

NECHAKO AND STUART RIVERS CHINOOK CARCASS RECOVERY 1997

*NECHAKO FISHERIES CONSERVATION PROGRAM
Technical Report No. M97-2*

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March 2008

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ABSTRACT

In 1997 adult Chinook salmon (*Oncorhynchus tshawytscha*) carcasses were recovered from the Nechako and Stuart rivers in order to collect biological data on sex, size, fecundity, egg retention, life history and age. This information contributes to the database being compiled under the auspices of the Nechako Fisheries Conservation Program to monitor the Nechako Chinook population.

A total of 217 carcasses were collected on the Nechako River between September 9th and October 2nd. Nechako River Chinook carcasses recovered in 1997 exhibited similar biological characteristics to those collected from 1988 to 1996. Mean post-orbital hypural length for both males and females fell within the ranges observed in previous years. The spawning population was exclusively comprised of individuals with a stream-type life history, dominated by 4₂ and 5₂ age-classes, which is consistent with previous years.

On the Stuart River, 257 carcasses were sampled to collect information that could be used as a comparison to the Nechako data, to identify possible effects of flow regulation on the Nechako Chinook population. Since no obvious trends or anomalies were identified during the comparison of 1997 Nechako data to previous years, it was not necessary to use the information collected from the Stuart in this manner. However, the data are documented in this report in the event that longer-term analyses are required in the future.

INTRODUCTION

Each year since 1988 the Nechako Fisheries Conservation Program (NFCP) Technical Committee has conducted a suite of projects to monitor the population of Chinook salmon (*Oncorhynchus tshawytscha*) that spawn and rear in the Nechako River. The goal of these projects is to provide the information necessary for the NFCP to assess whether or not the Conservation Goal identified in the 1987 Settlement Agreement (Anon, 1987) is being met.

As part of this program of studies to monitor Nechako River Chinook salmon, the Technical Committee has conducted carcass recovery projects on the Nechako and Stuart rivers each year. The purpose of these projects is to gather biological data on adult spawners, including: sex, size, fecundity, egg retention, life history and age. In particular, analysis of fish age indicates the relative contribution of each brood year to the current years' spawning population, which is used to interpret the results of the annual NFCP

enumeration projects. The information collected from the Nechako River is compared to similar information collected from the Stuart River, an adjacent system unaffected by flow regulation (Figure 1), to assist in identifying potential effects of flow regulation on the Nechako Chinook population.

METHODS

Sampling was conducted throughout the period of Chinook spawner die-off, from mid September to early October.

In the Nechako River sampling was conducted from Cheslatta Falls downstream to Vanderhoof (Figure 2). In order to ensure a representative sample, recovery effort was based on spawner distribution observed during helicopter surveys conducted as part of the concurrent enumeration project. The target sample size was set at a minimum of 200 fish.

FIGURE 1 Nechako River Drainage

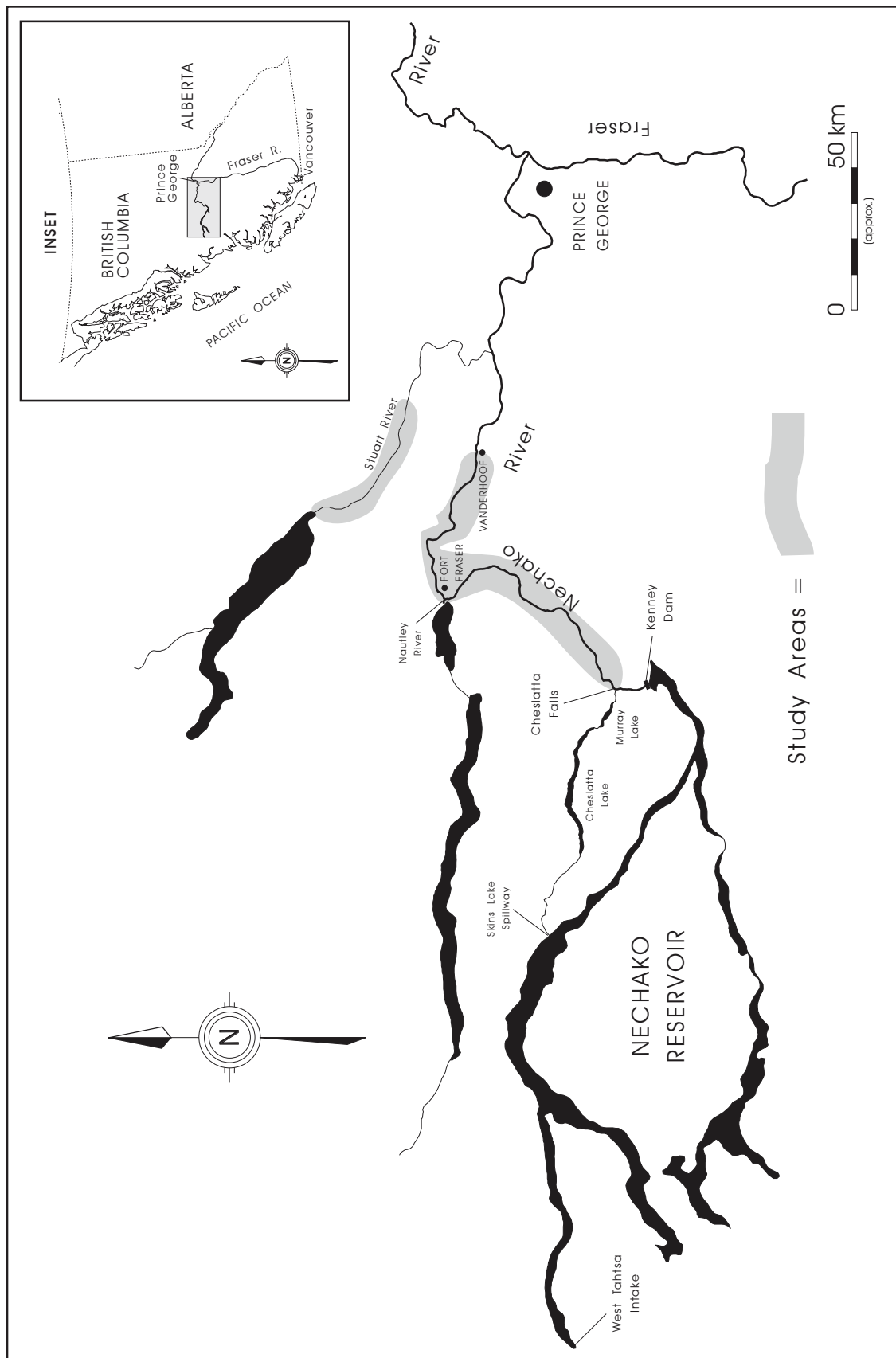


FIGURE 2

Nechako River Chinook Spawning Study Area

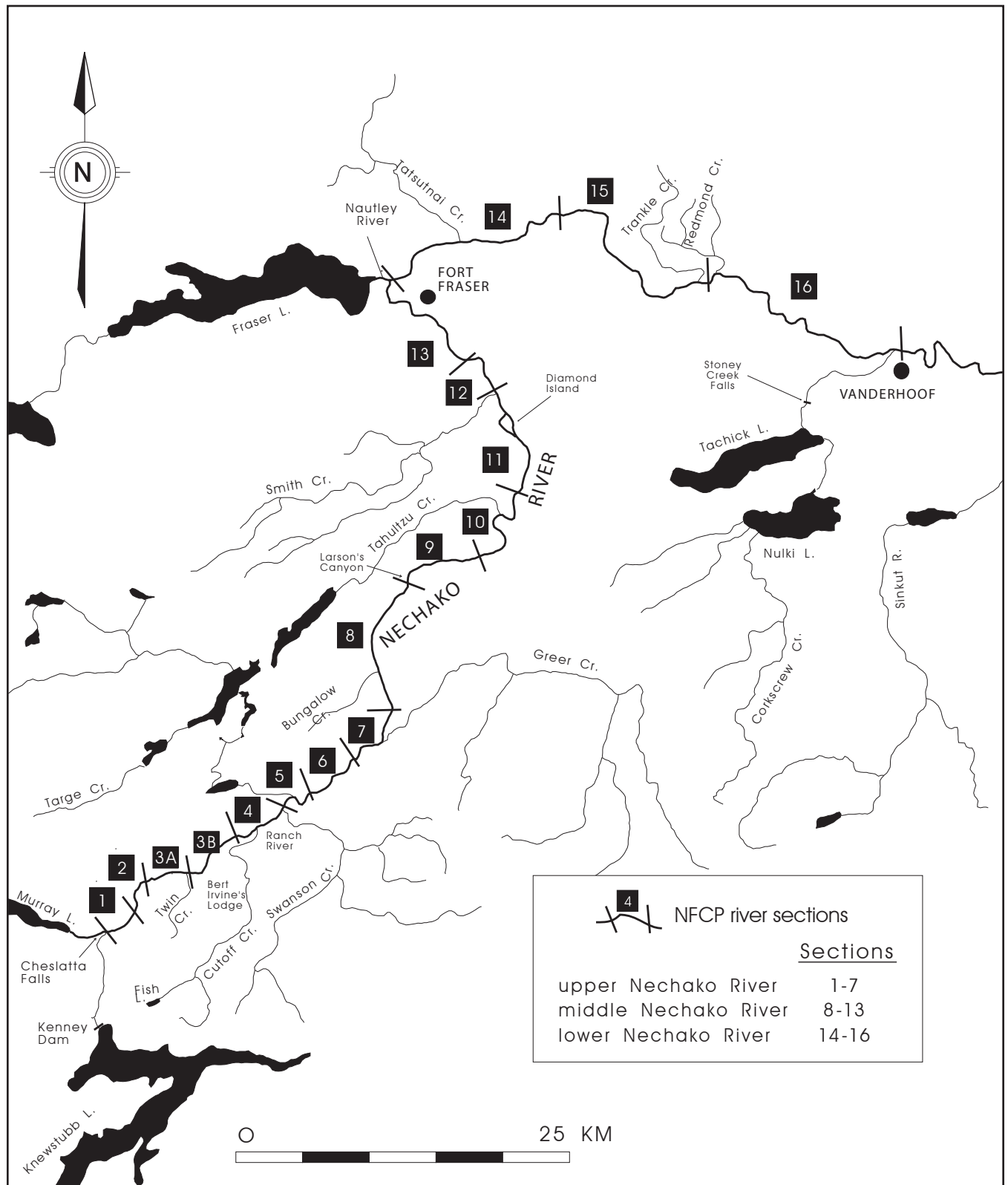
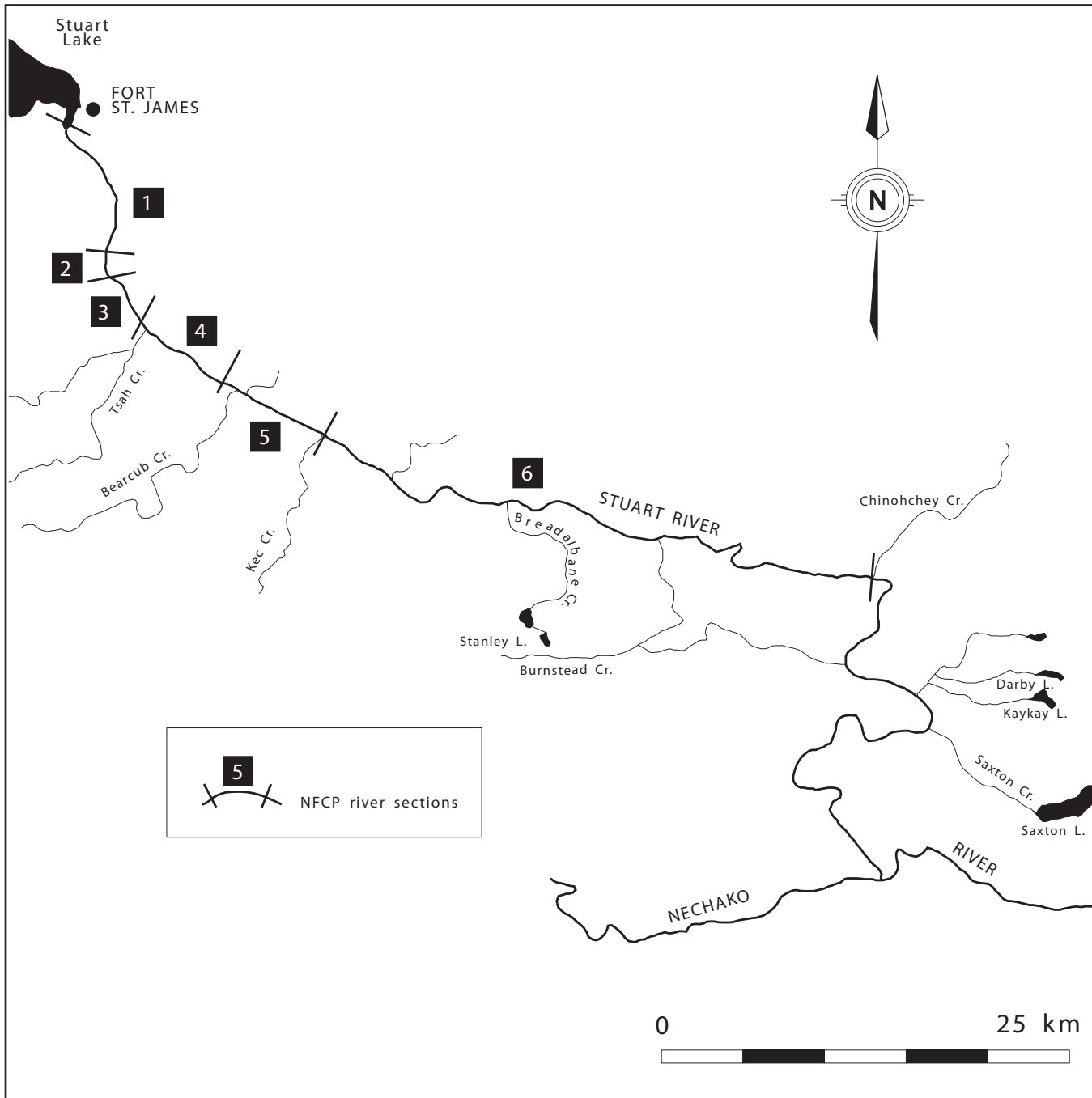


