

**Babine River Coho Beach Seining Program  
November – December 2003**



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## **1.0 Introduction**

Commencing in 1998, Babine River coho fry were strategically enhanced by conducting fry and smolt releases. A survival comparison of the fry vs smolt releases was intended to determine if fry releases into the Babine system could be used to increase the number of spawners returning.

The 1998 brood fry were released into Babine Lake and Babine River. Although there were two separate tag codes applied, these tag codes were not kept separate after marking and therefore a survival comparison of lake and river releases could not be done.

The releases of the 2000 and 2001 brood coho fry involved releasing two groups of coho fry with distinct tag codes. In both brood years, one group of approximately 40,000 fry was released into Babine Lake and the other group of approximately 40,000 fry was released into Nilkitkwa Lake. The lake habitat was preferred based on the assumption that the quantity and quality of over-wintering habitat in the lakes as compared to the Babine River, would enhance fry survival.

Smolts were released into the Babine River directly from the hatchery site in all brood years.

Fry were marked with an adipose clip and coded wire tag (CWT) while the smolts were marked with an adipose and right maxillary clip and a CWT.

Head recovery was conducted at the Babine River fence to determine the proportions of fry and smolt released hatchery coho returning. The fry release group consisted of marked groups from Morrison Creek and Babine River. By conducting head recovery at the Babine River fence, the proportions of coho originating from the Morrison program and the Fort Babine program could be determined. Without this head recovery at the Babine River fence and given the stray rate of Morrison coho, it would not be possible to determine a total survival rate for the Babine and Morrison fry release groups. The Morrison Creek coho were incubated and reared at the Fulton River hatchery and the Babine River coho were incubated and reared at the Fort Babine hatchery.

To increase the number of coho heads recovered and to determine if Morrison fish were straying from their natal spawning grounds and spawning downstream of Babine Lake, a beach seining program was conducted in the Babine River mainstem.

## **2.0 Methods**

The seining location for 2003 was the same as for the beach seining program conducted in the 2001 return year.

Since half of the fry released from the 2000 brood year, were released into Nilkitkwa Lake, some test seine sets were conducted around the Smokehouse Island area, in Nilkitkwa Lake. Due to the low numbers of spawners near Smokehouse Island this area was not seined after the test seines were completed.

Seining commenced on November 4<sup>th</sup>, 2003 and was completed on December 17<sup>th</sup>, 2003. The beach seining occurred over the full duration of coho spawning in the Babine River mainstem upstream of the Babine fence.

The seine site was approximately 0.75 kms downstream from the Fort Babine hatchery. The seine site consisted of three main set areas and all areas were active coho spawning areas.

The seine net was approximately 150 feet long and 10 feet deep with 2 inch knotless mesh. The seine net was set from a small boat at the upstream beach and was pulled to an area downstream. The net was pursed in and all coho captured were checked for the presence of adipose and adipose/right maxillary clips. All fish were counted by sex and mark type and all previously opercular punched coho were recorded as re-captures. All coho that were not sacrificed for heads and/or fish health sampling, were opercular punched and released from the net. Female coho that were in pre-spawn condition that were marked, were released. However, some marked males that were still in good condition were sacrificed for the heads. Marked coho that were spawned out were sacrificed for the heads.

### **3.0 Results and Discussion**

The total coho escapement through the Babine River fence was 7,874 coho. (Preliminary Babine River fence data is included in Appendix 1). A total of 1,254 adipose clipped coho were counted through the Babine River fence. Approximately one out of every ten Ad/CWT coho were sacrificed at the fence for a total sacrifice of 120 Ad/CWT coho. A total of 43 coho heads were recovered during the beach seining program.

During the seining program there were 492 new captures and 172 re-captures. Refer to Appendix 2 for Babine River Beach Seining Program capture data.

Beach seine captures by week are shown in Table 1.

**Table 1 : Beach Seine Captures by Week**

Week No.	Sample Dates	Total Unmark	Total Ad	Total AdRM	Total No. Coho	Total Recaps
1	Nov 4 and 7'th	3	0	1	4	0
2	Nov 11'th and 14'th	28	1	2	31	1
3	Nov 18'th and 21'st	121	9	3	133	17
4	Nov 24'th and 28'th	144	13	7	164	59
5	Dec 3'rd	13	2	2	17	14
6	Dec 10'th	94	6	16	116	37
7	Dec 17'th	20	3	4	27	44
Totals		423	34	35	492	172

Of the 492 new captures, 34 coho were adipose only clipped and 35 coho were Ad/right maxillary clipped. Of the coho captured, 42.7% were females and 57.3% were males. In the seine sets, approximately 6.9% of the catch consisted of adipose only clips and 7.1% of the catch consisted of Ad/Rmax clips. Of the adipose only clips captured in the beach seine sets, none of the tag codes were from Morrison fry releases.

At the Babine River fence there were 1,254 adipose clipped coho counted. Not all of the coho examined at the Babine fence were checked for the right maxillary clip therefore the CWT data was expanded based on a total of 1,254 adipose clips and the tag code proportions derived from the 120 sacrificed coho.

Using the fence escapement of 7,784 coho (personal communication with Joel Sawada, Stock Assessment Biologist – Northcoast) and the expanded number of marks by tag code counted through the fence, 7.5% of the coho were adipose only clips from the Babine fry releases, 5.6% of the coho were Ad/Rmax clips from smolt releases and 2.7% of the coho were from the Morrison fry release. In total, 15.8% of the Babine coho escapement consisted of marked, hatchery coho.

