NECHAKO AND STUART RIVERS
CHINOOK CARCASS RECOVERY
2004

NECHAKO FISHERIES CONSERVATION PROGRAM
Data Report No. M04-2

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April 2011

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ABSTRACT

In 2004, 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 200 carcasses were collected on the Nechako River between September 17th and October 6th. Nechako River Chinook carcasses recovered in 2004 exhibited similar biological characteristics to those collected from 1988 to 2003. Though the female to male ratio of the sample was the highest on record for the existing time series, the 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 and dominated by the 5_2 age-class.

On the Stuart River, 250 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 2004 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. In addition to the Chinook sampling, 2 sockeye salmon were collected for biological sampling purposes.

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 normal target sample size is 200 fish.

Sampling in the Stuart River was conducted from the outlet of Stuart Lake downstream to the confluence of Chinohchey Creek (Figure 3). The target sample size was set at a minimum of 250 fish, slightly higher than the normal 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 skeined 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 2004 are presented in Appendices 1 and 2, respectively. Summaries of these data are provided in the respective sections below.

Nechako River

Between September 17th and October 6th a total of 200[1] carcasses were sampled from 10 of the 16 identified Sections representing all 3 river areas – upper, middle and lower river (Table 1). The observed sex ratio was 2.28 F/M, or 69.5% females and 30.5% males (n=200). One Chinook jack was collected. Of the carcasses sampled, the majority (69%) were fresh or only a few days old (Table 2).

The length (POHL) of the fish sampled ranged from 320 to 831 mm, with a mean of 699 mm (n=61, SD=89) for males, 674 mm (n=139, SD=48) for females and 681 mm (n=200, SD=64) for all fish combined. The majority of males were between 651-800 mm long while the majority of females were between 601-750 mm in length (Figure 4).

Of the total number of female carcasses sampled (n=139), none were found to be a pre-spawn mortalities and none were found to be partially spawned, based on egg retention values of 1000 and 4999. All 139 females were determined to be fully spawned, based on egg retention of less than 1000. The mean egg retention of the fully spawned females was 7 eggs (n=139, SD=38,

[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.

range 0–417). This was the lowest mean egg retention value recorded during the 1988-2004 time series.

Scale and fin samples from 200 carcasses recovered from the Nechako River were sent to the Pacific Biological Station in Nanaimo for age analysis. Complete ages were determined for 169 of those samples (Table 3). The results indicate that the majority of the fish sampled were of two age-classes, 5_2 (60%) and 4_2 (37%). A chi-square test was used to determine that the numbers of males and females in these age-classes were not significantly disproportionate to the sex ratio of the sample (p=0.61).

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

Stuart River

Between September 24th and October 6th a total of 250[2] carcasses were sampled from the six Zones (1 to 6) within the study area (Table 4). The observed sex ratio was 1.60 F/M, or 62% females and 38% males (n=250). Of the 250 carcasses with condition documented, 7% were fresh or only a few days old, while most (74%) were found to be in poor condition with some fungus (Table 5).

The length (POHL) of the fish sampled ranged from 546 to 889 mm, with a mean of 728 mm for males (n=96, SD=74), 696 mm for females (n=154, SD=54) and 708 mm (n=250, SD=64) for all fish combined. The majority of males were between 601-850 mm in length while the majority of females were between 601-800 mm in length (Figure 5).

Of the total number of female carcasses sampled (n=154), none were found to be pre-spawn mortalities while one was found to be partially spawned, based on retained eggs between 1000 and 4999, with an estimated retention value of 2000 eggs. The remaining 153 (>99%) samples were determined to be fully spawned, based on egg retention estimates of less than 1000. The mean egg retention of the fully spawned females was 8 eggs (n=153, SD=24, range 0–152).

[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.

When combining fully and partially spawned samples, the mean egg retention was 21 eggs (n=154, SD=162, range 0–2000).

Scale and fin samples from all 250 carcasses recovered from the Stuart River were sent to the Pacific Biological Station in Nanaimo for age analysis. Complete ages were determined for 224 of those samples (Table 6). The results indicate that a majority of the fish sampled were of two age-classes, 5_2 (43%) and 4_2 (55%). There were no Chinook jacks in the sample. 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=0.27).

DISCUSSION - COMPARISON TO PREVIOUS YEARS

Nechako River

A comparison of 2004 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 M03-2). 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 2.28 F/M was the highest ratio recorded since the inception of the monitoring program, higher than the existing range (1.10-2.23) observed from 1988-2003 (Figure 6) and significantly higher than the mean of 1.56 (n=16, SD=0.29), as indicated by 95% confidence limit of 1.42-1.70.

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 2004 fell within the ranges observed in previous years (Figures 7 and 8).

No female pre-spawn mortalities were sampled resulting in no change to the estimated average female fecundity of 6563 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.

The mean egg retention in fully and partially spawned carcasses was compared to values from previous years (Table 8). The 2004 mean was within the bounds of all years' results (Figure 9).

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 4_2 and 5_2 age-classes. These have been consistent observations since the inception of the NFCP monitoring program. In 2004, age-classes 4_2 and 5_2 accounted for 98% of the return, with all stream-type fish accounting for 100% (Table 9).

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 M04-1).

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 2004, 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

Nechako River carcass recovery was conducted by Colin Barnard.

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

Staff at DFO’s Pacific Biological Station in Nanaimo analyzed the various samples.

Rhonda Thibeault and Liz Murphy assisted with data compilation.

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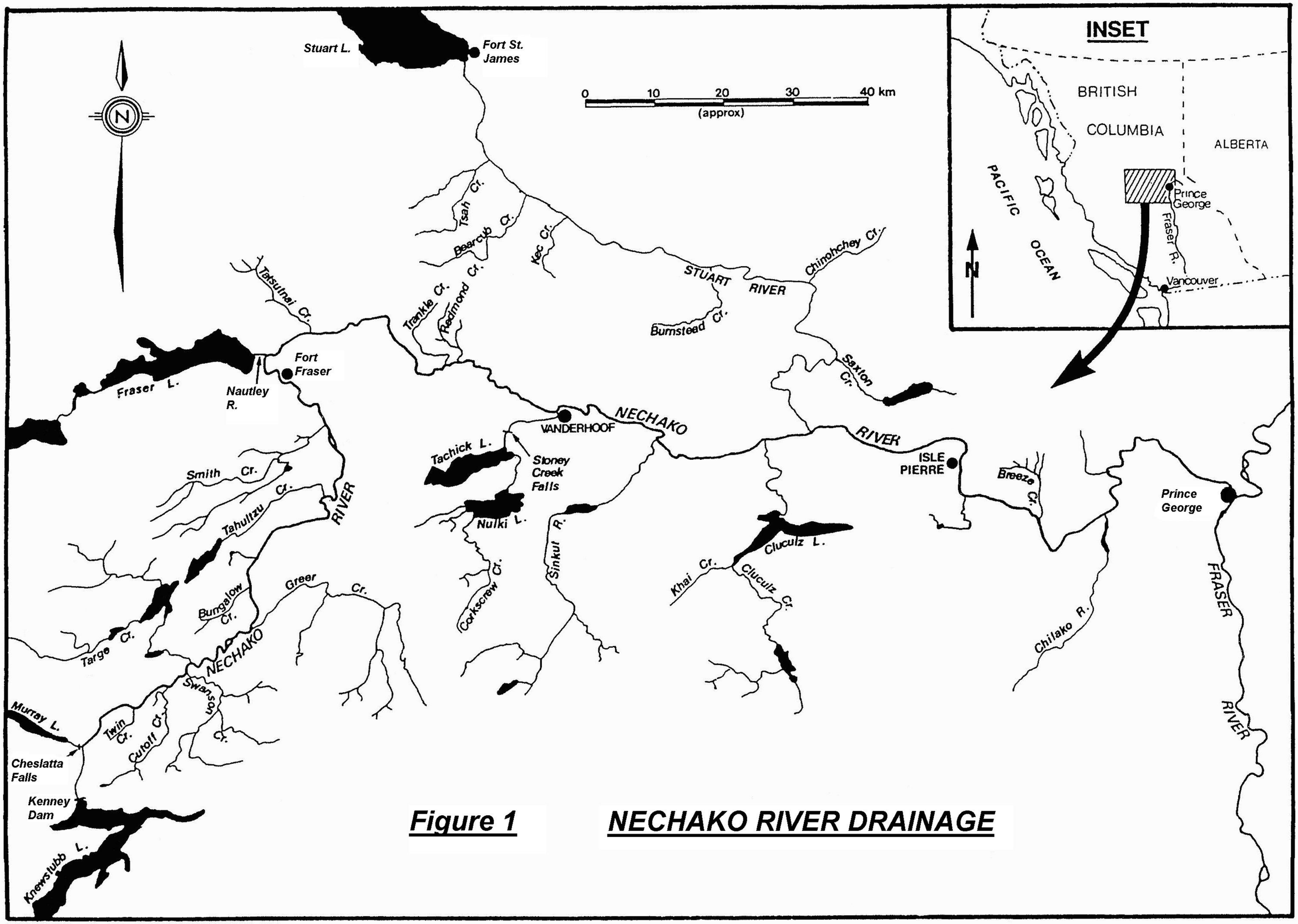


