

**NECHAKO AND STUART RIVERS
CHINOOK CARCASS RECOVERY
1995**

*NECHAKO FISHERIES CONSERVATION PROGRAM
Technical Report No. M95-2*

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ABSTRACT

In 1995 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 255 carcasses were collected on the Nechako River between September 10th and October 3rd. Nechako River Chinook carcasses recovered in 1995 exhibited similar biological characteristics to those collected from 1988 to 1994. Mean post-orbital hypural length for both males and females fell within the ranges observed in previous years. The spawning population was almost 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, 340 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 1995 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

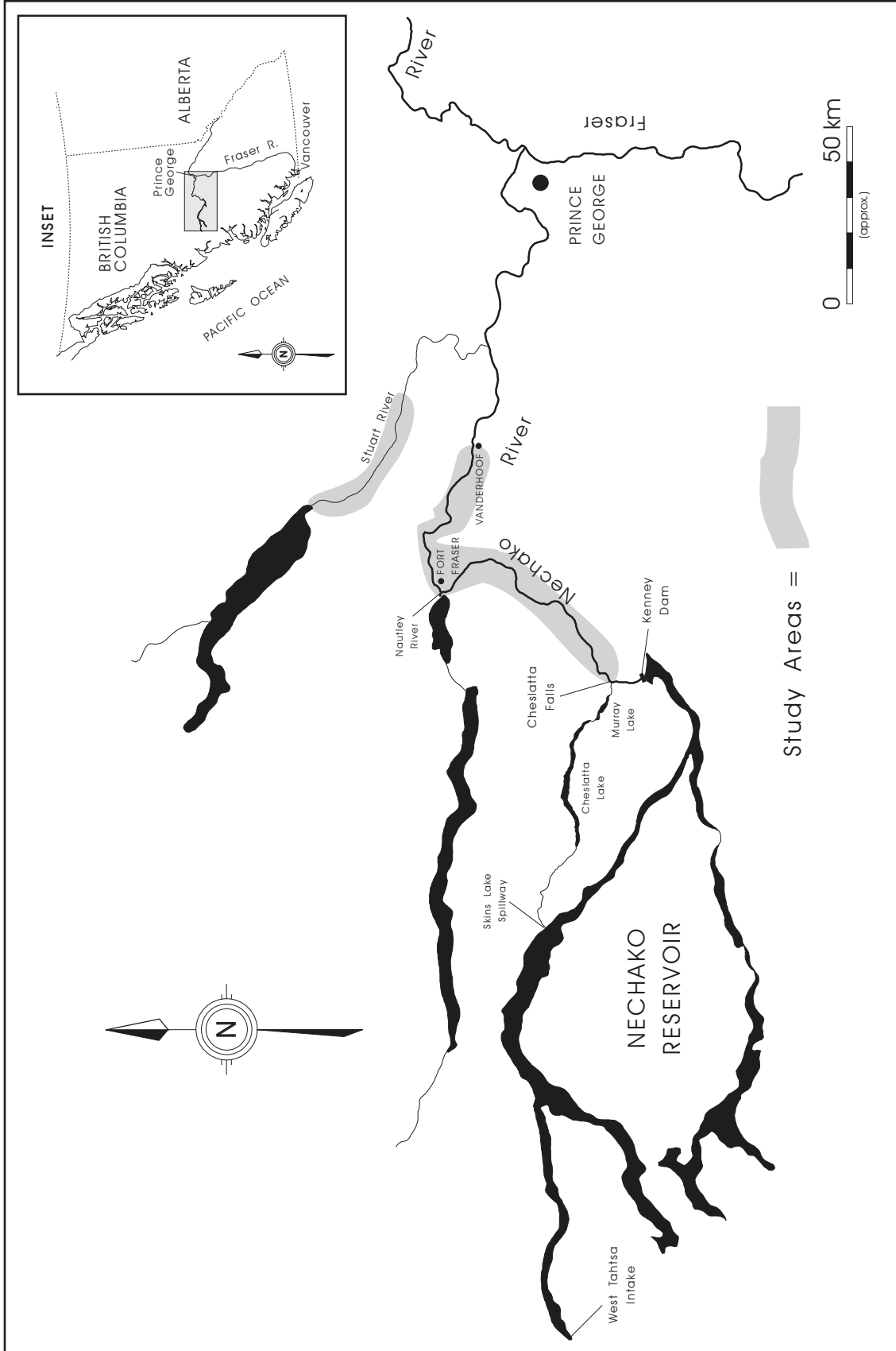


FIGURE 2

Nechako River Chinook Spawning Study Area

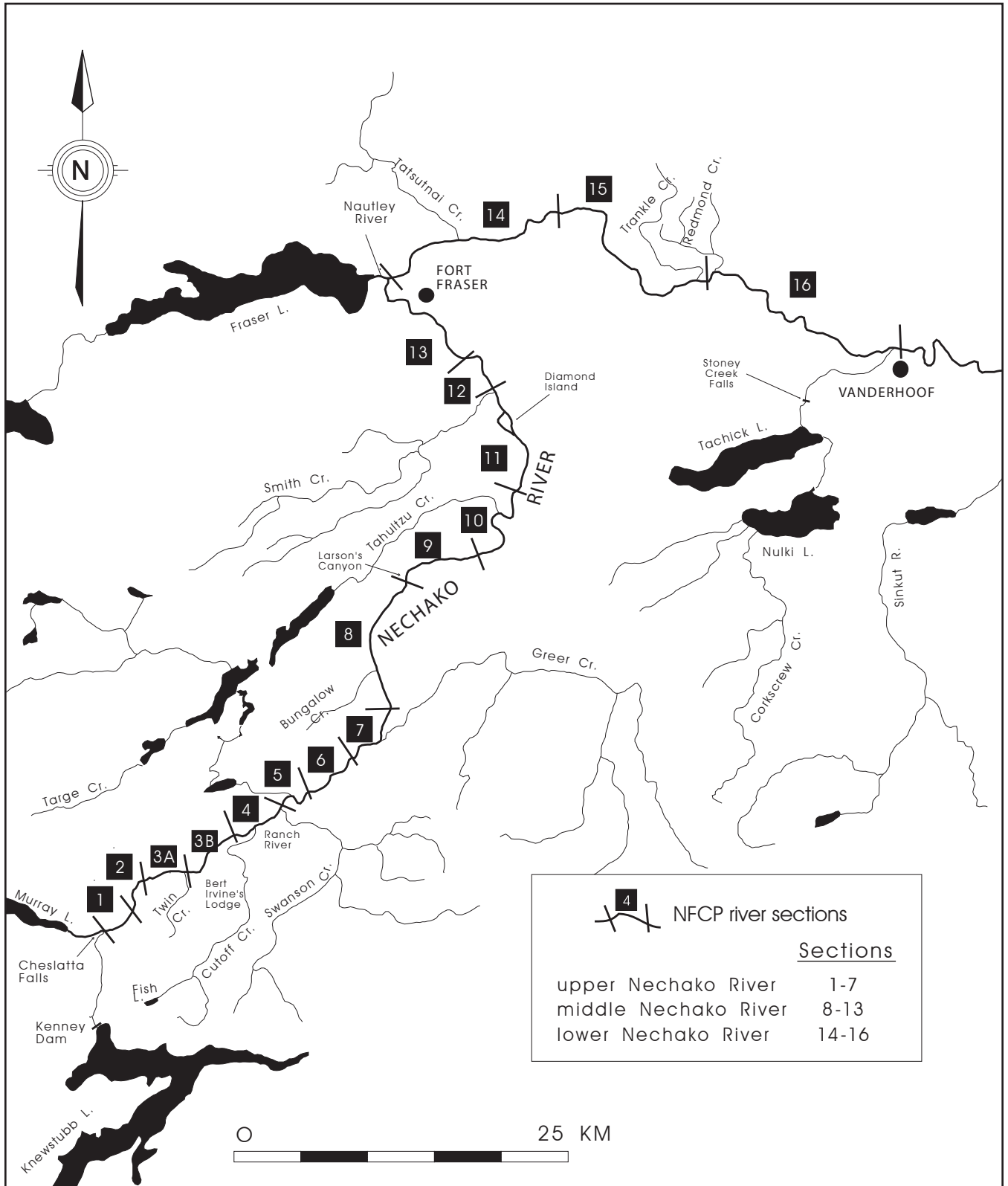
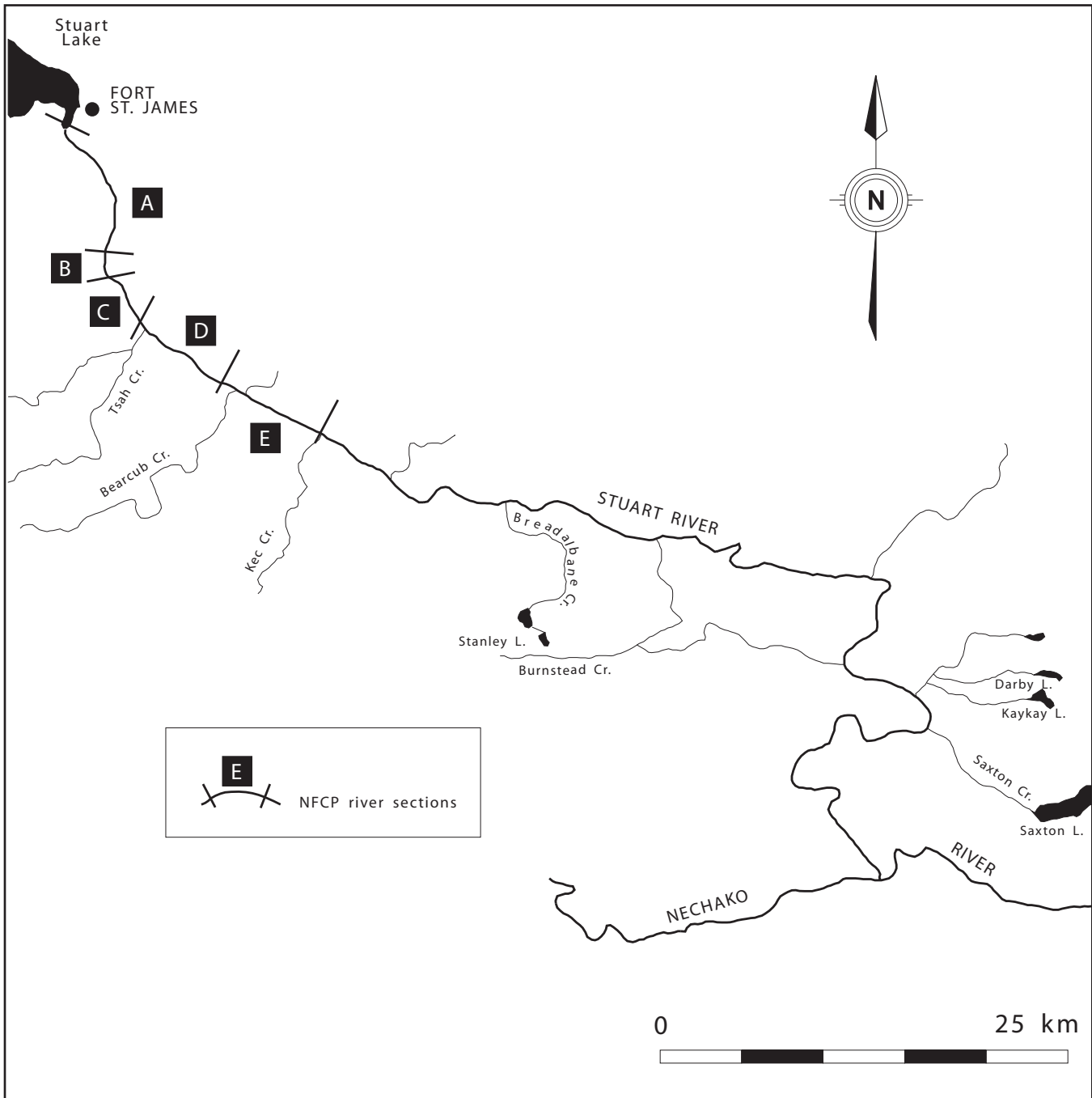