Coded wire tag recovery data is summarized in Table 2. Note that the Morrison recoveries have been removed so that a comparison of the proportions of each tag code can be made between the fence and seine captures.

**Table 2****Babine River Coho Program 2003 : Proportions of Tag Codes Recovered at the Fence and in Seine Sets**

<u>Tag Code</u>	<u>No. Rec at Fence</u>	<u>No Rec Seine Sets</u>	<u>Prop'n at Fence</u>	<u>Prop'n in Seines</u>	<u>Brood Year</u>	<u>Stock</u>	<u>Stage at Release</u>	<u>Release Location</u>
184518	41	10	0.414	0.233	2000	Babine R	Fry	Babine Lake
184519	16	8	0.162	0.186	2000	Babine R	Fry	Nilkitkwa Lake
183551	13	6	0.131	0.140	2000	Babine R	Smolt	Babine River
183552	16	14	0.162	0.326	2000	Babine R	Smolt	Babine River
183553	13	5	0.131	0.116	2000	Babine R	Smolt	Babine River
Totals	99	43						

Preliminary survival rates (Table 3) have been calculated for each group based on the total contribution of each tag code group in Alaskan and BC fisheries and the expanded number of tags at the Babine River fence.

**Table 3 : Babine River Coho Survival Rate Estimates for 2000 Brood Coho**

<u>Tag Code &amp; Rel Stage</u>	<u>Stock</u>	<u>BC Expanded Recoveries</u>	<u>Alaskan Exp. Rec.</u>	<u>Expanded Babine Fence</u>	<u>Total Recoveries</u>	<u>Number Released</u>	<u>Estimated Survival Rate</u>
183551 smolt	Babine R	42.32	97.7867	136	276.1067	10213	0.027
183552 smolt	Babine R	6	165.5172	167	338.5172	11011	0.031
183553 smolt	Babine R	0	150.4667	136	286.4667	8490	0.034
184518 fry	Babine R	10.79	200.2133	428	639.0033	40433	0.016
184519 fry	Babine R	0	155.8965	167	322.8965	40143	0.008
184513 fry	Morrison Cr	17.94	102.9931	105	225.9331	30009	0.008
184514 fry	Morrison Cr	25.77	127.9254	105	258.6954	29777	0.009

In Table 3, the survival rate for the Babine River smolt group has not been adjusted to consider the 33.4% differential mortality rate associated with the right maxillary clip. The adjusted estimated survival rates for the smolt release group would be 4.05%, 4.65% and 5.11% respectively.

It is interesting to note that the fry released to Babine Lake have a higher preliminary survival rate(1.6%) than the fry released to Nilkitkwa Lake (0.8%). All three tag code groups released as smolts had very similar estimated survival rates.

#### 4.0 2004 Babine River Coho Returns

There will be three groups of adipose/CWT coho returning to the Babine River fence in 2004. The 2004 return year is the last year that fry from Morrison and Babine River coho releases will return. The Babine coho fry releases from the 2001 brood year consisted of two release groups with distinct tag codes i.e. Babine Lake and Nilkitkwa Lake.

The Babine River smolt group from the 2001 brood year were marked with an adipose clip and CWT ie the 2001 brood year Babine River smolts were not marked with a right maxillary clip.

The 2001 brood coho fry and smolt releases and estimated escapement are summarized in Table 4. Escapement estimates are based on biostandard survival rates of 2.29% smolt to adult and a 1.2% fry to adult survival. The exploitation rate used was 34% which was the approximate exploitation rate in 2003.

**Table 4 : Release Summary for 2001 Brood Babine Coho**

<u>Tag Codes</u>	<u>Numbers Released</u>	<u>Stage at Release</u>	<u>Estimated Escapement</u>
18/49/26, 18/49/27, 18/49/28	26,014	smolt	393
18/49/04	40,288	Fry to Babine Lake	319
18/49/05	40,020	Fry to Nilkitkwa Lake	317
18/34/36	38,941	Morrison fry	308
18/34/37	38,476	Morrison fry	305
18/35/19	11,022	Morrison fry	87

Approximately one out of eight adipose clipped coho should be sacrificed for the heads. This would result in the collection of approximately 200 heads.



**Appendix 1**  
**Babine River Fence Coho Counts**

Date	Adipose	Adipose/Rmax	Unmarked	Unchecked	Total Coho
24-Jun	0	0	0	0	0
25-Jun	0	0	0	0	0
26-Jun	0	0	0	0	0
27-Jun	0	0	0	0	0
28-Jun	0	0	0	0	0
29-Jun	0	0	0	0	0
30-Jun	0	0	0	0	0
01-Jul	0	0	0	0	0
02-Jul	0	0	0	0	0
03-Jul	0	0	0	0	0
04-Jul	0	0	0	0	0
05-Jul	0	0	0	0	0
06-Jul	0	0	0	0	0
07-Jul	0	0	0	0	0
08-Jul	0	0	0	0	0
09-Jul	0	0	0	0	0
10-Jul	0	0	0	0	0
11-Jul	0	0	0	0	0
12-Jul	0	0	0	0	0
13-Jul	0	0	0	0	0
14-Jul	0	0	0	0	0
15-Jul	0	0	0	0	0
16-Jul	0	0	0	0	0
17-Jul	0	0	0	0	0
18-Jul	0	0	0	0	0
19-Jul	0	0	0	0	0
20-Jul	0	0	0	0	0
21-Jul	0	0	0	0	0
22-Jul	0	0	0	0	0
23-Jul	0	0	0	0	0
24-Jul	0	0	0	0	0
25-Jul	0	0	0	0	0
26-Jul	0	0	0	0	0
27-Jul	0	0	0	0	0
28-Jul	0	0	0	0	0
29-Jul	0	0	0	0	0
30-Jul	0	0	1	0	1
31-Jul	0	0	0	0	0
01-Aug	0	0	0	0	0
02-Aug	0	0	0	0	0
03-Aug	0	0	0	0	0

