

**Angling Guide Data Summary
for the
1990/1991 to 2007/2008 Licence Years
in the
Skeena River Watershed**

Prepared for

Skeena Watershed Initiative
British Columbia

and

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Executive Summary

The Angling Guide Management System (AGMS) database for the Ministry of Environment Skeena Region has been updated to contain the angling guide activity and catch information submitted for the Skeena watershed from its initiation in 1990/91 until the 2007/08 licence year. This data summary report provides a review of where and how guided angling activities in the Skeena watershed may have changed over these licence years and where it may be useful for fisheries management organizations to focus future efforts toward investigating potential trends or non-compliances identified based on the data that angling guides are required to submit for their annual guiding permits. A number of data summary queries and crosstab queries have been created and saved in the AGMS database to provide easy replication and the ability to specialize the results for more specific questions or interests that may arise from future reviews or other related sources. Some of the trends and permit compliance issues are noted and discussed in the various sections regarding angling guide report submissions, angling guide activities, and species reported at the various guide locations in the Skeena watershed. A more detailed summary of the guided angling success for steelhead in the Skeena watershed is also presented and appears to provide a reasonable measure of inter-annual and spatial variations in steelhead abundance when compared to the Steelhead Abundance Index for the Skeena watershed that is calculated annually by Fisheries and Oceans Canada based on the Tyee Test Fishery results. Interestingly, the guided angling success for steelhead at all classified waters combined correlate well with the Tyee Steelhead Abundance Index. However, guided angling success for individual classified waters does not correlate well with the Tyee Steelhead Abundance Index and may require further investigation. Overall, the methods derived for summarizing the AGMS data appear to provide a useful tool to annually monitor guided angling activities and success, as well as present a start to a more accurate assessment of the spatial distribution of fish abundances than just the overall Skeena watershed abundances estimates that are acquired from the Tyee Steelhead Abundance Index.

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1.0 INTRODUCTION

On the request of the Skeena Watershed Initiative (SWI), SKR Consultants Ltd (SKR) has conducted the data updates of angling guide report information for the Skeena watershed for the 2002/2003 and 2003/2004 licence years into the Angling Guide Management System (AGMS) database, and provided a summary report of the guided angling results from the 1990/1991 to 2007/2008 licence years. This project was funded under the Living Rivers Trust Fund and has been administered by the Pacific Salmon Foundation (Secretariat to the SWI) in conjunction with the Smithers Fisheries Section of the British Columbia Ministry of Environment. The remainder of the angling guide reports, presently not entered in the AGMS database (i.e. 2008/2009 and 2009/2010 licence years), will hopefully be added and the completed database integrated with the 2010/2011 internet database presently proposed to collect the required guided angling results from individual angling guides in a digital format prior to their paper submissions. The data summary for this project will include the data from angling guide reports for the 1990/1991 to 2001/2002 licence years that were entered by BCE and for the 2004/2005 to 2007/2008 licence years for the Skeena watershed that was more recently entered by SKR into the AGMS for a preliminary update of guided angling activity (Saimoto & Saimoto 2009, 2010). The objective of this update is to provide a more complete view of past guiding activities to show any potential trends or variations in guided angler demographics, effort, catch, and the status of angling guide activities in the Skeena Watershed. A general assessment of steelhead catch as an indicator of annual abundance in comparison to the Tyee Steelhead Abundance Index (FOC 2010) has been added to this summary report. The summary report for this project is primarily an update to the 2010 AGMS Report (SKR 2010) based on the newly added data for the 2002/2003 and 2003/2004 licence years and includes the following:

- background information for the Skeena watershed, sport fishery and angling management plan,
- a description of the Angling Guide Management System, data entry, and updates to the database and its functions,
- a general summary of the angling guide data for the Skeena Watershed from the 1990/1991 to 2007/2008 licence years, and
- a brief discussion of the results with some suggestions of potential modifications to the data requirements, AGMS data entry tool, AGMS dataset, and data quality assurance to improve the reliability and usefulness of future information collected from angling guides.

The intended use of this report is to assist various fisheries management groups identify any interesting trends or potential non-compliance in guided angling activities and catch. However, reported information was sometimes ambiguous and this has required certain assumptions for data entry. Due to the assumptions or generalizations made during data entry, further reviews of individual angler guide submissions are recommended for confirmation or explanation of any specific results presented in this summary report (i.e. review of comments in database related to uncertainties of reporting, detailed reviews of relevant angler guide submissions, and contacting of individual guides for clarifications if necessary).

2.0 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 chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), sockeye (*O. nerka*), and steelhead (*O. mykiss*), cutthroat trout (*O. clarki*), rainbow trout (*O. mykiss*), Dolly Varden (*Salvelinus malma*) and bull trout (*S. confluentus*). Historically, sport fishing in the lower portion of the Skeena watershed, downstream of the Kitsumkalum River, target both, steelhead and pacific salmon, while the majority of angling effort in mid- and upper sections of the Skeena watershed target steelhead.

As a part of BCE freshwater angling management, additional licence requirements have been implemented to improve angling experiences by addressing crowding at several defined areas in the Skeena watershed (BC Environment 2010). Two sections of the Skeena River mainstem and 14 major tributaries have been assigned the additional licence requirements defined by Class I or Class II status: Skeena 2, Skeena 4, Ecstall, Gitnadoix, Lakelse, Kitsumkalum (*alias* Kalum), Zymoetz (*alias* Copper), Kitwanga, Kitseguetla, Bulkley, Suskwa, Morice, Babine, Kluatantan, and Sustut rivers (Figure 1, Table 1). Fishing regulations for these waters are described in the annual *Freshwater Fishing Regulations Synopsis* (B.C. Environment 2009a) and includes the designations of non-classified and classified waters in order to protect high quality recreational fisheries (Morten and Parken 1998). The classified waters status have been 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 Licence. In 2010/2011, there were four Class I waters and thirteen Class II waters in the Skeena watershed (*see* Table 1). A cap for maximum number of client rod days (CAP) for guided angler effort has been set in regulation for each classified waterbody (Table 1). Individual angler guides have been allocated a portion of the total CAP for their classified waters, but are also permitted to guide on non-classified waters.

Angling guide licences are administered through the Permit Authorization Service Bureau in Victoria (PASB), but are reviewed by regional offices. Angling guides in the Skeena Region are required to submit annual angling guide reports detailing angler effort and catch annually on provided forms for activities on both classified and non-classified waters (Table 2), although the accuracy of this information depends entirely on the cooperation and daily record keeping ability of individual guides. 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 non-classified waters have been grouped together. The AGMS database has been developed by BCE to provide a method for comparing annual report submissions. Unfortunately, AGMS was not used after the 2001/2002 licence year, until recently (Saimoto & Saimoto 2009, 2010). Due to the variability of data reporting, potential biases in some data types (e.g. species not recorded), and the omission of quality assurance for historical data entry prior to 2004/2005, the trends or events identified in this AGMS data summary should not be accepted without more detailed analyses of the related hard copy guide reports, allocations and licence transfers.



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

Table 1. Summary of major waters, descriptions, and classified waters designation and CAP's 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	<i>not classified</i>		
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	<i>not classified</i>		
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		<i>not classified</i>		
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	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 Nilkitwa 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 the Wildlife Act (BC Environment 2009b).

Table 2. Data recorded on angling guide report forms.

Data type	Non-classified 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

3.0 THE ANGLING GUIDE MANAGEMENT SYSTEM

The Skeena Region Fisheries Section of the British Columbia Ministry of Environment (BCE) has developed and implemented the Angling Guide Management System (AGMS) data tool in order to store and summarize the data that is submitted annually by angling guides in compliance with their guide licence requirements. The AGMS database (MS Access 2) was initially designed from 1990 to 1993, and was revised in 1998 (MS Access97) by J. DeGisi (1998). The latest version of the AGMS (i.e. Version 3, *AGMS3_MS_Access_2007.mdb* and *AGMS3_Data.mdb*) has been made compatible with MS Access 2007, but is saved in MS Access 2003 format (i.e. *.mdb). Angling guide reports from the 1990/1991 to 2001/2002 licence years were entered by BCE, but AGMS was not maintained after the 2001/2002 licence year. SKR Consultants Ltd has now entered the angling guide reports for 2002/2003 and 2003/2004 to add to the previously added data for 2004/2005 to 2007/2008 (Saimoto & Saimoto 2009, 2010).

Although most of the angling reports have been adequately completed, 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 distributed to individual days to ensure that overall catch and effort data remained intact, yet to ensure conservative estimates of daily catch per rod day. New guides certified since 2002 have been added to the database, and new waters not previously entered into the database have been added to the AGMS tables [Waters] and [Link Waters Status] where applicable. 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 located in the BCE Smithers office. Data Quality Assurance of newly entered data included comparison of all paper data to the entered digital data and queries were run to ensure that angling days at classified waters were correctly determined based on date and location. Different from previous years of data entry by SKR, the correction for designation of classified and non-classified waters was run on all of the licence years and not just the newly entered data. In addition, all records from the “guide activity” table in AGMS and their linked catch data were deleted from the database if an angling date was omitted. These overall data corrections have created several minor changes to angler and catch summaries from those presented in previous reports, but has provided a preliminary check on historical AGMS data, and more accurate results.

A number of data summary queries and crosstab queries have been created in the AGMS3 data entry tool (i.e. *AGMS3_MS_Access_2007.mdb*) to provide easier access to the following information:

- number of guides reporting for classified waters, non-classified waters and lakes per licence year,
- number of guides reporting for each water in classified waters, non-classified waters and lakes per licence year,
- cumulative number of angler days reported each year by angling guides for each water in classified waters, non-classified waters and lakes,
- cumulative catch of each species per licence year reported by angling guides in classified waters, non-classified waters and lakes, and
- cumulative catch of commonly reported species (i.e. steelhead, chinook, coho, sockeye, rainbow trout, cutthroat trout, and pink salmon) per licence year for each water in classified waters, non-classified waters and lakes.

4.0 AGMS DATA SUMMARY

As of March 2011, the Angling Guide Management System (AGMS) includes annual report information received from angling guides active in the Skeena Region from the 1990/1991 to 2007/2008 licence years. The total number of angling guides reporting guided angling activities in the Skeena watershed for each year has consistently ranged from 37 to 44 guides submitting reports, with the exception of the 1990/1991 and 2000/2001 licence years that had 50 guides reporting (Table 3). Individual guides have reported activity in up to 6 classified waters, 13 non-classified waters, and 12 lakes in any one season. The spatial distribution of angling guides, the spatial distribution and effort of guided anglers, and the temporal and spatial distributions of guided angler catch reported by angling guides are summarized in the following sections.

Table 3. Number of angling guides reporting their activities in the Skeena watershed for different years.

Skeena Watershed Angling Guide Reports	
Licence Year	# of Guides
1990/1991	50
1991/1992	42
1992/1993	39
1993/1994	37
1994/1995	43
1995/1996	43
1996/1997	39
1997/1998	40
1998/1999	38
1999/2000	43
2000/2001	50
2001/2002	40
2002/2003	46
2003/2004	42
2004/2005	44
2005/2006	46
2006/2007	40
2007/2008	38
2008/2009	data not entered
2009/2010	data not entered

4.1 ANGLING GUIDE REPORTS

Because the same angling guide can report activities for a mix of classified waters (Class I or Class II status), unclassified waters and lakes within the same licence year, the total number of angling guides reporting activities in classified waters, non-classified waters and lakes for each licence year (Figure 2) is always more than the number of guided anglers listed in Table 3. No obvious trends in guide activity are evident based on the number of guides that have reported from the 1990/1991 to 2007/2008 licence years. Interestingly, the peak in guides reporting their activities in 1990/1991 (i.e. 50 guides, *see* Table 3) was predominantly from a surge in the number of angling guides reporting activities in classified waters, but the peak in guides reporting in 2000/2001 (i.e. 50 guides, *see* Table 3) was associated with the highest recorded number of guides reporting activities in non-classified waters. The spatial distribution of angling guides that have reported activities at particular rivers with classified or non-classified status, and for specific lakes are summarized in the following sections.