FIGURE 3

Stuart River Chinook Spawning Study Area



Sampling in the Stuart River was conducted from the outlet of Stuart Lake downstream to the confluence of Kec 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 re-counting 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 1995 are presented in Appendices 1 and 2, respectively. Summaries of these data are provided in the respective sections below.

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.

Nechako River

Between September 10th and October 3rd a total of 255¹ carcasses were sampled from 12 of the 16 identified Sections representing all 3 river areas – upper, middle and lower river (Table 1). The observed sex ratio was 1.52 F/M, or 60% females and 40% males (n=255). No Chinook jacks were collected. Of the carcasses sampled, 51% were fresh or only a few days old (Table 2).

TABLE 1 Nechako River Chinook Carcass Recovery by Section, 1995

Section	Number	Percent
UPPER NECHAKO		
Section 1	0	0.0
Section 2	0	0.0
Section 3	27	10.6
Section 4	26	10.2
Section 5	5	2.0
Section 6	18	7.1
Section 7	0	0.0
SUB-TOTAL	76	29.8
MIDDLE NECHAKO		
Section 8	0	0.0
Section 9	3	1.2
Section 10	18	7.1
Section 11	25	9.8
Section 12	35	13.7
Section 13	22	8.6
SUB-TOTAL	103	40.4
LOWER NECHAKO		
Section 14	18	7.1
Section 15	41	16.1
Section 16	17	6.7
SUB-TOTAL	76	29.8
TOTAL RIVER	255	100.0

TABLE 2 Nechako River Chinook Carcass Condition, 1995

Condition *	Number	Percent
1	52	20.4
2	78	30.6
3	88	34.5
4	37	14.5
TOTAL	255	100.0

* Carcass Condition

1 - Fresh carcass

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

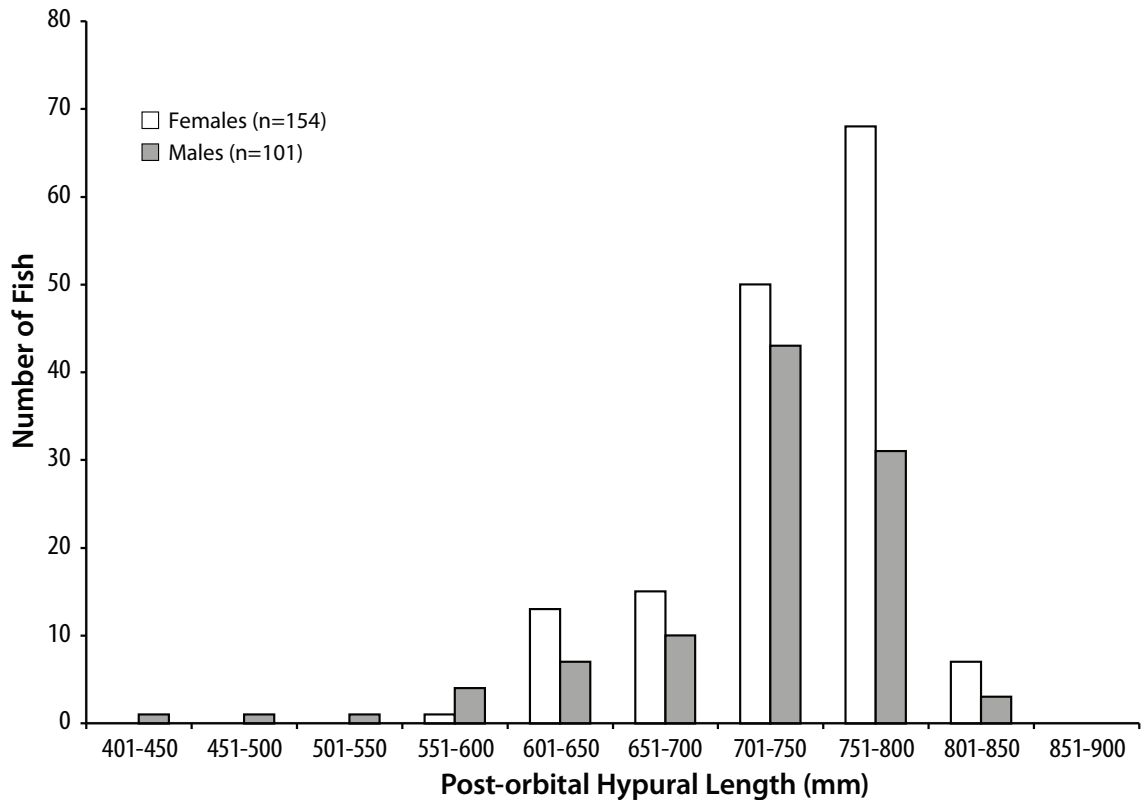
3 - Poor carcass condition with some fungus

4 - Very old and decomposed carcass

The length (POHL) of the fish sampled ranged from 444 to 838 mm, with a mean of 718 mm (n=101, SD=70) for males, 687 mm (n=154, SD=48) for females and 699 mm (n=255, SD=59) for all fish combined. For both males and females, the majority of individuals sampled ranged in size from 701-800 mm (Figure 4).

Of the total number of female carcasses sampled (n=154), 2 were found to be pre-spawn mortalities with 6750 and 5109 eggs remaining. These individuals were not included in the egg retention statistics reported below, since in some years sampling included pre-spawn mortalities with under-developed skeins, prohibiting individual egg counts. Therefore, including pre-spawn mortalities would bias year-to-year comparisons of egg retention. However, it is important to report these numbers as they are a measure of the overall fecundity of Nechako River female Chinook.

Of the total number of female carcasses sampled, 144 (94%) were determined to be fully spawned, based on egg retention of less than 1000. In addition, there were 8 partially spawned female carcasses (based on an egg retention of 1000-4999) with a range of 1613-4600 eggs retained. The mean egg retention of the fully and partially spawned females was 216 eggs (n=152, SD=790, range 0-4600). Removing the partially spawned carcasses from the sample drops the mean egg retention to 38 eggs (n=144, SD=126, range 0-899).

FIGURE 4**Nechako River Chinook Length Frequency Distribution, 1995**

Scale and fin samples from all 255 carcasses recovered from the Nechako River were sent to DFO laboratories for age analysis. Complete ages were determined for 207 of those samples (Table 3). The results indicate that the majority of the fish sampled were of two age-classes, 5_2 (85%) and 4_2 (13%). 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 ($p=0.97$).

TABLE 3**Nechako River Chinook Age Contribution (%) by Sex, 1995**

	4_1	4_2	5_2	6_2	6_3	Total # Aged
Males	1.2	12.3	84.0	1.2	1.2	81
Females	1.6	12.7	84.9	0.8	0.0	126

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

In addition to NFCP data collection requirements, bio-assay tissue samples were collected from 103 Chinook carcasses for DNA analysis, and 2 sockeye salmon carcasses were sampled upstream of Larson's Canyon to provide information on this river spawning population. These samples were collected at the request of staff from DFO's Pacific Biological Station and are not directly related to the NFCP sampling program, therefore the results are not documented in this report.

Stuart River

Between September 17th and October 3rd a total of 340² carcasses were sampled from the five Zones (A to E) within the study area (Table 4). The observed sex ratio was 1.42 F/M, or 59% females and 41% males ($n=339$).

Of the 339 carcasses with condition documented, 73% were fresh or only a few days old (Table 5).

TABLE 4 Stuart River Chinook Carcass Recovery by Zone, 1995

Zone	Number	Percent
A	39	11.5
B	57	16.8
C	43	12.6
D	151	44.4
E	50	14.7
TOTAL	340	100.0

TABLE 5 Stuart River Chinook Carcass Condition, 1995

Condition *	Number	Percent
1	23	6.8
2	223	65.8
3	73	21.5
4	20	5.9
TOTAL	339	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 M95-1). This information is relevant to carcass sampling results presented in this report, and given the much larger sample size

(n=1643) 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 1.53 F/M, or 60% females and 40% males (n=1643, including the carcasses selected for biological sampling).

