



# **PAHSIMEROI FISH HATCHERY**

**Brood Year 2002 Summer Chinook Report**

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## ABSTRACT

The summer Chinook program at Pahsimeroi Fish Hatchery (PFH) is part of Idaho Power Company's (IPC) mitigation requirement for the Hells Canyon Complex on the Snake River. The decision to shift the program's focus from a harvest augmentation program to a supplementation-conservation program was a management decision made by the Idaho Department of Fish and Game (Department) and the National Oceanographic and Atmospheric Administration (NOAA Fisheries). This decision was made in 1992 when Pahsimeroi summer Chinook salmon were listed as threatened under the Federal Endangered Species Act of 1973. The program continues to fulfill IPCs mitigation requirements under its current Federal Energy Regulatory Commission operating license.

On June 3, 2002, PFH staff installed the weir on the Pahsimeroi River and began trapping summer Chinook salmon. The weir was left in place until trapping ceased on October 5, 2002. The first fish was trapped on June 12, 2002 and the last on September 24, 2002. A total of 1,122 summer Chinook salmon (*Oncorhynchus tshawytscha*) were trapped during the 2002 brood year (29 mini-jacks, 291 jacks, 332 adult males, and 470 females). Of the 1,122 fish trapped, 299 were returned to the Pahsimeroi River to spawn naturally, 607 were retained for hatchery production, and 216 were killed prior to spawning. The 216 fish that were killed prior to spawning were all surplus hatchery-origin jacks or hatchery-origin mini-jacks. These surplus jacks were not utilized for spawning pursuant to a Department recommendation that the number of jacks used for spawning not exceed 10% of all males spawned. Pahsimeroi Fish Hatchery donated the surplus fish to Challis Operation Help, a local charity. Additionally, some of the mini-jacks were saved and sent to the Department's Nampa Research Lab for dorsal fin ray cross section aging analysis. The total number of trap mortalities this season was four. The total pre-spawn mortality was 33 of the 607 fish retained at the hatchery.

Fish that were returned to the Pahsimeroi River for natural spawning consisted of 9 natural-origin jacks, 6 hatchery-origin jacks, 82 natural-origin males, 40 hatchery-origin males, 66 natural-origin females, and 96 hatchery-origin females. Fish that were held for hatchery production consisted of 3 natural-origin jacks, 86 hatchery-origin jacks, 18 natural-origin males, 192 hatchery-origin males, 20 natural-origin females, and 288 hatchery-origin females.

Artificial spawning of summer Chinook salmon commenced on September 3 and concluded on September 30, 2002. A total of 263 females were spawned, yielding 1,293,123 green eggs, for an average fecundity of 4,917 eggs per female. The overall eye-up percentage was 90.8%. A total of eight lots were incubated at PFH and then shipped as eyed-eggs to Sawtooth Fish Hatchery (SFH) for hatching and early rearing on wellwater. This transfer limits the exposure of fry to *Myxobolus cerebralis* (*M. cerebralis*), the causative agent of whirling disease, which is present in the PFH water source. SFH raised lots 1-5 for one year before transporting the pre-smolts back to PFH for final rearing. Lots 6-8 were shipped back to PFH in January and February 2003 and held in the early rearing raceways until after marking. The fish raised at SFH were returned in May and June and, along with the fish raised at PFH, were transported to rearing ponds at the upper hatchery. They were raised on river water until being released in April of 2004.

The outlet screens for rearing pond 2 and rearing pond 1 were removed April 11 and April 12, 2004, respectively, to allow volitional release of Chinook smolts into the Pahsimeroi River. All smolts had migrated from the ponds by April 21, 2004. A total

of 1,135,832 smolts were released for a total weight of 82,477 lbs. The fish averaged 13.94 fish per pound (fpp) and consisted of three different groups. The first group was the reserve group fish, which were ad-clipped only and consisted of 904,887 smolts. The second group was the Idaho Supplementation Study (ISS) group fish, which were coded-wire-tagged (CWT) only and consisted of 127,800 smolts. The third group was the reserve study group fish, which were ad-clipped and CWTd and consisted of 103,145 smolts. Of the reserve study group fish, 70,356 were early reared and CWTd at SFH and 32,789 were early reared and CWTd at PFH. The reserve study group fish are part of a study being conducted by Nampa Fisheries Research personnel to evaluate return rates at PFH of fish reared at SFH versus fish reared at PFH.

