

**Angling Guide Data Summary
for the
1990/1991 to 2010/2011 Licence Years
in the
Skeena River Watershed**

Prepared for

B.C. Ministry of Forests, Lands and Natural Resource Operations

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Executive Summary

The Angling Guide Management System (AGMS) database for the British Columbia 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 2010/11 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 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 target 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 various 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 based on the Fisheries and Oceans Canada Tyee Test Fishery results. Based on linear correlation analysis, the guided angling success for steelhead at all classified waters (i.e. combined total) correlates well with the Tyee Steelhead Abundance Index indicating that these two indices have similar positive correlations with steelhead abundance. Interestingly, the number of guided angling days reported at classified waters from July 1st to October 31st has no correlation with the Tyee Steelhead Abundance Index indicating that summer-run steelhead abundance levels from 1990 to 2010 have not notably influenced the amount of guided angling days reported for the same year or the following year. This plateau in guided angling efforts appears to be related to the consistent permit allocations over the years and consequently it is presently not detectable if annual steelhead returns may affect economic benefits to angling guides using this simple linear correlation method. 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

For the Skeena River watershed, SKR Consultants Ltd (SKR) has completed the addition of angling guide report information for the 2008/2009, 2009/2010 and 2010/2011 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 2010/2011 licence years. This project was funded under the Living Rivers Trust Fund and has been administered by the Pacific Salmon Foundation in conjunction with the Smithers Fisheries Section of the British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC Fisheries). The report for this project summarizes all data collected and entered into the AGMS database since its initiation in 1990, including annual reports submitted by angling guides in the Skeena watershed and entered by BC Fisheries from 1990/1991 to 2001/2002 licence years, entered by SKR for the 2002/2003 to 2007/2008 licence years (Saimoto & Saimoto 2009, 2010, 2011) and the newly added updates for the 2008/2009 to 2010/2011 licence years. The objective of these updates 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. The summary report for this project is primarily an update to the 2011 AGMS Report (SKR 2011) including the newly added data for the 2008/2009 and 2010/2011 licence years and includes the following:

- background information for the Skeena watershed, sport fishery and angling guide management,
- 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 2010/2011 licence years,
- A general assessment of guided angler steelhead catch as an indicator of annual abundance in comparison to the Tyee Steelhead Abundance Index (FOC 2010), 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 and analysis. 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, has targeted 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 BC Fisheries freshwater angling management, additional regulations 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, Kitseguekla, 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 guides and 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 and authorized 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 are grouped together. The AGMS database has been developed by BC Fisheries 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, 2011). 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 2001/2002, 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.

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
Kitseguecla	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 Nilkitkwa Lake	4	1798
Sustut	490	Includes tributaries	Class I Sept 1 – Oct 31	2	750

¹ Maximum number of guides and rod days refer to classified waters periods only, and are summarized in 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 Forests, Lands and Natural Resource Operations (BC Fisheries) has developed and implemented the Angling Guide Management System (AGMS) data tool in order to compile and summarize the data from annual reports that are submitted by angling guides in compliance with their guide licence requirements. The AGMS database (Version 1, MS Access 2) was initially designed from 1990 to 1993, and was revised in 1998 (Version 2, MS Access97) by J. DeGisi (1998), and again by SKR in 2009 (Version 3) when AGMS was made compatible with MS Access 2007, but saved in MS Access 2003 format (i.e. *.mdb). The fourth version of AGMS (i.e. AGMS_V4_2011.mdb linked to AGMS_V4_Data.mdb) has added import tools for electronic submissions of Guide Reports for Classified and Non-Classified Waters. SKR Consultants Ltd has now completed updating the angling guide reports up to and including the 2010/2011 licence year.

Although most of the angling reports have been adequately completed, some of the data has been 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 BC Fisheries 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 AGMS_V4_2011 data entry tool 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

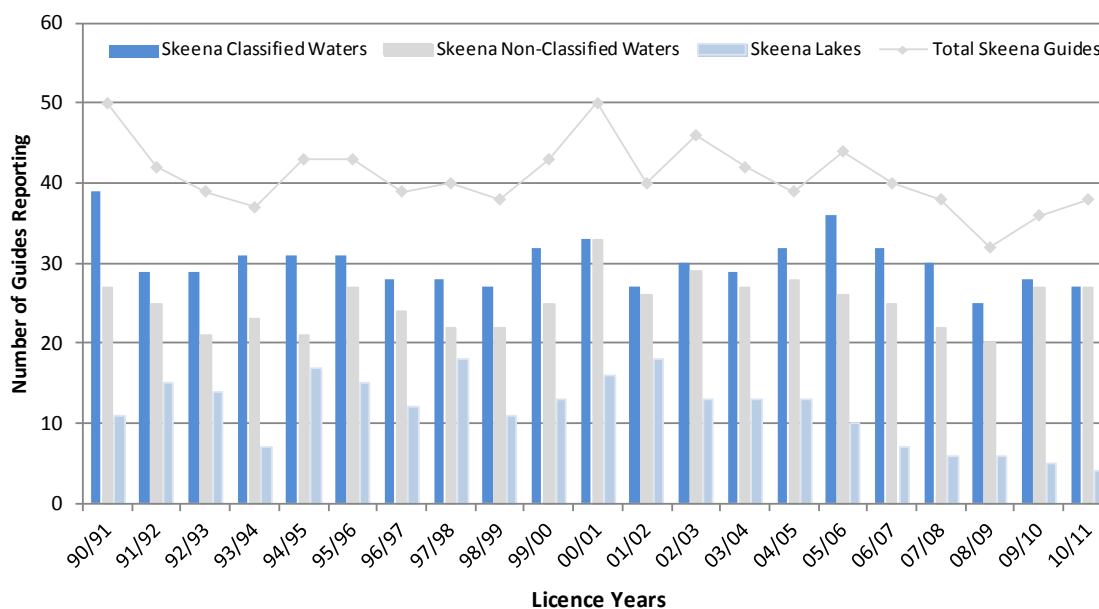
As of March 2012, the Angling Guide Management System (AGMS) includes annual report information received from angling guides active in the Skeena Region from the 1990/1991 to 2010/2011 licence years. The total number of angling guides reporting guided angling activities in the Skeena watershed for each year has consistently ranged from 32 to 50 guides submitting reports, with the seemingly low number of guides submitting annual reports in the 2008/2009 licence year (i.e. only 32, Table 3) indicating that the number of guides should be compared to the number of issued licences, although this is not presently entered in AGMS, to help ensure that the present status of the AGMS database is complete. 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
2010/2011	38
2008/2009	32
2009/2010	36
2010/2011	38

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), non-classified 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. From the 1990/1991 to 2010/2011 licence years in the Skeena River watershed, no obvious trends in guide activity for classified and non-classified rivers are evident based on the number of guides that have reported but the number of guides reporting activities at lakes has shown a significant decline (Figure 2) including the minimum number of guides reporting lake activities in the most recent year (i.e. only 4 angling guides in 2010/2011). 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. A transition of a greater proportion of angling guides reporting for non-classified rivers than classified rivers is also evident (Figure 2), but this has not been analysed in detail. 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.



	Angling Guides			21 year Trend				10 year Trend				5 year Trend			
WaterType	21 Year Range			Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),1,9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),1,4}	P	Since 2006/2007
Classified Waters	25	-	39	-0.15	1.7829	0.1968	-	-0.27	0.5552	0.4752	-	-1.20	2.9189	0.1627	-
Non-Classified Waters	20	-	33	0.09	0.5887	0.4519	-	-0.36	1.4663	0.2568	-	0.90	0.7915	0.4239	-
Lakes	4	-	18	-0.41	10.1590	0.0046	Decreasing	-1.46	97.1254	0.0000	Decreasing	-0.70	49.0000	0.0022	Decreasing
Total for Skeena	32	-	50	-0.28	3.7164	0.0682	-	-0.88	6.4692	0.0315	Decreasing	-0.60	0.3253	0.5989	-

Figure 2. Total number of angling guides reporting activities in classified waters, non-classified waters, lakes and a combined total for the Skeena watershed during different licence years with summary of 21 year, 10 year, and five year trends.

4.1.1 Classified Waters

The number of angling guides submitting reports for their activities in Class I or Class II waters 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), Kitsumkalum River (note: highest number in 2010/2011) and the Bulkley River (Table 4). Some of the notable trends identified with respect to the number of angling guides reporting activities at the various classified rivers in the Skeena watershed (Table 4) include:

- decreasing annual totals for Skeena River 2, Kitsumkalum, Morice, and Sustut rivers, and
- increasing annual totals for the upper and lower Zymoetz River.

Table 4. Total number of angling guides reporting activities in *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

Classified Waters	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	08/09	09/10	10/11	Range
SKEENA River 2	17	14	14	15	16	15	13	12	12	14	13	13	11	8	9	11	12	11	7	11	8	7 - 17
SKEENA River 4	14	7	6	6	3	4	3	3	4	5	6	8	5	4	6	7	9	9	5	6	7	3 - 14
KITSUMKALUM River	12	10	10	11	12	9	11	8	9	11	11	12	10	7	11	7	9	8	10	7	9	7 - 12
BULKLEY River	5	6	7	6	7	7	7	8	9	8	8	7	8	6	6	8	7	8	6	7	6	5 - 9
SKEENA River (Classified)													9	8	2	1	1		4		1	0 - 9
ZYMOETZ River 2	2	1	1	2	2	3	3	4	3	4	3	4	6	3	3	2	3	5	4	4	4	1 - 6
ZYMOETZ River 1	3	1		1	1	2	2	2	2	3	2	3	2	3	3	4	5	3	4	4	4	0 - 5
BABINE River 1	4	3	3	3	3	3	3	3	3	3	3	2	4	3	4	3	3	3	3	3	3	2 - 4
KISPIOX River	4	4	2	3	2	2	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	2 - 4
GINNADOIX River A	4	3	2	2	2	2	1	1	1	1	1	1	1	1						1	1	0 - 4
ECSTALL River	3	2	2	2	2	3	2	1	2	3	1	2	1	2	2	2	2	2	3	2	1	1 - 3
MORICE River	3	2	2	2	3	3	3	2	2	2	3	1	2	2	2	2	2	2	2	2	1	1 - 3
SUSTUT River	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1 - 2
CLORE River											2				1							0 - 2
KITSUMKALUM River C									1								1					0 - 1
KITWANGA River									1	1												0 - 1
KLUANTAN River	1	1		1	1	1									1	1	1	1	1	1	1	0 - 1
LAKELSE River										1					1	1						0 - 1
NANGESE River																		1				0 - 1
SWEETIN River																	1					0 - 1

Classified Water	Angling Guides 21 Year Range	21 year Trend				10 year Trend				5 year Trend			
		Slope of Linear Regression	F _{0.05(11,20)}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(11,9)}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(11,4)}	P	Since 2006/2007
SKEENA River 2	7 - 17	-0.36	42.4225	0.0000	Decreasing	-0.26	1.5300	0.2474	-	-0.80	1.5484	0.2813	-
KITSUMKALUM River	7 - 12	-0.14	6.9848	0.0156	Decreasing	-0.24	1.6754	0.2278	-	-0.10	0.0588	0.8203	-
ZYMOETZ River 2	1 - 6	0.12	12.2245	0.0023	Increasing	-0.01	0.0084	0.9291	-	0.10	0.1579	0.7114	-
ZYMOETZ River 1	0 - 5	0.16	33.9544	0.0000	Increasing	0.18	5.1595	0.0492	Increasing	-0.10	0.1579	0.7114	-
GINNADOIX River A	0 - 4	-0.14	31.3077	0.0000	Decreasing	-0.03	0.2500	0.6291	-	0.30	9.0000	0.0399	Increasing
MORICE River	1 - 3	-0.05	6.5420	0.0188	Decreasing	0.00	0.0000	1.0000	-	-0.20	3.0000	0.1583	-
SUSTUT River	1 - 2	-0.04	16.4237	0.0006	Decreasing	-0.15	21.3333	0.0013	Decreasing	-0.20	3.0000	0.1583	-
KLUANTAN River	0 - 1	0.02	0.7170	0.4072	-	0.13	14.0000	0.0046	Increasing	0.00			-

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

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 2009b) and no trends for the combined numbers of guides reporting activities for non-classified waters in the Skeena watershed are apparent (see Figure 2). Interestingly, 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 during non-classified timing windows have the highest numbers of active angling guides on non-classified waters. Notably for the 2010/2011 licence year, the number of guides reporting activities was below the maximum reported but equalled the number of guides reporting activities in classified waters for only the second time since the start of the AGMS in the 1990/1991 licence year. Excluding trends identified for non-classified waters that have never had more than one angling guide, some trends of the number of licenced guides reporting activity at some locations with or during non-classified status have been identified (Table 5) and include:

- increasing annual totals of guide reporting activities during non-classified timing windows for the Skeena River (i.e. all four sub-units), Exstew River, Zymagotitz River, the lower Zymoetz River, and Williams Creek and
- decreasing annual totals of guides reporting activities during non-classified timing windows for Babine River 2 (e.g. Nilkitkwa Lake/Rainbow Alley), the upper Zymoetz, the Kispiox, the Fulton, and the Sustut rivers (Table 5).

Table 5. Total number of angling guides reporting activities in *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

Non-Classified Waters	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	08/09	09/10	10/11	Range
SKEENA River 3	5	4	5	7	5	9	9	7	5	7	14	9	11	12	12	13	11	11	7	7	10	4 - 14
KASIKS River	6	5	6	6	8	7	11	4	3	6	10	9	11	7	9	8	7	9	5	6	9	3 - 11
SKEENA River 1	5	3	3	2	2	5	4	5	4	6	7	7	6	7	9	11	10	11	5	5	7	2 - 11
SKEENA River (Non-Classified)													6	3	11	9	8	1	5	7	3	0 - 11
EXCHAMSIKS River	2	3	7	3	4	4	4		2	3	2	3	4	4	5	4	5	5	2	3	5	0 - 7
SKEENA River 2	4	4		4	2	6	3	2	5	7	6	6	3	6	3	4	5	6	4	3	4	0 - 7
BABINE River 2	3	4	3	6	3	4	5	4	4	4	5	3	3	2	4	2	2	1	2	1	1	1 - 6
EXSTEW River					1		1			1		2		2	6	2	3	3	1	2	2	0 - 6
ZYMAGOTTITZ River	1		2	2	2	2				1	1	1	2	6	5	4	6	4	4	4	5	0 - 6
ZYMOETZ River 2	2	1	2	2	1	3	4	2	4	4	3	6	4	3	2	3	3	4	4	3	3	1 - 6
BULKLEY River	3	5	2	4	3	2	2	1	2	1	3	5	3	3	3	3	2	3	4	2	3	4 - 5
ZYMOETZ River 1	1			1			1			1		1	2	5	3	2	4	3	3	2	2	0 - 5
KISPIOX River	3	4	2	2	1	1	1	1	1	1		1	1					1	1	1	1	0 - 4
BABINE River 1	3	1	2	2	2	2	3	3	3	2	2	2	2	1	2	1		1	2	2	2	0 - 3
FULTON River		1	1		1		1	1		2	2	3	1	1		1						0 - 3
CEDAR River						2							1									0 - 2
MORICE River		1	1	1	1	1				1	2	1			1	1	1	1	1	1	1	0 - 2
SKEENA River 4	1	1	1	2	1	1		1			1				1		1	1	1	1	1	0 - 2
SLAMGEESH River			1								1				1			1	1	1	1	0 - 2
SUSTUT River	2	2	2	2	2	2	1	2	1	2	1	1	2	2	1	2	1	1	1	1	1	1 - 2
WILLIAMS Creek							1			1		2	1	2	2	2	1	1	1	1	2	0 - 2
ARDEN Creek																				1		0 - 1
Babine River																					1	0 - 1
BURNIE River						1		1	1		1											0 - 1
CLIFFORD Creek																				1		0 - 1
CLORE River											1							1				0 - 1
DUTI River																				1		0 - 1
FIDDLER Creek											1											0 - 1
GAMBLE Creek																	1	1		1	1	0 - 1
GOAT Creek															1	1						0 - 1
HOWSON Creek						1			1		1											0 - 1
KHYEX River	1	1				1	1						1				1	1				0 - 1
KLEANZA Creek						1					1	1				1	1	1	1	1	1	0 - 1
KULDO Creek																1		1	1	1	1	0 - 1
MORRISON Creek	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1			0 - 1
NANIKA River								1	1	1	1	1	1	1	1	1	1		1	1	1	0 - 1
NILKITKWA River									1	1	1	1		1	1	1	1	1	1	1	1	0 - 1
OLIVER Creek						1													1	1	1	0 - 1
PINKUT Creek															1							0 - 1
SCOTIA River													1				1					0 - 1
SHEGUNIA River		1																				0 - 1
SICINTINE River																		1	1		1	0 - 1

	Angling Guides	21 year Trend				10 year Trend				5 year Trend			
Non-Classified Waters	21 Year Range	Slope of Linear Regression	$F_{0.05(1),20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),4}$	P	Since 2006/2007
SKEENA River 3	4 - 14	0.28	10.1597	0.0046	Increasing	-0.30	1.8883	0.2026	-	-0.60	0.8182	0.4169	-
SKEENA River 1	2 - 11	0.29	16.6980	0.0006	Increasing	-0.07	0.0740	0.7917	-	-1.20	2.5714	0.1841	-
SKEENA River (Non-Classified)	0 - 11	0.39	15.0181	0.0009	Increasing	0.08	0.0361	0.8536	-	-0.40	0.1538	0.7149	-
BABINE River 2	1 - 6	-0.15	17.3151	0.0005	Decreasing	-0.25	10.7070	0.0096	Decreasing	-0.20	1.5000	0.2879	-
EXSTEW River	0 - 6	0.15	11.7184	0.0027	Increasing	0.01	0.0011	0.9743	-	-0.30	1.4211	0.2991	-
ZYMAGOTTITZ River	0 - 6	0.24	21.3853	0.0002	Increasing	0.24	2.0159	0.1894	-	-0.20	0.4286	0.5484	-
ZYMOETZ River 2	1 - 6	0.09	4.9963	0.0370	Increasing	-0.14	1.4414	0.2606	-	-0.10	0.2727	0.6291	-
ZYMOETZ River 1	0 - 5	0.16	17.8539	0.0004	Increasing	0.01	0.0020	0.9653	-	-0.50	25.0000	0.0075	Decreasing
KISPIOX River	0 - 4	-0.10	13.7349	0.0014	Decreasing	0.05	0.7033	0.4234	-	0.20	3.0000	0.1583	-
BABINE River 1	0 - 3	-0.05	3.3674	0.0814	-	0.01	0.0054	0.9431	-	0.50	10.7143	0.0307	Increasing
FULTON River	0 - 3	-0.03	1.0882	0.3093	-	-0.24	10.9215	0.0092	Decreasing	0.00			-
SKEENA River 4	0 - 2	-0.01	0.4872	0.4932	-	0.13	12.5714	0.0063	Increasing	0.00			-
SLAMGEESH River	0 - 2	0.03	2.0917	0.1636	-	0.14	5.1359	0.0497	Increasing	0.40	3.0000	0.1583	-
SUSTUT River	1 - 2	-0.05	11.5029	0.0029	Decreasing	-0.08	2.5802	0.1427	-	0.00			-
WILLIAMS Creek	0 - 2	0.09	20.8150	0.0002	Increasing	-0.05	0.8710	0.3750	-	0.20	3.0000	0.1583	-
GAMBLE Creek	0 - 1	0.04	13.2414	0.0016	Increasing	0.12	8.1633	0.0189	Increasing	0.00	0.0000	1.0000	-
KHYEX River	0 - 1	-0.02	0.9377	0.3444	-	-0.02	0.1053	0.7530	-	-0.30	9.0000	0.0399	Decreasing
KLEANZA Creek	0 - 1	0.05	14.0145	0.0013	Increasing	0.09	3.8462	0.0815	-	0.00			-
KULDO Creek	0 - 1	0.04	10.7322	0.0038	Increasing	0.10	3.8209	0.0823	-	0.10	0.2727	0.6291	-
MORRISON Creek	0 - 1	-0.05	16.6275	0.0006	Decreasing	-0.12	6.2241	0.0342	Decreasing	0.00	0.0000	1.0000	-
NANIKA River	0 - 1	0.04	5.4574	0.0300	Increasing	-0.03	0.2994	0.5976	-	-0.10	0.2727	0.6291	-
NILKITKWA River	0 - 1	0.05	16.2445	0.0007	Increasing	0.07	1.7778	0.2152	-	0.20	3.0000	0.1583	-
SICINTINE River	0 - 1	0.03	8.7638	0.0077	Increasing	0.10	5.7228	0.0404	Increasing	0.10	0.2727	0.6291	-

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary. "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 2009b). The total number of angling guides reporting activities has shown a consistent trend of decline since the AGMS system was initiated in the 1990/1991 licence year (see Figure 2). Interestingly, reported angling guide activities at lakes in the Skeena watershed reached a minimum in the 2010/2011 licence year, with only four guides reporting activities at only three lakes (i.e. Babine, Duti, and Klinger lakes). 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 only two guides reported activities for Babine Lake and one guide for Babine River 2 (i.e. Nilkitkwa Lake/Rainbow Alley, *see* Table 5) in the 2010/2011 licence year. An increase to two angling guides at North Duti Lake in the 2010/2011 licence year is shown in Table 6 and confirmed in the AGMS database to be different angling guide licences. The potential reasons for the overall decline in submitted reports by angling guide activities for lakes in the Skeena watershed have not been assessed, thus inquiries of related licenced angling guides may be important before this trend in the data is utilized for anything other than identifying a potential inconsistency of angling guide submissions.

