 1 – Oct 31	3	433
Kispiox	470	Includes tributaries	**Class II** Sept 1 – Oct 31	4	393
Babine	480	Includes tributaries	**Class I** Sept 1 – Oct 31 Skeena River to juvenile fish counting weir at outlet of Nilkitkwa Lake	4	1798
Sustut	490	Includes tributaries	**Class I** Sept 1 – Oct 31	2	750

[1] Maximum number of guides and rod days refer to classified waters periods only, and are summarized in BC Environment 2008b.

1.1.3 ANGLING GUIDE MANAGEMENT SYSTEM

Guided anglers in the Skeena watershed are licenced by the Ministry of Environment (MoE), and are required to submit annual *angling guide reports*, detailing effort and catch, to the ministry. Angling guide permits and reports are administered through the Permit Authorization Service Bureau in Victoria (PASB), but are reviewed by regional offices. The PASB issues permits and collects the hardcopy angling guide reports, but does not currently capture the angling guide report information in a comprehensive database. Since the data are not captured electronically, their use is relatively limited. Hardcopy guide reports submitted by each individual guide do not provide a picture of guided angling demographics, catch and effort. However, digital capture of this data in a database allows for data queries and summaries that can provide general trends and information on angler demographics, effort and catch, both within and between years. For the purpose of this project, guide activity data for the 2007/2008 licence year was entered into the pre-existing Skeena Regional AGMS database.

2.0 METHODS

Available guide data for guides operating in the Skeena watershed in the 2007/2008 licence year (April 1st to March 31st) were entered in the AGMS database (DeGisi 1998). The database was provided by BC Environment Skeena Region, and contained data previously entered by BC Environment staff, up to an including the 2001/2002 licence year. The data entry tool was installed on a Toshiba laptop computer, and was modified slightly to be fully functional on a Windows XP. Data was entered at the BC Environment Skeena Region office in Smithers, as requested by the Ministry. Administrative data for the 2007/2008 licence year were not available, and some built-in data quality assurance features were overridden (e.g. error message for waters where no guide licence existed). The following sub-sections summarize data entry, quality assurance checks on newly entered data (i.e. 2007/2008), and methods used to present summaries of the data and comparison to historical data from 1990-2002.

2.1 Data Collection and Entry

For each angling day, guides are required to report the number of anglers, angler residence, total catch, number of fish released and number of fish kept for each species (Table 2). Guide activities are reported on separate forms for guiding on classified and unclassified waters. Guides are required to report the catch for each individual angler on each day separately for the classified waters, while multiple anglers fishing on the same day on unclassified waters can be grouped together.

Table 2. Data recorded on angling guide report forms.

Data type	Unclassified Waters Form	Classified Waters Form	Comments
Guide Name	Yes	Yes	
Angling Guide Licence	Yes	Yes	Not captured in AGMS
Waterbody	Yes	Yes	Section of waterbody not always specified
Date	Yes	Yes	
Angler Days	Combined for each day	Separate for each angler on each day	Some guides group multiple days for same anglers
Angler Name	No	Yes	Not captured in AGMS
Angler Licence #	No	Yes	Not captured in AGMS
Angler Residence	Combined for each day	Separate for each angler on each day	Some guides group multiple days for same anglers
Catch (Species)	Combined for each day	Separate for each angler on each day	Some guides do not report the catch for each species caught separately
Catch (Kept)	Combined for each day	Separate for each angler on each day	Some guides do not report the catch for each species caught separately
Catch (Released)	Combined for each day	Separate for each angler on each day	Some guides do not report the catch for each species caught separately
Catch (Total)	Combined for each day	Separate for each angler on each day	Some guides do not report the catch for each species caught separately

Most of the angling reports were complete, but some of the data was ambiguous or incomplete and some inferences were made during data entry. For example, some guides combined the catch for anglers fishing on multiple days for the entire length of the fishing trip. In these cases, catch was arbitrarily re-allocated to individual days to ensure that overall catch and effort data remained intact, and to provide a conservative estimate of daily CPUE. New guides certified since 2002 were added to the database, and new waters not previously entered into the database were added using the data entry tools. Transfers of allocated guiding days were not entered. Only data for guides operating in the Skeena watershed were entered, and these data were located by manually reviewing each of the angling guide files.

2.2 Data QA and Data Queries

Quality Assurance of data entry was limited to data for the 2007/2008 licence year. Queries were used to locate outliers, which were cross-checked against original data in the angling guide files. Outliers were checked against original angling guides and corrected where possible. Classified waters designations are auto-generated by the database, but were double checked against BC fishing regulations, and corrected as necessary.

2.3 Data Analysis

Data analysis consisted primarily of summarizing the 2007/2008 angling guide data graphically and in data tables. Data queries were added to the AGMS database to extract summary data and facilitate data analysis. Data were summarized to provide an overview of guiding effort (i.e. number of guides), angler characteristics (i.e. angler residence), angler effort (by week and by waterbody), catch (by week and by waterbody), and catch per unit effort (CPUE) for steelhead and all species combined by waterbody.

CPUE was determined for each guided angler record. However, CPUE for each angler record represented one angler for classified waters, and one or more anglers for unclassified waters. Therefore individual CPUE records could not be utilized to calculate average CPUE because each individual CPUE would have to be weighted by the number of anglers represented in the record. Similarly, standard deviation for CPUE could be determined for classified waters by averaging the individual daily angler CPUE for each week, but this was not possible for historic data or unclassified waters since daily catch of multiple anglers in the same party were recorded together. Mean CPUE was determined for each statistical week and each licence year by summing angler effort and catch for each week or licence year. To compare annual variation in CPUE for each waterbody, the maximum weekly CPUE among weeks with more than 21 angler rod days was determined rather than overall mean CPUE because maximum mean weekly CPUE is less likely influenced by seasonal differences in fishing conditions and other factors (e.g. number of hours spent fishing each rod day, angler ability etc).

Data in the database include effort and catch data for both streams and lakes. While data were separated for classified and un-classified waters, and for major waterbodies, data were not separated between waterbody type (i.e. streams and lakes).

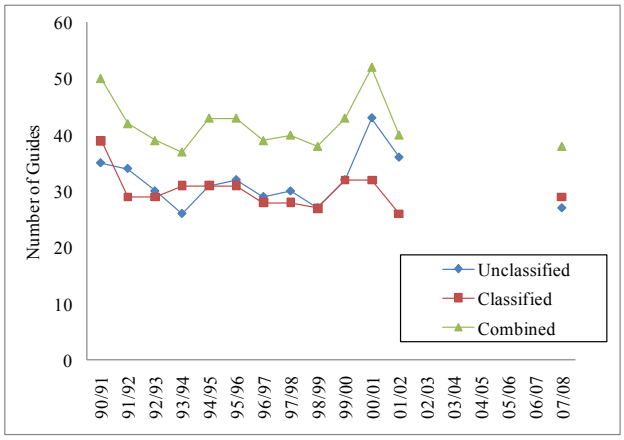
Data were summarized in graphs and tables to illustrate spatial and temporal trends for 2007/2008, and for multiple year comparisons with historical data available in the database. Licence years follow the BC Government fiscal year end (April 1 – March 31). The database auto-designates each record to a statistical week (January 1 – December 31), and statistical weeks were used as a common unit of time to analyze temporal variation in guided angler and catch distribution. Statistical week 14 bridge falls partly in to end of March and partly in the beginning of April, thus bridging the licence year end of March 31. To clearly show temporal trends within licence years, weeks 15 to 52 were allocated to the beginning of the licence year (i.e. April 1 to December 31), and weeks 1 to 14 to the end of the licence year (i.e. January 1 to March 31). For example, for the 2007/2008 licence year, weeks 15 to 52 fall within the 2007 calendar year, while weeks 1-14 fall within the 2008 calendar year.

3.0 RESULTS

The data entered into the AGMS database captured guide reports from 38 guides available at the MoE Smithers branch, which contain information on angling guides and their clients, as well as the catch of guided anglers in the Skeena watershed for 2007/2008. Of the 38 guides that reported operations in the Skeena watershed, 8 guides operated in only unclassified waters, 11 guides operated in only classified waters, and 19 guides operated in both unclassified and classified waters.

The total number of licences issued could not be determined, because only the number of licences for classified waterbodies was available from PASB. Three of the 13 classified waters in the Skeena watershed had the maximum number of available licences (CAP) issued and reported in 2007/2008 (Table 3). Within the 64 licences for classified waters in the Skeena watershed issued in 2007/2008, 10,262 angler days were issued to 35 angling guides (Table 4), but guide reports were receive for only 30 guides. The issued licences account for 81% of available licences and 82% of available rod days. In addition to classified waters licences, 77 guide reports were received for 14 unclassified waters (Table 3).

In comparison to 12 other licence years from 1990 to 2002, the 38 angling guides operating in the Skeena watershed in 2007/2008 is the second lowest number of guides (Figure 2). The highest number of guides between 1990 and 2002 reported in the Skeena Watershed was in 2000/2001 (52 guides), and this was related to a high number of guides operating in unclassified waters (43), the highest number on record. The second highest number of guides (50 guides) were reported for 1990/1991, and is largely attributable to the relatively high number of guides operating in classified waters (35), and a high number of guides operating in unclassified waters (39) compared to other years for which data has been entered in AGMS. Only the 1993/1994 licence year had a lower total number of guides (37) than 2007/2008. This appears to be due to a relatively low number of guides operating on unclassified waters in 2007/2008 (27 guides). While the total number of guides operating in the Skeena watershed in 2007/2008 was relatively low, the number of guides operating on classified waters in is comparatively high (29 guides), with only six of the 12 other years in the AGMS database having a higher number of guides on classified waters.



Note: The combined number of guides for each licence year is lower than the sum of the guides operating in unclassified and classified waters because some guides operate in both, classified and unclassified waters.

Figure 2. The total number of guides on classified and unclassified waters in the Skeena watershed for 1990 to 2002 and 2007/2008 licence years.

Table 3. Summary of licences issued to angling guides in the Skeena watershed.

Waterbody Name	Watershed Code	CAP for number of licences[1]	Classified Waters Licences (% CAP)		Unclassified Waters licences
			issued	reported	reported
Skeena 1	400				12
Skeena 2	400	17	15 (88)	11 (65)	6
Skeena 3	400				10
Skeena 4	400	10	9 (90)	9 (90)	1
Ecstall	400-016500	4	2 (50)	2 (50)	
Gtinadoix	400-113400	5			
Kitwanga	400-364900				
Kluatantan	400-898600	2	1 (50)	1 (50)	
Skeena tribs	400-xxx				19
Exchamsiks	410				5
Lakelse	420				1
Kitsumkalum	430	13	11 (85)	9 (69)	
Zymoetz 1	440	3	3 (100)	3 (100)	3
Zymoetz 2	440	5	5 (100)	5 (100)	4
Kitseguekla	450				
Bulkley	460	7	7 (100)	7 (100)	5
Suskwa	460-081700				
Morice	460-600600	3	2 (67)	2 (67)	1
Kispiox	470	4	3 (75)	3 (75)	4
Babine	480	4	3 (75)	3 (75)	5
Sustut	490	2	1 (50)	1 (50)	1
Combined		**79**	**64 (81)**	**56 (71)**	**77**

[1] CAP is Maximum number of guides and rod days refer to classified waters periods only, and are summarized in BC Environment 2008b .
[2] Number of guides licenced for classified waters in 2007/2008 was obtained from PASBC (2009).

Table 4. Summary of guided angler rod days issued in classified waters in the Skeena River watershed in 2007/2008.

Waterbody Name	Watershed Code	CAP for guided angler days for classified waters[1]	Allocated angler days for classified waters[2]	Percent of CAP allocated
Skeena 1	400			
Skeena 2	400	4687	3668	78%
Skeena 3	400			
Skeena 4	400	1000	414	41%
Ecstall	400-016500	518	248	
Gitnadoix	400-113400			
Kitwanga	400-364900			
Kluatantan	400-898600	0	0	
Exchamsiks	410			
Lakelse	420	0	0	
Kitsumkalum	430	959	959	100%
Zymoetz 1	440	200	58	29%
Zymoetz 2	440	250	117	47%
Kitseguekla	450	0	0	
Bulkley	460	1504	1504	100%
Suskwa	460-081700	0	0	
Morice	460-600600	433	433	100%
Kispiox	470	393	393	100%
Babine	480	1798	1718	96%
Sustut	490	750	750	100%
Combined		**12492**	**10262**	**82%**

In summary, the number of licences and the number of guided rod days issued for any of the classified waters in the Skeena watershed did not exceed the maximum limit in the 2007/2008 licence year. The number of guides operating in classified waters for 2007/2008 was 30, which falls within the historical range from 1990 to 2002 (26-39). The number of guides operating in unclassified waters for 2007/2008 was 27, which also falls within the historical range from 1990 to 2002 (26-43). The following sections present some more detailed information relevant to guided angler activity and guided angler success, including spatial and weekly distribution as well as comparisons to historical information available in the AGMS database.

3.1 Guided Angler Activity

The combined guided angler effort reported for classified and unclassified waters in the Skeena Watershed for 2007/2008 totaled 11,066 rod days, of which 6,719 (60.7%) were on classified waters. Although 82% of the available rod days (CAP) for classified waters were allocated in guide licences issued in 2007/2008, only 54% of the CAP were reported used (Table 5). The percent of allocated guided angler days utilized varied between 46.6% (Bulkley) to 134% (Zymoetz 1). The licenced angler days were exceeded in two classified waters (Zymoetz 1 and Kispiox), and the CAP was exceeded in one of these waters (Kispiox). The following sections provide details on the spatial, temporal and angler residence distributions for guided angler activities in the 2007/2008 licence year, with comparisons to available historical data in the AGMS database.

Table 5. Summary of licenced angler rod days issued in the Skeena River watershed in 2007/2008.

Waterbody Name	Watershed Code	CAP for guided angler days for classified waters[1]	Allocated angler days for classified waters[2]	Guided angler days reported for classified waters	Percent of CAP allocated	Percent of CAP reported
Skeena 1	400			N.A.		
Skeena 2	400	4687	3668	1813	78%	39%
Skeena 3	400			N.A.		
Skeena 4	400	1000	414	331	41%	33%
Ecstall	400-0165	518	248	100		
Gitnadoix	400-1134					
Kitwanga	400-364900					
Kluatantan	400-8986	0	0	0		
Exchamsiks	410			N.A.		
Lakelse	420	0	0	0		
Kitsumkalum	430	959	959	708	100%	74%
Zymoetz 1	440	200	58	78	29%	39%
Zymoetz 2	440	250	117	117	47%	47%
Kitseguekla	450	0	0	0		
Bulkley	460	1504	1504	701	100%	47%
Suskwa	460-081700	0	0	0		
Morice	460-600600	433	433	268	100%	62%
Kispiox	470	393	393	422	100%	107%
Babine	480	1798	1718	1570	96%	87%
Sustut	490	750	750	611	100%	81%
Combined		**12492**	**10262**	**6719**	**82%**	**54%**

3.1.1 SPATIAL AND TEMPORAL DISTRIBUTION IN 2007/2008

During the 2007/2008 licence year, some intra and inter-comparisons of guided angler effort at the different locations in the Skeena watershed display some differences in timing of guided angler effort, and angler residence types. Guided angling activity in 2007/2008 are primarily focused on Skeena River sections 1 and 3 for unclassified waters, and the Babine River and Skeena River section 2 for classified waters. Differences in weekly timing of guided angling are quite variable, but are likely associated with different target species, but also with run timing of specific species as they migrate upstream. Overall, guided angling effort had a somewhat normal distribution from July 1st to November 18th, with only a slight skew into June and a minor surge in the spring. The peak for guided angling in 2007/2008 was in week 31 (August 12th to 19th) for unclassified waters, and week 38 (September 30th to October 7th) for classified waters. Non-resident aliens were reported to be the main clientele for Skeena angling guides in the 2007/2008 licence year. Based on the AGMS data for 2007/2008, the following sections summarize:

- the distribution of guided angling effort for different Skeena waters and for classified versus unclassified waters,
- the weekly distribution of guided angling effort for the different Skeena waters and for classified versus unclassified waters, and
- the proportions of guided angler efforts for different resident types, and their distributions by location and week.

3.1.1.1 Spatial Distribution of Guided Angler Rod Days

In the Skeena Watershed, a large proportion of the guided angler days are attributable to the Skeena River mainstem (4,961 days, 44.8%) and the Babine River (2,087 days, 18.9%). The Skeena River mainstem sections 1 and 3 were the main contributor for guided fishing effort in unclassified waters, with more than half (2746 days, 63.2%) of the guided effort for unclassified waters expended in these waters (Table 6, Figure 3). The Babine River was also a significant contributor of guided angler effort on unclassified waters (517 days, 11.9%), as were the Skeena River tributaries (492 days, 11.3%). For classified waters, the Babine River and Skeena River 2 accounted for the majority of guided angler days (1570 days (23.3%) and 1813 days (27%) respectively). The Bulkley River (701 days, 10.4%), Kitsumkalum River (708 days, 10.5%), and Sustut River (611 days, 9.1%), were also significant contributors to guided fishing effort (Table 6).

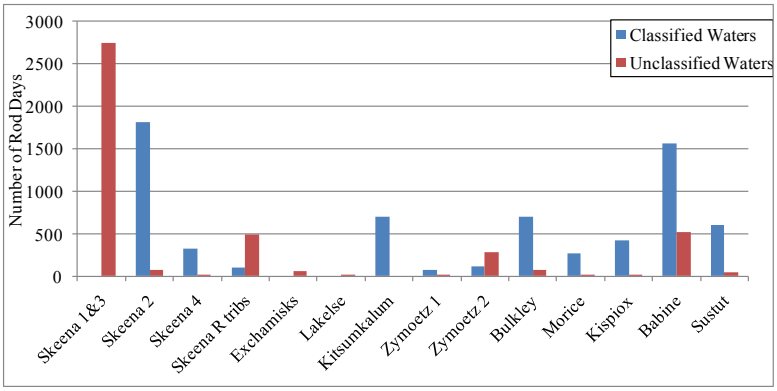


Figure 3. Spatial distribution of guided angler days among classified and unclassified waters in the Skeena watershed for 2007/2008.

Table 6. Summary of the number of guides and guided rod days on unclassified and classified waters for the Skeena watershed in 2007/2008.

