

Policy and Practice Report

Overview of Fraser River Sockeye Salmon

Net and Gross Escapement Data

1 April 2011

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Introduction

1. In preparation for the hearings, the commission assembled and compiled information on net and gross escapement contained in Fraser River Panel Annual Reports and an excel file titled Fraser River sockeye Catch and Exploitation Rates by stock¹ (“PSC’s excel file”) provided by the Pacific Salmon Commission.

Net escapements

2. Table 1 on page 6 contains net escapement estimates for the entire Fraser River sockeye salmon stock.
3. Table 2 on page 8 contains net escapement estimates for the Fraser River sockeye salmon Early Stuart Run.
4. Table 3 on page 10 contains net escapement estimates for the Fraser River sockeye salmon Early Summer Run.
5. Table 4 on page 12 contains net escapement estimates for the Fraser River sockeye salmon Summer Run.
6. Table 5 page 14 contains net escapement estimates for the Fraser River sockeye salmon Late Run.

Gross escapements

7. Table 6 on page 16 contains gross escapement estimates for the entire Fraser River sockeye salmon stock.
8. Table 7 on page 18 contains gross escapement estimates for the Fraser River sockeye salmon Early Stuart Run.
9. Table 8 on page 20 contains gross escapement estimates for the Fraser River sockeye salmon Early Summer Run.

¹ Ringtail Document PSC000011.

10. Table 9 on page 22 contains gross escapement estimates for the Fraser River sockeye salmon Summer Run.
11. Table 10 on page 24 contains gross escapement estimates for the Fraser River sockeye salmon Late Run.

Data sources

12. Most of the estimates in the tables below are sourced from annual reports produced by the Pacific Salmon Commission (“PSC”)’s Fraser River Panel (“FRP”) Annual Reports. In addition to being available in Ringtail, annual reports from 1986-2005 can be found on the PSC’s website at <http://www.psc.org/publications_annual_fraserreport.htm>. Draft reports for 2006 and 2007 are available in Ringtail.²
13. Where available, data are referenced to the PSC’s excel file which we understand to be the most up-to-date source of information³. We have attempted to note inconsistencies among PSC’s excel file and the FRP Annual Reports, as well as within and between the FRP Annual Reports, by including the symbol †. These inconsistencies are usually minor, but are more than simple differences in precision due to rounding.
14. Where more than one in-season estimate has been provided, we have attempted to report the latest in-season estimate. Missing table values indicate that these data were unavailable from the sources we used for this Policy and Practice Report.

²Ringtail Documents PSC001554 and PSC001632.

³ Note: the responsibility for estimation of spawning escapement shifted from the International Pacific Salmon Fisheries Commission to Canada (Fisheries and Oceans Canada) with the signing of the Pacific Salmon Treaty in 1985.

Definitions

Net escapement (Tables 1-5)

15. Tables 1 to 5 contain estimates of net escapement from 1986 to 2009. The columns are pre-season escapement targets, in-season escapement targets (last available estimates), potential spawning escapement (“PSE”) targets/adjusted escapement targets, in-season potential spawning escapement, post-season escapement targets and post-season estimates of adult escapement to the spawning grounds. Table 1 provides this information for all Fraser River sockeye and Tables 2 to 5, provide this information by run-timing group (Early Stuart, Early Summer, Summer and Late).
16. The second column in Tables 1-5 contains post-season estimates of adult net escapement. This is defined as the spawning escapement of adult male and female spawners as estimated through assessment programs conducted on the spawning grounds, or projected from other data when enumerations programs are not conducted (e.g., Quesnel spawners in 2002). Such escapement numbers represent the total number of fish as assessed on the spawning areas and thus include fish that reached the spawning areas but die prior to spawning (pre-spawn mortality).⁴
17. The third, fourth and seventh columns of Tables 1-5 contain pre-season, in-season and post-season net escapement targets. Net (or spawning) escapement targets are defined by the FRP as the, “[t]arget for total adult spawning escapement for each spawning population as defined each year by Canada’s Spawning Escapement Plan.”⁵
18. Pre-season escapement targets are determined based on the pre-season forecasts of abundance. In-season targets vary through the

⁴ Ringtail Document PSC001554 at 48 and Michael Lapointe, pers. comm., March 24, 2011.

⁵ Ringtail Document PSC001554 at 48.

summer with changes in in-season abundance estimates as adopted by the FRP, and post-season escapement targets are calculated based on final estimates of abundance which become available sometime after the management season.

19. The fifth column of Tables 1-5 contains adjusted escapement targets (or potential spawning escapement targets). The adjusted escapement target is defined by the FRP as the, “[i] n-season target for PSE by management group, where the PSE is the sum of the spawning escapement target plus the management adjustment (MA) to account for historical differences between in-season and post-season estimates of escapement (DBEs).”⁶If the sum of the spawning escapement target and MA is larger than the adopted estimate of run-size, the spawning escapement target will equal the run-size i.e., the target will not exceed the adopted estimate of run-size.
20. The sixth column of Tables 1-5 contains the PSE, which is defined by the FRP as the “Mission escapement estimate minus First Nations and recreational catches above Mission.”⁷ We note that in-season the term PSE can also be estimated from the current adopted run-size minus the observed catch to date in-season.⁸

Gross escapement (Tables 6-10)

21. Tables 6 to 10 contain estimates of gross escapement from 1986 to 2009. The columns are in-season gross escapement targets, up-river post-season gross escapement estimates (i.e. estimates from spawning ground enumeration and post-season in-river First Nations and recreational catch estimates) excluding differences between estimates, adjusted gross escapement targets and in-season and post-season

⁶ Ringtail Document PSC001554 at 48.

⁷ Ringtail Document PSC001554 at 48.

⁸ Ringtail Document PSC001554 at 48.

hydro-acoustic based gross-escapement estimates (i.e. estimates made at Mission plus in-season in-river First Nations and recreational catch estimates). Table 6 provides this information for all Fraser River sockeye and Tables 7 to 10 provide this information by run-timing group (Early Stuart, Early Summer, Summer and Late).

