

BC Skagit River Angler Survey 2011



Skagit Environmental Endowment Commission

Final Report

By

Duane Jesson

Ministry of Forests, Lands and Natural Resource Operations

200 -10428 153rd Street

Surrey BC V3R 1E1

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SEEC is dedicated “to preserving and protecting the natural and cultural resources and recreational opportunities of the Upper Skagit Watershed since 1984”.



Cover: Skagit River angler (D. Jesson photo).

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Introduction

The BC Skagit is the most highly valued non-anadromous Rainbow Trout recreational fishery in the South Coast Region and is popular among fly-fishers. The last several years have seen a dramatic change in the Rainbow Trout and Bull Trout populations in the BC Skagit River, with Bull Trout numbers increasing and Rainbow Trout numbers decreasing (**Appendix A**). The observed change in the BC Skagit is also thought to be reflective of the population dynamic of the two species in Ross Reservoir.

The reason for such change is speculated to have resulted from the introduction of a minnow-sized cyprinid species, Red-side Shiner, in Ross Reservoir. The Red-side population is now in the millions and are a readily available forage item for sub-adult and adult Bull Trout and Rainbow Trout. Other factors that may be contributing to the observed change include the 20 years of catch and release regulations for Bull Trout in Skagit River and Ross Lake and/or differing juvenile survival rates between the two species.

With the observed changes, it was felt that a survey was required to determine if angler expectations and satisfaction levels were comparable to the most recent survey in 2002. Due to available funding, the more elaborate random-stratified direct angler contact-interview survey used previously was cost prohibitive. Instead, the 2011 survey was lower cost and relied on anglers voluntarily completing a Questionnaire and dropping it into one of two boxes located within the Park.

Methods

The Skagit River Angler Questionnaire 2011 (“the Questionnaire”) was the first time a voluntary self-reporting angler survey was attempted in the BC Skagit. Surveys since 1986 and prior to 2011 followed the rigorous statistical design described in Lewynsky, 1986. By regulation, the Skagit is open to angling from July 1 to October 31. In 2011, Skagit flows were thought to be fishable between approximately July 20 and October 31, with water levels too high to effectively angle prior to July 20.

The angling public was the focus for Questionnaire distribution and other park users were avoided. The Questionnaires were distributed by regional Fisheries and BC Parks staff attending Skagit Provincial Park. There was no pre-determined sampling schedule; however, a mix of weekdays and weekends was desired. The Questionnaires were hand-placed on vehicle windshields located in day use areas or beside the main road. In some instances, Questionnaires were handed directly to anglers when encountered on the river or in day use areas. The Questionnaires were also available to anglers at information shelters located in Silver Skagit and Ross Lake campgrounds. Posters placed at day use locations and at information shelters alerted the public to the BC Skagit angler survey as well as a second angler survey occurring on Ross Reservoir (**Appendix B**). Anglers were instructed to self-report on their fishing success and experience for that day and deposit completed Questionnaires (**Appendix C**) into drop boxes located at Ross Lake campground or at the Park entrance (**Appendix D**). Questionnaires were distributed from July 20th to October 20th.

The portion of the BC Skagit River selected for the survey was from Silver Skagit campground downstream to Ross Lake campground. This section of river corresponds to what is referred to as the “Lower” Skagit River in previous angler surveys.

Results and Discussion

The following summarizes angler response to the 2011 Questionnaire:

- 303 Questionnaires were distributed by hand or removed from sign boards.
- 89 Questionnaires returned to drop boxes.
- 76 (85.4%) of the returned Questionnaires contained useable angler related data.
- 11 forms reported “not fishing”.
- 2 forms were nonsense.

On one occasion the drop-box located at the Park entrance was found vandalized with at least one completed Questionnaire removed and missing. See Appendix E for the raw data transcribed from the Questionnaires.

2011 angler effort & catch

A total of 131 anglers caught 291 Rainbow Trout and 115 Bull trout, for a catch per unit effort of 2.2 Rainbow/angler-day and 0.9 Bull Trout/angler-day. The term “angler-day” is defined as one angler fishing for any part of one day.

2011 fishing experience

Anglers were asked to rate their fishing experience for the day on a scale from poor to excellent. Responses were provided on a “fishing party” basis. Angling parties ranged from one to 6 anglers in size, with 76 angling parties representing 131 anglers. The table below summarizes the results.

Experience rating by party	%	No. of fishing parties	# anglers represented
Excellent	21	16	29
Good	33	25	39
Fair	34	26	49
Poor	12	9	14

Comparison between 2002 and 2011

A comparison between the 2002 and 2011 angler surveys is difficult due to the different survey methods employed and the difference in the number of angler interviews/responses. In 2002, a total of 792 anglers were interviewed with 632 angler interviews occurring in the Lower Skagit River. This is compared to the

76 useable Questionnaire responses representing 131 anglers in the 2011 survey. All responses in 2011 were from the Lower Skagit.