FIGURE 3

Stuart River Chinook Spawning Study Area



Sampling in the Stuart River was conducted from the outlet of Stuart Lake downstream to the confluence of Chinohchey Creek (Figure 3). Carcass sampling was conducted as part of the recovery portion of the mark-recapture enumeration program; all marked carcasses and representative portions of unmarked carcasses from each river section were sampled. In addition to inspecting carcasses for marks and tags applied as part of the mark-recapture program, crews inspected all carcasses recovered for adipose fin clips as an indicator of the success of releases from the Fort St. James hatchery. The target sample size was set at a minimum of 250 fish, slightly higher than the target for the Nechako since Stuart escapements are typically higher.

In each river, several sampling surveys were conducted throughout the period of die-off to ensure that both early and late spawners were represented in the samples. The surveys were conducted by running a jet boat downstream at low speed and recovering carcasses with a gaff. If the carcass was too badly decomposed or eaten by animals to measure body length or take scale samples, it was cut in half to prevent recounting and returned to the river. Each carcass was assigned a number and its location and date of recovery recorded. When a sufficient number of carcasses had been collected, the crew stopped to collect the following samples and biological information:

- **sex:** The sex of each fish was determined based on morphology, and confirmed by abdominal incision and internal examination.
- **condition:** Carcass condition was recorded as: 1) fresh; 2) fair to good; 3) poor with some fungus; or 4) partially decomposed but still able to be sampled. In addition, other observations were recorded, particularly the presence of net scars or lamprey marks.
- **post-orbital hypural length (POHL):** The distance from the posterior margin of the orbit to the flexure of the hypural plate in the caudal peduncle was recorded to the nearest millimeter.
- **egg retention and fecundity:** The body cavities of females were checked for eggs. All eggs were counted unless the number was greater than 1000, in which case they were estimated volumetrically. In the case of under-developed eggs which could not be separated and counted, the sample was recorded as a pre-spawn mortality with fully skinned eggs.
- **scales and fin rays:** Ten scales were taken from each processed carcass and stored in gummed, pre-numbered scale books. Five scales were taken from each side of the body in the preferred area (several rows above the lateral line between the posterior end of the dorsal fin and the anterior insertion of the anal fin). Care was taken to avoid regenerated, resorbed and irregular shaped scales. Dorsal fins from each carcass were removed with a knife, placed in pre-labeled plastic bags and frozen. Fish age was later determined by analysis of the scales and fin rays, conducted by staff at Fisheries and Oceans Canada (DFO) laboratory facilities.
- **adipose fin:** A missing adipose fin is evidence of a hatchery raised fish with a coded-wire tag implanted in its head. If the fin was missing, the head was removed and sent to an independent laboratory for tag removal and identification.

All processed carcasses were cut in half to prevent recounting and returned to the river.

RESULTS

Data collected from each Chinook carcass sampled in the Nechako and Stuart rivers in 1997 are presented in Appendices 1 and 2, respectively. Summaries of these data are provided in the respective sections below.

Nechako River

Between September 9th and October 2nd a total of 211² carcasses were sampled from 9 of the 16 identified Sections representing all 3 river areas — upper,

1 Any discrepancy between the total number of carcasses sampled and the reported number of carcasses for various parameters is due to the fact that only partial data were recorded for some carcasses. However, all carcasses were maintained in the dataset and any partial data that was recorded was used in the appropriate analyses.

middle and lower river (Table 1). The observed sex ratio was 1.52 F/M, or 60% females and 40% males (n=217). No Chinook jacks were collected. Of the carcasses sampled, 38% were fresh or only a few days old (Table 2).

TABLE 1 Nechako River Chinook Carcass Recovery by Section, 1997

Section	Number	Percent
UPPER NECHAKO		
Section 1	0	0.0
Section 2	0	0.0
Section 3	73	33.6
Section 4	17	7.8
Section 5	31	14.3
Section 6	6	2.8
Section 7	0	0.0
SUB-TOTAL	127	58.5
MIDDLE NECHAKO		
Section 8	0	0.0
Section 9	0	0.0
Section 10	3	1.4
Section 11	26	12.0
Section 12	35	16.1
Section 13	9	4.1
SUB-TOTAL	73	33.6
LOWER NECHAKO		
Section 14	0	0.0
Section 15	0	0.0
Section 16	17	7.8
SUB-TOTAL	17	7.8
TOTAL RIVER	217	100.0

TABLE 2 Nechako River Chinook Carcass Condition, 1997

Condition *	Number	Percent
1	22	10.1
2	61	28.1
3	114	52.5
4	20	9.2
TOTAL	217	100.0

* Carcass Condition

1 - Fresh carcass

2 - Fair to good carcass (2 - 3 days old)

3 - Poor carcass condition with some fungus

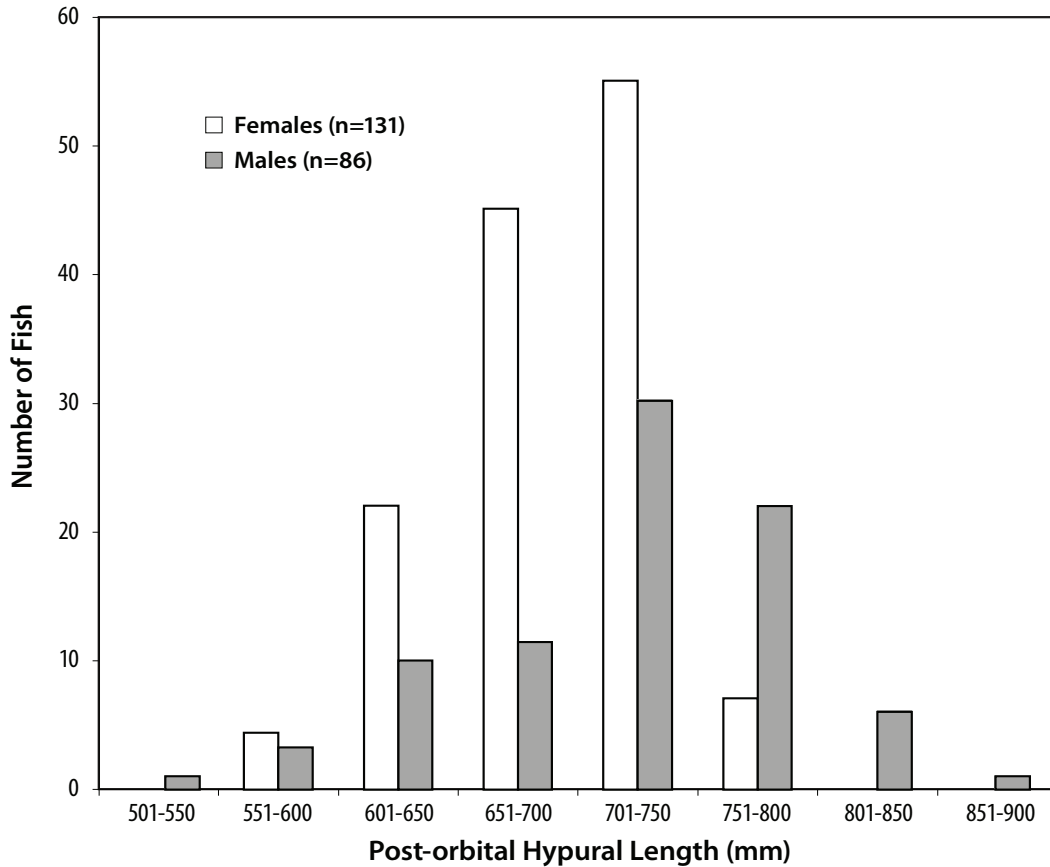
4 - Very old and decomposed carcass

The length (POHL) of the fish sampled ranged from 532 to 860 mm, with a mean of 719 mm (n=86, SD=64) for males, 689 mm (n=131, SD=45) for females and 701 mm (n=217, SD=55) for all fish combined. For males, the majority of individuals sampled ranged in size from 651-800 mm; whereas the majority of females ranged in size from 601-750 mm (Figure 4).