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## INTRODUCTION

Pahsimeroi Fish Hatchery (PFH), located near the town of Ellis, consists of two hatchery facilities. The main hatchery is located one mile upstream of the confluence of the Pahsimeroi and Salmon rivers. The second hatchery is located off Dowton Lane, seven miles further upstream on the Pahsimeroi River. Both hatcheries were constructed in 1967 by the Idaho Power Company (IPC) and are owned and funded by IPC. Hatchery operations and management are the responsibility of the Idaho Department of Fish and Game (Department). The summer Chinook program is part of IPCs mitigation requirement for anadromous fish losses resulting from the construction and operation of the Hells Canyon Complex on the Snake River. However, due to the 1992 listing of Snake River summer Chinook salmon *Oncorhynchus tshawytscha* as threatened under the Federal Endangered Species Act of 1973, PFH has shifted from a harvest augmentation program to a supplementation–conservation program. The number of adult summer Chinook salmon released into the Pahsimeroi River for natural spawning, as well as the number of those kept at the hatchery for artificial propagation, depends on marked and unmarked fish returns and their listing status. NOAA Fisheries permits #922 and #903 authorize the direct and incidental take of listed, naturally produced and artificially propagated summer Chinook salmon.

## OBJECTIVES

The hatchery's mitigation program goals focus on summer Chinook salmon and A-run steelhead *O. mykiss*. The following objectives are designed to help accomplish these goals:

1. Rear one million summer Chinook smolts for release into the Pahsimeroi River.
2. Trap and spawn sufficient numbers of adult summer Chinook returning to PFH to produce 1.5 million green eggs.
3. Trap and spawn sufficient numbers of adult steelhead returning to PFH to produce 1.5 million steelhead eggs to be shipped to Oxbow Fish Hatchery (OFH) for later distribution to Niagara Springs Fish Hatchery.
4. Work with Department management, research, and IPC to identify the most effective operating procedures and rearing strategies and develop the facility to enhance survival, fish health, and genetic diversity.

## HATCHERY FACILITIES

Pahsimeroi Fish Hatchery is comprised of two hatchery facilities. The main hatchery consists of six buildings, two of which are residences for full-time employees (a 1994 wood-frame home and a 1999 double-wide mobile home). A third building houses a garage, shop, and two-bedroom living quarters for temporary employees. A fourth building contains the

office, public restrooms, and an incubation room. A fifth building is used for storage and is divided into two sections: one for chemical and machinery storage and a second for non-chemical equipment storage. The sixth building is the spawning shed. The upper hatchery consists of a garage/shop, a walk-in freezer, and a 7-ft x 10-ft storage shed.

The fish production facilities include the following:

### **Main Hatchery**

- Removable adult weir across the Pahsimeroi River.
- Fish ladder and 3 ponds (each pond measures 70-ft x 16-ft x 6-ft; the two outside ponds are for adult holding, and the center pond is considered the trap).
- Four raceways (100-ft x 4-ft x 3-ft) supplied by river water and limited (200 gpm) spring water.
- Incubation room with twenty 16-tray stacks of Heath tray vertical-flow incubators supplied by pumped spring water.

### **Upper Hatchery**

- Two 300-ft x 40-ft x 5-ft earthen rearing ponds supplied with water from the Pahsimeroi River.
- Two 300-ft x 40-ft x 4-ft earthen settling ponds located directly below the rearing ponds.

Holding capacity for the trap and adult holding ponds is approximately 2,000 adult summer Chinook, and 5,000 adult A-run Steelhead. With 3 cfs of river water, the raceways can hold up to one million 2-inch Chinook fry at a 0.50 density index. At inflows of 20 cfs, holding capacity in the two rearing ponds at the upper hatchery is one million 6.5-inch summer Chinook smolts. Incubation capacity is currently 1.5 million summer Chinook eggs and 6 million A-run steelhead eggs.

## **WATER SUPPLY**

Incubation water consists of Specific-Pathogen-Free (SPF) spring water, which is pumped to a 10,000 gallon holding tank and gravity-fed to the incubators. The spring source can produce up to 200 gpm of 52 F to 56 F water.

The adult trap and holding ponds at the main hatchery are supplied with water from the Pahsimeroi River through a 0.25-mile earthen intake canal. Water from the canal may also be used to supply the early rearing raceways. A water right for 40 cfs held by IPC allows hatchery personnel to divert water from the Pahsimeroi River for operations at the main hatchery. Water temperature varies throughout the year with water temperatures fluctuating from seasonal lows of 33 F in the winter to seasonal highs of 72 F in the summer. Daily fluctuations can be as much as 12 F.

Water for the rearing ponds at the upper hatchery also comes from a diversion in the Pahsimeroi River. IPCs water right for 20 cfs at the upper hatchery allows a flow of 10 cfs per pond. The water is diverted down a concrete canal and flows through the ponds and into the settling ponds before being discharged back to the Pahsimeroi River. The Pahsimeroi River has a high organic load during winter, but improves during the summer.