Waterbody Name	Watershed Code	Guided angler days for Classified waters	Guided angler days for Unclassified waters	Percent guided angler days in classified waters
Skeena 1	400	N.A.	475	
Skeena 2	400	1813	70	96%
Skeena 3	400	N.A.	2271	
Skeena 4	400	331	1	99%
Skeena tribs	400-xxxx	N.A.	492	0%
Ecstall	400-0165	54		100%
Gitnadoix	400-1134			
Kitwanga	400-364900			
Kluatantan	400-8986	46		100%
Exchamsiks	410	N.A.	62	0%
Lakelse	420		6	
Kitsumkalum	430	708	0	100%
Zymoetz 1	440	78	14	85%
Zymoetz 2	440	117	287	29%
Kitseguekla	450			
Bulkley	460	701	75	90%
Suskwa	460-081700			
Morice	460-600600	268	18	94%
Kispiox	470	422	17	96%
Babine	480	1570	517	75%
Sustut	490	611	42	94%
Combined		**6719**	**4347**	**61%**

3.1.1.2 Weekly Distribution of Guided Angler Rod Days

Overall, the majority of guided angling days were between July 1st (week 27) and November 10th (week 45) (Figures 4 and 5). Skeena River sections 2 and 3 were the main focus of guided angler days during July and August, and Babine River had the greatest number of guided angler days in the fall of 2007/2008 (Figure 4). The majority of guided angling efforts in classified waters appear to coincide with the run timing of summer run steelhead from September to November and in the spring (e.g. Kitsumkalum) where winter run steelhead are present. However, section 2 of the Skeena River received the highest effort among all classified waters in the Skeena watershed from week 28 to 39 (July 9th to October 13th). Notable efforts in unclassified waters occurred in week 36 (September 16th to 22nd) at section 1 of the Skeena, weeks 21 to 31 (May 21st to August 18th) at the Babine, and weeks 26 to 39 (June 25th to October 13th) at section 3 of the Skeena River.

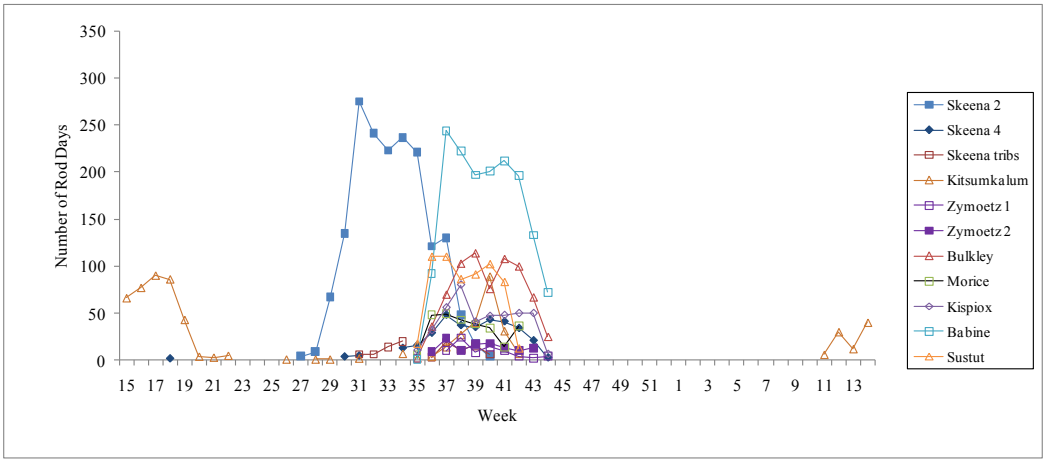


Figure 4. Guided angler days by week for **classified waters** in the Skeena Watershed for the 2007/2008 licence year.

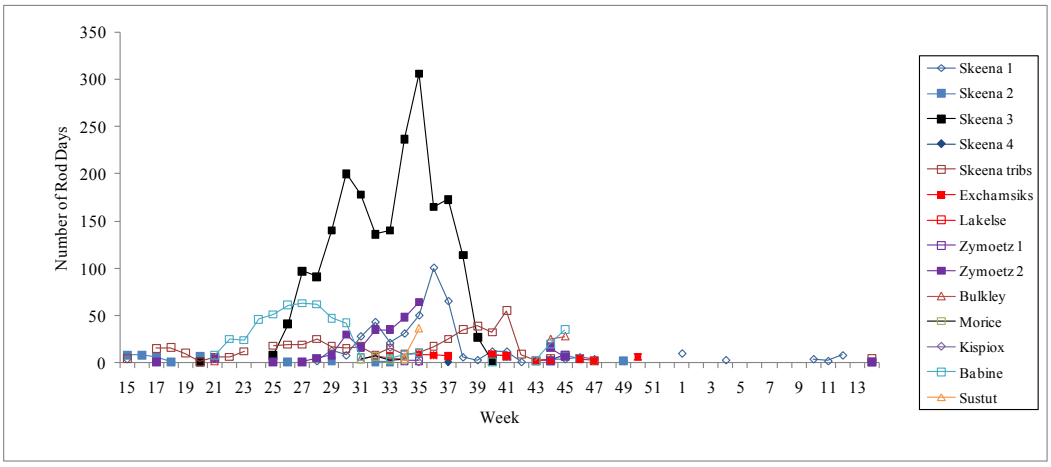


Figure 5. Guided angler days by week for **unclassified waters** in the Skeena Watershed for the 2007/2008 licence year.

3.1.1.3 Guided Angler Rod Days by Angler Residence

Most of the 11,066 guided rod days in the 2007/2008 the majority were non-resident alien anglers (9,978, 90.2%), followed by non-residents (565, 4.7%), and BC residents (416, 3.8%). Angler residence was not specified for the remaining 147 anglers (1.3%) (Table 7). Non-resident alien anglers focused their effort on classified waters (61.7%), while non-resident anglers were equally distributed between classified and unclassified waters (51.1% and 49.9% respectively) and BC anglers focused their effort on unclassified waters (81.3%). Overall, approximately 10% of guided angler days were used by BC and non- residents. The following sub-sections describe the distribution of guided angler effort among classified and un-classified waters, and between statistical weeks for anglers of different residence type.

Table 7. Summary of angler residence for guided angler activities in classified and unclassified waters for the Skeena watershed in 2007/2008.

Waterbody type	Number (percent) of rod days by angler residency				
	BC	Non-resident	Non-resident alien	Unknown	Combined
Unclassified	338 (7.8)	262 (6.0)	3819 (87.9)	38 (0.9)	4347
Classified	188 (2.8)	263 (3.9)	6159 (91.7)	109 (1.6)	6719
Total	**416 (3.8)**	**525 (4.7)**	**9978 (90.2)**	**147 (1.3)**	**11066**

Spatial Distribution by Angler Residence

Canadian anglers from outside of British Columbia and non-resident alien anglers appear to target similar areas, or possibly angler guides, in the Skeena watershed, but British Columbia residents appeared to be somewhat different. Guided non-resident alien anglers predominantly fish the Skeena River mainstem, followed by the Babine River, the Bulkley River, the Sustut River and the Kitsumkalum River (Figure 6). Guided BC anglers predominantly fished the Skeena River tributaries, the Babine River and the Bulkley River, while guided non-resident anglers predominantly fish the Babine River, the Skeena River, and Skeena River tributaries.

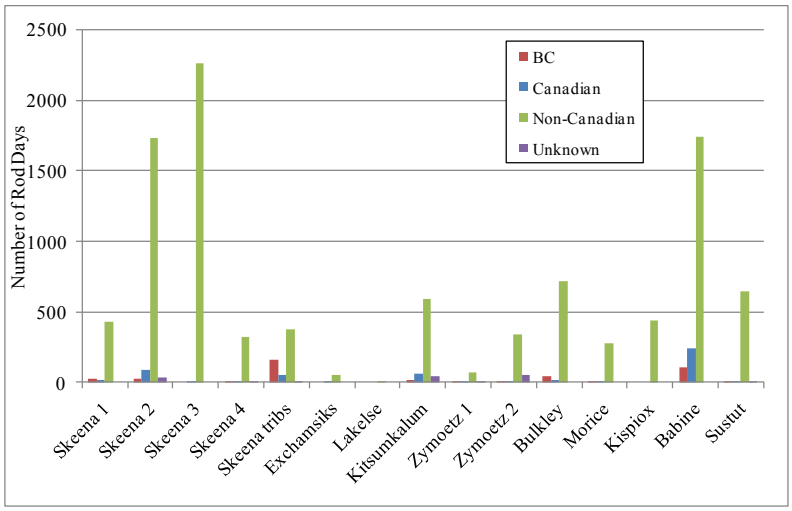


Figure 6. Spatial distribution of BC, non-resident (Canadian), and non-resident alien (non-Canadian) guided anglers in the in the Skeena Watershed for 2007/2008.

Weekly Distribution by Angler Residence

Non-resident alien, Canadian from outside of British Columbia, and British Columbia resident anglers appeared to focus on different times that may be related to the locations, and run timing of the different target species. BC resident anglers concentrated their efforts on the Babine (maximum effort in week 37 with 55 guided rod days), in the Skeena tributaries and the Bulkley River (Figure 7). Most of the guided non-resident anglers concentrated their efforts on the Babine between weeks 21 and 27, and between weeks 36 and 46, as well as the Skeena River section 2, particularly in week 33 (54 guided rod days (Figure 8)). Non-resident alien anglers, who accounted for the majority of guided anglers, predominantly fished Skeena 2 and 3 in weeks 26 to 38, and the Babine in the fall (weeks 36 to 44) with some spring fishing in the Kitsumkalum (weeks 12 to 19) (Figure 9).

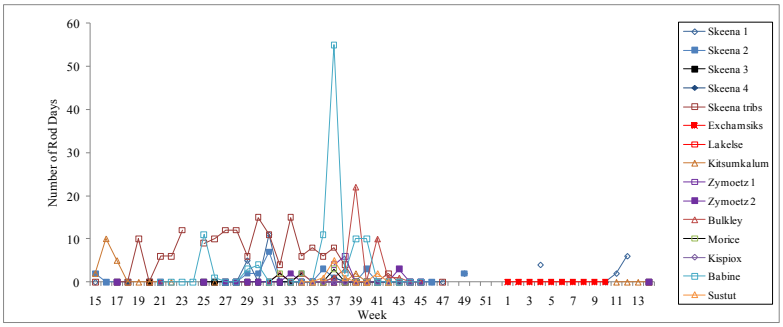


Figure 7. Guided angler days by week for **BC residents** in the Skeena Watershed in 2007/2008.

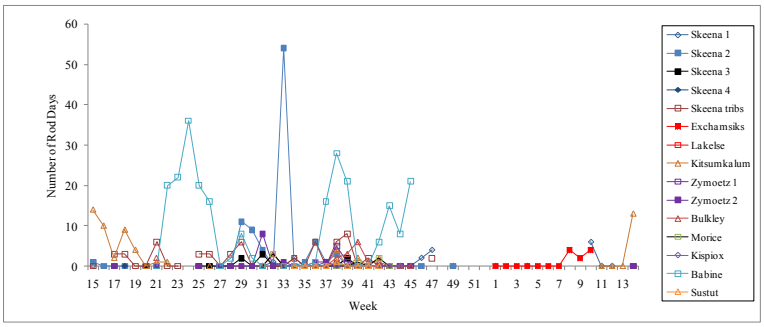


Figure 8. Guided angler days by week for **non-residents** in the Skeena Watershed in 2007/2008.

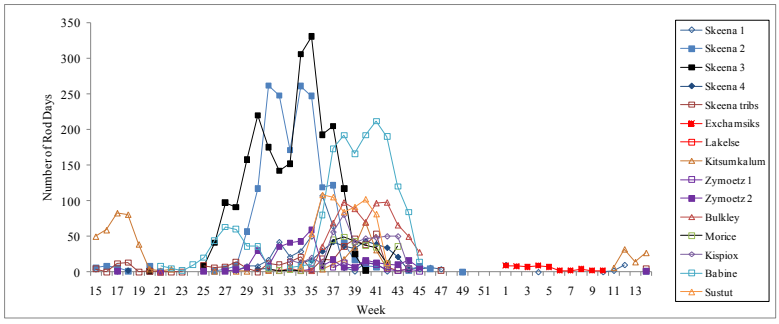


Figure 9. Guided angler days by week for **non-resident aliens** in the Skeena Watershed in 2007/2008.

3.1.2 Comparison to Licence Years from 1990 to 2002

The guided rod days in 2007/2008 are relatively high overall, for classified waters and for unclassified waters. Of the fourteen years of data available, 2007/2008 had the fifth highest guided angler day use on file for all waters combined, the seventh highest angler days for classified waters, and the fourth highest angler days for unclassified waters (Figure 10). The number of guided angler days reported in the Skeena Watershed fluctuated between a high of 12,371 in the 1995/1996 licence year to a low of 8,082 in the 2001/2002 licence year (Figure 10). Most guided anglers fished classified waters for all years (1990-2002) in the AGMS database and for 61% of the total guided angler days in 2007/2008. Therefore, it is not surprising that the overall guided angler effort, and guided angler effort in classified waters exhibit similar trends between 1990/1991 and 2007/2008. However, there is a weak trend toward a general increase in guided angler effort in unclassified waters and a weak trend toward decreasing guided angler effort in classified waters from 1990 to 2002.

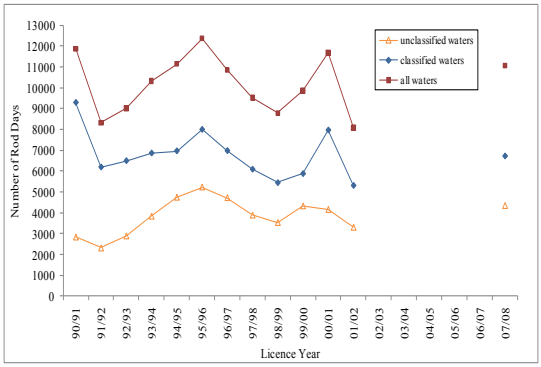


Figure 10. The total number of guided rod days spent on classified and unclassified Skeena waters from 1990-2002 and for the 2007/2008 licence years.

3.1.2.1 Spatial Distribution of Guided Angler Rod Days

Although the total number of guided angler days in classified and unclassified waters for 2007/2008 remained within the ranges reported from 1990 to 2002 (*see* Figure 10), the spatial distribution of guided angler effort has changed for some Skeena Region waters (Figures 11, 12, and 13). The following changes in angler rod days at different locations were noted:

- Guided angler effort in Skeena River 2 has dropped off significantly in the late 1990's, recovered somewhat in 2000 to 2002, but the number of guided angler days in 2007/2008 continue to support a weak trend of decline (Figure 11). Declines in guided angling days for Skeena River 2 are evident in both classified and unclassified waters (Figures 12 and 13).
- Guided angler effort in Skeena Rivers 1&3 (both unclassified) has shown an increase from 1990 to 2002 and reached its highest recorded number of guided angler rod days in 2007/2008.
- Although guided angler effort for classified water in the Bulkley was third highest in 2007/2008, this guided angler effort was lower than 10 of the 12 years reported from 1990 to 2002.
- Although guided angler effort for classified water in the Babine River has been relatively consistent from 1990-2002 and for 2007/2008, guided angler effort during unclassified days on the Babine River had its lowest recorded level in 2007/2008.

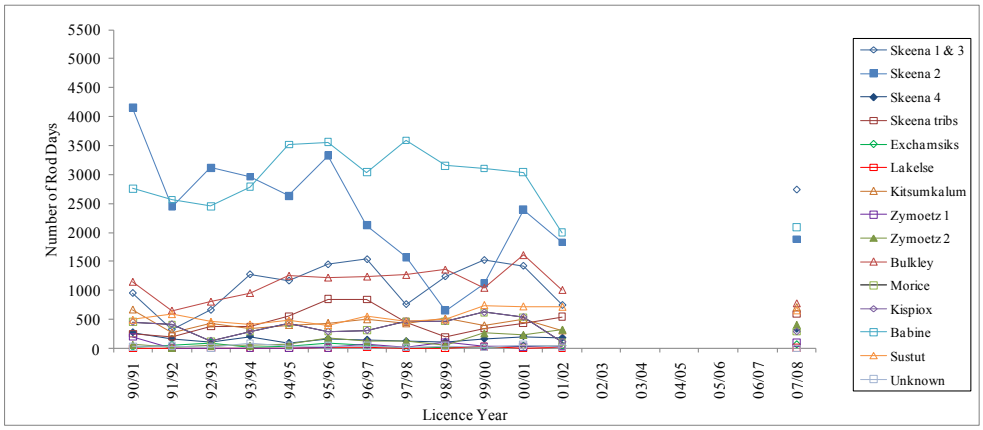


Figure 11. **Combined** guided angler days for Skeena Watershed for 1990-2002 and the 2007/2008 licence years.

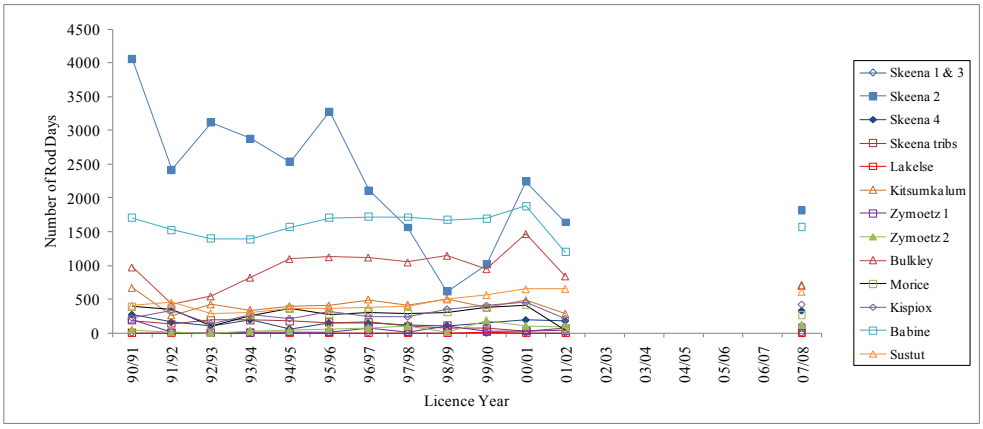


Figure 12. Guided angler days for **classified waters** for 1990-2002 and the 2007/2008 licence years.

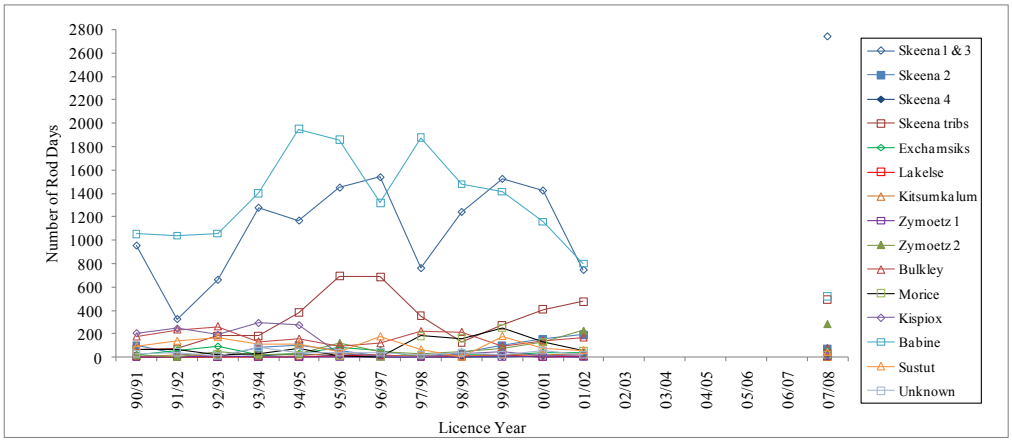


Figure 13. Guided angler days for **unclassified waters** between the 1990/1991 and the 2007/2008 licence years.