22. The second column of Tables 6-10 contains in-season gross escapement targets, which are defined by the FRP as the in-season spawning escapement target plus management adjustments and catch targets for Fraser River First Nations and recreational fishers.⁹
23. The third column of Tables 6-10 contains up-river post-season gross escapement estimates (excluding differences between estimates), defined by the FRP as the sum of DFO's adult spawning ground escapement estimates and catches in First Nations (Food, Social and Ceremonial and Economic Opportunity), recreational and Excess Salmon to Spawning Requirements ("ESSR") fisheries in the Fraser River watershed.¹⁰
24. The fourth column of Tables 6-10 contains adjusted gross escapement estimates, defined by the FRP as the sum of in-season gross escapement targets and management adjustments.¹¹
25. The fifth column of Tables 6-10 contains in-season hydro-acoustic based gross escapement estimates, defined by the FRP as the sum of the last available in-season estimates of "escapement past Mission plus First Nations, recreational and ESSR catches in the Fraser River below Mission".¹² We note that this is sometimes defined as the sum of in-

⁹ Ringtail Document CAN002566 at 9.

¹⁰ Ringtail Document PSC001554 at 47.

¹¹ Ringtail Document CAN002564 at 9 and 42-43.

¹² Ringtail Document PSC001554 at 47.

season estimates of escapement past Mission and First Nations catches below Mission.¹³

26. The sixth column of Tables 6-10 contains post-season estimates of hydro-acoustic based gross escapement, defined by the FRP as the sum of post-season estimates of escapement past Mission and First Nations, recreational and ESSR catches in the Fraser River below Mission. We note that this is sometimes defined as the sum of post-season estimates of escapement past Mission and First Nations catches below Mission.¹⁴

¹³ See e.g., Ringtail Document CAN002564 at 37.

¹⁴ See e.g., Ringtail Document CAN002564 at 37.

Table 1: Aggregated Fraser River Sockeye Estimates of Net (Spawning) Escapement.

Year	Post-Season Estimate (adult) ¹⁵	Pre-Season Target	(Final ¹⁶) In-Season Target	PSE Target / Adjusted Target	PSE	Post-season Target
2009	1,050,126	4,515,000 ¹⁷	1,148,000 ¹⁸	1,278,000 ¹⁹	1,264,460 ²⁰	
2008	815,472	1,549,200 ²¹				
2007	889,286 [†]	2,525,100 ²²	1,275,000 ²³			
2006 ²⁴	4,661,459	6,991,500	4,518,500	6,075,500	4,554,000	6,158,000
2005 ²⁵	3,307,950	6,160,000	5,156,000 ^{†26}	5,607,000	7,848,000	4,542,000 ²⁷
2004 ²⁸	524,446	1,998,000	3,069,000		1,837,000	2,269,800
2003 ²⁹	1,979,385	2,014,000	2,023,000	2,651,000	3,169,000	
2002 ³⁰	10,201,057	6,436,000 ³¹	8,970,000			
2001 ³²	5,256,702	4,640,000 ³³				

¹⁵ All values from this column are from Ringtail Document PSC000011.

¹⁶ Where available.

¹⁷ Ringtail Document CAN002556 at 57.

¹⁸ Ringtail Document CAN285372 at 380.

¹⁹ Ringtail Document CAN285372 at 380.

²⁰ Ringtail Document CAN285372 at 380.

²¹ Ringtail Document CAN068006 at 21.

²² Ringtail Document CAN068006 at 17.

²³ Ringtail Document CAN002571 at 436. Note: CAN002571 at 436 actually lists 768,000 as the Spawning Escapement Target for the total sockeye stock, however this is the sum of only the Early-Stuart, Early-Summer and Summer runs, excluding the Late run, 1,275,000 is the sum of all four run-timing groups.

²⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

²⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

²⁶ Ringtail Document CAN002567 at 41 (Table 15). Note: CAN002567 at 22 (Table 2) states that this is 5,190,000, however, CAN002567 at 41 and 45 (Tables 17 and 20) support CAN002567 at 41 (Table 15).

²⁷ Ringtail Document CAN002567 at 20. Note: CAN002567 at 20 actually lists 3,971,000 as the post-season total sockeye stock Spawning Escapement Target, however this is the sum of only the Early-Stuart, Early-Summer and Summer runs, excluding the Late run, 4,542,000 is the sum of all four run-timing groups.

²⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

²⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

³⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

³¹ Ringtail Document CAN002564 at 17. Note: CAN002564 at 15 states that the pre-season escapement targets were 5,325,000 at the 50% probability level and 3,967,000 at the 75% probability level, and that the escapement target was maintained at the 50% level.

2000 ³⁴	2,352,930	1,639,000 ³⁵			
1999 ³⁶	1,832,759	2,664,500 ³⁷			
1998 ³⁸	4,418,998	5,770,000			
1997 ³⁹	4,251,921	4,072,000			
1996 ⁴⁰	2,027,534 [†]	1,092,000	1,441,000		
1995 ⁴¹	1,731,233	2,900,000	2,770,000		
1994 ⁴²	3,128,543	5,390,000	5,650,000		
1993 ⁴³	5,754,095 [†]	3,745,000	5,100,000		
1992 ⁴⁴	1,068,805	1,558,000	1,597,000		
1991 ⁴⁵	3,306,272	3,775,000	3,094,000		
1990 ⁴⁶	6,064,285 [†]	5,180,000	5,360,000		
1989 ⁴⁷	3,060,183	3,011,000	3,300,000		

³²Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

³³ Pre-season forecast spawning escapement targets were developed at the 50% and 75% probability level, the forecast presented here is for the 50% probability level, the 75% level was 3,605,000 (Ringtail Document CAN002563 at 7).

³⁴Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

³⁵ Pre-season forecast spawning escapement targets were developed at the 50%, 60%, and 75% probability level. The forecast presented here is for the 50% probability level, the 60% level was 1,468,000 and the 75% level was 1,158,000 (Ringtail Document CAN002562 at 7).

³⁶Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

³⁷ Ringtail Document CAN002561 at 18. Note: CAN002561 at 7 mentions that the spawning escapement target was 2,687,000.

³⁸Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

³⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

⁴⁰Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

⁴¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

⁴² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

⁴³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

⁴⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

⁴⁵Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

⁴⁶Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

⁴⁷Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

1988 ⁴⁸	1,370,339	1,000,000	1,082,000			
1987 ⁴⁹	1,905,471 [†]	1,760,000				
1986 ⁵⁰	3,657,738	4,100,000 ⁵¹	4,200,000 ⁵²			

⁴⁸Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

⁴⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

⁵⁰Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

⁵¹Includes a 100,000 escapement overage expected at Weaver Creek (Ringtail Document CAN002612 at 25).