Date	Adipose	Adipose/Rmax	Unmarked	Unchecked	Total Coho
04-Aug	0	0	0	0	0
05-Aug	0	0	2	0	2
06-Aug	0	0	0	0	0
07-Aug	0	0	0	0	0
08-Aug	0	0	1	1	2
09-Aug	0	0	6	0	6
10-Aug	0	0	6	4	10
11-Aug	0	0	3	0	3
12-Aug	0	0	0	0	0
13-Aug	0	0	11	3	14
14-Aug	0	0	9	2	11
15-Aug	0	0	4	7	11
16-Aug	0	0	11	5	16
17-Aug	0	0	4	4	8
18-Aug	0	0	6	3	9
19-Aug	0	0	3	7	10
20-Aug	0	0	8	1	9
21-Aug	0	0	19	6	25
22-Aug	0	0	13	1	14
23-Aug	0	0	7	11	18
24-Aug	0	0	24	20	44
25-Aug	0	0	12	21	33
26-Aug	0	0	18	8	26
27-Aug	0	0	49	8	57
28-Aug	0	0	29	3	32
29-Aug	0	0	23	5	28
30-Aug	0	0	36	2	38
31-Aug	0	0	17	3	20
01-Sep	6	0	75	3	84
02-Sep	0	1	54	17	72
03-Sep	10	1	39	20	70
04-Sep	0	5	89	7	101
05-Sep	1	4	38	8	51
06-Sep	1	2	26	8	37
07-Sep	12	12	96	34	154
08-Sep	5	8	92	21	126
09-Sep	10	2	57	17	86
10-Sep	25	0	81	43	149
11-Sep	22	2	71	29	124
12-Sep	23	10	73	30	136
13-Sep	13	14	83	32	142
14-Sep	32	4	107	57	200
15-Sep	19	0	112	31	162
16-Sep	5	0	71	14	90
17-Sep	7	0	81	7	95

Date	Adipose	Adipose/Rmax	Unmarked	Unchecked	Total Coho
18-Sep	14	1	68	6	89
19-Sep	25	0	83	3	111
20-Sep	21	3	94	7	125
21-Sep	7	0	68	18	93
22-Sep	10	0	122	1	133
23-Sep	16	0	115	5	136
24-Sep	16	0	61	8	85
25-Sep	32	0	165	8	205
26-Sep	42	0	158	13	213
27-Sep	40	0	139	6	185
28-Sep	27	0	220	5	252
29-Sep	43	0	143	0	186
30-Sep	58	0	134	1	193
01-Oct	48	0	163	0	211
02-Oct	47	2	256	0	305
03-Oct	56	5	172	0	233
04-Oct	30	5	141	3	179
05-Oct	46	1	124	3	174
06-Oct	34	1	137	2	174
07-Oct	50	3	117	22	192
08-Oct	14	11	54	1	80
09-Oct	10	1	42	1	54
10-Oct	4	1	58	4	67
11-Oct	1	2	40	4	47
12-Oct	2	0	29	1	32
13-Oct	2	1	41	3	47
14-Oct	2	0	29	1	32
15-Oct	4	1	41	0	46
16-Oct	6	1	33	0	40
17-Oct	4	3	21	1	29
18-Oct	12	2	105	5	124
19-Oct	5	5	77	0	87
20-Oct	6	0	49	1	56
21-Oct	12	4	137	1	154
22-Oct	14	12	106	0	132
23-Oct	10	5	121	0	136
24-Oct	6	7	62	0	75
25-Oct	12	6	70	0	88
26-Oct	16	13	92	0	121
27-Oct	10	16	183	0	209
28-Oct	4	2	66	0	72
29-Oct	2	5	52	1	60
30-Oct	6	1	23	0	30
31-Oct	0	0	17	0	17
01-Nov	1	0	7	0	8
02-Nov	1	1	3	0	5