Figure 1 **NECHAKO RIVER DRAINAGE**

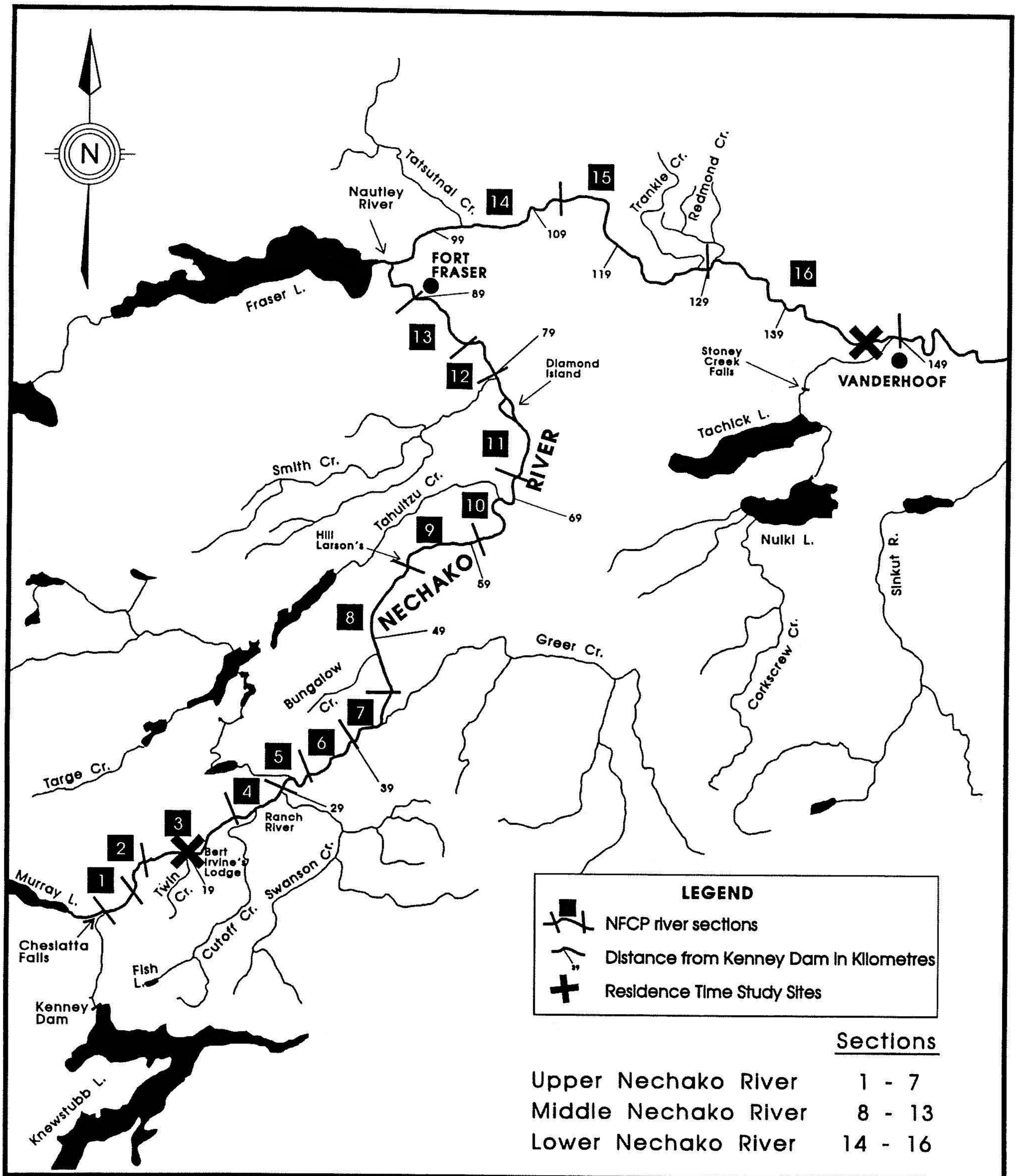


FIGURE 2. NECHAKO RIVER CHINOOK SPAWNING STUDY AREA

Figure 3

STUART RIVER CHINOOK SPAWNING STUDY AREA

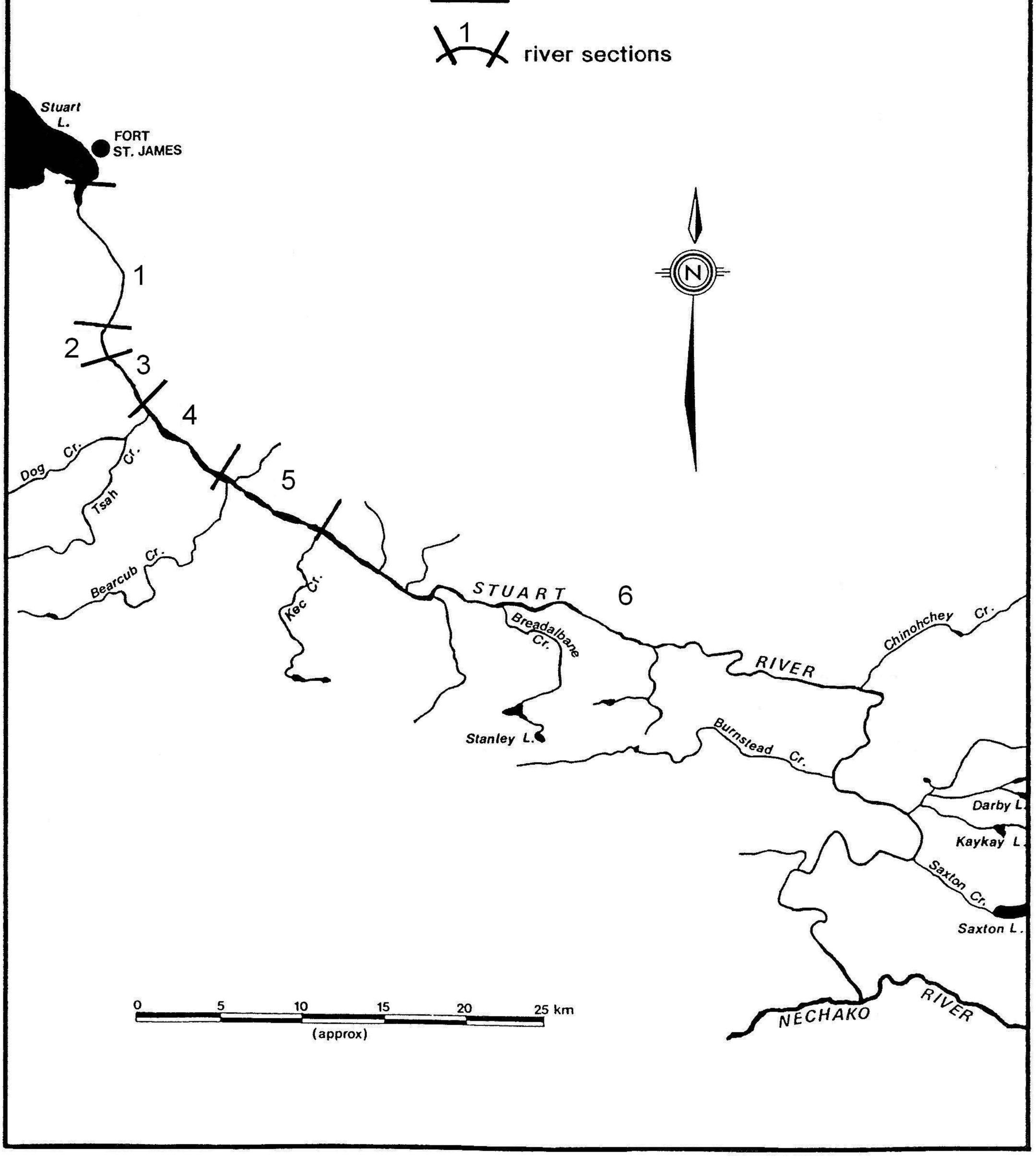


Table 1
Nechako River Chinook Carcass Recovery by Section, 2004

Section	Number	Percent
UPPER NECHAKO		
Section 1	0	0.0
Section 2	0	0.0
Section 3	68	34.0
Section 4	13	6.5
Section 5	8	4.0
Section 6	20	10.0
Section 7	0	0.0
SUB-TOTAL	109	54.5
MIDDLE NECHAKO		
Section 8	10	5.0
Section 9	0	0.0
Section 10	0	0.0
Section 11	25	12.5
Section 12	39	19.5
Section 13	4	2.0
SUB-TOTAL	78	39.0
LOWER NECHAKO		
Section 14	0	0.0
Section 15	10	5.0
Section 16	3	1.5
SUB-TOTAL	13	6.5
TOTAL RIVER	200	100.0

Table 2
Nechako River Chinook Carcass Condition, 2004

Condition *	Number	Percent
1	87	43.5
2	51	25.5
3	52	26.0
4	10	5.0
TOTAL	200	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

Table 3
Nechako River Chinook Age Composition (%) by Sex, 2004

	3-2	4-2	5-2	5-3	6-2	Total # Aged
Males	1.9	34.0	62.3	0.0	1.9	53
Females	0.0	38.8	59.5	0.9	0.9	116

Table 4
Stuart River Chinook Carcass Recovery by Zone, 2004

Zone	Number	Percent
1	20	8.0
2	30	12.0
3	45	18.0
4	75	30.0
5	45	18.0
6	35	14.0
TOTAL	250	100.0

Table 5
Stuart River Chinook Carcass Condition, 2004

Condition *	Number	Percent
1	2	0.8
2	15	6.0
3	184	73.9
4	48	19.3
TOTAL	249	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

Table 6
Stuart River Chinook Age Composition (%) by Sex, 2004

	4-2	5-2	5-3	6-2	Total # Aged
Males	49.4	47.1	0.0	3.4	87
Females	58.4	40.9	0.7	0.0	137