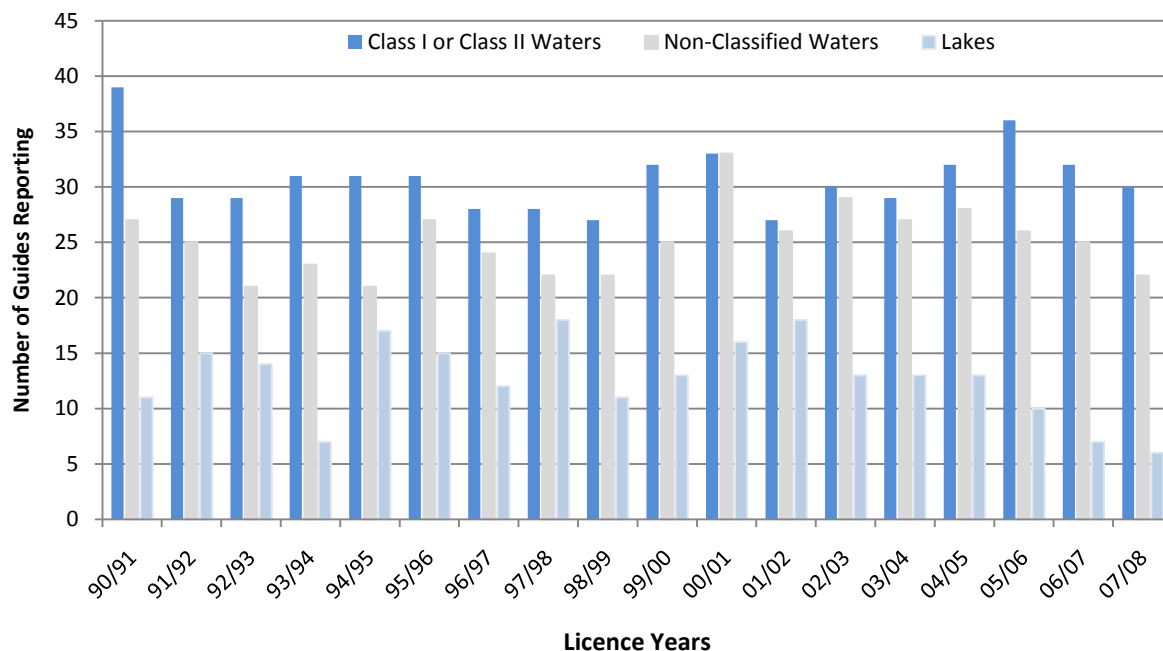


Figure 2. Total number of angling guides reporting activities in classified waters, non-classified waters, and lakes in the Skeena watershed during different licence years.

4.1.1 Classified Waters

The number of angling guides submitting reports for their activities in various waters with Class I or Class II status has been variable, but has not exceeded the maximum allowable number of licences (CAP) listed in the 2008 Wildlife Act (BC Environment 2009b). It is presently not possible to check if any licenced angling guides failed to report their activities since the numbers of allocated licences have not been maintained in the AGMS database. The actual numbers of angling guides reporting their activities at various classified water locations is closely related to the CAP's (*see* Table 1) with the most guides reporting activities at Skeena River 2 (i.e. Exchamsiks River to 1.5 km upstream of the Kitsumkalum River), Skeena River 4 (i.e. upstream of 1.5 km above the Zymoetz River), and at the Kitsumkalum and Bulkley rivers (Table 4).

Table 4. Total number of angling guides reporting activities in *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guides Reporting / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 2	17	14	14	15	16	15	13	12	12	13	14	13	11	8	9	11	12	11	8 - 17
SKEENA R 4	14	7	6	6	3	4	3	3	4	5	6	8	5	4	6	7	9	9	3 - 14
SKEENA R (July-September)	12	10	10	11	12	9	11	8	9	11	11	12	10	7	11	7	10	7	7 - 12
KITSUMKALUM R	5	6	7	6	7	7	7	8	9	8	8	7	8	6	6	8	7	7	5 - 9
BULKLEY R	2	1	1	2	2	3	3	4	3	4	4	4	6	3	2	2	3	5	1 - 6
ZYMOETZ R 2	3	1		1	1	2	2	2	2	3	2	3	2	3	3	3	5	3	1 - 5
ZYMOETZ R 1	4	4	2	3	2	2	3	2	3	3	3	2	3	3	3	3	3	3	2 - 4
KISPIOX R	4	3	3	3	3	3	3	3	3	3	3	3	2	4	3	4	3	3	2 - 4
BABINE R 1	4	3	2	2	2	2	1	1	1	1	1	1	1	1					1 - 4
GITNADOIX R A	3	2	2	2	2	3	2	1	2	3	2	2	1	2	2	2	2	2	1 - 3
ECSTALL R	3	2	2	2	3	3	2	2	2	2	3	1	2	2	2	2	2	2	1 - 3
MORICE R	3	2	2	2	3	3	3	2	2	2	3	1	2	2	2	2	2	2	1 - 3
BABINE R 2			1			1	3	2		2	2								1 - 3
SUSTUT R	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1 - 2
CLORE R											2								1 - 2
KLUATANTAN R	1	1		1	1	1									1	1	1	1	1 - 1
LAKELSE R										1					1	1			1 - 1
KITWANGA R									1	1									1 - 1
NANGEESE R																		1	1 - 1
SWEETIN R																		1	1 - 1

Note: Locations sorted by descending order of the maximums of each range (*see* Appendix 1 and 2 for watershed code and location descriptions)

4.1.2 Non-classified Waters

Limits to the number of angling guide licences issued (i.e. CAP's) for each licence year for non-classified waters in the Skeena watershed have not been designated in the Wildlife Act (BC Environment 2008b). The lower mainstem of the Skeena River, (i.e. Skeena 1, 2, and 3: downstream of 1.5 kilometres upstream of the Zymoetz River), the Kasiks, Exchamsiks, Bulkley and Zymoetz rivers have the highest numbers of active angling guides on non-classified waters. Nilkitkwa Lake and Rainbow Alley (i.e. Babine R 2) has had up to 6 active angling guides reporting activities in one licence year (e.g. 1993/1994), but appears to be declining in the more recent years (Table 5). Interestingly, the number of licenced guides reporting activity on the Skeena, Exstew, Zymagotitz and lower Zymoetz rivers, and at Williams and Gamble creeks appear to have increasing numbers of angling guides reporting activities since the 2003/2004 licence year (Table 5), but this may be associated with licence transfers occurring in mid-season (Peard, pers. comm. 2010).

Table 5. Total number of angling guides reporting activities in *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guides Reporting / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 3	5	4	5	7	5	9	9	7	5	7	14	9	11	12	12	13	11	10	4 - 14
KASIKS R	6	5	6	6	8	7	11	4	3	6	10	9	11	7	9	8	7	9	3 - 11
SKEENA R 1	5	3	3	2	2	5	4	5	4	6	7	7	6	7	9	11	10	11	2 - 11
SKEENA R (Non-Classified)													6	3	6	5	3		3 - 6
SKEENA R 2	4	4		4	2	6	3	2	5	7	6	6	3	6	3	4	5	6	2 - 7
EXCHAMSIKS R	2	3	7	3	4	4	4		2	3	2	3	4	4	5	4	5	5	2 - 7
ZYMOETZ R 2	2	1	2	2	1	3	4	2	4	4	3	6	4	3	2	3	3	4	1 - 6
BABINE R 2	3	4	2	6	3	4	4	4	4	4	5	3	3	2	4	2	2	1	1 - 6
ZYMAGOTITZ R	1		2	2	2	2	2	1	1	1	1	1	2	6	5	4	6	4	1 - 6
BULKLEY R	3	5	2	4	3	2	2	1	2	1	3	5	3	3	3	2	3	4	1 - 5
EXSTEW R					1		1			1	1	1		2	6	2	3	3	1 - 6
ZYMOETZ R 1	1			1			1			1		1	2	5	3	2	4	3	1 - 5
KISPIOX R	3	4	2	2	1	1	1	1	1	1		1	1					1	1 - 4
BABINE R 1	3	1	2	2	2	2	3	3	3	2	2	2		2	1			1	1 - 3
FULTON R	1	1			1	1	1	1		2	2	3				1			1 - 3
SUSTUT R	2	2	2	2	2	2	1	2	1	2	1	1			1	2	1	1	1 - 2
MORICE R		1	1	1	1	1				1	2	1			2	1	1	1	1 - 2
SKEENA R 4	1	1	1	2	1	1		1			1				1	1	1	1	1 - 2
WILLIAMS C								1		1		2			2	2	1	1	1 - 2
KLEANZA C						1					2	1				1	1	1	1 - 2
CEDAR R						2						1							1 - 2
MORRISON C	1	1	1	1	1	1	1	1	1	1	1	1			1				1 - 1
NANIKA R								1	1	1	1	1			1	1	1	1	1 - 1
KHYEX R	1	1				1	1										1	1	1 - 1
BURNIE R						1		1	1		1								1 - 1
HOWSON C						1			1		1								1 - 1
CLORE R											1							1	1 - 1
GAMBLE C											1								1 - 1
GOAT C															1	1			1 - 1
FIDDLER C											1								1 - 1
KULDO C																		1	1 - 1
NILKITKWA R																		1	1 - 1
OLIVER C						1													1 - 1
PINKUT C															1				1 - 1
SCOTIA R																	1		1 - 1
SHEGUNIA R		1																	1 - 1
SICINTINE R																		1	1 - 1
SLAMGEESH R			1																1 - 1

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions). "Skeena R (Non-classified)" is a default value used for guided angling reported in the Skeena River without designation of the river Section and was reported outside of the dates for classified status of Section 2 and 4.

4.1.3 Lakes

No lakes in the Skeena watershed have been given Class I or Class II status, and the issuance of angling guide licences is not limited for any lakes under the Wildlife Act (BC Environment 2008b). The highest number of angling guides reporting activity on lakes has been for Babine Lake in 1999/2000 to 2001/2002 licence years (i.e. 7 guides reporting), but two or less guides have reported since the 2004/2005 licence year. In addition, Morice, Kitsumkalum, Lakelse, and Morrison lakes are the larger lakes in the Skeena watershed that consistently have had one to three angling guides reporting their licenced activities. Klinger, Khtada, Swan, Helen, Mooseskin Johnny, Nez and South Saddle lakes are some of the smaller lakes in the Skeena watershed where one to three angling guides have commonly reported guiding activities (Table 6). Overall however, there appears to be a notable decline of the total number of smaller lakes with guided angling activities in the Skeena watershed since 2002.

Table 6. Total number of angling guides reporting activities at various *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guides Reporting / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE L	4	5	4	2	3	5	5	6	4	7	6	7	5	3	2	1	2	2	1 - 7
ROSS L		3	4						1						1				1 - 4
LAKELSE L					1	2	1	1	1			2	2	1	4	2			1 - 4
KITSUMKALUM L		1	1		1	2		2		2	1	2	2	4	1	1	1	2	1 - 4
SWAN L	3	3	2	2	3														2 - 3
MORICE L	1	1	1		1	2		1	1	1	2	1	2	2	2	2	2	1	1 - 2
KHTADA L	1					1	2	1	1	2	1	1	1	1	1	1	1	1	1 - 2
KLINGER L		1	1					2	2	2	2	1	1	1	1	1	1	1	1 - 2
HELEN L								1	2	1	2	1	1	1	1	1	2	1	1 - 2
BARRETT L								1	1	1	1	1	1	1	1	2	2		1 - 2
HIDDEN L	2	1	1	1	1						1	1	1						1 - 2
NANIKA L	2	2	1	1	2						1								1 - 2
NILKITWA L											2								1 - 2
VALLEE L								1	2	2	1	1			1	1	1	1	1 - 2
BEAR L	2		1	1			1												1 - 2
DUCKWING L		1		1		1		2											1 - 2
GRIZZLY L	1	2	1					1											1 - 2
MCBRIDE L	2								1			1							1 - 2
MITTEN L		1	2											1					1 - 2
SHEA L	2																		2 - 2
MORRISON L	1	1	1	1		1	1	1	1	1	1	1	2	1	1		1		1 - 2
MOOSESKIN JOHNNY L			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 - 1
SOUTH SADDLE L			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 - 1
NEZ L	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1 - 1
BURNIE L		1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 - 1
DUTI (N) L					1	1			1	1	1	1	1		1	1	1	1	1 - 1
SILVERTHORNE L	1	1	1					1	1	1	1	1							1 - 1
TALTAPIN L	1	1	1			1	1	1	1										1 - 1
FISHPAN L	1		1	1	1	1	1												1 - 1
KIDPRICE L	1	1		1	1					1		1							1 - 1
DUNALTER L		1	1					1		1	1	1							1 - 1
CANYON L		1	1		1				1		1								1 - 1
DUTI (S) L						1		1							1	1	1		1 - 1
FRY PAN L	1	1						1		1	1								1 - 1
SECRET L									1	1	1	1	1		1	1	1		1 - 1
SLAMGEESEH L	1	1	1						1						1	1	1		1 - 1
HOLLAND L	1	1	1			1													1 - 1
SKINHEAD L					1					1	1								1 - 1
ATNA L					1					1	1								1 - 1
CHAPMAN L		1	1							1									1 - 1
HELENE L						1	1		1										1 - 1
NETALZUL L											1	1						1	1 - 1
TZAHNY L	1	1	1																1 - 1
MUDDY L	1					1													1 - 1
STEPHENS L		1			1														1 - 1
FLATFISH L		1	1																1 - 1
KITWANCOOL L										1		1		1		1			1 - 1
FULTON L			1							1									1 - 1
HODDER L									1			1							1 - 1
SUNSET L								1	1										1 - 1
GUNANOOT L			1		1														1 - 1
MCDONELL L			1												1				1 - 1
TYHEE L		1								1									1 - 1
ONERKA L										1									1 - 1
TOUHY L												1							1 - 1
BILL NYE L									1										1 - 1
CHARLOTTE L					1														1 - 1
WILLIAMS L					1														1 - 1
FOOTSORE L												1							1 - 1
GILMORE L															1				1 - 1
KLATE L										1									1 - 1
SWAMP L				1															1 - 1
CHISHOLM L		1																	1 - 1
DAKSHILGWIT L		1																	1 - 1
KLUAYAZ L								1											1 - 1
OWEN L			1										1						1 - 1
PEANUT L													1						1 - 1
PINE TREE L		1											1						1 - 1
ROBINSON L		1																	1 - 1
ROUND L		1																	1 - 1
SAIYA L					1														1 - 1
WILSON L									1				1	1					1 - 1

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions)

4.2 ANGLING GUIDE ACTIVITY

The total number of angler days reported by angling guides for classified waters (Class I or Class II status), unclassified waters and lakes have all shown variability from year to year (Figure 3): 5356 -9106 angler rod days/year for classified waters, 1715 – 3425 for non-classified waters, and 235 – 1382 for lakes. Notable peaks in guided angler rod days on classified waters were in the 1990/1991 (9106 guided angler rod days), 1995/1996 (7849 guided angler rod days) and 2002/2003 (7525 guided angler rod days) licence years. The total numbers of guided angler rod days per licence year on non-classified waters appears to be less variable in recent years, as the low numbers of guided angler rod days reported occurred back in the early 90's. Interestingly, the total numbers of guided angler rod days reported for lakes since 2004 appears to show a decline in guided angling activities on lakes in the Skeena watershed. The distribution of guided effort (i.e. angler rod days) reported for particular rivers with classified or non-classified status, and for specific lakes are summarized in the following sections.