Of the total number of female carcasses sampled (n=131), none were found to be pre-spawn mortalities.

Based on egg retention of less than 1000, 127 (97%) were determined to be fully spawned. In addition, there were 4 partially spawned female carcasses (based on egg retention of 1000-4999) with a range of 2700-4081 eggs retained. The mean egg retention of the fully and partially spawned females was 126 eggs (n=131, SD=645, range 0-4081). Removing the partially spawned carcasses from the sample drops the mean egg retention to 13 eggs (n=127, SD=49, range 0-326).

Scale and fin samples from all 217 carcasses recovered from the Nechako River were sent to the Pacific Biological Station in Nanaimo for age analysis. Complete ages were determined for 206 of those samples (Table 3). The results indicate that the majority of the fish sampled were of two age-classes, 5₂ (76%) and 4₂ (20%).

FIGURE 4**Nechako River Chinook Length Frequency Distribution, 1997**

A chi-square test was used to determine that the numbers of males and females in these age-classes were proportionate to the sex ratio of the sample ($p=0.97$).

None of the recovered Chinook had an adipose fin missing, and no other form of marking or tagging was observed.

TABLE 3
**Nechako River Chinook
Age Contribution (%)
by Sex, 1997**

	4_1	4_2	5_2	6_2	6_3	Total # Aged
Males	0.0	20.0	73.8	6.3	0.0	80
Females	0.8	20.6	77.0	1.6	0.0	126

Stuart River

From September 11th–29th, a total of 257² carcasses were sampled from the six Zones (1-6) within the study area (Table 4). The observed sex ratio was 1.25 F/M, or 56% females and 44% males ($n=257$). One unconfirmed Chinook jack was collected (POHL=345 mm; unconfirmed age due to regenerated scale sample). Of the 227 carcasses with condition documented, 58% were fresh or only a few days old (Table 5).

2 Any discrepancy between the total number of carcasses sampled and the reported number of carcasses for various parameters is due to the fact that only partial data were recorded for some carcasses. However, all carcasses were maintained in the dataset and any partial data that was recorded was used in the appropriate analyses.

TABLE 4**Stuart River Chinook
Carcass Recovery by
Zone, 1997**

Zone	Number	Percent
1	1	0.4
2	39	15.2
3	77	30.0
4	129	50.2
5	10	3.9
6	1	0.4
TOTAL	257	100.0

TABLE 5**Stuart River Chinook
Carcass Condition, 1997**

Condition *	Number	Percent
1	51	22.5
2	81	35.7
3	89	39.2
4	6	2.6
TOTAL	227	100.0

* Carcass Condition

1 - Fresh carcass

2 - Fair to good carcass (2 - 3 days old)

3 - Poor carcass condition with some fungus

4 - Very old and decomposed carcass

In addition to the carcasses sampled for this project, sex was determined for all carcasses recovered as part of the mark-recapture enumeration project, and documented in the Nechako and Stuart Rivers Chinook Enumeration report (NFCP M97-1). This information is relevant to carcass sampling results presented in this report, and given the much larger sample size (n=2064) is likely more representative of the population as a whole. In addition, using the

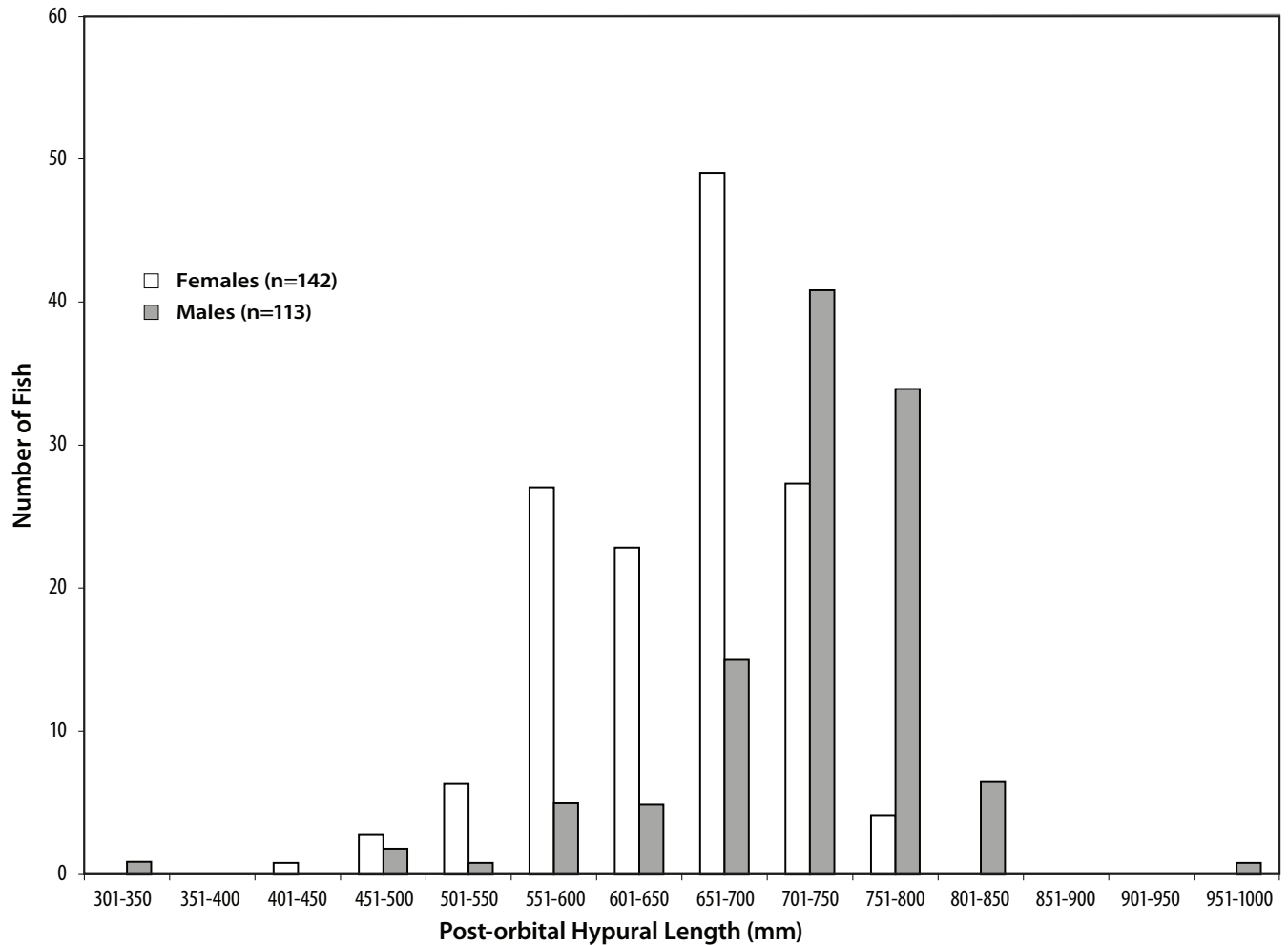
larger dataset eliminates the potential bias associated with the practice of sampling all marked carcasses (sampling for tag application might have a sex bias). The observed sex ratio for this larger sample was 1.17 F/M, or 54% females and 46% males (n=2064, including the carcasses selected for biological sampling).

The length (POHL) of the fish sampled ranged from 345 to 953 mm, with a mean of 723 mm for males (n=113, SD=81), 654 mm for females (n=142, SD=68) and 685 mm (n=255, SD=81) for all fish combined. The majority of males were distributed across a narrow range of lengths (701-800 mm) (Figure 5). Compared to the males, the majority of females were smaller in size and distributed across a wider range of lengths (551-750 mm).

Of the total number of female carcasses sampled (n=143), 2 were found to be pre-spawn mortalities with under-developed skeins. The number of eggs remaining was not determined since the skeins were underdeveloped, prohibiting individual egg counts. Therefore, these individuals were not included in the egg retention statistics reported below.

Of the total number of female carcasses sampled, 138 (97%) were determined to be fully spawned, based on egg retention of less than 1000. The mean egg retention of the fully spawned females was 21 eggs (n=138, SD=111, range 0-914). Three partially spawned female carcasses (based on egg retention of 1000-4999) were sampled.

Scale and fin samples from all 257 carcasses recovered from the Stuart River were sent to the Pacific Biological Station in Nanaimo for age analysis. Complete ages were determined for 232 of those samples (Table 6). The results indicate that a vast majority of the fish sampled were of two age-classes, 5₂ (66%) and 4₂ (28%). The number of males and females in these age-classes was not significantly disproportionate to the sex ratio of the sample (chi-square test, p=0.07).

FIGURE 5**Stuart River Chinook Length Frequency Distribution, 1997**

Carcasses with clipped adipose fins, indicating that they were of hatchery origin, and with tags applied as part of the mark-recapture program were collected. However, these clips and tags are not relevant to the biological sampling project so those results are documented in the Nechako and Stuart Rivers Chinook Enumeration report (NFCP M97-1). No other form of marking or tagging was observed.

TABLE 6**Stuart River Chinook Age Contribution (%) by Sex, 1997**

	3 ₁	3 ₂	4 ₁	4 ₂	5 ₁	5 ₂	6 ₂	Total # Aged
Males	0.0	0.0	0.0	23.1	0.9	73.1	1.9	108
Females	0.0	0.0	0.8	33.1	1.6	60.5	1.6	124

DISCUSSION - COMPARISON TO PREVIOUS YEARS

Nechako River

A comparison of 1997 Nechako River Chinook carcass recovery data was made to data collected by the NFCP each year since 1988 (NFCP M88-4 and M89-2 to M96-2). Although some limited data were collected prior to 1988 it was not deemed necessary to include these data in the comparison, since information has been collected by the NFCP for several years using standardized methods and study areas. The exception is the discussion on fecundity which includes data collected prior to the inception of the NFCP. This exception was made because the prior

data adds substantially to the available dataset due to the paucity of information regarding Nechako River Chinook female fecundity.