3.1.2.2 Weekly Distribution of Guided Angler Rod Days

The temporal distribution of guided angling effort in 2007/2008 had a broader and more even distribution than in other years (Figure 14). Guided angling effort from 1990-2002 exhibits a strong bimodal distribution for most years, with peaks between weeks 27 (July 15th) and week 31 (August 18th), and between weeks 37 (September 23rd) and 41 (October 26th). However, in 2007/2008 there was a fairly normal distribution around a single peak in week 38 (September 30th to October 7th), with the range when guided angler days were greater than 200 from week 28 (July 22nd) to week 43 (November 10th). Although relatively low guided angling effort has been reported during the spring in the Skeena watershed, there was a notable increase in guided angling effort from week 14 (April 9th) to week 20 (May 26th) for 2007/2008 (Figure 14). The most significant change of guided angling days in 2007/2008 was the increase of guided angler effort from week 33 (August 26th) to week 35 (September 15th) that occurred primarily at unclassified waters in Skeena 1 and 3 and classified waters in Skeena 2 for Pink (62% of reported catch), sockeye (22%), coho (9%), steelhead (6 %) and others (1%).

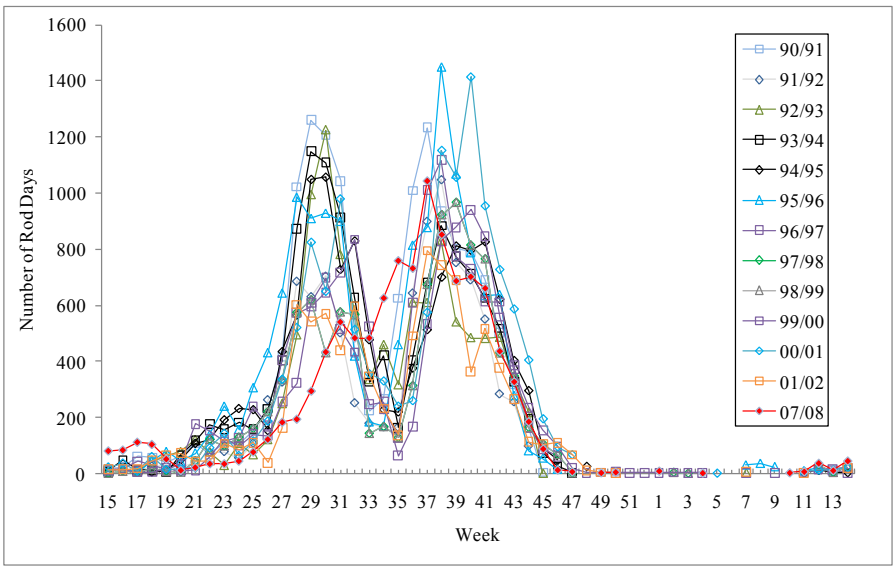


Figure 14. Temporal distribution of guided angler days in Skeena waters for 1990 to 2002 and 2007/2008 licence years.

Weekly guided angling effort was separated for classified and unclassified waters to assess the difference in distribution of guided angling effort that occurred in the 2007/2008 licence year to licence years between 1990 and 2002 (Figures 15 and 16). The changes in timing of guided angling effort in classified and unclassified waters were also different. Interestingly, classified waters in the Skeena watershed in 2007/2008 had the highest effort on record from week 15 to 18 (April 9th to May 6th) and the lowest effort on record between weeks 28 and 30 (July 9th and 30th) (Figure 15). Guided angling effort in unclassified waters for 2007/2008 had the highest effort on record from weeks 36 to 38 (September 9th to October 6th), and the lowest effort on record between weeks 22 and 24 (May 28th and June 18th) and week 28 (July 9th to 16th) (Figure 16). It was the combination of the changes of guided angler rod days in both classified and unclassified waters that resulted in a change from an apparent bimodal distribution of guided angler rod days from 1990-2002 to a more normal distribution of guided angler rod days in 2007/2008.

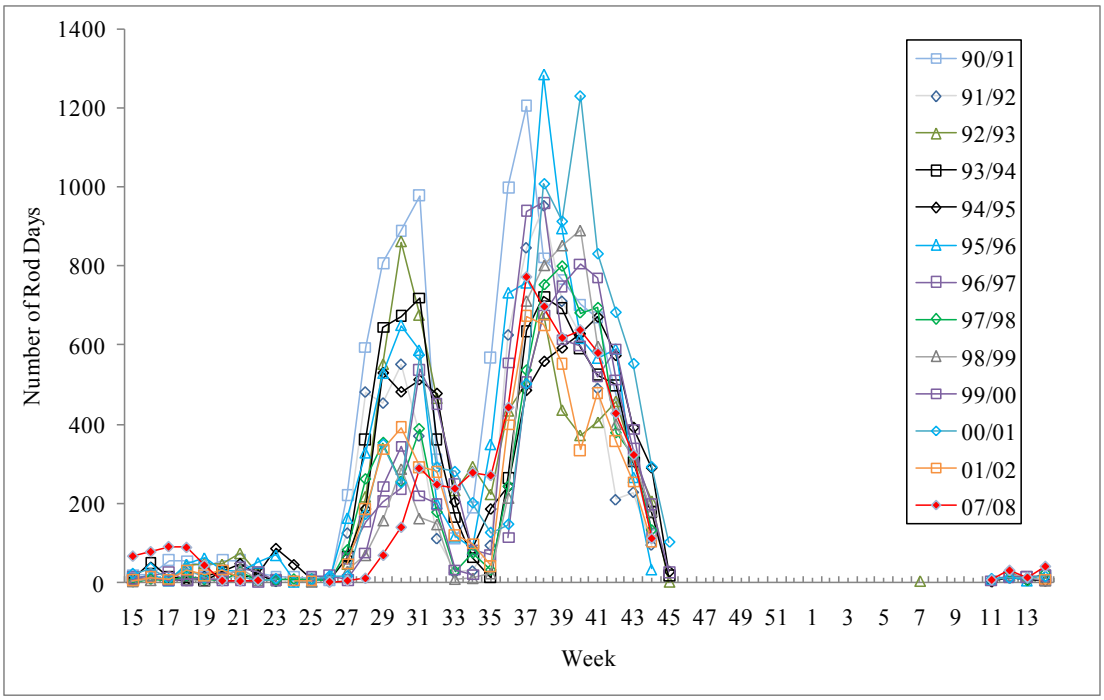


Figure 15. Temporal distribution of guided angler days in **classified waters** for 1990 to 2002 and 2007/2008 licence years.

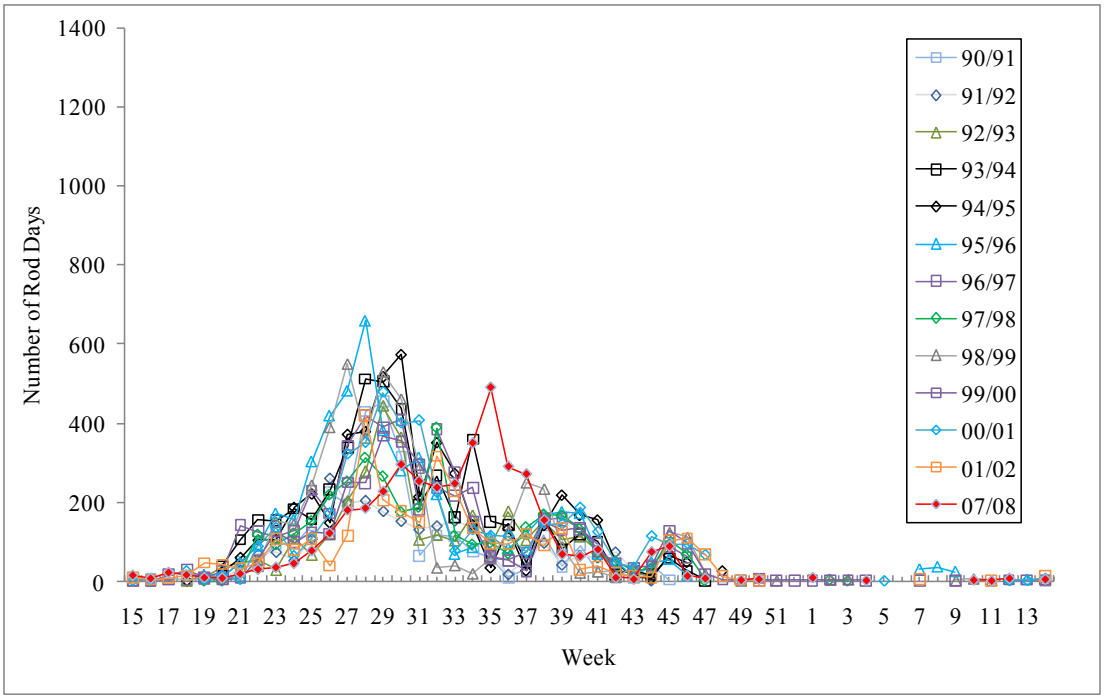


Figure 16. Temporal distribution of guided angler days in **unclassified waters** for 1990 to 2002 and 2007/2008 licence years.

3.1.2.3 Angler Rod Days by Angler Residence

Data on angler residence has been recorded by guides since the 1998/1999 licence year (Appendix 2). Prior to 1998, angler residence was generally not recorded. Since the 1998/1999 licence year, most guided anglers are non-resident alien (Figure 17). There appears to be no clear trend in the number of rod days between years for non-resident alien anglers, however, there appears to be a slight decrease in the number of guided BC angler days, and a slight increase in the number of guided non-resident angler days for classified waters, and all waters combined (Figures 18 and 19). There appears to be a slight increase in the number of guided non-resident and non-resident alien anglers for unclassified waters. However, these trends are based on only five years of data, with a large gap in the data between the 2001/2002 and the 2007/2008 licence years. As for 2007/2008, compared to historical data indicate that most of the guided anglers are non-resident alien, and that although the majority of guided anglers are fishing classified waters, the proportion of guided non-resident alien anglers fishing unclassified waters was 20.7 % higher in 2007/2008 than the highest effort reported from 1998 to 2002.

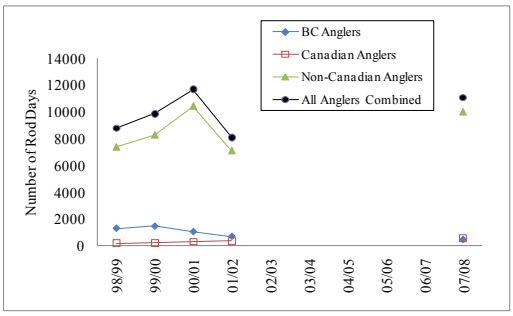


Figure 17. Guided angler residency for **all Skeena waters** for 1998-2002 and 2007/2008.

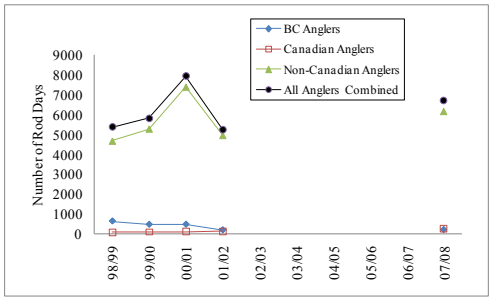


Figure 18. Guided angler residency for **classified waters** for 1998- 2002 and 2007/2008.

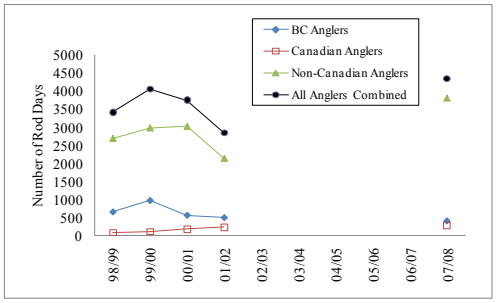


Figure 19. Guided angler residency for **unclassified waters** for 1998-2002 and 2007/2008.

3.2 Guided Angling Success

Angling guides reported that their clients caught a total of 14,380 fish in the Skeena watershed in the 2007/2008 licence year. Steelhead was the most numerous catch (4,239), followed by pink salmon (3,297), rainbow trout (2,708), sockeye (1,550), coho (1,200) and chinook (581). Other species captured include bull trout, Dolly Varden, lake trout, cutthroat trout, whitefish, as well as unspecified species. The majority of fish (13,502, 93.9%) were released, including all of the steelhead and bull trout, 3,277 (99.4%) of the pink salmon, 373 (98.2%) of the cutthroat trout, 2,596 (95.9 %) of the rainbow trout, 1,058 (88.2%) of the coho, 1,144 (73.8%) of the sockeye, and 398 (68.5%) of the Chinook captured by guided anglers. The following sections summarize temporal and spatial comparison of steelhead catch data for 2007/2008, and more condensed summaries of the catch data for salmon and freshwater resident species.

3.2.1 Catch Data for Steelhead

A total of 4,239 steelhead were captured in 2007/2008, constituting 29.5% of the total catch reported for guided anglers. The majority of steelhead captured by guided anglers were in classified waters (3,698, 87.2%), with 541 steelhead reported for unclassified waters in 2007/2008. Steelhead were reported for guided anglers in all waters except the Exchamsiks. Steelhead were captured in the Babine (1,548, 36.5%), Bulkley (779, 18.4%), Kitsumkalum (390, 9.2%), the Kispiox (284, 6.7%), the Skeena 2 (214, 5.0%), Zymoetz 2 (210, 5.0%), Sustut (181, 4.3%), Skeena 4 (169, 4.0%), Skeena tribs (123, 2.9%), Zymoetz 1 (96, 2.3%), Morice (91, 2.1%), Skeena 3 (87, 2.1%), and Skeena 1 (67, 1.6%). The following sections provide some spatial and temporal comparisons of steelhead catch, catch per unit effort (CPUE) for 2007/2008, as well as comparison to available historical information in the AGMS database for 1990 to 2002.

3.2.1.1 Spatial Distribution of Steelhead Catch in 2007/2008

Steelhead catch for each week in the 2007/2008 licence year, and for different waters in the Skeena are summarized in Figure 20. Most steelhead were captured in the late summer/fall, from weeks 35 to 46 (September 9th to November 30th), with a small number of steelhead caught in the spring between weeks 11 and 20. The fall catch reflects the capture of summer run steelhead, which are common throughout the Skeena watershed, while the spring catch reflects the capture of winter run steelhead, which are only documented present in the lower Skeena and tributaries downstream of Terrace. Spring catches of steelhead were restricted to Skeena 1, Skeena 2, Ecstall, Gitnadoix and the Kitsumkalum rivers (Figure 20). Steelhead catch commenced as early as week 32 in the lower Skeena and earlier than steelhead catch in upper tributaries such as the Babine and Bulkley rivers. The highest steelhead catch was observed in week 40 (October 14th – 21st), when 250 steelhead were reportedly captured in the Babine River, and 138 steelhead were reportedly captured in the Bulkley River by guided anglers.

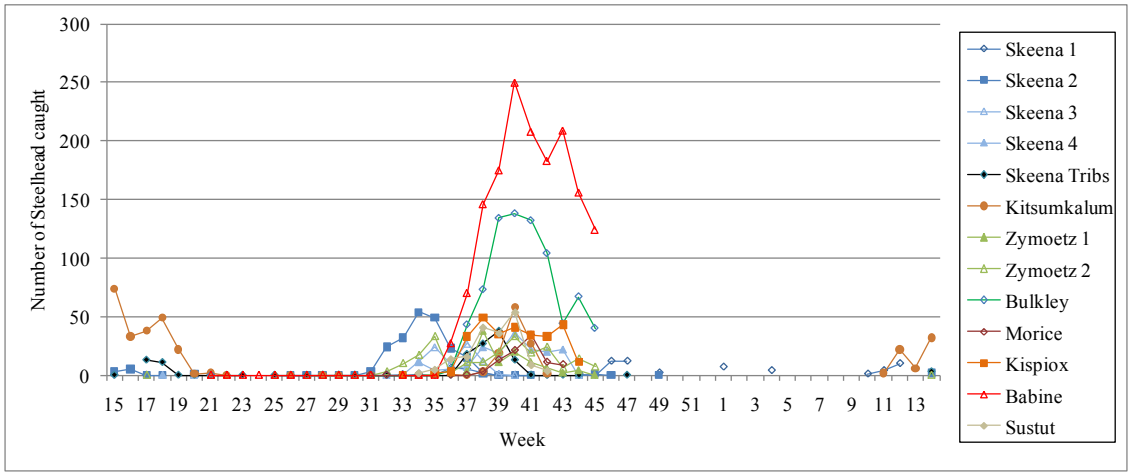


Figure 20. Weekly steelhead catch by guided anglers in the Skeena watershed in 2007/2008.

Weekly Steelhead Catch per Unit Effort in 2007/2008

The mean weekly steelhead catch per unit effort (CPUE) for Skeena waters in 2007/2008 are presented in Figures 21 and 22. Due to the expected mix of run timing of different populations and summer and winter runs in Skeena 1 to 4, this information is presented separately (Figure 22). Excluding consideration of environmental variables (e.g. turbidity, water level), CPUE for steelhead was expected to continuously increase from July to the end of the angling season and increase again in the spring for the coastal locations where an additional return of winter run steelhead occurs (e.g. Kitsumkalum River). Based on Figures 21and 22, the following observations were noted:

- The declines of mean weekly CPUE for guided anglers in the Skeena 1,2, and 3 areas in week 31 (August 12th) to week 45 (November 26th) support the expectation that the mainstem of the Skeena River is primarily a travel corridor to the main overwintering habitats for a mixture of Skeena steelhead populations.
- The increases of mean weekly CPUE through to the end of the year suggest that guided angling may be focused on overwintering areas for summer run steelhead at the Babine, Bulkley and Kispiox rivers.
- The declines of mean weekly CPUE for guided anglers in the Zymoetz, Kitsumkalum, and Morice rivers from week 39 (October 7th) to week 45 (November 26th) implies that guided angling at these locations may be focused on a migratory route for steelhead to other overwintering habitats (e.g. to lakes), but factors influencing angling conditions were not assessed. For example, some tributaries to these systems (e.g. Clore Creek) are significant sediment sources and may reduce capture efficiency.
- The highest mean weekly CPUE for guided anglers in 2007/2008 was observed in week 45 on the Babine River (mean CPUE = 3.54, N=35, SD = 4.36) where the CPUE appears not to have reached its plateau, but CPUE at this location may also be influenced by the weir located at the outlet from Nilkitkwa Lake.
- Angling success and average weekly catch per unit effort (CPUE) for the Kitsumkalum steelhead suggests that the summer run in 2008 is similar in size to the combined return of winter and summer run steelhead in 2007, or that overwintering and/or spawning areas do not coincide with

main angling locations. However, other factors such as proportion of anglers using fly gear or various types of lures (e.g. bait) are not specified in the guide reports, and seasonal or spatial differences in gear or lure type can affect seasonal and spatial differences in catch rates.