Table 6. Total number of angling guides reporting activities at various *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

Lakes	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	08/09	09/10	10/11	Range
BABINE Lake	4	5	4	2	3	5	5	6	4	7	6	7	5	3	2	1	2	3	3	3	2	1 - 7
KITSUMKALUM Lake		1	1		1	2		2		2	1	2	2	4	1	1	1	2	1			0 - 4
LAKELSE Lake					1	2	1	1	1	1		2	2	1	4	2						0 - 4
ROSS Lake		3	4						1						1							0 - 4
SWAN Lake	3	3	2	2	3																	0 - 3
BARRETT Lake								1	1	1	1	1	1	1	1	2	2	1	1	2		0 - 2
BEAR Lake	2		1	1			1															0 - 2
DUCKWING Lake		1		1		1		2														0 - 2
DUTI (N) Lake					1	1			1		1	1		1	1	1	1		1	1	2	0 - 2
GRIZZLY Lake	1	2	1					1														0 - 2
HELEN Lake								1	2	1	2	1	1	1	1	1	2	2	1	1		0 - 2
HIDDEN Lake	2	1	1	1	1							1	1									0 - 2
KHTADA Lake	1					1	2	1		2	1	1	1	1	1	1	1	1				0 - 2
KUNGER Lake		1	1					2	2	2	2	1	1	1	1	1	1	1	2	1	1	0 - 2
MCBRIDE Lake	2								1			1										0 - 2
MITTEN Lake		1	2											1								0 - 2
MORICE Lake	1	1	1		1	2		1	1	1	1	2	1	2	2	2	2	1	1	1		0 - 2
MORRISON Lake	1	1	1	1		1	1	1	1	1	1	1	2	1	1		1		1			0 - 2
NANIKA Lake	2	2	1	1	2						1											0 - 2
NILKITWA Lake											2				1	1	1	1		1		0 - 2
SHEA Lake	2																					0 - 2
VALLEE Lake								1	2	2	1	1										0 - 2
ATNA Lake					1					1	1								1			0 - 1
BILL NYE Lake								1														0 - 1
BURNIE Lake			1		1	1	1	1	1	1	1	1	1									0 - 1
CANYON Lake		1	1		1				1		1											0 - 1
CHAPMAN Lake		1	1							1												0 - 1
CHARLOTTE Lake					1																	0 - 1
CHISHOLM Lake		1																				0 - 1
DAMSHILGWIT Lake		1																				0 - 1
DUNALTER Lake		1	1					1		1	1	1										0 - 1
DUTI (S) Lake						1		1							1	1	1					0 - 1
FISHPAN Lake	1		1	1	1	1	1															0 - 1
FLATFISH Lake		1	1																			0 - 1
FOOTSORE Lake												1										0 - 1
FRY PAN Lake	1	1						1		1	1											0 - 1
FULTON Lake			1							1												0 - 1
GILMORE Lake															1							0 - 1
GUNANOOT Lake			1		1																	0 - 1
HELENE Lake						1	1		1													0 - 1
HODDER Lake								1				1										0 - 1
HOLLAND Lake	1	1	1			1																0 - 1
JOHNSTON Lake													1									0 - 1
KIDPRICE Lake	1	1		1	1					1		1										0 - 1
KITWANCOOL Lake											1			1		1						0 - 1
KLATE Lake										1												0 - 1
KLUAYAZ Lake								1														0 - 1
MCDONELL Lake			1												1							0 - 1
MOOSESKIN JOHNNY Lake			1		1	1	1	1	1	1	1	1	1	1	1	1	1					0 - 1
MUDDY Lake	1						1															0 - 1
NETALZUL Lake											1	1						1				0 - 1
NEZ Lake	1	1	1				1	1	1	1	1	1	1	1	1	1						0 - 1
ONERKA Lake										1												0 - 1
OWEN Lake			1										1									0 - 1
PEANUT Lake												1										0 - 1
PINE TREE Lake		1											1									0 - 1
ROBINSON Lake		1																				0 - 1
ROUND Lake		1																				0 - 1
SAIYA Lake					1																	0 - 1
SECRET Lake											1	1	1		1	1	1			1		0 - 1
SEELEY Lake													1									0 - 1
SILVERTHORNE Lake	1	1	1					1	1	1	1	1										0 - 1
SKINHEAD Lake					1					1	1											0 - 1
SLAMGEESE Lake	1	1	1						1													0 - 1
SOUTH SADDLE Lake			1	1	1	1	1	1	1	1	1	1	1	1			1		1			0 - 1
STEPHENS Lake		1			1																	0 - 1
SUNSET Lake								1	1													0 - 1
SWAMP Lake				1																		0 - 1
TAHLO Lake													1									0 - 1
TALTAPIN Lake	1	1	1			1	1	1	1													0 - 1
TOUHY Lake												1										0 - 1
TYHEE Lake		1								1												0 - 1
TZAHNY Lake	1	1	1																			0 - 1
WILLIAMS Lake					1																	0 - 1
WILSON Lake									1				1	1								0 - 1

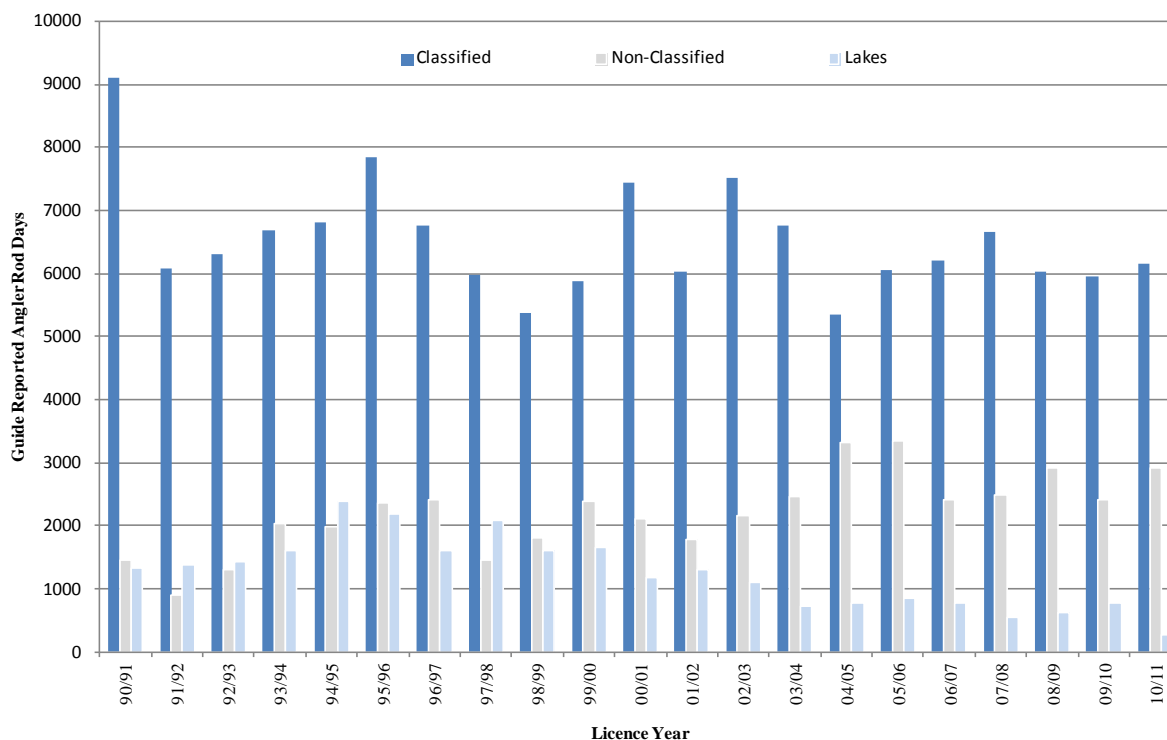
Table 6 (cont.).

Lakes	Angling Guides	21 year Trend				10 year Trend				5 year Trend			
	21 Year Range	Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),1,9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),1,4}$	P	Since 2006/2007
KITSUMKALUM Lake	0 - 4	0.02	0.2380	0.6309	-	-0.27	7.1837	0.0252	Decreasing	-0.40	4.0000	0.1161	-
LAKELSE Lake	0 - 4	0.01	0.0890	0.7686	-	-0.31	6.9919	0.0267	Decreasing	0.00			-
SWAN Lake	0 - 3	-0.14	21.5325	0.0002	Decreasing	0.00			-	0.00			-
BARRETT Lake	0 - 2	0.08	16.2411	0.0007	Increasing	-0.01	0.0270	0.8731	-	-0.30	1.4211	0.2991	-
BEAR Lake	0 - 2	-0.05	9.7885	0.0053	Decreasing	0.00			-	0.00			-
DUIT (N) Lake	0 - 2	0.06	10.0250	0.0049	Increasing	0.08	1.7157	0.2227	-	0.30	2.4545	0.1922	-
GRIZZLY Lake	0 - 2	-0.05	9.7885	0.0053	Decreasing	0.00			-	0.00			-
HELEN Lake	0 - 2	0.06	7.7194	0.0116	Increasing	-0.03	0.2146	0.6542	-	-0.50	25.0000	0.0075	Decreasing
HIDDEN Lake	0 - 2	-0.06	13.3481	0.0016	Decreasing	-0.10	7.5294	0.0227	Decreasing	0.00			-
KHTADA Lake	0 - 2	0.00	0.0000	1.0000	-	-0.13	14.0000	0.0046	Decreasing	-0.30	9.0000	0.0399	Decreasing
MORICE Lake	0 - 2	0.02	0.6706	0.4225	-	-0.16	6.9691	0.0269	Decreasing	-0.40	12.0000	0.0257	Decreasing
MORRISON Lake	0 - 2	-0.03	2.8682	0.1059	-	-0.15	6.8681	0.0278	Decreasing	-0.20	1.5000	0.2879	-
NANIKA Lake	0 - 2	-0.08	18.4328	0.0004	Decreasing	0.00			-	0.00			-
NILKTIWA Lake	0 - 2	0.04	4.3762	0.0494	Increasing	0.04	0.5052	0.4952	-	-0.20	1.5000	0.2879	-
BURNIE Lake	0 - 1	-0.03	3.8257	0.0646	-	-0.10	7.5294	0.0227	Decreasing	0.00			-
CANYON Lake	0 - 1	-0.03	5.1444	0.0346	Decreasing	0.00			-	0.00			-
FISHPAN Lake	0 - 1	-0.05	17.8824	0.0004	Decreasing	0.00			-	0.00			-
FLATFISH Lake	0 - 1	-0.02	4.9722	0.0374	Decreasing	0.00			-	0.00			-
HOLLAND Lake	0 - 1	-0.04	13.2414	0.0016	Decreasing	0.00			-	0.00			-
KIDPRICE Lake	0 - 1	-0.04	8.5483	0.0084	Decreasing	-0.05	3.0000	0.1173	-	0.00			-
MOOSESKIN JOHNNY Lake	0 - 1	-0.01	0.3445	0.5638	-	-0.15	21.3333	0.0013	Decreasing	-0.20	3.0000	0.1583	-
NEZ Lake	0 - 1	-0.03	2.7621	0.1121	-	-0.15	25.0000	0.0007	Decreasing	0.00			-
SECRET Lake	0 - 1	0.04	4.8357	0.0398	Increasing	-0.07	1.7778	0.2152	-	-0.10	0.2727	0.6291	-
SILVERTHORNE Lake	0 - 1	-0.04	6.9751	0.0157	Decreasing	-0.05	3.0000	0.1173	-	0.00			-
SLAMGEESH Lake	0 - 1	-0.04	9.6706	0.0055	Decreasing	0.00			-	0.00			-
TALTAPIN Lake	0 - 1	-0.05	16.7016	0.0006	Decreasing	0.00			-	0.00			-
TZAHNY Lake	0 - 1	-0.04	11.0719	0.0034	Decreasing	0.00			-	0.00			-

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

4.2 ANGLING GUIDE ACTIVITY

The total number of angler days reported by angling guides for classified waters (Class I or Class II status), non-classified 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, but shows an increasing 21 year trend (Figure 3) due to the low numbers of guided angler rod days reported back in the early 90's. Interestingly, the total numbers of guided angler rod days reported for lakes since 2004 shows low guided angling activities on lakes in the Skeena watershed with the lowest number (i.e. only 270) reported in 2010/2011 and linear regression analyses indicate decreasing 21 year and 10 year trends (Figure 3). 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.



	Angler Days		21 year Trend				10 year Trend				5 year Trend			
	21 Year Range		Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),1,9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),1,4}$	P	Since 2006/2007
Classified Waters	5358 - 9106		-57.36	3.7394	0.0674	-	-56.72	0.7638	0.4049	-	-81.80	0.8130	0.4182	-
Non-Classified Waters	892 - 3350		76.18	23.8821	0.0001	Increasing	65.21	1.4790	0.2549	-	92.20	1.3921	0.3034	-
Lakes	270 - 2375		-71.18	29.3353	0.0000	Decreasing	-77.22	17.4152	0.0024	Decreasing	-77.10	1.5681	0.2787	-
Combined	8323 - 12371		-52.37	2.1443	0.1586	-	-68.73	1.5000	0.2518	-	-66.70	0.9348	0.3884	-

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 with summary of 21 year, 10 year, and five year trends.

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 2009b) on the Kispiox River in the 1999/2000, 2000/2001 and 2010/2011 licence years (Table 7). The number of guided angler rod days for Babine River (i.e. below Nilkitkwa Lake) also appears near its maximum allotment (CAP) based on annual totals exceeding 95% of its CAP in the 1996/1997, 1997/1998, 2000/2001 and 2010/2011 licence years. 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 2009b). For the reported angler days on Lakelse River, five of the seven anglers in 1999/2000 were reported in the comments field to be “on their own”, thus not guided. Some of the notable trends identified with respect to the number of guided angler rod days reported at the various classified rivers in the Skeena watershed (Table 7) include:

- decreasing annual totals for Skeena River 2, and the Gitnadoix River, and
- increasing annual totals for the Bulkley, Kitsumkalum, Sustut, Kispiox, upper Skeena 4, upper Zymoetz 1, and Kluatantan rivers.

Table 7. Guide reported angler days for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

Classified Water	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	
SKEENA River 2	4052	2418	3118	2879	2531	3276	2110	1562	614	1079	2093	1991	2034	1567	1166	1078	1387	586 - 4052
Babine River	1706	1526	1397	1386	1567	1704	1722	1714	1671	1694	1785	1281	1625	1604	1413	1456	1528	1281 - 1785
BULKLEY River	973	418	544	822	1097	1124	1120	1047	1146	947	1394	929	1196	534	667	1225	726	418 - 1394
SKEENA River (Classified)													865	1113	33	38	6	0 - 1113
Kitsumkalum River	667	259	420	344	397	412	499	415	512	374	434	378	484	200	320	406	649	200 - 789
SUSTUT River	403	452	290	301	366	358	373	400	495	564	615	708	598	613	659	712	682	290 - 712
KISPIOX River	221	334	134	273	208	318	244	235	350	404	406	255	337	322	387	391	342	134 - 414
MORICE River	390	350	100	256	357	275	308	282	305	374	406	50	52	411	339	331	289	35 - 411
SKEENA River 4	272	157	105	193	59	148	144	117	107	158	173	197	165	137	162	195	312	59 - 330
ZYMOETZ River 1	195	8		3	8	12	16	17	23	30	26	41	39	57	76	86	106	0 - 195
ZYMOETZ River 2	47	10	1	31	35	63	59	99	80	181	75	119	90	56	38	33	69	1 - 181
GITNADOIX River A	132	76	92	64	20	19	25	19	12	28		26	25	23				0 - 132
ECSTALL River	40	31	98	91	117	119	132	80	49	37	21	54	4	108	69	90	72	4 - 132
KLUATANTAN River	8	26		34	35	17									24	16	35	0 - 54
CLORE River											22				2			0 - 22
LAKELSE River									7						3	3		0 - 7
NANGESE River																	6	0 - 6
SWEETIN River																	6	0 - 6
KITWANGA River									4	3								0 - 4
Combined	9106	6065	6299	6677	6797	7845	6752	5987	5368	5880	7450	6029	7514	6745	5358	6060	6203	5358 - 9106

Classified Water	Angler Days		21 year Trend				10 year Trend				5 year Trend			
	21 Year Range		Slope of Linear Regression	F _{0.05(1),20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),4}	P	Since 2006/2007
SKEENA River 2	586	- 4052	-121.48	34.7962	0.0000	Decreasing	-135.85	26.4315	0.0006	Decreasing	-208.40	14.4915	0.0190	Decreasing
BULKLEY River	418	- 1394	14.80	2.3467	0.1412	-	43.55	2.1336	0.1781	-	153.00	11.0903	0.0291	Increasing
Kitsumkalum River	200	- 789	9.17	3.3307	0.0830	-	40.27	6.5091	0.0311	Increasing	-17.00	0.2019	0.6764	-
SUSTUT River	290	- 712	20.94	65.2042	0.0000	Increasing	4.23	0.7718	0.4025	-	12.50	1.2366	0.3285	-
KISPIOX River	134	- 414	8.59	16.7107	0.0006	Increasing	10.22	5.7057	0.0406	Increasing	7.40	0.3564	0.5827	-
SKEENA River 4	59	- 330	5.63	5.7298	0.0266	Increasing	12.79	3.0226	0.1161	-	-11.00	0.1544	0.7144	-
ZYMOETZ River 1	0	- 195	3.21	3.8262	0.0646	-	6.84	18.9858	0.0018	Increasing	0.00	0.0000	1.0000	-
GITNADOIX River A	0	- 132	-4.14	22.8985	0.0001	Decreasing	-1.75	2.1054	0.1807	-	4.30	5.9581	0.0711	-
KLUATANTAN River	0	- 54	1.23	3.8187	0.0648	-	5.40	13.0851	0.0056	Increasing	-2.30	0.2694	0.6311	-
Combined	5358	- 9106	-57.36	3.7394	0.0674	-	-56.72	0.7638	0.4049	-	-81.80	0.8130	0.4182	-

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

4.2.2 Non-classified Waters

No limits to the number of guided angler rod 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 2009b), but an increasing trend of the annual total number of guided angler days in all non-classified rivers in the Skeena watershed is evident (see Figure 3). 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 reported during non-classified timing windows in the Skeena watershed. Although variable since the initiation of AGMS in 1990/1991, guided angler rod days in non-classified waters have also exceeded 100 angler days at the lower Zymoetz, Kasiks, Sustut, Bulkley, and Nanika rivers. Some of the notable trends identified with respect to the number of guided angler rod days reported at the various non-classified rivers in the Skeena watershed (Table 8) include:

- decreasing annual totals during non-classified timing windows for the Bulkley, Kispiox, Exchamsiks, Fulton, Khyex rivers, and Morrison Creek, and
- increasing annual totals during non-classified timing windows for the Skeena 3, lower Zymoetz, upper Zymoetz, Zymagotitz, Nilkitkwa, Extsew, Sicintine rivers, and Gamble, Williams, Kleanza and Kuldo creeks.