Table 7
Nechako River Chinook Fecundity, 1978-2004

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
1998	751	10026		
1998	745	9473		
1998	765	8216		
1998	712	6437		6537
2001	642	7280		6563

*Sources: 1 = Fee and Sheng (1978),
2 = Olmsted *et al.* (1980),
3 = Russell *et al.* (1983), and
4 = Jaremovic and Rowland (1988)

Table 8
Nechako River Chinook Egg Retention, 1988-2004

	Fully Spawned			Partially Spawned		Fully + Partially
Year	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
1998	124	0-849	33.2	0	n/a	33.2
1999	129	0-389	9.2	4	3100-4000	113.5
2000	153	0-965	10.9	3	1366-3500	52.8
2001	274	0-636	12.4	0	n/a	12.4
2002	133	0-813	13.5	0	n/a	13.5
2003	125	0-696	15.7	2	1100-3032	48
2004	139	0-417	6.7	0	n/a	6.7

Table 9
Percent Contribution of Stream-type Life Histories
to Nechako Chinook Escapements, 1988-2004

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
1998	97	99	207
1999	95	100	204
2000	97	100	250
2001	99	100	180
2002	93	98	178
2003	96	100	164
2004	98	100	169

Table 10
Percent Contribution of Age-at-Return Groupings
to Nechako Chinook Escapements, 1988-2004

	% Contribution					Sample
Year	3 years	4 years	5 years	6 years	7 years	Size
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
1998	0.0	24.6	73.4	1.9	0.0	207
1999	0.5	44.1	51.0	4.4	0.0	204
2000	0.0	64.8	32.4	2.8	0.0	250
2001	0.0	11.1	88.3	0.6	0.0	180
2002	0.6	22.5	73.0	3.9	0.0	178
2003	1.2	31.1	65.2	2.4	0.0	164
2004	0.6	37.3	60.9	1.2	0.0	169