Both intake canals are equipped with NOAA Fisheries-approved rotating drum screens designed to prevent entrainment of wild Chinook and Steelhead from the river into the hatchery facilities.

## **STAFFING**

Pahsimeroi Fish Hatchery is staffed by both permanent and temporary employees. The permanent staff consists of a Hatchery Manager 1 and an Assistant Hatchery Manager. The temporary employees provide assistance during the steelhead and summer Chinook trapping and spawning seasons and include a year-round Fisheries Technician, two Bio-Aides and one Laborer.

At the height of the steelhead and Chinook spawning seasons, Department regional staff, Department volunteers, SFH staff, and a fisheries technician from the Nampa Fisheries Research Lab also assist with hatchery operations.

## **ADULT SUMMER CHINOOK TRAPPING**

In 2002, the trap was operational from June 3 through October 5, 2002. The first adult summer Chinook arrived on June 12 and the last adult arrived on September 24, 2002. Summer Chinook returning in 2002 originated from brood years 1997, 1998 and 1999. Hatchery-origin fish from brood years 1997 and 1998 were supplementation listed fish and were marked with an adipose fin clip. Brood year 1999 consisted of three different groups: supplementation listed, supplementation listed-high Bacterial Kidney Disease (BKD), and hatchery reserve unlisted. As juveniles, these fish were given the following mark types: the supplementation listed and supplementation listed-high BKD groups received CWTs, but were marked with differential codes to designate between the two groups. The hatchery reserve unlisted fish were adipose fin clipped. The supplementation fish are derived from natural-origin x natural-origin or natural-origin x hatchery-origin crosses. The supplementation listed-high BKD fish are progeny of parents that tested positive for high BKD, though when adult fish test high for BKD, it does not necessarily imply that their progeny will contract the disease. Fish from Brood Year 1999 that scanned positive for CWTs were killed and their snouts were removed, with the exception of six fish which were released into the Pahsimeroi River for natural reproduction. The snouts collected were sent to Lewiston for CWT retrieval. The supplementation listed and supplementation listed-high BKD fish were marked differentially to compare their survival rate and percent return as adults. Reserve group fish are derived from hatchery-origin x hatchery-origin crosses. It should be noted that 216 surplus hatchery-origin jacks from Brood Year 1999 were killed during trapping and given to Challis Operation Help. These surplus jacks were not utilized for spawning pursuant to a Department recommendation that the number of jacks used for spawning not exceed 10% of all males spawned.

A total of 1,122 summer Chinook were trapped in 2002. The run consisted of 29 mini-jacks, 291 jacks and 802 adults (332 males and 470 females). Of the 332 adult males trapped, 100 were of natural-origin, and 232 were of hatchery-origin. Of the 470 adult females trapped, 86 were of natural-origin, and 384 were of hatchery-origin (Tables 1–3; Figures 1–4).

### ADULT AGE-CLASS DETERMINATION

Two sets of criteria were used to determine the age-classes of fish that returned to PFH in 2002. The ages of hatchery-origin summer Chinook were determined by mark type and fork length, while the natural-origin summer Chinook were aged by fork length alone.

Hatchery-origin summer Chinook with both an adipose fin clip and a fork length greater than 82 cm were classified as five-year-olds. Hatchery-origin summer Chinook with both an adipose fin clip and a fork length of 62 to 82 cm, inclusive, were classified as four-year-olds. Hatchery-origin summer Chinook with both an adipose fin clip or CWT and a fork length of less than 62 cm were classified as three-year-olds (jacks). The age class criteria for natural-origin (unmarked) fish is as follows:

- Chinook with fork lengths greater than 82 cm were classified as five-year-olds.
- Chinook with fork lengths between 62 and 82 cm, inclusive, were classified as four-year-olds.
- Chinook with a fork length less than 62 cm were classified as jacks.
- Chinook with a fork length up to, and inclusive of, 43 cm were classified as mini-jacks.

Table 4 includes a breakdown of age class results.

### SPECIAL MARKS/TAGS

Of the 1,122 Chinook trapped this year, eight were found to have specialty tags, either Passive Integrated Transponder (PIT) tags or radio transmitters. Three of the fish were hatchery-origin and five were natural-origin. All fish were scanned for PIT tags and CWTs. Fish that contained radio transmitters were part of a study being conducted by the University of Idaho. Fish that contained PIT tags were part of the Department's Idaho Supplementation Study that is studying the downstream survival of juvenile fish through the dams and the run timing of adults through the Columbia and Snake River corridors. A total of 87 snouts containing CWTs were collected this season from Brood Year 1999 (Table 6).