Table 8. Guide reported angler days for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Angler Days / Licence Year																						
Non-Classified Water	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	08/09	09/10	10/11	RANGE	
SKEENA River 3	630	118	529	1167	981	1207	1335	404	1042	1312	1127	644	795	925	1152	877	1213	1221	1370	928	1334	118 - 1370	
SKEENA (Non-Classified)													63	48	764	1213	197	108	203	249	143	0 - 1213	
ZYMOETZ River 2	18	4	23	21	11	101	35	6	28	74	55	237	272	207	273	175	167	249	519	379	362	4 - 519	
SKEENA River 1	325	208	133	112	188	244	205	358	201	214	243	159	178	369	343	478	248	279	52	92	296	52 - 478	
KASIKS River	40	39	163	172	254	302	295	144	48	69	132	124	156	67	130	143	106	173	123	141	154	39 - 302	
BABINE River 1	55	24	28	99	75	130	225	214	201	235	218	223	187	165	145	159		55	180	110	101	0 - 235	
SUSTUT River	83	137	154	111	108	45	166	64	2	178	51	59	155	202	62	42	34	42	47	34	48	2 - 202	
BULKLEY River	97	115	54	99	74	43	32	122	101	10	34	76	55	71	53	31	59	71	57	38	39	10 - 122	
NANIKA River								83	68	101	30	16		33	36	35	31		46	39		0 - 101	
SKEENA River 2	98	27		80	101	52	12	13	38	89	93	57	34	53	93	37	49	59	90	33	51	0 - 101	
KISPIOX River	59	97	35	99	35	27	14	5	31	44		19	16					17	66	28	24	0 - 99	
GAMBLE Creek																	97	32		10	38	0 - 97	
EXCHAMSIKS River	18	56	92	23	30	82	55		24	20	10	66	80	84	56	35	49	58	8	14	50	0 - 92	
ZYMOETZ River 1	2			3			2			6		1	27	17	62	51	92	14	31	79	92	0 - 92	
ZYMAGOTITZ River	3		7	11	14	45				6	1	23	84	87	51	22	23	41	26	66	66	0 - 87	
MORICE River		2	6	4	4	1				12	32	21	15	76	16	13	14	16	12	12		0 - 76	
NILKITKWA River													20	12				19	32	71	14	0 - 71	
MORRISON Creek	16	25	54	30	33	10	14	16	13	9	16	10	15	17	4				3			0 - 54	
DUTI River																				52		0 - 52	
EXSTEW River					24		9			3		18		4	51	7	18	17	16	17	21	0 - 51	
Babine River																					36	0 - 36	
FULTON River		31	3		21	10	10	12		8	4	13	4	6		8						0 - 31	
SKEENA River 4	2	2	3	12	28	13		1			13				3		6	2	2	3	2	0 - 28	
WILLIAMS Creek							1			3		4	3	6	15	10	1	6	7	1	4	0 - 15	
CLORE River											14							2				0 - 14	
FIDDLER Creek											12											0 - 12	
KLEANZA Creek						9					5	6				6	5	3	6	12	6	0 - 12	
OLIVER Creek						12																0 - 12	
SICINTINE River																		2	2		12	0 - 12	
SLAMGEESH River			4																2		12	0 - 12	
BURNIE River					4			4	6		11											0 - 11	
GOAT Creek														11	7							0 - 11	
KHYEX River	7	6				3	9						5				2	2				0 - 9	
CEDAR River						8						1										0 - 8	
PINKUT Creek															8							0 - 8	
HOWSON Creek						2			6		1											0 - 6	
KULDO Creek																1			2	2	6	0 - 6	
ARDEN Creek																				3		0 - 3	
SCOTIA River													2				2					0 - 2	
SQUINGULA River																					2	0 - 2	
CLIFFORD Creek																				1		0 - 1	
SHEGUNIA River		1																				0 - 1	
Combined	1453	892	1288	2043	1981	2350	2419	1446	1809	2393	2102	1777	2166	2449	3328	3350	2413	2490	2902	2412	2913	892 - 3350	

Non-Classified Water	Angler Days		21 year Trend				10 year Trend				5 year Trend			
	21 Year Range		Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),9,9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),4,4}$	P	Since 2006/2007
SKEENA River 3	118	- 1370	27.07	6.0796	0.0228	Increasing	60.05	9.8417	0.0120	Increasing	-5.10	0.0065	0.9397	-
SKEENA (Non-Classified)	0	- 1213	21.59	4.6983	0.0424	Increasing	2.30	0.0026	0.9604	-	3.30	0.0272	0.8771	-
ZYMOETZ River 2	4	- 519	20.64	54.7503	0.0000	Increasing	20.33	3.8172	0.0825	-	52.00	1.7986	0.2510	-
BULKLEY River	10	- 122	-2.19	4.9215	0.0383	Decreasing	-2.67	3.1054	0.1119	-	-7.30	6.0580	0.0696	-
KISPIOX River	0	- 99	-2.30	5.7214	0.0267	Decreasing	3.09	2.1419	0.1774	-	5.90	0.5191	0.5111	-
GAMBLE Creek	0	- 97	1.66	4.7996	0.0405	Increasing	3.67	1.1472	0.3120	-	-14.00	1.5675	0.2788	-
EXCHAMSIKS River	0	- 92	-0.25	0.0591	0.8104	-	-5.85	7.8815	0.0205	Decreasing	-4.20	0.2727	0.6291	-
ZYMOETZ River 1	0	- 92	4.00	27.3568	0.0000	Increasing	6.97	5.2846	0.0471	Increasing	6.50	0.2571	0.6388	-
ZYMAGOTITZ River	0	- 87	2.82	11.2985	0.0031	Increasing	-0.44	0.0219	0.8857	-	11.10	7.2605	0.0544	-
NILKITKWA River	0	- 71	1.62	10.0167	0.0049	Increasing	3.88	3.2007	0.1072	-	8.00	0.8411	0.4110	-
MORRISON Creek	0	- 54	-1.67	27.4934	0.0000	Decreasing	-1.68	11.1793	0.0086	Decreasing	0.00	0.0000	1.0000	-
EXSTEW River	0	- 51	1.04	6.6067	0.0183	Increasing	0.70	0.1894	0.6737	-	0.60	0.9643	0.3817	-
FULTON River	0	- 31	-0.63	5.7174	0.0267	Decreasing	-1.11	9.2870	0.0138	Decreasing	0.00			-
WILLIAMS Creek	0	- 15	0.37	9.1689	0.0066	Increasing	-0.27	0.3108	0.5908	-	0.10	0.0098	0.9260	-
KLEANZA Creek	0	- 12	0.34	9.0564	0.0069	Increasing	0.74	4.3318	0.0671	-	1.10	1.0967	0.3541	-
SICINTINE River	0	- 12	0.19	5.0204	0.0366	Increasing	0.75	4.6707	0.0590	-	2.20	2.7710	0.1713	-
KHYEX River	0	- 9	-0.18	3.7287	0.0678	-	-0.16	0.7788	0.4005	-	-0.60	9.0000	0.0399	Decreasing
KULDO Creek	0	- 6	0.12	8.0929	0.0100	Increasing	0.42	6.2480	0.0339	Increasing	1.00	2.1429	0.2171	-
Combined	892	- 3350	76.18	23.8821	0.0001	Increasing	65.21	1.4790	0.2549	-	92.20	1.3921	0.3034	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

4.2.3 Lakes

Babine River 2 (i.e. Nilkitkwa Lake/Rainbow Alley) is grouped with lakes and has consistently had the most reported guided angler rod days for lakes in the Skeena watershed (142 -1511 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 per year, respectively. For the 2010/2011 licence year, the lowest number of guided angler rod days was reported (i.e. 270) since the initiation of AGMS in 1990/1991, with activities only reported at Babine R2/Nilkitkwa/Rainbow Alley, North Duti, and Klinger lakes. Several decreasing trends with respect to the annual totals of guided angler rod days reported at the various classified rivers in the Skeena watershed are presented in Table 9, and no increases have been identified. Overall, it appears that angling guide activity is either declining or becoming less well reported in the Skeena watershed.

Table 9. Guide reported angler days for **Lakes** in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

Lake	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	
BABINE/Rainbow Alley	895	823	818	1122	993	954	920	1511	671	1032	608	603	547	142	258	336	355	142 - 1511
BABINE Lake	44	99	61	98	817	718	128	92	551	102	109	110	78	61	50	41	26	26 - 817
KHTADA Lake	4					302	371	191		196	179	317	160	157	131	158	190	0 - 371
SWAN Lake	147	127	128	194	234													0 - 234
NUKUTWA Lake											22					4	19	0 - 191
DUTI (S) Lake						16		6								149	120	0 - 149
DUTI (N) Lake					88	5			60		11	40			146	12	8	0 - 146
MORICE Lake	12	4	2		4	10		85	77	97	45	19	31	49	34	37	35	0 - 97
SOUTH SADDLE Lake			7	83	37	39	40	8	32	11	32	20	21	11		6		0 - 83
KITSUMKALUM Lake		15	8		5	18	14	22	20	12	79	65			6		1	0 - 79
MORRISON Lake	40	28	79	53		27	17	25	38	16	14	23	29	28	4		16	0 - 79
MOOSESKIN JOHNNY Lake			76		59	46	47	46	48	41	47	44	45	26	43	49	36	0 - 76
NANIKA Lake	27	40	4	18	57						11							0 - 57
ROSS Lake		20	44					2	2						4			0 - 44
DUNALTER Lake	4	36	18							4	2	5						0 - 36
NEZ Lake	22	30	28				36	22	4	6	8	18	10	7	16	18		0 - 36
FISHPAN Lake	28		22	9	13	2	2											0 - 28
KLINGER Lake		13	6					13	9	8	2	3	18	9	18	9	6	0 - 28
ATNA Lake					3					26	2							0 - 26
GRIZZLY Lake	6	25	2					4										0 - 25
BARRETT Lake								14	24	20	6	5	6	3	8	2	3	0 - 24
BURNIE Lake			23		16	18	16	19	14	5	15	12	4					0 - 23
DUCKWING Lake		6		18				7										0 - 18
LAKESE Lake				4	9	18	3	7	18		5	17	4	14	11			0 - 18
HELEN Lake							1	16	8	8	3	8	2	4	9	10	5	0 - 16
HIDDEN Lake	13	6	16	6	8						11	14					4	0 - 16
BEAR Lake	7		15	2			9											0 - 15
MITTEN Lake		15	15											3				0 - 15
HOLLAND Lake	14	2	2		2													0 - 14
SAUNGESHI Lake	4	10	3						14									0 - 14
SHEA Lake	13																	0 - 13
TZAHNY Lake	6	13	6															0 - 13
FLATFISH Lake		3	12															0 - 12
FRY PAN Lake	12	3						5		2	2							0 - 12
KLUWAZ Lake								12										0 - 12
NETALZUL Lake											6	12					2	0 - 12
OWEN Lake			6										12					0 - 12
SECRET Lake											2	12	2		6	8	11	0 - 12
SILVERTHORNE Lake	10	12	2					2	2	4	1	1						0 - 12
CANYON Lake			3		2				4		8							0 - 8
GUNANOOT Lake			6		8													0 - 8
KIDPRICE Lake	4	2		6	8					4		4						0 - 8
MCDONELL Lake			7												8			0 - 8
MCBRIDE Lake	7								6			6						0 - 7
PINE TREE Lake		1											7					0 - 7
VALLEE Lake								2	7	6	1	3						0 - 7
CHAPMAN Lake		3	6							2								0 - 6
FOOTSORE Lake												6						0 - 6
HELENE Lake						6	3		4									0 - 6
ONEREA Lake										6								0 - 6
ROBINSON Lake		6																0 - 6
ROUND Lake		6																0 - 6
TALTAPIN Lake	5	4	2			3	3	6	2									0 - 6
TYHEE Lake		6								1								0 - 6
WILSON Lake									4				2	6				0 - 6
CHARLOTTE Lake					5													0 - 5
KITWANCOOL Lake											2			2		5		0 - 5
SAIYA Lake					5													0 - 5
FULTON Lake			1							4								0 - 4
GILMORE Lake															4			0 - 4
MUDDY Lake	4						2											0 - 4
PEANUT Lake												4						0 - 4
SKINHEAD Lake					4					2	1							0 - 4
STEPHENS Lake		3			4													0 - 4
SUNSET Lake								2	4									0 - 4
TAHO Lake													4					0 - 4
CHISHOLM Lake		3																0 - 3
TOUHY Lake												3						0 - 3
BILL NYE Lake								2										0 - 2
HODDER Lake									2			2						0 - 2
JOHNSTON Lake													2					0 - 2
SEELEY Lake													2					0 - 2
SWAMP Lake				2														0 - 2
DAMSHILGWIT Lake		1								1								0 - 1
KLATE Lake																		0 - 1
WILLIAMS Lake					1													0 - 1
Combined	1324	1366	1428	1611	2375	2176	1612	2094	1602	1644	1164	1303	1098	721	773	838	769	270 - 2375

Lake	Angler Days		21 year Trend				10 year Trend				5 year Trend			
	21 Year Range		Slope of Linear Regression	F _{0.05(1,1,20)}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1,1,9)}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1,1,4)}	P	Since 2006/2007
BABINE/Rainbow Alley	142	- 1511	-44.69	27.4945	0.0000	Decreasing	-20.25	1.6485	0.2312	-	-20.30	0.3408	0.5907	-
KHTADA Lake	0	- 371	1.18	0.0708	0.7929	-	-27.75	17.5438	0.0023	Decreasing	-51.00	6.9732	0.0575	-
SWAN Lake	0	- 234	-8.31	16.6920	0.0006	Decreasing	0.00			-	0.00			-
SOUTH SADDLE Lake	0	- 83	-1.51	4.7268	0.0419	Decreasing	-2.22	13.7560	0.0049	Decreasing	-1.20	3.3750	0.1401	-
MORRISON Lake	0	- 79	-2.16	15.5100	0.0008	Decreasing	-2.98	10.0015	0.0115	Decreasing	-3.20	2.3851	0.1974	-
MOOSESKIN JOHNNY Lake	0	- 76	-1.05	1.4829	0.2375	-	-5.96	17.3526	0.0024	Decreasing	-7.20	3.0000	0.1583	-
NANIKA Lake	0	- 57	-1.47	9.8250	0.0052	Decreasing	0.00			-	0.00			-
DUNALTER Lake	0	- 36	-0.61	4.7400	0.0416	Decreasing	-0.27	3.0000	0.1173	-	0.00			-
NEZ Lake	0	- 36	-0.94	6.4092	0.0198	Decreasing	-2.02	11.1603	0.0087	Decreasing	0.00			-
FISHPAN Lake	0	- 28	-0.80	12.2841	0.0022	Decreasing	0.00			-	0.00			-
GRIZZLY Lake	0	- 25	-0.41	4.9479	0.0378	Decreasing	0.00			-	0.00			-
BURNIE Lake	0	- 23	-0.65	6.0158	0.0235	Decreasing	-0.82	5.7228	0.0404	Decreasing	0.00			-
LAKESE Lake	0	- 18	-0.03	0.0113	0.9164	-	-1.44	6.2839	0.0335	Decreasing	0.00			-
HIDDEN Lake	0	- 16	-0.47	7.2884	0.0138	Decreasing	-1.19	6.8725	0.0277	Decreasing	0.00			-
BEAR Lake	0	- 15	-0.31	6.1174	0.0225	Decreasing	0.00			-	0.00			-
MITTEN Lake	0	- 15	-0.32	4.5450	0.0456	Decreasing	-0.09	0.7353	0.4134	-	0.00			-
HOLLAND Lake	0	- 14	-0.24	5.7621	0.0262	Decreasing	0.00			-	0.00			-
TZAHNY Lake	0	- 13	-0.29	8.5860	0.0083	Decreasing	0.00			-	0.00			-
FRY PAN Lake	0	- 12	-0.21	5.3677	0.0312	Decreasing	0.00			-	0.00			-
SILVERTHORNE Lake	0	- 12	-0.31	9.4927	0.0059	Decreasing	-0.05	3.0000	0.1173	-	0.00			-
KIDPRICE Lake	0	- 8	-0.19	6.2687	0.0211	Decreasing	-0.22	3.0000	0.1173	-	0.00			-
TALTAPIN Lake	0	- 6	-0.20	12.8964	0.0018	Decreasing	0.00			-	0.00			-
Combined	270	- 2375	-71.18	29.3353	0.0000	Decreasing	-77.22	17.4152	0.0024	Decreasing	-77.10	1.5681	0.2787	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends (P < 0.05) are presented below the annual summary.

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 2011 are summarized in tables 10, 11, and 12. The annually reported steelhead catch by guided anglers (i.e. 1777 – 9705 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. Some of the notable trends identified with respect to the annual catch reported for individual species at classified, non-classified, and lake locations in the Skeena watershed (Tables 10, 11, and 12) include:

- decreasing annual catch of chinook and increasing annual catch of steelhead, pink, sockeye, and chum salmon, and bull trout for classified waters (Table 10),
- decreasing annual catch of lake trout, increasing annual catch of coho, pink salmon, steelhead and bull trout, and no significant change of annual catch of rainbow trout for non-classified rivers (Table 11), and
- decreasing annual catch of cutthroat trout, lake trout, steelhead and kokanee, increasing annual catch of burbot, and no significant change in annual catch of rainbow trout for lakes (Table 12).