⁵²DFO raised the Weaver Creek overage to 200,000 during the season (Ringtail Document CAN002612 at 25).

Table 2: Fraser River Sockeye Early-Stuart Run Estimates of Net (Spawning) Escapement

Year	Post-Season Estimate (adult) ⁵³	Pre-Season Target	(Final ⁵⁴) In-Season Target	PSE Target / Adjusted Target	PSE	Post-season Target
2009	45,297	156,000 ⁵⁵	85,000 ⁵⁶	85,000 ⁵⁷	76,400 ⁵⁸	
2008	29,867	35,000 ⁵⁹				
2007	5,347	44,500 ⁶⁰	13,000 ⁶¹			
2006 ⁶²	35,816	82,500	68,500	68,500	73,000	54,000
2005 ⁶³	98,537	194,000	164,000	208,000 ⁶⁴	189,000	171,000
2004 ⁶⁵	9,281	90,000	163,000			90,000
2003 ⁶⁶	13,166	56,000	29,000	29,000	28,000	
2002 ⁶⁷	24,637	75,000	58,000			
2001 ⁶⁸	170,906					
2000 ⁶⁹	89,747					
1999 ⁷⁰	24,532	127,500 ⁷¹				

⁵³ All values from this column are from Ringtail Document PSC000011.

⁵⁴ Where available.

⁵⁵ Ringtail Document CAN002556 at 57.

⁵⁶ Ringtail Document CAN285372 at 380.

⁵⁷ Ringtail Document CAN285372 at 380.

⁵⁸ Ringtail Document CAN285372 at 380.

⁵⁹ Ringtail Document CAN068006 at 21.

⁶⁰ Ringtail Document CAN068006 at 17.

⁶¹ Ringtail Document CAN002571 at 436.

⁶² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

⁶³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

⁶⁴ Ringtail Document CAN002567 at 41, however Table 20 lists this as 210,000 (CAN002567 at 45).

⁶⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

⁶⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

⁶⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

⁶⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

⁶⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

⁷⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

⁷¹ Ringtail Document CAN002561 at 18, however the report also notes that this is 150,000 (CAN002561 at 7).

1998 ⁷²	30,952	97,000				
1997 ⁷³	265,697					
1996 ⁷⁴	87,569	90,000	66,000			
1995 ⁷⁵	122,710	200,000	150,000			
1994 ⁷⁶	29,831	200,000	90,000			
1993 ⁷⁷	687,967	300,000				
1992 ⁷⁸	65,617	200,000				
1991 ⁷⁹	141,119	200,000				
1990 ⁸⁰	97,035	120,000				
1989 ⁸¹	384,799	333,000	333,000			
1988 ⁸²	179,807	110,000	150,000			
1987 ⁸³	148,194					
1986 ⁸⁴	28,584					

⁷²Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

⁷³Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

⁷⁴Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

⁷⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

⁷⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

⁷⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

⁷⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

⁷⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

⁸⁰Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

⁸¹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

⁸²Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

⁸³Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

⁸⁴Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

Table 3: Fraser River Sockeye Early-Summer Run Estimates of Net (Spawning) Escapement.

Year	Post-Season Estimate (adult) ⁸⁵	Pre-Season Target	(Final ⁸⁶) In-Season Target	PSE Target / Adjusted Target	PSE	Post-season Target
2009	86,059	296,000 ⁸⁷	175,000 ⁸⁸	175,000 ⁸⁹	156,450 ⁹⁰	
2008	188,737	193,900 ⁹¹				
2007	123,043	276,000 ⁹²	155,000 ⁹³			
2006 ⁹⁴	392,106	521,000	580,000	874,000	920,000	728,000
2005 ⁹⁵	224,747	362,000	395,000 ⁹⁶	722,000	701,000	322,000
2004 ⁹⁷	150,039	310,000	770,000			434,200
2003 ⁹⁸	193,492	144,000	207,000	354,000	306,000	
2002 ⁹⁹	457,532	227,000	270,000			
2001 ¹⁰⁰	301,788					
2000 ¹⁰¹	575,247					
1999 ¹⁰²	105,137 [†]	260,000				
1998 ¹⁰³	226,589	400,000				

⁸⁵ All values from this column are from Ringtail Document PSC000011.

⁸⁶ Where available.

⁸⁷ Ringtail Document CAN002556 at 57.

⁸⁸ Ringtail Document CAN285372 at 380.

⁸⁹ Ringtail Document CAN285372 at 380.

⁹⁰ Ringtail Document CAN285372 at 380.

⁹¹ Ringtail Document CAN068006 at 21.

⁹² Ringtail Document CAN068006 at 17.

⁹³ Ringtail Document CAN002571 at 436.

⁹⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

⁹⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

⁹⁶ Ringtail Document CAN002567 at 41, 43 and 45, however Table 2 notes this as 385,000 (CAN002567 at 22).

⁹⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

⁹⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

⁹⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

¹⁰⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

¹⁰¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

¹⁰² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

1997 ¹⁰⁴	88,949					
1996 ¹⁰⁵	363,252 [†]	172,000	280,000			
1995 ¹⁰⁶	162,723 [†]	300,000	280,000			
1994 ¹⁰⁷	248,132	400,000	300,000			
1993 ¹⁰⁸	86,492	140,000				
1992 ¹⁰⁹	102,693	351,000				
1991 ¹¹⁰	270,512	313,500				
1990 ¹¹¹	440,969	398,000				
1989 ¹¹²	63,058	83,000	83,000			
1988 ¹¹³	218,026	267,000	267,000			
1987 ¹¹⁴	200,037					
1986 ¹¹⁵	226,703					

¹⁰³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

¹⁰⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

¹⁰⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

¹⁰⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

¹⁰⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

¹⁰⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

¹⁰⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

¹¹⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

¹¹¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

¹¹² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

¹¹³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

¹¹⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

¹¹⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

Table 4: Fraser River Sockeye Summer Run Estimates of Net (Spawning) Escapement.