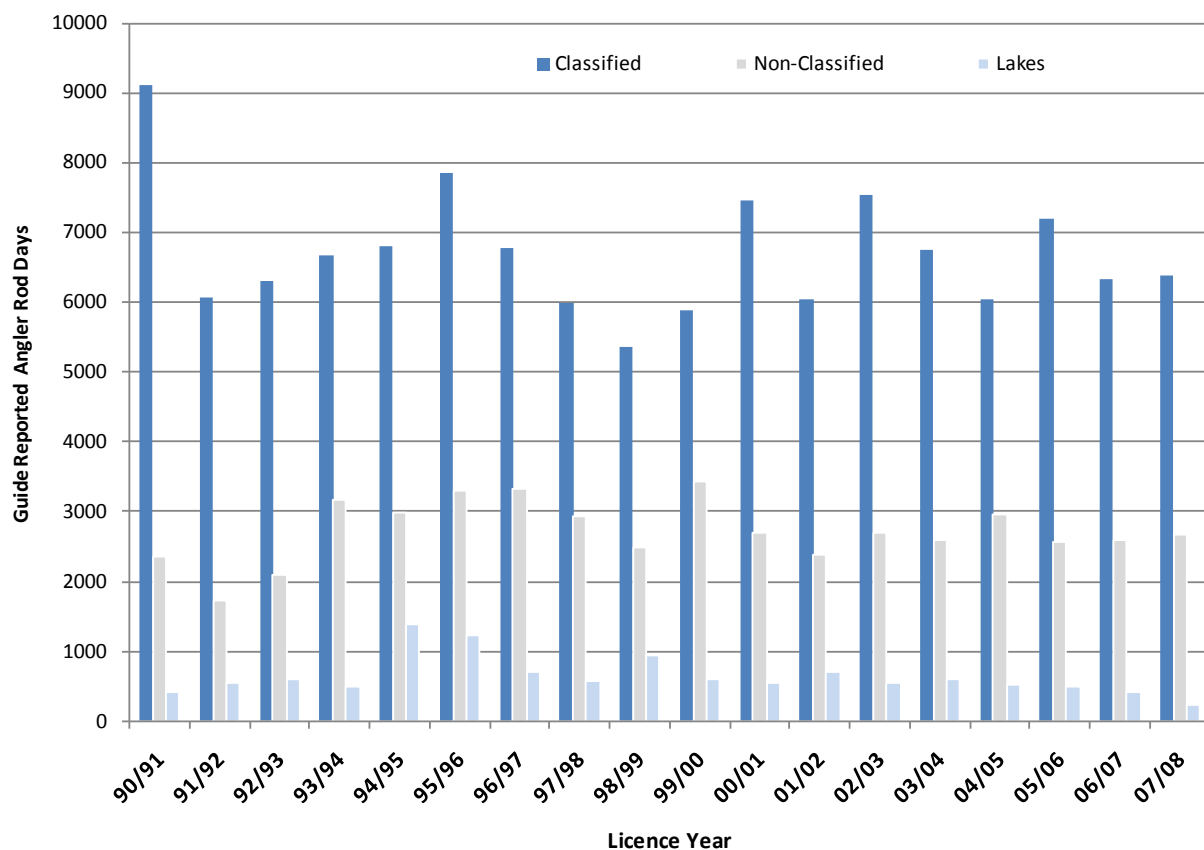


Figure 3. Total number of guided angler rod days reported by angling guides for classified waters, non classified waters, and lakes in the Skeena watershed during different licence years.

4.2.1 Classified Waters

The total numbers of guided angling rod days reported for classified waters (i.e. Class I or Class II status) has been variable, and appears to have potentially exceeded the maximum allowable allocations listed in the 2008 Wildlife Act (*see* Table 1, BC Environment 2008b) on the Kispiox River in the 1999/2000 and 2000/2001 licence years (Table 7). Although not recently, a small amount of guided angler rod days have been reported for Lakelse River which presently allows no licences or angler days to be allocated under the Wildlife Act (BC Environment 2008b). For the reported angler days on Lakelse River, five of the seven reported anglers in 1999/2000 were reported in the comments field to be “on their own”, thus not guided. The total number of guided angler days reported for the different classified waters has been variable, but information was not available to determine if significant proportions of allocated angler days were not used or possibly have not been reported. The most guide activity on record for one location in a single licence year, is 4052 guided angler days in 1990/1991 on the Skeena River from Exchamsiks River to just upstream of the Kitsumkalum River (i.e. Skeena 2). It may also be worth noting that guided activities have either been reduced to none, or have not been reported, since the 2004/2005 licence year for the Gitnadoix River that became a Class A park in 2001 (Table 7).

Table 7. Guide reported angler days for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Angler Days / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 2	4052	2418	3118	2879	2531	3276	2110	1562	614	1079	2093	1991	2034	1567	1166	1078	1387	1448	614 - 4052
SKEENA R (July-September)													876	1116	710	1166	172	108	108 - 1166
BABINE R 1	1706	1526	1397	1386	1567	1704	1722	1714	1671	1694	1785	1281	1625	1604	1413	1456	1528	1573	1281 - 1785
BULKLEY R	973	418	544	822	1097	1124	1120	1047	1146	947	1394	929	1196	534	667	1225	726	701	418 - 1394
SUSTUT R	403	452	290	301	366	358	373	400	495	564	615	708	598	613	659	712	682	611	290 - 712
KITSUMKALUM R	667	259	420	344	397	412	499	415	500	374	434	378	484	200	320	406	604	642	200 - 667
MORICE R	390	350	100	256	357	275	308	282	305	374	406	50	52	411	339	331	289	268	50 - 411
KISPIOX R	221	334	134	273	208	318	244	235	350	404	406	255	337	322	387	391	342	410	134 - 410
SKEENA R 4	272	157	105	193	59	148	144	117	107	158	173	197	165	137	162	195	312	330	59 - 330
ZYMOETZ R 1	195	8		3	8	12	16	17	23	30	26	41	39	57	76	86	106	78	3 - 195
ZYMOETZ R 2	47	10	1	31	35	63	59	99	80	181	75	119	90	56	38	33	69	108	1 - 181
ECSTALL R	40	31	98	91	117	119	132	80	49	37	21	54	4	108	69	90	72	46	4 - 132
GITNADOIX R A	132	73	95	64	20	19	25	19	12	28		26	25	23					12 - 132
KLUATANTAN R	8	26		34	35	17									24	16	35	54	8 - 54
CLORE R											22				2				2 - 22
BABINE R 2/Rainbow Alley			2			4	12	14			6								2 - 14
LAKELSE R									7					3	3				3 - 7
SWEETIN R																		6	6 - 6
NANGEESE R																		6	6 - 6
KITWANGA R								4	3										3 - 4
Combined	9106	6062	6304	6677	6797	7849	6764	6001	5356	5880	7456	6029	7525	6748	6035	7188	6324	6389	5356 - 9106

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions)

4.2.2 Non-classified Waters

No limits to the number of guided angler days to be allocated for each licence year for non-classified waters in the Skeena watershed have been designated in the Wildlife Act (BC Environment 2008b). The lower mainstem of the Skeena River, (i.e. Skeena 1, 2, and 3: downstream of 1.5 kilometres upstream of the Zymoetz River) consistently has the highest guided angling pressure in the Skeena watershed. Babine River 2, is actually the Nilkitkwa Lake and Rainbow Alley section of the Babine River between Nilkitkwa and Babine lakes, but has historically had the second most guide activity on record, but notable declines of guided angling effort are apparent since the 2004/2005 licence year. Recent increases in reported guide angling activities for non-classified waters are apparent for the Zymoetz (i.e. section 1 and section 2), Zymagotitz, Morice, and Exstew rivers and Gamble Creek (Table 8).

Table 8. Guide reported angler days for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Angler Days / Licence Year																		RANGE
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	
BABINE R 2/Rainbow Alley	895	823	816	1122	993	950	908	1497	671	1032	608	603	547	142	258	336	355	310	142 - 1497
SKEENA R 3	630	118	529	1167	981	1207	1335	404	1042	1312	1127	644	795	925	1152	877	1213	1212	118 - 1335
SKEENA R 1	325	208	133	112	188	244	205	358	201	214	243	159	178	369	343	478	248	279	112 - 478
SKEENA R (Non-Classified)														52	45	87	85	31	31 - 87
KASIKS R	40	39	163	172	254	302	295	144	48	69	132	124	156	67	130	143	106	173	39 - 302
BABINE R 1	55	24	28	99	75	130	225	214	201	235	218	223	187	165	145	159		55	24 - 235
ZYMOETZ R 2	18	4	23	21	11	101	35	6	28	74	55	237	272	207	273	175	167	245	4 - 273
SUSTUT R	83	137	154	111	108	45	166	64	2	178	51	59	155	202	62	42	34	42	2 - 202
BULKLEY R	97	115	54	99	74	43	32	122	101	10	34	76	55	71	53	31	59	71	10 - 122
SKEENA R 2	98	27		80	101	52	12	13	38	89	93	57	34	53	93	37	49	55	12 - 101
NANIKA R								83	68	101	30	16		33	36	35	31		16 - 101
KISPIOX R	59	97	35	99	35	27	14	5	31	44		19	16					17	5 - 99
GAMBLE C																		97	32 - 97
EXCHAMSIKS R	18	56	92	23	30	82	55		24	20	10	66	80	84	56	35	49	58	10 - 92
ZYMOETZ R 1	2			3			2			6		1	27	17	62	51	92	14	1 - 92
ZYMAGOTITZ R	3		7	11	14	45				6	1	23	84	87	51	22	23	41	1 - 87
MORICE R		2	6	4	4	1				12	32	21	15	76	70	13	14	16	1 - 76
MORRISON C	16	25	54	30	33	10	14	16	13	9	16	10	15	17	4				4 - 54
EXSTEW R					24		9			3		18		4	51	7	18	17	3 - 51
FULTON R		31	3		21	10	10	12		8	4	13	4	6		8			3 - 31
SKEENA R 4	2	2	3	12	28	13		1			13				3		6	2	1 - 28
NILKITKWA R														20	12			19	12 - 20
WILLIAMS C							1			3		4	3	6	15	10	1	6	1 - 15
CLORE R											14							2	2 - 14
OLIVER C						12													12 - 12
FIDDLER C											12								12 - 12
BURNIE R						4		4	6		11								4 - 11
GOAT C														11	7				7 - 11
KLEANZA C						9					5	6				6	5	3	3 - 9
KHYEX R	7	6				3	9						5				2	2	2 - 9
CEDAR R						8						1							1 - 8
PINKUT C															8				8 - 8
HOWSON C						2			6		1								1 - 6
SLAMGEESH R				4															4 - 4
SCOTIA R														2			2		2 - 2
KULDO C																		2	2 - 2
SICINTINE R																		2	2 - 2
SHEGUNIA R			1																1 - 1
Combined	2348	1715	2104	3165	2974	3300	3327	2943	2480	3425	2710	2380	2702	2588	2963	2557	2602	2675	1715 - 3425

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions)

4.2.3 Lakes

Although it is listed under non-classified waters as a river, Babine River 2 (i.e. Nilkitkwa Lake and Rainbow Alley, *see* Table 8) can be grouped with lakes and has consistently had the most reported guided angling rod days for lakes in the Skeena watershed (142 -1497 rod days/licence year). Babine and Khtada lakes have had the next highest and consistent angling guide activities, with guides reporting 26 to 817 and 4 to 371 guided angler rod days/year, respectively. The significant number of guided angler rod days reported in the early 90's at Swan Lake is suspected to be a reporting or data entry error referring to a different Swan Lake in the Swift River drainage near the Yukon border to British Columbia. Interestingly, angling guide activity on Babine Lake (Table 9) and Babine River 2 (Table 8) appear to have declined since 2002/2003. A potential surge of guided angling activity in 2004/2005 and 2005/2006 on South Duti Lake is also evident (Table 9). The most obvious trend of guided angling activities in the Skeena watershed has been the decline of reported activity to only 7 lakes in the 2007/2008 licence year.