The distribution of species reported by angling guides used to indicate target species at the different locations from the 1990/1991 to 2010/2011 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 omitted or grouped by genus (e.g. mountain, lake and “general” whitefish were grouped) for this presentation. It is also noteworthy that bull trout 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 reported annual 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 *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Catch / Licence Year for Classified Waters																					
Species	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	08/09	09/10	10/11	Range
Steelhead	4128	1777	3534	4507	5103	5212	4720	5280	7220	6209	7923	5097	7597	4853	5608	5514	4840	4050	6330	5673	9705	1777 - 9705
Pink salmon	929	574	570	162	42	328	546	107	24	114	184	615	579	1990	755	1381	214	2655	633	4765	587	24 - 4765
Chinook salmon	1268	1011	1280	1340	821	784	661	597	485	696	1079	1875	1159	772	467	536	740	414	672	574	455	414 - 1875
Coho salmon	1033	912	417	552	543	579	566	143	195	465	321	641	739	860	144	398	246	462	623	1532	351	143 - 1532
Sockeye salmon	5	23	20	51	14	2	68	187	3	5	351	309	218	91	118	206	713	1168	768	371	56	2 - 1168
Trout (general)									494					1	2		2					0 - 494
Species not identified													8	368	15	3		21	101	62	6	0 - 368
Bull trout											8	1	49	34	104	165	222	161	137	163	140	0 - 222
Cutthroat trout	70	64	16	17	2	8	12	68	71	157	107	24	28	35	11	13	53	17	54	26	21	2 - 157
Dolly Varden	103	68	27	51	46	63	36	81	97	143	140	35	71	25	49	61	92	8	34	17	20	8 - 143
Rainbow trout	32	4	3	1	7	20	3	25	26	9	2	3	10	14	28	5	9	3	7	24	4	1 - 32
Chum salmon				1	1	2	3		2	3	2	3	24	5	8	3	4	13	2	9	15	0 - 24

	Annual Catch	21 year Trend				10 year Trend				5 year Trend			
Classified Water	21 Year Range	Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),1,9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),1,4}	P	Since 2006/2007
Steelhead	1777 - 9705	145.26	7.6242	0.0120	Increasing	182.07	1.0236	0.3381	-	1135.30	6.3075	0.0660	-
Pink salmon	24 - 4765	86.55	5.7906	0.0259	Increasing	162.41	1.1283	0.3158	-	285.60	0.1742	0.6979	-
Chinook salmon	414 - 1875	-29.69	6.0716	0.0229	Decreasing	-105.03	8.2400	0.0185	Decreasing	-41.00	0.8396	0.4114	-
Sockeye salmon	2 - 1168	30.27	11.1772	0.0032	Increasing	35.37	0.7553	0.4074	-	-211.10	5.0410	0.0881	-
Bull trout	0 - 222	10.21	43.9309	0.0000	Increasing	16.92	9.5335	0.0130	Increasing	-16.20	3.8353	0.1218	-
Chum salmon	0 - 24	0.56	9.4354	0.0060	Increasing	0.02	0.0009	0.9769	-	1.80	1.0474	0.3640	-

Note: Species are sorted in descending order of the maximums of each range and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 11. Guide reported catch of all species reported for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Catch / Licence Year for Non-Classified Waters																					
Species	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	08/09	09/10	10/11	Range
Rainbow trout	4118	3621	3979	4581	3544	3495	3126	6239	4887	6330	6097	3945	3109	1871	3194	3115	4578	1839	3588	3567	2588	1839 - 6330
Coho salmon	119	119	269	330	614	532	596	129	273	920	464	1361	1086	911	599	1709	672	650	819	1076	859	119 - 1709
Steelhead (Total)	91	15	64	377	390	431	588	449	962	1239	774	1102	1399	940	1340	1145	582	528	876	760	1420	15 - 1420
Pink salmon		315	61	163	9	108	204	32	13	213	74	302	62	413	380	1198	108	635	188	1084	769	0 - 1198
Chinook salmon	291	437	570	892	412	377	339	152	317	446	560	504	309	1002	679	838	547	166	540	284	613	152 - 1002
Cutthroat trout	20	186	52	588	97	17	25	6	538	27	834	111	95	130	93	319	585	323	46	325	535	6 - 834
Sockeye salmon	5	2	11	5	16	218	262	111	76		316	413	39	88	358	490	754	314	725	131	372	0 - 754
Unknown / Unrecorded				1										1	385	481	177					0 - 481
Dolly Varden	25	87	32	13	26	38	43	17	52	89	32	71	61	25	278	72	94	19	52	33	128	13 - 278
Species not identified													154	178		85		128	14	60	127	0 - 178
Bull trout											6	17	24	28	151	45	42	60	72	56	77	0 - 151
Trout (general)									15					87	93	118					12	0 - 118
Whitefish (general)	1			53	6	12	1			3			3		42	10				3		0 - 53
Rocky Mountain whitefish												3	30		8				1		1	0 - 30
Salmon (general)															27	8						0 - 27
Lake trout				1	24					18		2	9	4	2	3	2				1	0 - 24
Chum salmon						3	4	1	9		4		2	1	10	15	3	2	11	3	1	0 - 15
Kokanee														6								0 - 6
Burbot															2	5						0 - 5
Chinook salmon (jack)									5													0 - 5
Eastern Brook Trout																					5	0 - 5
Lake whitefish														3	1							0 - 3

	Annual Catch	21 year Trend				10 year Trend				5 year Trend			
Non-Classified Water	21 Year Range	Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),1,9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),1,4}	P	Since 2006/2007
Rainbow trout	1839 - 6330	-68.28	2.4753	0.1313	-	-18.33	0.0332	0.8595	-	-225.20	0.3902	0.5660	-
Coho salmon	119 - 1709	43.26	13.4106	0.0015	Increasing	-35.95	0.8666	0.3762	-	80.00	3.5723	0.1317	-
Steelhead (Total)	15 - 1420	48.69	17.2013	0.0005	Increasing	-29.88	0.6679	0.4349	-	190.80	7.5987	0.0510	-
Pink salmon	0 - 1198	35.08	12.4937	0.0021	Increasing	60.04	2.1178	0.1796	-	177.10	2.6665	0.1778	-
Sockeye salmon	0 - 754	24.87	15.0741	0.0009	Increasing	21.77	0.6255	0.4494	-	-94.70	1.3170	0.3151	-
Species not identified	0 - 178	5.31	8.1117	0.0099	Increasing	-0.22	0.0007	0.9791	-	18.60	0.9266	0.3903	-
Bull trout	0 - 151	4.55	21.1289	0.0002	Increasing	4.29	1.0254	0.3377	-	6.60	3.9890	0.1165	-
Lake trout	0 - 24	-0.12	0.2606	0.6153	-	-0.60	6.5275	0.0309	Decreasing	-0.20	0.4286	0.5484	-

Note: Species are sorted in descending order of the maximums of each range and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 12. Guide reported catch of all species for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Catch / Licence Year for Lakes																					
Species	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	08/09	09/10	10/11	Range
Rainbow trout	447	789	671	1145	2728	2734	1415	1213	1891	932	1381	1472	478	772	1061	1357	1207	174	357	1095	269	174 - 2734
Cutthroat trout	619	567	906	85	348	332	288	269	524	293	780	759	209	120	220	212	134	31	14	118		0 - 906
Lake trout	270	234	170	203	413	60	184	136	158	184	119	78	23	115	72	64	99	18	17	20		0 - 413
Species not identified												10	338	133					36	39	4	0 - 338
Pink salmon			65		71							8	215		6			7				0 - 215
Dolly Varden	14	76	22	10	205	31	3	14	14	83	3				2	7	5					0 - 205
Coho salmon		21	21		2	2	26	1	46	35	42	1	77	158	23	52	3	9	29			0 - 158
Trout (general)									12						3	155						0 - 155
Eastern Brook Trout		2	4					25	14	9	6		4	2	19	11	8		117	4	3	0 - 117
Sockeye salmon		7	25		69			14			11	60	12	55	9		28	56	52			0 - 69
Steelhead						11		4	36			21	63	34		5						0 - 63
Chinook salmon	7	12		2	52			52	12				1	16								0 - 52
Bull trout											1					40						0 - 40
Kokanee				14					30	2		10	15	11	1							0 - 30
Burbot								2				7						10	13	28		0 - 28
Lake whitefish														4	2	12	3					0 - 12
Whitefish (eneral)		3								2			3									0 - 3

Lake	Annual Catch		21 year Trend				10 year Trend				5 year Trend			
	21 Year Range		Slope of Linear Regression	$F_{0.05(1,1),20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1,1),9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1,1),4}$	P	Since 2006/2007
Rainbow trout	174 - 2734		-38.14	2.4883	0.1304	-	-69.05	1.8983	0.2016	-	-95.50	0.3144	0.6049	-
Cutthroat trout	0 - 906		-26.64	11.7680	0.0026	Decreasing	-52.38	8.8760	0.0155	Decreasing	-18.10	0.8110	0.4187	-
Lake trout	0 - 413		-12.85	30.6332	0.0000	Decreasing	-8.12	4.8980	0.0542	-	-19.60	5.1699	0.0854	-
Steelhead	0 - 63		0.16	0.0679	0.7971	-	-4.88	7.4299	0.0234	Decreasing	0.00			-
Kokanee	0 - 30		-0.11	0.1405	0.7117	-	-1.53	13.3617	0.0053	Decreasing	0.00			-
Burbot	0 - 28		0.56	6.5290	0.0189	Increasing	1.38	2.0725	0.1838	-	1.80	0.1942	0.6822	-

Note: Species are sorted in descending order of the maximums of each range and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 13. Total catch from 1990/1991 to 2010/2011 licence years of each species reported by angling guides and presented to indicate target and by-catch species at various *classified waters* in the Skeena watershed.

Class I or Class II Waters	Total catch of each species reported from 1990/1991 to 2010/2011											
	ST	CH	CO	SK	PK	CT	DV	BT	RB	CM	WF	BB
BABINE River 1	48293	36	30	2			13		25			
BULKLEY River	25281	5	43		121	9	5		4			
CLORE River	21							3				
ECSTALL River	1	1699	64		1			2		2	2	
GITNADOIX River A			2181		12	22	5					
KISPIOX River	6542	5	422	4	101	278	199	9	43	3	17	
Kitsumkalum River	4008	3286	1860	10	300	337	459	968	94	5	30	0
KITWANGA River						128						
KLUATANTAN River	567	26	10				41		9			
LAKELSE River			47									
MORICE River	7542		25									
NANGESE River												
SKEENA River (Classified)	463	854	648	289	81							
SKEENA River 2	6035	11395	6001	3908	16796	89	160	27	5	90		
SKEENA River 4	2532	364	106	531	341	7	65	41	2			
SUSTUT River	7843	15	25	3	1		273	24	49		30	
SWEETIN River												
ZYMOETZ River 1	1917	1	107			1	17	52	1		1	1
ZYMOETZ River 2	2001		153			3	30	59	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.), BB (Burbot)

Table 14. Total catch from 1990/1991 to 2010/2011 licence years of each species reported by angling guides and presented to indicate target and by-catch species at various *non-classified waters* in the Skeena watershed.

Non-Classified Waters	Total catch of each species reported from 1990/1991 to 2010/2011													
	RB	ST	CH	CO	SK	PK	CT	DV	BT	CM	WF	LT	BB	KO
ARDEN Creek														
Babine River														
BABINE River 1	89	6472	48		274			1		4				
BULKLEY River	8	714	234	21		414	13	22	4				2	
BURNIE River							29							
CEDAR River		2												
CLIFFORD Creek														
CLORE River		40												
DUTI River	100	0												
EXCHAMSIKS River	4	13	30	1826	1		60	25	13					
EXSTEW River		13	1	599			4	117	103					
FIDDLER Creek		1		8			14							
FULTON River	386				20		185				3			6
GAMBLE Creek	104		20	3		23	854							
GOAT Creek				36										
HOWSON Creek							1	4						
KASIKS River	11	131	21	5429	1	71	342	73	12	1				
KHYEX River		30		9		1		1						
KISPIOX River	130	178	404	60	2	235	116	76		1				
KLEANZA Creek	43	20				3	9	2						
KULDO Creek		6		3										
MORICE River		137	17	2		30		20	2					
MORRISON Creek	1218													
NANIKA River	644	51	30	23				90	24		3	12		
NILKITKWA River	603						23					28		
OLIVER Creek							2	4		1				
PINKUT Creek	12													
SCOTIA River														
SHEGUNIA River						6								
SICINTINE River		11												
SKEENA River (Non-	3	623	999	1266	866	321	1	18		3				
SKEENA River 1	3	1973	831	2308	160	1515	82	206	18	11				
SKEENA River 2		261	249	322	1	40	85	51	131					
SKEENA River 3	5	1402	4587	1737	3169	3577	20	101	21	48			2	
SKEENA River 4		13	86				1	2						
SLAMGEESH River		9	5											
SQUINGULA River														
SUSTUT River	13	183	2179	3	4			113						
WILLIAMS Creek							302	3	16		1			
ZYMAGOTITZ River	2	302		269			15	61	38		1			
ZYMOETZ River 1	1	372	58	22	2	1	7	29	48					
ZYMOETZ River 2	12	2145	393	161	10	88		239	144		3		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 2010/2011 licence years of each species reported by angling guides and presented to indicate target and by-catch species at guided *lakes* in the Skeena watershed.

Lakes	Total catch of each species reported from 1990/1991 to 2010/2011													
	RB	CT	LT	CO	SK	PK	CH	DV	BT	EB	KO	ST	WF	BB
ATNA Lake	70		8					27						
BABINE R2/Rainbow Alley	78020	2787	26		196	6	83	29	3			287	125	
BABINE Lake	5905	130	1170	22	383	71	3				80	11	23	55
BARRETT Lake	241		16											
BEAR Lake	26	16	85											
BILL NYE Lake	20													
BURNIE Lake		217												
CANYON Lake	26		10					19						
CHAPMAN Lake	5	30												
CHARLOTTE Lake	19													
CHISHOLM Lake		11												
DAMSHILGWIT Lake				18				12						
DUCKWING Lake	173													
DUNALTER Lake	169	38												
DUTI (N) Lake	2002	8												
DUTI (S) Lake	1952													
FISHPAN Lake		635												
FLATFISH Lake		120												
FOOTSORE Lake		23												
FRY PAN Lake		155												
FULTON Lake	9		1											
GILMORE Lake	7													
GRIZZLY Lake		178												
GUNANOOT Lake	5													
HELEN Lake		263	9											
HELENE Lake	48													
HIDDEN Lake	8	35	12			65					3		3	
HODDER Lake		24												
HOLLAND Lake		250												
JOHNSTON Lake		3												
KHTADA Lake	3627	7												
KIDPRICE Lake	60							8						
KITSUMKALUM Lake		6		380	13		17	43				134		
KITWANCOOL Lake	32	184							30					
KLATE Lake		11												
KLINGER Lake	31									222				
KLUAYAZ Lake								5						
LAKELSE Lake	22	133		109		229		28						
MCBRIDE Lake		9	2											5
MCDONELL Lake		30												
MITTEN Lake	6	323												
MOOSESKIN JOHNNY Lake		2859												
MORICE Lake	1087	4	379	16	2	7	64	75	11			41	3	
MORRISON Lake	1376		196											
MUDDY Lake		45												
NANIKA Lake	359	0	3				51	32						
NETALZUL Lake		579												
NEZ Lake	882													
NILKITWA Lake	1257	104												
ONERKA Lake	114													
OWEN Lake	3		2											
PEANUT Lake		28												
PINE TREE Lake		59												
ROBINSON Lake	8													
ROSS Lake	87									6				
ROUND Lake														
SAIYA Lake														
SECRET Lake	860													
SEELEY Lake		3												
SHEA Lake		57												
SILVERTHORNE Lake	163													
SKINHEAD Lake	25													
SLAMGEESH Lake	63			1			19	64						
SOUTH SADDLE Lake	2505													
STEPHENS Lake		14		2										
SUNSET Lake	22													
SWAMP Lake	10													
SWAN Lake	103	46	703					153						
TAHLO Lake		20												
TALTAPIN Lake	56													
TOUHY Lake		90												
TYHEE Lake														
TZAHNNY Lake	103							6						
VALLEE Lake	7	81												
WILLIAMS Lake			17					17						
WILSON Lake	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 10.7% to 19.3% of total reported catch attributed to locations during non-classified timing windows from 2001/2002 to 2010/2011 compared to 0.9% to 7.7% from the 1990/1991 to 1995/1996 licence years. In the 2010/2011 licence year, the maximum numbers of steelhead since the initiation of AGMS were reported by angling guides at five classified waters in the Skeena watershed including the Bulkley, Upper Skeena 4, Kispiox, upper Zymoetz, and lower Zymoetz rivers. Some of the notable trends identified with respect to the annual catch of steelhead reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 16, 17, and 18) include:

- no decreasing annual catch of steelhead and increasing annual catch of steelhead for eight classified waters (Table 16) including the Bulkley, Sustut, upper Skeena 4, Kispiox, Kitsumkalum, upper Zymoetz, lower Zymoetz, and Kluatantan rivers for classified waters (Table 16),
- decreasing annual by-catch of steelhead for Skeena River 2 and increasing annual catch of steelhead for eight locations during non-classified timing windows including the lower Zymoetz, Skeena 3, Bulkley, upper Zymoetz, Zymagotitz, Sustut, Kasiks and Kleanza rivers for non-classified waters (Table 17),
- decreasing annual catch of steelhead of steelhead at Kitsumkalum Lake, and no steelhead reported by angling guides for any lakes since 2005/2006 (Table 18).

Table 16. Guide reported catch of steelhead for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Steelhead Catch / Licence Year																					
Classified Waters	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	08/09	09/10	10/11	RANGE
BABINE River 1	1895	904	1986	2039	2531	2330	2241	2351	3539	3139	3152	2162	3121	2174	2606	2411	1945	1388	2191	1524	2664	904 - 3539
BULKLEY River	757	188	728	1198	1105	1384	939	1476	1719	1110	1915	1086	2021	566	710	1170	1040	1035	1283	1600	2251	188 - 2251
SKEENA River 2	260	205	401	226	339	376	338	108	109	158	387	374	858	276	190	249	204	201	226	332	218	108 - 858
SUSTUT River	250	104	149	267	210	205	234	268	431	365	674	484	483	598	780	356	287	176	483	554	485	104 - 780
MORICE River	623	247	68	434	624	424	425	504	370	496	707	48	43	436	496	314	148	91	521	400	123	43 - 707
SKEENA River 4	72	10	17	58	5	20	29	71	115	51	72	104	120	103	128	108	239	169	143	312	586	5 - 586
KISPIOX River	90	94	156	219	178	249	271	256	502	415	567	238	406	299	343	309	236	284	428	420	582	90 - 582
Kitsumkalum River	72	19	28	56	85	170	128	81	166	217	262	272	120	53	112	298	346	406	513	146	432	19 - 513
ZYMOETZ River 1	101	1			7	11	30	46	43	91	59	119	117	140	143	143	153	93	213	181	226	0 - 226
ZYMOETZ River 2	6	3	1	10	19	41	85	119	217	167	117	210	170	56	26	32	119	126	159	94	224	1 - 224
SKEENA River (Classified)													138	152		4	10		131		28	0 - 152
KLUATANTAN River	2	2				2									60	114	105	82	86	114		0 - 114
KITSUMKALUM River C									8								18					0 - 18
CLORE River											11				10							0 - 11
ECSTALL River									1													0 - 1
Combined	4128	1777	3534	4507	5103	5212	4720	5280	7220	6209	7923	5097	7597	4853	5608	5514	4840	4051	6377	5677	7819	1777 - 7923

Classified Water	Reported Catch		21 year Trend				10 year Trend				5 year Trend			
	21 Year Range		Slope of Linear Regression	$F_{0.05(1,20)}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1,9)}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1,4)}$	P	Since 2006/2007
BULKLEY River	188 - 2251		34.31	4.1342	0.0555	-	72.53	1.6059	0.2369	-	298.70	19.1515	0.0119	Increasing
SUSTUT River	104 - 780		16.95	9.3055	0.0063	Increasing	-11.82	0.3814	0.5521	-	77.40	4.4026	0.1039	-
SKEENA River 4	5 - 586		15.64	23.3277	0.0001	Increasing	37.19	9.9387	0.0117	Increasing	83.70	3.6941	0.1270	-
KISPIOX River	90 - 582		14.52	13.6532	0.0014	Increasing	21.75	4.9617	0.0529	-	82.80	36.7172	0.0037	Increasing
Kitsumkalum River	19 - 513		17.01	23.2075	0.0001	Increasing	29.41	3.8318	0.0820	-	-8.80	0.0307	0.8693	-
ZYMOETZ River 1	0 - 226		9.96	57.6301	0.0000	Increasing	9.92	8.0873	0.0193	Increasing	23.40	2.8336	0.1676	-
ZYMOETZ River 2	1 - 224		6.69	8.2717	0.0093	Increasing	3.01	0.1369	0.7199	-	17.80	1.3766	0.3058	-
KLUATANTAN River	0 - 114		4.78	15.2918	0.0009	Increasing	7.79	2.1921	0.1729	-	-17.80	1.8939	0.2408	-
Combined	1777 - 7923		121.31	6.5418	0.0188	Increasing	80.81	0.3428	0.5726	-	758.40	6.5306	0.0629	-

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 17. Guide reported catch of steelhead for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

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	08/09	09/10	10/11		
BABINE River 1	34		3	165	303	189	430	419	612	859	420	416	448	330	567	524	160	198	126	269		0 - 859	
SKEENA River 1	14	7	14	10	2	23	2	12	46	191	91	168	399	304	75	200	73	48	4	8	282	2 - 399	
ZYMOETZ River 2	13		2	3	3	118	87	11	41	107	73	336	208	45	124	75	101	83	310	191	214	0 - 336	
SKEENA River 3	7		33	48	6	17	9	5	166	37	54	50	84	58	69	62	167	93	93	77	267	0 - 267	
BABINE River 2	2		1			73		1			1				189	20						0 - 189	
SKEENA R (Non-Classified)													83	36	129	168	93		23	41	50	0 - 168	
BULKLEY River	12	1	9	67	67	5	2	0	39		49	48	14	22	32	24	27	79	83	78	56	0 - 83	
ZYMOETZ River 1				1			4			11			65	22	17	57	43	3	21	53	75	0 - 75	
SKEENA River 2	4	6		22		2				31	12	56	18	20	23	1	21	13	26	1	5	0 - 56	
ZYMOGOTTIZ River	0											23	52	47	34	7	10	22	7	53	47	0 - 53	
KISPIOX River		1		52	3	1		1	9			5	15							52	39	0 - 52	
NANIKA River									48	3												0 - 48	
MORICE River			2		6					0	34	0	13	46	2				3	31		0 - 46	
SUSTUT River	4			2			15		1	0				9	44	16	13	5	20	26	28	0 - 44	
CLORE River											38							2				0 - 38	
KASIKS River	0						10								15	6	14	19	37		30	0 - 37	
KHYEX River	1						29															0 - 29	
KLEANZA Creek											1					1			1	13	4	0 - 13	
EXSTEW River															13					0		0 - 13	
SICINTINE River																			2		9	0 - 9	
SLAMGEESH River																				1		8	0 - 8
SKEENA River 4				7																6		0 - 7	
EXCHAMSKS River						1								1	7	1					3	0 - 7	
KULDO Creek																3					3	0 - 3	
CEDAR River						2																0 - 2	
FIDDLER Creek											1											0 - 1	
Combined	91	15	64	377	390	431	588	449	962	1239	774	1102	1399	940	1340	1145	582	527	829	756	1389	15 - 1399	