Year	Post-Season Estimate (adult)¹¹⁶	Pre-Season Target	(Final¹¹⁷) In-Season Target	PSE Target / Adjusted Target	PSE	Post-season Target
2009	477,536	3,471,000 ¹¹⁸	520,000 ¹¹⁹	650,000 ¹²⁰	591,550 ¹²¹	
2008	564,446	800,000 ¹²²				
2007	431,047	1,347,000 ¹²³	600,000 ¹²⁴			
2006¹²⁵	815,361	2,863,000	1,792,000	1,828,000	1,031,000	1,948,000
2005¹²⁶	2,454,988	5,262,000	4,006,000	4,086,000	6,105,000	3,375,000
2004¹²⁷	273,218	1,424,000	1,932,000			1,424,000
2003¹²⁸	1,002,404	1,176,000	1,130,000	1,130,000	1,747,000	
2002¹²⁹	3,803,591	3,242,000	2,377,000			
2001¹³⁰	4,683,377					
2000¹³¹	1,649,497					
1999¹³²	1,281,584	1,489,000				
1998¹³³	2,380,011	2,326,000				

¹¹⁶ All values from this column are from Ringtail Document PSC000011.

¹¹⁷ Where available.

¹¹⁸ Ringtail Document CAN002556 at 57.

¹¹⁹ Ringtail Document CAN285372 at 380.

¹²⁰ Ringtail Document CAN285372 at 380.

¹²¹ Ringtail Document CAN285372 at 380.

¹²² Ringtail Document CAN068006 at 21.

¹²³ Ringtail Document CAN068006 at 17.

¹²⁴ Ringtail Document CAN002571 at 436.

¹²⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

¹²⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

¹²⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

¹²⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

¹²⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

¹³⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

¹³¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

¹³² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

1997 ¹³⁴	3,807,474					
1996 ¹³⁵	1,411,690	666,000	795,000			
1995 ¹³⁶	924,637	1,100,000	1,050,000			
1994 ¹³⁷	1,351,644	2,010,000	2,000,000			
1993 ¹³⁸	4,623,488	3,115,000				
1992 ¹³⁹	634,728	650,000				
1991 ¹⁴⁰	1,256,770	903,000				
1990 ¹⁴¹	1,597,295	1,130,000				
1989 ¹⁴²	2,553,167	2,464,000	2,753,000			
1988 ¹⁴³	745,074	535,000	535,000			
1987 ¹⁴⁴	659,118					
1986 ¹⁴⁵	581,163					

¹³³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

¹³⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

¹³⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

¹³⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

¹³⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

¹³⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

¹³⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

¹⁴⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

¹⁴¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

¹⁴² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

¹⁴³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

¹⁴⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

¹⁴⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

Table 5: Fraser River Sockeye Late Stock Run Estimates of Net (Spawning) Escapement.

Year	Post-Season Estimate (adult) ¹⁴⁶	Pre-Season Target	(Final ¹⁴⁷) In-Season Target	PSE Target / Adjusted Target	PSE	Post-season Target
2009	441,234	592,000 ¹⁴⁸	368,000 ¹⁴⁹	368,000 ¹⁵⁰	440,060 ¹⁵¹	
2008	32,422	520,300 ¹⁵²				
2007	329,849	857,000 ¹⁵³	507,000 ¹⁵⁴			
2006 ¹⁵⁵	3,418,176	3,525,000	2,078,000	3,305,000	2,530,000	3,428,000
2005 ¹⁵⁶	529,678	342,000	591,000 ¹⁵⁷	591,000	853,000	674,000
2004 ¹⁵⁸	91,908	174,000	204,000			321,600
2003 ¹⁵⁹	770,323	638,000	657,000	1,138,000	1,088,000	
2002 ¹⁶⁰	5,915,297	2,892,000 ¹⁶¹	6,265,000			
2001 ¹⁶²	100,631					
2000 ¹⁶³	38,439					
1999 ¹⁶⁴	421,506	788,000				

¹⁴⁶ All values from this column are from Ringtail Document PSC000011.

¹⁴⁷ Where available.

¹⁴⁸ Ringtail Document CAN002556 at 57.

¹⁴⁹ Ringtail Document CAN285372 at 380.

¹⁵⁰ Ringtail Document CAN285372 at 380.

¹⁵¹ Ringtail Document CAN285372 at 380.

¹⁵² Ringtail Document CAN068006 at 21.

¹⁵³ Ringtail Document CAN068006 at 17.

¹⁵⁴ Ringtail Document CAN002571 at 436.

¹⁵⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

¹⁵⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

¹⁵⁷ Ringtail Document CAN002567 at 41 and 45, however it is listed as 635,000 (159,000 Birkenhead and 476,000 Late-Run) in Table 2 (CAN002567 at 22).

¹⁵⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

¹⁵⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

¹⁶⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

¹⁶¹ Ringtail Document CAN002564 at 17, however Ringtail Document CAN002564 at 15 notes this is 1,781,000.

¹⁶² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

¹⁶³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

1998 ¹⁶⁵	1,781,446	2,947,000				
1997 ¹⁶⁶	89,801					
1996 ¹⁶⁷	165,023	164,000	300,000			
1995 ¹⁶⁸	521,163	1,300,000	1,290,000			
1994 ¹⁶⁹	1,498,936	2,780,000	3,260,000			
1993 ¹⁷⁰	356,148	190,000				
1992 ¹⁷¹	265,767	357,000				
1991 ¹⁷²	1,637,871	2,358,500				
1990 ¹⁷³	3,928,986	3,532,000				
1989 ¹⁷⁴	59,159	131,000	131,000			
1988 ¹⁷⁵	227,432	88,000	130,000			
1987 ¹⁷⁶	898,122					
1986 ¹⁷⁷	2,821,288	3,405,000	3,405,000			

¹⁶⁴Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

¹⁶⁵Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

¹⁶⁶Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

¹⁶⁷Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

¹⁶⁸Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

¹⁶⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

¹⁷⁰Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

¹⁷¹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

¹⁷²Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

¹⁷³Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

¹⁷⁴Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

¹⁷⁵Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

¹⁷⁶Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

¹⁷⁷Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

Table 6: Aggregate Fraser River Sockeye Estimates of Gross Escapement.