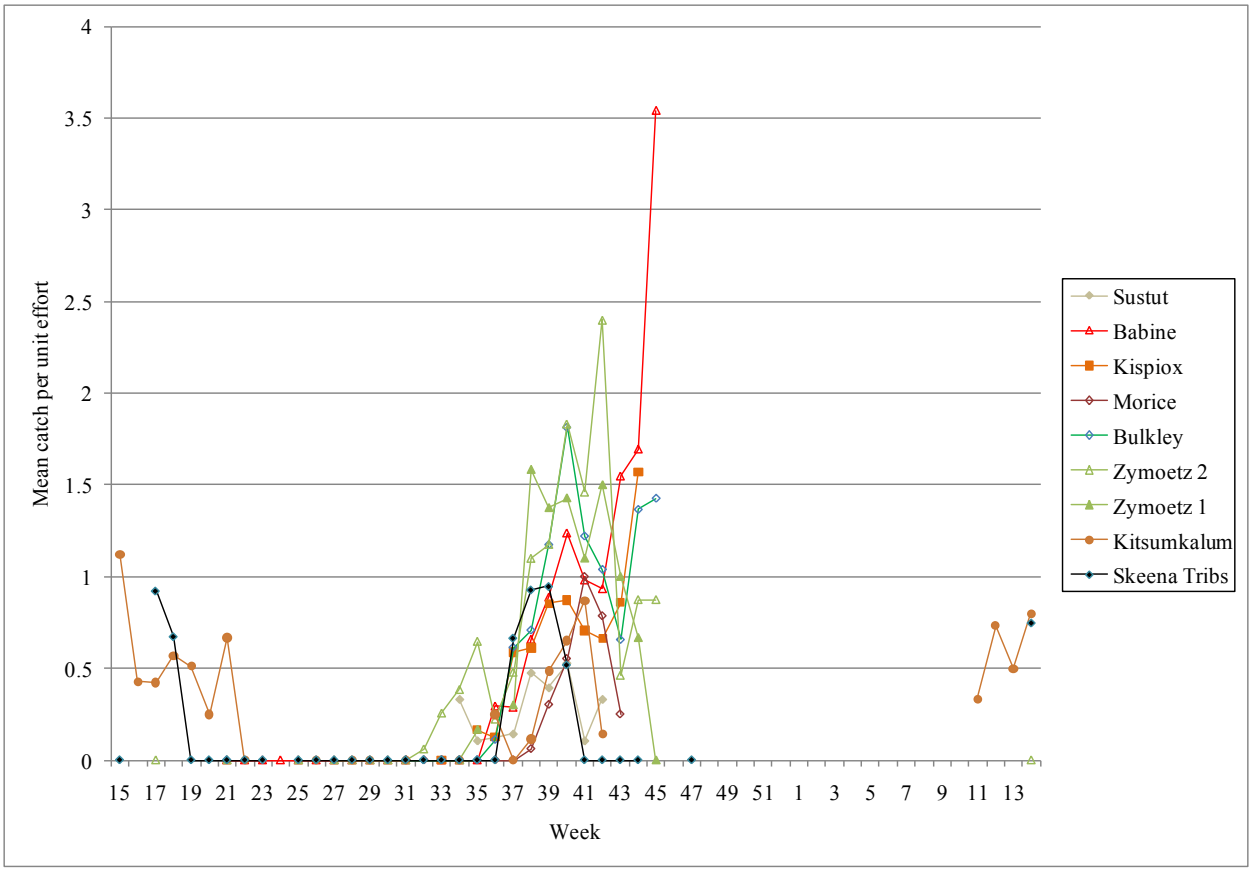


Figure 21. Mean weekly steelhead CPUE for Skeena River tributaries for 2007/2008.

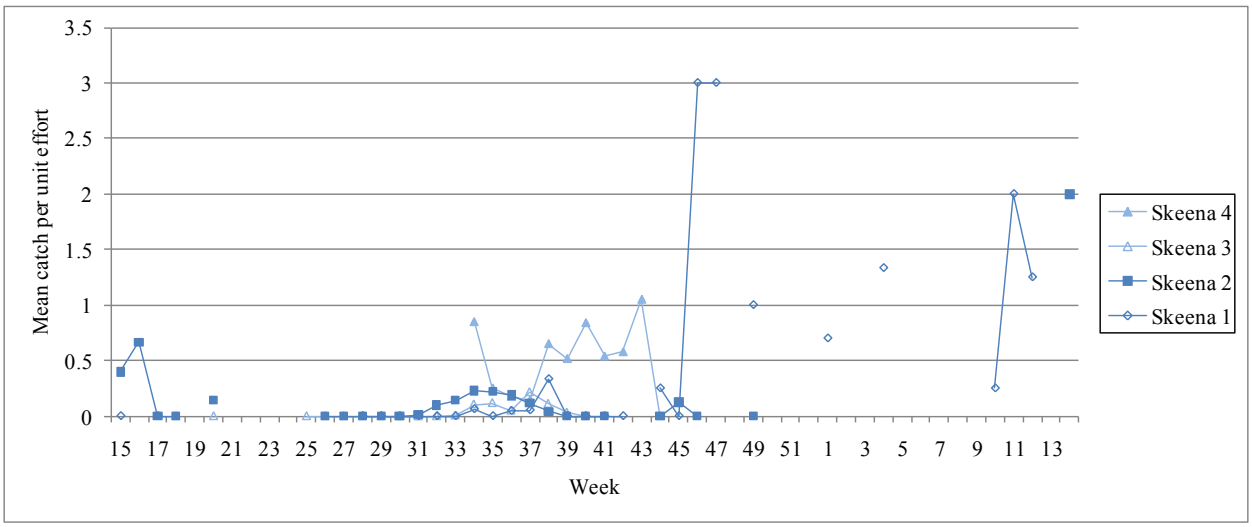


Figure 22. Mean weekly steelhead CPUE for Skeena River sections for 2007/2008.

3.2.1.2 Comparisons to Licence Years from 1990 to 2002

Annual steelhead catch by guided anglers in the Skeena watershed has ranged between 1,792 and 9,358 steelhead from 1990 to 2002 and was 4,239 in the 2007/2008 licence year. The highest number of steelhead captured was reported for the 2000/2001 licence year (9,358), and the lowest number of steelhead was reported for the 1991/1992 licence year. The total number of steelhead caught in 2007/2008 (4,239 steelhead) was the fourth lowest number of steelhead captured among the 13 licence years for which data has been entered in the AGMS database. Based on Figure 23, the following observations were noted:

- The total steelhead catch shows a positive trend from 1990 to 2001 licence with no obvious correlation to angler rod days (see Figure 11).
- There was a decline of total steelhead catch of 41.4% (5487 steelhead) from 2000/2001 to 2001/2002, although the total angler rod days also declined a similar proportion (*see* Figure 11).
- The steelhead catch for 2007/2008 indicates a low abundance of steelhead compared to 1993 to 2002, with only two of the nine years having slightly more angler rod days (*see* Figure 11).

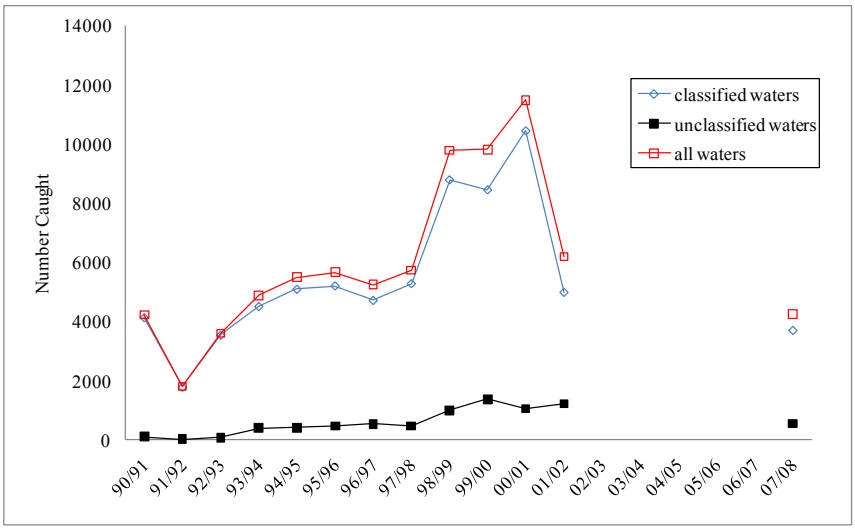
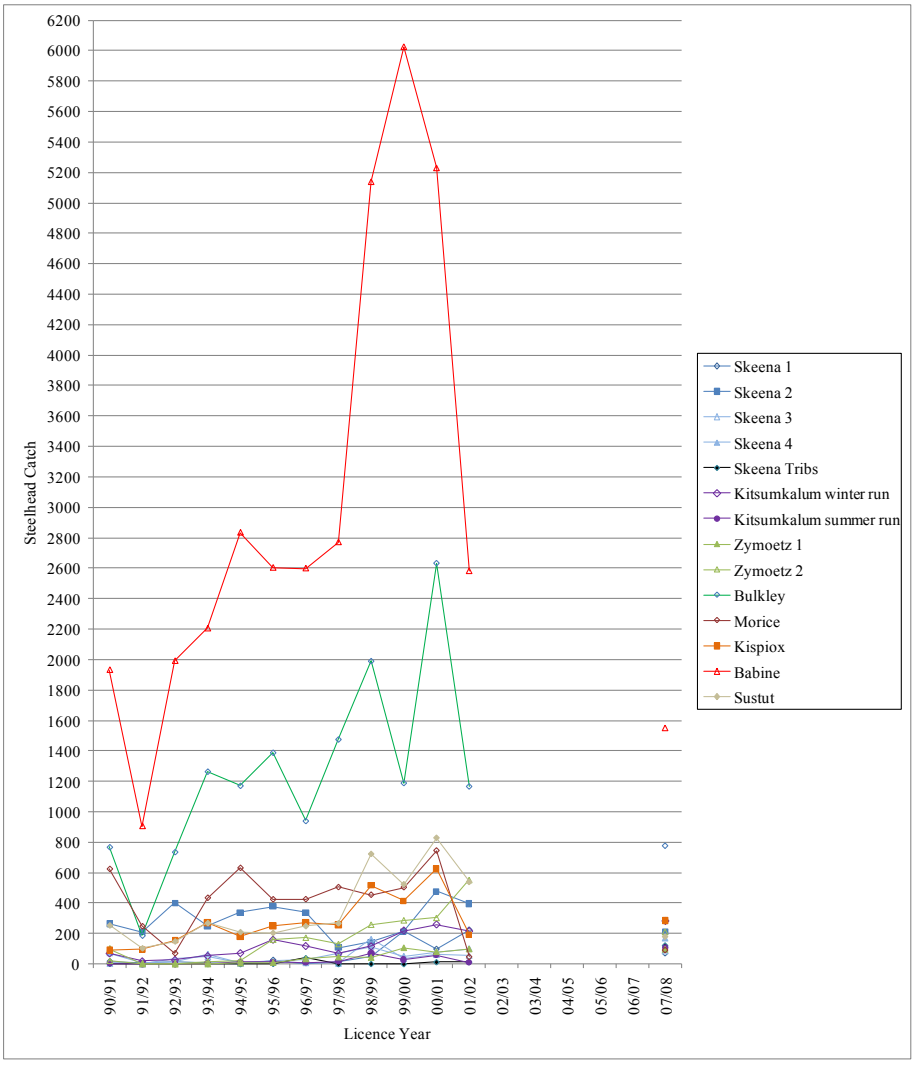


Figure 23. Total annual steelhead catch by guided anglers in the Skeena watershed for the 1990 to 2002 and 2007/2008 licence years.

Annual Variability of Steelhead Catch by Guided Anglers at Different Locations.

Total steelhead catch for 2007/2008 was relatively low (3rd lowest, Figure 24) with the Babine (3rd lowest year on record) and the Bulkley (4th lowest year on record). Figure 24 shows that the Babine River has consistently contributed the majority of annual steelhead catches by guided anglers since 1990/1991, representing from 36.5% (2007/2008) to 61.4% (1999/2000). The second highest steelhead catch by guided anglers in the Skeena watershed has consistently been from the Bulkley River, representing from 12.1% (1999/2000) to 29.5% (1993/1994) of the total annual steelhead catches. The remaining waters contribute relatively moderate to low numbers to the annual steelhead catch by guided anglers. Based on Figure 24, the following observations were noted:

- The highest annual guided angler catch (6,027 steelhead) and percentage of steelhead catch in the Skeena Watershed (61.4%) was for the Babine in 1994/1995.
- Steelhead catch declined for all waters in the 1991/1992 licence year and was the lowest recorded for all waters in that year.
- The most notable decline in total steelhead catch for the Skeena occurred in 2001/2002 at all locations except the upper Zymoetz, but this is associated with a similar decline in angler rod days (*see* Figure 11).
- Unlike the relatively low catch of steelhead at other waters in 2007/2008, the Kitsumkalum winter run (*see* Note in Figure 24) had its highest recorded catch in 2007/2008. However, this increase of catch is not comparable to other waters in the Skeena watershed that represent only summer run steelhead.



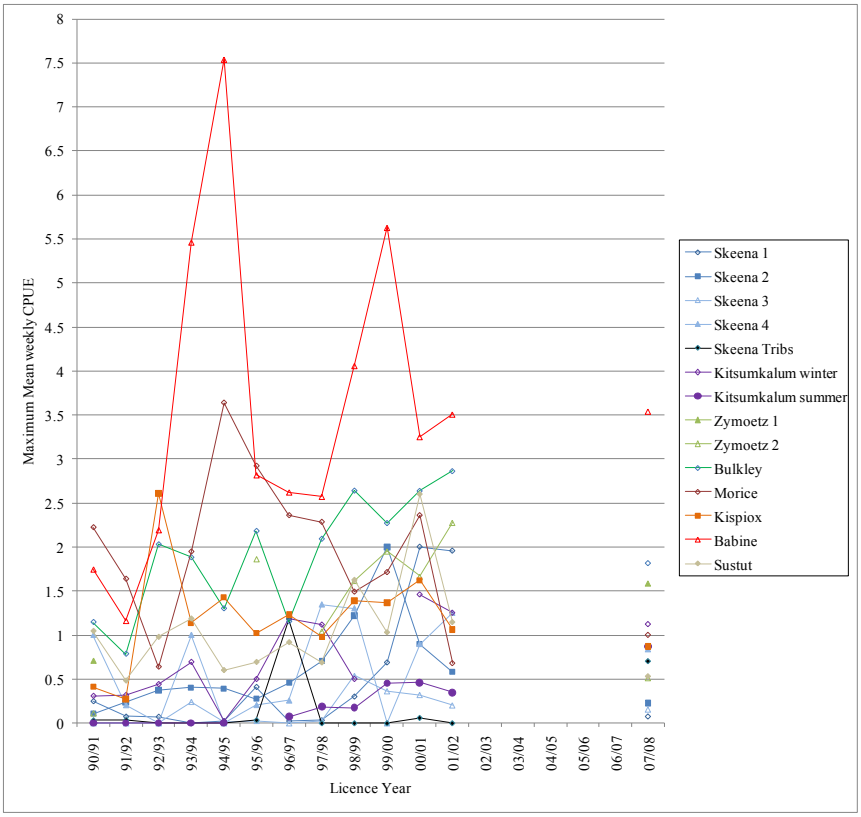
Note: Annual steelhead catch for the Kitsumkalum River was separated to differentiate between the summer run steelhead (caught between weeks 25 to 52) and the combined catch of the summer run of the previous year and winter run steelhead.

Figure 24. Annual steelhead catch for Skeena waters for 1990 to 2002 and 2007/2008 licence years.

Annual Variability of Steelhead CPUE for different waters in the Skeena

In 2007/2008, the angling success (maximum mean weekly CPUE) was moderate to poor in comparison to 1990 to 2002 data. The poorest angling success in 2007/2008 compared to maximum mean weekly CPUE's from 1990-2002 were for Skeena 2 and the Sustut with their 2nd lowest and the Kispiox and Morice with their 3rd lowest results on record. Based on Figure 25, the following observations related to annual variability of CPUE were noted:

- The Babine River has had the highest maximum weekly mean CPUE's in the Skeena for 9 of 13 years presently recorded in AGMS.
- The maximum weekly mean CPUE for the Babine was surpassed by the Bulkley in three years (1990, 1991, and 1995) and by the Kispiox in 1992.
- The highest maximum weekly mean CPUE's on record for the Babine (November 18th -24th) and for the Morice (November 4th -11th) were both in 1994.
- The highest maximum weekly mean CPUE's on record for Skeena 2 (September 23rd -30th) and second highest for the Babine (November 18th -24th) were in 2000.
- The lowest maximum mean weekly CPUE's from 1990-2002 and 2007/2008 were reported for all Skeena waters, except the Morice, in 1991.



Note: Annual steelhead catch for the Kitsumkalum River was separated to differentiate between the summer run steelhead (caught between weeks 25 to 52) and the combined catch of the summer run of the previous year and winter run steelhead.

Figure 25. Maximum mean weekly steelhead catch per unit effort for Skeena River waters for the 1990 to 2002 and 2007/2008 licence years.

3.2.2 CATCH DATA FOR SALMON

In addition to steelhead, 6,643 pacific salmon, representing all five species of pacific salmon, were captured by guided anglers in the Skeena watershed in the 2007/2008 licence year. Pink salmon were by far the most numerous pacific salmon captured (3,297, 49.6%), followed by sockeye (1,550, 23.3%), coho (1,200, 18.1%), chinook (581, 8.7%), and chum (15, 0.2%). The following sections provide some additional breakdowns of the spatial distribution of total catch by species and a brief comparison of results from 2007/2008 to historical data from 1990-2002.

3.2.2.1 Spatial Distribution of Salmon Catch for 2007/2008

In the 2007/2008 licence year, most of the pacific salmon reported by angling guides, were captured in Skeena River section 2 (67.6% of all pacific salmon). Some pacific salmon were also captured in tributaries to the lower Skeena River, the Exchamsiks River, the Kitsumkalum River, the Zymoetz River (section 2 only), the Bulkley and Morice Rivers, the Kispiox River, and the Babine River. Coho was the only species of salmon captured in the Exchamsiks River and the Kispiox River, while pink salmon was the only pacific salmon reported in the Bulkley, and sockeye salmon was the only pacific salmon reported by angling guides in the Babine (Table 8).