Even though different methodologies were used, there are 2 comparisons that stand out between 2002 and 2011, that being catch rates and fishing experience rating.

Catch Rates

The table below compares Rainbow Trout and Bull Trout catch rates between the 2 survey years.

Species	2002	2011
	No. Fish per angler day**	No. Fish per angler day
Rainbow	2.9	2.2
Bull trout	0.06	0.9

**For 2002 the number Rainbow Trout and Bull Trout caught was determined using the following equation with information derived from Scott, 2003:

$(5.15 \text{ hours/angler day in Lower Skagit in 2002}) \times (0.5605 \text{ Rainbow per hour}) = 2.9 \text{ fish/angler day}$

$(5.15 \text{ hours/angler day in Lower Skagit in 2002}) \times (0.0117 \text{ Bull Trout per hour}) = 0.06 \text{ fish/angler day}$

The increase in Bull Trout catch and the decrease in Rainbow Trout catch from 2002 to 2011 coincide with the respective fish supplies suggested by the snorkel survey results in Appendix A; however, discussions with some knowledgeable anglers indicated that Rainbow Trout or Bull Trout could be targeted by species by varying lure type, technique and fishing location.

Fishing Experience

The table below compares fishing experience rating between the 2 survey years.

Rating	2002	2011
Excellent	54.6%	21%
Good	36.5	33
Fair	7.6	34
Poor	1.1	12
Terrible	0.2	Rating not used

The BC Skagit has historically been a favourite for fly-fishers targeting Rainbow Trout and always received a high angler satisfaction rating; therefore, the drop from 54.6% to 21% in the “excellent” category is of concern to fisheries managers. It is unknown if the decrease is the result of interview methodology and honest angler response (i.e. direct interview versus anonymous Questionnaire) or whether the increase in Bull Trout is resulting in some angler angst among devoted Rainbow Trout anglers. It is noted that three completed Questionnaires included comments recommending a Bull Trout cull.

Recommendations

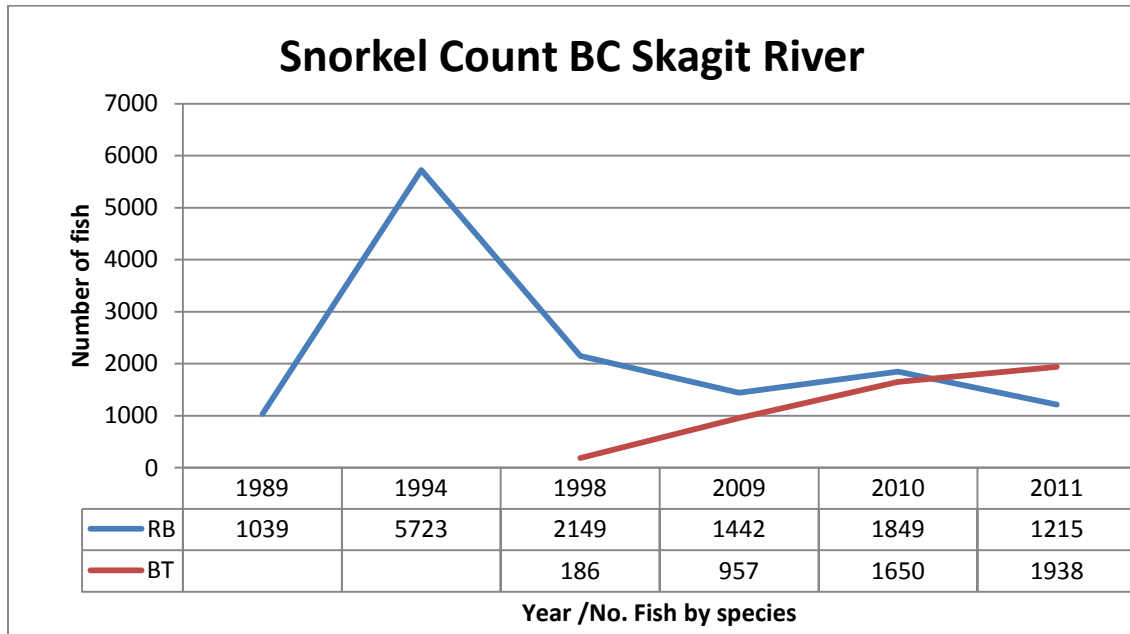
The change in angler satisfaction is worthy of continued monitoring. Consideration should be given to conducting the Lewynsky standard angler survey within the next 2 or 3 years to determine if the present survey results are indeed an indicator of change. Application can be made to the Skagit Environmental Endowment Commission for funding. Regulation changes are not recommended at this time. All fisheries management actions, regulatory or otherwise, should be carefully considered and involve BC Parks and Washington State resource agencies (Nation Park Service and Washington State Fish & Wildlife).