Year	In-Season Target	Upriver post-season Estimate	Adjusted Target	In-Season Hydro-acoustic based Estimate	Post-Season Hydro-acoustic based Estimate
2009			1,340,530 ¹⁷⁸		
2008			1,441,800 ¹⁷⁹		
2007			1,119,800 ¹⁸⁰		
2006 ¹⁸¹		5,650,000			
2005 ¹⁸²		4,099,731			
2004 ¹⁸³	3,069,000	1,221,700	4,009,000	2,855,000	2,533,200
2003 ¹⁸⁴	2,774,000	2,649,900	3,402,000	3,807,500	3,173,200
2002 ¹⁸⁵	9,746,000	11,322,000	9,789,000	12,252,000	12,288,000
2001 ¹⁸⁶	4,674,000	5,956,000	4,765,000	5,340,000	5,433,000
2000 ¹⁸⁷	2,477,000	3,167,000	2,810,000	2,892,000	2,893,000
1999 ¹⁸⁸	2,568,000	2,101,000	2,656,000	3,352,000	3,350,000
1998 ¹⁸⁹	6,877,000	5,275,000 ¹⁹⁰	7,593,000	8,518,000	8,570,000

¹⁷⁸ Ringtail Document CAN285372 at 377.

¹⁷⁹ Ringtail Document CAN007984 at 314.

¹⁸⁰ Ringtail Document CAN002571 at 436.

¹⁸¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

¹⁸² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

¹⁸³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

¹⁸⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

¹⁸⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

¹⁸⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

¹⁸⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

¹⁸⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

¹⁸⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

¹⁹⁰ Ringtail Document CAN002560 at 42. Note: This includes an ESSR harvest of 99,000 Weaver sockeye. Also note that this is 5,176,000 according to Table 10 (a difference of 99,000) which is also said to include the ESSR harvest (CAN002560 at 36).

1997 ¹⁹¹	¹⁹²	5,386,000 ¹⁹³		5,804,000	5,804,000
1996 ¹⁹⁴	2,199,000	2,739,000 ¹⁹⁵	2,613,000 ¹⁹⁶	2,872,000	
1995 ¹⁹⁷	3,932,000	2,623,000 ¹⁹⁸		3,054,000 ¹⁹⁹	2,667,000 ²⁰⁰
1994 ²⁰¹	6,372,000	4,057,000 ²⁰²			4,359,000
1993 ²⁰³	5,554,000	7,249,000 ²⁰⁴			5,717,000
1992 ²⁰⁵	2,566,000	1,437,000 ²⁰⁶		2,036,000	2,036,000
1991 ²⁰⁷	3,894,000	3,911,000 ²⁰⁸			
1990 ²⁰⁹	6,051,000	6,869,000 ²¹⁰		6,631,000	

¹⁹¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

¹⁹² Note: Canada did not provide the Fraser River Panel with targets for gross escapement in 1997 (Ringtail Document CAN002559 at 14).

¹⁹³ Note that in 1997 this was defined as the sum of Fraser First Nations catch, recreational catch above Mission and spawning escapement (Ringtail Document CAN002559 at 36).

¹⁹⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

¹⁹⁵ Note that in 1996 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002622 at 32).

¹⁹⁶ Note: This was a negotiated risk-averse adjustment between Canada and the United States for the stated intention of ensuring the achievement of spawning escapement targets (Ringtail Document CAN002622 at 12). These were accepted by the United States to enable the Fraser River Panel to proceed although the United States did not agree with the methodology used to derive these adjustments (CAN002622 at 5 and 14).

¹⁹⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

¹⁹⁸ Note that in 1995 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002621 at 40).

¹⁹⁹ This in-season estimate of gross escapement was revised to 2,667,000 after the season to correct for an error in Mission hydroacoustic procedures in 1995 (Ringtail Document CAN002621 at 6).

²⁰⁰ This is a revised in-season estimate of gross escapement (see footnote 199, Ringtail Document CAN002621 at 6).

²⁰¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

²⁰² Note that in 1994 this was defined as the sum of Fraser River First Nations fishery catch and spawning escapement (CAN002620 at 22 and 29).

²⁰³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

²⁰⁴ Note that in 1993 this was defined as the sum of Fraser River First Nations catch and net escapement (Ringtail Document CAN002619 at 37).

²⁰⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

²⁰⁶ Note that in 1992 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002618 at 23)

²⁰⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

²⁰⁸ Note that in 1991 this was defined as the sum of Fraser River First Nations food fisheries below Mission, BC and spawning escapement (Ringtail Document CAN002617 at 33 and 45).

1989 ²¹¹	3,800,000	3,632,000 ²¹²		3,718,000	
1988 ²¹³	1,595,000 ²¹⁴	1,786,000 ²¹⁵		1,727,000	
1987 ²¹⁶	2,260,000 ²¹⁷	2,360,000 ²¹⁸		2,153,000	
1986 ²¹⁹	4,850,000	4,192,000 ²²⁰		5,121,000	5,121,000

²⁰⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

²¹⁰Note that in 1990 this was defined as the sum of Fraser River First Nations food fishery catch and net escapement (Ringtail Document CAN002616 at 25 and 28).

²¹¹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

²¹²Note that in 1989 this was defined as the sum of Fraser River First Nations food fishery catch below Mission, B.C. and net escapement (Ringtail Document CAN002615 at 29).

²¹³Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

²¹⁴Note that this is a pre-season target (Ringtail Document CAN002614 at 21).

²¹⁵Note that in 1988 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002614 at 21).

²¹⁶Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

²¹⁷Note that this is a pre-season target (Ringtail Document CAN002613 at 32).

²¹⁸Note that in 1987 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002613 at 32).

²¹⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

²²⁰Note that the 1986 report refers to “actual gross escapement obtained from spawning ground data and analysis of First Nations fishery catches” (Ringtail Document CAN002612 at 21).

Table 7: Fraser River Sockeye Early-Stuart Run Estimates of Gross Escapement.