Table 8. Number (percent) of salmon species reported at different locations by angling guides for the Skeena waters in 2007/2008.

Drainage	Chinook	Coho	Pink	Sockeye	Chum	Total
Skeena 1	8 (1.4)	129 (10.8)	131 (4.0)	120 (7.7)	0 (0.0)	388 (5.8)
Skeena 2	271 (46.6)	382 (31.8)	2669 (81.0)	1157 (77.1)	13 (86.7)	4492 (67.6)
Skeena 3	110 (18.9)	133 (11.1)	423 (12.8)	193 (12.5)	1 (6.7)	860 (12.9)
Skeena 4	1 (0.1)	4 (0.3)	0 (0.0)	23 (1.5)	0 (0.0)	28 (0.4)
Skeena tribs	94 (16.2)	282 (23.5)	15 (0.4)	0 (0.0)	1 (6.7)	387 (5.8)
Exchamsiks	0 (0.0)	108 (9.0)	0 (0.0)	0 (0.0)	0 (0.0)	108 (1.6)
Lakelse	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Kitsumkalum	50 (8.6)	82 (6.8)	26 (0.8)	1 (0.1)	0 (0.0)	159 (2.4)
Zymoetz 1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Zymoetz 2	44 (7.6)	43 (3.5)	3 (0.1)	0 (0.0)	0 (0.0)	91 (1.4)
Bulkley	0 (0.0)	0 (0.0)	12 (0.4)	0 (0.0)	0 (0.0)	12 (0.2)
Morice	4 (0.7)	0 (0.0)	18 (0.5)	0 (0.0)	0 (0.0)	22 (0.3)
Kispiox	0 (0.0)	37 (3.1)	0 (0.0)	0 (0.0)	0 (0.0)	37 (0.6)
Babine	0 (0.0)	0 (0.0)	0 (0.0)	56 (3.6)	0 (0.0)	56 (0.8)
Sustut	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	581	1200	3297	1550	15	6643

3.2.2.2 Comparisons to Licence Years from 1990 to 2002

For the 2007/2008 licence year, the highest total catches on record were reported by angling guides for pink and sockeye salmon, and the lowest total catch was reported for Chinook (Figure 26). Coho catch reported by angling guides for 2007/2008 was intermediate (1200) in comparison to varying numbers reported from 1990 to 2002 which have fluctuated between a high of 1687 in 2001/2002 to a low of 203 in 1997/1998.

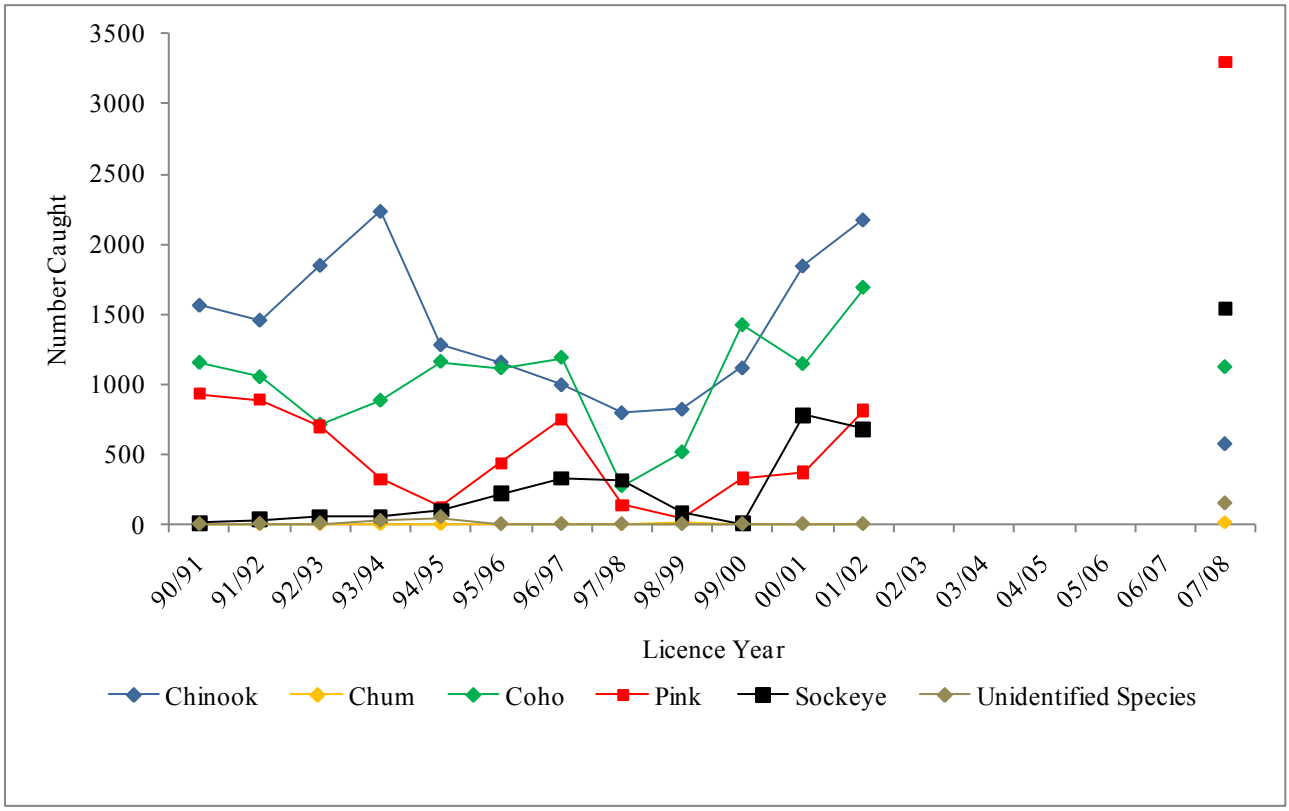


Figure 26. Total annual catch of pacific salmon in the Skeena Watershed for the 1990 to 2002 and 2007/2008 licence years.

3.2.3 Catch Data for Freshwater Species

Non-anadromous species documented captured in the angling guide reports include rainbow trout, cutthroat trout, bull trout, Dolly Varden, lake trout, and whitefish. Of the 3,347 freshwater fish reported by angling guides for 2007/2008, most were rainbow trout (2,708, 80.9%), followed by cutthroat trout (380, 11.4%), bull trout (211, 6.3%), Dolly Varden (29, 0.9%), lake trout (18,0.5%) (E.g. from Babine Lake) and whitefish (1, 0.03%). The following sections provide some additional breakdowns of the spatial distribution of total catch by species and a brief comparison of results from 2007/2008 to historical data from 1990-2002.

3.2.3.1 Spatial Distribution of Freshwater Species Catch for 2007/2008

The majority of the freshwater species that were reported by angling guides for 2007/2008 (Table 9) were from the Babine (2,620, 78.3%), and Skeena River tributaries (437, 13.1%). The majority of rainbow trout (93.3%), the most targeted non-anadromous species by guided anglers in 2007/2008, were reported from the Babine (Table 9). Cutthroat trout represented 67.1% of the reported catch of freshwater species in the Skeena tributaries reported by angling guides for 2007/2008. Blue listed species captured by guided anglers include Dolly Varden, bull trout, and cutthroat trout. Most of the bull trout were reported by angling guides for the Kitsumkalum and Zymoetz 2 (144 and 45 respectively), most of the cutthroat trout were reported from the Skeena River tributaries and the Babine (255 and 74 respectively), and most of the Dolly Varden were reported from Skeena River tributaries (18) as well Skeena 1, Kitsumkalum and Zymoetz 2 (5 each).

Table 9. Number (percent) of anadromous species other than Steelhead captured in the Skeena waters in the 2007/2008 licence year.

Drainage	Bull trout	Cutthroat	Rainbow	Dolly Varden	Lake Trout	Whitefish	Total
Skeena 1	5 (2.3)	15 (3.9)	2 (0.1)	5 (17.2)	0 (0.0)	0 (0.0)	**27 (0.8)**
Skeena 2	6 (2.8)	1 (0.2)	0 (0.0)	3 (10.3)	0 (0.0)	0 (0.0)	**10 (0.3)**
Skeena 3	0 (0.0)	0 (0.0)	1 (0.0)	1 (3.4)	0 (0.0)	0 (0.0)	**2 (.06)**
Skeena 4	1 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	**1 (.03)**
Skeena tribs	6 (2.8)	255 (67.1)	168 (6.2)	8 (27.6)	0 (0.0)	0 (0.0)	**437 (13.1)**
Exchamsiks	0 (0.0)	0 (0.0)	6 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	**6 (0.2)**
Lakelse	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 **(0.0)**
Kitsumkalum	144 (68.2)	16 (4.2)	3 (0.1)	5 (17.2)	0 (0.0)	0 (0.0)	**168 (5.0)**
Zymoetz 1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100)	**1 (.03)**
Zymoetz 2	45 (21.3)	1 (0.2)	0 (0.0)	5 (17.2)	0 (0.0)	0 (0.0)	**51 (1.5)**
Bulkley	4 (0.5)	18 (4.7)	0 (0.0)	1 (3.4)	0 (0.0)	0 (0.0)	**23 (0.7)**
Morice	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.4)	0 (0.0)	0 (0.0)	**1 (.03)**
Kispiox	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 **(0.0)**
Babine	0 (0.0)	74 (19.5)	2528 (93.3)	0 (0.0)	18 (100)	0 (0.0)	**2620 (78.3)**
Sustut	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 **(0.0)**
Total	211	380	2708	29	18	1	**3347**

3.2.3.2 Comparisons to Licence Years from 1990 to 2002

The records of total catch of freshwater species for 1990 to 2002 and 2007/2008 in the AGMS database are summarized in Figure 27. In addition to species captured in 2007/2008, burbot, lake trout and eastern brook trout were captured at low numbers in some of the previous years. In all years, rainbow trout is the dominant freshwater species captured by guided anglers, followed by cutthroat trout. The number of rainbow trout captured in 2007/2008 by guided anglers is lower than the number captured for any other licence year between 1990 and 2002. Similarly, the number of cutthroat trout is lower than for most other year, except 1995/1996, 1996/1997 and 1997/1998, which were similar in total catch to the 2007/2008 licence year. The total catch for lake trout is lower in 2007/2008 than for other years, as is the total catch for whitefish for all years except 1990/1991 when no whitefish were reported captured. Total catch for bull trout is considerably higher in 2007/2008 compared to previous years in the AGMS database, but the reported catch of Dolly Varden is considerably lower than for any other year, and this is more likely due to mis-reporting of some bull trout as Dolly Varden prior to 2002.

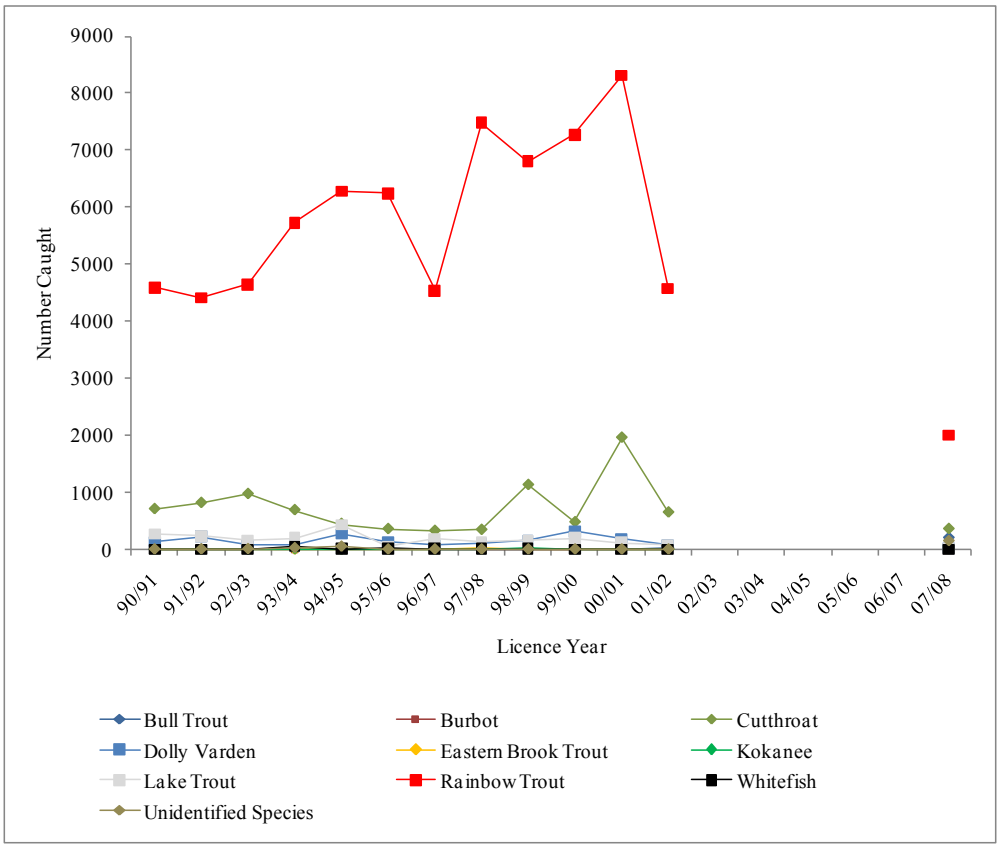


Figure 27. Total annual catch of freshwater species in the Skeena Watershed for 1990 to 2002 and 2007/2008 licence years.

4.0 DISCUSSION

Overall, the total number of guided angler rod days and total catch reported for the Skeena Watershed in 2007/2008 were within the ranges reported for the 1990/1991 to 2001/2002 licence years. In total, 11,066 guided angler days and a total of 14,380 fish were reported by 38 angling guides. Guided anglers predominantly targeted the Skeena River sections 2 and 3, and the Babine River in 2007/2008. This is consistent with historic information contained in AGMS for the 1990/1991 to 2001/2002 licence years, and we speculate that this is due to the presence of multiple target species in these systems. Total catch suggests that the primary target species for Skeena waters are steelhead, followed by pink salmon, rainbow trout, sockeye salmon, coho salmon and chinook salmon. The number of guided rod days was highest for Skeena River section 3, where pink salmon, chinook salmon and sockeye salmon were the most commonly captured species. Guided effort was second highest in Skeena River section 2 and resulted primarily in the capture of pink salmon, sockeye salmon and coho salmon, while guided fishing effort in the Babine was third highest, and resulted primarily in the capture of steelhead and rainbow trout. Other Skeena waters with lower guided angler days appeared to target primarily steelhead, except Skeena River section 1 where primarily pink, coho and sockeye salmon were captured. Some differences from historical information in angling effort and catch were identified among different locations, timing, and classified and unclassified waters. More useful evaluations of different fishing pressures on different species and by-catch may have been possible if target species details were part of the guide reports.

As expected, the variable timing of guided angler effort at different locations in 2007/2008 appeared to be associated with run timing of different target species. Guided angling effort in Skeena waters peaked in weeks 27 to 45 (July 25th to November 10th) in 2007/2008 which is consistent with the arrival of pacific salmon and steelhead in the watershed. The peak in guided angling effort is delayed further upstream when compared to waters in the lower Skeena watershed, which is speculated to be due to a shift in guided angling further upstream as fish make their way from the river mouth to overwintering and spawning habitat. Interestingly, the overall timing of guided angling effort was distributed differently in 2007/2008 than from 1990 to 2002. From 1990 to 2002, the timing of guided angling effort exhibited a bimodal distribution, but a more normal distribution with a later initiation was observed in 2007/2008. It appears that the late start, the delayed peak, and unimodal distribution is related to a shift of guided angling effort from Skeena River section 2 to section 3, an unclassified section of the mainstem located at Terrace, and to the increased catch of pink and sockeye salmon. The observed delay of guided angling effort in 2007/2008 may also be related to late peak spring run-off in the Skeena Watershed in 2007.

Interestingly, weekly steelhead CPUE for classified waters in the Skeena watershed for 2007/2008 increased to a high at or near the end for some of the classified waters, but peaked part way through the classified waters period and then declined for other waters. Weekly steelhead CPUE increased throughout the classified waters period in the Babine and Kispiox, and this is speculated to be due to steelhead congregating in overwintering habitats in the river sections accessed by guided anglers. However, weekly steelhead CPUE showed declined toward the end of the classified period in the Zymoetz, Morice, Kitsumkalum, and Sustut, which is speculated to be due to steelhead overwintering in sections of the watershed not accessed by guided anglers, including McDonnell Lake for the Zymoetz, Morice Lake for the Morice, Kitsumkalum Lake for the Kisumkalum, and Sustut, Bear and Johanson lakes for the Sustut. Trends in weekly CPUE for the Bulkley are intermediate, with a peak part way

through the classified waters period, followed by a partial decline, which suggests a mixture of steelhead overwintering in the Bulkley, and other steelhead migrating through the Bulkley to access overwintering habitat elsewhere (e.g. in the Morice). Alternatively, lake headed systems may provide more consistent angling conditions towards the end of the classified waters period, while non—lake headed systems are more susceptible to late fall flood conditions. Although it appears that maximum weekly steelhead CPUE can be used as an index for steelhead densities, it may be more accurate to use annual averages of weekly CPUE's at locations where guided anglers are only targeting travel corridors of migrating steelhead. It is anticipated that inclusion of guide report data for 2002 to 2007 and regular input of new data for future years will be useful toward identifying future trends in guided angling activity and general estimates of steelhead densities (i.e. CPUE) at the different classified waters in the Skeena watershed.

In conclusion, it is important to consider that guided angling effort and catch data are self reported by guides, and no quality assurance mechanism is in place to ascertain the accuracy and validity of these data. The following sections provide comparisons of guide report data to other studies on angling catch and effort, and steelhead population estimates in the Skeena watershed to provide some preliminary reviews of the validity and consistency of the guide report data.

4.1 Comparison of Guided Angling Effort to Creel Surveys

Guided angling effort in classified waters available from angling guide reports for selected waters in the Skeena watershed can be compared to available creel survey information to provide an indication of data consistency. Since 1996, only four of the creel surveys that have been conducted in the Skeena watershed included an estimate of guided angling effort (Table 10). One of these studies was conducted in the Morice River in 2004 (Saimoto 2005), but AGMS data has not been entered for that year, leaving three creel surveys suitable for comparisons to AGMS data. Guided angler effort for the Bulkley classified waters period in 1997 determined from guide reports far exceeds the estimated guided angling effort from a creel survey (Morten and Parken 1998), and this may in part be due to the fact that the creel survey did not encompass the entire Bulkley River. Depending on the location of guided angler effort within the Bulkley watershed in 1997, a significant proportion of guided anglers may not have been captured in the creel survey. Guided angler effort in the Zymoetz River in 1999 determined from guide reports is significantly higher than the estimated guided angler effort determined from a creel survey conducted in the same year. A higher proportion of guided anglers were observed during aerial counts in the creel survey than in the exit interviews, and were speculated to be due to guides exiting after dark, or not stopping at the exit interview stations. The reported guided angler days in classified waters for the Kispiox in 2001 closely match the estimated guided angler effort during the classified waters period from the creel survey conducted in the same year (Morten and Giroux 2006). Guided angler effort estimates from one of the three creel surveys that provide suitable comparisons were consistent with guided angler efforts from guide reports, and the underestimate of guided angler effort in the remaining two creel surveys are explainable based on limitations of the surveys. Overall, creel survey estimates of guided angling effort in classified waters do not appear to agree with guided angling effort determined in AGMS.