The length (POHL) of the fish sampled ranged from 352 to 891 mm, with a mean of 693 mm for males (n=131, SD=96), 686 mm for females (n=193, SD=48) and 688 mm (n=324, SD=71) for all fish combined. The majority of males were distributed across a broad range of lengths (551-800 mm), with the majority in the 701-800 mm range (Figure 5). Compared to the males, the majority of females were smaller in size and within a narrower range (601-750 mm).

Of the total number of female carcasses sampled (n=199), only 1 was found to be a pre-spawn mortality with 5440 eggs remaining. This individual was not included in the egg retention statistics reported below, since in some years sampling included pre-spawn mortalities with under-developed skeins, prohibiting individual egg counts. Therefore, including pre-spawn mortalities would bias year-to-year comparisons of egg retention. However, it is important to report these numbers as they are a measure of the overall fecundity of Stuart River female Chinook.

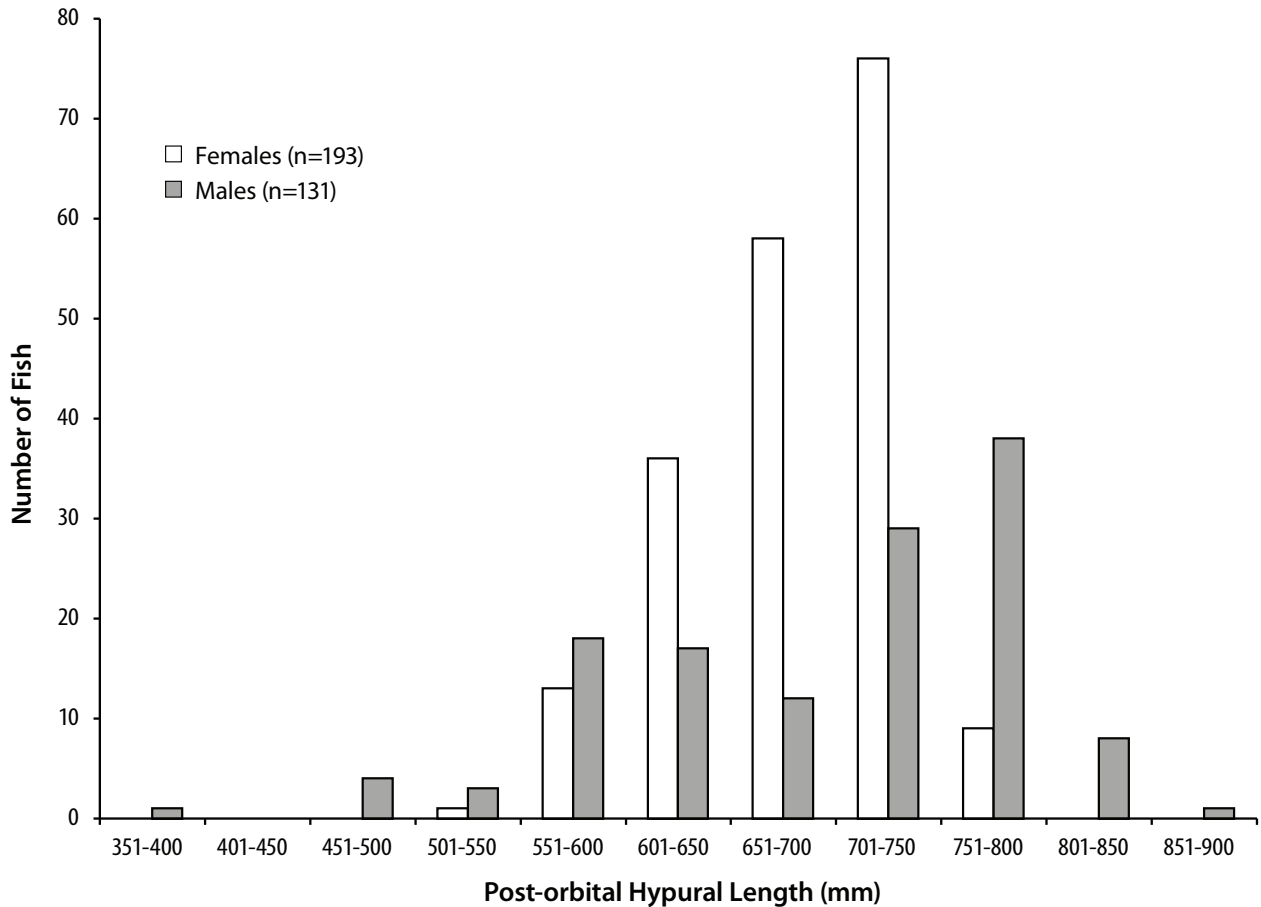
Of the total number of female carcasses sampled, 198 (99%) were determined to be fully spawned, based on egg retention of less than 1000. The mean egg retention of the fully spawned females was 25 eggs (n=198, SD=65, range 0-650). No partially spawned female carcasses (based on an egg retention of 1000-4999) were sampled.

Scale and fin samples from all 340 carcasses recovered from the Stuart River were sent to DFO laboratories for age analysis. Complete ages were determined for 284 of those samples (Table 6). The results indicate

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.

FIGURE 5

Stuart River Chinook Length Frequency Distribution, 1995



that a vast majority of the fish sampled were of three age-classes, 5₂ (62%), 4₂ (19%) and 4₁ (15%). 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=0.16).

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 (NFPCP M95-1). No other form of marking or tagging was observed.

TABLE 6 **Stuart River Chinook Age Contribution (%) by Sex, 1995**

	3 ₁	3 ₂	4 ₁	4 ₂	5 ₁	5 ₂	6 ₂	Total # Aged
Males	0.0	0.9	11.1	23.1	3.4	59.0	2.6	117
Females	0.0	0.0	18.1	16.9	0.6	64.5	0.0	166

In addition to NFPCP data collection requirements, bioassay tissue samples were collected from 100 Chinook carcasses for DNA analysis. These samples were collected at the request of staff from DFO's Pacific Biological Station and are not directly related to the NFPCP sampling program, therefore the results are not documented in this report.

DISCUSSION - COMPARISON TO PREVIOUS YEARS

Nechako River

A comparison of 1995 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 M94-2). 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 slightly higher than the existing range (1.10-1.50) observed from 1988-1994 (Figure 6), and significantly higher than the mean of 1.31 (n=7, SD=0.15), as indicated by 95% confidence limit of 1.20-1.42.

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 1995 fell within the ranges observed in previous years (Figures 7 and 8).