Figure 4
Nechako River Chinook Length Frequency Distribution, 2004

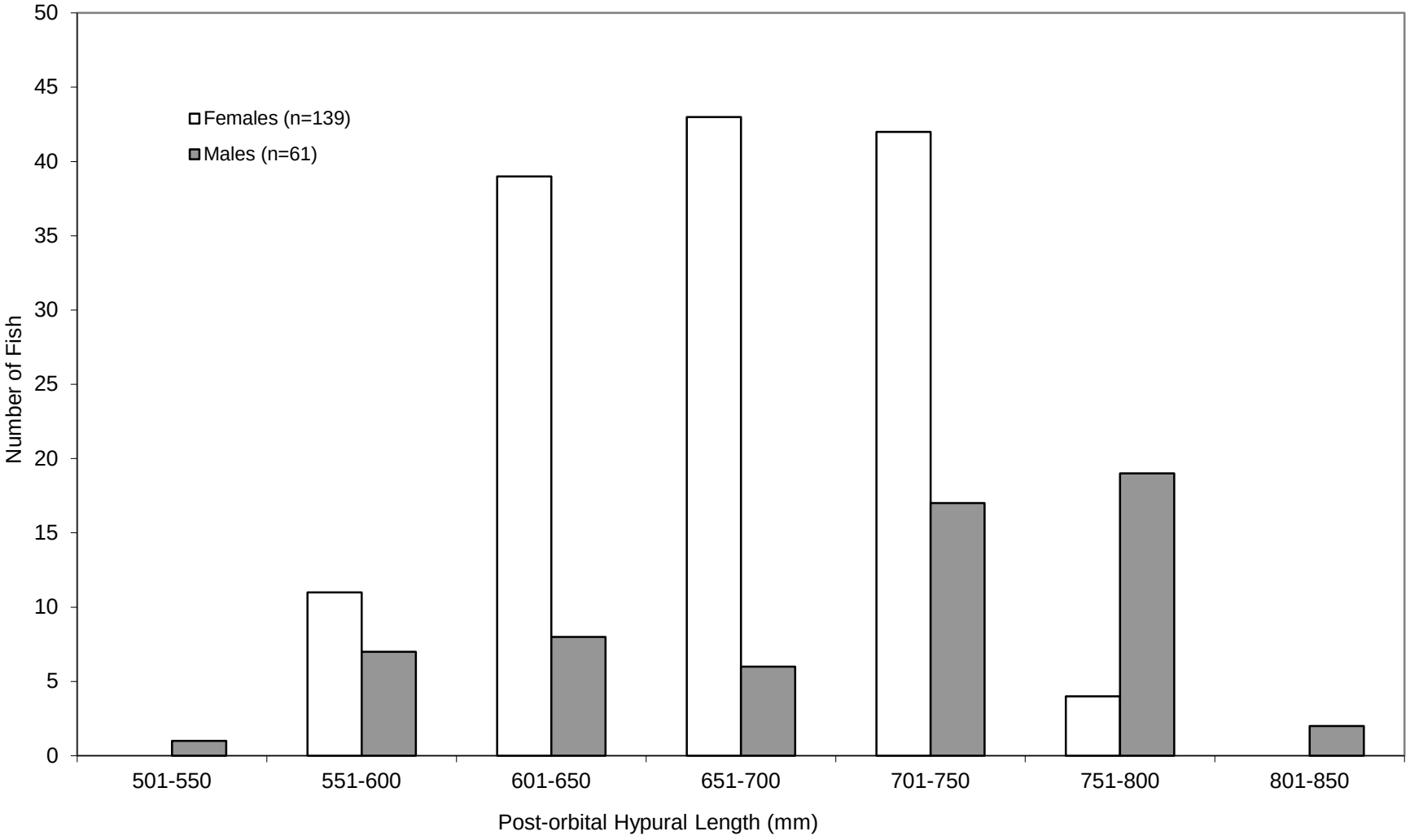


Figure 5
Stuart River Chinook Length Frequency Distribution, 2004

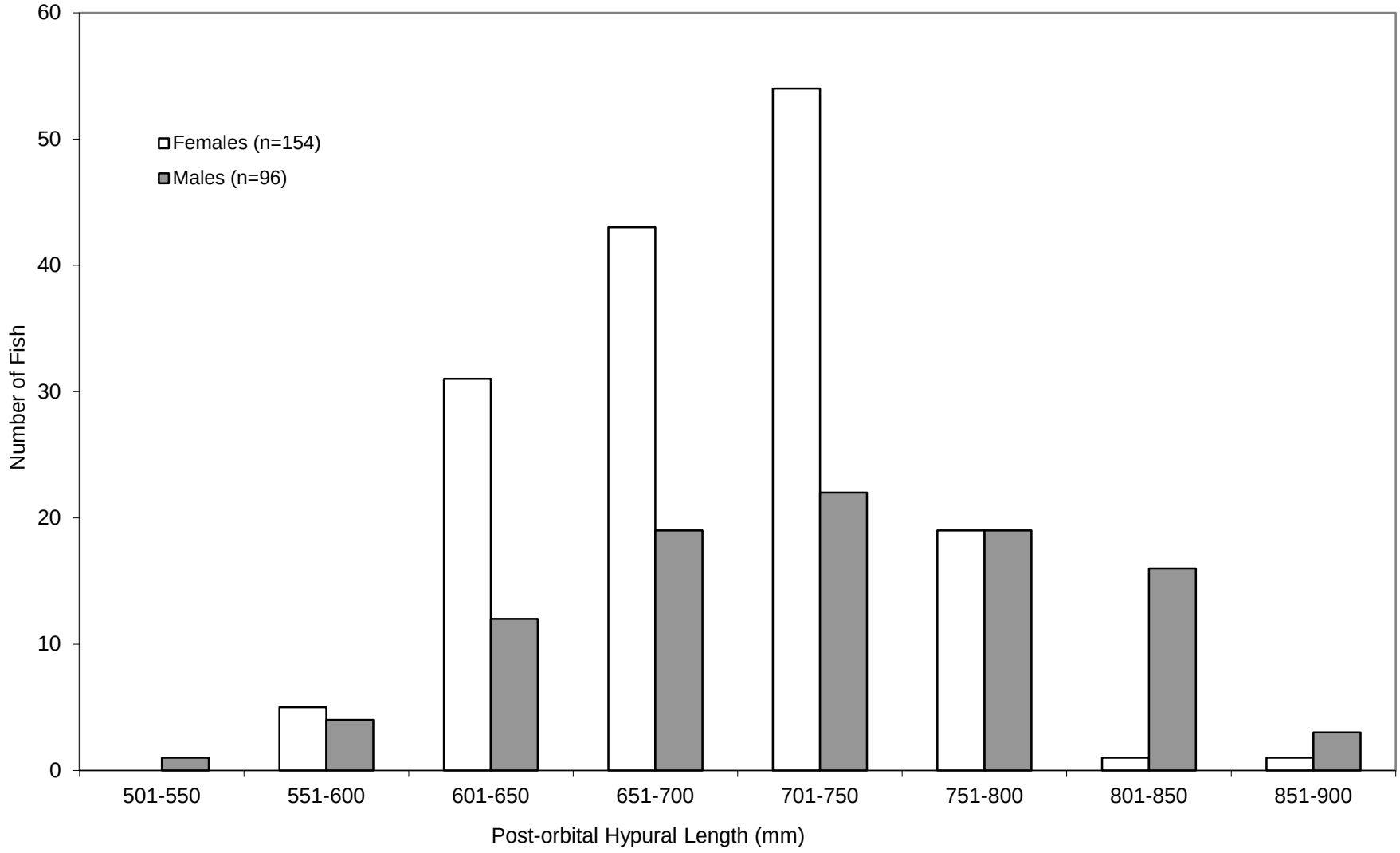


Figure 6
Nechako River Chinook Sex Ratio, 1988-2004

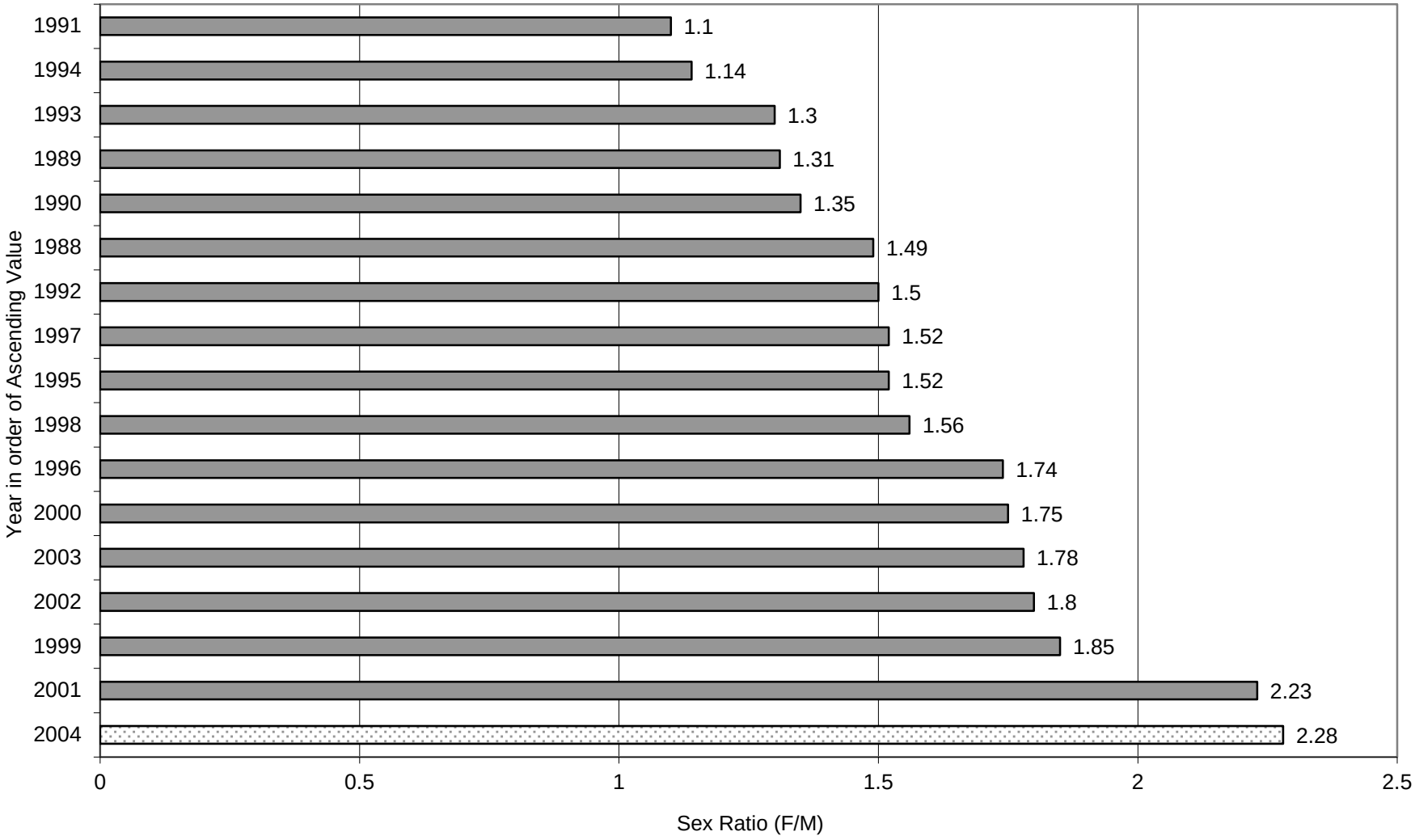


Figure 7
Nechako River Chinook Male Mean Length, 1988-2004

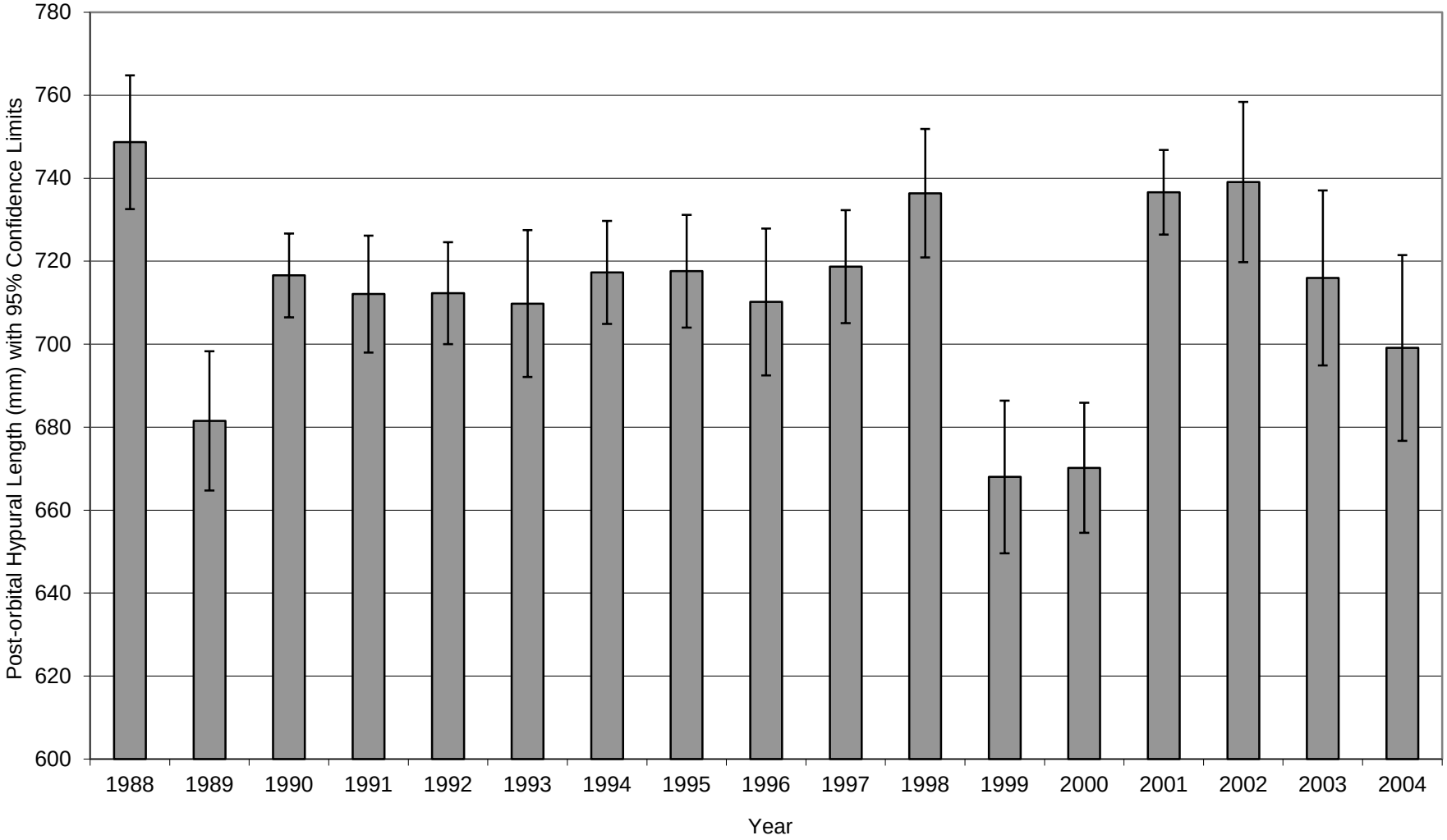


Figure 8
Nechako River Chinook Female Mean Length, 1988-2004

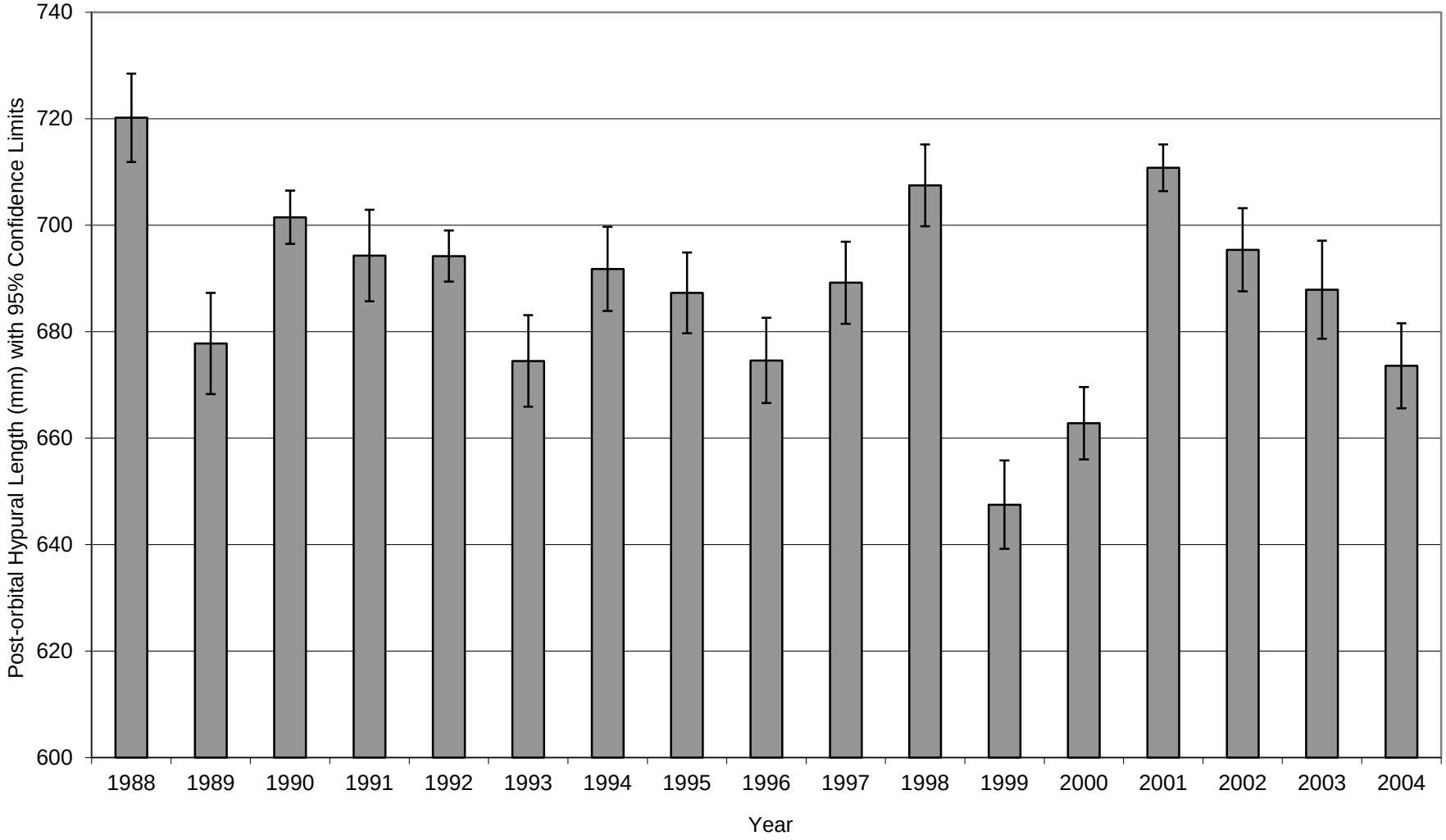
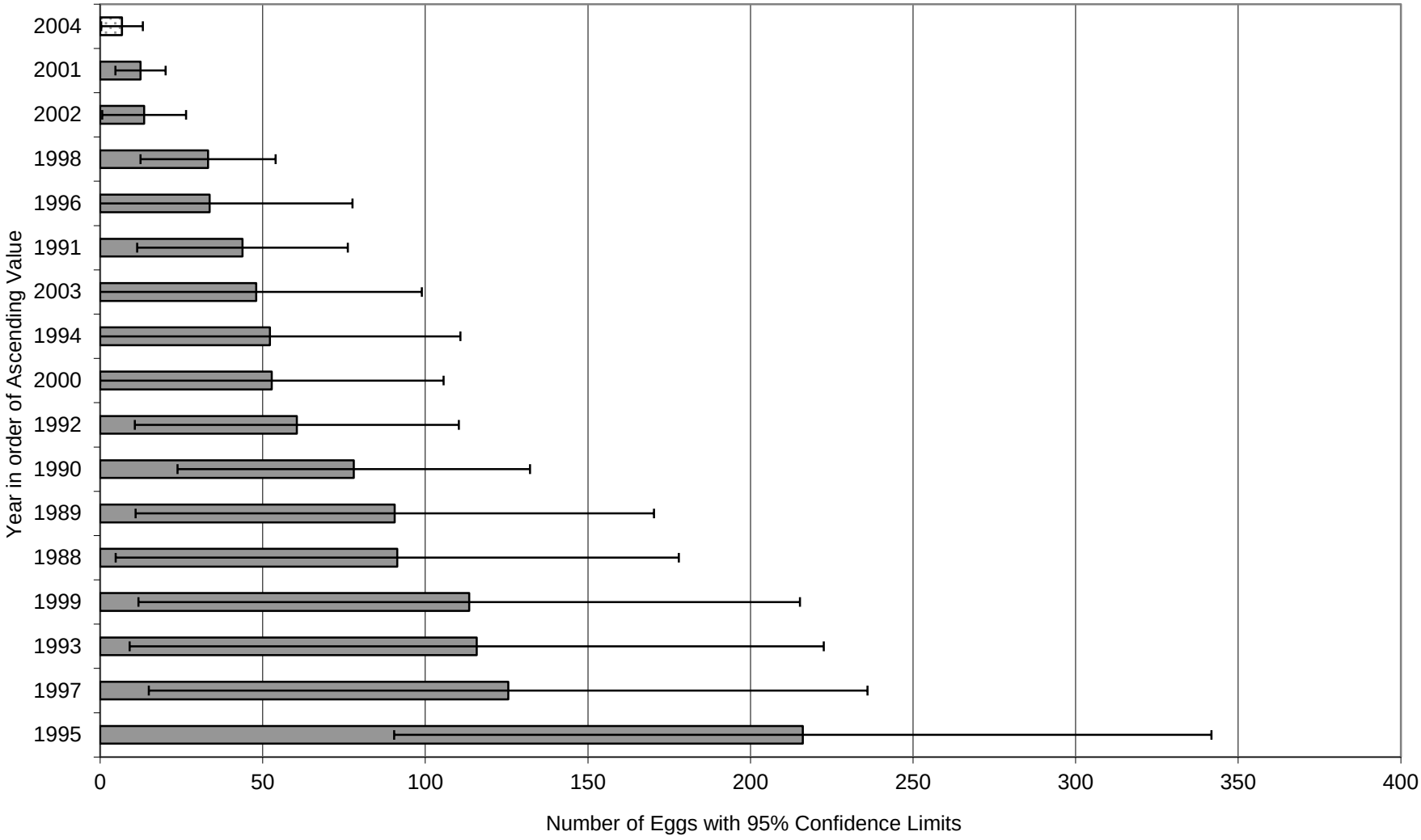


Figure 9
Nechako River Chinook Mean Egg retention, 1988-2004



Appendix 1. Nechako River Carcass Data

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples Book	Scale Samples Spaces	Age (G-R)	Comments
1	17-Sep-04	12	F	3	635	54	91400	1	42	
2	17-Sep-04	12	F	1	621	4	91400	2	42	
3	17-Sep-04	12	F	2	683	0	91400	3	52	
4	18-Sep-04	16	M	3	657		91400	4	42	
5	18-Sep-04	16	F	2	633	73	91400	5	42	38 loose eggs, 35 still skeined
6	18-Sep-04	16	F	1	694	0	91401	1	52	