Specific information on fish with special marks and tags are as follows:

Trap Date	Sex	Fork Length (CM)	Unmarked	Clips or Marks	Origin	Pit Tag #	Radio Transmitter #
June 27	F	78	NO	ADPIT	H	3D9.1748C87144	NONE
June 27	F	78	NO	ADPIT	H	3D9.1748C90D7A	NONE
June 30	F	81	YES	NONE	N	3D9.1BF0DF9470	NONE
July 5	F	71	YES	NONE	N	3D9.1BF0EE109A	NONE
July 12	M	82	YES	NONE	N	3D9.1BF0DFAFED	NONE
July 23	M	66	YES	NONE	H	3D9.1748C87013	NONE
July 24	M	70	YES	NONE	N	3D9.1BF0DF090E	NONE
September 19	F	74	YES	NONE	N	NONE	CHANNEL 07, CODE 090

AD = ADIPOSE CLIPPED, PIT = PIT TAGGED, UNMARKED = NO FIN CLIPS, H= HATCHERY, N = NATURAL

Table 1. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon run timing

Date Trapped	Hatchery Males	Natural Males	Total Males	Hatchery Females	Natural Females	Total Females	Total Trapped
12-Jun	0	0	0	1	0	1	1
13-Jun	0	0	0	0	0	0	0
14-Jun	0	0	0	0	0	0	0
15-Jun	0	0	0	0	0	0	0
16-Jun	0	0	0	0	0	0	0
17-Jun	0	0	0	0	0	0	0
18-Jun	0	0	0	0	0	0	0
19-Jun	1	0	1	1	0	1	2
20-Jun	0	0	0	0	0	0	0
21-Jun	0	0	0	0	1	1	1
22-Jun	0	0	0	2	0	2	2
23-Jun	0	1	1	3	0	3	4
24-Jun	1	0	1	3	2	5	6
25-Jun	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0
27-Jun	6	0	6	21	1	22	28
28-Jun	3	0	3	11	2	13	16
29-Jun	5	1	6	9	1	10	16
30-Jun	3	1	4	9	5	14	18
1-Jul	6	1	7	12	3	15	22
2-Jul	2	2	4	10	0	10	14
3-Jul	7	1	8	11	1	12	20
4-Jul	8	5	13	7	4	11	24
5-Jul	11	2	13	15	5	20	33
6-Jul	10	2	12	12	0	12	24
7-Jul	9	2	11	11	5	16	27
8-Jul	18	2	20	10	0	10	30
9-Jul	8	0	8	10	4	14	22
10-Jul	10	1	11	7	3	10	21
11-Jul	13	1	14	12	3	15	29
12-Jul	17	6	23	13	3	16	39
13-Jul	11	9	20	9	3	12	32
14-Jul	15	2	17	12	1	13	30
15-Jul	18	0	18	10	0	10	28
16-Jul	24	1	25	5	0	5	30
17-Jul	22	0	22	14	2	16	38
18-Jul	11	4	15	14	2	16	31
19-Jul	20	4	24	11	1	12	36
20-Jul	19	2	21	4	3	7	28
21-Jul	16	1	17	9	2	11	28
22-Jul	11	2	13	10	3	13	26
23-Jul	17	3	20	9	1	10	30
24-Jul	13	3	16	12	1	13	29
25-Jul	3	3	6	8	0	8	14
26-Jul	9	0	9	2	0	2	11
27-Jul	2	1	3	2	2	4	7
28-Jul	4	0	4	1	1	2	6
29-Jul	3	0	3	3	0	3	6
30-Jul	6	0	6	1	2	3	9
31-Jul	6	0	6	2	0	2	8
1-Aug	6	0	6	1	0	1	7
2-Aug	8	0	8	0	0	0	8
3-Aug	5	0	5	4	0	4	9
4-Aug	6	0	6	1	1	2	8
5-Aug	5	0	5	2	1	3	8
6-Aug	3	0	3	1	0	1	4