FIGURE 6 Nechako River Chinook Sex Ratio, 1988-1995

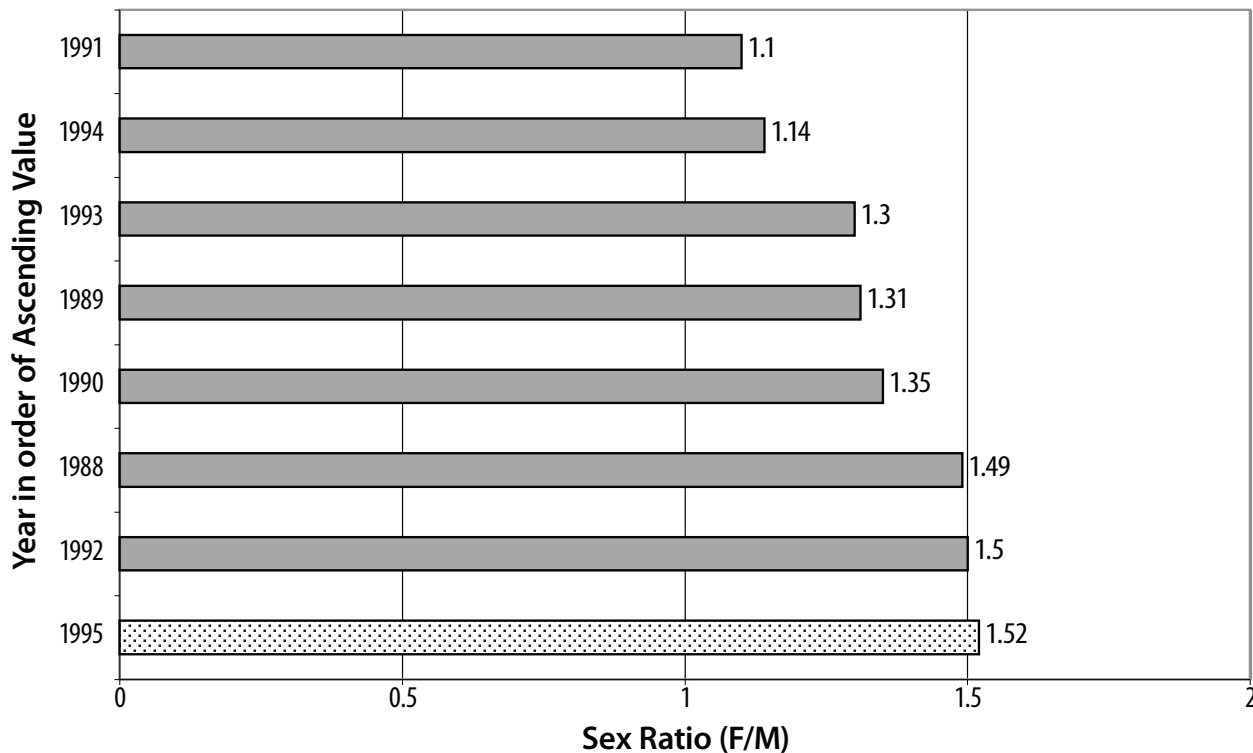


FIGURE 7

Nechako River Chinook Male Mean Length, 1988-1995

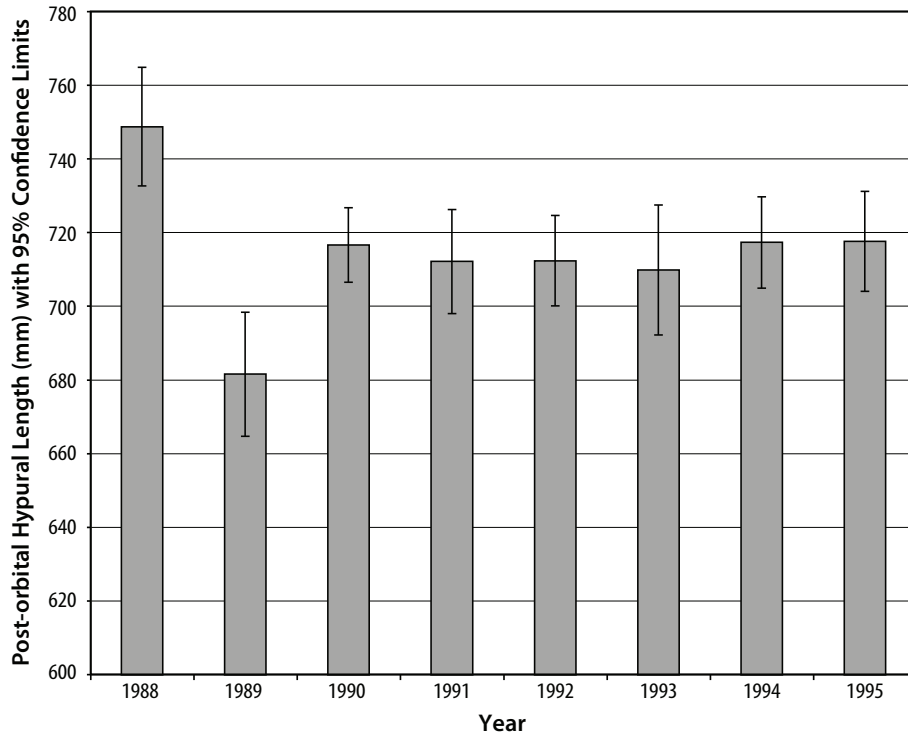
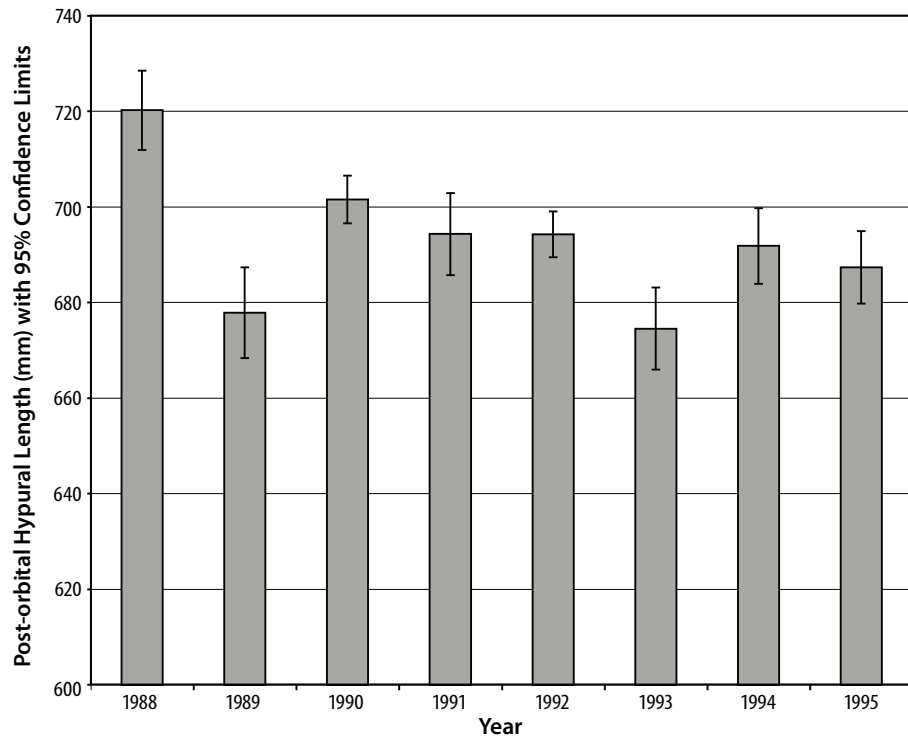


FIGURE 8

Nechako River Chinook Female Mean Length, 1988-1995



A total of two female pre-spawn mortalities were sampled and the total number of eggs from each carcass was recorded. When these data are added to the existing dataset, 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, 1978-1995

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)

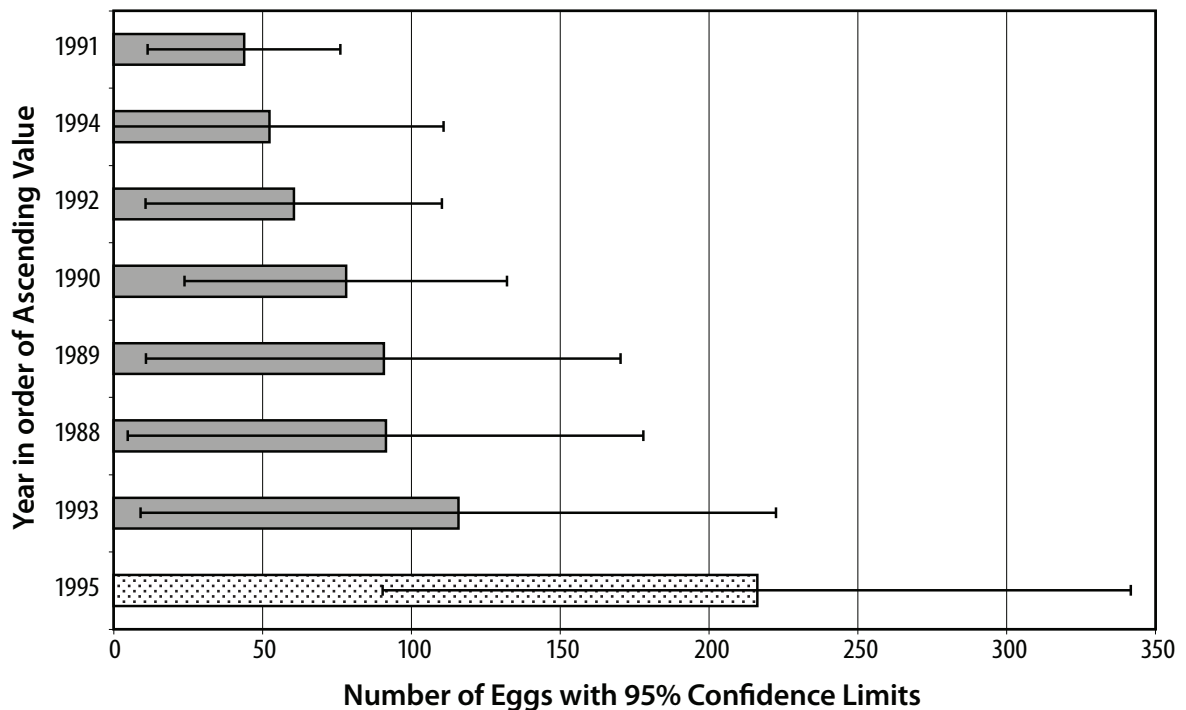
The mean egg retention in fully and partially spawned carcasses was compared to values from previous years (Table 8). Although the 1995 mean is the

highest observed, almost double the next highest year, the large confidence limits make it difficult to assign any significance to this observation (Figure 9).

TABLE 8 Nechako River Chinook Egg Retention, 1988-1995

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

FIGURE 9 Nechako River Chinook Mean Egg Retention, 1988-1995



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 1995 age-classes 4₂ and 5₂ accounted for 97% of the return, with all stream-type fish accounting for 99% (Table 9).

TABLE 9 Percent Contribution of Stream-type Life Histories to Nechako Chinook Escapements, 1988-1995

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

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 M95-1).

TABLE 10 Percent Contribution of Age-at-Return Groupings to Nechako Chinook Escapements, 1988-1995

Year	% Contribution					Sample Size
	3 years	4 years	5 years	6 years	7 years	
1988	0.0	9.1	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	11.1	76.7	11.1	1.2	172
1995	0.0	14.0	84.5	1.4	0.0	207

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 1995, 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 and Mike Milko managed the delivery of the projects for DFO, on behalf of the NFCP Technical Committee.

Nechako River carcass recovery was conducted by ECL Envirowest Consultants Ltd.

Stuart River carcass recovery was carried out by members of the Nak'azdli Band.

Staff at DFO's Fish Morphology Laboratory in Vancouver and DFO's Pacific Biological Station in Nanaimo analyzed the various samples.

Rhonda Thibeault and Liz Murphy assisted with data compilation.

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APPENDIX 1

1995 Nechako River Chinook Carcass Recovery Project: Field Data and Ageing Results

APPENDIX 1
1995 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	10-Sep-95	11	F	3	574	5	51101	1	2M	
2	10-Sep-95	16	F	3	686	362	51101	2	52	
3	10-Sep-95	11	M	2	735		51101	3	52	
4	11-Sep-95	12	M	4	717		51101	4	52	
5	11-Sep-95	12	F	4	600	3100	51101	5	52	Pre-spawn mortality
6	14-Sep-95	15	F	2	718	2	51102	1	52	
7	14-Sep-95	15	F	3	665	0	51102	2	52	
8	14-Sep-95	15	F	4	594	0	51102	3	42	
9	15-Sep-95	11	F	4	732	5	51102	4	3M	
10	15-Sep-95	11	F	4	693	0	51102	5	52	
11	16-Sep-95	13	F	3	653	7	51103	1	52	
12	16-Sep-95	13	F	4	720	40	51103	2	52	
13	16-Sep-95	13	M	3	727		51103	3	3M	
14	16-Sep-95	13	F	4	635	127	51103	4	52	
15	16-Sep-95	12	F	3	620	0	51103	5	42	
16	16-Sep-95	12	F	2	712	2	51104	1	52	
17	16-Sep-95	12	F	3	739	1	51104	2	52	
18	16-Sep-95	12	F	1	650	810	51104	3	3M	
19	16-Sep-95	11	F	2	736	3456	51104	4	3M	Pre-spawn mortality
20	17-Sep-95	3.2	F	3	691	34	51104	5	52	reach 3.2 is 3B in field notes
21	17-Sep-95	3.2	M	2	655		51105	1	52	reach 3.2 is 3B in field notes
22	17-Sep-95	3.2	F	3	732	8	51105	2	n/a	reach 3.2 is 3B in field notes
23	17-Sep-95	3.2	M	3	658		51105	3	42	reach 3.2 is 3B in field notes
24	18-Sep-95	12	M	4	779		51105	4	52	
25	18-Sep-95	12	F	4	658	0	51105	5	52	
26	18-Sep-95	15	M	2	788		51106	1	52	
27	18-Sep-95	15	F	2	703	18	51106	2	62	
28	18-Sep-95	3.2	F	3	628	5	51106	3	3M	reach 3.2 is 3B in field notes
29	18-Sep-95	3.2	F	2	727	3	51106	4	3M	reach 3.2 is 3B in field notes
30	18-Sep-95	3.2	F	4	628	62	51106	5	52	reach 3.2 is 3B in field notes
31	18-Sep-95	3.2	M	3	745		51107	1	41	reach 3.2 is 3B in field notes
32	19-Sep-95	9	M	2	754		51107	2	52	
33	19-Sep-95	9	F	3	689	47	51107	3	52	
34	19-Sep-95	9	M	2	454		51107	4	42	Jack
35	19-Sep-95	10	F	3	730	0	51107	5	52	
36	19-Sep-95	10	F	2	677	1	51108	1	52	
37	19-Sep-95	10	F	2	758	11	51108	2	52	