Non-Classified Water	Reported Catch		21 year Trend				10 year Trend				5 year Trend				Since 2006/2007
	21 Year Range		Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),4}	P		
ZYMOETZ River 2	0 - 336		10.31	13.6464	0.0014	Increasing	0.07	0.0000	0.9956	-	33.40	1.4762	0.2912	-	
SKEENA River 3	0 - 267		7.18	16.2552	0.0007	Increasing	13.67	5.0428	0.0514	-	18.40	0.4647	0.5329	-	
SKEENA R (Non-Classified)	0 - 168		4.21	7.5599	0.0124	Increasing	-2.25	0.1228	0.7341	-	-4.50	0.1324	0.7343	-	
BULKLEY River	0 - 83		2.40	6.9605	0.0158	Increasing	5.87	6.7330	0.0290	Increasing	5.70	0.5162	0.5122	-	
ZYMOETZ River 1	0 - 75		2.84	18.7521	0.0003	Increasing	3.21	1.2483	0.2928	-	11.40	2.1324	0.2180	-	
SKEENA River 2	0 - 56		0.58	1.2644	0.2741	-	-3.38	5.4981	0.0437	Decreasing	-4.40	2.3495	0.2001	-	
ZYMOGOTTIZ River	0 - 53		2.15	15.4019	0.0008	Increasing	-0.06	0.0008	0.9786	-	10.50	4.8334	0.0928	-	
SUSTUT River	0 - 44		1.24	12.5019	0.0021	Increasing	2.24	2.4963	0.1486	-	5.10	7.7181	0.0499	Increasing	
KASIKS River	0 - 37		1.12	13.1026	0.0017	Increasing	2.88	5.8239	0.0390	Increasing	1.30	0.0627	0.8147	-	
KLEANZA Creek	0 - 13		0.22	5.4262	0.0304	Increasing	0.79	4.2066	0.0705	-	2.10	1.7160	0.2604	-	
Combined	15 - 1399		47.74	16.3929	0.0006	Increasing	-33.18	0.8474	0.3813	-	184.30	7.7959	0.0492	Increasing	

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 18. Guide reported catch of steelhead for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Steelhead Catch / Licence Year																					
Lakes	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	08/09	09/10	10/11	RANGE
KITSUMKALUM L							4		9			21	63	32		5						0 - 63
MORICE L								36	3					2								0 - 36
BABINE L						11																0 - 11
Combined	0	0	0	0	0	11	0	4	36	12	0	21	63	34	0	5	0	0	0	0	0	0 - 63
	Reported Catch		21 year Trend					10 year Trend					5 year Trend									
Lakes	21 Year Range		Slope of Linear Regression		Since 1990/1991		Slope of Linear Regression		Since 2001/2002		Slope of Linear Regression		Since 2006/2007									
KITSUMKALUM L	0 - 63		0.32	0.3257	0.5745	-	-4.82	7.3674	0.0238	Decreasing	0.00			-								
Combined	0 - 63		0.16	0.0679	0.7971	-	-4.88	7.4299	0.0234	Decreasing	0.00			-								

Note: Locations are sorted in descending order of maximums of each range (see Appendix 1 and 2 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

4.3.2 Rainbow Trout

The annual guide reported catches of rainbow trout have been primarily for lakes (i.e. including Babine R 2, Table 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. Babine River 2 (i.e. Nilkitwa Lake/Rainbow Alley) and Babine Lake have consistently had the majority of guide reported catch of rainbow trout in the Skeena watershed with 1699 to 6215 and 14 to 1816 rainbow trout reported per licence year, respectively. 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. Some of the notable trends identified with respect to the annual catch of rainbow trout reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 19, 20, and 21) include:

- decreasing annual catch of rainbow trout at the Sustut River and increasing annual catch of rainbow trout at the Kitsumkalum River for classified waters (Table 19),
- decreasing annual catch of rainbow trout at Morrison Creek and Fulton River, and increasing annual catch of rainbow trout at the Nilkitwa, Kleanza, lower Zymoetz, and Skeena 3 rivers for non-classified waters (Table 20),
- decreasing annual catch at 10 lakes including Babine R2/Rainbow Alley, Khtada, South Saddle, Nez, Nanika, Dunalter, Silverthorne, Swan, Tzahny, and Taltapin lakes (Table 21), and
- annual catch of rainbow trout were only reported at three lakes for the 2010/2011 licence year including Babine R2/Nilkitwa/Rainbow Alley, Babine, and North Duti lakes (Table 21).

Table 19. Guide reported catch of rainbow trout for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Rainbow Trout Catch / Licence Year																						
Classified Waters	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	08/09	09/10	10/11	RANGE	
KISPIOX River	31						2	1	1	2			3	6	9								0 - 31
Kitsumkalum River			1					15	5							6	5	9	3	4	24	4	0 - 24
BABINE River 1							1			2						22							0 - 22
SUSTUT River	1	3	2	1	7	11		8	10	6													0 - 11
KLUATANTAN River						9																	0 - 9
ZYMOETZ River 2									6				1										0 - 6
SKEENA River 4														2									0 - 2
BUJULEY River							2		2														0 - 2
SKEENA River 2		1							2										1				0 - 2
ZYMOETZ River 1																			2				0 - 1
Combined	32	4	3	1	7	20	3	25	26	9	2	3	10	14	28	5	9	3	7	24	4		1 - 32

Classified Water	Reported Catch	21 year Trend				10 year Trend				5 year Trend			
	21 Year Range	Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),1,9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),1,4}	P	Since 2006/2007
Kitsumkalum River	0 - 24	0.51	7.3010	0.0137	Increases	0.64	0.8387	0.3837	-	1.10	0.1215	0.7450	-
SUSTUT River	0 - 11	-0.27	4.9173	0.0383	Decreases	0.00			-	0.00			-
Combined	1 - 32	-0.11	0.0951	0.7610	-	0.01	0.0000	0.9954	-	1.10	0.1310	0.7357	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 20. Guide reported catch of rainbow trout for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Rainbow Trout Catch / Licence Year																						
Non-Classified Waters	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	08/09	09/10	10/11	RANGE	
NILKITKWA River													69					130	116	242	46	0 - 242	
MORRISON Creek	82	78	50	22	103	42	21	214	45	53	123	122	75	138	38				12				0 - 214
NANIKA River								160	143	52	47	27			18	39	24		53	81			0 - 160
DUTI River										2										100			0 - 100
KISPIOX River		14	8	94	6								6										0 - 94
FULTON River		75	10		83	62	18	44		6	4	61	6				17						0 - 83
GAMBLE Creek																	75				29		0 - 75
BABINE River 1	2	21		54											12								0 - 54
KLEANZA Creek																	3	1	24	4	11		0 - 24
PINKUT Creek															12								0 - 12
KASIKS River					8													3					0 - 8
ZYMOETZ River 2															1				1	7	3		0 - 7
BULKLEY River			6				2																0 - 6
SUSTUT River				1		3	5	2		2													0 - 5
EXCHAMSIKS River														1					3				0 - 3
SKEENA River (Non-Classified)																				2	1		0 - 2
SKEENA River 1																		2	1				0 - 2
SKEENA River 3																		1	2	2			0 - 2
ZYMAGOTTITZ River																	1		1				0 - 1
ZYMOETZ River 1																					1		0 - 1
Combined	84	188	74	171	200	107	46	420	188	115	174	210	156	139	81	56	103	140	210	438	91		46 - 438
	Reported Catch		21 year Trend				10 year Trend				5 year Trend												
Non-Classified Water	21 Year Range		Slope of Linear Regression		$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression		$F_{0.05(1),9}$	P	Since 2001/2002	Slope of Linear Regression		$F_{0.05(1),4}$	P	Since 2006/2007						
NILKITKWA River	0 - 242		5.99		10.3338	0.0043	Increasing	15.73		4.1827	0.0712	-	20.40		0.4183	0.5530	-						
MORRISON Creek	0 - 214		-3.69		3.6563	0.0703	-	-14.35		14.5410	0.0041	Decreasing	0.00		0.0000	1.0000	-						
FULTON River	0 - 83		-2.10		5.2181	0.0334	Decreasing	-3.68		4.0364	0.0754	-	0.00				-						
KLEANZA Creek	0 - 24		0.47		7.0101	0.0154	Increasing	1.53		4.5091	0.0627	-	1.90		0.3415	0.5903	-						
ZYMOETZ River 2	0 - 7		0.14		7.0070	0.0155	Increasing	0.47		5.4297	0.0447	Increasing	1.30		2.8324	0.1677	-						
SKEENA River (Non-	0 - 2		0.04		5.4444	0.0302	Increasing	0.14		5.1359	0.0497	Increasing	0.40		3.0000	0.1583	-						
SKEENA River 3	0 - 2		0.05		7.3722	0.0133	Increasing	0.16		4.1186	0.0730	-	0.10		0.0769	0.7953	-						
Combined	46 - 438		2.18		0.3379	0.5675	-	8.98		0.5246	0.4873	-	27.40		0.3041	0.6107	-						

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 21. Guide reported catch of rainbow trout for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Rainbow Trout Catch / Licence Year																					
Lakes	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	08/09	09/10	10/11	RANGE
BABINE R2/Rainbow Alley	4034	3433	3905	4410	3344	3388	3080	5819	4699	6215	5923	3735	2953	1732	3113	3059	4475	1699	3378	3129	2497	1699 - 6215
BABINE Lake	90	261	134	163	1816	1166	81	102	1079	115	203	100	71	14	50	88	58	40	134	14	126	14 - 1816
NILKITWA Lake											175				15	61	119	5				0 - 882
KHTADA Lake						607	708	273		305	242	604	174	126	94	208	161	125				0 - 708
DUTI (S) Lake						490		174							426	614	248					0 - 614
DUTI (N) Lake					577	125			150		275	110		350	47		165			60	143	0 - 577
SOUTH SADDLE Lake			66	567	241	211	334	71	198	65	250	233	105	69			90		5			0 - 567
MORICE Lake	25	3	8		3	10		320	170	71	75	43	14		29	55	35		98	128		0 - 320
SECRET Lake											11	132	11		284	210	210			2		0 - 284
MORRISON Lake	83	42	122	60		85	96	120	92	127	59	105	41	170	4		112		58			0 - 170
DUCKWING Lake		3		164		4		2														0 - 164
NEZ Lake	67	97	110				156	81	15	33	38	62	46	28	71	78						0 - 156
NANIKA Lake	74	120	11	94	44						16											0 - 120
ONERKA Lake										114												0 - 114
DUNALTER Lake		94	56									19										0 - 94
SILVERTHORNE Lake	72	47	16				2	10	10	4	2											0 - 72
SWAN Lake	19	4	15	63	2																	0 - 63
ROSS Lake		24	61						2													0 - 61
TZAHNY Lake	7	60	36																			0 - 60
BARRETT Lake							29	54	36	14	37	8	4	8	5	7	4	26	9			0 - 54
ATNA Lake					9				25										36			0 - 36
SLAMGEESH Lake		15	13						35													0 - 35
KITWANCOOL Lake														2		30						0 - 30
WILSON Lake									27				8									0 - 27
KIDPRICE Lake	3			24	17					9		7										0 - 24
BILL NYE Lake								20														0 - 20
CANYON Lake		1	5						16		4											0 - 16
SKINHEAD Lake										10	15											0 - 15
KUNGER Lake												4		3	14	8	2					0 - 14
LAKELSE Lake						6		4							12							0 - 12
SUNSET Lake								10	12													0 - 12
TALTAPIN Lake	7	10	3			10	9	5	12													0 - 12
SWAMP Lake				10						9												0 - 10
FULTON Lake																						0 - 9
HIDDEN Lake													8									0 - 8
ROBINSON Lake		8																				0 - 8
GILMORE Lake															7							0 - 7
MITTEN Lake														6								0 - 6
VALLEE Lake									1			6										0 - 6
GUNANOOT Lake			5																			0 - 5
CHAPMAN Lake			2							3												0 - 3
OWEN Lake			3																			0 - 3
HELENE Lake						20	10		18													0 - 20
CHARLOTTE Lake					19																	0 - 19
BEAR Lake			5				21															0 - 21
Combined	4481	4222	4576	5555	6072	6122	4495	7032	6590	7147	7304	5207	3431	2504	4174	4416	5682	1873	3735	4224	2766	1873 - 7304
	Reported Catch		21 year Trend				10 year Trend				5 year Trend											
Lakes	21 Year Range		Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),1,9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),1,4}$	P	Since 2006/2007								
BABINER2/Rainbow Alley	1699 - 6215		-70.47	2.8012	0.1098	-	-27.31	0.0771	0.7875	-	-252.60	0.5264	0.5083	-								
KHTADA Lake	0 - 708		-3.12	0.1475	0.7049	-	-43.87	10.3041	0.0107	Decreasing	-44.70	11.5144	0.0274	Decreasing								
SOUTH SADDLE Lake	0 - 567		-10.10	4.2434	0.0527	-	-18.56	9.2441	0.0140	Decreasing	-18.00	3.1558	0.1503	-								
NEZ Lake	0 - 156		-3.17	4.4908	0.0468	Decreasing	-7.95	9.1811	0.0142	Decreasing	0.00			-								
NANIKA Lake	0 - 120		-3.68	13.6417	0.0014	Decreasing	0.00			-	0.00			-								
DUNALTER Lake	0 - 94		-1.66	4.5265	0.0460	Decreasing	-1.04	3.0000	0.1173	-	0.00			-								
SILVERTHORNE Lake	0 - 72		-1.69	9.5591	0.0058	Decreasing	-0.11	3.0000	0.1173	-	0.00			-								
SWAN Lake	0 - 63		-1.04	4.8609	0.0393	Decreasing	0.00			-	0.00			-								
TZAHNY Lake	0 - 60		-1.17	5.8653	0.0251	Decreasing	0.00			-	0.00			-								
TALTAPIN Lake	0 - 12		-0.40	10.0399	0.0048	Decreasing	0.00			-	0.00			-								
Combined	1873 - 7304		-108.61	4.5220	0.0461	Decreasing	-96.36	0.5083	0.4939	-	-348.10	0.5054	0.5164	-								

Note: Locations are sorted in descending order of the maximums of each range (*see* Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

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 River (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, Table 23) rivers have also had notable numbers of chinook reported by angling guides for some years. Some of the notable trends identified with respect to the annual catch of chinook reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 22, 23, and 24) include:

- decreasing annual catch of chinook at the Skeena 2, Kitsumkalum, upper Skeena 4, Babine, and Kluatantan rivers, and increasing annual catch of chinook at the Ecstall River for classified waters (Table 22),
- decreasing annual catch of chinook at the Bulkley River, upper Skeena River 4, and classified section of Babine River 2, and increasing annual catch of chinook at the lower and upper Zymoetz River for non-classified waters (Table 23), and
- no trends in annual catch of chinook at lakes, and no annual catches of chinook were reported at any lakes since the 2008/2009 licence year (Table 24).

Table 22. Guide reported catch of chinook salmon for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Chinook Catch / Licence Year																					RANGE	
Classified Waters	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	08/09	09/10	10/11		
SKEENA River 2	861	819	597	1015	508	530	314	360	239	438	821	1378	611	332	335	396	559	270	410	359	243	239 - 1378	
KITSUMKALUM River	341	121	375	191	193	140	226	125	199	135	164	397	188	53	85	30	68	50	73	22	98	22 - 397	
SKEENA River (Classified)													309	385	4		7		128		21	0 - 385	
ECSTALL River	47	51	262	112	70	110	101	76	29	44	56	52	4		41	110	102	94	59	193	86	0 - 262	
SKEENA River 4	16	1	32	16	29	3	20	36		76	38	48	45	2	2							0 - 76	
BABINE River 1	2	9	14						9										2			0 - 14	
KLUATANTAN River		10		6	9	1																0 - 10	
KITSUMKALUM River C									9								3					0 - 9	
SUSTUT River	0				8															7		0 - 8	
BULKLEY River	1			4																		0 - 4	
KISPIOX River									3				2									0 - 3	
ZYMOETZ River 1																	1					0 - 1	
Combined	1268	1011	1280	1340	821	784	661	597	485	696	1079	1875	1159	772	467	536	740	414	672	574	455	414 - 1875	

	Reported Catch		21 year Trend				10 year Trend				5 year Trend			
Classified Water	21 Year Range		Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),1,9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),1,4}	P	Since 2006/2007
SKEENA River 2	239 -	1378	-20.40	4.4198	0.0484	Decreasing	-70.43	5.5537	0.0428	Decreasing	-54.30	2.5963	0.1824	-
KITSUMKALUM River	22 -	397	-11.12	13.2053	0.0017	Decreasing	-23.15	5.1270	0.0498	Decreasing	3.20	0.0993	0.7685	-
ECSTALL River	0 -	262	-0.52	0.0555	0.8161	-	12.58	6.5599	0.0306	Increasing	6.70	0.1362	0.7308	-
SKEENA River 4	0 -	76	-1.09	2.0583	0.1668	-	-4.62	8.6480	0.0165	Decreasing	0.00			-
BABINE River 1	0 -	14	-0.28	4.6698	0.0430	Decreasing	0.06	0.7353	0.4134	-	0.00	0.0000	1.0000	-
KLUATANTAN River	0 -	10	-0.25	6.5027	0.0191	Decreasing	0.00			-	0.00			-
Combined	414 -	1875	-29.69	6.0716	0.0229	Decreasing	-105.03	8.2400	0.0185	Decreasing	-41.00	0.8396	0.4114	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 23. Guide reported catch of chinook salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Chinook Catch / Licence Year																					RANGE		
Non-Classified Waters	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	08/09	09/10	10/11			
SUSTUT River	94	200	219	190	82	19	48	23		73	93	198	133	711	73	23						0 - 711		
SKEENA River 3	116	61	124	449	244	260	260	39	241	290	390	225	151	194	175	148	307	110	293	142	257	39 - 449		
SKEENA River (Non-Classified)														20	310	410	101		18	73	67	0 - 410		
SKEENA River 1	25	111	114	86	3	24	20	8	2		27	12	2	37	23	198	47	8	9	4	71	0 - 198		
ZYMOETZ River 2						1					1	1	1	10	40	30	33	43	117	54	62	0 - 117		
KISPIOX River	9	35	49	94	28	0	4		7	38		35	9						96			0 - 96		
BULKLEY River	34	21	1	14	14	27		45	32		12	14	5	12	1		1		1			0 - 45		
SKEENA River 2	5	5			0	22	1		27	45	19	15	8	16	30	24	3		4	2	23	0 - 45		
BABINE River 1		3	37	4	1		3															0 - 37		
NANIKA River								30														0 - 30		
SKEENA River 4				27	17	23		1			14						3	1				0 - 27		
BABINE River 2	7	1	21	23	13	1	2	6	8		1											0 - 23		
ZYMOETZ River 1	1														17	5	9			4	22	0 - 22		
GAMBLE Creek																	20					0 - 20		
EXCHAMSIKS River					10											3	17					0 - 17		
KASIKS River				3	0		1								7		5		1	4		0 - 7		
SLAMGEESH River			5																			0 - 5		
MORICE River		0		2							3	4		2			1	4	1			0 - 4		
EXSTEW River																				1		0 - 1		
Combined	291	437	570	892	412	377	339	152	317	446	560	504	309	1002	679	838	547	166	540	284	502	152 - 1002		
	Reported Catch		21 year Trend					10 year Trend					5 year Trend											
Non-Classified Water	21 Year Range		Slope of Linear Regression		$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression		$F_{0.05(1),1,9}$	P	Since 2001/2002	Slope of Linear Regression		$F_{0.05(1),1,4}$	P	Since 2006/2007							
ZYMOETZ River 2	0 - 117		3.74		25.9819	0.0001	Increasing	8.89		12.4830	0.0064	Increasing	6.90		0.3744	0.5737	-							
BULKLEY River	0 - 45		-1.27		9.6214	0.0056	Decreasing	-1.32		10.6294	0.0098	Decreasing	-0.20		1.5000	0.2879	-							
SKEENA River 4	0 - 27		-0.50		3.0063	0.0983	-	0.04		0.1053	0.7530	-	-0.70		7.7368	0.0497	Decreasing							
BABINE River 2	0 - 23		-0.69		11.7223	0.0027	Decreasing	0.00				-	0.00				-							
ZYMOETZ River 1	0 - 22		0.51		7.1205	0.0148	Increasing	1.08		1.6422	0.2321	-	3.00		1.0976	0.3539	-							
Combined	152 - 1002		3.22		0.1516	0.7011	-	-26.26		0.8650	0.3766	-	2.80		0.0020	0.9667	-							

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 24. Guide reported catch of chinook salmon for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Chinook Catch / Licence Year																					
Lakes	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	08/09	09/10	10/11	RANGE
MORICE Lake								52	12													0 - 52
NANIKA Lake					51																	0 - 51
KITSUMKALUM Lake					1									16								0 - 16
SLAMGEESH Lake	7	12																				0 - 12
BABINE Lake				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	0	0	0 - 52
	Reported Catch		21 year Trend					10 year Trend					5 year Trend									
Lakes	21 Year Range		Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),1,9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),1,4}$	P	Since 2006/2007								
SLAMGEESH Lake	0 - 12		-0.23	5.8058	0.0257	Decreasing	0.00			-	0.00			-								
Combined	0 - 52		-0.82	2.2777	0.1469	-	-0.53	0.8944	0.3690	-	0.00			-								

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

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 the 1990/1991 to 1999/2000 licence years. The Skeena River has had the majority of annual catch of sockeye reported by angling guides since the initiation of AGMS. Some of the notable trends identified with respect to the annual catch of sockeye reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 25, 26, and 27) include:

- decreasing annual catch of sockeye at the Kitsumkalum River, and increasing annual catch of sockey at the Skeena River 2 for classified waters (Table 25),
- decreasing annual catch of sockeye at the Sustut River and increasing annual catch of sockeye at Skeena River 3 for non-classified waters (Table 26), and
- no trends in annual catch of sockeye at lakes and no annual catches of sockeye were reported for any lakes since the 2008/2009 licence year (Table 27).