The survey methodology used in 2011 was proven to be a cost effective means of obtaining angler information and should be considered in low funding years. The survey cost was estimated to be approximately \$2500 with staff travel (per diems) and vehicle costs (gas) the main expenditures. This is compared to a cost of approximately \$30,000 for the Lewynsky survey which requires a consultant to implement. A means to increase survey response would benefit the Questionnaire survey and should be explored.

References

1. Anaka, R.J., K.J. Scott, and R. Masson, 2012. Snorkel Survey of Trout and Char in the Canadian Skagit River, 2011. Prepared for Skagit Environmental Endowment Commission, by Scott Resource Services Inc.
2. Lewynsky, V.A. 1986. Creel survey designs for the Skagit River and Ross Reservoir sport fisheries. Prepared for B.C. Ministry of Environment. Regional fish report no. LM150 47p+appendix.
3. Scott, K.J., A.R. Walter, and M.J. Staley, 2003. Assessment of the 2002 Skagit River Sport Fishery. Prepared for Skagit Environmental Endowment Commission, by Scott Resource Services Inc.

APPENDIX A



Rainbow Trout (RB) and Bull Trout (BT) individual fish counts from snorkel surveys conducted in the BC Skagit River from 1989 to 2011.

APPENDIX B

(Note: poster size reduced for inclusion into report)

ATTENTION ANGLERS

Ross Lake – BC Skagit River Angler Survey

From **July 1 to October 31, 2011**, BC Parks and the US National Park Service will be conducting angler surveys on Ross Lake and the BC Skagit River.

Ross Lake anglers fishing in Washington State or British Columbia may be interviewed by Park staff or volunteers.

Skagit River anglers fishing in British Columbia may be asked to complete a self-reporting questionnaire. If asked, please place the completed questionnaire into one of the drop-boxes located on the information shelters at Ross Lake campground or the entrance to Skagit Valley Park.

Your co-operation in participating in the survey is appreciated and will help better manage your natural resources.

For additional information regarding the Ross-Skagit Angler Survey contact:

Skagit Fisheries Management Biologist
Ministry of Forests, Lands & Natural Resource Operations
10470 -152nd Street, Surrey BC V3R 0Y3
Telephone: 604-582-5200 (Lower Mainland)
Toll-Free: 1-800-663-7867

Please consult the 2011-2013 Freshwater Fishing Regulations Synopsis when fishing in British Columbia's freshwater lakes and streams.



APPENDIX C

Skagit River Angler Questionnaire 2011



1. Please complete and submit the Questionnaire even if you did not fish today.
2. Please complete and submit the Questionnaire even if you completed a Questionnaire on a previous visit.
3. Your answers should be for today's visit only.
4. This questionnaire is for the Skagit River only. Do not include any angling that you did today on Ross Lake.
5. Please deposit completed Questionnaires in the Drop-Box marked "**COMPLETED SKAGIT RIVER ANGLER QUESTIONNAIRES**". **Drop boxes** are located on the information shelters at Ross Lake Campground or at the entrance to Skagit Valley Park on Silver Skagit Road.

THANK YOU FOR YOUR ASSISTANCE. YOU ARE HELPING TO BETTER MANAGE BC's NATURAL RESOURCES

SEE BACK OF SHEET FOR QUESTIONS

Is today a (circle answer): weekday weekend statutory holiday i.e. July 1

Did you or any person in your group **fish the Skagit River today** (circle answer):

YES NO

IF YES, PLEASE ANSWER THE FOLLOWING QUESTIONS:

What was the **total number of anglers** in your group? _____ (if angling alone, your answer is 1)

What was the **total number of rainbow trout** caught and released by your group? _____

What was the **total number of char** (bull trout or Dolly Varden) caught and released by your group? _____

How would you rate today's **fishing experience** (circle answer)? Poor Fair
Good Excellent

APPENDIX D



Questionnaire drop-box and angler information poster located at the shelter at the entrance to Skagit Provincial Park (D. Jesson photo).