Date	Adipose	Adipose/Rmax	Unmarked	Unchecked	Total Coho
03-Nov	1	1	2	0	4
04-Nov	0	0	0	0	0
05-Nov	0	0	1	0	1
06-Nov	0	0	0	0	0
07-Nov	0	0	0	0	0
08-Nov	0	0	2	0	2
09-Nov	0	0	0	0	0
10-Nov	0	0	9	0	9
11-Nov	0	0	3	0	3
12-Nov	0	0	0	0	0
13-Nov	1	2	10	0	13
14-Nov	2	1	8	0	11
15-Nov	0	2	9	0	11
16-Nov	4	4	24	0	32
17-Nov	4	1	23	0	28
18-Nov	3	4	18	0	25
19-Nov	4	2	9	0	15
20-Nov	2	0	9	0	11
21-Nov	1	2	6	0	9
22-Nov	1	1	13	0	15
23-Nov	1	0	12	0	13
24-Nov	1	2	2	0	5
25-Nov	0	2	3	0	5
26-Nov	0	0	14	0	14
27-Nov	0	0	0	0	0
28-Nov	0	0	0	0	0
29-Nov	0	0	0	0	0
30-Nov	0	0	0	0	0
01-Dec	0	0	0	0	0
02-Dec	0	0	0	0	0
03-Dec	0	0	0	0	0
04-Dec	0	0	0	0	0
05-Dec	0	0	0	0	0
06-Dec	0	0	0	0	0
07-Dec	0	0	0	0	0
08-Dec	0	0	0	0	0
09-Dec	0	0	0	0	0
10-Dec	0	0	0	0	0
11-Dec	0	0	0	0	0
12-Dec	0	0	0	0	0
13-Dec	0	0	0	0	0
14-Dec	0	0	0	0	0
15-Dec	0	0	0	0	0
<b>TOTAL</b>	<b>1044</b>	<b>210</b>	<b>5982</b>	<b>638</b>	<b>7874</b>

**Appendix 2**  
**Babine River Coho Beach Seining Program : Capture Data**

Babine River Coho Beach Seining Program 2003  
Capture Summary

Seine Date	Unmark F		Unmark M		Ad Male		Ad Fem		AdRM F		AdRM M	
	1	2	0	1	0	0	0	0	0	0	1	1
Nov-04	1	2	0	1	0	0	0	0	0	0	1	1
Nov-13	8	20	1	6	1	2	0	0	0	2	2	2
Nov-18	47	40	6	22	0	1	0	0	1	0	0	0
Nov-21	12	68	3	4	3	2	0	0	1	6	6	6
Nov-24	43	22	4	0	4	2	0	0	0	0	0	0
Nov-28	11	6	0	48	2	4	4	4	4	12	12	12
Dec-03	7	11	1	2	2	3	3	3	3	1	1	1
Dec-10	46											
Dec-17	9											
<b>Totals</b>	<b>184</b>	<b>239</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>9</b>	<b>26</b>	<b>492</b>				

No Fem	No Males
210	282
0.427	0.573

Seine Date	Number		Number		Number	
	Unmark	Adipose	AdRM	AdRM	AdRM	AdRM
	Male+Fem	Male+Fem	Male+Fem	Male+Fem	Male+Fem	Male+Fem
Nov-04	3	0	1	1	1	1
Nov-13	28	1	2	2	2	2
Nov-18	87	8	3	3	3	3
Nov-21	34	1	0	0	0	0
Nov-24	111	7	7	7	7	7
Nov-28	33	6	0	0	0	0
Dec-03	13	2	2	2	2	2
Dec-10	94	6	16	16	16	16
Dec-17	20	3	4	4	4	4
<b>Totals</b>	<b>423</b>	<b>34</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>492</b>

**Babine River Coho Program : 2003**

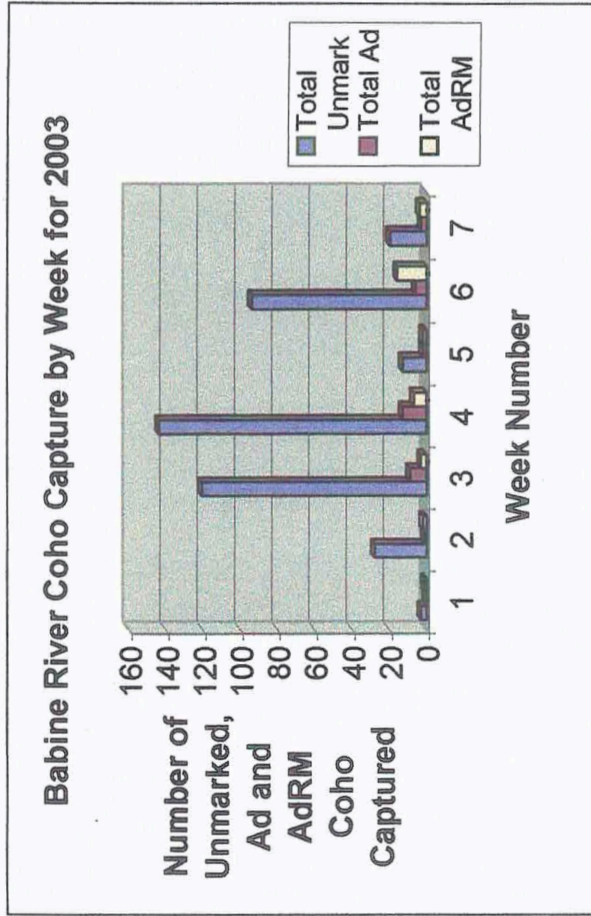
**Weekly Summary of Total Capture, Recapture and Proportions of Unmarked and Marked Coho**