7	20-Sep-04	3A	F	1	721	2	91401	2	52	
8	20-Sep-04	3A	F	2	704	11	91401	3	4M	RG
9	20-Sep-04	3A	M	1	600		91401	4	42	partially spawned
10	20-Sep-04	3A	F	1	621	0	91401	5	42	
11	20-Sep-04	3B	F	3	655	0	91402	1	42	
12	20-Sep-04	3B	F	3	735	0	91402	2	52	
13	20-Sep-04	3B	M	3	654		91402	3	42	
14	20-Sep-04	3B	F	3	717	1	91402	4	52	
15	20-Sep-04	3B	F	1	727	0	91402	5	3M	RG
16	20-Sep-04	3B	F	3	655	0	91403	1	52	
17	20-Sep-04	3B	F	1	606	8	91403	2	42	
18	20-Sep-04	4	M	2	755		91403	3	52	
19	20-Sep-04	4	M	4	719		91403	4	2M	RG
20	20-Sep-04	4	F	2	668	0	91403	5	52	
21	23-Sep-04	3B	M	3	610		91404	1	42	
22	23-Sep-04	3B	M	3	719		91404	2	52	
23	23-Sep-04	4	M	2	831		91404	3	52	predated NF 1082
24	23-Sep-04	4	M	2	792		91404	4	52	NF 1024
25	23-Sep-04	4	F	2	686	0	91404	5	52	
26	23-Sep-04	4	F	2	682	0	91405	1	52	
27	23-Sep-04	4	F	1	744	0	91405	2	52	
28	23-Sep-04	4	F	1	723	0	91405	3	52	
29	23-Sep-04	4	M	2	767		91405	4	52	
30	23-Sep-04	4	F	1	696	0	91405	5	52	
31	23-Sep-04	4	F	2	667	0	91406	1		UM
32	23-Sep-04	4	M	1	599		91406	2	42	
33	23-Sep-04	5	F	1	721	8	91406	3	52	