Table 9. Guide reported angler days for *Lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Angler Days / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE L	44	99	61	98	817	718	128	92	551	102	109	110	78	61	50	41	26	27	26 - 817
KHTADA L	4					302	371	191		196	179	317	160	157	131	158	160	190	4 - 371
SWAN L	147	127	128	194	234	88	5						167	12	8	20			127 - 234
DUTI (N) L									60										5 - 167
DUTI (S) L						16			6			40		149	120	66			6 - 149
MORICE L	12	4	2		4	10		85	77	97	45	19	31	49	34	37	35	2	2 - 97
SOUTH SADDLE L			7	83	37	39	40	8	32	11	32	20	21	11			6		6 - 83
MORRISON L	40	28	79	53		27	17	25	38	16	14	23	29	28	4		16		4 - 79
KITSUMKALUM L		15	8		5	18	14		22	20	12	79	65	6	8	1	10		1 - 79
MOOSESKIN JOHNNY L			76		59	46	47	46	48	41	47	44	45	26	43	49	36		26 - 76
NANIKA L	27	40	4	18	57						11								4 - 57
ROSS L		20	44						2					4					2 - 44
NEZ L	22	30	28				36	22	4	6	8	18	10	7	16	18			4 - 36
DUNALTER L		36	18					2		4	2	5							2 - 36
FISHPAN L	28		22	9	13	2	2												2 - 28
ATNA L					3					26	2								2 - 26
GRIZZLY L	6	25	2						4										2 - 25
BARNETT L								14	24	20	6	5	6	3	8	2	3		2 - 24
BURNIE L			23		16	18	16	19	14	5	15	12	4						4 - 23
NILKITWA L										22				4	19	18	2		2 - 22
LAKELSE L					4	9	18	3	7	18		5	17	4	13	11			3 - 18
KLINGER L		13	6					13	9	8	2	3	18	9	18	9	6		2 - 18
DUCKWING L		6		18		1		7											1 - 18
HELEN L								1	16	8	8	3	8	2	4	9	10	2	1 - 16
HIDDEN L	13	6	16	6	8							11	14						6 - 16
BEAR L	7		15	2			9												2 - 15
MITTEN L			15	15															15 - 15
SLAMGEESH L	4	10	3						14										3 - 14
HOLLAND L	14	2	2			2													2 - 14
NETALZUL L											6	12						2	2 - 12
ITZAHNY L	6	13	6																6 - 13
SHEA L	13																		13 - 13
SECRET L										2	12	2		6	8	11			2 - 12
SILVERTHORNE L	10	12	2				2	2	4	1	1								1 - 12
FRY PAN L	12	3					5		2	2									2 - 12
FLATFISH L		3	12																3 - 12
OWEN L			6										12						6 - 12
KLUJAVAZ L								12											12 - 12
KIDPRICE L	4	2		6	8					4		4							2 - 8
CANYON L		1	3		2				4			8							1 - 8
MCDONELL L			7											8					7 - 8
GUNANOOT L			6		8														6 - 8
VALLEE L								2	7	6	1	3							1 - 7
MCRIDE L	7								6			6							6 - 7
PINE TREE L		1											7						1 - 7
TALTAPIN L	5	4	2			3	3	6	2										2 - 6
HELENE L						6	3	4											3 - 6
CHAPMAN L		3	6							2									2 - 6
TYHEE L		6								1									1 - 6
ROBINSON L		6																	6 - 6
FOOTSORE L												6							6 - 6
ROUND L		6																	6 - 6
ONERKA L										6									6 - 6
RITWANCOOL L											2		2			5			2 - 5
CHARLOTTE L						5													5 - 5
SAIYA L					5														5 - 5
SKINHEAD L					4					2	1								1 - 4
MUDDY L	4						2												2 - 4
STEPHENS L		3			4														3 - 4
SUNSET L								2	4										2 - 4
FULTON L			1							4									1 - 4
FAHLO L													4						4 - 4
PEANUT L										4									4 - 4
WILSON L								4					2	6					2 - 6
GILMORE L													4						4 - 4
TOUHY L													3						3 - 3
CHISHOLM L			3																3 - 3
JOHNSON L													2						2 - 2
SEELY L														2					2 - 2
HODDER L												2							2 - 2
BILL NYE L							2												2 - 2
SWAMP L																			2 - 2
DAMSHILGWIT L		1																	1 - 1
KLATE L																			1 - 1
WILLIAMS L					1					1									1 - 1
Combined	429	543	610	489	1382	1222	692	583	931	612	560	696	555	597	510	502	414	235	235 - 1382

Note: Locations are sorted by descending order of the maximums of each range (*see* Appendix 2 for watershed codes and location descriptions)

4.3 SPECIES REPORTED BY ANGLING GUIDES

Guide reported catch of each species encountered at classified and non-classified waters and lakes in the Skeena watershed from 1990 to 2008 are summarized in tables 10, 11, and 12. The annually reported steelhead catch by guided anglers (i.e. 1777 – 7923 ST/licence year) has consistently represented the predominant species reported for classified waters in the Skeena watershed since 1990. Rainbow trout has been the predominant species reported by angling guides for activities in non-classified waters (1839 – 6330 RB/licence year) and lakes (168 – 2734 RB/licence year) in the Skeena watershed, but had record low reported catches in 2007/2008 compared to other years. Notable numbers of pink, chinook, sockeye, and coho salmon have also been reported for classified waters since 1990, with a recent peak of sockeye being reported in 2007/2008 (Table 10). The total number of pink and sockeye salmon reported since 2004/2005 for unclassified waters (Table 11) show an apparent increase of catch or reporting of catch for these species. Of the other species listed, bull trout appear to be regularly reported for classified waters, and cutthroat trout are regularly reported for non-classified waters and lakes.

The distribution of species reported by angling guides at different locations from the 1990/1991 to 2007/2008 licence years are presented in tables 13, 14, and 15 for classified waters, non-classified waters, and lakes, respectively. These results are presented to provide an overview of the potentially targeted and by-catch species at different locations. Readers should be aware that some unidentified species have been removed or summed (e.g. mountain, lake and “general” whitefish) for this presentation. It is also noteworthy that bull trout (BT) was not differentiated from Dolly Varden char by angling guides reporting from 1990 to 2002. In addition, some species in historical data for Swan Lake were likely confused with the Swan Lake in the Swift River watershed, thus capture of arctic grayling and northern pike reported in the Skeena watershed and entered in AGMS are not presented.

The annual guide reported catch of steelhead, rainbow trout, cutthroat trout, chinook, coho, pink, and sockeye at different locations in the Skeena watershed during classified or non-classified status, and for lakes are summarized in the following sections.

Table 10. Guide reported catch of all species reported for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Species	Guide Reported Catch / Licence Year for Class I and Class II Waters																RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06		06/07	07/08
Steelhead	4128	1777	3534	4507	5103	5212	4720	5280	7220	6209	7923	5097	7613	4853	5699	5589	4911	3700	1777 - 7923
Pink salmon	929	574	570	162	42	328	546	107	24	114	184	615	579	1990	907	1471	216	2655	24 - 2655
Chinook salmon	1268	1011	1280	1340	821	784	661	597	485	696	1079	1875	1159	772	727	902	816	414	414 - 1875
Sockeye salmon	5	23	20	51	14	2	68	187	3	5	351	309	218	91	200	250	829	1283	2 - 1283
Coho salmon	1033	912	417	552	543	579	566	143	195	465	321	641	739	863	240	816	316	465	143 - 1033
Species not identified		2	6	22	2								8	368	312	617	138	21	2 - 617
Trout (general)								494						1	62		2		1 - 494
Bull trout											8	1	49	34	104	165	222	160	1 - 222
Cutthroat trout	70	64	16	17	2	8	12	68	71	157	107	24	28	35	11	13	53	17	2 - 157
Dolly Varden	103	68	27	51	46	63	36	81	97	143	140	35	71	25	49	61	92	8	8 - 143
Rainbow trout	32	4	3	1	7	20	3	25	26	9	2	3	10	14	28	5	9	3	1 - 32
Chum salmon				1	1	2	3		2	3	2	3	24	5	11	3	4	13	1 - 24
Salmon (general)														2	16	20			2 - 20
Whitefish (general)		1	4		4	6	8	13	9				1	1	4		5	1	1 - 13
Chinook salmon (jack)									7					3					1 - 7
Rocky Mountain whitefish								2	3	1	2								1 - 3
Burbot													1						1 - 1

Note: Species are sorted in descending order of the maximums of each range

Table 11. Guide reported catch of all species reported for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Species	Guide Reported Catch / Licence Year for Non-Classified Waters																RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06		06/07	07/08
Rainbow trout	4118	3621	3979	4581	3544	3495	3126	6239	4887	6330	6097	3945	3109	1871	3194	3115	4578	1839	1839 - 6330
Steelhead	91	15	64	377	390	431	588	449	958	5	5	80	1383	940	1249	1070	511	519	5 - 1383
Steelhead (summer-run)									4	1234	769	1022							4 - 1234
Coho salmon	119	119	269	330	614	532	596	129	273	920	464	1361	1086	908	503	1291	602	647	119 - 1361
Pink salmon		315	61	163	9	108	204	32	13	213	74	302	62	413	228	1108	106	635	9 - 1108
Chinook salmon	291	437	570	892	412	377	339	152	317	446	560	504	309	1002	419	472	471	166	152 - 1002
Cutthroat trout	20	186	52	588	97	17	25	6	538	27	834	111	95	130	93	319	585	323	6 - 834
Sockeye salmon	5	2	11	5	16	218	262	111	76	316	413	39	88	276	446	638	199	2	2 - 638
Dolly Varden	25	87	32	13	26	38	43	17	52	89	32	71	61	25	278	72	94	19	13 - 278
Species not identified				1									154	179	92	73	56	128	1 - 179
Bull trout									15		6	17	24	28	151	45	42	51	6 - 151
Trout (general)														87	33	118			15 - 118
Whitefish (general)		1		53	6	12	1			3			3		42	10			1 - 53
Rocky Mountain whitefish												3	30		8				3 - 30
Salmon (general)															25				25 - 25
Lake trout				1	24					18		2	9	4	2	3	2		1 - 24
Chum salmon						3	4	1	9		4		2	1	7	15	3	2	1 - 15
Kokanee														6					6 - 6
Chinook salmon (jack)								5											5 - 5
Burbot													2		2	5			2 - 5
Lake whitefish														3	1				1 - 3

Note: Species are sorted by descending order of the maximums of each range

Table 12. Guide reported catch of all species for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Species	Guide Reported Catch / Licence Year for Lakes																RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06		06/07	07/08
Rainbow trout	447	789	671	1145	2728	2734	1415	1213	1891	932	1381	1472	478	772	1061	1357	1207	168	168 - 2734
Cutthroat trout	619	567	906	85	348	332	288	269	524	293	780	759	209	120	220	212	134	18	18 - 906
Lake trout	270	234	170	203	413	60	184	136	158	184	119	78	23	115	72	64	99	18	18 - 413
Grayling		119		110	354														110 - 354
Species not identified					48							10	338	133	9				9 - 338
Pink salmon			65		71								8	215	6			7	6 - 215
Dolly Varden	14	76	22	10	205	31	3	14	14	83	3				2	7	5		2 - 205
Northern pike	167	199	54	107	185														54 - 199
Coho salmon		21	21		2	2	26	1	46	35	42	1	77	158	23	52	3	9	1 - 158
Trout (general)									12						3	155			3 - 155
Sockeye salmon		7	25		69			14			11	60	12	55	9		28	56	7 - 69
Steelhead						11		4	36	12		21	63	34		5			4 - 63
Chinook salmon	7	12		2	52			52	12				1	16					1 - 52
Bull trout											1					40			1 - 40
Kokanee				14					30	2		10	15	11	1				1 - 30
Eastern Brook Trout		2	4					25	14	9	6		4	2	19	11	8		2 - 25
Lake whitefish														4	2	12	3		2 - 12
Burbot								2				7							2 - 7
Whitefish (general)		3								2				3					2 - 3

Note: Species are sorted by descending order of the maximums of each range

Table 13. Total catch from 1990/1991 to 2007/2008 licence years of each species reported by angling guides for locations in the Skeena watershed during *Class I or Class II status*.