Table 1. Continued

Date Trapped	Hatchery Males	Natural Males	Total Males	Hatchery Females	Natural Females	Total Females	Total Trapped
7-Aug	3	0	3	1	0	1	4
8-Aug	5	0	5	3	0	3	8
9-Aug	5	1	6	1	0	1	7
10-Aug	5	0	5	0	0	0	5
11-Aug	2	1	3	0	1	1	4
12-Aug	2	0	2	2	0	2	4
13-Aug	4	0	4	2	0	2	6
14-Aug	4	0	4	2	0	2	6
15-Aug	7	0	7	0	0	0	7
16-Aug	5	1	6	0	0	0	6
17-Aug	0	0	0	0	0	0	0
18-Aug	0	0	0	0	0	0	0
19-Aug	0	0	0	0	0	0	0
20-Aug	0	0	0	0	0	0	0
21-Aug	0	0	0	0	0	0	0
22-Aug	0	0	0	0	0	0	0
23-Aug	0	0	0	0	0	0	0
24-Aug	0	0	0	0	0	0	0
25-Aug	2	0	2	1	0	1	3
26-Aug	4	1	5	2	0	2	7
27-Aug	3	0	3	0	0	0	3
28-Aug	2	0	2	1	0	1	3
29-Aug	0	0	0	0	0	0	0
30-Aug	0	0	0	0	0	0	0
31-Aug	3	1	4	1	0	1	5
1-Sep	0	1	1	1	0	1	2
2-Sep	0	0	0	1	1	2	2
3-Sep	1	0	1	1	0	1	2
4-Sep	2	0	2	0	0	0	2
5-Sep	0	1	1	1	0	1	2
6-Sep	3	0	3	0	0	0	3
7-Sep	0	1	1	0	1	1	2
8-Sep	0	0	0	2	0	2	2
9-Sep	0	1	1	0	1	1	2
10-Sep	1	4	5	2	0	2	7
11-Sep	9	0	9	0	1	1	10
12-Sep	14	3	17	4	1	5	22
13-Sep	5	3	8	0	1	1	9
14-Sep	5	3	8	3	2	5	13
15-Sep	8	2	10	2	2	4	14
16-Sep	8	5	13	2	1	3	16
17-Sep	2	1	3	1	0	1	4
18-Sep	7	3	10	2	2	4	14
19-Sep	2	1	3	2	1	3	6
20-Sep	2	3	5	0	0	0	5
21-Sep	4	2	6	2	0	2	8
22-Sep	0	4	4	3	1	4	8
23-Sep	4	1	5	1	0	1	6
24-Sep	6	3	9	1	1	2	11
25-Sep	0	0	0	0	0	0	0
26-Sep	0	0	0	0	0	0	0
27-Sep	0	2	2	0	0	0	2
28-Sep	0	0	0	0	0	0	0
29-Sep	0	0	0	0	0	0	0
30-Sep	0	0	0	0	0	0	0
1-Oct	0	0	0	0	0	0	0
2-Oct	0	0	0	0	0	0	0
3-Oct	0	0	0	0	0	0	0
4-Oct	0	0	0	0	0	0	0
5-Oct	0	0	0	0	0	0	0
TOTAL:	540	112	652	384	86	470	1,122

Table 2. Length frequency of male summer Chinook for Pahsimeroi Fish Hatchery, 2002.