Carcass					POHL		Scale Samples		Age	
34	23-Sep-04	5	M	1	762		91406	4		UM
35	23-Sep-04	5	M	1	768		91406	5	52	
36	23-Sep-04	5	M	1	591		91407	1	42	
37	23-Sep-04	5	F	1	702	2	91407	2	52	
38	23-Sep-04	5	M	1	623		91407	3	52	
39	23-Sep-04	5	M	1	726		91407	4	52	
40	23-Sep-04	5	F	1	735	1	91407	5	52	
41	24-Sep-04	11	F	1	735	0	91408	1	52	
42	24-Sep-04	11	F	1	691	2	91408	2	52	
43	24-Sep-04	11	M	2	643		91408	3	42	
44	24-Sep-04	11	F	1	693	417	91408	4	52	
45	24-Sep-04	11	F	1	742	4	91408	5	52	
46	24-Sep-04	11	F	1	670	0	91409	1	52	
47	24-Sep-04	11	M	2	794		91409	2	52	NF 1037
48	24-Sep-04	11	F	3	685	3	91409	3	52	
49	24-Sep-04	11	F	3	652	0	91409	4	52	
50	24-Sep-04	11	F	1	687	0	91409	5	52	
51	24-Sep-04	11	F	3	701	0	91410	1	3M	RG
52	24-Sep-04	11	F	1	687	2	91410	2	52	
53	24-Sep-04	11	F	3	626	2	91410	3	2M	RG
54	24-Sep-04	11	M	2	770		91410	4	52	NF 1001
55	24-Sep-04	11	F	1	598	1	91410	5	42	
56	25-Sep-04	12	F	1	648	0	91411	1	42	
57	25-Sep-04	12	M	3	542		91411	2	42	
58	25-Sep-04	12	F	3	635	16	91411	3	42	
59	25-Sep-04	12	F	2	746	9	91411	4	52	
60	25-Sep-04	12	M	1	731		91411	5	52	Suspected clip but NO CWT
61	25-Sep-04	12	M	1	560		91412	1	42	
62	25-Sep-04	12	M	1	639		91412	2	42	
63	25-Sep-04	12	M	2	667		91412	3	42	
64	25-Sep-04	12	M	1	712		91412	4	52	
65	25-Sep-04	12	F	1	629	0	91412	5		UM
66	25-Sep-04	12	F	2	673	31	91413	1	42	
67	25-Sep-04	12	F	4	695	0	91413	2	52	
68	25-Sep-04	12	F	1	652	4	91413	3	52	
69	25-Sep-04	12	F	1	633	0	91413	4	2M	RG

Carcass					POHL		Scale Samples		Age	
70	25-Sep-04	12	M	1	775		91413	5	52	NF 1011
71	26-Sep-04	15	F	1	638	0	91414	1	42	
72	26-Sep-04	15	F	1	715	44	91414	2	52	
73	26-Sep-04	15	F	1	629	3	91414	3	42	
74	26-Sep-04	15	F	1	744	4	91414	4	3M	RG
75	26-Sep-04	15	M	2	651		91414	5	42	
76	26-Sep-04	15	F	1	648	0	91415	1	53	
77	26-Sep-04	15	M	1	551		91415	2	42	
78	26-Sep-04	15	F	2	745	0	91415	3	52	
79	26-Sep-04	15	F	1	617	0	91415	4	42	
80	26-Sep-04	15	F	1	602	0	91415	5	42	
81	27-Sep-04	13	M	1	652		91416	1	42	
82	27-Sep-04	13	F	1	710	0	91416	2	3M	RG
83	27-Sep-04	13	M	2	715		91416	3	S2	RS
84	27-Sep-04	13	M	3	777		91416	4	52	
85	27-Sep-04	12	F	1	635	0	91416	5	42	
86	27-Sep-04	12	F	1	732	0	91417	1	52	
87	27-Sep-04	12	M	1	825		91417	2	52	
88	27-Sep-04	12	F	2	763	3	91417	3	62	
89	27-Sep-04	12	F	1	645	5	91417	4	52	
90	27-Sep-04	12	F	1	596	0	91417	5	42	
91	28-Sep-04	8	F	1	685	0	91418	1	52	
92	28-Sep-04	8	F	1	695	0	91418	2	3M	RG
93	28-Sep-04	8	M	1	737		91418	3	3M	RG
94	28-Sep-04	8	F	2	720	0	91418	4	52	
95	28-Sep-04	8	F	2	663	0	91418	5	3M	RG
96	28-Sep-04	8	M	3	768		91419	1	3M	RG
97	28-Sep-04	8	F	3	733	19	91419	2	52	
98	28-Sep-04	8	F	3	586	0	91419	3	2M	RG
99	28-Sep-04	8	F	2	736	1	91419	4	52	
100	28-Sep-04	8	F	2	590	6	91419	5	42	
101	28-Sep-04	6	F	2	693	0	91420	1	S2	RS
102	28-Sep-04	6	M	2	623		91420	2	52	
103	28-Sep-04	6	F	3	592	0	91420	3	42	
104	28-Sep-04	6	M	2	593		91420	4	2M	RG
105	28-Sep-04	6	M	2	779		91420	5	62	NF 1000

Carcass					POHL		Scale Samples		Age	
106	28-Sep-04	6	F	3	602	0	91421	1	42	
107	28-Sep-04	6	F	3	594	0	91421	2	42	
108	28-Sep-04	6	F	1	765	0	91421	3	52	
109	28-Sep-04	6	F	2	622	0	91421	4	42	
110	28-Sep-04	6	F	1	615	0	91421	5	42	
111	28-Sep-04	6	F	2	768	2	91422	1	52	
112	28-Sep-04	6	F	1	574	3	91422	2	42	
113	28-Sep-04	6	F	1	627	17	91422	3	42	crinkle back
114	28-Sep-04	6	F	1	663	0	91422	4	52	
115	28-Sep-04	6	F	1	649	0	91422	5	42	
116	28-Sep-04	6	F	1	641	0	91423	1	42	
117	28-Sep-04	6	F	2	721	0	91423	2	52	
118	28-Sep-04	6	M	3	747		91423	3	52	
119	28-Sep-04	6	M	1	721		91423	4	52	
120	28-Sep-04	6	M	1	708		91423	5	52	
121	1-Oct-04	3A	F	1	694	0	91424	1	52	
122	1-Oct-04	3A	F	1	594	0	91424	2	42	
123	1-Oct-04	3A	F	3	684	0	91424	3	52	
124	1-Oct-04	3A	F	3	686	0	91424	4	3M	RG
125	1-Oct-04	3A	F	3	606	0	91424	5	42	
126	1-Oct-04	3A	M	1	592		91425	1	42	
127	1-Oct-04	3A	M	3	614		91425	2	42	
128	1-Oct-04	3A	M	2	608		91425	3	42	
129	1-Oct-04	3A	F	3	667	0	91425	4	52	
130	1-Oct-04	3A	F	3	705	0	91425	5	52	
131	1-Oct-04	3A	F	1	668	1	91426	1	3M	RG
132	1-Oct-04	3A	M	3	790		91426	2	52	NF 1009
133	1-Oct-04	3A	F	3	686	0	91426	3	52	
134	1-Oct-04	3A	M	1	765		91426	4	52	NF 1001
135	1-Oct-04	3A	F	1	757	0	91426	5	52	
136	1-Oct-04	3A	F	3	663	0	91427	1	S2	RS
137	1-Oct-04	3A	F	1	657	0	91427	2	52	
138	1-Oct-04	3A	F	3	591	0	91427	3	42	
139	1-Oct-04	3A	M	3	745		91427	4	52	
140	1-Oct-04	3A	M	2	710		91427	5	52	
141	1-Oct-04	3A	F	1	722	0	91428	1	52	

Carcass					POHL		Scale	Samples	Age	
142	1-Oct-04	3B	F	3	695	0	91428	2	52	
143	1-Oct-04	3B	M	2	752		91428	3	52	
144	1-Oct-04	3B	M	3	781		91428	4	52	
145	1-Oct-04	3B	F	2	732	0	91428	5	52	
146	1-Oct-04	3B	F	2	730	2	91429	1	52	
147	1-Oct-04	3B	F	2	705	150	91429	2	52	
148	1-Oct-04	3B	F	3	679	0	91429	3	52	
149	1-Oct-04	3B	M	2	778		91429	4	52	NF 1013
150	1-Oct-04	3B	M	2	754		91429	5	52	predated left side
151	2-Oct-04	12	M	3	320		91430	1	32	NF 403 NF / Jack
152	2-Oct-04	12	M	1	742		91430	2	52	
153	2-Oct-04	12	F	1	681	0	91430	3	52	
154	2-Oct-04	12	F	3	639	0	91430	4	42	
155	2-Oct-04	12	F	1	728	0	91430	5	52	
156	2-Oct-04	12	F	2	626	0	91431	1	42	
157	2-Oct-04	12	F	2	747	0	91431	2	42	
158	2-Oct-04	12	F	1	728	3	91431	3	52	
159	2-Oct-04	12	F	1	668	0	91431	4	52	
160	2-Oct-04	12	F	3	702	0	91431	5	52	
161	3-Oct-04	11	M	3	744		91432	1	3M	RG
162	3-Oct-04	11	M	4	721		91432	2	52	
163	3-Oct-04	11	F	3	712	2	91432	3	52	
164	3-Oct-04	11	F	2	610	0	91432	4	42	
165	3-Oct-04	11	F	3	684	0	91432	5	52	
166	4-Oct-04	3A	F	1	644	1	91433	1	42	
167	4-Oct-04	3A	M	1	634		91433	2	42	
168	4-Oct-04	3A	F	1	608	0	91433	3	42	
169	4-Oct-04	3A	F	4	579	0	91433	4	42	
170	4-Oct-04	3A	F	2	730	2	91433	5	S2	RS
171	4-Oct-04	3A	M	1	800		91434	1	52	NF 1044
172	4-Oct-04	3A	F	2	625	0	91434	2	42	
173	4-Oct-04	3A	F	2	637	0	91434	3	42	
174	4-Oct-04	3A	F	2	647	1	91434	4	42	
175	4-Oct-04	3A	F	4	645	0	91434	5	3M	RG
176	4-Oct-04	3A	F	3	746	0	91435	1	52	RG
177	4-Oct-04	3A	F	1	714	0	91435	2	52	