Week No.	Sample Dates	Total		Total		Total		Total Recaps
		Unmark	Ad	AdRM	No. Coho			
1	Nov 4 and 7 <sup>th</sup>	3	0	1	4	0		
2	Nov 11 <sup>th</sup> and 14 <sup>th</sup>	28	1	2	31	1		
3	Nov 18 <sup>th</sup> and 21 <sup>st</sup>	121	9	3	133	17		
4	Nov 24 <sup>th</sup> and 28 <sup>th</sup>	144	13	7	164	59		
5	Dec 3 <sup>rd</sup>	13	2	2	17	14		
6	Dec 10 <sup>th</sup>	94	6	16	116	37		
7	Dec 17 <sup>th</sup>	20	3	4	27	44		
Totals		423	34	35	492	172		

0.860 0.069 0.071

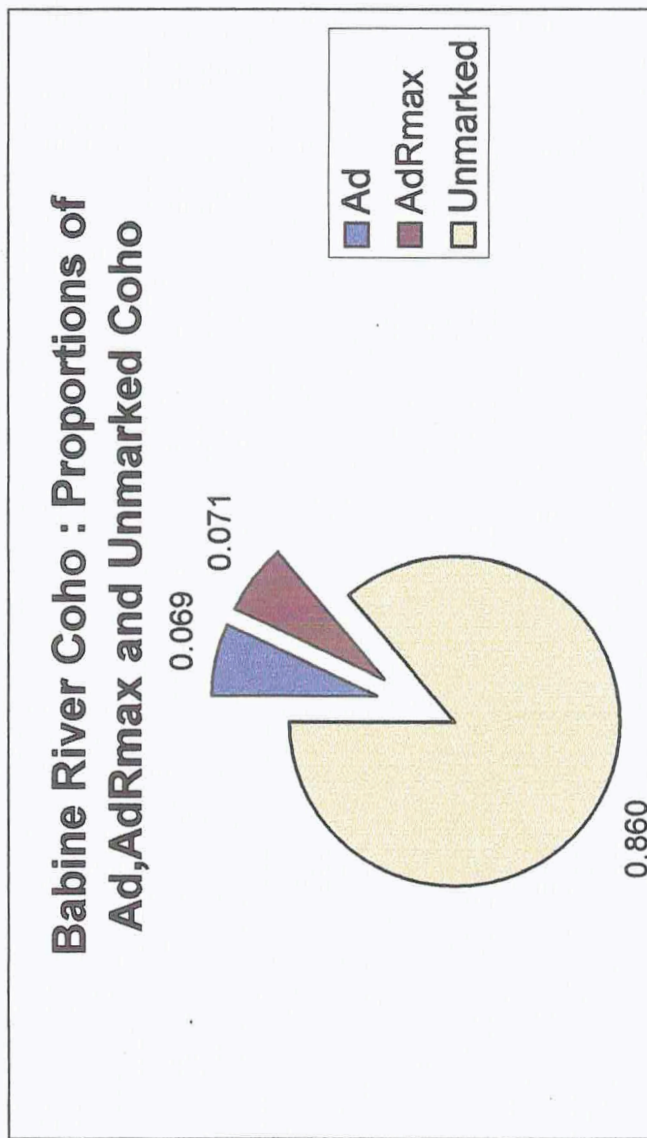
**Summary of Unmark, Adipose and AdRM Proportions by Week**

Week No.	Sample Dates	Prop		Prop	
		Unmarked	Adipose	AdRM	AdRM
1	Nov 4 and 7 <sup>th</sup>	0.75	0	0.25	
2	Nov 11 <sup>th</sup> and 14 <sup>th</sup>	0.903	0.032	0.065	
3	Nov 18 <sup>th</sup> and 21 <sup>st</sup>	0.910	0.068	0.023	
4	Nov 24 <sup>th</sup> and 28 <sup>th</sup>	0.878	0.079	0.043	
5	Dec 3 <sup>rd</sup>	0.765	0.118	0.118	
6	Dec 10 <sup>th</sup>	0.810	0.052	0.138	
7	Dec 17 <sup>th</sup>	0.741	0.111	0.148	



**Babine River Coho Program 2003**  
**Proportion of Ad, AdRmax and Unmarked Coho**

Ad	0.069
AdRmax	0.071
Unmarked	0.860





Date : 04-Nov-03 Seining Location : Babine River

Number of Sets : 3

Set Number	New Captures				Recaptures			
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark Ad	AdRM Ad
1	0	0	0	0	0	0	0	0
2	1	0	0	0	1	0	0	0
3	0	2	0	0	0	0	0	0
4								
Totals	1	2	0	0	1	0	0	0

Total number of Coho Captured 4

Prop. Unmarked 0.75

Prop. Adipose 0

Prop. AdRM 0.25

Prop of Recaps 0

Date : 13-Nov-03 Seining Location : Babine River

Number of Sets : 4

Set Number	New Captures				Recaptures			
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark Ad	AdRM
1	4	8	1	0	0	1	0	0
2	2	5	0	0	0	0	0	0
3	2	7	0	0	0	1	0	0
4	3	5	0	0	1	0	1	0
<b>Totals</b>	8	20	1	0	0	2	0	0

Total number of Coho Captured 31

Prop. Unmarked 0.903  
 Prop. Adipose 0.032  
 Prop. AdRM 0.065  
 Prop of Recaps 0.00

Date : 18-Nov-03 Seining Location : Babine River

Number of Sets : 3

Set Number	New Captures				Recaptures				
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark	Ad	AdRM
1	18	14	4	0	1	0	0	0	0
2	8	16	1	1	0	1	1	0	0
3	21	10	1	1	0	1	4	0	1
4									
<b>Totals</b>	<b>47</b>	<b>40</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>1</b>

Total number of Coho Captured 98

Prop. Unmarked 0.888

Prop. Adipose 0.082

Prop. AdRM 0.031

Prop of Recaps 0.058

Date : 21-Nov-03 Seining Location : Babine River

Number of Sets : 2

Atm temp was -21 C, therefore only 2 sets done due to freezing of boats and equipment.