The observed sex ratio of 1.52 F/M was within the existing range (1.10-1.74) observed from 1988-1996 (Figure 6), but significantly higher than the mean of 1.38 ($n=9$, $SD=0.20$), as indicated by 95% confidence limit of 1.25-1.51.

When comparing the mean length (POHL) of both males and females to observations from previous years, no obvious trends were apparent. For both sexes, the mean lengths observed in 1997 fell within the ranges observed in previous years (Figures 7 and 8).

FIGURE 6 Nechako River Chinook Sex Ratio, 1988-1997

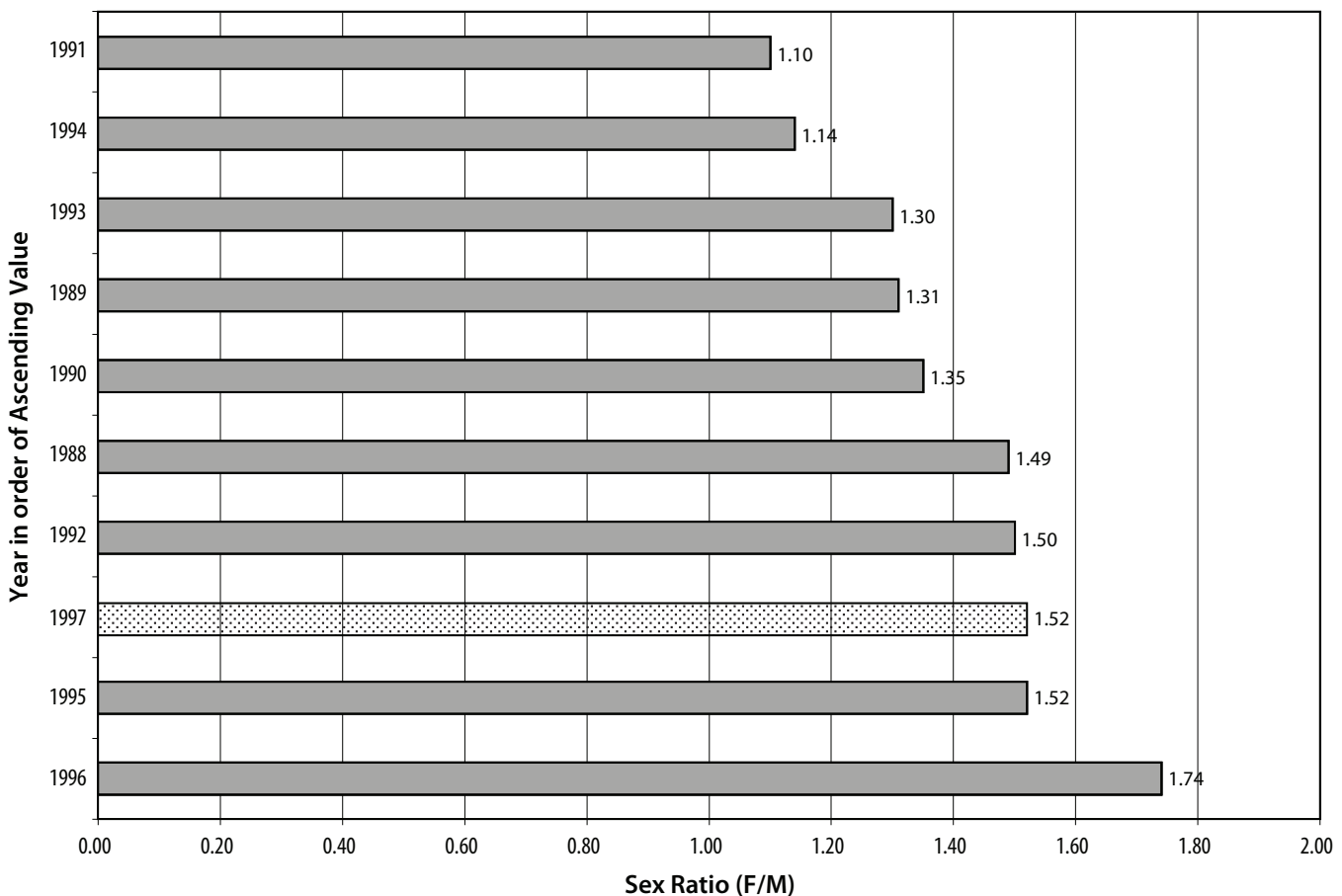
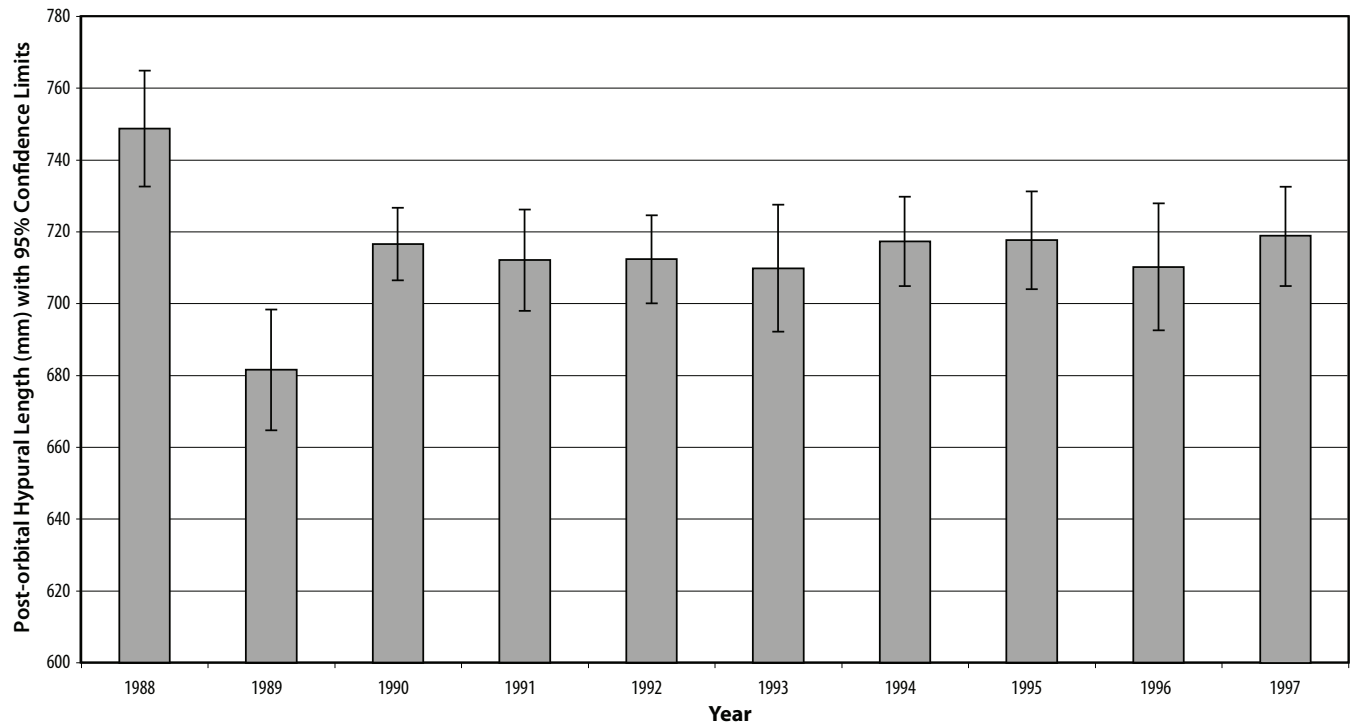
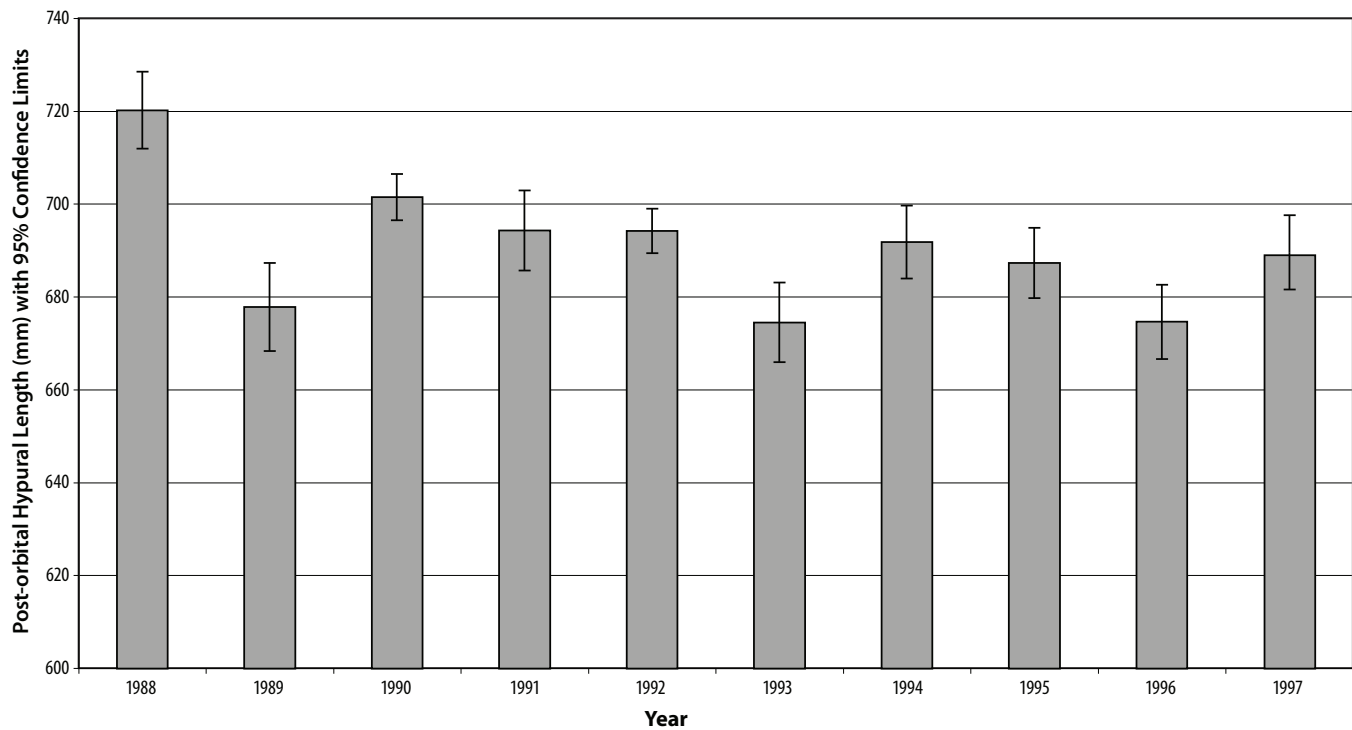


FIGURE 7**Nechako River Chinook Male Mean Length, 1988-1997****FIGURE 8****Nechako River Chinook Female Mean Length, 1988-1997**

As no female pre-spawn mortalities have been sampled since 1995, the average fecundity of Nechako River female Chinook is estimated at 6204 eggs per fish (Table 7). Although no further analysis of this

statistic is conducted for this report, this value may contribute to other aspects of the NFCP monitoring projects, particularly the estimates of egg-to-fry survival.