Carcass					POHL		Scale Samples		Age	
178	4-Oct-04	3A	F	4	702	0	91435	3	52	
179	4-Oct-04	3A	F	2	680	0	91435	4	52	
180	4-Oct-04	3A	F	1	620	0	91435	5	2M	RG
181	4-Oct-04	3A	M	1	737		91436	1	52	
182	4-Oct-04	3A	F	1	645	1	91436	2	42	
183	4-Oct-04	3A	F	1	734	1	91436	3	2M	RG
184	4-Oct-04	3A	F	1	714	2	91436	4	52	
185	4-Oct-04	3A	M	4	740		91436	5	52	
186	4-Oct-04	3A	F	1	655	0	91437	1	52	
187	4-Oct-04	3A	F	3	692	0	91437	2	3M	RG
188	4-Oct-04	3A	M	4	689		91437	3	S2	RS
189	4-Oct-04	3A	F	3	681	0	91437	4	52	
190	4-Oct-04	3A	F	3	713	0	91437	5	52	
191	5-Oct-04	11	F	4	600	0	91438	1	42	
192	5-Oct-04	11	F	2	668	0	91438	2	3M	RG
193	5-Oct-04	11	F	3	639	0	91438	3	42	
194	5-Oct-04	11	F	3	730	4	91438	4	52	
195	5-Oct-04	11	F	4	694	0	91438	5	52	
196	6-Oct-04	12	F	3	636	0	91439	1	42	RG
197	6-Oct-04	12	M	3	774		91439	2	52	
198	6-Oct-04	12	F	3	705	0	91439	3	3M	RG
199	6-Oct-04	12	F	2	623	0	91439	4	42	
200	6-Oct-04	12	F	2	622	0	91439	5	42	

Appendix 2 Stuart River Carcass Data

Carcass #	Date	Reach	Sex	Condition	POHL (mm)	# Eggs	Scale Samples Book	Spaces	Age (G-R)	Comments
1	24-Sep-04	3	F	3	692	48	88287	1	52	
2	24-Sep-04	3	F	2	667	0	88287	2	42	
3	24-Sep-04	3	F	1	762	0	88287	3	42	
4	24-Sep-04	3	M	3	794		88287	4	42	
5	24-Sep-04	3	M	3	851		88287	5	52	
6	24-Sep-04	4	F	2	648	1	88288	1	42	
7	24-Sep-04	4	F	3	686	7	88288	2	42	
8	24-Sep-04	4	F	3	711	15	88288	3	52	
9	24-Sep-04	4	M	3	762		88288	4	42	
10	24-Sep-04	4	M	4	800		88288	5	42	
11	24-Sep-04	5	F	3	628	0	88289	1	42	
12	24-Sep-04	5	F	1	724	0	88289	2	3M	RG
13	24-Sep-04	5	M	3	705		88289	3	42	
14	24-Sep-04	5	M	4	813		88289	4	52	
15	24-Sep-04	5	M	3	787		88289	5	52	
16	24-Sep-04	6	F	2	736	0	88290	1	52	
17	24-Sep-04	6	F	2	736	0	88290	2	42	
18	24-Sep-04	6	F	2	724	0	88290	3	3M	RG
19	24-Sep-04	6	M	3	787		88290	4	52	
20	24-Sep-04	6	M	3	787		88290	5	52	
21	25-Sep-04	4	F	3	641	0	88291	1	42	
22	25-Sep-04	4	F	3	609	0	88291	2	42	
23	25-Sep-04	4	F	3	698	0	88291	3	52	
24	25-Sep-04	4	M	3	762		88291	4	3M	RG
25	25-Sep-04	4	M	4	813		88291	5	52	
26	26-Sep-04	3	F	3	622	100	88292	1	42	
27	26-Sep-04	3	F	3	660	60	88292	2	42	
28	26-Sep-04	3	F	3	607	0	88292	3	42	
29	26-Sep-04	3	F	3	673	0	88292	4	42	
30	26-Sep-04	3	M	3	698		88292	5	52	
31	26-Sep-04	3	M	3	673		88293	1	42	
32	26-Sep-04	3	M	3	711		88293	2	52	
33	26-Sep-04	3	M	3	762		88293	3	52	
34	26-Sep-04	3	M	3	685		88293	4	42	
35	26-Sep-04	3	M	3	596		88293	5	42	
36	27-Sep-04	2	F	2	742	27	88294	1	52	

Carcass					POHL		Scale Samples		Age	
37	27-Sep-04	2	F	4	793	0	88294	2	52	
38	27-Sep-04	2	F	3	768	104	88294	3	52	
39	27-Sep-04	2	F	3	673	57	88294	4	42	
40	27-Sep-04	2	F	3	762	0	88294	5	52	
41	27-Sep-04	2	M	3	762		40367	1	62	
42	27-Sep-04	2	M	3	781		40367	2	52	
43	27-Sep-04	2	M	4	844		40367	3	52	
44	27-Sep-04	2	M	3	673		40367	4	42	
45	27-Sep-04	2	M	3	749		40367	5	S2	RS
46	27-Sep-04	4	F	3	635	12	40372	1	42	
47	27-Sep-04	4	F	3	692	4	40372	2	42	
48	27-Sep-04	4	F	3	749	4	40372	3	52	
49	27-Sep-04	4	F	4	768	0	40372	4	52	
50	27-Sep-04	4	F	2	698	0	40372	5	52	
51	27-Sep-04	4	F	3	730	0	40374	1	52	
52	27-Sep-04	4	F	3	717	10	40374	2	S2	RS
53	27-Sep-04	4	F	3	717	5	40374	3	42	
54	27-Sep-04	4	F	2	723	2	40374	4	42	
55	27-Sep-04	4	F	3	749	3	40374	5	52	
56	27-Sep-04	4	M	3	673		40637	1	42	
57	27-Sep-04	4	M	3	863		40637	2	52	
58	27-Sep-04	4	M	3	698		40637	3	42	
59	27-Sep-04	4	M	3	698		40637	4	42	
60	27-Sep-04	4	M	3	660		40637	5	42	
61	27-Sep-04	4	M	3	838		40638	1	52	
62	27-Sep-04	4	M	3	730		40638	2	42	
63	27-Sep-04	4	M	4	742		40638	3	42	
64	27-Sep-04	4	M	3	622		40638	4	42	
65	27-Sep-04	4	M	3	755		40638	5	42	
66	28-Sep-04	6	F	4	647	0	40639	1	42	
67	28-Sep-04	6	F	3	673	10	40639	2	42	
68	28-Sep-04	6	F	3	704	2	40639	3	52	
69	28-Sep-04	6	F	3	615	0	40639	4	42	
70	28-Sep-04	6	F	3	685	1	40639	5	52	
71	28-Sep-04	6	F	3	698	0	40640	1	52	
72	28-Sep-04	6	F	3	704	0	40640	2	3M	RG
73	28-Sep-04	6	F	3	698	15	40640	3	42	
74	28-Sep-04	6	F	3	647	0	40640	4	42	
75	28-Sep-04	6	F	3	666	0	40640	5	42	

Carcass					POHL		Scale Samples		Age	
76	28-Sep-04	6	M	3	660		40641	1	42	
77	28-Sep-04	6	M	3	648		40641	2	42	
78	28-Sep-04	6	M	3	819		40641	3	52	
79	28-Sep-04	6	M	3	749		40641	4	52	
80	28-Sep-04	6	M	3	711		40641	5	42	
81	28-Sep-04	6	M	3	749		40642	1	42	
82	28-Sep-04	6	M	3	648		40642	2	42	
83	28-Sep-04	6	M	3	838		40642	3	52	
84	28-Sep-04	6	M	3	641		40642	4	42	
85	28-Sep-04	6	M	3	806		40642	5	52	
86	28-Sep-04	5	F	3	736	1	40643	1	52	
87	28-Sep-04	5	F	3	749	0	40643	2	52	
88	28-Sep-04	5	F	3	775	0	40643	3	42	
89	28-Sep-04	5	F	3	743	0	40643	4	52	
90	28-Sep-04	5	F	3	749	0	40643	5	52	
91	28-Sep-04	5	F	3	749	1	40644	1	S2	RS
92	28-Sep-04	5	F	3	775	152	40644	2	42	
93	28-Sep-04	5	F	3	743	10	40644	3	42	
94	28-Sep-04	5	F	3	749	15	40644	4	42	
95	28-Sep-04	5	F	3	775	0	40644	5	2M	RG
96	28-Sep-04	5	M	3	813		40645	1	52	
97	28-Sep-04	5	M	3	660		40645	2	42	
98	28-Sep-04	5	M	3	673		40645	3	52	
99	28-Sep-04	5	M	3	787		40645	4	42	
100	28-Sep-04	5	M	3	813		40645	5	52	
101	28-Sep-04	5	M	2	851		40646	1	52	
102	28-Sep-04	5	M	4	724		40646	2	52	
103	28-Sep-04	5	M	4	610		40646	3	42	
104	28-Sep-04	5	M	3	660		40646	4	42	
105	28-Sep-04	5	M	3	648		40646	5	42	
106	29-Sep-04	3	F	4	686	5	40647	1	3M	RG
107	29-Sep-04	3	F	3	673	130	40647	2	42	
108	29-Sep-04	3	F	3	597	0	40647	3	42	
109	29-Sep-04	3	F	4	737	37	40647	4	42	
110	29-Sep-04	3	F	4	762	0	40647	5	42	
111	29-Sep-04	3	F	3	686	0	40650	1	52	
112	29-Sep-04	3	F	4	610	0	40650	2	42	
113	29-Sep-04	3	F	3	635	0	40650	3	42	
114	29-Sep-04	3	F	3	762	0	40650	4	S2	RS