Set Number	New Captures				Recaptures			
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark Ad	AdRM
1	4	12	0	0	0	0	5	0
2	8	10	0	1	0	0	6	0
3								
4								
Totals	12	22	0	1	0	0	11	0

Total number of Coho Captured 35

Prop. Unmarked 0.971

Prop. Adipose 0.029

Prop. AdRM 0

Prop of Recaps 0.239

Date : 24-Nov-03 Seining Location : Babine River

Number of Sets : 3 Third set was done at Smokehouse Island

Set Number	New Captures				Recaptures			
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark Ad	AdRM
1	28	41	1	3	1	4	17	0
2	15	27	2	1	0	2	22	0
3	0	0	0	0	0	0	0	0
4								
<b>Totals</b>	<b>43</b>	<b>68</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>6</b>	<b>39</b>	<b>0</b>

Total number of Coho Captured 125

Prop. Unmarked 0.888

Prop. Adipose 0.056

Prop. AdRM 0.056

Prop of Recaps 0.238

Date : 28-Nov-03 Seining Location : Babine River

Number of Sets : 3

Set Number	New Captures				Recaptures				
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark	Ad	AdRM
1	0	3	0	0	0	0	0	0	0
2	7	9	0	1	0	0	7	0	0
3	4	10	2	3	0	0	13	0	0
4									
<b>Totals</b>	11	22	2	4	0	0	20	0	0

Total number of Coho Captured 39

Prop. Unmarked 0.846  
 Prop. Adipose 0.154  
 Prop. AdRM 0

Prop of Recaps 0.339

Date : 03-Dec-03      Seining Location : Babine River

Number of Sets : 1

Set Number	New Captures			Recaptures					
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark	Ad	AdRM
1	7	6	0	2	0	2	10	3	1
2									
3									
4									
<b>Totals</b>	7	6	0	2	0	2	10	3	1

Total number of Coho Captured 17

Prop. Unmarked	0.765
Prop. Adipose	0.118
Prop. AdRM	0.118
Prop of Recaps	0.452

Date : 10-Dec-03 Seining Location : Babine River

Number of Sets : 3

Set Number	New Captures			Recaptures					
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark	Ad	AdRM
1	9	13	1	2	1	4	4	0	0
2	26	23	0	1	3	7	19	0	0
3	11	12	1	1	0	1	14	0	0
4									
<b>Totals</b>	46	48	2	4	4	12	37	0	0

Total number of Coho Captured 116

Prop. Unmarked 0.810

Prop. Adipose 0.052

Prop. AdRM 0.138

Prop of Recaps 0.242



Date : 17-Dec-03 Seining Location : Babine River

Number of Sets : 2

Set Number	New Captures				Recaptures				
	Unmark F	Unmark M	Ad Male	Ad Fem	AdRM F	AdRM M	Unmark	Ad	AdRM
1	8	10	1	0	2	1	23	0	0
2	1	1	0	2	1	0	11	0	0
3									
4									
<b>Totals</b>	<b>9</b>	<b>11</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>34</b>	<b>0</b>	<b>0</b>

Total number of Coho Captured : 27

- Prop. Unmarked : 0.740741
- Prop. Adipose : 0.111111
- Prop. AdRM : 0.148148
- Prop of Recaps : 0.557377

**Appendix 3**

**Coded Wire Tag Data and Summary Charts**

**Babine River Coho Program 2003 : Proportions of Tag Codes Recovered at the Fence and in Seine Sets  
(Morrison Tags have been removed)**

Tag Code	No. Rec at No Rec		Prop'n at		Prop'n in		Brood Year	Stock	Stage at Release	
	Fence	Seine Sets	Fence	Seines	Seines	Year			Release	Location
184518	41	10	0.414	0.233		2000	Babine R	Fry	Babine Lake	
184519	16	8	0.162	0.186		2000	Babine R	Fry	Niikitwa Lake	
183551	13	6	0.131	0.140		2000	Babine R	Smolt	Babine River	
183552	16	14	0.162	0.326		2000	Babine R	Smolt	Babine River	
183553	13	5	0.131	0.116		2000	Babine R	Smolt	Babine River	
Totals	99	43								



**Babine River Coho Program : 2003****Coded Wire Tag Recoveries**

<u>Recovery Date</u>	<u>Recovery Location</u>	<u>Tag Code</u>	<u>Brood Year</u>	<u>Stock</u>	<u>Stage at Release</u>	<u>Release Location</u>
03-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
04-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
05-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
05-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
05-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
07-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
08-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
08-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
10-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
10-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
10-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
10-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
11-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
11-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
11-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
11-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
11-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
11-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
22-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
22-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
24-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
25-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
25-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
26-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
26-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
27-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
27-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
28-Oct-03	Babine fence	no pin				
30-Oct-03	Babine fence	no pin				
2003	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
2003	Babine fence	184513	2000	Morrison	fry	Tahlo
06-Sep-03	Babine fence	184513	2000	Morrison	fry	Tahlo
06-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
06-Sep-03	Babine fence	184514	2000	Morrison	fry	Tahlo
22-Sep-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
23-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
23-Sep-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
24-Sep-03	Babine fence	184828	2000	Upper Bulkley	smolt	Buck Cr
25-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
25-Sep-03	Babine fence	184513	2000	Morrison	fry	Tahlo
25-Sep-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R