APPENDIX 1 (cont.)
1995 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	19-Sep-95	10	M	4	759		51108	3	52	
39	19-Sep-95	10	F	3	675	539	51108	4	n/a	
40	19-Sep-95	10	F	3	633	19	51108	5	52	
41	19-Sep-95	10	M	3	744		51109	1	52	
42	19-Sep-95	10	F	2	747	22	51109	2	52	
43	19-Sep-95	10	M	3	759		51109	3	52	
44	19-Sep-95	10	F	1	662	2	51109	4	52	
45	19-Sep-95	10	M	3	668		51109	5	63	
46	19-Sep-95	10	F	4	653	1	51110	1	52	
47	19-Sep-95	10	M	1	731		51110	2	52	
48	19-Sep-95	10	M	2	761		51110	3	52	
49	19-Sep-95	10	M	2	752		51110	4	52	
50	19-Sep-95	10	M	3	658		51110	5	52	
51	19-Sep-95	10	F	2	602	0	51111	1	42	
52	19-Sep-95	10	M	3	745		51111	2	52	
53	19-Sep-95	11	M	4	728		51111	3	52	
54	19-Sep-95	11	M	1	763		51111	4	52	
55	19-Sep-95	11	M	2	834		51111	5	52	
56	19-Sep-95	11	F	1	714	14	51112	1	52	
57	20-Sep-95	11	M	3	657		51112	2	n/a	
58	21-Sep-95	11	M	2	709		51112	3	52	
59	21-Sep-95	11	M	2	765		51112	4	3M	
60	21-Sep-95	11	F	2	705	7	51112	5	3M	
61	21-Sep-95	11	M	3	765		51113	1	62	
62	21-Sep-95	12	M	4	757		51113	2	3M	
63	21-Sep-95	12	F	2	755	0	51113	3	52	
64	21-Sep-95	12	F	2	705	7	51113	4	52	
65	21-Sep-95	12	F	1	587	3	51113	5	52	
66	21-Sep-95	12	F	1	737	2	51114	1	52	
67	21-Sep-95	12	F	4	701	275	51114	2	52	
68	21-Sep-95	12	F	2	614	49	51114	3	42	
69	21-Sep-95	12	M	3	721		51114	4	52	
70	21-Sep-95	12	F	3	696	4	51114	5	52	
71	21-Sep-95	12	M	3	768		51115	1	52	
72	21-Sep-95	13	F	3	677	4	51115	2	52	
73	21-Sep-95	13	F	2	712	289	51115	3	52	
74	21-Sep-95	13	M	2	596		51115	4	2M	

APPENDIX 1 (cont.)

1995 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-95	13	F	2	712	5109	51115	5	52	Pre-spawn mortality
76	21-Sep-95	13	M	4	563		51116	1	42	
77	21-Sep-95	13	M	3	744		51116	2	52	
78	21-Sep-95	12	M	2	716		51116	3	52	
79	22-Sep-95	16	M	1	567		51116	4	42	
80	22-Sep-95	16	M	3	775		51116	5	52	
81	22-Sep-95	16	F	3	627	0	51117	1	42	
82	23-Sep-95	3.1	M	1	797		51117	2	52	reach 3.1 is 3A in field notes
83	23-Sep-95	3.1	F	2	734	4	51117	3	3M	reach 3.1 is 3A in field notes
84	23-Sep-95	3.2	F	3	727	1	51117	4	3M	reach 3.2 is 3B in field notes
85	23-Sep-95	3.2	F	3	707	1	51117	5	52	reach 3.2 is 3B in field notes
86	23-Sep-95	3.2	F	3	674	7	51118	1	52	reach 3.2 is 3B in field notes
87	23-Sep-95	3.2	F	1	716	2	51118	2	3M	reach 3.2 is 3B in field notes
88	23-Sep-95	3.2	F	1	706	6750	51118	3	3M	Pre-spawn mortality
89	23-Sep-95	3.2	M	1	762		51118	4	52	reach 3.2 is 3B in field notes
90	23-Sep-95	3.2	F	2	697	4	51118	5	52	reach 3.2 is 3B in field notes
91	23-Sep-95	3.2	F	1	696	8	51119	1	52	reach 3.2 is 3B in field notes
92	24-Sep-95	4	F	4	697	67	51119	2	3M	
93	24-Sep-95	4	M	3	795		51119	3	52	
94	24-Sep-95	4	F	2	673	1613	51119	4	52	
95	24-Sep-95	4	F	2	753	4	51119	5	3M	
96	24-Sep-95	4	M	2	757		51120	1	52	
97	24-Sep-95	4	F	3	719	3667	51120	2	52	Pre-spawn mortality
98	24-Sep-95	4	F	3	657	2	51120	3	52	
99	24-Sep-95	4	M	2	797		51120	4	52	
100	24-Sep-95	4	F	2	735	4	51120	5	52	
101	24-Sep-95	4	M	1	795		51121	1	52	
102	24-Sep-95	4	F	2	669	0	51121	2	52	
103	24-Sep-95	4	M	1	715		51121	3	52	
104	24-Sep-95	4	F	2	589	5	51121	4	42	
105	24-Sep-95	4	F	3	655	13	51121	5	42	
106	24-Sep-95	4	F	3	635	32	51122	1	41	
107	24-Sep-95	5	F	3	685	11	51122	2	52	
108	24-Sep-95	5	F	3	665	4	51122	3	52	
109	24-Sep-95	5	M	2	741		51122	4	52	
110	24-Sep-95	5	F	2	677	20	51122	5	52	
111	24-Sep-95	6	M	2	704		51123	1	52	

APPENDIX 1 (cont.)
1995 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	24-Sep-95	6	F	2	720	4250	51123	2	52	Pre-spawn mortality
113	24-Sep-95	6	M	2	687		51123	3	3M	
114	24-Sep-95	6	M	2	740		51123	4	3M	
115	24-Sep-95	6	M	4	620		51123	5	52	
116	24-Sep-95	6	M	3	749		51124	1	52	
117	24-Sep-95	6	F	1	600	1	51124	2	42	
118	24-Sep-95	6	F	3	557	0	51124	3	42	
119	24-Sep-95	6	F	4	641	3250	51124	4	52	Pre-spawn mortality
120	24-Sep-95	6	M	3	727		51124	5	52	
121	24-Sep-95	6	F	3	678	0	51125	1	52	
122	24-Sep-95	6	F	2	742	2	51125	2	52	
123	24-Sep-95	6	M	4	663		51125	3	52	
124	24-Sep-95	6	F	2	745	3	51125	4	52	
125	24-Sep-95	6	F	1	709	2	51125	5	52	
126	24-Sep-95	6	F	1	686	3	51126	1	52	
127	24-Sep-95	6	M	2	620		51126	2	2M	
128	24-Sep-95	6	F	3	671	7	51126	3	52	
129	25-Sep-95	12	F	3	703	8	51126	4	52	
130	25-Sep-95	11	F	2	704	53	51126	5	52	
131	25-Sep-95	11	F	1	742	2	51127	1	52	
132	25-Sep-95	11	F	2	730	0	51127	2	52	
133	25-Sep-95	11	F	2	708	15	51127	3	52	
134	25-Sep-95	11	M	3	759		51127	4	52	
135	25-Sep-95	11	M	1	744		51127	5	3M	
136	25-Sep-95	11	M	1	730		51128	1	42	
137	25-Sep-95	11	F	3	730	4600	51128	2	52	Pre-spawn mortality
138	25-Sep-95	12	F	2	695	5	51128	3	52	
139	25-Sep-95	12	F	2	680	3400	51128	4	52	Pre-spawn mortality
140	25-Sep-95	12	F	1	647	0	51128	5	2M	
141	25-Sep-95	12	M	2	773		51129	1	52	
142	25-Sep-95	12	F	1	700	2	51129	2	52	
143	25-Sep-95	12	M	3	642		51129	3	52	
144	25-Sep-95	12	M	3	712		51129	4	52	
145	25-Sep-95	12	M	2	760		51129	5	52	
146	25-Sep-95	12	M	3	712		51130	1	52	
147	25-Sep-95	12	F	2	668	4	51130	2	n/a	
148	25-Sep-95	12	M	4	755		51130	3	S2	

APPENDIX 1 (cont.)