TABLE 7 Nechako River Chinook
Fecundity, 1978-1997

Year	Post-orbital Hypural Length (mm)	Fecundity (eggs/female)	Sources*	Cumulative Mean
1978	684	5250	1	
1978	663	6305	1	
1979	703	7200	2	
1979	611	5313	2	
1979	611	5284	2	
1980	710	5000	3	
1980	710	5000	3	
1985	760	6800	4	5769
1989	733	6073		
1989	695	5831		
1989	720	5500		
1989	730	5065		5718
1990	760	8831		
1990	730	7040		6035
1991	715	7289		
1991	710	6901		
1991	670	5714		6141
1992	680	7395		
1992	705	7111		6258
1993	690	6848		
1993	630	5705		
1993	720	5575		6229
1995	706	6750		
1995	712	5109		6204

*Sources:

1 = Fee and Sheng (1978),
2 = Olmsted et al. (1980),

3 = Russell *et al.* (1983), and
4 = Jaremovic and Rowland (1988)

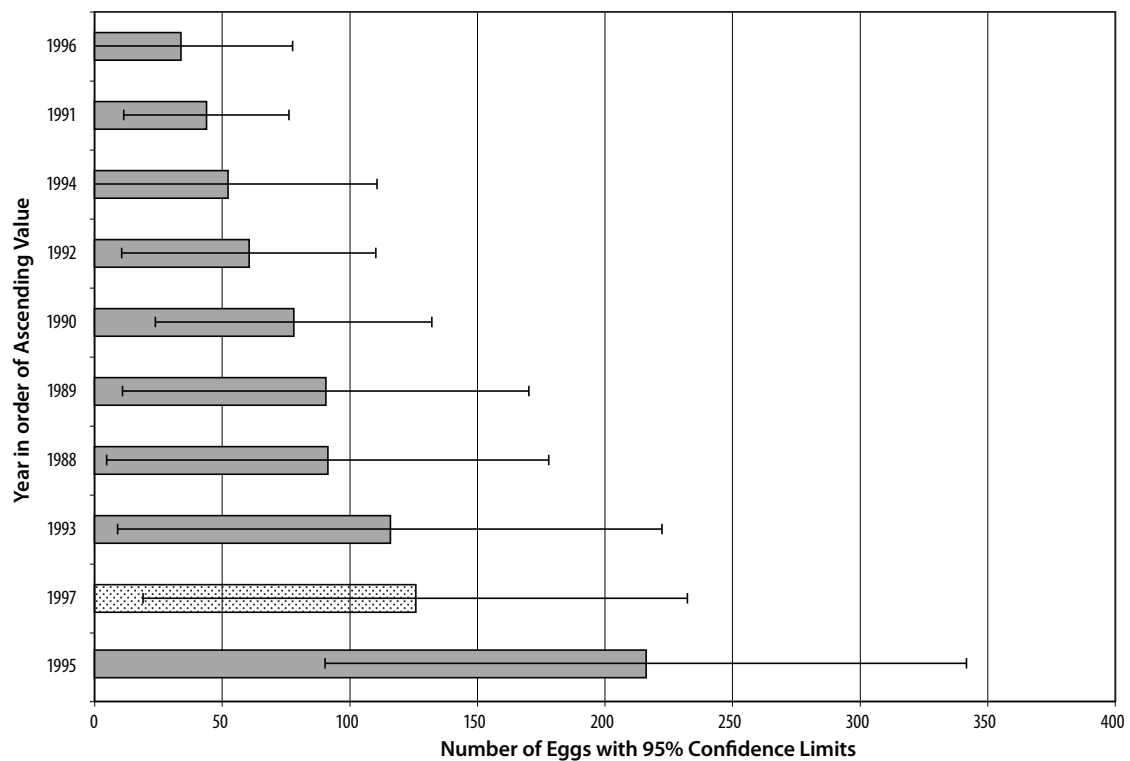
The mean egg retention in fully and partially spawned carcasses was compared to values from previous years (Table 8). Although the 1997 mean

is the second highest observed since 1988, the large confidence limits make it difficult to assign any significance to this observation (Figure 9).

TABLE 8 Nechako River Chinook Egg Retention, 1988-1997

Year	Fully Spawned			Partially Spawned		Fully + Partially
	n	range	mean	n	range	mean
1988	123	0-500	11.5	4	1000-4320	91.4
1989	144	0-757	21.5	3	2760-3960	90.6
1990	226	0-982	40.7	2	4066-4503	78
1991	154	0-732	22.4	2	1383-2005	43.8
1992	219	0-862	20.2	3	1484-4021	60.5
1993	100	0-529	32.8	3	1045-4686	115.8
1994	90	0-249	10.7	2	1565-2272	52.2
1995	144	0-899	38.3	8	1613-4600	216.1
1996	166	0-212	5.8	2	1100-3600	33.7
1997	127	0-326	13.1	4	2700-4081	125.5

FIGURE 9 Nechako River Chinook Mean Egg Retention, 1988-1997



The Nechako River Chinook spawning population is almost exclusively comprised of individuals that spend one or more years as a fry or parr in fresh water before migrating out to the ocean (stream-type life history), and is dominated by 4₂ and 5₂ age-classes. These have been consistent observations since the inception of the NFCP monitoring program. In 1997 age-classes 4₂ and 5₂ accounted for 96% of the return, with all stream-type fish accounting for 100% (Table 9).

TABLE 9 Percent Contribution of Stream-type Life Histories to Nechako Chinook Escapements, 1988-1997

Year	% Contribution		Sample Size
	4 ₂ + 5 ₂	All Stream-type	
1988	80	99	210
1989	81	97	200
1990	80	98	225
1991	68	96	210
1992	90	99	200
1993	85	100	188
1994	88	100	172
1995	97	99	207
1996	87	99	211
1997	96	100	206

In addition to identifying life history strategies, age data combined with the current years' escapement estimate are used to determine the relative success of past brood years in generating subsequent returns to the river. Since this analysis requires the results of several years, age-at-return data since the inception of the NFCP is documented in Table 10 to facilitate the discussion in the Nechako and Stuart Rivers Chinook Enumeration report (NFCP M97-1).

TABLE 10 Percent Contribution of Age-at-Return Groupings to Nechako Chinook Escapements, 1988-1997

Year	% Contribution					Sample Size
	3 years	4 years	5 years	6 years	7 years	
1988	0.0	9.0	72.4	18.6	0.0	210
1989	1.0	30.0	52.5	15.5	1.0	200
1990	0.0	5.3	76.0	17.3	1.3	225
1991	1.0	16.7	54.3	25.7	2.4	210
1992	1.0	7.0	84.0	8.0	0.0	200
1993	0.0	13.3	71.8	14.9	0.0	188
1994	0.0	11.0	76.7	11.0	1.2	172
1995	0.0	14.0	84.5	1.4	0.0	207
1996	0.0	40.8	49.8	9.5	0.0	211
1997	0.0	20.9	75.7	3.4	0.0	206

Stuart River

Information is collected from the Stuart River as a comparison to the Nechako River, to assist in identifying potential effects of flow regulation on the Nechako Chinook population. The geographic proximity of the two rivers means that Chinook returning to the Stuart River most likely experience similar migration timing, ocean conditions and harvest rates as Nechako River Chinook. Given these assumptions, identified trends or anomalies in the Nechako population that were absent from the Stuart might be attributable to factors intrinsic to the Nechako River, but similarities would likely indicate extrinsic factors unrelated to flow regulation.

In 1997, the comparison of information collected from the Nechako to previous years did not identify any significant trends or anomalies, therefore it was not necessary to use the information collected from the Stuart to identify possible intrinsic vs. extrinsic effects. However, the data are documented in this report in the event that longer-term analyses are required in the future.

ACKNOWLEDGMENTS

Peter Delaney, Jason Hwang and Roy Argue managed the delivery of the projects for DFO, on behalf of the NFCP Technical Committee.

Nechako River carcass recovery was conducted by Colin Barnard.

Stuart River carcass recovery was conducted by Dan Clark and members of the Nak'azdli Band.

J.O. Thomas & Associates, and staff at DFO's Pacific Biological Station analyzed the various samples.

Rhonda Thibeault and Liz Murphy assisted with data compilation.

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APPENDIX 1

1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results

APPENDIX 1**1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
1	11-Sep-97	11	M	3	692		35701	1	52	
2	11-Sep-97	11	F	3	698	2	35701	2	52	
3	11-Sep-97	11	F	4	750	0	35701	3	52	
4	11-Sep-97	12	F	4	724	0	35701	4	52	
5	11-Sep-97	12	F	3	742	2	35701	5	52	
6	11-Sep-97	12	F	3	732	326	35702	1	52	partially eaten
7	11-Sep-97	12	M	3	676		35702	2	52	
8	11-Sep-97	12	M	1	766		35702	3	52	
9	15-Sep-97	3A	F	3	673	0	35702	4	52	
10	15-Sep-97	3B	M	3	726		35702	5	52	
11	15-Sep-97	3B	M	2	816		35703	1	52	
12	15-Sep-97	3B	F	3	706	0	35703	2	52	
13	15-Sep-97	3B	M	2	645		35703	3	52	
14	15-Sep-97	3B	M	3	710		35703	4	52	
15	15-Sep-97	3B	M	2	718		35703	5	42	
16	15-Sep-97	3B	F	3	672	0	35704	1	52	
17	15-Sep-97	3B	F	2	631	28	35704	2	41	
18	15-Sep-97	3B	M	3	573		35704	3	42	
19	15-Sep-97	3B	F	3	597	0	35704	4	42	
20	15-Sep-97	3B	M	2	741		35704	5	52	
21	15-Sep-97	3B	F	3	656	0	35705	1	52	
22	15-Sep-97	3B	F	3	642	0	35705	2	42	
23	15-Sep-97	3B	F	1	614	232	35705	3	42	
24	15-Sep-97	3B	F	2	685	0	35705	4	52	
25	15-Sep-97	3B	F	3	686	0	35705	5	42	
26	15-Sep-97	3B	F	3	672	0	35706	1	52	
27	15-Sep-97	3B	F	3	679	0	35706	2	52	
28	15-Sep-97	3B	F	1	592	2	35706	3	42	
29	16-Sep-97	3B	F	2	630	300	35706	4	42	partially eaten
30	16-Sep-97	3B	M	2	776		35706	5	52	
31	16-Sep-97	4	M	2	726		35707	1	52	
32	16-Sep-97	4	F	3	722	2	35707	2	52	
33	16-Sep-97	4	M	2	725		35707	3	52	
34	16-Sep-97	4	M	3	790		35707	4	42	
35	16-Sep-97	4	M	3	812		35707	5	62	
36	16-Sep-97	4	M	1	743		35708	1	52	
37	16-Sep-97	4	F	2	717	0	35708	2	52	partially eaten