<u>Recovery Date</u>	<u>Recovery Location</u>	<u>Tag Code</u>	<u>Brood Year</u>	<u>Stock</u>	<u>Stage at Release</u>	<u>Release Location</u>
27-Sep-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
27-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
27-Sep-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
28-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
29-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
29-Sep-03	Babine fence	184514	2000	Morrison	fry	Tahlo
30-Sep-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
01-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
01-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
02-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
02-Oct-03	Babine fence	no pin				
02-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
02-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
02-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
03-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
03-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
03-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
03-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
04-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
04-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
04-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
04-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
04-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
04-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
04-Oct-03	Babine fence	no pin				
05-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
05-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
05-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
05-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
05-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
05-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
05-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
06-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
06-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
06-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
07-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
07-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
07-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
07-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk

<u>Recovery Date</u>	<u>Recovery Location</u>	<u>Tag Code</u>	<u>Brood Year</u>	<u>Stock</u>	<u>Stage at Release</u>	<u>Release Location</u>
08-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
08-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
08-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
08-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
08-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
08-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
03-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
09-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
09-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
09-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
09-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
09-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
12-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
15-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
15-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R
15-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
16-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
16-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
16-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
16-Oct-03	Babine fence	183551	2000	Ft. Babine	smolt	Babine R
16-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
16-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
18-Oct-03	Babine fence	184514	2000	Morrison	fry	Tahlo
18-Oct-03	Babine fence	184513	2000	Morrison	fry	Tahlo
22-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
22-Oct-03	Babine fence	183552	2000	Ft. Babine	smolt	Babine R
22-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
26-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
26-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
26-Oct-03	Babine fence	184519	2000	Ft. Babine	fry	Nilkitkwa Lk
26-Oct-03	Babine fence	184518	2000	Ft. Babine	fry	Babine Lk
26-Oct-03	Babine fence	183553	2000	Ft. Babine	smolt	Babine R

**Babine River Coho Program : 2003****Coded Wire Tag Recoveries**

<u>Recovery Date</u>	<u>Recovery Location</u>	<u>Tag Code</u>	<u>Mark Type</u>	<u>Brood Year</u>	<u>Stock</u>	<u>Stage at Release</u>	<u>Release Location</u>
18-Nov-03	Babine Seine	183551	ADRM	2000	Babine	smolt	Babine R
24-Nov-03	Babine Seine	183551	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183551	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183551	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183551	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183551	ADRM	2000	Babine	smolt	Babine R
13-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
18-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
21-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
24-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
24-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
24-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
28-Nov-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183552	ADRM	2000	Babine	smolt	Babine R
13-Nov-03	Babine Seine	183553	ADRM	2000	Babine	smolt	Babine R
18-Nov-03	Babine Seine	183553	ADRM	2000	Babine	smolt	Babine R
18-Nov-03	Babine Seine	183553	ADRM	2000	Babine	smolt	Babine R
24-Nov-03	Babine Seine	183553	ADRM	2000	Babine	smolt	Babine R
10-Dec-03	Babine Seine	183553	ADRM	2000	Babine	smolt	Babine R
13-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
18-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
18-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
18-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
28-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
28-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
24-Nov-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
10-Dec-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
10-Dec-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
10-Dec-03	Babine Seine	184518	Ad	2000	Babine	fry	Babine Lake
18-Nov-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
18-Nov-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
18-Nov-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
18-Nov-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
24-Nov-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake

<u>Recovery Date</u>	<u>Recovery Location</u>	<u>Tag Code</u>	<u>Mark Type</u>	<u>Brood Year</u>	<u>Stock</u>	<u>Stage at Release</u>	<u>Release Location</u>
10-Dec-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
10-Dec-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
10-Dec-03	Babine Seine	184519	Ad	2000	Babine	fry	Nilkitkwa Lake
24-Nov-03	Babine Seine	No Pin					
28-Nov-03	Babine Seine	No Pin					
10-Dec-03	Babine Seine	No Pin					
10-Dec-03	Babine Seine	No Pin					

**Summary of Tag Codes**

<u>Tag Code</u>	<u>No. Caught</u>
183551	6
183552	14
183553	5
184518	10
184519	8
No Pin	4