Table 25. Guide reported catch of sockeye salmon for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Sockeye Catch / Licence Year																					
Classified Waters	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	08/09	09/10	10/11	RANGE
SKEENA River 2	3	22	17	17	10	2	68	181	1	2	51	248	106	13	64	171	712	1144	649	371	56	1 - 1144
SKEENA River 4			1	34	4			3		3	297	60	17	1	47	35		23	6			0 - 297
SKEENA R (Classified)													95	77	5				112			0 - 112
BABINE River 1	2																					0 - 2
KISPIOX River		1						2			1											0 - 2
KITSUMKALUM River									2		2	1					1	1				0 - 2
SUSTUT River			2					1														0 - 2
Combined	5	23	20	51	14	2	68	187	3	5	351	309	218	91	118	206	713	1168	768	371	56	2 - 1168

	Reported Catch		21 year Trend				10 year Trend				5 year Trend				
Classified Water	21 Year Range		Slope of Linear Regression	F _{0.05(1),20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),4}	P	Since 2006/2007	
SKEENA River 2	1 - 1144		28.06	9.6712	0.0055	Increasing	42.96	1.1249	0.3165	-	-208.50	5.8323	0.0732	-	
KITSUMKALUM River	0 - 2		0.03	1.6101	0.2191	-	-0.04	0.2034	0.6627	-	-0.30	9.0000	0.0399	Decreasing	
Combined	2 - 1168		30.27	11.1772	0.0032	Increasing	35.37	0.7553	0.4074	-	-211.10	5.0410	0.0881	-	

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 26. Guide reported catch of sockeye salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Sockeye Catch / Licence Year																					
Non-Classified Waters	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	08/09	09/10	10/11	RANGE
SKEENA River 3			8	5	10	12	5	70	71		269	398	37	85	263	426	576	193	293	130	318	0 - 576
SKEENA R (Non-Classified)															82	44	152	115	425		48	0 - 425
BABINE River 1	2				6	78	163	20	5													0 - 163
BABINE River 2						122	68	6														0 - 122
SKEENA River 1			2			6	26	15			27	15		3	10	19	25	5	1		6	0 - 27
FULTON River											20											0 - 20
ZYMOETZ River 2															2	1			6	1		0 - 6
SUSTUT River	3		1																			0 - 3
KISPIOX River		2																				0 - 2
ZYMOETZ River 1													2									0 - 2
EXCHAMSIKS River																	1					0 - 1
KASIKS River															1							0 - 1
SKEENA River 2																		1				0 - 1
Combined	5	2	11	5	16	218	262	111	76	0	316	413	39	88	358	490	754	314	725	131	372	0 - 754

	Reported Catch		21 year Trend				10 year Trend				5 year Trend			
Non-Classified Water	21 Year Range		Slope of Linear Regression	F _{0.05(1),20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),4}	P	Since 2006/2007
SKENA River 3	0	- 576	19.25	17.4920	0.0005	Increasing	5.52	0.0809	0.7825	-	-57.90	1.2066	0.3337	-
SKEENA R (Non-Classified)	0	- 425	7.98	6.5083	0.0190	Increasing	16.75	1.4272	0.2628	-	-32.30	0.3152	0.6045	-
SUSTUT River	0	- 3	-0.05	4.8394	0.0397	Decreasing	0.00			-	0.00			-
Combined	0	- 754	24.87	15.0741	0.0009	Increasing	21.77	0.6255	0.4494	-	-94.70	1.3170	0.3151	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 27. Guide reported catch of sockeye salmon for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Sockeye Catch / Licence Year																					
Lakes	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	08/09	09/10	10/11	RANGE
BABINE Lake		7	25		66			14			11	60		55	9		28	56	52			0 - 66
KITSUMKALUM Lake					3								10									0 - 10
MORICE Lake													2									0 - 2
Combined	0	7	25	0	69	0	0	14	0	0	11	60	12	55	9	0	28	56	52	0	0	0 - 69

	Reported Catch	21 year Trend				10 year Trend				5 year Trend			
Lakes	21 Year Range	Slope of Linear Regression	F _{0.05(1),20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),4}	P	Since 2006/2007
Combined	0 - 69	0.70	0.6414	0.4326	-	-2.85	0.9906	0.3456	-	-11.20	2.2529	0.2078	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

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 28, 29, and 30). 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 was reported from the Gitnadoix from the 2004/2005 to 2008/2009 licence years. Some of the notable trends identified with respect to the annual catch of coho reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 28, 29, and 30) include:

- decreasing annual catch of coho at five locations including Gitnadoix A, Kispiox, Bulkley, Morice and Kluatantan rivers, and increasing annual catch of coho at the lower Zymoetz River for classified waters (Table 28),
- decreasing annual catch of coho at the Exchamsiks and lower Skeena 1 rivers, and increasing annual catch of coho at the Skeena 3, Exstew, lower Zymoetz, and upper Zymoetz rivers for non-classified waters (Table 29),
- no trends in annual catch of coho at lakes and no annual catches of coho were reported for any lakes since the 2008/2009 licence year (Table 29).

Table 28. Guide reported catch of coho salmon for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Coho Catch / Licence Year																									
Classified Waters	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	08/09	09/10	10/11	RANGE				
SKEENA River 2	340	327	124	252	428	394	321	94	4	171	207	397	338	319	58	215	124	365	412	938	173	4 - 938				
GITNADOIX River A	419	481	265	267	75	107	109	19		122		45	75	56						85	56	0 - 481				
KITSUMKALUM River A	178	72	1	16	11	60	63	19	93	100	35	147	68	63	20	137	81	73	108	395	111	1 - 395				
SKEENA R (Classified)													185	388						75		0 - 388				
ZYMOETZ River 1													2		13	6	13		3	70		0 - 70				
KISPIOX River	39	18	3	12	17	16	31	7	44	31	68	34	29	22	8	2	7	1	12	15	6	1 - 68				
ECSTALL River							41			23												0 - 41				
LAKELSE River										7					30	10						0 - 30				
ZYMOETZ River 2						2	1	3	30	11	11	8	10	9			12	19	9	26	2	0 - 30				
SKEENA River 4	19		1	1	2			1				4	29	3	15	24		4		3		0 - 29				
BABINE River 1	1	1	4						20										4			0 - 20				
BULKLEY River	8	1	19		2				1			6	3			3						0 - 19				
MORICE River	13	11														1						0 - 13				
KITSUMKALUM River C					1	8				3							9				3	0 - 9				
SUSTUT River	9	1																				0 - 9				
KLUATANTAN River	7			3																		0 - 7				
Combined	1033	912	417	552	543	579	566	143	195	465	321	641	739	860	144	398	246	462	623	1532	351	143 - 1532				
	Reported Catch		21 year Trend				10 year Trend				5 year Trend				Since 2006/2007											
Classified Water	21 Year Range		Slope of Linear Regression		F _{0.05(1),1,20}		P		Since 1990/1991		Slope of Linear Regression		F _{0.05(1),1,9}		P		Since 2001/2002		Slope of Linear Regression		F _{0.05(1),1,4}		P		Since 2006/2007	
SKEENA River 2	4 - 938		6.13		0.7523		0.3960		-		21.08		0.5871		0.4632		-		67.10		0.3617		0.5800		-	
GITNADOIX River A	0 - 481		-16.13		20.3615		0.0002		Decreasing		-0.67		0.0270		0.8731		-		19.70		4.6498		0.0973		-	
KISPIOX River	1 - 68		-0.74		1.5255		0.2311		-		-2.52		6.6593		0.0297		Decreasing		1.20		0.4138		0.5551		-	
ZYMOETZ River 2	0 - 30		0.64		4.8250		0.0400		Increasing		0.77		0.6987		0.4249		-		-1.30		0.1563		0.7127		-	
BULKLEY River	0 - 19		-0.30		3.8936		0.0624		-		-0.47		6.9691		0.0269		Decreasing		0.00						-	
MORICE River	0 - 13		-0.29		6.3145		0.0207		Decreasing		-0.01		0.0270		0.8731		-		0.00						-	
KLUATANTAN River	0 - 7		-0.12		4.8098		0.0403		Decreasing		0.00						-		0.00						-	
Combined	143	- 1532	-1.54		0.0159		0.9009		-		15.50		0.1139		0.7435		-		128.00		0.5446		0.5015		-	

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 29. Guide reported catch of coho salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Coho Catch / Licence Year																					
Non-Classified Waters	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	08/09	09/10	10/11	RANGE
SKEENA River (Non-Classified)													51	3	104	578	94	3	258	151	20	0 - 578
KASIKS River	40	40	175	155	469	382	458	69	40	506	196	472	357	145	141	363	261	205	223	448	284	40 - 506
EXCHAMSIKS River	36	28	67	44	55	33	61			72	6	422	359	103	42	175	48	72	37	46	120	0 - 422
SKEENA River 1	22	22	10	14	28	60	42	56	95	262	195	328	192	272	89	285	58	118	4	39	117	4 - 328
SKEENA River 3		16	8	15	5	5	13	4	123	6	49	53	105	204	126	264	152	133	142	170	144	0 - 264
EXSTEW River				8		9				4		22		19	20	32	34	31	68	191	161	0 - 191
ZYMAGOTTITZ River				17	6	35				11	2	39		111	35		2	8	3			0 - 111
SKEENA River 2	12	12		79	42	17	12			50	5	13	4	48	5		2	17	2	2		0 - 79
ZYMOETZ River 2			1	5						1	3	8	1		8		6	24	71	26	7	0 - 71
KISPIOX River	9											4	3					36	8			0 - 36
GOAT Creek																26	10					0 - 26
NANIKA River									15	8												0 - 15
BULKLEY River			6		1		1						10	3								0 - 10
FIDDLER Creek											8											0 - 8
KHYEX River		1															8					0 - 8
ZYMOETZ River 1													2	3	3	2	7			3	2	0 - 7
GAMBLE Creek																		3				0 - 3
KULDO Creek																			3			0 - 3
MORICE River													2									0 - 2
SUSTUT River			2		1																	0 - 2
Combined	119	119	269	330	614	532	596	129	273	920	464	1361	1086	911	599	1709	672	650	819	1076	855	119 - 1709

	Reported Catch	21 year Trend				10 year Trend				5 year Trend			
Non-Classified Water	21 Year Range	Slope of Linear Regression	F _{0.05(1),1,20}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1),1,9}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1),1,4}	P	Since 2006/2007
SKEENA River (Non-Classified)	0 - 578	9.90	4.8669	0.0392	Increasing	8.29	0.1613	0.6973	-	0.00			-
EXCHAMSIKS River	0 - 422	3.80	0.9313	0.3460	-	-31.98	7.6504	0.0219	Decreasing	11.80	1.3411	0.3113	-
SKEENA River 1	4 - 328	5.43	2.2742	0.1472	-	-26.97	8.8110	0.0157	Decreasing	3.90	0.0466	0.8396	-
SKEENA River 3	0 - 264	10.34	35.6373	0.0000	Increasing	5.29	0.6998	0.4245	-	2.10	0.1806	0.6927	-
EXSTEW River	0 - 191	5.88	18.1120	0.0004	Increasing	17.38	15.2472	0.0036	Increasing	41.40	10.3700	0.0323	Increasing
ZYMOETZ River 2	0 - 71	1.39	7.4692	0.0128	Increasing	3.48	2.4853	0.1494	-	0.40	0.0017	0.9689	-
ZYMOETZ River 1	0 - 7	0.16	8.4344	0.0088	Increasing	0.04	0.0221	0.8851	-	-0.70	0.5194	0.5110	-
Combined	119 - 1709	43.21	13.3655	0.0016	Increasing	-36.17	0.8775	0.3733	-	79.20	3.4413	0.1372	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 30. Guide reported catch of coho salmon for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Coho Catch / Licence Year																					
Lakes	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	08/09	09/10	10/11	RANGE
KITSUMKALUM Lake		2				2				21	42		77	158		37	3	9	29			0 - 158
LAKELSE Lake							26		44			1			23	15						0 - 44
BABINE Lake			21					1														0 - 21
DAMSHILGWIT Lake		18																				0 - 18
MORICE Lake									2	14												0 - 14
STEPHENS Lake					2																	0 - 2
SLAMGEESH Lake		1																				0 - 1
Combined	0	21	21	0	2	2	26	1	46	35	42	1	77	158	23	52	3	9	29	0	0	0 - 158

	Reported Catch	21 year Trend				10 year Trend				5 year Trend			
Lakes	21 Year Range	Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),1,9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),1,4}$	P	Since 2006/2007
Combined	0 - 158	0.88	0.4266	0.5211	-	-7.78	2.2617	0.1669	-	-1.50	0.1179	0.7486	-

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

4.3.6 Cutthroat Trout

The catch of cutthroat trout has been reported by angling guides at seven classified waters (i.e. Kitwanga, Kitsumkalum, Kispiox, Skeena, Gitnadoix, Bulkley, and Zymoetz rivers) rivers, five non-classified streams (i.e. Gamble Creek and Fulton, Kispiox, Kasiks, and Skeena rivers), and 40 lakes (Table 33). Some of the notable trends identified with respect to the annual catch of cutthroat trout reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 31, 32, and 33) include:

- decreasing annual catch of cutthroat trout at the Kispiox and Gitnadoix A rivers, and increasing annual catch of cutthroat trout at the Kitsumkalum River for classified waters (Table 31),
- decreasing annual catch of cutthroat trout at the Fulton and Kispiox rivers, and increasing annual catch of cutthroat trout at Gamble Creek, Kasiks River and the Skeena River 2 for non-classified waters (Table 32), and
- decreasing annual catch of cutthroat trout at eight lakes and no annual catches of cutthroat trout were reported for any lakes in the 2010/2011 licence year (Table 33).

Table 31. Guide reported catch of cutthroat trout for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Cutthroat Catch / Licence Year																									
Classified Waters	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	08/09	09/10	10/11	RANGE				
KITWANGA River										128												0 - 128				
KITSUMKALUM River			7		1	4	2	13	12	4	91	3	15	19	7	9	40	16	51	24	19	0 - 91				
KISPIOX River	47	39	8	10			10	52	58	11	6	20	4	13								0 - 58				
SKEENA River 2	13	5	1	7	1	4			1	14	10		6	2	4	2	13		3	2	1	0 - 14				
GITNADOIX River A	10	12																				0 - 12				
BULKLEY River		6						3														0 - 6				
SKEENA River 4		2										1				2					1	0 - 2				
ZYMOETZ River 2													2					1				0 - 2				
ZYMOETZ River 1													1									0 - 1				
Combined	70	64	16	17	2	8	12	68	71	157	107	24	28	35	11	13	53	17	54	26	21	2 - 157				
	Reported Catch		21 year Trend								10 year Trend								5 year Trend							
Classified Water	21 Year Range		Slope of Linear Regression		$F_{0.05(1,1,20)}$		P		Since 1990/1991		Slope of Linear Regression		$F_{0.05(1,1,9)}$		P		Since 2001/2002		Slope of Linear Regression		$F_{0.05(1,1,4)}$		P		Since 2006/2007	
KITSUMKALUM River	0	- 91	1.52		4.4555		0.0476		Increasing		2.58		3.0183		0.1163		-		-3.40		0.4455		0.5410		-	
KISPIOX River	0	- 58	-1.57		6.9334		0.0159		Decreasing		-1.65		8.1293		0.0191		Decreasing		0.00						-	
GITNADOIX River A	0	- 12	-0.27		6.4792		0.0193		Decreasing		0.00								0.00						-	
Combined	2	- 157	-0.67		0.2308		0.6361				0.68		0.1509		0.7067		-		-5.50		0.9257		0.3905		-	

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 32. Guide reported catch of cutthroat trout for *non-classified waters* in the Skeena watershed from licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Cutthroat Catch / Licence Year																					
Non-Classified Waters	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	08/09	09/10	10/11	RANGE
BABINE River 2				586	32	6	2			455	761	21	35			228	206	45	4	123	283	0 - 761
GAMBLE Creek																	327	221		158	148	0 - 327
WILLIAMS Creek												22	25	90	61	62			20	10	12	0 - 90
FULTON River		82	27		60		6			2		8										0 - 82
KISPIOX River	14	63	12	2	5		3	4	8	4			1									0 - 63
KASIKS River						2	8		29		37	40	16	18	17	26	44	34	7	10	54	0 - 54
SKEENA River 1		41				1	1	1							3	1	3	9			22	0 - 41
EXCHAMSIKS River							5		32		9		2	5	1		3			2	1	0 - 32
SKEENA River 2	6					3				20		11	1	8	1		1	1	11	8	14	0 - 20
BURNIE River						3		1	14		11											0 - 14
FIDDLER Creek											14											0 - 14
NIKITKWA River													10					13				0 - 13
BULKLEY River			12										1									0 - 12
KLEANZA Creek												9										0 - 9
SKEENA River 3										1	1		1	1	9	2	1			3	1	0 - 9
ZYMAGOTITZ River			1										3	8								0 - 8
ZYMOETZ River 1																			3			0 - 7
EXSTEW River																				7		0 - 7
OLIVER Creek						2														4		0 - 4
HOWSON Creek											1											0 - 1
SKEENA R (Non-Classified)																			1			0 - 1
SKEENA River 4															1							0 - 1
Combined	20	186	52	588	97	17	25	6	538	27	834	111	95	130	93	319	585	323	46	325	535	6 - 834
	Reported Catch		21 year Trend				10 year Trend				5 year Trend				Since 2006/2007							
Non-Classified Water	21 Year Range		Slope of Linear Regression	$F_{0.05(1,1,20)}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1,1,9)}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1,1,4)}$	P	Since 2006/2007								
GAMBLE Creek	0 - 327		8.33	8.8551	0.0075	Increasing	20.78	3.0275	0.1159	-	-42.10	1.3616	0.3081	-								
FULTON River	0 - 82		-1.73	6.0611	0.0230	Decreasing	-0.44	3.0000	0.1173	-	0.00			-								
KISPIOX River	0 - 63		-1.15	7.0229	0.0154	Decreasing	-0.04	1.5806	0.2403	-	0.00			-								
KASIKS River	0 - 54		1.83	14.3806	0.0011	Increasing	0.59	0.1060	0.7522	-	-0.40	0.0028	0.9603	-								
SKEENA River 2	0 - 20		0.34	2.8351	0.1078	-	0.56	0.8892	0.3703	-	3.30	11.2268	0.0286	Increasing								
Combined	6 - 834		11.40	1.7270	0.2037	-	36.13	3.8285	0.0821	-	-9.80	0.0159	0.9058	-								