APPENDIX 1 (cont.)**1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
38	16-Sep-97	4	M	3	708		35708	3	52	
39	16-Sep-97	4	F	4	684	4	35708	4	52	
40	16-Sep-97	5	F	3	652	0	35708	5	52	
41	16-Sep-97	5	M	3	713		35709	1	52	partially eaten
42	16-Sep-97	5	F	3	741	0	35709	2	52	
43	16-Sep-97	5	F	2	692	1	35709	3	52	
44	16-Sep-97	5	F	3	706	3	35709	4	52	
45	16-Sep-97	5	F	2	721	27	35709	5	52	
46	9-Sep-97	10	F	2	640	0	35710	1	42	
47	9-Sep-97	10	F	3	675	0	35710	2	52	
48	9-Sep-97	10	F	3	706	0	35710	3	52	
49	9-Sep-97	11	F	2	730	0	35710	4	52	
50	9-Sep-97	11	M	2	759		35710	5	52	
51	9-Sep-97	11	F	2	730	0	35711	1	52	partially eaten
52	9-Sep-97	11	F	3	671	0	35711	2	52	
53	9-Sep-97	11	M	1	733		35711	3	52	
54	9-Sep-97	11	F	1	732	217	35711	4	52	
55	9-Sep-97	11	M	2	781		35711	5	52	
56	9-Sep-97	11	M	3	743		35712	1	52	partially eaten
57	9-Sep-97	11	F	3	631	46	35712	2	42	
58	9-Sep-97	11	M	3	770		35712	3	52	
59	9-Sep-97	11	F	2	733	1	35712	4	52	
60	9-Sep-97	11	M	3	776		35712	5	52	
61	20-Sep-97	11	M	4	741		35713	1	52	
62	20-Sep-97	11	F	3	736	52	35713	2	52	
63	20-Sep-97	11	F	3	734	21	35713	3	52	
64	20-Sep-97	11	M	3	715		35713	4	52	
65	20-Sep-97	11	M	2	860		35713	5	52	
66	20-Sep-97	11	M	3	691		35714	1	42	
67	20-Sep-97	11	F	3	710	4039	35714	2	52	pre-spawn mort, vol. count
68	20-Sep-97	11	M	2	762		35714	3	52	
69	21-Sep-97	11	M	1	745		35714	4	52	
70	21-Sep-97	12	F	3	622	0	35714	5	42	partially eaten
71	21-Sep-97	12	F	2	690	8	35715	1	52	
72	21-Sep-97	12	M	3	761		35715	2	52	
73	21-Sep-97	12	M	2	658		35715	3	42	
74	21-Sep-97	12	F	1	704	2	35715	4	52	

APPENDIX 1 (cont.)**1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
75	21-Sep-97	12	M	1	562		35715	5	42	
76	21-Sep-97	12	M	3	666		35716	1	52	
77	21-Sep-97	12	F	3	701	1	35716	2	52	
78	21-Sep-97	12	M	2	602		35716	3	42	
79	21-Sep-97	12	M	1	705		35716	4	52	
80	21-Sep-97	12	M	1	749		35716	5	52	
81	21-Sep-97	12	M	3	638		35717	1	42	
82	21-Sep-97	12	M	2	698		35717	2	42	
83	21-Sep-97	12	M	1	776		35717	3	52	
84	21-Sep-97	12	M	3	723		35717	4	52	
85	21-Sep-97	12	M	1	751		35717	5	62	
86	21-Sep-97	12	M	3	711		35718	1	52	
87	21-Sep-97	12	F	2	680	0	35718	2	42	
88	21-Sep-97	12	F	3	683	0	35718	3	52	
89	21-Sep-97	12	M	2	591		35718	4	42	
90	21-Sep-97	12	M	2	631		35718	5	42	
91	21-Sep-97	12	F	3	618	23	35719	1	42	
92	21-Sep-97	12	F	3	645	0	35719	2	42	
93	21-Sep-97	12	F	2	701	0	35719	3	52	
94	21-Sep-97	12	F	1	715	0	35719	4	52	
95	21-Sep-97	12	M	2	675		35719	5	52	
96	22-Sep-97	16	M	3	816		35720	1	52	
97	22-Sep-97	16	F	4	735	0	35720	2	62	partially eaten
98	22-Sep-97	16	F	2	714	2	35720	3	52	
99	22-Sep-97	16	F	3	606	1	35720	4	42	
100	22-Sep-97	16	M	2	632		35720	5	42	
101	22-Sep-97	16	M	2	765		35721	1	52	
102	22-Sep-97	16	M	3	622		35721	2	42	
103	22-Sep-97	16	F	3	692	89	35721	3	52	partially eaten
104	22-Sep-97	16	M	2	639		35721	4	42	
105	22-Sep-97	16	F	3	647	0	35721	5	42	
106	22-Sep-97	16	F	2	644	0	35722	1	42	
107	22-Sep-97	16	F	3	604	0	35722	2	42	
108	22-Sep-97	16	F	2	693	0	35722	3	52	
109	22-Sep-97	16	F	1	610	0	35722	4	42	partially eaten
110	22-Sep-97	16	M	3	777		35722	5	52	
111	22-Sep-97	16	F	3	749	1	35723	1	52	

APPENDIX 1 (cont.)**1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
112	22-Sep-97	16	F	2	713	8	35723	2	52	
113	25-Sep-97	5	F	1	721	0	35723	3	52	
114	25-Sep-97	5	F	3	742	0	35723	4	62	
115	25-Sep-97	5	F	2	730	45	35723	5	52	
116	25-Sep-97	5	M	3	764		35724	1	52	
117	25-Sep-97	5	F	3	691	3952	35724	2	52	
118	25-Sep-97	5	M	2	724		35724	3	52	partially eaten
119	25-Sep-97	5	F	3	706	0	35724	4	52	
120	25-Sep-97	5	M	3	768		35724	5	52	
121	25-Sep-97	5	F	2	701	3	35725	1	52	
122	25-Sep-97	5	F	2	762	3	35725	2	52	
123	25-Sep-97	5	M	3	671		35725	3	52	
124	25-Sep-97	5	F	1	748	6	35725	4	52	
125	25-Sep-97	5	F	3	693	0	35725	5	52	
126	25-Sep-97	5	M	3	729		35726	1	52	
127	25-Sep-97	5	F	3	616	2	35726	2	52	
128	25-Sep-97	5	M	3	691		35726	3	52	
129	25-Sep-97	5	M	4	777		35726	4	52	
130	25-Sep-97	5	M	4	803		35726	5	52	
131	25-Sep-97	5	F	2	764	2700	35727	1	52	pre-spawn mortality
132	25-Sep-97	5	F	3	678	4081	35727	2	52	pre-spawn mortality
133	25-Sep-97	5	F	4	683	0	35727	3	52	
134	25-Sep-97	5	F	3	685	0	35727	4	52	
135	25-Sep-97	5	M	4	745		35727	5	n/a	
136	25-Sep-97	5	M	3	680		35728	1	42	
137	25-Sep-97	5	F	4	773	0	35728	2	52	
138	25-Sep-97	6	F	2	732	1	35728	3	52	
139	25-Sep-97	6	M	2	711		35728	4	52	
140	25-Sep-97	6	M	2	803		35728	5	62	
141	25-Sep-97	6	F	3	607	0	35729	1	42	
142	25-Sep-97	6	F	3	742	97	35729	2	52	
143	25-Sep-97	6	M	3	800		35729	3	52	
144	28-Sep-97	3B	F	2	770	3	35729	4	52	
145	28-Sep-97	3B	F	3	686	0	35729	5	52	
146	28-Sep-97	3B	M	3	730		35730	1	52	
147	28-Sep-97	3B	F	3	598	0	35730	2	42	
148	28-Sep-97	3B	F	2	685	5	35730	3	52	

APPENDIX 1 (cont.)**1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
149	28-Sep-97	3B	M	2	741		35730	4	52	
150	28-Sep-97	3B	F	2	694	1	35730	5	52	
151	28-Sep-97	3B	F	2	706	0	35731	1	52	
152	28-Sep-97	3B	M	3	613		35731	2	52	
153	28-Sep-97	3B	M	3	652		35731	3	52	
154	28-Sep-97	3B	F	2	640	0	35731	4	42	
155	28-Sep-97	3B	F	3	709	0	35731	5	52	
156	28-Sep-97	3B	M	1	666		35732	1	52	
157	28-Sep-97	3B	M	3	707		35732	2	52	
158	28-Sep-97	3B	F	2	691	22	35732	3	52	
159	28-Sep-97	3B	F	3	691	0	35732	4	52	
160	28-Sep-97	3B	F	3	678	0	35732	5	52	
161	28-Sep-97	3B	M	2	842		35733	1	52	
162	28-Sep-97	3B	M	1	532		35733	2	62	
163	28-Sep-97	3B	F	3	623	2	35733	3	42	
164	28-Sep-97	3B	F	3	631	0	35733	4	52	
165	28-Sep-97	3B	M	2	672		35733	5	RS	resorbed
166	28-Sep-97	3B	F	3	663	0	35734	1	52	
167	28-Sep-97	3B	F	3	724	0	35734	2	52	
168	28-Sep-97	3B	M	3	703		35734	3	52	
169	28-Sep-97	3B	M	3	705		35734	4	52	
170	28-Sep-97	3B	F	2	622	0	35734	5	42	
171	28-Sep-97	3B	F	2	738	11	35735	1	52	
172	28-Sep-97	3B	F	3	694	0	35735	2	52	
173	28-Sep-97	3B	F	3	721	1	35735	3	52	
174	28-Sep-97	3B	F	3	694	15	35735	4	3M	RG
175	28-Sep-97	3B	M	3	753		35735	5	52	
176	30-Sep-97	11	F	3	723	0	35736	1	52	
177	30-Sep-97	11	F	4	656	0	35736	2	52	
178	30-Sep-97	12	M	3	760		35736	3	52	
179	30-Sep-97	13	M	3	714		35736	4	52	
180	30-Sep-97	13	F	3	571	0	35736	5	42	
181	30-Sep-97	13	F	3	712	0	35737	1	52	
182	30-Sep-97	13	F	3	670	0	35737	2	52	
183	30-Sep-97	13	M	3	642		35737	3	42	
184	2-Oct-97	3A	F	2	702	8	35737	4	52	
185	2-Oct-97	3A	F	3	692	0	35737	5	52	