MALES													
TOTAL TRAPPED		AD-CLIP PONDED		AD-CLIP RELEASED		CWT PONDED		CWT RELEASED		UNMARKED PONDED		UNMARKED RELEASED	
FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER
41	29	41	26	41	0	41	3	41	0	41	0	41	0
42	0	42	0	42	0	42	0	42	0	42	0	42	0
43	1	43	1	43	0	43	0	43	0	43	0	43	0
44	3	44	1	44	0	44	1	44	0	44	0	44	1
45	0	45	0	45	0	45	0	45	0	45	0	45	0
46	2	46	2	46	0	46	0	46	0	46	0	46	0
47	2	47	1	47	0	47	1	47	0	47	0	47	0
48	10	48	0	48	0	48	8	48	2	48	0	48	0
49	3	49	2	49	0	49	1	49	0	49	0	49	0
50	12	50	3	50	0	50	9	50	0	50	0	50	0
51	15	51	11	51	0	51	2	51	2	51	0	51	0
52	14	52	10	52	0	52	3	52	0	52	0	52	1
53	19	53	13	53	0	53	5	53	0	53	0	53	1
54	23	54	13	54	0	54	8	54	2	54	0	54	0
55	33	55	23	55	0	55	7	55	0	55	0	55	3
56	30	56	25	56	0	56	5	56	0	56	0	56	0
57	29	57	23	57	0	57	5	57	0	57	0	57	1
58	24	58	16	58	0	58	7	58	0	58	1	58	0
59	27	59	21	59	0	59	5	59	0	59	0	59	1
60	21	60	17	60	0	60	3	60	0	60	1	60	0
61	13	61	8	61	0	61	3	61	0	61	1	61	1
62	11	62	8	62	2	62	1	62	0	62	0	62	0
63	11	63	6	63	1	63	3	63	0	63	0	63	1
64	13	64	8	64	1	64	0	64	0	64	1	64	3
65	3	65	2	65	0	65	1	65	0	65	0	65	0
66	12	66	1	66	2	66	2	66	0	66	1	66	6
67	4	67	0	67	1	67	1	67	0	67	1	67	1
68	3	68	0	68	0	68	1	68	0	68	1	68	1
69	2	69	0	69	0	69	0	69	0	69	0	69	2
70	5	70	1	70	0	70	1	70	0	70	1	70	2
71	4	71	0	71	0	71	0	71	0	71	0	71	4
72	3	72	1	72	0	72	0	72	0	72	0	72	2
73	4	73	0	73	1	73	0	73	0	73	0	73	3
74	4	74	0	74	0	74	0	74	0	74	0	74	4
75	7	75	4	75	2	75	0	75	0	75	0	75	1
76	4	76	1	76	0	76	0	76	0	76	0	76	3
77	9	77	3	77	2	77	0	77	0	77	1	77	3
78	9	78	6	78	0	78	0	78	0	78	0	78	3
79	5	79	1	79	2	79	0	79	0	79	0	79	2
80	19	80	11	80	3	80	0	80	0	80	0	80	5
81	15	81	9	81	2	81	0	81	0	81	1	81	3
82	20	82	12	82	2	82	0	82	0	82	3	82	3
83	16	83	10	83	4	83	0	83	0	83	1	83	1
84	24	84	20	84	3	84	0	84	0	84	0	84	1
85	16	85	14	85	1	85	0	85	0	85	1	85	0
86	12	86	11	86	0	86	0	86	0	86	0	86	1
87	17	87	13	87	2	87	0	87	0	87	0	87	2
88	10	88	6	88	3	88	0	88	0	88	0	88	1
89	9	89	5	89	2	89	0	89	0	89	0	89	2
90	7	90	3	90	1	90	0	90	0	90	0	90	3
91	4	91	3	91	0	91	0	91	0	91	0	91	1
92	5	92	3	92	1	92	0	92	0	92	0	92	1
93	1	93	0	93	0	93	0	93	0	93	0	93	1
94	4	94	3	94	0	94	0	94	0	94	0	94	1
95	16	95	7	95	2	95	0	95	0	95	2	95	5
96	4	96	1	96	0	96	0	96	0	96	1	96	2
97	8	97	5	97	0	97	0	97	0	97	2	97	1
98	2	98	1	98	0	98	0	98	0	98	0	98	1
99	3	99	1	99	0	99	0	99	0	99	0	99	2
100	5	100	1	100	0	100	0	100	0	100	1	100	3
101	5	101	4	101	0	101	0	101	0	101	0	101	1
102	2	102	2	102	0	102	0	102	0	102	0	102	0
103	1	103	1	103	0	103	0	103	0	103	0	103	0
104	1	104	1	104	0	104	0	104	0	104	0	104	0
105	1	105	1	105	0	105	0	105	0	105	0	105	0
106	0	106	0	106	0	106	0	106	0	106	0	106	0
107	0	107	0	107	0	107	0	107	0	107	0	107	0
108	2	108	2	108	0	108	0	108	0	108	0	108	0
TOTALS:	650		406		40		86		6		21		91

Note: 41 cm. length category describes "mini-jacks" from 28 cm. to 41 cm. Fork length. All fish 43 cm. And less considered to be "mini-jack" length criteria.

Table 3. Length frequency of female summer Chinook for Pahsimeroi Fish Hatchery, 2002.

FEMALES

TOTAL TRAPPED		AD-CLIP PONDED		AD-CLIP RELEASED		UNMARKED PONDED		UNMARKED RELEASED	
FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER	FL(CM)	NUMBER
55	0	55	0	55	0	55	0	55	0
56	0	56	0	56	0	56	0	56	0
57	0	57	0	57	0	57	0	57	0
58	0	58	0	58	0	58	0	58	0
59	0	59	0	59	0	59	0	59	0
60	0	60	0	60	0	60	0	60	0
61	0	61	0	61	0	61	0	61	0
62	0	62	0	62	0	62	0	62	0
63	1	63	0	63	1	63	0	63	0
64	0	64	0	64	0	64	0	64	0
65	1	65	1	65	0	65	0	65	0
66	1	66	1	66	0	66	0	66	0
67	3	67	3	67	0	67	0	67	0
68	1	68	0	68	1	68	0	68	0
69	0	69	0	69	0	69	0	69	0
70	1	70	0	70	1	70	0	70	0
71	3	71	1	71	0	71	0	71	2
72	6	72	2	72	2	72	1	72	1
73	9	73	7	73	1	73	0	73	1
74	12	74	7	74	1	74	0	74	4
75	19	75	14	75	3	75	1	75	1
76	34	76	17	76	11	76	2	76	4
77	36	77	19	77	6	77	1	77	10
78	38	78	19	78	13	78	2	78	4
79	39	79	30	79	6	79	1	79	2
80	53	80	34	80	14	80	2	80	3
81	29	81	18	81	5	81	1	81	5
82	31	82	20	82	7	82	1	82	3
83	27	83	19	83	5	83	1	83	2
84	12	84	8	84	3	84	0	84	1
85	7	85	6	85	1	85	0	85	0
86	11	86	8	86	0	86	1	86	2
87	20	87	11	87	6	87	1	87	2
88	15	88	9	88	2	88	1	88	3
89	6	89	4	89	1	89	0	89	1
90	10	90	5	90	2	90	0	90	3
91	9	91	7	91	0	91	1	91	1
92	8	92	5	92	0	92	1	92	2
93	10	93	3	93	1	93	0	93	6
94	7	94	4	94	1	94	1	94	1
95	2	95	0	95	1	95	1	95	0
96	6	96	4	96	1	96	0	96	1
97	1	97	0	97	0	97	0	97	1
98	0	98	0	98	0	98	0	98	0
99	2	99	2	99	0	99	0	99	0
100	0	100	0	100	0	100	0	100	0
101	0	101	0	101	0	101	0	101	0
102	0	102	0	102	0	102	0	102	0
103	0	103	0	103	0	103	0	103	0
104	0	104	0	104	0	104	0	104	0
105	0	105	0	105	0	105	0	105	0
106	0	106	0	106	0	106	0	106	0
107	0	107	0	107	0	107	0	107	0
108	0	108	0	108	0	108	0	108	0
TOTALS:	470		288		96		20		66