Carcass					POHL		Scale Samples		Age	
115	29-Sep-04	3	F	3	762	3	40650	5	52	
116	29-Sep-04	3	M	3	724		90763	1	52	
117	29-Sep-04	3	M	4	748		90763	2	52	
118	29-Sep-04	3	M	4	825		90763	3	62	
119	29-Sep-04	3	M	3	743		90763	4	42	
120	29-Sep-04	3	M	3	737		90763	5	52	
121	29-Sep-04	3	M	3	762		90764	1	52	
122	29-Sep-04	3	M	3	787		90764	2	S2	RS
123	29-Sep-04	3	M	4	775		90764	3	52	
124	29-Sep-04	3	M	4	762		90764	4	52	
125	29-Sep-04	3	M	4	813		90764	5	52	
126	29-Sep-04	4	F	3	623	0	90767	1	42	
127	29-Sep-04	4	F	3	673	2	90767	2	42	
128	29-Sep-04	4	F	3	724	0	90767	3	42	
129	29-Sep-04	4	F	4	645	0	90767	4	42	
130	29-Sep-04	4	F	4	686	0	90767	5	42	
131	29-Sep-04	4	F	3	594	20	90861	1	42	
132	29-Sep-04	4	F	3	660	20	90861	2	42	
133	29-Sep-04	4	F	3	622	0	90861	3	2M	RG
134	29-Sep-04	4	F	3	699	5	90861	4	42	
135	29-Sep-04	4	F	3	622	0	90861	5	42	
136	29-Sep-04	4	M	4	622		91167	1	2M	RG
137	29-Sep-04	4	M	4	813		91167	2	52	
138	29-Sep-04	4	M	4	813		91167	3	62	
139	29-Sep-04	4	M	3	800		91167	4	52	
140	29-Sep-04	4	M	4	660		91167	5	42	
141	29-Sep-04	4	M	3	699		91168	1	2M	RG
142	29-Sep-04	4	M	4	635		91168	2	42	
143	29-Sep-04	4	M	4	737		91168	3	52	
144	29-Sep-04	4	M	3	774		91168	4	52	
145	29-Sep-04	4	M	4	660		91168	5	42	
146	30-Sep-04	1	F	3	724	0	91169	1	S2	RS
147	30-Sep-04	1	F	4	711	0	91169	2	52	
148	30-Sep-04	1	F	3	597	0	91169	3	42	
149	30-Sep-04	1	F	4	660	0	91169	4	42	
150	30-Sep-04	1	F	4	597	0	91169	5	2M	RG
151	30-Sep-04	1	F	4	622	0	91170	1	42	
152	30-Sep-04	1	F	4	736	0	91170	2	52	
153	30-Sep-04	1	F	4	641	0	91170	3	52	

Carcass					POHL		Scale Samples		Age	
154	30-Sep-04	1	F	4	711	1	91170	4	52	
155	30-Sep-04	1	F	5	641	0	91170	5	42	
156	30-Sep-04	1	M	3	596		91171	1	42	
157	30-Sep-04	1	F	4	723	0	91171	2	52	
158	30-Sep-04	1	F	2	711	0	91171	3	52	
159	30-Sep-04	1	M	4	698		91171	4	42	
160	30-Sep-04	1	M	4	838		91171	5	52	
161	30-Sep-04	1	M	4	749		91172	1	3M	RG
162	30-Sep-04	1	M	3	723		91172	2	42	
163	30-Sep-04	1	F	4	762	0	91172	3	52	
164	30-Sep-04	1	F	4	711	0	91172	4	52	
165	30-Sep-04	1	M	4	596		91172	5	42	
166	30-Sep-04	2	F	3	647	5	91173	1	52	
167	30-Sep-04	2	F	3	647	0	91173	2	52	
168	30-Sep-04	2	F	3	685	0	91173	3	42	
169	30-Sep-04	2	F	3	685	1	91173	4	52	
170	30-Sep-04	2	F	3	609	1	91173	5	42	
171	30-Sep-04	2	F	3	736	0	91174	1	52	
172	30-Sep-04	2	F	3	660	0	91174	2	42	
173	30-Sep-04	2	F	3	749	0	91174	3	52	
174	30-Sep-04	2	F	3	685	30	91174	4	52	
175	30-Sep-04	2	F	3	635	1	91174	5	42	
176	30-Sep-04	2	M	3	812		91175	1	52	
177	30-Sep-04	2	F	3	736	2	91175	2	52	
178	30-Sep-04	2	M	2	723		91175	3	52	
179	30-Sep-04	2	M	2	774		91175	4	52	
180	30-Sep-04	2	F	3	711	0	91175	5	52	
181	30-Sep-04	2	F	3	723	75	91176	1	52	
182	30-Sep-04	2	F	3	609	0	91176	2	42	
183	30-Sep-04	2	F	3	673	2	91176	3	42	
184	30-Sep-04	2	F	3	749	0	91176	4	52	
185	30-Sep-04	2	F	3	736	100	91176	5	42	
186	1-Oct-04	6	M	3	721		91177	1	3M	RG
187	1-Oct-04	6	F	3	723	5	91177	2	3M	RG
188	1-Oct-04	6	F	3	622	0	91177	3	53	
189	1-Oct-04	6	F	3	774	0	91177	4	52	
190	1-Oct-04	6	F	3	721	2	91177	5	52	
191	1-Oct-04	5	F	3	736	0	91178	1	52	
192	1-Oct-04	5	F	3	711	0	91178	2	3M	RG

Carcass					POHL		Scale Samples		Age	
193	1-Oct-04	5	F	3	660	0	91178	3	42	
194	1-Oct-04	5	M	3	736		91178	4	52	
195	1-Oct-04	5	M	3	609		91178	5	42	
196	2-Oct-04	3	M	4	838		91179	1	42	
197	2-Oct-04	3	F	3	647	10	91179	2	42	
198	2-Oct-04	3	F	3	749	5	91179	3	42	
199	2-Oct-04	3	F	3	698	0	91179	4	42	
200	2-Oct-04	3	M	3	660		91179	5	42	
201	2-Oct-04	3	F	3	686	0	91320	1	42	
202	2-Oct-04	3	F	3	787	0	91320	2	3M	RG
203	2-Oct-04	3	F	3	711	5	91320	3	52	
204	2-Oct-04	3	F	3	699	0	91320	4	52	
205	2-Oct-04	3	F	3	711	0	91320	5	52	
206	2-Oct-04	4	F	3	711	1	91321	1	42	
207	2-Oct-04	4	F	3	724	0	91321	2	52	
208	2-Oct-04	4	F	3	660	0	91321	3	42	
209	2-Oct-04	4	M	3	711		91321	4	52	
210	2-Oct-04	4	F	4	660	0	91321	5	52	
211	2-Oct-04	4	F	3	787	0	91324	1	52	
212	2-Oct-04	4	F	3	762	0	91324	2	42	
213	2-Oct-04	4	F	4	889	0	91324	3	52	
214	2-Oct-04	4	F	3	686	0	91324	4	42	
215	2-Oct-04	4	F	3	610	50	91324	5	42	
216	2-Oct-04	4	F	3	660	0	92064	1	42	
217	2-Oct-04	4	F	3	686	0	92064	2	42	
218	2-Oct-04	4	F	3	711	0	92064	3	52	
219	2-Oct-04	4	M	4	559		92064	4	52	
220	2-Oct-04	4	M	4	737		92064	5	52	
221	2-Oct-04	4	F	2	711	2000	92068	1	S2	RS
222	2-Oct-04	4	F	3	762	15	92068	2	52	
223	2-Oct-04	4	F	3	660	0	92068	3	42	
224	2-Oct-04	4	F	3	711	0	92068	4	42	
225	2-Oct-04	4	F	3	610	0	92068	5	52	
226	2-Oct-04	5	F	2	610	0	92069	1	42	
227	2-Oct-04	5	F	3	809	20	92069	2	42	
228	2-Oct-04	5	M	4	648		92069	3	42	
229	2-Oct-04	5	M	3	546		92069	4	42	
230	2-Oct-04	5	F	2	686	2	92069	5	42	
231	2-Oct-04	5	M	3	635		92076	1	42	

Carcass					POHL		Scale Samples		Age	
232	2-Oct-04	5	M	3	635		92076	2	3M	RG
233	2-Oct-04	5	F	3	660	0	92076	3	42	
234	2-Oct-04	5	F	3	737	0	92076	4	42	
235	2-Oct-04	5	M	3	711		92076	5	42	
236	6-Oct-04	6	F	3	762	0	92077	1	42	
237	6-Oct-04	6	F	3	737	0	92077	2	42	
238	6-Oct-04	6	F	3	660	0	92077	3	42	
239	6-Oct-04	6	F	3	762	0	92077	4	52	
240	6-Oct-04	6	F	3	711	0	92077	5	52	
241	6-Oct-04	5	F	3	597	0	92078	1	42	
242	6-Oct-04	5	F	3	635	0	92078	2	42	
243	6-Oct-04	5	M	3	660		92078	3	42	
244	6-Oct-04	5	F	3	711	0	92078	4	52	
245	6-Oct-04	5	F	3	699	0	92078	5	42	
246	6-Oct-04	4	F	3	660	0	92079	1	42	
247	6-Oct-04	4	F	3	635	0	92079	2	42	
248	6-Oct-04	4	M	3	685		92079	3		MF
249	6-Oct-04	4	F	3	737	0	92079	4		MF
250	6-Oct-04	4	F	3	685	0	92079	5	S2	RS