APPENDIX 1 (cont.)**1997 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
186	2-Oct-97	3A	F	3	706	2	35738	1	52	
187	2-Oct-97	3A	F	2	742	2	35738	2	52	
188	2-Oct-97	3A	F	3	721	0	35738	3	52	
189	2-Oct-97	3A	F	3	667	0	35738	4	52	
190	2-Oct-97	3A	F	1	731	0	35738	5	52	
191	2-Oct-97	3B	F	4	710	0	35739	1	52	
192	2-Oct-97	3B	F	3	733	0	35739	2	52	
193	2-Oct-97	3B	F	1	764	3	35739	3	52	
194	2-Oct-97	3B	F	1	736	0	35739	4	52	
195	2-Oct-97	3B	F	2	755	0	35739	5	52	
196	2-Oct-97	3B	F	3	717	0	35740	1	52	
197	2-Oct-97	3B	M	3	788		35740	2	62	
198	2-Oct-97	3B	F	2	719	26	35740	3	52	
199	2-Oct-97	3B	F	3	614	0	35740	4	42	
200	2-Oct-97	3B	F	2	705	7	35740	5	52	
201	2-Oct-97	3B	F	3	627	0	35741	1	42	
202	2-Oct-97	3B	F	3	663	0	35741	2	52	
203	2-Oct-97	4	F	3	663	0	35741	3	52	
204	2-Oct-97	4	M	4	758		35741	4	52	
205	2-Oct-97	4	F	4	681	0	35741	5	52	
206	2-Oct-97	4	F	3	653	0	35742	1	52	
207	2-Oct-97	4	F	4	652	0	35742	2	3M	RG
208	2-Oct-97	4	F	4	683	0	35742	3	52	
209	2-Oct-97	4	F	4	682	0	35742	4	42	
210	2-Oct-97	4	F	4	665	0	35742	5	52	
211	29-Sep-97	12	M	3	774				n/a	A-1 in field notes
212	29-Sep-97	12	F	3	780	0			n/a	A-2 in field notes
213	29-Sep-97	12	F	4	623	0			n/a	A-3 in field notes
214	30-Sep-97	13	M	4	701				n/a	A-4 in field notes
215	30-Sep-97	13	M	3	767				n/a	A-5 in field notes
216	30-Sep-97	13	M	3	640				n/a	A-6 in field notes
217	30-Sep-97	13	F	3	731	0			n/a	A-7 in field notes

APPENDIX 2

**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

APPENDIX 2**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
1	11-Sep-97	4	F	4	700	3410	35651	1	52	pre-spawn mortality
2	11-Sep-97	4	F	4	n/a	skein	35651	2	52	pre-spawn mortality
3	11-Sep-97	4	M	4	n/a		35651	3	42	pre-spawn mortality
4	11-Sep-97	4	M	4	570		35651	4	42	pre-spawn mortality
5	13-Sep-97	2	M		800		35652	1	62	
6	13-Sep-97	2	M		750		35652	2	52	
7	13-Sep-97	2	M		750		35652	3	52	
8	13-Sep-97	2	F		620	1200	35652	4	52	
9	13-Sep-97	3	F	2	700	143	35652	5	52	
10	13-Sep-97	3	M	2	800		35653	1	63	
11	13-Sep-97	3	F	2	740	0	35653	2	42	
12	13-Sep-97	3	M	2	700		35653	3	52	
13	13-Sep-97	4	M	3	720		35653	4	52	
14	13-Sep-97	4	M	2	710		35653	5	52	
15	15-Sep-97	2	M	2	680		35654	1	42	
16	15-Sep-97	2	F	1	660	0	35654	2	52	
17	15-Sep-97	2	F	2	750	1156	35654	3	52	
18	15-Sep-97	2	M	3	770		35654	4	52	
19	15-Sep-97	2	F		700	4	35654	5	52	
20	15-Sep-97	4	F	1	670	55	35655	1	52	Partially spawned
21	15-Sep-97	3	F		630	30	35655	2	52	no marks
22	15-Sep-97	3	M		730		35655	3	52	
23	15-Sep-97	3	F		700		35655	4	52	
24	15-Sep-97	3	M		750		35655	5	52	
25	15-Sep-97	3	F	1	750	30	35656	1	52	
26	15-Sep-97	3	F	1	700	0	35656	2	52	
27	15-Sep-97	3	M	3	750		35656	3	52	
28	15-Sep-97	3	F	1	670	34	35656	4	41	
29	15-Sep-97	3	F	1	670	5	35656	5	52	
30	15-Sep-97	3	F	1	720	114	35657	1	52	
31	15-Sep-97	3	M	3	700		35657	2	52	
32	15-Sep-97	3	F	1	710	0	35657	3	52	
33	15-Sep-97	3	F	1	700	0	35657	4	52	
34	15-Sep-97	3	F	1	700	56	35657	5	52	
35	15-Sep-97	3	F	4	600	0	35658	1	42	
36	15-Sep-97	3	M	3	790		35658	2	52	
37	15-Sep-97	4	F	1	730		35658	3	52	

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
38	15-Sep-97	4	M	2	720		35658	4	52	
39	15-Sep-97	4	F	2	710	0	35658	5	52	
40	15-Sep-97	4	F	3	450		35659	1	n/a	Jill; adipose fin clip
41	16-Sep-97	5	M	4	750		35660	1	52	
42	16-Sep-97	5	M	2	760		35660	2	52	
43	16-Sep-97	5	M	3	760		35660	3	52	
44	16-Sep-97	5	M	2	760		35660	4	52	
45	16-Sep-97	5	M	2	800		35660	5	52	
46	17-Sep-97	4	F	2	680	30	35661	1	52	
47	17-Sep-97	4	F	1	610	900	35661	2	42	
48	17-Sep-97	4	F	1	610	0	35661	3	42	
49	17-Sep-97	4	F	2	680	0	35661	4	52	
50	17-Sep-97	4	M	2	780		35661	5	52	
51	17-Sep-97	4	F	2	720	0	35662	1	52	
52	17-Sep-97	4	F	3	500	0	35662	2	42	
53	17-Sep-97	4	F	1	550	skein	35662	3	42	pre-spawn mortality
54	17-Sep-97	4	F	3	670	0	35662	4	52	
55	17-Sep-97	4	M	2	710		35662	5	52	
56	18-Sep-97	3	M	3	953		35663	1	52	
57	18-Sep-97	3	M	3	800		35663	2	52	
58	18-Sep-97	3	M	3	754		35663	3	52	
59	18-Sep-97	3	M	3	752		35663	4	52	
60	18-Sep-97	3	M	3	753		35663	5	52	
61	18-Sep-97	3	M	2	742		35664	1	52	
62	18-Sep-97	3	M	2	776		35664	2	52	
63	18-Sep-97	3	M	2	700		35664	3	42	
64	18-Sep-97	3	M	2	718		35664	4	52	
65	18-Sep-97	3	M	2	626		35664	5	52	
66	18-Sep-97	3	M	1	750		35665	1	52	
67	18-Sep-97	3	M	1	748		35665	2	42	
68	18-Sep-97	3	M	1	735		35665	3	52	
69	18-Sep-97	3	M	3	654		35665	4	52	
70	18-Sep-97	3	M	3	710		35665	5	52	
71	15-Sep-97	3	M		710		35666	1	52	
72	15-Sep-97	4	F		740	55	35666	2	52	
73	15-Sep-97	4	F		720	23	35666	3	52	
74	15-Sep-97	4	F		610	39	35666	4	42	

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
75	15-Sep-97	4	F		690	62	35666	5	52	
76	15-Sep-97	4	F		700	0	35667	1	52	
77	15-Sep-97	4	M		780		35667	2	52	
78	15-Sep-97	4	M		760		35667	3	52	
79	15-Sep-97	4	F		750		35667	4	52	
80	18-Sep-97	6	M		660		35668	1	42	reach is 6B in field notes
81	18-Sep-97	3	F	2	600		35668	2	42	
82	18-Sep-97	3	F	2	600		35668	3	52	
83	18-Sep-97	3	M	3	790		35668	4	52	
84	18-Sep-97	3	M	3	720		35668	5	42	
85	18-Sep-97	3	F	3	600		35669	1	42	
86	18-Sep-97	3	M	3	790		35669	2	52	
87	18-Sep-97	3	F	2	790		35669	3	62	
88	18-Sep-97	3	M	3	750		35669	4	52	
89	18-Sep-97	3	F	2	700		35669	5	52	
90	18-Sep-97	3	M	3	810		35670	1	52	
91	18-Sep-97	3	F	2	720		35670	2	52	
92	18-Sep-97	3	M	2	790		35670	3	52	
93	18-Sep-97	3	M	2	790		35670	4	52	
94	18-Sep-97	3	M	3	820		35670	5	62	partially eaten
95	18-Sep-97	3	F	1	690		35671	1	52	
96	18-Sep-97	3	F	2	728		35671	2	52	
97	18-Sep-97	3	F	2	600		35671	3	42	
98	18-Sep-97	3	M	2	765		35671	4	52	
99	18-Sep-97	3	M	2	814		35671	5	52	
100	18-Sep-97	3	M	3	750		35672	1	42	
101	18-Sep-97	3	M	3	750		35672	2	52	
102	18-Sep-97	4	F	1	640		35672	3	42	
103	18-Sep-97	4	M	1	750		35672	4	52	
104	18-Sep-97	4	M	1	760		35672	5	52	
105	18-Sep-97	4	F	1	610	0	35673	1	42	
106	18-Sep-97	4	M	1	780		35673	2	52	
107	18-Sep-97	4	M	2	840		35673	3	52	
108	18-Sep-97	4	F	2	680	0	35673	4	52	
109	18-Sep-97	4	F	2	650	0	35673	5	52	
110	18-Sep-97	4	F	3	680	0	35674	1	52	
111	18-Sep-97	4	F	3	780	0	35674	2	52	