Year	In-Season Target	Upriver post-season Estimate	Adjusted Target	In-Season Hydro-acoustic based Estimate	Post-Season Hydro-acoustic based Estimate
2009			85,000 ²²¹		
2008			40,000 ²²²		
2007			26,800 ²²³		
2006 ²²⁴		43,800			
2005 ²²⁵		116,300			
2004 ²²⁶	163,000	45,100	192,000	191,300	132,200
2003 ²²⁷	29,000	13,700	29,000	29,400	29,600
2002 ²²⁸	61,000	29,000	61,000	61,000	61,000
2001 ²²⁹	164,000	209,000	225,000	221,000	243,000
2000 ²³⁰	306,000	296,000	356,000	354,000	367,000
1999 ²³¹	133,000	28,000	146,000	146,000	167,000
1998 ²³²	120,000	46,000	171,000	168,000	184,000

²²¹ Ringtail Document CAN285372 at 377.

²²² Ringtail Document CAN007984 at 314.

²²³ Ringtail Document CAN002571 at 436.

²²⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

²²⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

²²⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

²²⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

²²⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

²²⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

²³⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

²³¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

²³² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

1997 ²³³		629,000 ²³⁴		1,098,000	1,259,000
1996 ²³⁵	67,000	90,000 ²³⁶	114,000 ²³⁷	114,000	131,000
1995 ²³⁸	229,000	130,000 ²³⁹		219,000	183,000
1994 ²⁴⁰	180,000	70,000 ²⁴¹			198,000
1993 ²⁴²	660,000	1,117,000 ²⁴³			662,000
1992 ²⁴⁴	322,000	169,000 ²⁴⁵		309,000	324,000
1991 ²⁴⁶	400,000	324,000 ²⁴⁷			
1990 ²⁴⁸	196,000	149,000 ²⁴⁹		169,000	
1989 ²⁵⁰	475,000	559,000 ²⁵¹		465,000	

²³³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

²³⁴ Note that in 1997 this was defined as the sum of Fraser First Nations catch, recreational catch above Mission and spawning escapement (Ringtail Document CAN002559 at 36).

²³⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

²³⁶ Note that in 1996 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002622 at 32).

²³⁷ Note: Because panel management commenced after the Early Stuart run was complete, this target was set at the achieved gross escapement (Ringtail Document CAN002622 at 37).

²³⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

²³⁹ Note that in 1995 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002621 at 40).

²⁴⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

²⁴¹ Note that in 1994 this was defined as the sum of Fraser River First Nations fishery catch and spawning escapement (CAN002620 at 22 and 29).

²⁴² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

²⁴³ Note that in 1993 this was defined as the sum of Fraser River First Nations catch and net escapement (Ringtail Document CAN002619 at 37).

²⁴⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

²⁴⁵ Ringtail Document CAN002618 at 23. Note: According to Table 1 in Appendix A this is 149,000 (CAN002618 at 32).

²⁴⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

²⁴⁷ Note that in 1991 this was defined as the sum of Fraser River First Nations food fisheries below Mission, BC and spawning escapement (Ringtail Document CAN002617 at 33 and 45).

²⁴⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

²⁴⁹ Note that in 1990 this was defined as the sum of Fraser River First Nations food fishery catch and net escapement (Ringtail Document CAN002616 at 25 and 28).

²⁵⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

²⁵¹ Note that in 1989 this was defined as the sum of Fraser River First Nations food fishery catch below Mission, B.C. and net escapement (Ringtail Document CAN002615 at 29).

1988 ²⁵²	185,000 ²⁵³	208,000 ²⁵⁴		192,000	
1987 ²⁵⁵	200,000 ²⁵⁶	164,000 ²⁵⁷		175,000	
1986 ²⁵⁸		42,000 ²⁵⁹		39,000	36,000

²⁵²Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

²⁵³Note: This is a pre-season target (Ringtail Document CAN002614 at 21).

²⁵⁴Note that in 1988 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002614 at 21).

²⁵⁵Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

²⁵⁶Note: This is a pre-season target (Ringtail Document CAN002613 at 32).

²⁵⁷Note that in 1987 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002613 at 32).

²⁵⁸Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

²⁵⁹Note that the 1986 report refers to “actual gross escapement obtained from spawning ground data and analysis of First Nations fishery catches” (Ringtail Document CAN002612 at 21).

Table 8: Fraser River Sockeye Early-Summer Run Estimates of Gross Escapement.

Year	In-Season Target	Upriver post-season Estimate	Adjusted Target	In-Season Hydro-acoustic based Estimate	Post-Season Hydro-acoustic based Estimate
2009			175,000 ²⁶⁰		
2008			356,400 ²⁶¹		
2007			198,700 ²⁶²		
2006 ²⁶³		613,000			
2005 ²⁶⁴		293,900			
2004 ²⁶⁵	770,000	357,400	1,111,000	1,045,400	768,800
2003 ²⁶⁶	307,000	261,300	454,000	384,000	339,200
2002 ²⁶⁷	352,000	553,000	395,000	647,000	633,000
2001 ²⁶⁸	122,000	373,000	152,000	293,000	419,000
2000 ²⁶⁹	491,000	776,000	574,000	650,000	712,000
1999 ²⁷⁰	373,000	167,000	448,000	445,000	367,000
1998 ²⁷¹	445,000	285,000	445,000	599,000	566,000
1997 ²⁷²		133,000 ²⁷³		275,000	138,000

²⁶⁰ Ringtail Document CAN285372 at 377.

²⁶¹ Ringtail Document CAN007984 at 314.

²⁶² Ringtail Document CAN002571 at 436.

²⁶³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

²⁶⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

²⁶⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

²⁶⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

²⁶⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

²⁶⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

²⁶⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

²⁷⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

²⁷¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

²⁷² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

1996 ²⁷⁴	347,000	446,000 ²⁷⁵	503,000	644,000	
1995 ²⁷⁶	498,000	240,000 ²⁷⁷		286,000	240,000
1994 ²⁷⁸	380,000	370,000 ²⁷⁹			514,000
1993 ²⁸⁰	204,000	144,000 ²⁸¹			166,000
1992 ²⁸²	573,000	215,000 ²⁸³		406,000	410,000
1991 ²⁸⁴	447,500	361,000 ²⁸⁵			
1990 ²⁸⁶	507,000	570,000 ²⁸⁷		726,000	
1989 ²⁸⁸	98,000	116,000 ²⁸⁹		189,000	
1988 ²⁹⁰	262,000 ²⁹¹	270,000 ²⁹²		406,000	

²⁷³ Note that in 1997 this was defined as the sum of Fraser First Nations catch, recreational catch above Mission and spawning escapement (Ringtail Document CAN002559 at 36).