1995 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	25-Sep-95	12	F	1	667	52	51130	4	52	
150	26-Sep-95	14	F	1	652	2	51130	5	52	
151	26-Sep-95	14	F	1	744	0	51131	1	52	
152	26-Sep-95	14	M	1	617		51131	2	42	
153	26-Sep-95	14	F	3	672	8	51131	3	52	
154	26-Sep-95	14	F	3	725	3	51131	4	52	
155	26-Sep-95	14	F	2	733	129	51131	5	52	
156	26-Sep-95	14	F	2	711	3	51132	1	52	
157	26-Sep-95	14	F	2	678	4	51132	2	3M	
158	26-Sep-95	14	F	1	767	0	51132	3	52	
159	26-Sep-95	14	F	1	711	34	51132	4	52	
160	26-Sep-95	14	F	3	728	0	51132	5	52	
161	26-Sep-95	14	F	3	707	899	51133	1	52	
162	26-Sep-95	14	M	2	721		51133	2	52	
163	26-Sep-95	14	M	2	563		51133	3	42	
164	26-Sep-95	14	M	2	444		51133	4	42	Jack
165	26-Sep-95	14	F	3	710	2	51133	5	52	
166	26-Sep-95	14	F	3	576	17	51134	1	42	
167	26-Sep-95	14	F	3	726	42	51134	2	52	
168	26-Sep-95	15	M	2	715		51134	3	52	
169	26-Sep-95	15	F	1	682	6	51134	4	52	
170	26-Sep-95	15	F	4	588	3	51134	5	42	
171	26-Sep-95	15	F	4	695	563	51135	1	3M	
172	26-Sep-95	15	M	2	717		51135	2	52	
173	26-Sep-95	15	F	2	624	17	51135	3	2M	
174	26-Sep-95	15	F	1	713	4	51135	4	52	
175	26-Sep-95	15	M	1	786		51135	5	52	
176	26-Sep-95	15	F	1	744	11	51136	1	52	
177	26-Sep-95	15	M	4	735		51136	2	52	
178	26-Sep-95	15	F	3	711	3	51136	3	n/a	
179	26-Sep-95	15	F	1	584	22	51136	4	52	
180	26-Sep-95	15	F	4	700	2	51136	5	52	
181	26-Sep-95	15	F	1	664	0	51137	1	52	
182	26-Sep-95	15	F	4	706	162	51137	2	52	
183	26-Sep-95	15	M	4	739		51137	3	52	
184	26-Sep-95	15	M	3	753		51137	4	52	
185	26-Sep-95	15	M	4	703		51137	5	n/a	

APPENDIX 1 (cont.)
1995 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	26-Sep-95	15	M	2	786		51138	1	4M	
187	26-Sep-95	15	M	3	625		51138	2	42	
188	26-Sep-95	15	M	4	771		51138	3	3M	
189	26-Sep-95	15	M	4	662		51138	4	52	
190	26-Sep-95	15	M	3	729		51138	5	3M	
191	26-Sep-95	15	F	1	692	8	51139	1	52	
192	26-Sep-95	15	M	4	750		51139	2	n/a	
193	26-Sep-95	15	F	2	767	9	51139	3	52	
194	26-Sep-95	15	M	4	768		51139	4	52	
195	26-Sep-95	15	F	3	710	0	51139	5	52	
196	26-Sep-95	15	M	3	706		51140	1	52	
197	26-Sep-95	15	F	3	747	1	51140	2	52	
198	27-Sep-95	15	F	3	711	0	51140	3	52	
199	27-Sep-95	15	F	3	701	0	51140	4	52	
200	27-Sep-95	15	F	2	676	11	51140	5	52	
201	27-Sep-95	15	M	3	694		51141	1	52	
202	27-Sep-95	15	F	1	722	1	51141	2	52	
203	27-Sep-95	15	F	1	735	2	51141	3	52	
204	27-Sep-95	16	F	2	712	144	51141	4	3M	
205	27-Sep-95	16	M	2	723		51141	5	52	
206	27-Sep-95	16	F	1	733	2	51142	1	52	
207	27-Sep-95	16	M	2	722		51142	2	52	
208	27-Sep-95	16	F	3	712	1	51142	3	52	
209	27-Sep-95	16	M	3	792		51142	4	52	
210	27-Sep-95	16	M	1	678		51142	5	52	
211	27-Sep-95	16	F	2	704	0	51143	1	52	
212	27-Sep-95	16	M	3	751		51143	2	52	
213	27-Sep-95	16	M	1	724		51143	3	52	
214	27-Sep-95	16	M	3	708		51143	4	3M	
215	27-Sep-95	16	F	1	693	0	51143	5	52	
216	27-Sep-95	16	F	1	728	6	51144	1	52	
217	29-Sep-95	11	F	3	767	52	51144	2	52	
218	30-Sep-95	11	M	4	636		51144	3	52	
219	30-Sep-95	11	F	3	735	74	51144	4	52	
220	1-Oct-95	12	F	3	562	3	51144	5	42	
221	1-Oct-95	12	F	3	684	1	51145	1	52	
222	1-Oct-95	12	F	3	731	6	51145	2	52	

APPENDIX 1 (cont.)

1995 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		
223	1-Oct-95	13	F	3	585	4	51145	3	42	
224	1-Oct-95	13	M	1	746		51145	4	52	
225	1-Oct-95	13	M	3	813		51145	5	52	
226	1-Oct-95	13	M	3	546		51146	1	42	
227	1-Oct-95	13	F	4	707	0	51146	2	3M	
228	1-Oct-95	13	F	4	644	0	51146	3	42	
229	1-Oct-95	13	M	4	838		51146	4	52	
230	1-Oct-95	13	F	3	549	1	51146	5	42	
231	1-Oct-95	13	M	2	723		51147	1	52	
232	1-Oct-95	13	F	3	688	15	51147	2	52	
233	1-Oct-95	13	F	2	702	4	51147	3	52	
234	1-Oct-95	13	F	3	674	11	51147	4	52	
235	1-Oct-95	3.2	M	2	776		51147	5	52	reach 3.2 is 3B in field notes
236	1-Oct-95	3.2	F	3	623	24	51148	1	41	reach 3.2 is 3B in field notes
237	1-Oct-95	3.2	F	1	721	1	51148	2	52	reach 3.2 is 3B in field notes
238	1-Oct-95	3.2	F	2	722	1	51148	3	52	reach 3.2 is 3B in field notes
239	1-Oct-95	3.2	F	1	576	2	51148	4	42	reach 3.2 is 3B in field notes
240	1-Oct-95	3.2	F	1	723	1	51148	5	52	reach 3.2 is 3B in field notes
241	2-Oct-95	3.2	F	3	685	9	51149	1	52	reach 3.2 is 3B in field notes
242	2-Oct-95	3.2	F	2	656	2	51149	2	52	reach 3.2 is 3B in field notes
243	2-Oct-95	3.2	M	3	734		51149	3	3M	reach 3.2 is 3B in field notes
244	2-Oct-95	4	F	1	735	18	51149	4	52	
245	2-Oct-95	4	M	4	747		51149	5	52	
246	2-Oct-95	4	M	1	722		51150	1	52	
247	2-Oct-95	4	F	3	684	4	51150	2	3M	
248	2-Oct-95	4	M	2	735		51150	3	3M	
249	2-Oct-95	4	M	1	644		51150	4	52	
250	2-Oct-95	4	M	2	735		51150	5	52	
251	2-Oct-95	4	F	1	686	6	51151	1	52	
252	2-Oct-95	4	F	3	702	8	51151	2	52	
253	2-Oct-95	4	M	2	731		51151	3	3M	
254	2-Oct-95	4	F	2	687	9	51151	4	3M	
255	3-Oct-95	5	F	1	766	5	51151	5	52	

APPENDIX 2
1995 Stuart River Chinook Carcass Recovery Project:
Field Data and Ageing Results

APPENDIX 2
**1995 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	18-Sep-95	E	F	2	718	11	40966	1	52	
2	18-Sep-95	E	M	2	756		40966	2	51	
3	20-Sep-95	E	M	2	776		40966	3	3M	
4	20-Sep-95	A	M	2	717		40966	4	52	
5	20-Sep-95	A	F	2	642	0	40966	5	42	
6	20-Sep-95	B	M	2	803		40967	1	52	
7	20-Sep-95	B	M	2	602		40967	2	42	
8	20-Sep-95	B	F	2	682	1	40967	3	52	
9	20-Sep-95	B	F	2	747	3	40967	4	4M	
10	20-Sep-95	B	F	2	703	4	40967	5	n/a	
11	20-Sep-95	C	M	1	568		40968	1	42	
12	20-Sep-95	C	M	1	532		40968	2	2M	
13	20-Sep-95	C	F	1	672	1	40968	3	52	
14	20-Sep-95	C	F	1	733	16	40968	4	52	
15	20-Sep-95	C	M	1	742		40968	5	42	
16	17-Sep-95	C	M	2	582		40969	1	42	
17	17-Sep-95	C	F	2	725	5440	40969	2	52	
18	17-Sep-95	D	M	2	589		40969	3	42	
19	17-Sep-95	D	F	2	647	34	40969	4	52	
20	17-Sep-95	D	F	1	727	4	40969	5	52	
21	17-Sep-95	B	F	3	735	34	40970	1	n/a	
22	17-Sep-95	B	F	2	645	0	40970	2	n/a	
23	17-Sep-95	D	M	2	724		40970	3	52	
24	17-Sep-95	D	F	1	693	0	40970	4	52	
25	17-Sep-95	D	F	2	665	210	40970	5	52	
26	17-Sep-95	D	F	1	719	25	40971	1	52	
27	17-Sep-95	D	F	2	n/a	1	40971	2	2M	
28	18-Sep-95	D	F	2	746	153	40971	3	52	
29	18-Sep-95	D	M	2	757		40971	4	52	
30	18-Sep-95	D	M	2	710		40971	5	52	
31	20-Sep-95	D	F	2	685	11	40972	1	52	
32	20-Sep-95	D	F	2	691	3	40972	2	52	
33	20-Sep-95	D	F	2	778	4	40972	3	3M	
34	20-Sep-95	D	M	2	777		40972	4	52	