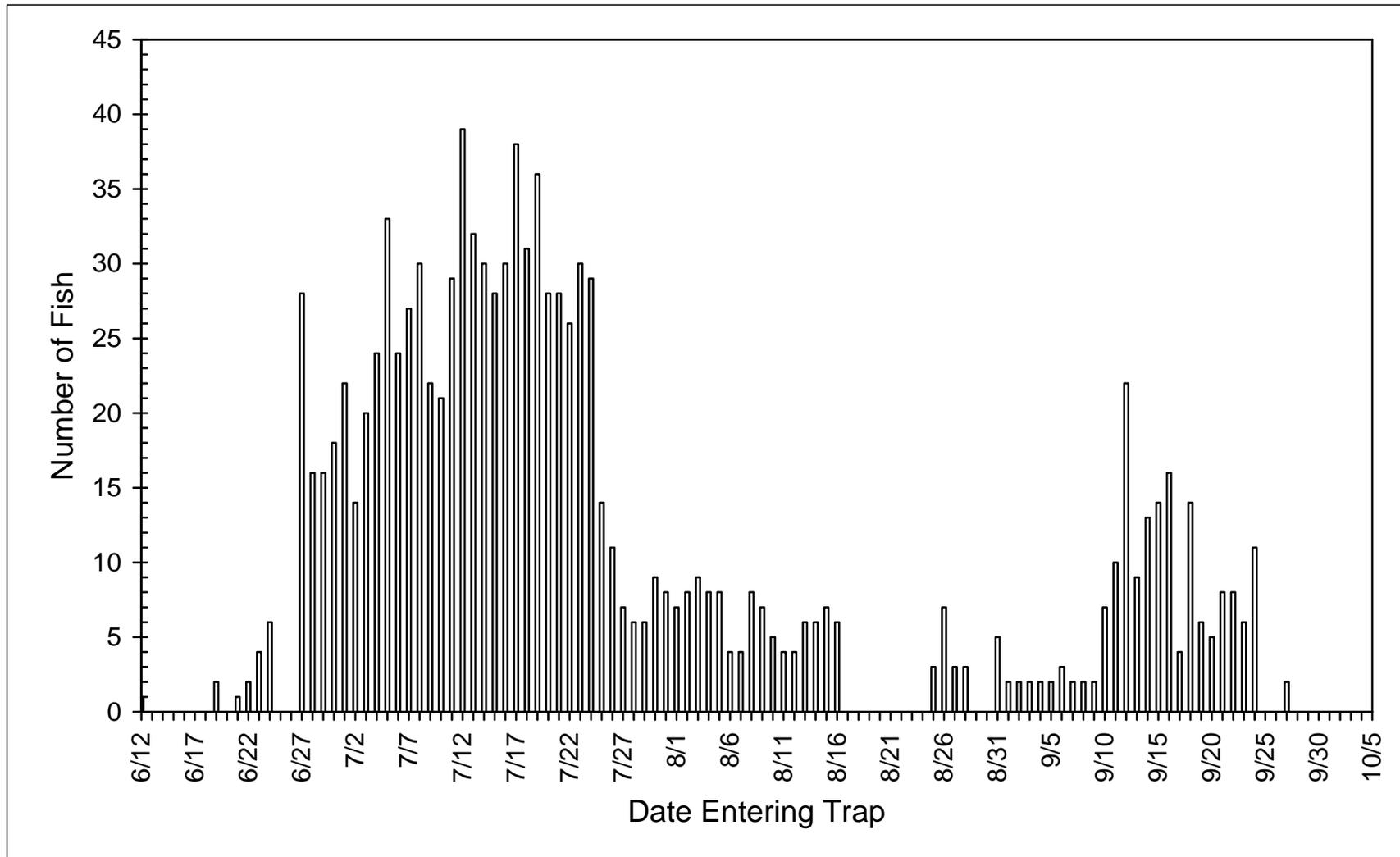


Figure 1. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon run timing.