Table 10. Proportion of Total Recreational angling effort accounted for by guided anglers for data available from counterfoil (1990 to 2005), and creel surveys.

Waterbody Name	Year	AGMS	Creel surveys				
		Guided angler days	Guided angler days	95% CI	% guided	comment	Reference
Zymoetz	1999	217	117	±47	6	Aug-Dec	Morten 2000
Bulkley	1997[1]	1055	463	±122	16	Sept, Oct	Morten& Parken 1998
Morice	2004	Unknown	399	±163	13	Sept, Oct.	Saimoto 2005
Kispiox	1997	308	Not determined		15	Sept, Oct	Morten 1998
	2001	248	257	±76	16	Aug-Nov	Morten&Giroux 2006
Babine	1997[2]	1742	Not determined		18	Upper Babine	Morten 1998

[1] creel study covered Bulkley sections from Suskwa River upstream to Bymac

[2] creel study covered upper Babine only (Gail Creek upstream to Nilkitkwa Lake)

4.2 Comparison of Guided Angling Effort to Counterfoil Data

Data obtained from angling guide reports for classified waters in the Skeena watershed were also compared to BC Environment angling licence information (Counterfoil) to provide an indication of data consistency. Counterfoil (BC Environment 2008a) data represent classified waters since the data are collected through purchased classified waters licences, but the actual angler days for counterfoil data have not always include BC resident anglers since BC resident anglers purchase annual classified water licences while non-resident and non-resident alien anglers purchase per diem licences, which allows for the calculation of purchased classified waters days for each classified water. The actual guided angler days reported in counterfoil do not appear to match up with the guided angler effort reported for classified waters by angling guides in most years, indicating that either counterfoil, or guide reports or both are misrepresenting guided angling effort. Counterfoil data for some years appears suspect as indicated by the low number of guided angler days (for example, 1993/1994 in the Morice (50 guided angler days), Zymoetz (2 guided angler days), Bulkley (43 guided angler days)). Potential errors in counterfoil data include angler mis-reporting errors, licence completion errors by vendors, and illegible counterfoil carbon copies (Environment 2008a). Although the number of guided angler days in angling guide reports exceeds the number of guided days in counterfoil in some years, creel surveys indicate that most guided anglers are compliant with angling guide regulations, and carry classified waters licences. Counterfoil data available from BC Environment (2008a) indicate that guided angler effort is highest in the Skeena mainstem, and the Babine River (Table 11), confirming the historical predominance of guided anglers in these waterbodies as indicated in the angling guide reports. Due to discrepancies in counterfoil data and no current mechanisms to provide quality assurance for data reported by angling guides, the accuracy of the AGMS angling effort information remains uncertain, however, we speculate guide reports are more consistent and reliable than information available in counterfoil.

Table 11. Mean guided angler days and percent guided anglers for non-resident and non-resident alien anglers that purchased classified waters licences, as summarized in counterfoil data (1990 to 2005).

Waterbody Name	Guided angler days		% guided anglers	
	Mean	Range	Mean	Range
Skeena	2008	45-3730	59.6	14.9-97.6
Lakelse	0	0	0	0
Kitsumkalum	270	14-436	66.9	34.1-100
Zymoetz	91	2-168	22.1	2.6-47.3
Bulkley	179	42-1227	39.5	15.3-97.7
Morice	287	24-536	48.0	23.8-91.9
Kispiox	269	31-412	24.6	10.9-84.1
Babine	1525	469-3478	78.3	50.9-93.4

[1] counterfoil data were available from 1990/1991 to 2005/2006, except for 98/96 and 96/97 licence years (BC Environment 2008a).

4.3 Comparison of Steelhead CPUE to Creel Surveys

Creel surveys conducted in the Skeena watershed since 1990 provide an estimate for total steelhead catch and steelhead CPUE for comparison to steelhead catch and CPUE from angling guide reports to evaluate the data consistency. Table 12 summarizes the estimated total steelhead catch for guided anglers in the specific Skeena waters for which creel surveys have been conducted, and are generally representative of the classified waters period. For three of the four creel surveys, total estimated steelhead catch was lower than the catch report by angling guides. The only creel survey for which the total estimated steelhead catch was higher than that reported by guides was for the Class 2 sections of the Zymoetz River. This survey reports an under-representation of guided anglers in the data collected from interviews. Estimated mean daily guided CPUE for the creel surveys were higher for the Zymoetz Class 2 waters in 1999 and the Kispiox River in 2001 compared to CPUE estimates from angling guide reports. Estimated mean daily guided CPUE for the Bulkley creel survey conducted in1997 and the Babine survey conducted in 1997 are similar to estimated CPUE from guide report data. Variance for historical AGMS data could not be determined because catch was not entered for individual anglers. Recording and entering individual angler catch particularly during classified waters periods will provide estimates of variance around mean steelhead CPUE for classified waters, and facilitate comparisons to other studies. Circumstantial evidence from four creel surveys that provide estimates of total catch and CPUE for classified waters indicated that steelhead CPUE estimates from creel surveys are lower or similar to CPUE estimates from angling guide reports, and supports that guides are not under reporting guided angler steelhead catch.

Table 12. Comparison of Guided angler Steelhead catch and Mean catch per unit effort (SD) from guide reports to corresponding estimates of from creel surveys conducted in the Skeena watershed since 1990.

Waterbody	Year	AGMS Steelhead Data[1]		Creel Survey Steelhead Data		Reference
		Catch	Mean CPUE	Catch	CPUE	
Zymoetz Class 2	1999	167	0.89	391	1.19	Morten 2000
Bulkley	1997	1476	1.40	604	1.3	Morten & Parken 1998
Morice	2004	N.A.	N.A.	474	1.66	Saimoto 2005
Kispiox	2001	193	0.78	149	1.47	Morten & Giroux 2006
Babine	1997	2351	1.30	Not specified	1.15	Morten 1998

[1] data for classified waters period only as creel surveys largely corresponded to classified waters period

4.4 Comparison of Steelhead CPUE to Steelhead Population Indices

Catch per unit effort is frequently can be used as an indicator of fish density (Hubert 1996), and could be compared to other estimates or indices of fish abundance to provide circumstantial support for these estimates. There are three long-term projects that include estimates or indices of steelhead abundance in the Skeena watershed: the Tyee test fishery, the Moricetown mark-recapture study, and the Sustut counting fence. Of these three, only the Sustut fence is operated by the BC Environment, and targets steelhead. The other two studies primarily target pacific salmon, and were initiated by Fisheries and Oceans Canada. Steelhead catches and related indices or abundance estimates at Tyee and Moricetown canyon are therefore somewhat incidental. All of these projects operate in the late summer and fall, and do not encompass winter run steelhead. The Tyee test fishery is located near the mouth of the Skeena, and virtually all summer run steelhead that make their way into overwintering and spawning habitat in the Skeena move through the test fishery. Moricetown Canyon is located on the Bulkley River, and can be used to estimate steelhead escapement upstream of the canyon (i.e. the Bulkley and Morice waters). The Sustut counting fence is located in the upper Sustut, and provides steelhead indices specific to the upper Sustut. Escapement estimates or indices provided by these projects were compared graphically to steelhead CPUE in relevant waters for the classified waters only since the timing of these projects encompasses the classified waters period. Maximum average weekly guided angler CPUE appear to be positively correlated with Tyee steelhead escapement estimates (Figure 28), although there is considerable variability in the data. The Sustut River indices for steelhead are positively but weakly correlated to mean steelhead CPUE for guided angler (Figure 29). This could in part be due to the location of the fence in the upper reaches of the Sustut River. The Sustut weir estimates therefore do not incorporate escapement and/or steelhead overwintering in the lower Sustut and major Sustut River tributaries, such as the Bear River (Baxter 1997) while guided CPUE incorporate guided catch and effort for all part of the Sustut waterbody. Comparisons of guided angler CPUE to Moricetown mark-recapture estimates are based on only four years of data (Figure 30), but indicate a positive correlation, particularly for mean CPUE for the Morice waterbody (R^2 = 0.8745), and to a much lesser degree, the Bulkley waterbody (R^2 = 0.1862). The better correlation of guided CPUE in the Morice as compared to the Bulkley suggests that the majority of steelhead moving through Moricetown canyon overwinter in the Morice River. Comparisons of mean guided steelhead CPUE will improve as the remaining guide data becomes available in 2010, and should include a more critical review of potential outliers in order to better evaluate the accuracies of these indices.

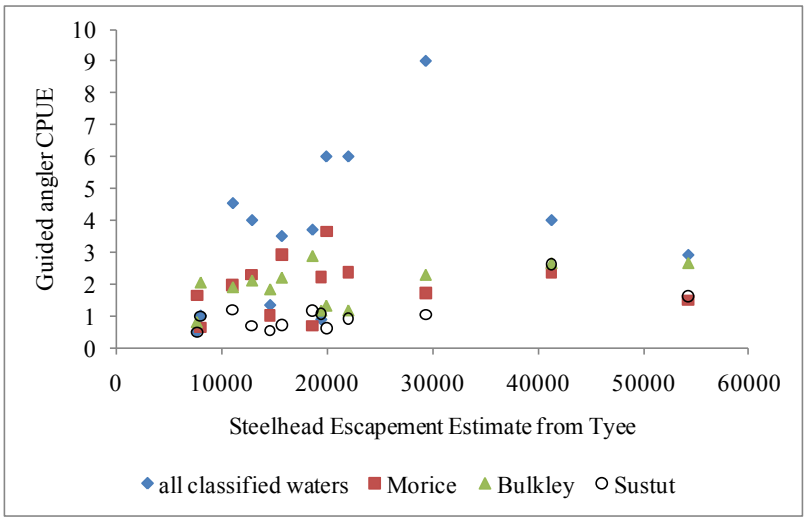


Figure 28. Comparison of steelhead escapement estimates from the Tyee test fishery (Beere pers. com.) and maximum average weekly guided angler CPUE for all classified waters in the Skeena watershed, as well as classified periods for the Morice, Bulkley and Sustut Rivers.

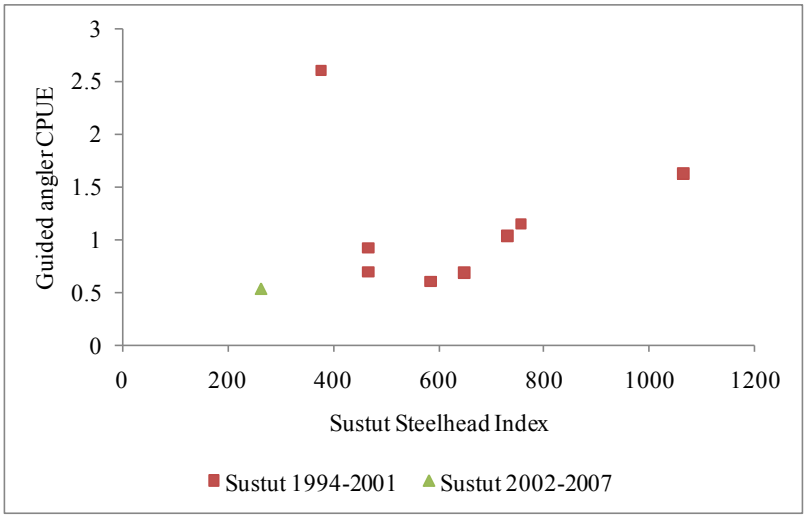


Figure 29. Comparison of Sustut River Steelhead indices (Peard 2005, Beere pers. com.) and guided angler CPUE for the Sustut River during the classified period.

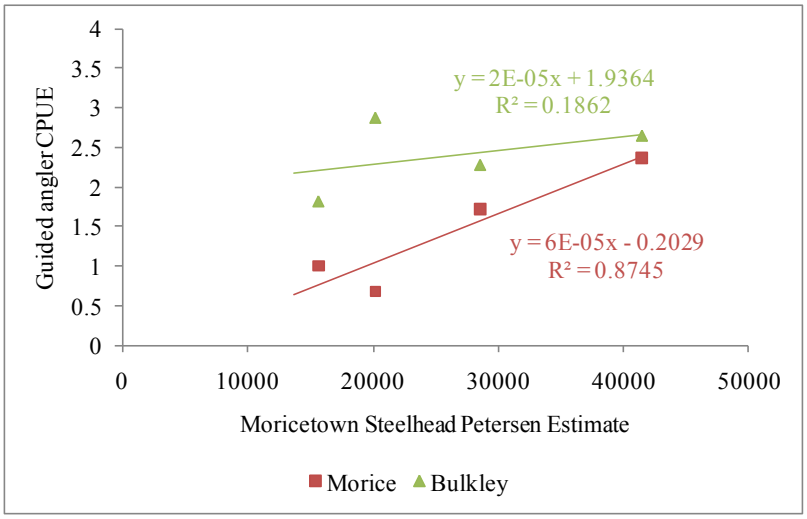


Figure 30. Comparison of steelhead estimates (Petersen Mark-Recapture) from Moricetown Canyon (2009) and guided angler CPUE for all classified waters in the Skeena watershed, as well as classified periods for the Morice and Bulkley.

5.0 ACKNOWLEDGMENTS

I thank Dean Peard and Mark Beere (BC Environment) for assistance in gathering angling guide data, interpreting the guide reports, and for their contribution to the design of the project. Joe DeGisi (BC Environment) provided a digital copy of the AGMS database and supporting manuals, as well as suggestions on troubleshooting during database set up. Dean Peard and Mark Beere provided thorough and helpful comments on drafts of this report. Funding for this project was provided by the Living Rivers Foundation, and was administered by the Pacific Salmon Foundation of Vancouver, BC.

6.0 LITERATURE CITED

Baxter, J.S. 1997. Upper Sustut, Lower Sustut and Bear River steelhead: Summary of current data and status review, 1997. Skeena Fisheries Report SK 98. Ministry of Environment, Lands and Parks, Skeena Region, Smithers, BC. 55 pp.

Beere, M. 2008 personal communications. Senior Fisheries Biologist, Ministry of Environment, Smithers, BC.

BC Environment. 2007. Planning for World-Class Steelhead Fishing. Brochure available at http://www.env.gov.bc.ca/skeena/qws/docs/PlanningforWorldClass.pdf.

BC Environment. 2008a. 2008-2009 Freshwater Fishing Regulations Synopsis. 96 p.

DeGisi, J. 1998. AGMS2 Software Manual. Prepared for Fisheries Section, BC Environment, Skeena Region, Smithers BC. 60 p.

BC Environment 2008b. Wildlife Act Angling and Scientific Collection Regulation Schedule A. Queens Printers, BC. Available at http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/wildlife%20act%20%20rsbc%201996%20%20c.%20488/05_regulations/10_125_90.xml#ScheduleA.

Behnke, R.J. and J.R. Tomelleri. 2002. Trout and Salmon of North America. The Free Press. Toronto. 359 p.

Dolan, 2008. Angling Management Plan Skeena Quality Waters Strategy. Draft. Prepared by Alan Dolan and Associates for BC Environment. Available at http://www.env.gov.bc.ca/skeena/qws/docs/SkeenaAnglingManagementPlan.pdf. 114 p.

Gottesfeld, A., K.A. Rabnett and P.E. Hall. 2002. Conserving Skeena Fish Populations and their Habitat. Skeena Fisheries Commission, Hazelton BC. 281 p.

Morten, K.L. 1998a. A survey of upper Babine River steelhead anglers during the Classified Waters Period of 1997. Unpublished report prepared by Cascadia Natural Resource Consulting for BC Environment, Smithers, BC. SK #114.

Morten, K.L. 1998b. A survey of Kispiox River steelhead anglers during the Classified Waters Period of 1997. Unpublished report prepared by Cascadia Natural Resource Consulting for BC Environment, Smithers, BC. SK #115.

Morten, K.L. 1999. A survey of Bulkley River steelhead anglers in 1998. Unpublished report prepared by Cascadia Natural Resource Consulting for BC Environment, Smithers, BC. SK #119.

Morten, K.L. 2000. A survey of Zymoetz (Copper) River steelhead anglers in 1999. Unpublished report prepared by Cascadia Natural Resource Consulting for BC Environment, Smithers, BC. SK #127.

Morten, K.L. and P.A. Giroux. 2006. A survey of Kispiox River steelhead anglers in 2001. Unpublished draft report prepared by Cascadia Natural Resource Consulting for BC Environment, Smithers, BC. SK #146.

Morten, K.L. and C.K. Parken. 1998. A survey of Bulkley River steelhead anglers during the Classified Waters Period of 1997. Unpublished report prepared by Cascadia Natural Resource Consulting for BC Environment, Smithers, BC. SK #113.

PASBC. 2009. Number of guides licenced to operate in classified waters in the Skeena Region for 2007/2008. Personal communications.

Peard, D. 2005. Results of the upper Sustut River Steelhead Fence 2005. Unpublished report prepared by BC Environment, Smithers, BC. SK#147.

Saimoto, R.K. 2005. A survey of Morice River steelhead anglers in 2004. Unpublished report prepared by SKR Consultants Ltd. for Ministry of Water, Land and Air Protection, Smithers, BC. SK # 140, 83 pp.

Saimoto, R.K. 2009. Steelhead Tagging Project at Moricetown Canyon August to September 2007. Unpublished report prepared by SKR Consultants Ltd. for Pacific Salmon Foundation and Ministry of Environment, Smithers, BC. 20 pp.

Walters, C.J., J.A. Lichatowich, P.M. Peterman and J.D. Reynolds. 2008. Report of the Skeena Independent Science Review Panel. A report to the Canadian Department of Fisheries and Oceans and British Columbia Ministry of Environment. May 2008. 144p.

Appendix 1. Angler residence for classified and unclassified guided anglers in the Skeena watershed between the 1990/1991 and the 2007/2008 licence years.