Class I or Class II Waters	Total catch of each species reported from 1990/1991 to 2007/2008										
	ST	CH	CO	SK	PK	CT	DV	BT	RB	CM	WF
BABINE R 1	41914	34	26	2			11		25		
BULKLEY R	19812	5	43		121	9	3		4		
CLORE R	21							3			
ECSTALL R	1	1361	64		1			2		2	
GITNADOIX R A			2040		12	22	5				
KISPIOX R	5112	5	389	4	101	278	196	7	43	3	17
KITSUMKALUM R	2901	3098	1246	9	197	243	416	615	62	4	17
KITWANGA R						128					
KLUATANTAN R	367	26	10				41		9		
LAKELSE R			47								
MORICE R	6498		25								
NANGEESE R											
SKEENA R (Classified)	557	1410	1163	534	325					3	
SKEENA R 2	5259	10386	4478	2832	10915	83	145	16	3	65	
SKEENA R 4	1491	364	103	525	341	6	59	6	2		
SUSTUT R	6321	8	22	3			273		49		30
SWEETIN R											
ZYMOETZ R 1	1297	1	34			1	17	38			1
ZYMOETZ R 2	1524		116			3	30	56	7		

Note: ST (Steelhead), CH (Chinook), CO (Coho), SK (Sockeye), PK (Pink), CT (Cutthroat), DV (Dolly Varden char), BT (bull trout), RB (Rainbow trout), CM (Chum), WF (Whitefish spp.)

Table 14. Total catch from 1990/1991 to 2007/2008 licence years of each species reported by angling guides for *non-classified waters* in the Skeena watershed.

Non-Classified Waters	Total catch of each species reported from 1990/1991 to 2007/2008													
	RB	ST	CH	CO	SK	PK	CT	DV	BT	CM	WF	LT	BB	KO
BABINE R 1	89	5879	48		274			1		4				
BABINE R 2	69016	287	83		196	6	2377	29	3		125	25		
BULKLEY R	8	497	235	21		414	13	22	4				2	
BURNIE R							29							
CEDAR R		2												
CLORE R		40												
EXCHAMSIKS R	4	10	30	1623	1		57	13	4					
EXSTEW R		13		179				117	86					
FIDDLER C		1		8			14							
FULTON R	386				20		185				9			6
GAMBLE C	75		20	3		3	548							
GOAT C				36										
HOWSON C							1	4						
KASIKS R	11	64	16	4474	1	60	271	52	12	1				
KHYEX R		30	0	9		1		1						
KISPIOX R	130	87	311	52	2	235	116	76		1				
KLEANZA C	4	2				3	9	2						
KULDO C		3												
MORICE R		103	16	2		30		20						
MORRISON C	1206													12
NANIKA R	510	51	30	23				90	24		11	28		
NILKITKWA R	199						23							
OLIVER C							2	4		1				
PINKUT C	12										12			
SCOTIA R														
SHEGUNIA R						6								
SICINTINE R														
SKEENA R (Non-Classified)		256	139	243	36			2						
SKEENA R 1	2	1679	747	2148	153	1144	60	142	11	11				
SKEENA R 2		228	220	318	1	40	52	41	34					
SKEENA R 3	1	959	3784	1281	2428	2064	16	76	15	33			2	
SKEENA R 4		7	86				1	2						
SLAMGEESH R			5											
SUSTUT R	13	109	2179	3	4			113			1			
WILLIAMS C							260	2	15		11			
ZYMAGOTITZ R	1	195		266			12	48	29					
ZYMOETZ R 1		223	32	17	2			27	30		3			
ZYMOETZ R 2	1	1429	160	57	3	40		190	97		4		5	

Note: RB (Rainbow trout), ST (Steelhead), CH (Chinook), CO (Coho), SK (Sockeye), PK (Pink), CT (Cutthroat), DV (Dolly Varden char), BT (bull trout), CM (Chum), WF (Whitefish spp.), LT (Lake trout), BB (burbot), KO (Kokanee)

Table 15. Total catch from 1990/1991 to 2007/2008 licence years of each species reported by angling guides for *lakes* in the Skeena watershed.

Lakes	Total catch of each species reported from 1990/1991 to 2007/2008													
	RB	CT	LT	CO	SK	PK	CH	DV	BT	EB	KO	ST	WF	BB
ATNA L	34		8					27						
BABINE L	5629	130	1145	22	331	71	3				80	11	23	4
BARRETT L	202		4											
BEAR L	26	16	85											
BILL NYE L	20													
BURNIE L		217												
CANYON L	26		10					19						
CHAPMAN L	5	30												
CHARLOTTE L	19													
CHISHOLM L		11												
DAMSHILGWIT L				18				12						
DUCKWING L	173													
DUNALTER L	169	38												
DUTI (N) L	1799	8												
DUTI (S) L	1952													
FISHPAN L		635												
FLATFISH L		120												
FOOTSORE L		23												
FRY PAN L		155												
FULTON L	9		1											
GILMORE L	7													
GRIZZLY L		178												
GUNANOOT L	5													
HELEN L		213	9											
HELENE L	48													
HIDDEN L	8	35	12			65				3			3	
HODDER L		24												
HOLLAND L		250												
JOHNSTON L		3												
KHTADA L	3627	7												
KIDPRICE L	60							8						
KITSUMKALUM L		6		351	13		17	43				134		
KITWANCOOL L	32	184							30					
KLATE L		11												
KLINGER L	31									98				
KLUAYAZ L								5						
LAKELSE L	22	133		109		229		28						
MCBRIDE L		9	2											5
MCDONELL L		30												
MITTEN L	6	323												
MOOSESKIN JOHNNY L		2859												
MORICE L	861	4	379	16	2	7	64	75	11			41	3	
MORRISON L	1318		196											
MUDDY L		45												
NANIKA L	359	0	3					51	32					
NETALZULL L		579												
NEZ L	882													
NILKITWA L	375	9												
ONERKA L	114													
OWEN L	3		2											
PEANUT L		28												
PINE TREE L		59												
ROBINSON L	8													
ROSS L	87									6				
ROUND L														
SAIYA L														
SECRET L	858													
SEELEY L		3												
SHEA L		57												
SILVERTHORNE L	163													
SKINHEAD L	25													
SLAMGEESH L	63			1				19	64					
SOUTH SADDLE L	2500													
STEPHENS L		14		2										
SUNSET L	22													
SWAMP L	10													
SWAN L	103	46	703					153						
TAHLO L		20												
TALTAPIN L	56													
TOUHY L		90												
TYHEE L														
TZAHNY L	103							6						
VALLEE L	7	81												
WILLIAMS L			17					17						
WILSON L	35		24											

Note: RB (Rainbow trout), CT (Cutthroat), LT (Lake trout), CO (Coho), SK (Sockeye), PK (Pink), CH (Chinook), DV (Dolly Varden char), BT (bull trout), WF (Whitefish spp.), BB (burbot), KO (Kokanee)ST (Steelhead).

4.3.1 Steelhead

The majority of steelhead catch by guided anglers in the Skeena watershed has been reported at locations with class I or class II status, although the percentage of steelhead catch reported for non-classified waters appears to be increasing with up to 9.4% to 18% of total reported catch attributed to non-classified waters from the 2001/2002 to 2007/2008 compared to 0.9% to 7.7% from the 1990/1991 to 1995/1996 licence years. The majority of steelhead for the classified waters has been reported for the Babine (i.e 904-3539 ST/licence year) and Bulkley (e.g. 188-2021 ST/licence year) rivers with occasional notable annual catches reported for the Sustut (e.g. 780 in 2004/2005) and Kispiox (e.g. 567 in 2000/2001) rivers. Increases in steelhead catch in non-classified waters are most notable at Babine River 2 (i.e. Nilkitkwa/Rainbow Alley), and Sustut and Kasiks rivers. As expected, steelhead catch at lakes in the Skeena watershed remain uncommon based on angling guide reports submitted for the 1990/1991 to 2007/2008 licence years.

Table 16. Guide reported catch of steelhead for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Steelhead Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE R 1	1895	904	1986	2039	2531	2330	2241	2351	3539	3139	3152	2162	3121	2174	2606	2411	1945	1388	904 - 3539
BULKLEY R	757	188	728	1198	1105	1384	939	1476	1719	1110	1915	1086	2021	566	710	1170	1040	700	188 - 2021
SKEENA R 2	260	205	401	226	339	376	338	108	109	158	387	374	858	276	190	249	204	201	108 - 858
SUSTUT R	250	104	149	267	210	205	234	268	431	365	674	484	483	598	780	356	287	176	104 - 780
MORICE R	623	247	68	434	624	424	425	504	370	496	707	48	43	436	496	314	148	91	43 - 707
KISPIOX R	90	94	156	219	178	249	271	256	502	415	567	238	406	299	343	309	236	284	90 - 567
KITSUMKALLUM R A	72	19	28	56	85	170	128	81	166	217	262	272	120	53	112	298	346	390	19 - 390
SKEENA R 4	72	10	17	58	5	20	29	71	115	51	72	104	120	103	128	108	239	169	5 - 239
ZYMOETZ R 2	6	3	1	10	19	41	85	119	217	167	117	210	170	56	26	32	119	126	1 - 217
SKEENA R (Classified)													154	152	95	85	71		71 - 154
ZYMOETZ R 1	101	1			7	11	30	46	43	91	59	119	117	140	143	143	153	93	1 - 153
KLUJATANTAN R	2	2				2									60	114	105	82	2 - 114
KITSUMKALLUM R C								8									18		8 - 18
CLORE R										11					10				10 - 11
ECSTALL R									1										1 - 1
Combined	4128	1777	3534	4507	5103	5212	4720	5280	7220	6209	7923	5097	7613	4853	5699	5589	4911	3700	1777 - 7923

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions)

Table 17. Guide reported catch of steelhead for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Steelhead Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE R 1	34		3	165	303	189	430	419	612	859	420	416	448	330	567	524		160	3 - 859
SKEENA R 1	14	7	14	10	2	23	2	12	46	191	91	168	399	304	75	200	73	48	2 - 399
ZYMOETZ R 2	13		2	3	3	118	87	11	41	107	73	336	208	45	124	75	101	82	2 - 336
BABINE R 2	2		1			73		1				1			189		20		1 - 189
SKEENA R 3	7		33	48	6	17	9	5	166	37	54	50	84	58	69	62	167	87	5 - 167
SKEENA R (Non-Classified)													67	36	38	93	22		22 - 93
BULKLEY R	12	1	9	67	67	5	2	0	39			49	48	14	22	32	24	27	0 - 79
ZYMOETZ R 1				1			4			11				65	22	17	57	43	1 - 65
SKEENA R 2	4	6		22		2				31	12	56	18	20	23	1	21	12	1 - 56
KISPIOX R		1		52	3	1		1	9				5	15					1 - 52
ZYMAGOTITZ R	0											23	52	47	34	7	10	22	0 - 52
NANIKA R									48	3									3 - 48
MORICE R			2		6					0	34	0	13	46	2				0 - 46
SUSTUT R	4			2			15		1					9	44	16	13	5	1 - 44
CLORE R											38							2	2 - 38
KHYEX R	1						29												1 - 29
KASIKS R	0						10												0 - 19
EXSTEW R															13				13 - 13
SKEENA R 4				7															7 - 7
EXCHAMSIKS R							1							1	7	1			1 - 7
KULDO C																3			3 - 3
CEDAR R						2													2 - 2
KLEANZA C											1					1			1 - 1
FIDDLER C											1								1 - 1
Combined	91	15	64	377	390	431	588	449	962	1239	774	1102	1383	940	1249	1070	511	519	15 - 1383

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions)

Table 18. Guide reported catch of steelhead for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Steelhead Catch / Licence Year																	RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08	
KITSUMKALUM L								4		9			63	32		5				4 - 63
MORICE L									36	3				2						2 - 36
BABINE L						11														11 - 11
Combined	0	0	0	0	0	11	0	4	36	12	0	0	63	34	0	5	0	0	0 - 63	

Note: Locations are sorted in descending order of maximums of each range (*see* Appendix 1 and 2 for watershed codes and location descriptions)

4.3.2 Rainbow Trout

The annual guide reported catches of rainbow trout have been primarily for lakes (i.e. including Babine R 2, tables 20 and 21), representing from 93% to 99% of the total annual reported catch of rainbow trout. The by-catch of rainbow trout in classified waters appears to be minimal (Table 19), but may not have been consistently reported by all angling guides. A record low total catch reported by angling guides for rainbow trout in non-classified waters and lakes has been reported recently (i.e. 2007/2008), but it is partly associated with reduced numbers of guides reporting and angler days reported (*see* tables 5 and 8). Nevertheless, Babine River 2 (i.e. Nilkitwa Lake/Rainbow Alley) has consistently had, and continues to have, the majority of guide reported catch of rainbow trout in the Skeena watershed (i.e. 1699-6215 RB/licence year). Khtada Lake (e.g. 708 in 1996/1997) and Duti lakes (e.g. 614 in 2005/2006) have also had significant numbers of rainbow trout reported by angling guides for occasional years. Recent increases in rainbow trout catch have been reported by angling guides for Nilkitwa River in 2007/2008 (Table 20) and Secret Lake (Table 21) from 2004 to 2007.