Babine River Coho Program 2003

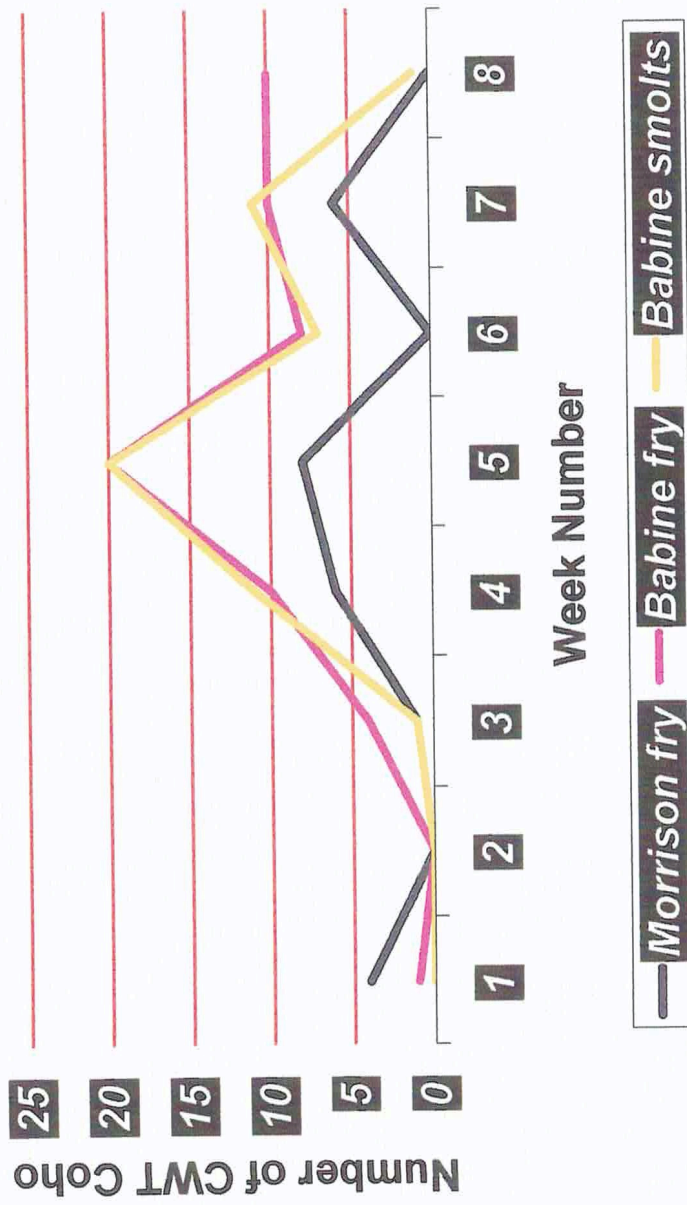
Timing of Marked Groups At the Babine River Fence

Date	Number of		Number of		Number of		Wk No	Number of		Number of	
	CWT Coho	Morrison fry	CWT Coho	Babine fry	CWT Coho	Babine smolts		CWT Coho	Babine fry	CWT Coho	Babine smolts
Sep-06	4	0	1	0	4	0	1	1	0	0	
Sep-07	0	0	0	0	0	0	2	0	0	0	
Sep-08	0	0	0	0	1	0	3	4	1	1	
Sep-09	0	0	0	0	6	0	4	10	11	11	
Sep-10	0	0	0	0	8	0	5	20	20	20	
Sep-11	0	0	0	0	0	0	6	8	7	7	
Sep-12	0	0	0	0	6	0	7	10	11	11	
Sep-13	0	0	0	0	0	0	8	10	1	1	
Sep-14	0	0	0	0	0	0					
Sep-15	0	0	0	0	0	0					
Sep-16	0	0	0	0	0	0					
Sep-17	0	0	0	0	0	0					
Sep-18	0	0	0	0	0	0					
Sep-19	0	0	0	0	0	0					
Sep-20	0	0	0	0	0	0					
Sep-21	0	0	0	0	0	0					
Sep-22	0	0	1	0	0	0					
Sep-23	0	0	2	0	0	0					
Sep-24	0	0	0	0	0	0					
Sep-25	1	1	1	1	0	1					
Sep-26	0	0	0	0	0	0					
Sep-27	0	0	2	1	0	1					
Sep-28	0	0	1	0	0	0					
Sep-29	2	1	1	0	0	0					
Sep-30	0	0	1	0	0	0					
Oct-01	0	0	2	0	0	0					
Oct-02	1	0	0	4	0	4					
Oct-03	3	3	3	6	0	6					
Oct-04	0	0	3	4	0	4					
Oct-05	4	3	3	3	0	3					

Oct-06	1	1	1	1	1
Oct-07	0	5	6	6	6
Oct-08	1	4	3	3	3
Oct-09	1	3	1	1	1
Oct-10	1	1	2	2	2
Oct-11	0	3	2	2	2
Oct-12	0	0	1	1	1
Oct-13	0	0	0	0	0
Oct-14	0	0	0	0	0
Oct-15	0	2	1	1	1
Oct-16	0	3	3	3	3
Oct-17	0	0	0	0	0
Oct-18	1	0	0	0	0
Oct-19	0	0	0	0	0
Oct-20	0	0	0	0	0
Oct-21	0	0	0	0	0
Oct-22	0	3	2	2	2
Oct-23	0	0	0	0	0
Oct-24	0	1	0	0	0
Oct-25	0	2	0	0	0
Oct-26	0	6	1	1	1
Oct-27	0	2	0	0	0
Oct-28	0	0	0	0	0
Oct-29	0	0	0	0	0
Oct-30	0	0	0	0	0
	20	57	42	42	42

# CWT Coho Timing at the Babine River

Fence : 2003



### Timing of CWT Morrison and Babine Fry and Babine Smolts at Babine Fence 2003