Year	Waterbody type	Number (percent) of rod days by angler residency				
		BC	Non-resident	Non-resident alien	Unknown	Combined
90/91	Unclassified				2781 (100)	2781
	Classified				9102 (100)	9102
	Sub-total				**11883 (100)**	**11883**
91/92	Unclassified				2258 (100)	2258
	Classified				6062 (100)	6062
	Sub-total				**8320 (100)**	**8320**
92/93	Unclassified				2716 (100)	2716
	Classified				6302 (100)	6302
	Sub-total				**9018 (100)**	**9018**
93/94	Unclassified				3659 (100)	3659
	Classified				6672 (100)	6672
	Sub-total				**10331 (100)**	**10331**
94/95	Unclassified				4360 (100)	4360
	Classified				6793 (100)	6793
	Sub-total				**111153(100)**	**11153**
95/96	Unclassified				4534 (100)	4534
	Classified				7837 (100)	7837
	Sub-total				**12371 (100)**	**12371**
96/97	Unclassified				4037 (100)	4037
	Classified				6746 (100)	6746
	Sub-total				**10783(100)**	**10783**
97/98	Unclassified	8 (0.2)	3 (0.1)	16 (0.5)	3513 (99.2)	3540
	Classified	11 (0.2)	3 (0.1)	90 (1.5)	5883 (98.3)	5987
	Sub-total	**19 (0.1)**	**6 (0.1)**	**106 (1.1)**	**9396 (98.6)**	**9527**
98/99	Unclassified	645 (18.9)	74 (2.2)	2694 (78.9)	0 (0)	3413
	Classified	623 (11.6)	74 (1.4)	4669 (87.0)	0 (0)	5366
	Sub-total	**1268 (14.4)**	**148 (1.7)**	**7363 (83.9)**	**0 (0)**	**8779**
99/00	Unclassified	972 (24.0)	100 (2.5)	2985 (73.6)	0 (0)	4057
	Classified	453 (7.8)	80 (1.4)	5277 (90.8)	0 (0)	5810
	Sub-total	**1425 (14.4)**	**180 (1.8)**	**8262 (83.7)**	**0 (0)**	**9867**
00/01	Unclassified	551 (14.7)	171 (4.6)	3029 (80.8)	0 (0)	3751
	Classified	456 (5.7)	95 (1.2)	7384 (93.1)	0 (0)	7935
	Sub-total	**1007 (8.6)**	**266 (2.3)**	**10413 (89.1)**	**0 (0)**	**11686**
01/02	Unclassified	482 (17.0)	220 (7.7)	2138 (75.3)	0 (0)	2840
	Classified	172 (3.3)	117 (2.2)	4953 (94.5)	0 (0)	5242
	Sub-total	**654 (8.1)**	**337 (4.2)**	**7091 (87.7)**	**0 (0)**	**8082**
07/08	Unclassified	338 (7.8)	262 (6.0)	3819 (87.9)	38 (0.9)	4347
	Classified	188 (2.8)	263 (3.9)	6159 (91.7)	109 (1.6)	6719
	Sub-total	**416 (3.8)**	**525 (4.7)**	**9978 (90.2)**	**147 (1.3)**	**11066**

Appendix 2. Counterfoil Data Available from BC Enviromment (2008a).

Table 1. Babine River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Babine	-	-	-	-	-	-	-	-	-	192	11	192	395	872	69	1031	1972	-	-	-
1984	Babine	-	-	-	-	-	-	-	-	-	154	6	199	359	873	30	1180	2083	-	-	-
1985	Babine	-	-	-	-	-	-	-	-	-	179	13	236	428	898	56	1529	2483	-	-	-
1986	Babine	-	-	-	-	-	-	-	-	-	272	17	320	609	1509	69	1783	3361	-	-	-
1987	Babine	-	-	-	-	-	-	-	-	-	158	10	337	505	1199	18	1955	3172	-	-	-
1988	Babine	-	-	-	-	-	-	-	-	-	187	39	295	521	1679	139	1621	3439	-	-	-
1989	Babine	-	-	-	-	-	-	-	-	-	140	2	251	393	988	5	1510	2503	-	-	-
1990	Babine	-	248	154	-	95	1074	-	343	1228	227	28	263	518	1371	120	1498	2989	-	-	-
1991	Babine	296	27	79	313	31	1141	609	58	1220	215	0	235	450	1273	0	1306	2579	-	-	-
1992	Babine	409	80	47	253	57	1135	662	137	1182	189	24	237	450	936	92	1303	2331	-	-	-
1993	Babine	-	-	-	-	-	-	-	-	-	120	47	251	418	348	242	1433	2023	-	-	-
1994	Babine	985	91	254	685	128	2665	1670	219	2919	204	38	250	492	1003	99	1470	2572	-	-	-
1995	Babine	-	-	-	-	-	-	-	-	-	211	26	290	527	1105	72	1797	2974	-	-	-
1996	Babine	-	-	-	-	-	-	-	-	-	166	11	350	527	1014	31	2015	3060	-	-	-
1997	Babine	-	98	340	-	18	1475	-	116	1815	348	26	348	722	1824	79	2105	4008	244	4	773
1998	Babine	-	102	231	-	0	1475	-	102	1706	208	26	344	578	1098	82	2033	3213	244	28	777
1999	Babine	-	56	354	-	18	1633	-	74	1987	196	25	379	600	1307	111	2206	3624	184	19	864
2000	Babine	-	74	343	-	12	1090	-	86	1433	212	14	436	662	1089	93	2531	3712	251	17	1532
2001	Babine	-	67	46	-	27	1577	-	94	1623	203	35	500	738	1739	492	3098	5329	17	14	1243
2002	Babine	-	83	27	-	3	1456	-	86	1483	267	20	279	566	1563	73	1622	3257	163	12	1425
2003	Babine	-	18	435	-	14	455	-	32	890	219	22	338	579	1370	103	2210	3684	152	20	1413
2004	Babine	-	4	275	-	27	1457	-	31	1732	-	-	-	-	-	-	-	-	78	17	1404
2005	Babine	-	59	204	-	28	1481	-	87	1685	120	24	306	450	1074	98	2000	3171	61	47	1355
2006	Babine	-	-	-	-	-	-	-	-	-	118	16	335	469	1139	91	1962	3192	79	62	1399

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 93/94, 95/96 and 96/97
4. Counterfoil data for year 97/98 available via access database
5. Counterfoil data for 99/00 and 00/01 taken from previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 2. Bulkley River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Bulkley	-	-	-	-	-	-	-	-	-	1217	133	125	1475	9346	578	625	10549	-	-	-
1984	Bulkley	-	-	-	-	-	-	-	-	-	1102	144	166	1412	8463	637	1012	10112	-	-	-
1985	Bulkley	-	-	-	-	-	-	-	-	-	1173	139	220	1532	8709	645	1299	10653	-	-	-
1986	Bulkley	-	-	-	-	-	-	-	-	-	1815	193	317	2325	13624	994	1586	16204	-	-	-
1987	Bulkley	-	-	-	-	-	-	-	-	-	1198	142	287	1627	8327	717	1325	10369	-	-	-
1988	Bulkley	-	-	-	-	-	-	-	-	-	1226	179	402	1807	8294	770	1976	11040	-	-	-
1989	Bulkley	-	-	-	-	-	-	-	-	-	854	132	354	1340	5695	743	1836	8274	-	-	-
1990	Bulkley	-	7	288	-	28	240	-	35	528	1028	105	309	1442	6471	565	1763	8799	-	-	-
1991	Bulkley	24	40	107	3	16	245	27	56	352	510	0	246	756	3379	0	1083	4462	-	-	-
1992	Bulkley	0	7	18	0	32	10	0	39	28	413	18	139	570	2814	154	612	3580	-	-	-
1993	Bulkley	0	0	1	16	0	27	16	0	28	471	81	338	890	2034	361	1724	4119	-	-	-
1994	Bulkley	15	43	235	129	8	823	144	51	1058	696	73	437	1206	4457	379	2066	6902	-	-	-
1995	Bulkley	-	-	-	-	-	-	-	-	-	721	105	482	1308	5045	538	2729	8312	-	-	-
1996	Bulkley	-	-	-	-	-	-	-	-	-	722	57	520	1299	5513	344	2696	8552	11	14	41
1997	Bulkley	-	337	1328	-	5	837	-	342	2165	822	42	642	1506	5869	226	3053	9148	130	5	896
1998	Bulkley	-	338	1465	-	2	944	-	340	2409	1087	82	590	1759	7314	345	3170	10829	86	0	1034
1999	Bulkley	-	0	2179	-	0	393	-	0	2572	1016	99	677	1792	7506	415	3571	11492	7	0	709
2000	Bulkley	-	0	2359	-	0	845	-	0	3204	1156	89	781	2026	9523	461	4168	14152	102	16	1236
2001	Bulkley	-	432	2812	-	2	985	-	434	3797	965	108	890	1963	6609	449	4645	11703	54	7	1117
2002	Bulkley	-	993	2763	-	14	1042	-	1007	3805	1031	121	690	1842	7653	654	4317	12623	43	1	1137
2003	Bulkley	-	582	2326	-	25	1202	-	607	3528	1098	153	685	1936	8016	804	3662	12482	9	5	543
2004	Bulkley	-	411	2053	-	18	1040	-	429	3093	-	-	-	-	-	-	-	-	24	16	649
2005	Bulkley	-	343	2336	-	38	1095	-	381	3431	862	124	590	1576	6114	590	3352	10056	76	53	1014
2006	Bulkley	-	-	-	-	-	-	-	-	-	824	140	670	1634	5344	688	3410	9441	25	17	666

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96 and 96/97
4. Counterfoil data for year 97/98 available via access database
5. Counterfoil data for 99/00 and 00/01 taken from previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05

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Table 3. Kitsumkalum River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Kalum	-	-	-	-	-	-	-	-	-	548	9	8	565	3702	22	35	3759	-	-	-
1984	Kalum	-	-	-	-	-	-	-	-	-	689	13	8	710	4775	37	19	4831	-	-	-
1985	Kalum	-	-	-	-	-	-	-	-	-	623	18	11	652	4327	62	16	4405	-	-	-
1986	Kalum	-	-	-	-	-	-	-	-	-	872	23	24	919	4598	90	50	4738	-	-	-
1987	Kalum	-	-	-	-	-	-	-	-	-	694	34	10	738	4449	148	59	4656	-	-	-
1988	Kalum	-	-	-	-	-	-	-	-	-	600	42	14	656	3070	216	58	3344	-	-	-
1989	Kalum	-	-	-	-	-	-	-	-	-	589	32	14	635	4398	115	72	4585	-	-	-
1990	Kalum	-	0	1	-	0	14	-	0	15	576	11	9	596	3673	47	64	3784	52	62	42
1991	Kalum	0	0	0	32	30	110	32	30	110	395	0	11	406	2334	0	55	2389	25	35	38
1992	Kalum	0	1	9	20	76	79	20	77	88	260	4	6	270	1351	7	17	1375	31	24	122
1993	Kalum	0	2	2	24	11	67	24	13	69	224	11	4	239	1586	36	4	1626	23	4	97
1994	Kalum	0	0	8	13	16	73	13	16	81	250	11	14	275	1673	24	54	1751	11	14	112
1995	Kalum	-	-	-	-	-	-	-	-	-	351	10	27	388	2077	44	77	2198	39	16	173
1996	Kalum	-	-	-	-	-	-	-	-	-	221	0	18	239	1854	0	92	1946	30	2	180
1997	Kalum	-	147	291	-	36	337	-	183	628	325	4	18	347	2384	8	30	2422	12	7	151
1998	Kalum	-	101	247	-	20	407	-	121	654	256	7	39	302	1820	7	140	1967	0	0	79
1999	Kalum	-	-	-	-	-	-	-	-	-	351	0	26	377	2652	0	98	2750	6	8	124
2000	Kalum	-	122	373	-	43	350	-	165	723	363	11	91	465	2360	14	288	2662	0	2	162
2001	Kalum	-	383	460	-	46	390	-	429	850	401	31	68	500	3906	89	264	4259	0	16	222
2002	Kalum	-	-	-	-	-	-	-	-	-	485	20	80	585	3106	36	266	3409	8	43	372
2003	Kalum	-	161	326	-	45	336	-	206	662	473	11	81	565	3343	33	274	3650	17	51	339
2004	Kalum	-	130	160	-	35	237	-	165	417	-	-	-	-	-	-	-	-	20	32	256
2005	Kalum	-	131	179	-	43	354	-	174	533	293	33	72	398	1627	77	225	1930	10	36	354
2006	Kalum	-	-	-	-	-	-	-	-	-	183	23	88	294	1056	45	312	1414	34	63	571

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96, 96/97, 99/00 and 02/03
4. Counterfoil data for year 97/98 available via access database
5. Steelhead Harvest Analyses not conducted for 04/05

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 4. Kispiox River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Kispiox	-	-	-	-	-	-	-	-	-	227	33	111	371	937	287	847	2071	-	-	-
1984	Kispiox	-	-	-	-	-	-	-	-	-	225	45	117	387	1185	169	769	2123	-	-	-
1985	Kispiox	-	-	-	-	-	-	-	-	-	330	45	158	533	1424	238	1040	2702	-	-	-
1986	Kispiox	-	-	-	-	-	-	-	-	-	383	78	231	692	1715	335	1388	3438	-	-	-
1987	Kispiox	-	-	-	-	-	-	-	-	-	432	77	293	802	1888	335	1756	3979	-	-	-
1988	Kispiox	-	-	-	-	-	-	-	-	-	414	160	408	982	1669	823	2467	4979	-	-	-
1989	Kispiox	-	-	-	-	-	-	-	-	-	281	76	428	785	1076	318	2600	3994	-	-	-
1990	Kispiox	-	0	74	-	0	35	-	0	109	325	32	232	589	1308	109	1335	2752	-	-	-
1991	Kispiox	4	12	21	4	14	178	8	26	199	171	0	140	311	650	0	676	1326	-	-	-
1992	Kispiox	3	33	213	2	0	29	5	33	242	204	24	164	392	739	121	808	1668	-	-	-
1993	Kispiox	-	-	-	-	-	-	-	-	-	109	22	208	339	219	120	1105	1444	-	-	-
1994	Kispiox	6	15	430	0	0	156	0	15	586	254	46	280	580	1036	134	1346	2516	-	-	-
1995	Kispiox	-	-	-	-	-	-	-	-	-	240	46	402	688	809	138	2109	3056	-	-	-
1996	Kispiox	-	-	-	-	-	-	-	-	-	201	45	368	614	641	99	1964	2705	-	-	-
1997	Kispiox	-	55	1094	-	0	258	-	55	1352	172	15	306	493	524	26	1259	1810	0	0	145
1998	Kispiox	-	55	1618	-	0	349	-	55	1967	372	20	456	848	1214	46	2515	3775	4	0	305
1999	Kispiox	-	69	1468	-	0	412	-	69	1880	299	33	450	782	871	140	1984	2995	0	0	114
2000	Kispiox	-	36	1462	-	1	394	-	37	1856	351	18	484	853	1469	36	2376	3881	4	0	357
2001	Kispiox	-	50	1517	-	1	343	-	51	1860	303	35	519	857	1163	93	2763	4019	0	1	203
2002	Kispiox	-	108	1683	-	0	319	-	108	2002	345	28	406	779	1446	73	1905	3424	0	0	329
2003	Kispiox	-	108	1758	-	2	228	-	110	1986	379	50	488	917	1514	161	2294	3970	0	0	307
2004	Kispiox	-	73	1456	-	8	370	-	81	1826	-	-	-	-	-	-	-	-	0	4	382
2005	Kispiox	-	33	1411	-	2	390	-	35	1801	272	24	349	645	967	59	1777	2803	0	2	391
2006	Kispiox	-	-	-	-	-	-	-	-	-	265	26	429	720	1456	88	2002	3545	1	0	332

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 93/94, 95/96 and 96/97
4. Counterfoil data for year 97/98 available via access database
5. Counterfoil data for 99/00 and 00/01 taken from a previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 5. Kitseguecla River Historical Angler Use Summary of Counterfoil and SHA Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)							
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days			
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total
1983	Kitseguecla	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
1984	Kitseguecla	-	-	-	-	-	-	-	-	-	17	0	2	19	168	0	5	173
1985	Kitseguecla	-	-	-	-	-	-	-	-	-	17	0	0	17	49	0	0	49
1986	Kitseguecla	-	-	-	-	-	-	-	-	-	10	0	0	10	33	0	0	33
1987	Kitseguecla	-	-	-	-	-	-	-	-	-	18	2	0	20	49	4	0	53
1988	Kitseguecla	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
1989	Kitseguecla	-	-	-	-	-	-	-	-	-	9	0	0	9	9	0	0	9
1990	Kitseguecla	0	0	0	0	0	0	0	0	0	11	0	0	11	15	0	0	15
1991	Kitseguecla	0	0	0	0	0	0	0	0	0	9	0	0	9	9	0	0	9
1992	Kitseguecla	0	0	0	0	0	0	0	0	0	4	0	0	4	38	0	0	38
1993	Kitseguecla	0	0	0	0	0	0	0	0	0	5	0	2	7	5	0	2	7
1994	Kitseguecla	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	Kitseguecla	-	-	-	-	-	-	-	-	-	6	0	0	6	12	0	0	12
1996	Kitseguecla	-	-	-	-	-	-	-	-	-	3	0	0	3	3	0	0	3
1997	Kitseguecla	-	-	-	-	-	-	-	-	-	4	0	0	4	4	0	0	4
1998	Kitseguecla	-	2	0	-	0	0	-	2	0	7	0	0	7	7	0	0	7
1999	Kitseguecla	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
2000	Kitseguecla	-	0	0	-	0	0	-	0	0	11	0	0	11	26	0	0	26
2001	Kitseguecla	-	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0
2002	Kitseguecla	-	0	3	-	0	0	-	0	3	0	4	0	4	0	16	0	16
2003	Kitseguecla	-	0	0	-	0	0	-	0	0	4	0	0	4	4	0	0	4
2004	Kitseguecla	-	0	2	-	0	0	-	0	2	-	-	-	-	-	-	-	-
2005	Kitseguecla	-	0	2	-	0	0	-	0	2	4	0	0	4	7	0	0	7
2006	Kitseguecla	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96 and 96/97
4. Counterfoil data from 97/98 access database not available for Kitseguecla River
5. Counterfoil data for 99/00 and 00/01 taken from a previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05
7. Guide report data is not available as the Kitseguecla River is a non-guided only river.