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
112	18-Sep-97	4	F	3	740	0	35674	3	52	
113	18-Sep-97	4	M	2	780		35674	4	52	
114	18-Sep-97	4	F	2	700	0	35674	5	52	
115	18-Sep-97	4	F	1	500	0	35675	1	42	
116	18-Sep-97	4	F	1	700	0	35675	2	52	
117	18-Sep-97	4	F	1	670	0	35675	3	42	
118	18-Sep-97	4	F	2	750	0	35675	4	52	
119	18-Sep-97	4	F	1	780	0	35675	5	52	
120	18-Sep-97	4	M	3	700		35676	1	52	
121	18-Sep-97	4	F	2	680	0	35676	2	42	
122	18-Sep-97	4	F	1	720	0	35676	3	52	
123	18-Sep-97	4	F	2	740	0	35676	4	52	
124	18-Sep-97	4	M	3	750		35676	5	52	
125	18-Sep-97	4	F	2	500	51	35677	1	52	Jill
126	18-Sep-97	4	F	1	689	70	35677	2	52	
127	18-Sep-97	4	F	1	619	37	35677	3	52	
128	18-Sep-97	4	F	2	717	163	35677	4	62	
129	18-Sep-97	4	M	3	817		35677	5	42	
130	18-Sep-97	4	F	3	577	0	35678	1	2M	RG
131	18-Sep-97	4	F	3	591	0	35678	2	52	
132	18-Sep-97	4	F	3	698	0	35678	3	52	
133	18-Sep-97	4	F	2	699	11	35678	4	42	
134	18-Sep-97	4	F	2	608	0	35678	5	42	
135	18-Sep-97	4	M	3	729		35679	1	52	
136	18-Sep-97	4	M	2	750		35679	2	52	
137	18-Sep-97	4	M	3	743		35679	3	52	
138	18-Sep-97	4	M	3	767		35679	4	52	
139	18-Sep-97	4	M	2	730		35679	5	52	
140	18-Sep-97	4	M	3	778		35680	1	42	adipose fin clip
141	18-Sep-97	4	F	1	630		35680	2	42	
142	18-Sep-97	4	M	2	728		35680	3	51	
143	18-Sep-97	4	M	1	465		35680	4	42	Jack
144	18-Sep-97	4	F	1	549	0	35680	5	52	
145	18-Sep-97	4	F	1	630	0	35681	1	42	
146	18-Sep-97	4	F	1	613	0	35681	2	42	
147	18-Sep-97	4	F	1	673	914	35681	3	52	
148	18-Sep-97	4	F	2	698	46	35681	4	42	

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
149	18-Sep-97	4	F	1	624	0	35681	5	42	
150	18-Sep-97	4	F	1	712	5	35682	1	42	
151	18-Sep-97	4	F	1	674	0	35682	2	52	
152	18-Sep-97	4	F	1	689	0	35682	3	42	
153	18-Sep-97	4	M	3	729		35682	4	42	
154	18-Sep-97	4	M	1	684		35682	5	52	
155	19-Sep-97	2	M	3	740		35683	1	52	
156	19-Sep-97	2	F	1	549	0	35683	2	42	
157	19-Sep-97	2	M	3	720		35683	3	52	
158	19-Sep-97	2	M	3	758		35683	4	52	
159	19-Sep-97	2	F	1	779	0	35683	5	52	
160	19-Sep-97	2	F	3	711	0	35684	1	52	
161	19-Sep-97	2	F	1	589	0	35684	2	42	
162	19-Sep-97	2	F	1	667	0	35684	3	52	
163	19-Sep-97	2	F	2	753	0	35684	4	52	
164	19-Sep-97	2	F	1	558	0	35684	5	42	
165	19-Sep-97	2	F	2	537	0	35685	1	52	
166	19-Sep-97	2	F	2	737	0	35685	2	52	
167	19-Sep-97	2	F	1	688	0	35685	3	52	
168	19-Sep-97	2	M	3	768		35685	4	52	
169	19-Sep-97	2	M	3	744		35685	5	52	
170	19-Sep-97	2	F	3	685	0	35686	1	52	
171	19-Sep-97	2	M	2	700		35686	2	52	
172	19-Sep-97	2	M	2	580		35686	3	42	
173	19-Sep-97	2	F	2	690	0	35686	4	52	
174	19-Sep-97	2	M	2	710		35686	5	52	
175	19-Sep-97	2	M	2	780		35687	1	52	
176	19-Sep-97	2	M	2	740		35687	2	52	
177	19-Sep-97	2	F	2	650	0	35687	3	RG	RG
178	19-Sep-97	2	F	1	590	0	35687	4	63	
179	19-Sep-97	2	F	2	660	0	35687	5	52	
180	19-Sep-97	2	M	2	660		35688	1	52	
181	19-Sep-97	2	F	2	550		35688	2	42	
182	19-Sep-97	2	F	2	700		35688	3	52	
183	19-Sep-97	2	F	2	680		35688	4	52	
184	19-Sep-97	2	F	2	660		35688	5	63	
185	22-Sep-97	4	F	2	740	0	35689	1	52	

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
186	22-Sep-97	4	M	2	800		35689	2	52	
187	22-Sep-97	4	M	3	820		35689	3	52	
188	22-Sep-97	4	F	2	650	0	35689	4	42	
189	22-Sep-97	4	F	2	600	0	35689	5	42	
190	22-Sep-97	4	F	3	603	0	35690	1	42	
191	22-Sep-97	4	M	3	714		35690	2	42	
192	22-Sep-97	4	F	3	602	0	35690	3	42	
193	22-Sep-97	4	M		345		35690	4	RG	Jack; RG
194	22-Sep-97	4	F	3	582	0	35690	5	n/a	353004; adipose fin clip
195	22-Sep-97	4	F	3	612	0	35691	1	n/a	353005; adipose fin clip
196	22-Sep-97	4	F	3	598	0	35691	2	42	
197	22-Sep-97	4	M	3	740		35691	3	52	
198	22-Sep-97	4	F	3	589	0	35691	4	42	
199	22-Sep-97	4	M	3	832		35691	5	52	
200	22-Sep-97	5	M	3	780		35692	1	52	
201	22-Sep-97	5	M	3	753		35692	2	42	
202	22-Sep-97	5	M	3	677		35692	3	52	
203	22-Sep-97	5	F	3	564	0	35692	4	52	
204	22-Sep-97	5	M	3	708		35692	5	3M	RG
205	20-Sep-97	3	M	2	711		35693	1	52	
206	20-Sep-97	3	M	2	750		35693	2	42	Head # 353001E; adipose fin clip
207	20-Sep-97	3	M	2	585		35693	3	52	
208	20-Sep-97	3	F	2	732	0	35693	4	52	
209	20-Sep-97	3	F	2	697	0	35693	5	3M	RS
210	22-Sep-97	3	M	2	617		35694	1	42	
211	22-Sep-97	3	M	2	639		35694	2	42	
212	22-Sep-97	3	F	2	598	0	35694	3	63	
213	22-Sep-97	3	F	2	632	0	35694	4	n/a	
214	22-Sep-97	3	F	2	573		35694	5	52	
215	20-Sep-97	3	M	3	768		35695	1	52	
216	20-Sep-97	3	M	3	744		35695	2	52	
217	20-Sep-97	3	F	1	653	0	35695	3	n/a	Head # 353002E; adipose fin clip
218	20-Sep-97	3	F	3	704		35695	4	52	partially eaten
219	20-Sep-97	3	M	3	642		35695	5	42	
220	20-Sep-97	4	F	1	667	0	35696	1	42	

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
221	20-Sep-97	4	M	3	671		35696	2	42	
222	20-Sep-97	4	F	3	664	0	35696	3	42	
223	20-Sep-97	4	F	3	652	0	35696	4	n/a	Head #353003E; adipose fin clip
224	20-Sep-97	4	M	2	698		35696	5	42	
230	23-Sep-97	3	F	3	530		35697	1	n/a	#353006; adipose fin clip
231	23-Sep-97	3	M	3	709		35697	2	52	
232	23-Sep-97	3	F	3	582		35697	3	n/a	#353007; adipose fin clip
233	23-Sep-97	3	M	3	697		35697	4	52	#353008; adipose fin clip
234	23-Sep-97	4	F		588		35697	5	n/a	#353009; adipose fin clip
235	23-Sep-97	4	F		590		35698	1	n/a	adipose fin clip
236	23-Sep-97	4	F		600		35698	2	52	
237	23-Sep-97	4	F		560		35698	3	42	
238	23-Sep-97	4	F		650		35698	4	52	
239	23-Sep-97	3	F		660		35698	5	42	
240	23-Sep-97	4	F	3	541		35699	1	n/a	#353010; adipose fin clip
241	23-Sep-97	4	F	3	716		35699	2	52	
242	23-Sep-97	4	F	3	559		35699	3	42	
243	23-Sep-97	4	F	2	628		35699	4	42	
244	23-Sep-97	4	M	3	621		35699	5	2M	RG
245	23-Sep-97	4	F	3	734		35700	1	42	
246	23-Sep-97	4	M	3	673		35700	2	n/a	#353011; adipose fin clip
247	25-Sep-97	4	M	3	492		35700	3	42	Jack
248	25-Sep-97	4	M		580		35701	1	n/a	#353012 (was 33 in age lab data); adipose fin clip
249	25-Sep-97	4	F	3	670		35701	2	52	was 33 in age lab data
250	25-Sep-97	4	M	3	594		35701	3	42	was 33 in age lab data
251	27-Sep-97	4	F		580		35701	4	n/a	#353013 (was 33 in age lab data); adipose fin clip
252	27-Sep-97	4	F	1	597	0	35702	1	n/a	was 34 in age lab data; adipose fin clip
253	25-Sep-97	4	F	3	729	0	35702	2	51	was 34 in age lab data; adipose fin clip
254	25-Sep-97	4	M	3	624		35703	1	42	was 35 in age lab data
255	25-Sep-97	4	M	3	583		35703	2	42	was 35 in age lab data
256	26-Sep-97	4	F	3	604	62	35703	3	n/a	was 35 in age lab data; adipose fin clip
257	26-Sep-97	4	F	3	687	0	35704	1	52	was 36 in age lab data

APPENDIX 2 (cont.)**1997 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results**

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples		Age (G-R)	Comments
							Book	Spaces		
258	26-Sep-97	4	F	3	560	0	35704	2	51	353015 (was 36 in age lab data); adipose fin clip
259	26-Sep-97	4	F	3	689	0	35704	3	n/a	353016 (was 36 in age lab data); adipose fin clip
260	29-Sep-97	1	F	3	668	0	35704	4	52	was 36 in age lab data
261	29-Sep-97	4	F		560		35705	1	n/a	353020 (was 37 in age data); adipose fin clip
262	29-Sep-97	4	M		534		35705	2	n/a	(was 37 in age data) added carc #, this fish does not have one in field notes