Table 19. Guide reported catch of rainbow trout for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Rainbow Trout Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
KISPIOX R	31							2	1	1	2		3	3					1 - 31
BABINE R 1							1			2					22				1 - 22
KITSUMKALUM R A			1					15	5			3	6	9	6	5	9	3	1 - 15
SUSTUT R	1	3	2	1	7	11		8	10	6									1 - 11
KLUATANTAN R						9													9 - 9
ZYMOETZ R 2									6				1						1 - 6
SKEENA R 4													2						2 - 2
BULKLEY R							2		2										2 - 2
SKEENA R 2			1						2										1 - 2
Combined	32	4	3	1	7	20	3	25	26	9	2	3	10	14	28	5	9	3	1 - 32

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions)

Table 20. Guide reported catch of rainbow trout for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Rainbow Trout Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE R 2	4034	3433	3905	4410	3344	3388	3080	5819	4699	6215	5923	3735	2953	1732	3113	3059	4475	1699	1699 - 6215
MORRISON C	82	78	50	22	103	42	21	214	45	53	123	122	75	138	38				21 - 214
NANIKA R								160	143	52	47	27			18	39	24		18 - 160
NILKITKWA R													69					130	69 - 130
KISPIOX R		14	8	94	6					2			6						2 - 94
FULTON R		75	10		83	62	18	44		6	4	61	6			17			4 - 83
GAMBLE C																	75		75 - 75
BABINE R 1	2	21		54											12				2 - 54
PINKUT C															12				12 - 12
KASIKS R					8													3	3 - 8
BULKLEY R			6				2												2 - 6
SUSTUT R				1		3	5	2		2									1 - 5
EXCHAMSIKS R														1				3	1 - 3
KLEANZA C						0											3	1	0 - 3
SKEENA R 1																		2	2 - 2
SKEENA R 3																		1	1 - 1
ZYMAGOTTITZ R																1			1 - 1
ZYMOETZ R 2															1				1 - 1
Combined	4118	3621	3979	4581	3544	3495	3126	6239	4887	6330	6097	3945	3109	1871	3194	3115	4578	1839	1839 - 6330

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions)

Table 21. Guide reported catch of rainbow trout for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Rainbow Trout Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE L	90	261	134	163	1816	1166	81	102	1079	115	203	100	71	14	50	88	58	38	14 - 1816
KHTADA L						607	708	273		305	242	604	174	126	94	208	161	125	94 - 708
DUTI (S) L						490		174							426	614	248		174 - 614
DUTI (N) L					577	125			150		275	110		350	47		165		47 - 577
SOUTH SADDLE L			66	567	241	211	334	71	198	65	250	233	105	69			90		65 - 567
MORICE L	25	3	8		3	10		320	170	71	75	43	14		29	55	35		3 - 320
SECRET L										11	132	11			284	210	210		11 - 284
NILKITWA L										175					15	61	119	5	5 - 175
MORRISON L	83	42	122	60		85	96	120	92	127	59	105	41	170	4		112		4 - 170
DUCKWING L		3		164		4			2										2 - 164
NEZ L	67	97	110				156	81	15	33	38	62	46	28	71	78			15 - 156
NANIKA L	74	120	11	94	44						16								11 - 120
ONERKA L										114									114 - 114
DUNALTER L		94	56									19							19 - 94
SILVERTHORNE L	72	47	16					2	10	10	4	2							2 - 72
SWAN L	19	4	15	63	2														2 - 63
ROSS L		24	61						2										2 - 61
TZAHNY L	7	60	36																7 - 60
BARRETT L							29	54	36	14	37	8	4	8	5	7			4 - 54
SLAMGEESH L		15	13						35										13 - 35
KITWANCOOL L														2		30			2 - 30
WILSON L								27					8						8 - 27
ATNA L					9					25									9 - 25
KIDPRICE L	3			24	17					9		7							3 - 24
BEAR L			5				21												5 - 21
BILL NYE L								20											20 - 20
HELENE L						20	10		18										10 - 20
CHARLOTTE L				19															19 - 19
CANYON L		1	5						16		4								1 - 16
SKINHEAD L					0					10	15								0 - 15
KLINGER L												4		3	14	8	2		2 - 14
SUNSET L							10	12											10 - 12
LAKELSE L						6		4							12				4 - 12
TALTAPIN L	7	10	3			10	9	5	12										3 - 12
SWAMP L				10															10 - 10
FULTON L										9									9 - 9
ROBINSON L		8																	8 - 8
HIDDEN L												8							8 - 8
GILMORE L															7				7 - 7
MITTEN L													6						6 - 6
VALLEE L								1				6							1 - 6
GUNANOOT L				5															5 - 5
OWEN L				3															3 - 3
CHAPMAN L				2						3									2 - 3
Combined	447	789	671	1145	2728	2734	1415	1213	1891	932	1381	1472	478	772	1061	1357	1207	168	168 - 2734

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 2 for watershed codes and location descriptions)

4.3.3 Chinook Salmon

The majority of reported catch of chinook by angling guides has been for lower Skeena River (i.e. downstream of the Zymoetz River) and Kitsumkalum rivers (Table 22 and 23). Overall, the distribution of guide reported catch of chinook salmon in the Skeena watershed has been variable between classified and non-classified waters, and uncommon for lakes (Tables 22, 23, and 24). The percentages of annually reported catch of chinook by angling guides on classified waters have ranged from 19% to 57% of total numbers reported for the Skeena watershed in various years, and this appears to be related to the distribution of guiding activity between Skeena River 2 (Class II) and Skeena River 3 (non-classified). The Ecstall (e.g. 262 in 1992/1993, Table 22), Sustut (e.g. 711 in 2003/2004, Table 23) and Kispiox (e.g. 94 in 1993/1994) rivers have also had notable numbers of chinook reported by angling guides for some years (Table 22 and 23).

Table 22. Guide reported catch of chinook salmon for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Chinook Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 2	861	819	597	1015	508	530	314	360	239	438	821	1378	611	332	335	396	559	270	239 - 1378
KITSUMKALUM R A	341	121	375	191	193	140	226	125	199	135	164	397	188	53	85	30	68	50	30 - 397
SKEENA R (Classified)													309	385	264	366	83		83 - 385
ECSTALL R	47	51	262	112	70	110	101	76	29	44	56	52	4		41	110	102	94	4 - 262
SKEENA R 4	16	1	32	16	29	3	20	36		76	38	48	45	2	2				1 - 76
BABINE R 1	2	9	14						9										2 - 14
KLUATANTAN R		10		6	9	1													1 - 10
KITSUMKALUM R C								9									3		3 - 9
SUSTUT R	0				8														0 - 8
BULKLEY R	1			4															1 - 4
KISPIOX R										3			2						2 - 3
ZYMOETZ R 1																	1		1 - 1
Combined	1268	1011	1280	1340	821	784	661	597	485	696	1079	1875	1159	772	727	902	816	414	414 - 1875

Table 23. Guide reported catch of chinook salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Chinook Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SUSTUT R	94	200	219	190	82	19	48	23		73	93	198	133	711	73	23			19 - 711
SKEENA R 3	116	61	124	449	244	260	260	39	241	290	390	225	151	194	175	148	307	110	39 - 449
SKEENA R 1	25	111	114	86	3	24	20	8	2		27	12	2	37	23	198	47	8	2 - 198
KISPIOX R	9	35	49	94	28	0	4		7	38		35	9						0 - 94
SKEENA R (Non-Classified)														20	50	44	25		20 - 50
BULKLEY R	34	21	1	14	14	27		45	32		12	14	5	12	1		1		1 - 45
SKEENA R 2	5	5			0	22	1		27	45	19	15	8	16	30	24	3		0 - 45
ZYMOETZ R 2						1					1	1	1	10	40	30	33	43	1 - 43
BABINE R 1		3	37	4	1		3												1 - 37
NANIKA R								30											30 - 30
SKEENA R 4				27	17	23		1			14						3	1	1 - 27
BABINE R 2	7	1	21	23	13	1	2	6	8		1								1 - 23
GAMBLE C																	20		20 - 20
EXCHAMSIKS R					10										3		17		3 - 17
ZYMOETZ R 1	1														17	5	9		1 - 17
KASIKS R				3	0		1								7		5		0 - 7
SLAMGEESH R			5																5 - 5
MORICE R		0		2							3	4		2			1	4	0 - 4
Combined	291	437	570	892	412	377	339	152	317	446	560	504	309	1002	419	472	471	166	152 - 1002

Table 24. Guide reported catch of chinook salmon for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Chinook Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
MORICE L								52	12										12 - 52
NANIKA L					51														51 - 51
KITSUMKALUM L					1									16					1 - 16
SLAMGEESH L	7	12																	7 - 12
BABINE L				2	0								1						0 - 2
Combined	7	12	0	2	52	0	0	52	12	0	0	0	1	16	0	0	0	0	0 - 52

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions)

4.3.4 Sockeye Salmon

Historically, catch of sockeye salmon has not been commonly reported by angling guides in the Skeena watershed based on angling guide reports from 1990/1991 to 2007/2008 licence years. An increase in sockeye catch by guided anglers has become apparent in guide reports since the 2005/2006 licence year for Skeena River 2 (i.e. 171 to 1144 from 2005/2006 to 2007/2008) and Skeena River 3 (i.e. from below 15 prior to 1996/97 to >193 since 2004/2005). The relatively high reported catch of sockeye in the Skeena River 2 (Class II waters) supports that sockeye has become one of the primary target species for guided angling in the lower Skeena Class II waters when compared to reported catches of other species at this location.

Table 25. Guide reported catch of sockeye salmon for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Sockeye Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 2	3	22	17	17	10	2	68	181	1	2	51	248	106	13	64	171	712	1144	1 - 1144
SKEENA R 4			1	34	4			3		3	297	60	17	1	47	35		23	1 - 297
SKEENA R (Classified)													95	77	87	44	116	115	44 - 116
KITSUMKALUM R (A,B,C)														2					2 - 2
BABINE R 1	2																		2 - 2
KITSUMKALUM R A									2		2	1					1	1	1 - 2
KISPIOX R		1						2			1								1 - 2
SUSTUT R			2					1											1 - 2
Combined	5	23	20	51	14	2	68	187	3	5	351	309	218	91	200	250	829	1283	2 - 1283

Table 26. Guide reported catch of sockeye salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Sockeye Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 3			8	5	10	12	5	70	71		269	398	37	85	263	426	576	193	5 - 576
BABINE R 1	2				6	78	163	20	5										2 - 163
BABINE R 2						122	68	6											6 - 122
SKEENA R (Non-Classified)																	36		36 - 36
SKEENA R 1			2			6	26	15			27	15		3	10	19	25	5	2 - 27
FULTON R											20								20 - 20
SUSTUT R	3		1																1 - 3
ZYMOETZ R 1													2						2 - 2
KISPIOX R		2																	2 - 2
ZYMOETZ R 2															2	1			1 - 2
SKEENA R 2																		1	1 - 1
KASIKS R														1					1 - 1
EXCHAMSIKS R																	1		1 - 1
Combined	5	2	11	5	16	218	262	111	76	0	316	413	39	88	276	446	638	199	0 - 638

Table 27. Guide reported catch of sockeye salmon for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Sockeye Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
BABINE L		7	25		66			14			11	60		55	9		28	56	7 - 66
KITSUMKALUM L					3								10						3 - 10
MORICE L													2						2 - 2
Combined	0	7	25	0	69	0	0	14	0	0	11	60	12	55	9	0	28	56	0 - 69

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions)

4.3.5 Coho Salmon

The annual distribution of guide reported catch of coho salmon in the Skeena watershed has been variable between classified and non-classified waters, and uncommon from lakes (Tables 22, 23, and 24). The majority of reported catch of coho by guided anglers has been on the lower Skeena River (ie. downstream of Zymoetz River) including the Class II waters (i.e. Skeena River 2, Exchamsiks River to 1.5 km upstream of Kitsumkalum River). Although coho catch on the Gitnadoix River has historically had one of the highest reported guided angler catch of coho in the Skeena watershed (e.g. 481 in 1991/1992, Table 28), no coho catch has been reported from the Gitnadoix for the 2004/2005 to 2007/2008 licence years. Notable annual catch of coho have also been reported by angling guides for the Kitsumkalum River (178 in 1990/1991, Table 28), and Kasiks (e.g. 506 in 1999/2000) and Exchamsiks (e.g. 264 in 2005/2006, Table 29) rivers.