APPENDIX 2 (cont.)
**1995 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		
35	20-Sep-95	D	F	2	703	4	40972	5	52	
36	20-Sep-95	D	F	2	677	12	40973	1	3M	
37	20-Sep-95	D	M	2	743		40973	2	52	
38	20-Sep-95	D	M	2	581		40973	3	42	
39	20-Sep-95	D	M	2	591		40973	4	42	
40	20-Sep-95	D	F	2	642	5	40973	5	3M	
41	22-Sep-95	E	F	1	n/a	0	40974	1	52	
42	22-Sep-95	E	F	1	n/a	0	40974	2	52	
43	22-Sep-95	E	F	1	n/a	0	40974	3	n/a	
44	22-Sep-95	E	F	1	n/a	0	40974	4	42	
45	22-Sep-95	E	F	1	n/a	0	40974	5	n/a	
46	20-Sep-95	A	F	2	669	21	40975	1	52	
47	20-Sep-95	A	F	2	645	0	40975	2	52	
48	20-Sep-95	A	M	2	763		40975	3	52	
49	20-Sep-95	B	M	2	613		40975	4	42	
50	20-Sep-95	B	F	3	724	285	40975	5	52	
51	20-Sep-95	B	F	2	705	260	40976	1	n/a	
52	20-Sep-95	B	M	2	753		40976	2	62	
53	20-Sep-95	C	M	3	785		40976	3	52	
54	20-Sep-95	C	M	2	681		40976	4	52	
55	20-Sep-95	D	F	2	626	158	40976	5	42	
56	20-Sep-95	D	M	2	748		40977	1	42	
57	20-Sep-95	D	M	2	768		40977	2	52	
58	20-Sep-95	D	F	2	584	2	40977	3	42	
59	20-Sep-95	D	F	2	686	650	40977	4	52	
60	20-Sep-95	D	M	2	607		40977	5	52	
61	20-Sep-95	D	F	2	588	8	40978	1	52	
62	20-Sep-95	D	F	2	693	2	40978	2	52	
63	20-Sep-95	D	F	2	709	1	40978	3	41	
64	20-Sep-95	D	F	2	678	167	40978	4	52	
65	20-Sep-95	D	F	2	708	181	40978	5	52	
66	20-Sep-95	D	M	3	n/a		40979	1	52	
67	20-Sep-95	D	M	3	n/a		40979	2	52	
68	20-Sep-95	D	M	3	776		40979	3	52	

APPENDIX 2 (cont.)

1995 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		
69	20-Sep-95	D	M	3	698		40979	4	52	
70	20-Sep-95	D	F	3	721	28	40979	5	52	
71	22-Sep-95	E	M	1	n/a		40980	1	52	
72	22-Sep-95	E	M	1	n/a		40980	2	52	
73	22-Sep-95	E	M	1	n/a		40980	3	52	
74	22-Sep-95	E	M	1	n/a		40980	4	42	
75	22-Sep-95	E	M	1	n/a		40980	5	n/a	
76	23-Sep-95	A	M	2	701		40981	1	52	
77	23-Sep-95	A	M	2	774		40981	2	52	
78	23-Sep-95	A	F	2	718	128	40981	3	52	
79	23-Sep-95	A	F	2	737	0	40981	4	52	
80	23-Sep-95	A	F	2	712	0	40981	5	52	
81	23-Sep-95	B	F	2	583	0	40982	1	42	
82	23-Sep-95	B	M	2	606		40982	2	42	
83	23-Sep-95	B	F	2	587	8	40982	3	2M	
84	23-Sep-95	B	F	2	637	64	40982	4	52	
85	23-Sep-95	B	M	2	477		40982	5	S2	
86	24-Sep-95	C	M	3	542		40983	1	42	
87	24-Sep-95	C	M	4	478		40983	2	42	
88	24-Sep-95	C	M	3	721		40983	3	S2	
89	24-Sep-95	C	F	2	629	0	40983	4	42	
90	24-Sep-95	C	M	3	631		40983	5	41	
91	24-Sep-95	C	F	3	692	0	40984	1	52	
92	24-Sep-95	C	M	2	603		40984	2	42	
93	24-Sep-95	C	F	3	632	8	40984	3	52	
94	24-Sep-95	C	F	2	613	0	40984	4	42	
95	24-Sep-95	C	F	3	694	0	40984	5	52	
96	20-Sep-95	D	M	2	n/a		40985	1	52	
97	20-Sep-95	D	F	2	773	0	40985	2	52	
98	20-Sep-95	D	F	2	708	28	40985	3	52	
99	20-Sep-95	D	M	2	755		40985	4	52	
100	20-Sep-95	D	M	2	772		40985	5	41	
101	21-Sep-95	D	M	2	742		40986	1	52	
102	21-Sep-95	D	F	2	666	0	40986	2	S2	

APPENDIX 2 (cont.)

1995 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		
103	21-Sep-95	D	M	2	830		40986	3	52	
104	21-Sep-95	D	M	3	637		40986	4	42	
105	21-Sep-95	D	M	3	561		40986	5	3M	
106	21-Sep-95	D	M	3	655		40987	1	52	
107	21-Sep-95	D	M	2	619		40987	2	42	
108	21-Sep-95	D	F	3	761	38	40987	3	51	
109	21-Sep-95	D	F	3	717	0	40987	4	52	
110	21-Sep-95	D	F	2	668	88	40987	5	52	
111	21-Sep-95	D	M	2	745		40988	1	52	
112	21-Sep-95	D	M	2	748		40988	2	52	
113	21-Sep-95	D	M	2	761		40988	3	52	
114	21-Sep-95	D	M	2	713		40988	4	3M	
115	21-Sep-95	D	M	2	774		40988	5	52	
116	24-Sep-95	C	F	3	696	38	40989	1	52	
117	24-Sep-95	C	F	3	662	5	40989	2	52	
118	24-Sep-95	C	F	2	663	0	40989	3	52	
119	24-Sep-95	C	F	2	694	3	40989	4	52	
120	24-Sep-95	C	F	2	683	1	40989	5	52	
121	24-Sep-95	D	F	3	689	4	40990	1	52	
122	24-Sep-95	D	F	2	714	0	40990	2	52	
123	24-Sep-95	D	M	4	582		40990	3	42	
124	24-Sep-95	D	M	4	683		40990	4	3M	
125	24-Sep-95	D	F	4	589	2	40990	5	42	
126	18-Sep-95	D	F	2	698	128	42516	1	52	
127	18-Sep-95	D	F	2	707	1	42516	2	3M	
128	18-Sep-95	D	F	2	712	3	42516	3	52	
129	18-Sep-95	D	M	2	698		42516	4	52	
130	18-Sep-95	D	M	2	569		42516	5	2M	
131	18-Sep-95	E	M	2	603		42517	1	42	
132	18-Sep-95	E	F	2	709	1	42517	2	52	
133	18-Sep-95	E	M	2	661		42517	3	52	
134	18-Sep-95	E	F	2	727	89	42517	4	52	
135	18-Sep-95	E	M	2	791		42517	5	52	
136	17-Sep-95	D			n/a		42518	1	52	

APPENDIX 2 (cont.)

1995 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		
137	17-Sep-95	A	F	3	648	0	42518	2	52	
138	17-Sep-95	A	F	2	746	57	42518	3	52	
139	17-Sep-95	C	F	2	711	2	42518	4	52	
140	17-Sep-95	C	F	3	714	102	42518	5	52	
141	17-Sep-95	D	F	1	673	3	54798	1	52	
142	17-Sep-95	D	F	2	727	2	54798	2	52	
143	17-Sep-95	D	F	3	596	5	54798	3	42	
144	18-Sep-95	D	M	2	716		54798	4	52	
145	18-Sep-95	D	M	2	757		54798	5	3M	
146	18-Sep-95	D	M	2	787		54799	1	52	
147	18-Sep-95	D	M	2	584		54799	2	42	
148	18-Sep-95	D	M	2	795		54799	3	52	
149	18-Sep-95	D	M	2	659		54799	4	52	
150	18-Sep-95	D	M	2	645		54799	5	52	
151	18-Sep-95	D	M	2	676		54800	1	52	
152	18-Sep-95	D	M	2	791		54800	2	52	
153	18-Sep-95	D	F	2	712	30	54800	3	3M	
154	18-Sep-95	D	F	2	699	65	54800	4	52	
155	18-Sep-95	D	F	2	657	225	54800	5	52	
156	24-Sep-95	D	M	3	803		65001	1	52	
157	24-Sep-95	D	M	4	749		65001	2	52	
158	24-Sep-95	D	F	4	611	7	65001	3	42	
159	24-Sep-95	D	F	2	703	2	65001	4	52	
160	24-Sep-95	D	M	4	788		65001	5	51	
161	27-Sep-95	A	F	2	710	62	65002	1	42	
162	27-Sep-95	A	F	2	619	0	65002	2	42	
163	27-Sep-95	A	M	2	679		65002	3	42	
164	27-Sep-95	A	M	2	815		65002	4	52	
165	27-Sep-95	A	F	2	604	0	65002	5	42	
166	27-Sep-95	B	F	2	700	0	65003	1	n/a	
167	27-Sep-95	B	F	2	600	0	65003	2	n/a	
168	27-Sep-95	B	F	2	750	0	65003	3	52	
169	27-Sep-95	B	F	2	700	53	65003	4	52	
170	27-Sep-95	B	F	2	745	0	65003	5	52	

APPENDIX 2 (cont.)

1995 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		
171	27-Sep-95	B	F	2	740	84	65004	1	52	
172	27-Sep-95	B	F	2	730	21	65004	2	42	
173	27-Sep-95	B	M	2	754		65004	3	52	
174	27-Sep-95	B	M	2	810		65004	4	n/a	
175	27-Sep-95	B	M	2	790		65004	5	52	
176	23-Sep-95	A	F	2	714	3	65005	1	52	
177	23-Sep-95	A	F	2	611	18	65005	2	52	
178	23-Sep-95	A	M	2	595		65005	3	52	
179	23-Sep-95	A	M	2	732		65005	4	52	
180	23-Sep-95	A	M	2	765		65005	5	52	
181	23-Sep-95	B	M	2	768		65006	1	52	
182	23-Sep-95	B	M	2	891		65006	2	52	
183	23-Sep-95	B	M	2	798		65006	3	52	
184	23-Sep-95	B	M	2	795		65006	4	52	
185	23-Sep-95	B	M	2	754		65006	5	52	
186	23-Sep-95	B	M	2	754		65007	1	52	
187	23-Sep-95	B	M	2	771		65007	2	3M	
188	23-Sep-95	B	F	3	727	8	65007	3	52	
189	23-Sep-95	B	F	3	614	0	65007	4	42	
190	23-Sep-95	B	M	2	709		65007	5	52	
191	27-Sep-95	B	F	2	690	40	65008	1	52	
192	27-Sep-95	B	F	2	600	10	65008	2	52	
193	27-Sep-95	B	F	2	720	19	65008	3	52	
194	27-Sep-95	B	F	2	643	16	65008	4	42	
195	27-Sep-95	B	F	2	732	0	65008	5	3M	
196	27-Sep-95	C	F	3	760	0	65009	1	52	
197	27-Sep-95	C	M	3	830		65009	2	52	
198	27-Sep-95	C	F	3	770	0	65009	3	52	
199	27-Sep-95	C	F	3	775	0	65009	4	52	
200	27-Sep-95	C	F	3	720	7	65009	5	41	
201	24-Sep-95	D	F	4	678	0	65010	1	41	
202	24-Sep-95	D	F	4	692	3	65010	2	41	
203	24-Sep-95	D	M	3	737		65010	3	52	
204	24-Sep-95	D	F	3	675	0	65010	4	41	

APPENDIX 2 (cont.)