APPENDIX E

(Questionnaire Results)

Survey p/u date	Day Type	Fish Skagit today?	# Anglers	# RB	# BT	Rating	Comments
11-Nov	WE	N	0	0	0	NA	went hiking
11-Nov	WE	Y	2	0	0	P	
11-Nov	WD	Y	5	8	2	E	
11-Nov	WE	Y	1	0	4	G	
15-Sep	WE	Y	1	15	1	G	
15-Sep	WE	Y	1	1	1	F	surface flies; RB 10 inches; Char 8 inches
15-Sep	WE	Y	2	2	0	E	
15-Sep	WD	Y	1	11	4	E	
15-Sep	WD	Y	2	10	2	G	
15-Sep	WD	Y	1	0	0	F	had 2 bites
15-Sep	WD	Y	2	12	0	G	
15-Sep	WD	Y	2	1	6	F	mosquitoes really bad today
15-Sep	WD	Y	1	2	5	E	
15-Sep	WD	Y	1	1	7	G	
15-Sep	UN	Y	2	6	0	F	
15-Sep	WE	N	0	0	0	NA	
15-Sep	WE	Y	1	4	0	G	
15-Sep	WD	Y	2	2	0	E	
28-Sep	WD	Y	2	10	0	F	
28-Sep	WD	Y	5	20	2	E	
28-Sep	WD	Y	1	0	0	F	
28-Sep	WD	Y	2	12	0	F	
28-Sep	WD	Y	1	3	0	G	plus 3 L.D.R's.
24-Jul	WD	Y	3	1	0	F	
24-Jul	WE	Y	4	2	4	F	
12-Aug	WE	Y	1	8	0	E	
12-Aug	WE	Y	1	3	0	G	too many power boats on the river
12-Aug	WD	Y	3	20	5	G	
12-Aug	WF	N	0	0	0	NA	
14-Oct	ST	Y	1	1	1	P	
14-Oct	ST	Y	3	0	1	P	
10-Oct	WE	N	0	0	0	NA	
10-Oct	WE	N	0	0	0	NA	
03-Sep	WE	N	0	0	0	NA	
03-Sep	WE	Y	1	3	0	P	

03-Sep	WE	Y	2	3	0	G	
03-Sep	WD	Y	2	7	2	G	
19-Aug	WD	Y	1	0	0	E	I hope the road stays the same or worse. DFO should make it a fly-fishing only fishery. I'm a purist, it's a great experience whether you catch fish or not.
19-Aug	WD	Y	1	1	0	E	
19-Aug	WD	Y	2	0	0	G	
19-Aug	WE	Y	3	0	7	G	
19-Aug	WD	Y	2	2	0	F	
19-Aug	WE	Y	1	6	0	F	
19-Aug	WD	Y	1	4	0	F	
19-Aug	WD	Y	2	1	0	F	
19-Aug	WE	Y	2	3	0	F	
19-Aug	WE	Y	2	0	0	G	
19-Aug	WD	Y	2	5	18	E	
15-Jul	WE	Y	2	1	0	G	many long releases
15-Jul	WE	N	0	0	0	NA	
15-Jul	WE	Y	1	0	0	E	keep up the good work you do
15-Jul	WE	Y	2	1	1	G	high water
26-Aug	WD	Y	1	0	7	P	In the last 5 yrs the BT have been very prevalent to the point where there are very few (RB) left. The bulls are very aggressive; if you do not start culling them they will dominate the lake & river. I have been coming here for over 20 years and this is very alarming.
26-Aug	UN	Y	2	0	0	F	
26-Aug	WD	Y	2	8	0	G	
26-Aug	WD	Y	1	7	0	G	
26-Aug	WD	Y	1	2	0	G	
26-Aug	WD	Y	1	0	15	G	
26-Aug	WD	Y	4	2	14	F	
26-Aug	WE	Y	2	4	0	E	Do a cull of the bull trout. They are taking over.
30-Oct	WE	Y	2	0	0	F	
30-Oct	WE	Y	1	0	1	F	
30-Oct	WD	Y	1	0	0	E	Love this place; cull the bulls.
30-Oct	WE	Y	1	3	0	G	Weather was awesome. Scenery outstanding.
30-Oct	WE	Y	1	1	0	F	
30-Oct	WD	Y	1	0	0	P	
30-Oct	WD	Y	1	11	0	E	
30-Oct	WE	Y	1	0	0	F	

30-Oct	WE	Y	2	0	0	P	
30-Oct	WD	Y	1	9	0	G	But slower than years ago.
30-Oct	WD	Y	2	2	0	F	
30-Oct	WE	Y	1	1	0	F	
05-Aug	WE	Y	1	1	0	G	
05-Aug	WE	Y	1	2	0	P	
00-Jan	ST	Y	2	1	0	P	
05-Aug	WE	Y	1	5	0	F	
05-Aug	ST	N	0	0	0	NA	
05-Aug	UN	Y	1	2	0	F	6 inch rainbow
05-Aug	WE	N	0	0	0	NA	
05-Aug	WE	Y	2	5	0	E	
05-Aug	WD	N	0	0	0	NA	
05-Aug	WD	Y	1	2	2	G	
05-Aug	WE	Y	6	10	0	F	
05-Aug	WD	Y	1	10	2	E	
05-Aug	WD	Y	2	11	1	G	
05-Aug	ST	Y	1	0	0	F	
05-Aug	WE	N	0	0	0	NA	
			131	291	115		