Table 28. Guide reported catch of coho salmon for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Coho Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
GITNADOIX R A	419	481	265	267	75	107	109	19		122		45	75	56					19 - 481
SKEENA R 2	340	327	124	252	428	394	321	94	4	171	207	397	338	319	58	215	124	365	4 - 428
SKEENA R (Classified)													185	391	96	418	70	3	3 - 418
KITSUMKALUM R A	178	72	1	16	11	60	63	19	93	100	35	147	68	63	20	137	81	73	1 - 178
KISPIOX R	39	18	3	12	17	16	31	7	44	31	68	34	29	22	8	2	7	1	1 - 68
ECSTALL R							41				23								23 - 41
LAKELSE R										7					30	10			7 - 30
ZYMOETZ R 2	0					2	1	3	30	11	11	8	10	9			12	19	0 - 30
SKEENA R 4	19		1	1	2			1				4	29	3	15	24		4	1 - 29
BABINE R 1	1	1	4						20										1 - 20
BULKLEY R	8	1	19		2				1			6	3			3			1 - 19
ZYMOETZ R 1													2		13	6	13		2 - 13
MORICE R	13	11														1			1 - 13
KITSUMKALUM R C																	9		9 - 9
SUSTUT R	9	1		1	8				3										1 - 9
KLUATANTAN R	7				3														3 - 7
Combined	1033	912	417	552	543	579	566	143	195	465	321	641	739	863	240	816	316	465	143 - 1033

Table 29. Guide reported catch of coho salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Coho Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
KASIKS R	40	40	175	155	469	382	458	69	40	506	196	472	357	145	141	363	261	205	40 - 506
EXCHAMSIKS R	36	28	67	44	55	33	61			72	6	422	359	103	42	175	48	72	6 - 422
SKEENA R 1	22	22	10	14	28	60	42	56	95	262	195	328	192	272	89	285	58	118	10 - 328
SKEENA R 3		16	8	15	5	5	13	4	123	6	49	53	105	204	126	264	152	133	4 - 264
SKEENA R (Non-Classified)													51		8	160	24		8 - 160
ZYMAGOTITZ R				17	6	35				11	2	39		111	35		2	8	2 - 111
SKEENA R 2	12	12		79	42	17	12			50	5	13	4	48	5		2	17	2 - 79
KISPIOX R	9											4	3					36	3 - 36
EXTEWR R					8		9			4		22		19	20	32	34	31	4 - 34
GOAT C															26	10			10 - 26
ZYMOETZ R 2			1	5						1	3	8	1		8		6	24	1 - 24
NANIKA R								15		8									8 - 15
BULKLEY R				6	1		1						10	3					1 - 10
FIDDLER C												8							8 - 8
KHYEX R		1															8		1 - 8
ZYMOETZ R 1													2	3	3	2	7		2 - 7
GAMBLE C																		3	3 - 3
MORICE R													2						2 - 2
SUSTUT R				2	1														1 - 2
Combined	119	119	269	330	614	532	596	129	273	920	464	1361	1086	908	503	1291	602	647	119 - 1361

Table 30. Guide reported catch of coho salmon for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Coho Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
KITSUMKALUM L		2				2				21	42		77	158		37	3	9	2 - 158
LAKELSE L							26		44			1			23	15			1 - 44
BABINE L			21					1											1 - 21
DAMSHILGWIT L		18																	18 - 18
MORICE L								2	14										2 - 14
STEPHENS L					2														2 - 2
SLAMGEEESH L		1																	1 - 1
Combined	0	21	21	0	2	2	26	1	46	35	42	1	77	158	23	52	3	9	0 - 158

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed code and location descriptions)

4.3.6 Cutthroat Trout

Since the 2003/2004 licence year, the most consistent and notable totals of guided angler catch of cutthroat trout in the Skeena watershed have been from the Kitsumkalum River (Class II, Table 31), Gamble Creek, Kasiks River, Babine River 2 (non-classified waters, Table 32), and Mooseskin Johnny, Netalzul, Kitwancool, and Helen lakes (Table 33). Noteworthy is the apparent initiation of guiding activity at Gamble Creek in the 2006/2007 with guides reporting 327 and 221 cutthroat trout caught in 2006 and 2007 (Table 32), respectively.

Table 31. Guide reported catch of cutthroat trout for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Cutthroat Catch / Licence Year																RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06		06/07	07/08
KITWANGA R										128								128 - 128	
KITSUMKALUM R A			7		1	4	2	13	12	4	91	3	15	19	7	9	40	1 - 91	
KISPIOX R	47	39	8	10			10	52	58	11	6	20	4	13			4 - 58		
SKEENA R 2	13	5	1	7	1	4			1	14	10		6	2	4	2	13	1 - 14	
GITNADIX R A	10	12																10 - 12	
BULKLEY R		6						3										3 - 6	
SKEENA R 4		2										1		1		2		1 - 2	
ZYMOETZ R 2														2				1 - 2	
ZYMOETZ R 1													1					1 - 1	
Combined	70	64	16	17	2	8	12	68	71	157	107	24	28	35	11	13	53	17	2 - 157

Table 32. Guide reported catch of cutthroat trout for *non-classified waters* in the Skeena watershed from licence years.

Non-Classified Waters	Guide Reported Cutthroat Catch / Licence Year																RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06		06/07	07/08
BABINE R 2				586	32	6	2		455		761	21	35			228	206	45	2 - 761
GAMBLE C																	327	221	221 - 327
WILLIAMS C												22	25	90	61	62			22 - 90
FULTON R		82	27		60		6		2			8							2 - 82
KISPIOX R	14	63	12	2	5		3	4	8	4			1					1 - 63	
KASIKS R						2	8		29		37	40	16	18	17	26	44	34	2 - 44
SKEENA R 1		41				1	1	1						3	1	3		9	1 - 41
EXCHAMSKS R									32		9		2	5	1		3		1 - 32
SKEENA R 2	6					3				20		11	1	8	1		1	1	1 - 20
FIDDLER C											14								14 - 14
BURNIE R						3		1	14		11								1 - 14
NILKITKWA R													10					13	10 - 13
BULKLEY R			12																1 - 12
SKEENA R 3									1	1		1	1	1	9	2	1		1 - 9
KLEANZA C						0					9								0 - 9
ZYMAGOTTZ R			1									3	8						1 - 8
OLIVER C						2										1			2 - 2
SKEENA R 4																			1 - 1
HOWSON C										1									1 - 1
Combined	20	186	52	588	97	17	25	6	538	27	834	111	95	130	93	319	585	323	6 - 834

Table 33. Guide reported catch of cutthroat trout for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Cutthroat Catch / Licence Year																RANGE		
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06		06/07	07/08
MOOSESKIN JOHNNY L			331		245	241	214	191	275	172	405	220	112	102	155	99	97	11	97 - 405
NETAZUL L											206	362							11 - 362
FISHPAN L	205		258	85	67	9	11												9 - 258
MITTEN L		213	110																110 - 213
HOLLAND L	157	35	40			18													18 - 157
BABINE L									122										8 - 122
KITWANCOOLL										106				18		60			18 - 106
GRIZZLY L	49	98	22				9												9 - 98
TOUHY L												90							90 - 90
FRY PAN L	74	60					16		0	5									0 - 74
FLATFISH L		50	70																50 - 70
HELEN L							2	64	18	16	6	14		4	45	37	7		2 - 64
SHEA L	57												53						57 - 57
PINE TREE L		6																	6 - 53
LAKELSE L					4	26		7	5	47		1			43				1 - 47
SWAN L		46																	46 - 46
BURNIE L			34		27	38	28	25	18	18	16	9	4						4 - 38
HIDDEN L		35																	35 - 35
MUDDY L		10					35												10 - 35
WALLEE L								13	32	23	10	3							3 - 32
CHAPMAN L			30																30 - 30
PEANUT L												28							28 - 28
FOOTSORE L												23							23 - 23
MCDONELL L			21												9				9 - 21
TAHLO L														20					20 - 20
BEAR L	16																		16 - 16
HODDER L									8			16							8 - 16
DUNALTER L			12					6		4	16								4 - 16
STEPHENS L		14																	14 - 14
KLATEL										11									11 - 11
CHISHOLM L			11																11 - 11
MCBRIDE L		9																	9 - 9
NILKITWA L															9				9 - 9
DUTI (N) L																8			8 - 8
KITKADA L		7																	7 - 7
KITSUMKALUM L					5							1							1 - 5
MORICE L		4																	4 - 4
JOHNSTON L																		3	3 - 3
SEELEY L																		3	3 - 3
NANIKAL						0													0 - 0
Combined	619	567	906	85	348	332	288	269	524	293	780	759	209	120	220	212	134	18	18 - 906

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed code and location descriptions)

4.3.7 Pink Salmon

The guide reported catch of pink salmon has been predominantly from the lower Skeena River (i.e. downstream of 1.5 km upstream of the Zymoetz River), ranging from 51% to 99% of the total annual reported catch. Because guide reported catch of pink salmon from classified waters (Skeena River 2) has been 100% of total reported catch in some years, it appears that catch of pink salmon may not have been consistently reported for non-classified waters. The apparent lack of reporting catch of pink salmon in non-classified water is also supported by the inconsistent numbers of pink salmon from Skeena River 1 (i.e. immediately downstream of Skeena River 2) and Skeena River 3 (i.e. immediately upstream of Skeena River 2) compared to reports for Skeena River 2. Even the inconsistent variation in guide reported catch of pink salmon from Skeena River 2 (i.e. Exchamsiks River to 1.5 km upstream of Kitsumkalum River, 21-2629 pink salmon) suggests that the catch of pink salmon in classified waters may not have been consistently reported. The high number of pink salmon reported by angling guides from the Skeena River 2 (Class II) in 2007/2008 does suggest that either the catch of guided anglers or the reporting of guided angler catch may have changed.

Table 34. Guide reported catch of pink salmon for *Class I or Class II waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Class I or Class II Waters	Guide Reported Pink Salmon Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R (Classified)																			2 - 152
SKEENA R 2	917	545	415	107	34	326	517	89		21	155	522	577	1854	749	1273	185	2629	21 - 2629
SKEENA R 4		25	24	55	8		22	7		13	6	71	1	41	5	35	28		1 - 71
ECSTALL R																			1 - 1
GITNADOIX R A	12														1				12 - 12
KITSUMKALUM R A			14			2		11	9	26	1	19	1	14		73	1	26	1 - 73
BULKLEY R		4	117																4 - 117
KISPIOX R							7		15	54	22	3							3 - 54
Combined	929	574	570	162	42	328	546	107	24	114	184	615	579	1990	907	1471	216	2655	24 - 2655

Table 35. Guide reported catch of pink salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Non-Classified Waters	Guide Reported Pink Salmon Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
SKEENA R 3				121		21	14	2		92	49	245	42	180	136	646	93	423	2 - 646
SKEENA R 1		32	18		2	63	37	5		55	23	55	15	213	79	415	1	131	1 - 415
BULKLEY R		169	35	42			136	9							5	6	12		5 - 169
KISPIOX R		108	7		7	18	11	9	10	61			4						4 - 108
SKEENA R 2																		40	40 - 40
KASIKS R								7						9	6	26		12	6 - 26
MORICE R						3										10	6	11	3 - 11
ZYMOETZ R 2			1			3			3	5		1		11	7	6		3	1 - 11
SHEGUNIA R		6																	6 - 6
BABINE R 2							6												6 - 6
GAMBLE C																		3	3 - 3
KLEANZA C											2	1							1 - 2
KHYEX R													1						1 - 1
Combined	0	315	61	163	9	108	204	32	13	213	74	302	62	413	228	1108	106	635	0 - 1108

Table 36. Guide reported catch of pink salmon for *lakes* in the Skeena watershed from 1990/1991 to 2007/2008 licence years.

Lakes	Guide Reported Pink Salmon Catch / Licence Year																	RANGE	
	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07		07/08
LAKELSE L												8	215		6				6 - 215
BABINE L					71														71 - 71
HIDDEN L			65																65 - 65
MORICE L																	7		7 - 7
Combined	0	0	65	0	71	0	0	0	0	0	0	8	215	0	6	0	0	7	0 - 215

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed code and location descriptions)

4.4 STEELHEAD ANGLING SUCCESS BY GUIDED ANGLERS

To assess variations in steelhead angling success by guided anglers, the rates of steelhead catch per angler per angling day (CPUE) during the classified water time frames were estimated based on the total number of steelhead captured divided by the total number of guided anglers fishing for each day from July 1st to October 31st, for each classified water (e.g. Babine, Bulkley, Morice, etc.) and for “*all classified waters combined*” (ACW) from 1990 to 2007. Not unexpectedly, the general trend in intra-annual CPUE for different classified waters and ACW displayed notable fluctuations from day to day, with a gradual increase toward the end of the angling season; thus the mean annual CPUE’s were not calculated to compare locations or years. Some potential influences on daily angling success include: populations being open to immigration (i.e. increasing abundance as the season progresses), environmental effects on sampling (e.g. river discharge and turbidity, variation in angler effort), and variable inter-annual distribution of Skeena River steelhead among different classified waters. For comparisons of CPUE’s to steelhead abundance based on the Tye Steelhead Abundance Index (TSA Index), annual indices for steelhead angling success by guided anglers for classified waters were calculated based on cumulative CPUE from July 1st to October 31st (GAC Index) and are presented in Figure 4.