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 33. Guide reported catch of cutthroat trout for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Cutthroat Catch / Licence Year																					
Lakes	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	08/09	09/10	10/11	RANGE
MOOSESKIN JOHNNY Lake			331		245	241	214	191	275	172	405	220	112	102	155	99	97					0 - 405
NETALZUL Lake											206	362						11				0 - 362
FISHPAN Lake	205		258	85	67	9	11															0 - 258
MITTEN Lake		213	110																			0 - 213
HOLLAND Lake	157	35	40			18																0 - 157
BABINE Lake			8						122													0 - 122
KITWANCOOL Lake											106			18		60						0 - 106
GRIZZLY Lake	49	98	22				9															0 - 98
NIKITWA Lake															9					95		0 - 95
TOUHY Lake												90										0 - 90
FRY PAN Lake	74	60					16				5											0 - 74
FLATFISH Lake		50	70																			0 - 70
HELEN Lake							2	64	18		16	6	14		4	45	37	20	14	23		0 - 64
SHEA Lake	57																					0 - 57
PINE TREE Lake		6											53									0 - 53
LAKELSE Lake					4	26		7	5	47		1			43							0 - 47
SWAN Lake		46																				0 - 46
BURNIE Lake			34		27	38	28	25	18	18	16	9	4									0 - 38
HIDDEN Lake	35																					0 - 35
MUDDY Lake	10						35															0 - 35
VALLEE Lake								13	32	23	10	3										0 - 32
CHAPMAN Lake		30																				0 - 30
PEANUT Lake													28									0 - 28
FOOTSOE Lake													23									0 - 23
MCDONELL Lake			21												9							0 - 21
TAHO Lake														20								0 - 20
BEAR Lake	16																					0 - 16
DUNALTER Lake			12					6		4	16											0 - 16
HODDER Lake									8				16									0 - 16
STEPHENS Lake		14																				0 - 14
CHISHOLM Lake		11																				0 - 11
KLATE Lake										11												0 - 11
MCBRIDE Lake	9																					0 - 9
DUTI (N) Lake																8						0 - 8
KHTADA Lake	7																					0 - 7
KITSUMKALUM Lake					5							1										0 - 5
MORICE Lake		4																				0 - 4
JOHNSTON Lake													3									0 - 3
SEELEY Lake													3									0 - 3
NANIKA Lake																						0 - 0
Combined	619	567	906	85	348	332	288	269	524	293	780	759	209	120	220	212	134	31	14	118	0	0 - 906
Lakes	21 Year Range		Slope of Linear Regression		F _{0.05(1),1,20}		P	Since 1990/1991	Slope of Linear Regression		F _{0.05(1),1,9}		P	Since 2001/2002	Slope of Linear Regression		F _{0.05(1),1,4}		P	Since 2006/2007		
MOOSESKIN JOHNNY Lake	0	- 405	-6.53		2.2950		0.1454	-	-22.67		32.1552		0.0003	Decreasing	-19.40		3.0000		0.1583	-		
FISHPAN Lake	0	- 258	-6.75		10.0809		0.0048	Decreasing	0.00					-	0.00					-		
MITTEN Lake	0	- 213	-3.63		4.5592		0.0453	Decreasing	0.00					-	0.00					-		
HOLLAND Lake	0	- 157	-2.98		7.2277		0.0141	Decreasing	0.00					-	0.00					-		
GRIZZLY Lake	0	- 98	-2.05		7.8078		0.0112	Decreasing	0.00					-	0.00					-		
FRY PAN Lake	0	- 74	-1.72		7.3476		0.0135	Decreasing	0.00					-	0.00					-		
FLATFISH Lake	0	- 70	-1.31		4.6704		0.0430	Decreasing	0.00					-	0.00					-		
BURNIE Lake	0	- 38	-1.10		6.9238		0.0160	Decreasing	-0.66		6.5316		0.0309	Decreasing	0.00					-		
Combined	0	- 906	-26.64		11.7680		0.0026	Decreasing	-52.38		8.8760		0.0155	Decreasing	-18.10		0.8110		0.4187	-		

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

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. Interestingly, no pink salmon were reported by any angling guides for the 2007/2008 to 2009/2010 licence years, followed by the maximum number of pink salmon since the initiation of AGMS being reported for classified waters in 2010/2011. It is important to note that the variable omission and inclusion of this species in guided angling reports for different locations and interpretations of pink salmon as target, by-catch, or unimportant species by different guides may bias the results presented in tables 34, 35, and 36. Nevertheless, some of the notable trends identified with respect to the annual catch of pink salmon reported by angling guides at classified, non-classified, and lake locations in the Skeena watershed (Tables 34, 35, and 36) include:

- decreasing annual catch of pink salmon at the upper Skeena River 4 for classified waters (Table 31),
- decreasing annual catch of pink salmon at the Bulkley River, and increasing annual catch of pink salmon at lower Skeena River (i.e. sections R1 and R3) for non-classified waters (Table 32), and
- no trends in annual catch of pink salmon at lakes and no annual catches of pink salmon were reported for any lakes since the 2007/2008 licence year (Table 34).

Table 34. Guide reported catch of pink salmon for *classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Pink Salmon Catch / Licence Year																					
Classified Waters	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	08/09	09/10	10/11	RANGE
SKEENA R 2	917	545	415	107	34	326	517	89		21	155	522	577	1854	749	1273	185				2629	0 - 2629
SKEENA R (Classified)														81	152	90	2					0 - 152
BULKLEY R		4	117																			0 - 117
KITSUMKALUM R A			14			2		11	9	26	1	19	1	14		73	1				26	0 - 73
KITSUMKALUM R A			14			2		11	9	26	1	19	1	14		73	1				26	0 - 73
SKEENA R 4		25	24	55	8		22	7		13	6	71	1	41	5	35	28					0 - 71
KISPIOX R							7			15	54	22	3									0 - 54
GITNADOIX R A	12																					0 - 12
ECSTALL R															1							0 - 1
Combined	929	574	584	162	42	330	546	118	33	140	185	634	580	2004	907	1544	217	0	0	0	2681	0 - 2681
	Reported Catch		21 year Trend				10 year Trend				5 year Trend											
Classified Water	21 Year Range		Slope of Linear Regression	F _{0.05(1,1,1,20)}	P	Since 1990/1991	Slope of Linear Regression	F _{0.05(1,1,1,9)}	P	Since 2001/2002	Slope of Linear Regression	F _{0.05(1,1,1,4)}	P	Since 2006/2007								
SKEENA R 2	0 - 2629		28.14	1.3442	0.2599	-	14.05	0.0184	0.8951	-	488.80	2.4110	0.1954	-								
SKEENA R 4	0 - 71		-0.54	0.5244	0.4774	-	-5.29	5.8257	0.0390	Decreasing	-5.60	3.0000	0.1583	-								
Combined	0 - 2681		29.04	1.3005	0.2676	-	1.79	0.0003	0.9873	-	492.80	2.3301	0.2016	-								

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 35. Guide reported catch of pink salmon for *non-classified waters* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Pink Salmon Catch / Licence Year																					
Non-Classified Waters	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	08/09	09/10	10/11	RANGE
SKEENA River 3				121		21	14	2		92	49	245	42	180	136	646	93	423	142	1000	371	0 - 1000
SKEENA River 1		32	18		2	63	37	5		55	23	55	15	213	79	415	1	131		40	331	0 - 415
BULKLEY River		169	35	42			136	9								5	6	12				0 - 169
SKEENA R (Non-Classified)															152	90	2			30	47	0 - 152
KISPIOX River		108	7		7	18	11	9	10	61			4									0 - 108
ZYMOETZ River 2			1			3			3	5		1		11	7	6		3	45	3		0 - 45
SKEENA River 2																		40				0 - 40
KASIKS River								7						9	6	26		12	1	10		0 - 26
GAMBLE Creek																		3			20	0 - 20
MORICE River						3										10	6	11				0 - 11
BABINE River 2							6															0 - 6
SHEGUNIA River		6																				0 - 6
KLEANZA Creek											2	1										0 - 2
KHYEX River													1								1	0 - 1
ZYMOETZ River 1																					1	0 - 1
Combined	0	315	61	163	9	108	204	32	13	213	74	302	62	413	380	1198	108	635	188	1084	769	0 - 1198
	Reported Catch		21 year Trend				10 year Trend				5 year Trend											
Non-Classified Water	21 Year Range		Slope of Linear Regression	$F_{0.05(1),20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),4}$	P	Since 2006/2007								
SKEDNA River 3	0	- 1000	27.15	14.8726	0.0010	Increasing	48.23	2.5212	0.1468	-	113.30	0.9783	0.3786	-								
SKEDNA River 1	0	- 415	8.74	5.6593	0.0274	Increasing	8.10	0.2324	0.6412	-	56.90	2.1420	0.2172	-								
BULKLEY River	0	- 169	-3.27	4.6238	0.0439	Decreasing	0.22	0.2243	0.6470	-	-2.40	3.0000	0.1583	-								
SKEENA R (Non-Classified)	0	- 152	2.35	3.2136	0.0882	-	0.54	0.0080	0.9307	-	12.00	10.1695	0.0332	Increasing								
Combined	0	- 1198	35.08	12.4937	0.0021	Increasing	60.04	2.1178	0.1796	-	177.10	2.6665	0.1778	-								

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

Table 36. Guide reported catch of pink salmon for *lakes* in the Skeena watershed from 1990/1991 to 2010/2011 licence years with summary of 21 year, 10 year, and five year trends.

	Guide Reported Pink Salmon Catch / Licence Year																						
Lakes	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	08/09	09/10	10/11	RANGE	
LAKELSE Lake													8	215		6							0 - 215
BABINE Lake					71																		0 - 71
HIDDEN Lake			65																				0 - 65
MORICE Lake																		7					0 - 7
Combined	0	0	65	0	71	0	0	0	0	0	0	8	215	0	6	0	0	7	0	0	0	0	0 - 215

	Reported Catch	21 year Trend					10 year Trend					5 year Trend				
Lakes	21 Year Range	Slope of Linear Regression	$F_{0.05(1),1,20}$	P	Since 1990/1991	Slope of Linear Regression	$F_{0.05(1),9}$	P	Since 2001/2002	Slope of Linear Regression	$F_{0.05(1),4}$	P	Since 2006/2007			
Combined	0 - 215	-0.56	0.0957	0.7603	-	-9.54	1.8038	0.2121	-	-0.70	0.4286	0.5484	-			

Note: Locations are sorted in descending order of the maximums of each range (see Appendix 1 for watershed codes and location descriptions) and only increasing or decreasing trends ($P < 0.05$) are presented below the annual summary.

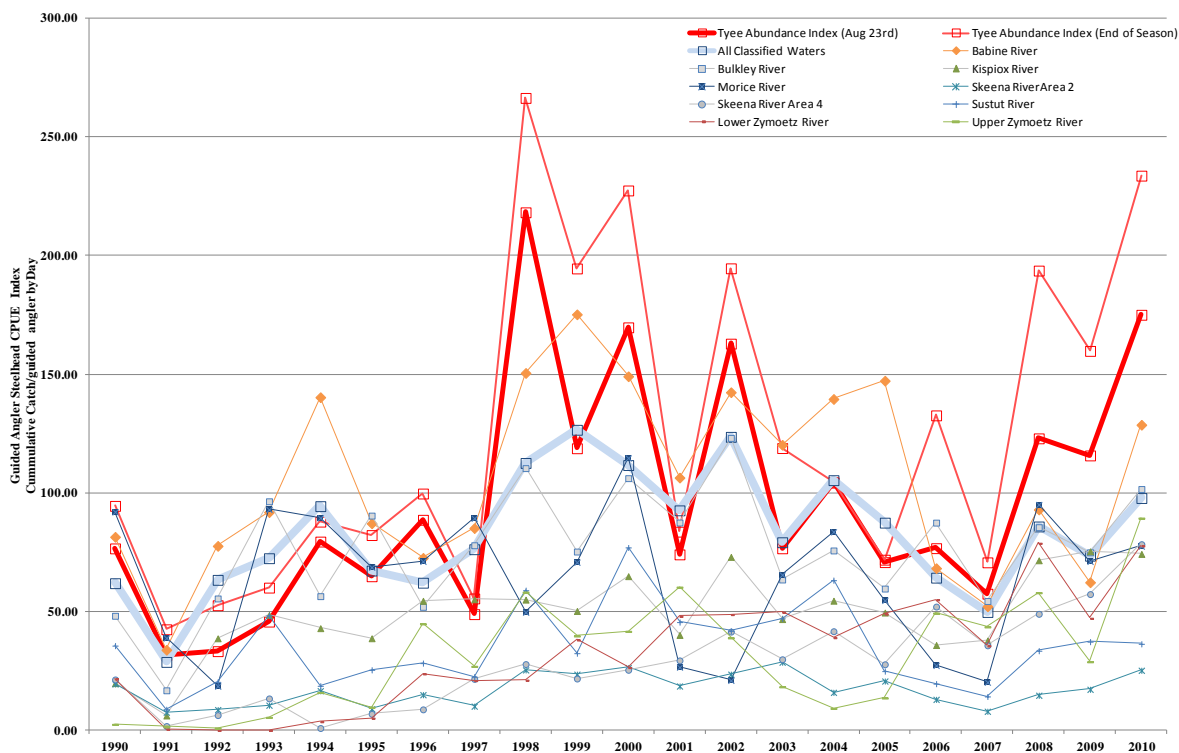
4.4 CORRELATION OF REPORTED ACTIVITIES OF ANGLING GUIDES AND STEELHEAD ABUNDANCE IN THE SKEENA WATERSHED

Correlations of reported activities of angling guides and steelhead abundance have been analysed based on recent requests to assess some potential relationships of guided angler success (i.e. catch/angler day) and angling guide benefits (i.e. guided angler days/year) with steelhead abundance. The Tyee steelhead abundance (TSA) index based on cumulative daily catch per 1000 fathom minutes (FOC 2010) is a commonly used indicator of annual summer-run steelhead returns to the Skeena watershed, and is thus used in the following analyses. Because the TSA index represents a combined total abundance of all populations in the Skeena watershed steelhead populations (e.g. Babine, Bulkley/Morice, Zymoetz, etc.), the reported activities of angling guides from all classified waters are also combined for analyses. Due to this pooling of guided angling activity data, it is important to note that the results of the following correlation analyses are only indicators since they are based on some assumptions of variables that are likely not consistent (e.g. guide activities at different rivers in the Skeena watershed are assumed to be distributed at the same proportions as their populations and sub-populations are distributed in the TSA Index). In addition, angling guide data with classified water status (i.e. July 1st to October 31st) was used to correct for the focus of some guided anglers toward different target species in earlier months. The two correlations analysed for this summary report include:

- correlation of TSA index and a derived Guided Angler Steelhead Abundance (GAC) Index (i.e. cumulative daily catch/guided angler rod day) to assess how guided angler success may be associated with steelhead abundance, and
- correlation of TSA Index and angling guide activities (i.e. annual guided angler days in all classified waters) to assess how steelhead abundance may be associated with economic benefits to the recreational fishery.

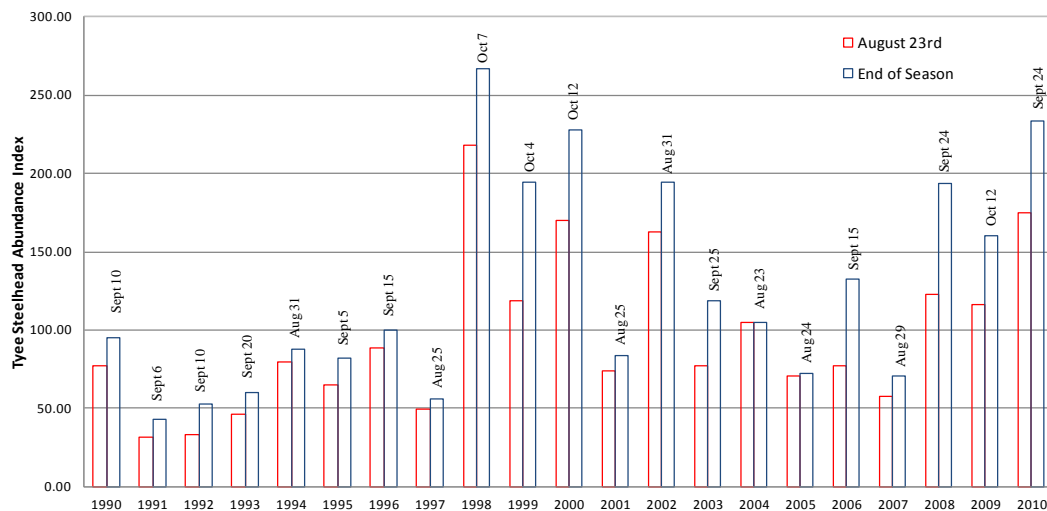
4.4.1 Correlation of Tyee Steelhead Abundance Index and Guided Angler Steelhead Abundance Index

To assess annual 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 the 1990/1991 to 2010/2011 licence years. 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 Tyee Steelhead Abundance Index (TSA Index), annual indices for steelhead angling success by guided anglers for classified waters were calculated based on cumulative daily CPUE from July 1st to October 31st (GAC Index) and are presented in Figure 4 with a comparison to TSA indices and displaying inter-annual inconsistencies in Figure 5. A linear correlation analysis of the TSA and GAC indices is also presented in Figure 6.



Note: The Tye Steelhead Abundance Indices are from the cumulative total of daily Tye test fishery results (steelhead catch/1000 Fathom minutes)

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



Note: The Tye Steelhead Abundance Indices are from the cumulative total of daily Tye test fishery results (steelhead catch/1000 Fathom minutes)

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 2010.

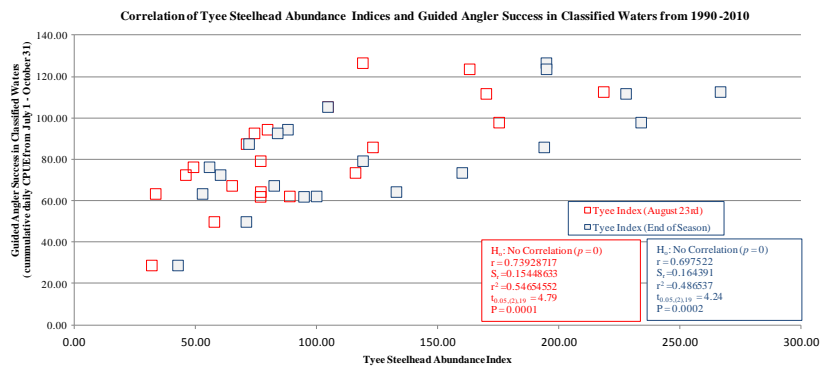


Figure 6. Linear correlation of Tyee Summer-Run Steelhead Abundance (TSA) Index for Skeena River and the Guided Angler Steelhead Abundance (GAC) Index from 1990 to 2010.