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors includa angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 6. Kitwanga River Historical Angler Use Summary of Counterfoil and SHA Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)							
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days			
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total
1983	Kitwanga	-	-	-	-	-	-	-	-	-	25	0	0	25	44	0	0	44
1984	Kitwanga	-	-	-	-	-	-	-	-	-	16	2	0	18	68	2	0	70
1985	Kitwanga	-	-	-	-	-	-	-	-	-	24	2	2	28	59	2	2	63
1986	Kitwanga	-	-	-	-	-	-	-	-	-	15	2	0	17	15	2	0	17
1987	Kitwanga	-	-	-	-	-	-	-	-	-	14	4	4	22	117	10	8	135
1988	Kitwanga	-	-	-	-	-	-	-	-	-	20	0	6	26	58	0	10	68
1989	Kitwanga	-	-	-	-	-	-	-	-	-	0	0	10	10	0	0	16	16
1990	Kitwanga	0	0	1	-	0	0	-	0	0	4	0	2	6	8	0	7	15
1991	Kitwanga	0	0	0	-	0	0	-	0	0	8	0	4	12	30	0	4	34
1992	Kitwanga	0	6	0	-	0	0	-	6	0	4	0	0	4	15	0	0	15
1993	Kitwanga	0	0	0	-	0	0	-	0	0	0	0	2	2	0	0	4	4
1994	Kitwanga	0	0	0	-	0	0	-	0	0	6	0	0	6	6	0	0	6
1995	Kitwanga	-	-	-	-	-	-	-	-	-	12	0	0	12	12	0	0	12
1996	Kitwanga	-	-	-	-	-	-	-	-	-	3	0	0	3	3	0	0	3
1997	Kitwanga	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
1998	Kitwanga	-	0	10	-	0	0	-	0	10	4	0	3	7	369	0	3	372
1999	Kitwanga	-	0	0	-	0	0	-	0	0	4	0	0	4	4	0	0	4
2000	Kitwanga	-	0	0	-	0	0	-	0	0	7	0	0	7	17	0	0	17
2001	Kitwanga	-	1	17	-	0	0	-	1	17	15	0	6	21	348	0	6	354
2002	Kitwanga	-	12	11	-	0	0	-	12	11	12	0	4	16	79	0	9	88
2003	Kitwanga	-	0	5	-	0	0	-	0	5	13	0	0	13	77	0	0	77
2004	Kitwanga	-	3	26	-	0	0	-	3	26	-	-	-	-	-	-	-	-
2005	Kitwanga	-	0	5	-	0	0	-	0	5	7	0	3	10	15	0	5	20
2006	Kitwanga	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96 and 96/97
4. Counterfoil data from 97/98 access database not available for Kitwanga River
5. Counterfoil data for 99/00 and 00/01 taken from a previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05
7. Guide report data is not available as the Kitwanga River is a non-guided only river

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 7. Lakelse River Historical Angler Use Summary of Counterfoil and SHA Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)							
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days			
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total
1983	Lakelse	-	-	-	-	-	-	-	-	-	412	29	12	453	2904	53	38	2995
1984	Lakelse	-	-	-	-	-	-	-	-	-	494	19	11	524	2876	73	45	2994
1985	Lakelse	-	-	-	-	-	-	-	-	-	445	36	27	508	2716	169	116	3001
1986	Lakelse	-	-	-	-	-	-	-	-	-	487	48	30	565	2979	196	220	3395
1987	Lakelse	-	-	-	-	-	-	-	-	-	512	32	8	552	3398	128	25	3551
1988	Lakelse	-	-	-	-	-	-	-	-	-	547	42	25	614	2959	176	105	3240
1989	Lakelse	-	-	-	-	-	-	-	-	-	647	66	32	745	3909	330	452	4691
1990	Lakelse	0	0	25	0	0	0	0	0	25	421	32	13	466	2373	124	73	2570
1991	Lakelse	9	54	6	0	0	0	9	54	6	362	0	9	371	1965	0	41	2006
1992	Lakelse	0	21	51	0	0	0	0	21	51	329	13	8	350	1614	57	37	1708
1993	Lakelse	0	20	12	0	0	0	0	20	12	214	6	6	226	1581	31	30	1642
1994	Lakelse	0	62	12	0	0	0	0	62	12	181	16	12	209	827	19	33	879
1995	Lakelse	-	-	-	-	-	-	-	-	-	263	10	7	280	1383	15	20	1418
1996	Lakelse	-	-	-	-	-	-	-	-	-	182	6	18	206	844	26	28	897
1997	Lakelse	-	101	329	-	0	0	-	101	329	284	0	6	290	1394	0	36	1430
1998	Lakelse	-	48	194	-	0	0	-	48	194	131	23	21	175	588	49	36	674
1999	Lakelse	-	-	-	-	-	-	-	-	-	182	4	36	222	803	8	95	907
2000	Lakelse	-	102	245	-	0	0	-	102	245	188	0	27	215	915	0	64	979
2001	Lakelse	-	125	199	-	0	0	-	125	199	148	8	9	165	791	12	15	818
2002	Lakelse	-	233	406	-	0	0	-	234	407	206	12	11	229	1151	12	18	1181
2003	Lakelse	-	135	299	-	0	0	-	135	299	321	0	47	368	2002	0	133	2136
2004	Lakelse	-	85	222	-	0	0	-	85	222	-	-	-	-	-	-	-	-
2005	Lakelse	-	91	227	-	0	0	-	91	228	183	9	19	211	937	27	30	993
2006	Lakelse	-	-	-	-	-	-	-	-	-	83	0	20	103	264	0	71	335

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96, 96/97 and 99/00
4. Counterfoil data for year 97/98 available via access database
5. Counterfoil data for 00/01 inclusive from April 18 to Oct 31
6. Steelhead Harvest Analyses not conducted for 04/05
7. Guide report data is not available as the Lakelse River is a non-guided only river.

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 8. Morice River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Morice	-	-	-	-	-	-	-	-	-	758	44	119	921	4119	151	677	4947	-	-	-
1984	Morice	-	-	-	-	-	-	-	-	-	583	56	98	737	3935	130	497	4562	-	-	-
1985	Morice	-	-	-	-	-	-	-	-	-	649	20	110	779	3748	45	483	4276	-	-	-
1986	Morice	-	-	-	-	-	-	-	-	-	889	53	173	1115	6270	177	855	7302	-	-	-
1987	Morice	-	-	-	-	-	-	-	-	-	572	36	165	773	2985	97	717	3799	-	-	-
1988	Morice	-	-	-	-	-	-	-	-	-	550	50	173	773	3171	168	790	4129	-	-	-
1989	Morice	-	-	-	-	-	-	-	-	-	346	22	163	531	2160	54	923	3137	-	-	-
1990	Morice	-	0	39	-	0	195	-	0	234	414	19	141	574	2089	81	759	2929	-	-	-
1991	Morice	0	17	73	-	6	308	0	23	381	275	0	94	369	1301	0	549	1850	-	-	-
1992	Morice	0	12	21	-	0	24	0	12	45	189	4	50	243	1194	24	217	1435	-	-	-
1993	Morice	0	0	1	-	0	50	0	0	51	228	36	123	387	1148	81	519	1748	-	-	-
1994	Morice	14	9	22	131	4	251	145	13	273	338	22	135	495	2109	73	627	2809	-	-	-
1995	Morice	-	-	-	-	-	-	-	-	-	371	41	137	549	2294	141	637	3072	19	16	211
1996	Morice	-	-	-	-	-	-	-	-	-	397	40	156	593	2075	139	699	2914	3	0	288
1997	Morice	-	61	543	-	0	256	-	61	799	372	26	192	590	2348	113	1062	3522	33	1	365
1998	Morice	-	52	532	-	0	301	-	52	833	517	23	251	791	3070	69	1036	4175	0	0	280
1999	Morice	-	54	545	-	0	222	-	54	767	615	25	183	823	3425	78	710	4213	9	0	372
2000	Morice	-	76	631	-	0	221	-	76	852	485	25	263	773	2938	61	1035	4034	12	0	376
2001	Morice	-	132	346	-	2	372	-	134	718	480	35	319	834	2199	116	1348	3663	5	2	349
2002	Morice	-	126	539	-	1	397	-	127	936	500	24	231	755	2813	182	1020	4016	0	0	280
2003	Morice	-	159	678	-	17	442	-	176	1120	543	47	219	809	3040	186	981	4207	7	4	395
2004	Morice	-	38	317	-	0	287	-	38	604	-	-	-	-	-	-	-	-	3	12	324
2005	Morice	-	75	412	-	6	530	-	81	942	315	24	180	519	1470	89	805	2364	5	2	324
2006	Morice	-	-	-	-	-	-	-	-	-	330	32	173	535	1337	101	684	2121	2	7	294

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96 and 96/97
4. Counterfoil data for year 97/98 available via access database
5. Counterfoil data for 99/00 and 00/01 taken from a previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 9. Skeena River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Skeena	-	-	-	-	-	-	-	-	-	977	200	128	1305	9195	1256	868	11319	-	-	-
1984	Skeena	-	-	-	-	-	-	-	-	-	1162	231	148	1541	9814	1549	1292	12655	-	-	-
1985	Skeena	-	-	-	-	-	-	-	-	-	1493	292	203	1988	11558	1689	1838	15085	-	-	-
1986	Skeena	-	-	-	-	-	-	-	-	-	2082	381	322	2785	16502	2573	2297	21372	-	-	-
1987	Skeena	-	-	-	-	-	-	-	-	-	1849	341	207	2397	13231	1934	1965	17130	-	-	-
1988	Skeena	-	-	-	-	-	-	-	-	-	1807	384	276	2467	13983	2172	2073	18228	-	-	-
1989	Skeena	-	-	-	-	-	-	-	-	-	1419	310	233	1962	11487	1793	1962	15242	-	-	-
1990	Skeena	-	36	54	-	62	801	-	98	855	1237	118	139	1494	8665	606	969	10240	45	78	738
1991	Skeena	0	74	16	109	1853	1768	109	1927	1784	814	0	52	866	7886	0	353	8239	65	61	2045
1992	Skeena	2	138	129	42	55	2051	44	193	2180	357	18	35	410	2157	83	60	2300	52	42	1962
1993	Skeena	0	44	142	77	352	1608	77	396	1750	243	8	70	321	2224	36	191	2451	59	55	1918
1994	Skeena	1	119	145	56	329	1335	57	448	1480	259	16	44	319	1861	81	121	2063	45	58	2132
1995	Skeena	-	-	-	-	-	-	-	-	-	400	20	75	495	4361	95	247	4703	58	41	2392
1996	Skeena	-	-	-	-	-	-	-	-	-	268	3	74	345	2634	6	248	2888	47	0	1567
1997	Skeena	-	819	1461	-	29	2579	-	848	4040	310	0	90	400	2421	0	210	2631	65	22	1674
1998	Skeena	-	487	1358	-	38	591	-	525	1949	314	3	218	535	2240	3	774	3017	40	17	286
1999	Skeena	-	2	256	-	0	45	-	2	301	440	8	179	627	3926	8	674	4608	22	21	659
2000	Skeena	-	562	1514	-	51	1742	-	613	3256	558	7	269	834	4912	25	1108	6045	12	19	1850
2001	Skeena	-	909	1780	-	73	2320	-	982	4100	536	50	310	896	5962	244	1652	7858	5	30	1769
2002	Skeena	-	1150	1250	-	68	2934	-	1218	4184	668	24	231	923	5975	93	856	6924	34	90	2715
2003	Skeena	-	1078	1756	-	40	3165	-	1118	4921	926	31	402	1359	7943	61	1799	9803	32	27	2716
2004	Skeena	-	966	1724	-	144	1818	-	1110	3542	-	-	-	-	-	-	-	-	41	93	1650
2005	Skeena	-	1078	1744	-	70	1900	-	1148	3644	636	30	301	967	5101	71	1138	6310	42	81	1925
2006	Skeena	-	-	-	-	-	-	-	-	-	474	55	514	1043	3594	175	1928	5697	28	64	1657

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96 and 96/97
4. Counterfoil data for year 97/98 available via access database
5. Steelhead Harvest Analyses not conducted for 04/05
6. Counterfoil and guide report data summarized above represents Skeena CW sections 2 and 4 combined

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 10. Suskwa River Historical Angler Use Summary of Counterfoil and SHA Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)							
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days			
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total
1983	Suskwa	-	-	-	-	-	-	-	-	-	155	11	13	179	964	11	29	1004
1984	Suskwa	-	-	-	-	-	-	-	-	-	32	9	11	52	46	19	25	90
1985	Suskwa	-	-	-	-	-	-	-	-	-	57	4	18	79	180	5	34	219
1986	Suskwa	-	-	-	-	-	-	-	-	-	59	2	13	74	184	2	45	231
1987	Suskwa	-	-	-	-	-	-	-	-	-	48	6	27	81	140	6	55	201
1988	Suskwa	-	-	-	-	-	-	-	-	-	47	8	21	76	123	11	47	181
1989	Suskwa	-	-	-	-	-	-	-	-	-	63	2	28	93	139	27	92	258
1990	Suskwa	0	0	1	0	0	0	0	0	3	31	0	2	33	61	0	4	65
1991	Suskwa	0	0	0	0	0	0	0	0	0	16	0	9	25	62	0	37	99
1992	Suskwa	0	0	0	0	0	0	0	0	0	28	4	21	53	78	4	58	140
1993	Suskwa	0	0	0	0	0	0	0	0	0	10	0	13	23	16	0	19	35
1994	Suskwa	0	0	0	0	0	0	0	0	0	55	0	14	69	102	0	28	130
1995	Suskwa	-	-	-	-	-	-	-	-	-	21	10	17	48	52	10	30	92
1996	Suskwa	-	-	-	-	-	-	-	-	-	51	6	28	85	134	6	32	172
1997	Suskwa	-	-	-	-	-	-	-	-	-	69	0	12	81	171	0	60	231
1998	Suskwa	-	1	43	-	0	0	-	1	43	48	0	18	66	148	0	26	174
1999	Suskwa	-	2	40	-	0	0	-	2	40	62	4	21	87	155	4	45	204
2000	Suskwa	-	3	25	-	0	0	-	3	25	73	0	18	91	281	0	61	341
2001	Suskwa	-	1	88	-	0	0	-	1	88	75	0	31	106	182	0	80	261
2002	Suskwa	-	5	62	-	0	0	-	5	62	60	8	22	90	118	20	27	165
2003	Suskwa	-	2	38	-	0	0	-	2	43	66	0	17	83	174	0	42	216
2004	Suskwa	-	0	68	-	0	0	-	0	68	-	-	-	-	-	-	-	-
2005	Suskwa	-	3	56	-	0	0	-	3	56	63	0	19	82	164	0	32	196
2006	Suskwa	-	-	-	-	-	-	-	-	-	50	0	17	67	67	0	51	118

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96 and 96/97
4. Counterfoil data for year 97/98 was not summarized in the access database
5. Counterfoil data for 99/00 and 00/01 taken from a previous study summary
6. Steelhead Harvest Analyses not conducted for 04/05
7. Guide report data is not available as the Suskwa is a non-guided only river

Disclaimer - The data presented in the above summary is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.

Table 12. Zymoetz (Copper) River Historical Angler Use Summary of Counterfoil, SHA and Guide Report Data

Counterfoil Data - Number of Angler Days (actual)											SHA Data - Number of Anglers and Angler Days (extrapolated)								Guide Report Data (actual)		
		Non-guided Days			Guided Days			Total Number of Angler Days			Sum of Anglers				Angler Days				Guided Days		
Year	Water	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD	Total	Res	Non-Res CAD	Non-CAD
1983	Zymoetz	-	-	-	-	-	-	-	-	-	329	42	6	377	1427	78	33	1538	-	-	-
1984	Zymoetz	-	-	-	-	-	-	-	-	-	380	24	26	430	2260	37	87	2384	-	-	-
1985	Zymoetz	-	-	-	-	-	-	-	-	-	512	45	71	628	3340	111	448	3899	-	-	-
1986	Zymoetz	-	-	-	-	-	-	-	-	-	699	48	104	851	4712	135	715	5562	-	-	-
1987	Zymoetz	-	-	-	-	-	-	-	-	-	511	22	69	602	2362	51	587	3000	-	-	-
1988	Zymoetz	-	-	-	-	-	-	-	-	-	588	32	97	717	2716	34	402	3152	-	-	-
1989	Zymoetz	-	-	-	-	-	-	-	-	-	356	27	50	433	1508	81	191	1780	-	-	-
1990	Zymoetz	-	141	46	-	5	163	-	146	209	291	21	73	385	952	41	338	1331	5	0	74
1991	Zymoetz	42	2	54	2	0	4	44	2	58	170	0	39	209	545	0	116	661	0	0	8
1992	Zymoetz	40	3	33	0	0	2	40	3	35	161	4	17	182	733	9	37	779	0	0	1
1993	Zymoetz	79	0	19	3	0	9	82	0	28	214	3	28	245	1175	3	79	1257	3	0	3
1994	Zymoetz	52	0	19	3	0	55	55	0	74	231	13	28	272	1158	40	65	1263	1	0	40
1995	Zymoetz	-	-	-	-	-	-	-	-	-	285	20	47	352	1086	77	125	1288	12	0	51
1996	Zymoetz	-	-	-	-	-	-	-	-	-	276	11	37	324	925	20	92	1037	26	4	25
1997	Zymoetz	0	16	318	0	0	84	0	16	402	298	11	48	357	1384	30	138	1553	17	0	55
1998	Zymoetz	0	21	280	0	0	113	0	21	393	321	10	132	463	1558	30	365	1953	8	0	34
1999	Zymoetz	-	-	-	-	-	-	-	-	-	425	21	212	658	2431	53	781	3266	10	0	178
2000	Zymoetz	0	38	521	0	0	90	0	38	611	424	18	288	730	2478	46	1090	3615	2	0	68
2001	Zymoetz	0	52	795	0	1	139	0	53	934	423	35	304	762	2340	81	961	3382	3	0	108
2002	Zymoetz	0	20	563	0	3	144	0	23	707	398	28	217	643	1735	89	683	2507	6	0	172
2003	Zymoetz	0	66	557	0	38	103	0	104	660	437	42	338	817	2430	111	1259	3800	0	23	102
2004	Zymoetz	0	30	601	0	15	101	0	45	702	-	-	-	-	-	-	-	-	5	13	85
2005	Zymoetz	0	69	57	0	1	107	0	70	164	348	39	209	594	1377	68	827	2272	0	0	103
2006	Zymoetz	-	-	-	-	-	-	-	-	-	242	16	332	590	922	26	1252	2200	13	11	160

Notes

1. Year description covers fiscal year from March 1 to April 31. For example, 1983 covers from March 1, 1983 to April 31, 1984, also described as 83/84.
2. CW license format in earlier years allowed for resident data to be collected, however, 90/91 license format only identified anglers as BC resident or non-BC resident
3. Counterfoils not in records boxes for years 95/96, 96/97 and 99/00
4. Counterfoil date for year 97/98 only available for Zymoetz class 1 section
5. Steelhead Harvest Analyses not conducted for 04/05
6. Counterfoil and guide report data summarized above represents Zymoetz Class 1 and 2 sections combined

Disclaimer - The data presented in the above summery is limited by the accuracy of information provided on Classified Water license "counterfoils." Limiting factors include angler mis-reporting error, completion error by vendors and illegible counterfoils carbon copies.