Since sampling by the Tye test fishery ended on a variable array of dates from 1990 to 2007 (i.e. August 23rd to October 12th), the TSA Index values for August 23rd (i.e. the earliest end date of the Tye Test Fishery from 1990 to 2007) are presented for inter-annual comparisons to the GAC indices. Although the TSA Index values for August 23rd do not incorporate the entire return of summer-run steelhead to the Skeena River each year (e.g. the most extreme example being less than 60% of the final TSA Index for 2006 when sampling at Tye ended on September 15th), this index appears to represent a fairly accurate representation of inter-annual variation of steelhead abundance, even when compared to results from the variable end dates for the Tye test fishery (Figure 5). Overall, the inter-annual trends of the GAC Index for ACW and TSA index are similar based on a graphical comparison (Figure 4), but there are differences in their percent changes (i.e. both positive and negative) between sequential years (e.g. 1995-1996, 1998-1999, 1999-2000, 2005-2006). More detailed interpretation of this data by including the variability of GAC Indices among different classified waters appears to help identify when angling guides at some locations in certain years had different catch results for their guided anglers than expected based on the TSA Index. For example, the GAC index for ACW declines from 1995 to 1996 despite an increase of the TSA Index (i.e. steelhead abundance) in the same time span which appears to be associated with the notable decline of the GAC Index for the Bulkley and Babine rivers. For future reference to these types of interpretations from GAC Indices, a more complex analysis incorporating more factors influencing CPUE’s is required to confirm and describe its accuracy prior to using the GAC Index to represent inter-annual variations of steelhead abundance at different scales across the Skeena watershed.

In summary, GAC indices provide a reasonable measure of inter-annual and spatial variations in guided angler success for steelhead at classified waters and the Skeena watershed, with less bias than the results from individual licenced guides. The GAC index for ACW indicates that changes in guided angling success correlate well with the estimated steelhead abundance based on the TSA Index, but not necessarily with all classified waters in the same year. The intra-annual variations identified between different classified waters may be attributed to several different factors (e.g. steelhead stock distribution, environmental effects on angling) that need to be incorporated into explaining the differences between GAC and TSA indices to further test the accuracy and improve the precision of this index and its potential direct relationship to steelhead abundance.

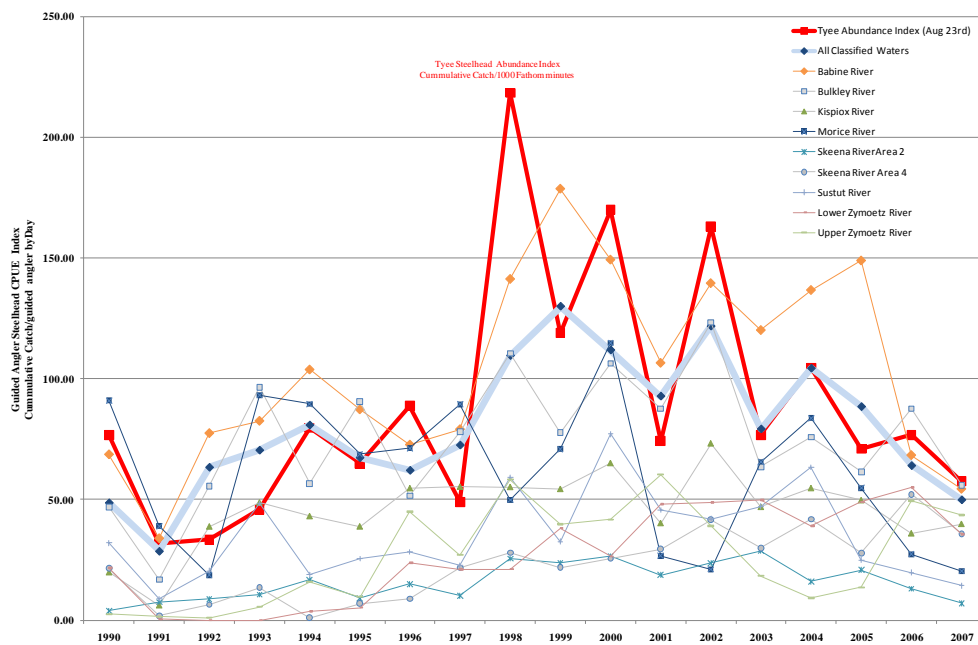


Figure 4. Guided Angler Success for steelhead in Classified Waters (GAC Index) and the Tye Steelhead Abundance (TSA) Index from 1970 to 2007.

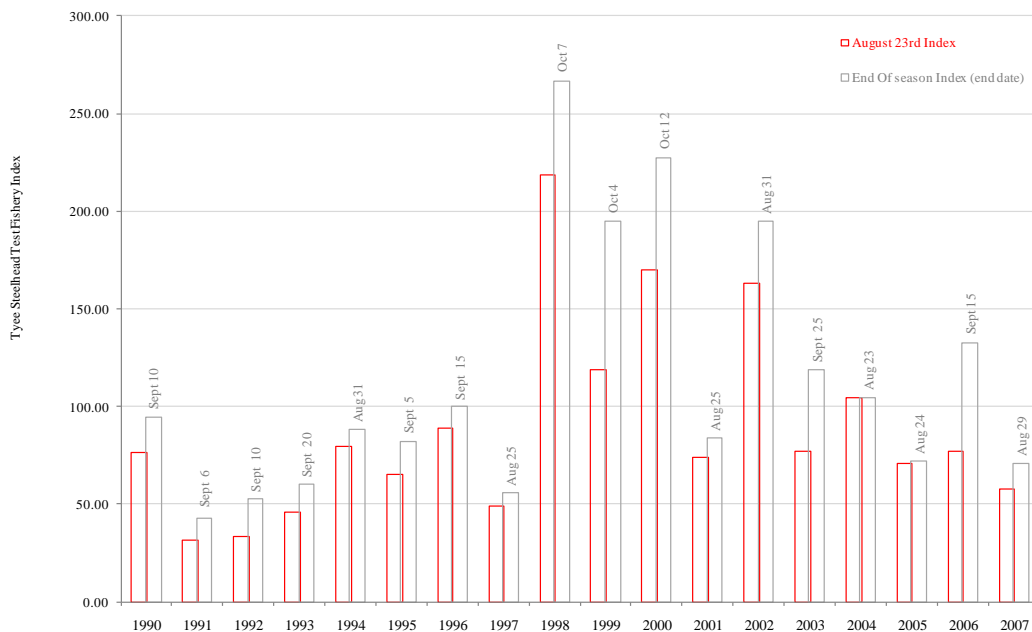


Figure 5. Tye Summer-Run Steelhead Abundance (TSA) Index for Skeena River on August 23rd and the variable end dates of sampling from 1990 to 2007.

5.0 DISCUSSION

This summary report of the AGMS database presents data from submitted angling guide reports for the Skeena watershed from 1990/1991 to 2007/2008 licence years. The way the data tables, queries and user forms have been organized in AGMS is intended to simplify future assessments of the information to help BC Fisheries management teams ensure that the existing licences, CAP's and data requirements remain affective, appropriate and useful. Overall, the input of angling guide data from angling guide reports submitted for 1990/1991 to 2007/2008 into the BCE AGMS data management tool appears to provide some useful additions to the summaries of freshwater angling guide activities and results.

This presentation of the AGMS data will hopefully identify some useful insights into angling guide management (Section 4.1) and angling guide activities (Section 4.2) and relative inter-annual sport fish abundances in the Skeena watershed (Section 4.3). With respect to reported licence use in classified waters of the Skeena watershed, no trends in the number of guides submitting reports each year were identified. For future analysis of issued licences it may be valuable to check that all licenced guides are consistently reporting, once the numbers of allocated days to individual licenced guides are updated in AGMS. The present data in AGMS has identified only one location in the Skeena watershed with classified status (i.e. Kispiox rivers) that have may have exceeded the CAP for guided angler days under the Wildlife Act (BC Environment 2008b). It may be useful to conduct a more detailed review of the reports from individual guides and for future angling management teams to evaluate the needs and impacts of modifying the present CAP's to ensure that management practice and guided angler activities are effective. Further analyses of any potential correlations among the dates, locations, species, and species catch related to the high numbers of angler days reported for classified waters in 1990/1991, 1995/1996, and 2002/2003 may also be helpful with future reviews of the present licence and guided angler allocation CAP's.

The total reported catch from angling guides in the Skeena watershed and its spatial distribution (Section 4.3) has identified many variations in guided angling success and different combinations of species. Overall, steelhead are the most commonly reported species by angling guides in the Skeena watershed, but notable numbers of pink, chinook, sockeye, and coho salmon and rainbow and cutthroat trout have also been reported from various locations. From 1990 to 2007,

- steelhead have had the highest total catch of all species reported by angling guides from the Babine, Bulkley, Morice, Sustut, Kispiox, Zymoetz (i.e. 1 and 2 combined), Skeena River 4 (i.e. upstream of the Zymoetz River) and Klutantan rivers,
- pink salmon do not appear to have been consistently reported by angling guides, but the majority have been reported for the lower Skeena River downstream from Zymoetz River, with some also reported from the Bulkley, Kispiox and Kitsumkalum rivers,
- chinook salmon have had the highest total catch of all species reported by angling guides from the Skeena River 2, Kitsumkalum and Ecstall rivers with classified status, and from Skeena River 3, Sustut and Kispiox rivers with non-classified status,
- sockeye salmon have shown a recent rise in reported catch by guided anglers since the 2004/2005 licence year in the lower Skeena River (i.e. Section 1, 2, and 3),

- coho salmon have had the highest total catch of all species reported by angling guides from the Gitnadoix River with classified status, and from the Exchamsiks, Kasiks, Skeena River 1, Zymagotitz, and Exstew rivers, and Goat Creek with non classified status,
- rainbow trout has not been commonly reported from any classified waters, but has had the highest reported catch of all species by angling guides for non-classified waters at the Babine River 2 (i.e. Rainbow Alley), Morrison Creek, and the Nanika, Fulton, and Nilkitkwa rivers, and
- cutthroat trout have had notable annual catches reported at Babine River 2 (i.e. Rainbow Alley), Mooseskin Johnny Lake, and more recently at Gamble Creek.

The data summarized for the annual catch of different species (Sections 4.3.1 to 4.3.7) shows some interesting intra-spatial differences (e.g. up to 4.8 times more steelhead reported by angling guides from the Babine River than from the Bulkley River in a licence year) and for intra-annual comparisons between classified and non-classified time periods of the same locations (e.g. 61.5% of steelhead reported by angling guides for the Zymoetz River 2 in the 2001/2002 licence year were during non-classified water period). Unfortunately, the more interesting intra-spatial and inter-annual trends and differences in annual catch will require more detailed investigations to incorporate the potential biases with the guided angler success, and this may not be worthwhile until relevant management issues are defined. An exemplary assessment of intra-spatial and inter-annual trends and differences in annual catch based on *steelhead catch by guided anglers by day (CPUE) during classified water time frames (GAC Index)* has been presented in Section 4.4 to demonstrate the complexities of this level of analysis. In this example, a comparison of the GAC Index for *all classified waters combined (ACW)* to the Tyee Steelhead Abundance Index (TSA Index) indicates that the estimated steelhead abundance in the overall Skeena watershed correlate reasonably well with changes in guided angling success, but not necessarily the same with all classified waters in the same year. Any explanations for the observed lack of consistent correlations of the TSA Index with the GAC Indices for different classified waters appear to be interesting, but complicated. Overall, it seems that more detailed analyses of the GAC Indices may be more appropriate once clearly defined objectives arise to allow further scientific efforts to be effectively directed toward the analyses of specific species at relevant locations, and experimental design and testing of the potentially significant biases in this sampling method.

Based on this update of the AGMS database, angling guides in the Skeena Region appear to provide a useful summary of their guiding activities. Some modifications to the present dataset design (e.g. addition of unique identifiers to tables) are recommended if use of the AGMS database is to continue. If recent plans to convert guide reporting to an internet service go forward, it may also be useful to add an upload tool to AGMS to allow the web data to be used for further in-house quality assurance, monitoring and data interpretation. An update to the angling guide data report forms may also be useful following a review of this summary report by the appropriate angling management team members. Prior to using the AGMS data to assess inter-annual species abundance, an assessment of the variability and biases of the different data collection methods and the accuracy of guide submissions should be conducted for historical information and a quality assurance program should be implemented to provide more certainty of the precision of results from future data. In general, the AGMS data entry tool is presently usable for data entry and for review of specific information (i.e. individual angling guide licence reviews), but some modifications to its forms, reports, and automated displays of summary information may be useful if this tool is to be actively used to monitor licenced guides and guided angling activity.

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