Since sampling by the Tyee test fishery ended on a variable array of dates from 1990 to 2010 (i.e. August 23rd to October 12th), the TSA Index values for August 23rd (i.e. the earliest end date of the Tyee Test Fishery from 1990 to 2010) are also 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 Tyee ended on September 15th), this index appears to provide a fairly accurate representation of inter-annual variation of steelhead abundance, even when compared to results from the variable end dates for the Tyee 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) and have a moderate linear correlation (Figure 6). However, there are some notable differences in the percent changes (i.e. both positive and negative) between sequential years (e.g. 1995-1996, 1998-1999, 1999-2000, 2005-2006) apparent in Figure 4. 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 will be 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 appear to 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 relationship to steelhead abundance.

4.4.2 Correlation of Tyee Steelhead Abundance Index and Angler days reported by Angling Guides in the Skeena watershed

A linear correlation of the Tyee Steelhead Abundance (TSA) Index and angling guide activities (i.e. annual guided angler days in all classified waters) was analysed to assess how steelhead abundance may be associated with economic benefits to the recreational fishery (i.e. increased guided angling). Not unexpectedly, no correlations of annual angling days and the TSA Indices of the same years were detected (Figure 7) indicating that the majority of guided angling activities are booked prior to the angling season. Out of interest, a linear correlation of the TSA Index and total guided angler rod days for the following year has also been analysed (Figure 8), but results also indicated no correlation despite the TSA indices having useful ranges from respectively low to high values for both August 23rd and end of season estimates (Figure 7 and 8). This result suggests that angling guide activity is mainly associated with guided rod day allocations regardless of steelhead abundance.

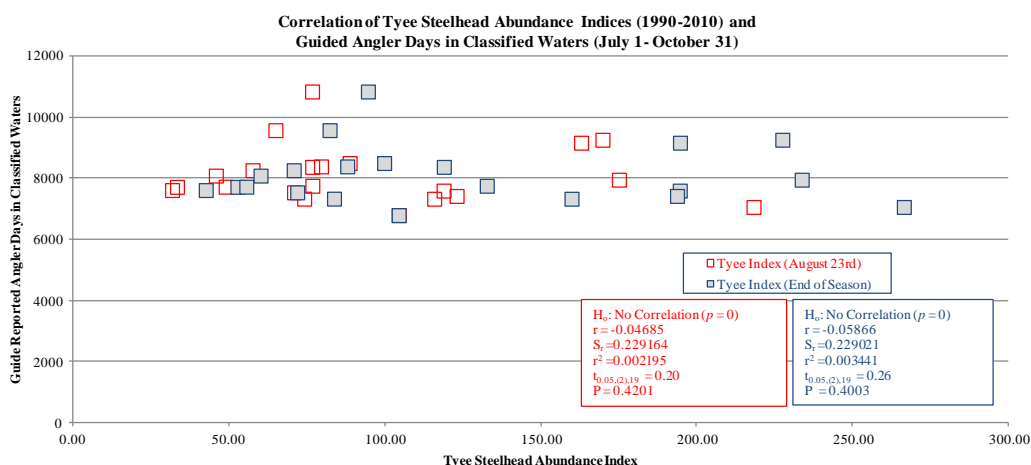


Figure 7. Linear correlation of Tyee Summer-Run Steelhead Abundance (TSA) Index for Skeena River and the Annual Guided Angler Catch from 1990 to 2010.

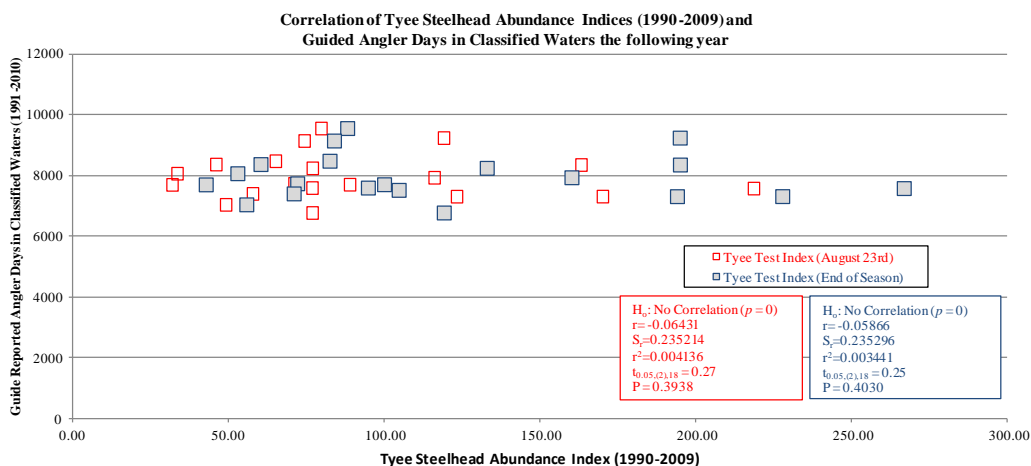


Figure 8. Linear correlation of Tyee Summer-Run Steelhead Abundance (TSA) Index for Skeena River from 1990 to 2009 and the Annual Guided Angler Catch from the following year.

5.0 DISCUSSION AND RECOMMENDATIONS

This summary report of the Angling Guide Management System database (AGMS) is a compilation of all data from submitted angling guide reports for the Skeena watershed from 1990/1991 to 2010/2011 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. Queries for data imports of future electronically submitted annual reports from angling guides using the newly modified the AGMS data entry tool (AGMS_V4_2011.mdb) and instructions to assist with the import procedures have also been appended to this summary report (Appendix 3). Future discussions with regard to standardizing the format and data criteria of electronic submissions should also be considered to reduce the presently required and variable manipulations of every electronically submitted angling guide report for its import into AGMS. Overall, the input of angling guide data from angling guide reports submitted for 1990/1991 to 2010/2011 licence year into the AGMS data entry/management tool appears to provide some useful additions to the summaries of freshwater angling guide activities and catch results and may be annually updated more regularly in conjunction with refined requirements and specifications of digital data submissions of the annual reports from all licenced angling guides.

The presentation of the AGMS data in this summary report is also intended to identify some useful insights into angling guide management (Section 4.1), angling guide activities (Section 4.2), the species reported and their locations reported in the Skeena watershed (Section 4.3), and relative inter-annual correlations of angling guide activity with the Tyee Test Fishery Steelhead Abundance (TSA) Index (Section 4.4). Based on this up to date copy of AGMS data, angling guides in the Skeena Region appear to provide a useful summary of their guiding activities in their annual reports. However, not unlike other field data collections, a quality assurance of the field operations and data collection by at least a sub-sample of individual guides would have been, and will be important to evaluate the reliability of the reported information. An addition to future angling guide licences of an allowance for angling guides to exceed their allotments of angler days, possibly with in-season notification and BC Environment approval for defined cases suspected to be excessive, may also be a useful method to improve the accuracy and precision of the results and trends for future use as angling guide management indicators.

Overall, the AGMS data entry tool is presently usable for data compilation and for review of specific information regarding individual angling guide activities and licence reviews. Many of the trends in angling guide activities that have been identified are useful, but several uncertainties and potential biases suspected and not considered in the design of this data acquisition emphasize the need to only use the results and trends identified as indicators of potential concerns or changes in guided angling activities. Some modifications of the forms, reports, and automated displays of summary information in the AGMS data entry tool may be useful if this tool is to be regularly updated and actively used to monitor licenced guides and guided angling activity.

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APPENDIX 3

Procedures for updating Angling Guide Management System database
with digitally submitted annual reports from licenced angling guides (2011)

Data Entry Tool:	AGMS_V4_2011.mdb
Database:	AGMS_V4_2011_Data.mdb

1.0 THE ANGLING GUIDE MANAGEMENT SYSTEM (AGMS) SETUP

The easiest setup is to copy AGMS_V4_Data.mdb and AGMS_V4_2011.mdb into a new directory called C:\Angling_Guide_Management and create and copy a link to AGMS_V4_2011.mdb to your desktop. Saving a dated backup copy of AGMS_V4_Data.mdb is highly recommended prior to the start of every data import attempt.

The directory name can be adjusted to any directory by opening AGMS_v4_2011.mdb, GO TO "Database Maintenance", GO TO "System Variables", then set directories and change database names if desired.

2.0 PREPARATION OF MSEXCEL SUBMISSIONS OF ANNUAL REPORTS FROM LICENCED ANGLING GUIDES

Due to the different data structure of digitally submitted annual reports for classified and non-classified waters, these two report types must be imported into AGMS_V4_Data.mdb independently. Prior to import, every submitted report will still require a formal review to ensure that all specifications stated in the licence agreement are fulfilled. In addition, until more detailed and locked formats are established in the digital data forms, various corrections will still be required for individual submissions.

Some of the formatting issues that caused errors during imports of the 2010/2011 annual reports to AGMS_V4_Data.mdb have required the following fixes:

- Modify Field:[Unclassified Waterbody Name] to match roll down selections presented in roll down on MSEXcel form for Classified Waters and from Table:[Waters] in AGMS_v4_Data.mdb
- Some "Dates" were formatted incorrectly likely due to cut and pasting and use of incorrect system settings on personal computers. Use =DateVALUE[xx] to correct dates from text to date.
- Water names may require updates to match electronic submissions Field:"Classified Water Name" with Field:"WNAME" in Table:[Waters] from AGMS_V4_data.mdb.

NOTE: It will be useful to continue adding all data fixes encountered to this documentation to help save time during future imports as well as help identify and implement valuable updates to the submission forms

2.1 PREPARATION OF MSEXCEL SUBMISSIONS FOR CLASSIFIED WATERS

- A. Create an MSEXcel workbook (e.g. AGMS_Classified_Waters_Submissions_2012) in your Angling_Guide_Management File Directory
- B. Name the first worksheet in this workbook "AGMS_Classified_Waters_2012"
- C. Copy and paste each annual report from each licenced guide onto individual worksheets named "Surname, First Name" with the worksheets ordered alphabetically by Surname
- D. Review each annual report and correct any noted format errors (see above)
- E. "Copy" and "Paste Link" all data from each annual report to the worksheet: "AGMS_Classified_Waters_2012"
- F. Check that all annual reports are linked to the worksheet: "AGMS_Classified_Waters_2012", then "Save" and "Close" the file prior to the import of the Worksheet: " into the AGMS database.

2.2 PREPARATION OF MSEXCEL SUBMISSIONS FOR NON-CLASSIFIED WATERS AND LAKES

- A. Create an MSEXcel workbook (e.g. AGMS_Non_Classified_Waters_Submissions_2012) in your Angling_Guide_Management File Directory
- B. Name the first worksheet in this workbook "AGMS_Classified_Waters_2012"
- C. Copy and paste each annual report from each licenced guide onto individual worksheets named "Surname, First Name" with the worksheets ordered alphabetically by Surname
- D. Review each annual report and correct any noted format errors (see above)
- E. "Copy" and "Paste Link" all data from each annual report to the worksheet: "AGMS_Classified_Waters_2012"
- F. Check that all annual reports are linked to the worksheet: "AGMS_Non_Classified_Waters_2012", then "Save" and "Close" the file prior to the import of the Worksheet into the AGMS database.

3.0 MSACCESS PROCEDURES

- A. Open AGMS_V4_2011.mdb with MSAccess 2007 or later.
- B. Click on “Database Maintenance”, Click on “System Variable” and check that Data Location and User location are correct, then exit back to “Main menu”.
- C. On the “Home” Tab of MSAccess, click the “View Design” button, and then click “close window” to hide the main menu.
- D. View “Navigation Pane” (on the left side of the MSAccess page) to allow selection and editing of Tables, Queries, Appended Queries, and cross tables
- E. View “Tables” in “Navigation Pane”
- F. Delete all records from Tables: [A2_CW_Guide Catch_All Species_Temp], [B_Imported_Non_Classified_Waters_Temp], [B2_NCW_Guide Catch_All Species_Temp], and [B3_NCW_Anglers_Temp]

3.1 UPDATE PERMIT NUMBERS IN AGMS_v4_DATA.MDB

- A. View “Forms” in “Navigation Pane”
- B. Open “Main switchboard”
- C. Click “Permit Administration”
- D. Click “Guide Licence Administration”
- E. Add a minimum of angling guide licence number, guide name, and Licence Year to the database for all licenced guides in the year being imported
- F. Check that all names on submitted annual reports have an identical match with names listed under guides, otherwise modify the name in the data submission report

3.2 IMPORT MSEXCEL DATA FOR “CLASSIFIED WATERS” (CW) USING AGMS_v4_2011.MDB

- A. Open AGMS_v4_2011.mdb (Check that System Variables are set to AGMS_v4_Data.mdb in correct file directory)
- B. Select Tab:”External Data”
- C. On the “Import” Tab, Select the “Excel” Button
- D. Select the “Browse” button beside “File name:” and choose the MSeXcel file with the worksheet you wish to import
- E. Select the option to “append a copy of the records to table:” and select TABLE: [A_Imported_Classified Waters_Temp], Select “OK”
- F. Under”Import Spreadsheet Wizard”, select the MSeXcel worksheet that you wish to import, Click “OK” And “OK” and data should load
- G. Open the Table: [A_Imported_Classified Waters_Temp] and Table:[import errors] to check for compatability of MSeXcel data formats . If an error occurs, delete the Table: [*Import Errors], clear records from Table: [A_Imported_Classified Waters_Temp], modify MSeXcel worksheet for compatability, and re-import data.

3.2.1 QUERY AND APPEND [GUIDE ACTIVITY] FOR “CLASSIFIED WATERS” TO AGMS_v4_DATA.MDB

This procedure also creates the Primary ID # in the FIELD: GALINK for links to TABLE: [Guide Catch] and [Anglers].

- A. Use the Query: *A1_Create_CW_Guide Activity_Temp* and check that the number of records in this query is equal to the number of records in Table: [A_Imported_Classified Waters_Temp]
- B. Use the Append Query: *A1_Append_CW_Guide Activity_Temp_to_GUIDE ACTIVITY* to update the Table [Guide Activity] in AGMS_v4_Data.mdb
- C. Open Table: [Guide Activity] and check that data has not been previously entered (*see* Note below)

Note: the time (i.e. mm/dd/yyyy and hh:mm) of import is automatically loaded in the field: [date of Update] to help identify duplicate records in Table: [Guide Activity] in AGMS_v4_Data.mdb when checking records with the same Field: [Guide Licence Number], [Licence Year] and [Type] are not duplicated

3.2.2 QUERY AND APPEND [GUIDE CATCH] FOR “CLASSIFIED WATERS” TO AGMS_v4_DATA.MDB

- A. Pool Catch data with a Link to Table:[Guide Activity] (i.e. Field: [GALINK]) into Table: [A2_CW_Guide Catch_All Species_Temp] by running the following Append Queries:
 - *A2a_Append_CW_Guide Catch_SP1_to_CW Guide Catch_All Species_Temp*
 - *A2b_Append_CW_Guide Catch_SP2_to_CW Guide Catch_All Species_Temp*
 - *A2c_Append_CW_Guide Catch_SP3_to_CW Guide Catch_All Species_Temp*
 - *A2d_Append_CW_Guide Catch_SP4_to_CW Guide Catch_All Species_Temp*
 - *A2e_Append_CW_Guide Catch_SP5_to_CW Guide Catch_All Species_Temp*
- B. Use the Append Query: *A2_Append_CW_Guide Catch_All Species_Temp_to_GUIDE CATCH* to update the Table [Guide Catch] in AGMS_v4_Data.mdb
- C. Use the Query: *A2_QA_CW_Guide Catch* to ensure that Table: [Guide Catch] is linked to Table: [Guide Activity] and to test for duplicate imports

3.2.3 QUERY AND APPEND [ANGLERS] (I.E. RESIDENCY) FOR “CLASSIFIED WATERS” TO AGMS_v4_DATA.MDB

- A. Use the Query: *A3_Create_CW_Anglers_Temp* and ensure that Field: [Residency] has a [Residency code] listed in Table: [Residency Codes]
- B. Use the Append Query: *A3_Append_CW_Anglers_Temp_to_ANGLEDERS* to update the Table: [Anglers] in AGMS_v4_Data.mdb
- C. Use the Query: *A3_QA_CW_Anglers* to ensure that Table: [Anglers] is linked to Table: [Guide Activity] and to test for duplicate imports

3.3 IMPORT MSEXCEL DATA FOR “NON-CLASSIFIED WATERS” USING AGMS_v4_2011.MDB

- A. Open AGMS_v4_2011.mdb, Select Tab:”External Data”
- B. On the “Import” Tab, Select the “Excel” Button
- C. Select the “Browse” button beside “File name:” and choose the MSeXcel file with the worksheet you wish to import
- D. Select the option to “append a copy of the records to table:” and select TABLE: [B_Imported_Non Classified Waters_Temp], Select “OK”
- E. Under”Import Spreadsheet Wizard”, select the worksheet that you wish to import, Click “OK” And “OK” and data should load
- F. Open the Table: [B_Imported_ Non Classified Waters_Temp] and look for Table:[import errors] to check for compatability of MSeXcel data formats. If an error occurs, delete the Table: [*Import Errors], clear records from Table: [B_Imported_Non Classified Waters_Temp], modify MSeXcel worksheet for compatability, and re-import data.

3.3.1 QUERY AND APPEND [GUIDE ACTIVITY] FOR “NON-CLASSIFIED WATERS” TO AGMS_v4_DATA.MDB

This procedure also creates the Primary ID # in the FIELD: GALINK for links to TABLE: [Guide Catch] and [Anglers].

- A. Use the Query: *B1_Create_NCW_Guide Activity_Temp* and check that the number of records in this query is equal to the number of records in Table: [B_Imported_ Non Classified Waters_Temp]
- B. Use the Append Query: *B1_Append_NCW_Guide Activity_Temp_to_GUIDE ACTIVITY* to update the Table: [Guide Activity] in AGMS_v4_Data.mdb
- C. Open Table: [Guide Activity] and check that data has not been previously entered (*see* Note below)

Note: the time (i.e. mm/dd/yyyy and hh:mm) of import is automatically loaded in the field: [date of Update] to help identify duplicate records in Table: [Guide Activity] in AGMS_v4_Data.mdb when checking records with the same Field: [Guide Licence Number], [Licence Year] and [Type] are not duplicated

3.3.2 QUERY AND APPEND [GUIDE CATCH] FOR “NON-CLASSIFIED WATERS” TO AGMS_v4_DATA.MDB

- A. Pool Catch data with a Link to Table:[Guide Activity] (i.e. Field: [GALINK]) into Table: [B2_NCW_Guide Catch_All Species_Temp] by running the following Append Queries:
 - *B2a_Append_NCW_Guide Catch_SP1_to_NCW Guide Catch All Species_Temp*
 - *B2b_Append_NCW_Guide Catch_SP2_to_NCW Guide Catch All Species_Temp*
 - *B2c_Append_NCW_Guide Catch_SP3_to_NCW Guide Catch All Species_Temp*
 - *B2d_Append_NCW_Guide Catch_SP4_to_NCW Guide Catch All Species_Temp*
 - *B2e_Append_NCW_Guide Catch_SP5_to_NCW Guide Catch All Species_Temp*
- B. Use the Append Query: *B2_Append_NCW_Guide Catch_All Species_Temp_to_GUIDE CATCH* to update the Table [Guide Catch] in AGMS_v4_Data.mdb
- C. Use the Query: *B2_QA_NCW_Guide Catch* to ensure that Table: [Guide Catch] is linked to Table: [Guide Activity] and to test for duplicate imports

3.2.3 QUERY AND APPEND [ANGLERS] (I.E. RESIDENCY) FOR “NON-CLASSIFIED WATERS” TO AGMS_v4_DATA.MDB

- A. Pool Anglers with different residence status with a Link to Table:[Guide Activity] (i.e. Field: [GALINK]) into Table: [B3_NCW_Anglers_Temp] by running the following Append Queries:
 - *B3a_Append_NCW_Anglers_Non Resident Alien_to_NCW_Anglers_Temp*
 - *B3b_Append_NCW_Anglers_Non Resident_to_NCW_Anglers_Temp*
 - *B3c_Append_NCW_Anglers_Resident Alien_to_NCW_Anglers_Temp*
- B. Use the Append Query: *B3_Append_NCW_Anglers_Temp_to_ANGLEDERS* to update the Table: [Anglers] in AGMS_v4_Data.mdb
- C. Use the Query: *B3_QA_NCW_Guide Catch* to ensure that Table: [Anglers] is linked to Table: [Guide Activity] and to test for duplicate imports