²⁷⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

²⁷⁵ Note that in 1996 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002622 at 32).

²⁷⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

²⁷⁷ Note that in 1995 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002621 at 40).

²⁷⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

²⁷⁹ Note that in 1994 this was defined as the sum of Fraser River First Nations fishery catch and spawning escapement (CAN002620 at 22 and 29).

²⁸⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

²⁸¹ Note that in 1993 this was defined as the sum of Fraser River First Nations catch and net escapement (Ringtail Document CAN002619 at 37).

²⁸² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

²⁸³ Ringtail Document CAN002618 at 23. Note: According to Table 1 in Appendix A this is 182,000 (CAN002618 at 32).

²⁸⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

²⁸⁵ Note that in 1991 this was defined as the sum of Fraser River First Nations food fisheries below Mission, BC and spawning escapement (Ringtail Document CAN002617 at 33 and 45).

²⁸⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

²⁸⁷ Note that in 1990 this was defined as the sum of Fraser River First Nations food fishery catch and net escapement (Ringtail Document CAN002616 at 25 and 28).

²⁸⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

²⁸⁹ Note that in 1989 this was defined as the sum of Fraser River First Nations food fishery catch below Mission, B.C. and net escapement (Ringtail Document CAN002615 at 29).

²⁹⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614. Assumes the Early-Summer run is comprised of Seymour/Brown Group and Gates/Nadina Group.

²⁹¹ Note: This is a pre-season target (Ringtail Document CAN002614 at 21).

1987 ²⁹³	285,000 ²⁹⁴	319,000 ²⁹⁵		425,000	
1986 ²⁹⁶		273,000 ²⁹⁷		232,000	330,000

²⁹² Note that in 1988 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002614 at 21).

²⁹³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613. Assumes the Early-Summer run is comprised of Bowron/Fennell, Nadina/Raft/Gates/Pitt, and Seymour/Scotch.

²⁹⁴ Note: This is a pre-season target (Ringtail Document CAN002613 at 32).

²⁹⁵ Note that in 1987 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002613 at 32).

²⁹⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612. Assumes the Early-Summer run is comprised of Gates/Fennel/Bowron, Pitt/Nadina/Raft, and Seymour/Scotch, etc.

²⁹⁷ Note that the 1986 report refers to “actual gross escapement obtained from spawning ground data and analysis of First Nations fishery catches” (Ringtail Document CAN002612 at 21).

Table 9: Fraser River Sockeye Summer Run Estimates of Gross Escapement.

Year	In-Season Target	Upriver post-season Estimate	Adjusted Target	In-Season Hydro-acoustic based Estimate	Post-Season Hydro-acoustic based Estimate
2009			650,000 ²⁹⁸		
2008			825,100 ²⁹⁹		
2007			894,300 ³⁰⁰		
2006 ³⁰¹		1,171,000			
2005 ³⁰²		3,069,400			
2004 ³⁰³	1,932,000	702,200	2,502,000	1,403,100	1,326,800
2003 ³⁰⁴	1,645,000	1,495,300	1,645,000	2,225,600	1,769,900
2002 ³⁰⁵	2,930,000	4,484,000	2,930,000	4,917,000	4,815,000
2001 ³⁰⁶	3,929,000	5,251,000	3,929,000	4,341,000	4,317,000
2000 ³⁰⁷	1,353,000	2,014,000	1,353,000	1,390,000	1,405,000
1999 ³⁰⁸	1,170,000	1,459,000	1,170,000	1,266,000	1,653,000
1998 ³⁰⁹	2,690,000	2,924,000	3,355,000	4,167,000	4,510,000
1997 ³¹⁰		4,517,000 ³¹¹		4,212,000	4,245,000

²⁹⁸ Ringtail Document CAN285372 at 377.

²⁹⁹ Ringtail Document CAN007984 at 314.

³⁰⁰ Ringtail Document CAN002571 at 436.

³⁰¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

³⁰² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

³⁰³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

³⁰⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

³⁰⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

³⁰⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

³⁰⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

³⁰⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

³⁰⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

³¹⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

1996 ³¹²	1,453,000	1,975,000 ³¹³	1,564,000	1,580,000	
1995 ³¹⁴	1,744,000	1,565,000 ³¹⁵		1,911,000	1,618,000
1994 ³¹⁶	2,411,000	1,995,000 ³¹⁷			2,509,000
1993 ³¹⁸	4,090,000	5,626,000 ³¹⁹			4,502,000
1992 ³²⁰	1,269,000	778,000 ³²¹		1,111,000	1,081,000
1991 ³²²	1,416,000	1,533,000 ³²³			
1990 ³²⁴	1,640,000	2,044,000 ³²⁵		2,179,000	
1989 ³²⁶	3,076,000	2,893,000 ³²⁷		2,842,000	
1988 ³²⁸	903,000 ³²⁹	1,056,000 ³³⁰		736,000	

³¹¹ Note that in 1997 this was defined as the sum of Fraser First Nations catch, recreational catch above Mission and spawning escapement (Ringtail Document CAN002559 at 36).

³¹² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

³¹³ Note that in 1996 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002622 at 32).

³¹⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

³¹⁵ Note that in 1995 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002621 at 40).

³¹⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

³¹⁷ Note that in 1994 this was defined as the sum of Fraser River First Nations fishery catch and spawning escapement (CAN002620 at 22 and 29).

³¹⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

³¹⁹ Note that in 1993 this was defined as the sum of Fraser River First Nations catch and net escapement (Ringtail Document CAN002619 at 37).

³²⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

³²¹ Ringtail Document CAN002618 at 23. Note: According to Table 1 in Appendix A this is 750,000 (CAN002618 at 32).

³²² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

³²³ Note that in 1991 this was defined as the sum of Fraser River First Nations food fisheries below Mission, BC and spawning escapement (Ringtail Document CAN002617 at 33 and 45).

³²⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

³²⁵ Note that in 1990 this was defined as the sum of Fraser River First Nations food fishery catch and net escapement (Ringtail Document CAN002616 at 25 and 28).