1995 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		
205	24-Sep-95	D	M	2	453		65010	5	42	
206	24-Sep-95	D	F	3	692	12	65011	1	52	
207	24-Sep-95	D	F	3	613	64	65011	2	52	
208	24-Sep-95	D	M	3	557		65011	3	52	
209	24-Sep-95	D	M	3	753		65011	4	52	
210	24-Sep-95	D	M	3	668		65011	5	52	
211	24-Sep-95	C	M	4	743		65012	1	52	
212	24-Sep-95	C	M	3	708		65012	2	52	
213	24-Sep-95	C	M	2	803		65012	3	62	
214	24-Sep-95	C	M	2	701		65012	4	52	
215	24-Sep-95	C	F	2	721	0	65012	5	52	
216	27-Sep-95	A	F	2	740	72	65013	1	52	
217	27-Sep-95	A	F	2	750	0	65013	2	52	
218	27-Sep-95	A	F	2	750	0	65013	3	52	
219	27-Sep-95	A	F	2	749	11	65013	4	52	
220	27-Sep-95	A	M	2	579		65013	5	41	
221	25-Sep-95	D	M	2	n/a		65014	1	52	
222	25-Sep-95	D	M	2	754		65014	2	52	
223	25-Sep-95	D	M	2	744		65014	3	62	
224	25-Sep-95	D	M	2	735		65014	4	52	
225	25-Sep-95	D	F	2	631	0	65014	5	42	
226	25-Sep-95	D	F	2	607	32	65015	1	42	
227	25-Sep-95	D	F	2	633	5	65015	2	42	
228	25-Sep-95	D	F	2	645	1	65015	3	42	
229	25-Sep-95	D	F	2	691	6	65015	4	52	
230	25-Sep-95	D	F	2	662	54	65015	5	52	
231	25-Sep-95	D	F	2	714	28	65016	1	52	
232	25-Sep-95	D	F	2	736	1	65016	2	52	
233	25-Sep-95	D	F	2	711	0	65016	3	52	
234	25-Sep-95	D	M	2	567		65016	4	42	
235	25-Sep-95	D	F	2	659	49	65016	5	52	
236	25-Sep-95	D	F	2	695	7	65017	1	52	
237	25-Sep-95	D	F	2	744	5	65017	2	42	
238	25-Sep-95	D	F	2	753	2	65017	3	42	

APPENDIX 2 (cont.)

1995 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		
239	25-Sep-95	D	M	2	623		65017	4	52	
240	25-Sep-95	D	M	2	728		65017	5	52	
241	25-Sep-95	D	M	2	753		65018	1	41	
242	25-Sep-95	D	F	2	695	0	65018	2	41	
243	25-Sep-95	D	M	2	568		65018	3	51	
244	25-Sep-95	D	M	2	609		65018	4	51	
245	25-Sep-95	D	F	2	682	0	65018	5	41	
246	27-Sep-95	A	F	2	699	0	65019	1	52	
247	27-Sep-95	A	F	2	718	83	65019	2	52	
248	27-Sep-95	A	F	2	544	12	65019	3	52	
249	27-Sep-95	A	F	2	717	0	65019	4	52	
250	27-Sep-95	A	F	2	721	124	65019	5	52	
251	27-Sep-95	A	F	2	723	4	65020	1	52	
252	27-Sep-95	A	F	2	743	0	65020	2	52	
253	27-Sep-95	A	F	2	699	1	65020	3	52	
254	27-Sep-95	A	F	2	701	4	65020	4	52	
255	27-Sep-95	A	F	2	734	13	65020	5	52	
256	27-Sep-95	B	F	2	709	2	65021	1	52	
257	27-Sep-95	B	F	2	717	0	65021	2	52	
258	27-Sep-95	B	F	2	658	0	65021	3	41	
259	27-Sep-95	B	F	2	734	83	65021	4	52	
260	27-Sep-95	B	F	2	597	0	65021	5	42	
261	27-Sep-95	B	F	2	577	1	65022	1	52	
262	27-Sep-95	B	F	2	678	9	65022	2	52	
263	27-Sep-95	B	F	2	686	0	65022	3	52	
264	27-Sep-95	B	F	2	668	18	65022	4	52	
265	27-Sep-95	B	F	2	691	2	65022	5	41	
266	27-Sep-95	B	M	2	742		65023	1	52	
267	27-Sep-95	B	M	2	759		65023	2	52	
268	27-Sep-95	B	M	2	607		65023	3	42	
269	27-Sep-95	B	M	2	589		65023	4	42	
270	27-Sep-95	B	M	3	571		65023	5	52	
271	26-Sep-95	E	M	2	840		65024	1	52	
272	26-Sep-95	E	F	2	745	0	65024	2	52	

APPENDIX 2 (cont.)

1995 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		
273	26-Sep-95	E	F	2	768	78	65024	3	52	
274	26-Sep-95	E	M	2	800		65024	4	3M	
275	26-Sep-95	E	F	2	745	4	65024	5	3M	
276	26-Sep-95	E	M	2	676		65025	1	41	
277	26-Sep-95	E	M	2	640		65025	2	41	
278	26-Sep-95	E	F	2	710	72	65025	3	41	
279	26-Sep-95	E	M	2	690		65025	4	41	
280	26-Sep-95	E	F	2	675	0	65025	5	41	
281	26-Sep-95	E	F	3	630	0	65026	1	41	
282	26-Sep-95	E	M	3	754		65026	2	3M	
283	26-Sep-95	E	M	3	746		65026	3	52	
284	26-Sep-95	E	M	3	794		65026	4	3M	
285	26-Sep-95	E	F	3	650	0	65026	5	42	
286	26-Sep-95	E	F	3	742	0	65027	1	52	
287	26-Sep-95	E	F	3	705	0	65027	2	52	
288	26-Sep-95	E	F	3	713	0	65027	3	52	
289	26-Sep-95	E	F	3	727	0	65027	4	52	
290	26-Sep-95	E	F	3	707	0	65027	5	52	
291	28-Sep-95	D	M	3	486		65028	1	42	
292	28-Sep-95	D	M	4	575		65028	2	42	
293	28-Sep-95	D	M	4	727		65028	3	52	
294	28-Sep-95	D	F	3	714	3	65028	4	41	
295	28-Sep-95	D	F	3	632	0	65028	5	41	
296	28-Sep-95	E	M	4	352		65029	1	32	
297	28-Sep-95	E	F	4	681	0	65029	2	n/a	
298	28-Sep-95	E	M	4	503		65029	3	42	
299	28-Sep-95	E	F	3	641	0	65029	4	41	
300	28-Sep-95	E	F	4	600	0	65029	5	42	
301	28-Sep-95	E	M	4	758		65030	1	52	
302	28-Sep-95	E	M	3	760		65030	2	41	
303	28-Sep-95	E	M	3	748		65030	3	41	
304	29-Sep-95	A	F	2	619	48	65030	4	n/a	
305	29-Sep-95	B	F	3	708	0	65030	5	n/a	
306	29-Sep-95	C	F	1	614	1	65031	1	41	

APPENDIX 2 (cont.)

1995 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		
307	29-Sep-95	D	F	2	638	0	65031	2	41	
308	2-Oct-95	A	F	2	583	3	65031	3	41	
309	2-Oct-95	D	F	2	672	2	65031	4	41	
310	3-Oct-95	E	M	3	627		65031	5	41	
311	30-Sep-95	D	F	3	706	0	65032	1	3M	
312	30-Sep-95	D	M	4	742		65032	2	41	
313	30-Sep-95	D	F	1	683	0	65032	3	41	
314	30-Sep-95	D	F	1	650	0	65032	4	n/a	
315	30-Sep-95	D	F	2	688	1	65032	5	42	
316	30-Sep-95	D	F	1	751	0	65033	1	52	
317	30-Sep-95	D	M	2	557		65033	2	3M	
318	30-Sep-95	D	M	2	726		65033	3	3M	
319	30-Sep-95	D	F	2	697	88	65033	4	52	
320	30-Sep-95	D	F	2	673	0	65033	5	52	
321	27-Sep-95	C	F	3	597	0	65035	1	42	
322	28-Sep-95	C	F	3	610	14	65035	2	42	
323	28-Sep-95	D	F	3	724	0	65035	3	52	
324	28-Sep-95	D	F	3	629	32	65035	4	41	
325	28-Sep-95	D	M	3	641		65035	5	41	
326	28-Sep-95	D	F	3	610	0	65036	1	41	
327	28-Sep-95	D	F	3	718	72	65036	2	41	
328	28-Sep-95	D	F	2	686	0	65036	3	41	
329	28-Sep-95	D	F	3	692	1	65036	4	41	
330	28-Sep-95	D	F	3	660	1	65036	5	41	
331	28-Sep-95	D	F	3	679	0	65037	1	41	
332	28-Sep-95	D	F	3	648	2	65037	2	n/a	
333	30-Sep-95	D	F	2	638	0	65037	3	3M	
334	2-Oct-95	C	F	2	708	0	65037	4	52	
335	2-Oct-95	C	F	2	720	0	65037	5	52	
336	2-Oct-95	C	F	2	677	26	65038	1	52	
337	2-Oct-95	C	F	2	713	0	65038	2	41	
338	3-Oct-95	E	F	4	647	0	65038	3	41	
339	3-Oct-95	E	M	4	632		65038	4	41	
340	3-Oct-95	E	F	3	687	0	65038	5	41	