³²⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

³²⁷ Note that in 1989 this was defined as the sum of Fraser River First Nations food fishery catch below Mission, B.C. and net escapement (Ringtail Document CAN002615 at 29).

³²⁸ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614. Assume the Summer run is comprised of Early Chilko Lake Group, Chilko Group and Stellako Group.

³²⁹ Note: This is a pre-season target (Ringtail Document CAN002614 at 21).

1987 ³³¹	765,000 ³³²	896,000 ³³³		641,000	
1986 ³³⁴		873,000 ³³⁵		1,022,000	931,000

³³⁰ Note that in 1988 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002614 at 21).

³³¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613. Assumes the Summer run is comprised of Chilko River/Lake and Stellako.

³³² Note: This is a pre-season target (Ringtail Document CAN002613 at 32).

³³³ Note that in 1987 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002613 at 32).

³³⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612. Assumes the Summer run is comprised of Quesnel/Late Stuart, Chilko River and Lake etc., and Stellako.

³³⁵ Note that the 1986 report refers to “actual gross escapement obtained from spawning ground data and analysis of First Nations fishery catches” (Ringtail Document CAN002612 at 21).

Table 10: Fraser River Sockeye Late Run Estimates of Gross Escapement.

Year	In-Season Target	Upriver post-season Estimate	Adjusted Target	In-Season Hydro-acoustic based Estimate	Post-Season Hydro-acoustic based Estimate
2009			430,530 ³³⁶		
2008			220,300 ³³⁷		
2007			930,600 ³³⁸		
2006 ³³⁹		3,824,700			
2005 ³⁴⁰		567,300			
2004 ³⁴¹	204,000	117,000	204,000	215,900	305,400
2003 ³⁴²	793,000	879,700	1,274,000	1,168,500	1,034,500
2002 ³⁴³	6,403,000	6,256,000	6,403,000	6,627,000	6,779,000
2001 ³⁴⁴	459,000	123,000	459,000	485,000	454,000
2000 ³⁴⁵	327,000	81,000	527,000	498,000	409,000
1999 ³⁴⁶	892,000	447,000	892,000	1,495,000	1,163,000
1998 ³⁴⁷	3,622,000	2,020,000 ³⁴⁸	3,622,000	3,584,000	3,310,000
1997 ³⁴⁹		107,000 ³⁵⁰		219,000	162,000

³³⁶ Ringtail Document CAN285372 at 377.

³³⁷ Ringtail Document CAN007984 at 314.

³³⁸ Ringtail Document CAN002571 at 436.

³³⁹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document PSC001554.

³⁴⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002567.

³⁴¹ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002566.

³⁴² Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002565.

³⁴³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002564.

³⁴⁴ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002563.

³⁴⁵ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002562.

³⁴⁶ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002561.

³⁴⁷ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002560.

³⁴⁸ Ringtail Document CAN002560 at 42. Note: This includes an ESSR harvest of 99,000 Weaver sockeye. Also note that this is 1,921,000 according to table 10 (a difference of 99,000) which is also said to include the ESSR harvest (CAN002560 at 36).

1996 ³⁵¹	332,000	228,000 ³⁵²	432,000	534,000	
1995 ³⁵³	1,461,000	688,000 ³⁵⁴		638,000	626,000
1994 ³⁵⁵	3,401,000	1,622,000 ³⁵⁶			1,138,000
1993 ³⁵⁷	600,000	362,000 ³⁵⁸			387,000
1992 ³⁵⁹	402,000	275,000 ³⁶⁰		210,000	221,000
1991 ³⁶¹	1,630,500	1,693,000 ³⁶²			
1990 ³⁶³	3,708,000	4,106,000 ³⁶⁴		3,557,000	
1989 ³⁶⁵	151,000	64,000 ³⁶⁶		222,000	
1988 ³⁶⁷	245,000 ³⁶⁸	252,000 ³⁶⁹		393,000	

³⁴⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002559.

³⁵⁰Note that in 1997 this was defined as the sum of Fraser First Nations catch, recreational catch above Mission and spawning escapement (Ringtail Document CAN002559 at 36).

³⁵¹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002622.

³⁵²Note that in 1996 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002622 at 32).

³⁵³Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002621.

³⁵⁴Note that in 1995 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002621 at 40).

³⁵⁵Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002620.

³⁵⁶Note that in 1994 this was defined as the sum of Fraser River First Nations fishery catch and spawning escapement (CAN002620 at 22 and 29).

³⁵⁷Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002619.

³⁵⁸Note that in 1993 this was defined as the sum of Fraser River First Nations catch and net escapement (Ringtail Document CAN002619 at 37).

³⁵⁹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002618.

³⁶⁰Note that in 1992 this was defined as the sum of Fraser First Nations catch and spawning escapement (Ringtail Document CAN002618 at 23)

³⁶¹Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002617.

³⁶²Note that in 1991 this was defined as the sum of Fraser River First Nations food fisheries below Mission, BC and spawning escapement (Ringtail Document CAN002617 at 33 and 45).

³⁶³Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002616.

³⁶⁴Note that in 1990 this was defined as the sum of Fraser River First Nations food fishery catch and net escapement (Ringtail Document CAN002616 at 25 and 28).

³⁶⁵Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002615.

³⁶⁶Note that in 1989 this was defined as the sum of Fraser River First Nations food fishery catch below Mission, B.C. and net escapement (Ringtail Document CAN002615 at 29).

³⁶⁷Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002614.

1987 ³⁷⁰	1,010,000 ³⁷¹	979,000 ³⁷²		912,000	
1986 ³⁷³		3,004,000 ³⁷⁴		3,828,000	3,824,000

³⁶⁸ Note: This is a pre-season target (Ringtail Document CAN002614 at 21).

³⁶⁹ Note that in 1988 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002614 at 21).

³⁷⁰ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002613.

³⁷¹ Note: This is a pre-season target (Ringtail Document CAN002613 at 32).

³⁷² Note that in 1987 this was defined as the sum of First Nations food fisheries below Mission, BC and net escapement (Ringtail Document CAN002613 at 32).

³⁷³ Unless otherwise noted, values in this row, other than the final column, are from Ringtail Document CAN002612.

³⁷⁴ Note that the 1986 report refers to "actual gross escapement obtained from spawning ground data and analysis of First Nations fishery catches" (Ringtail Document CAN002612 at 21).