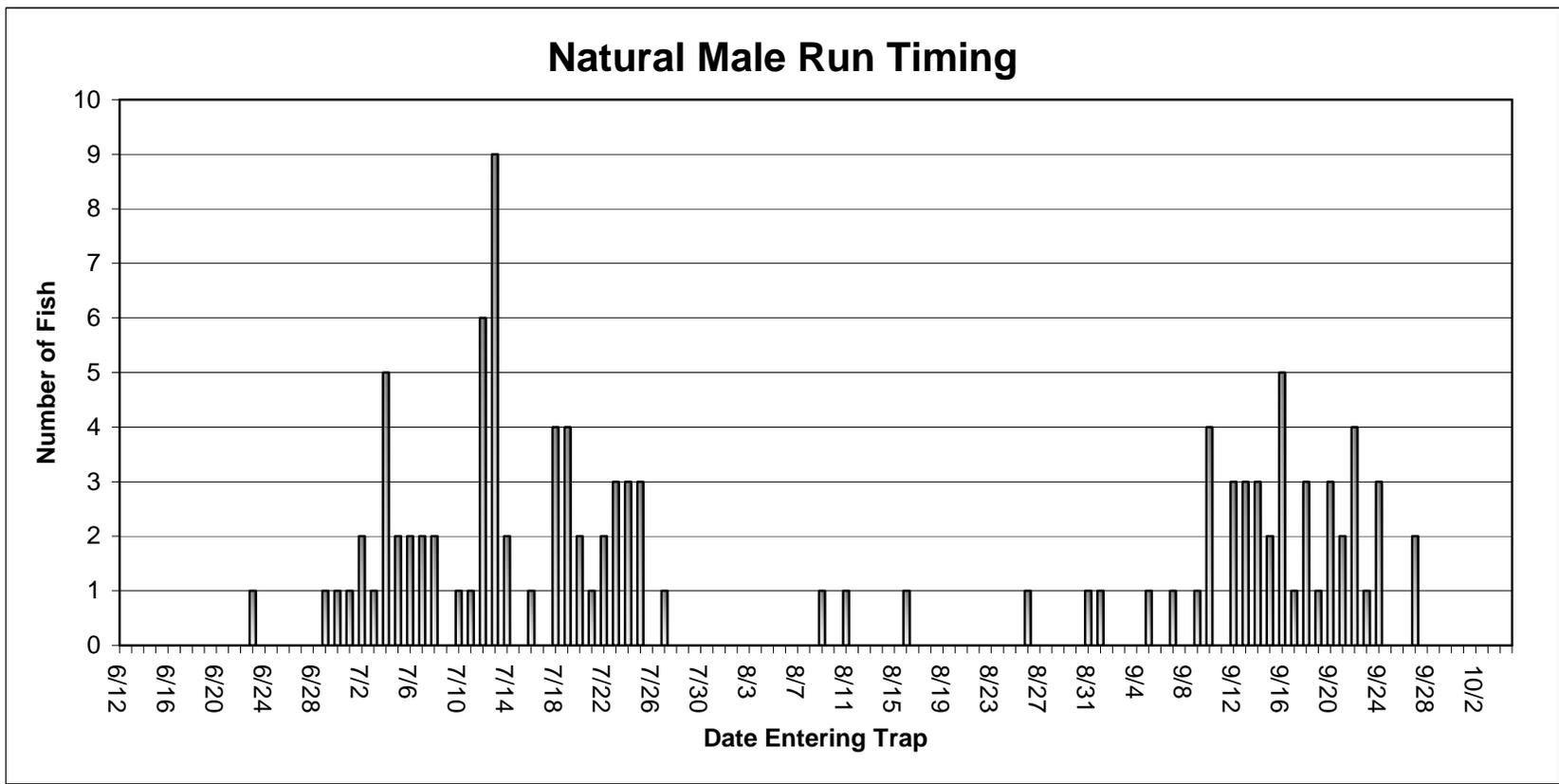


Figure 1A. Pahsimeroi Fish Hatchery Brood Year 2002 natural-origin male summer Chinook salmon run timing.

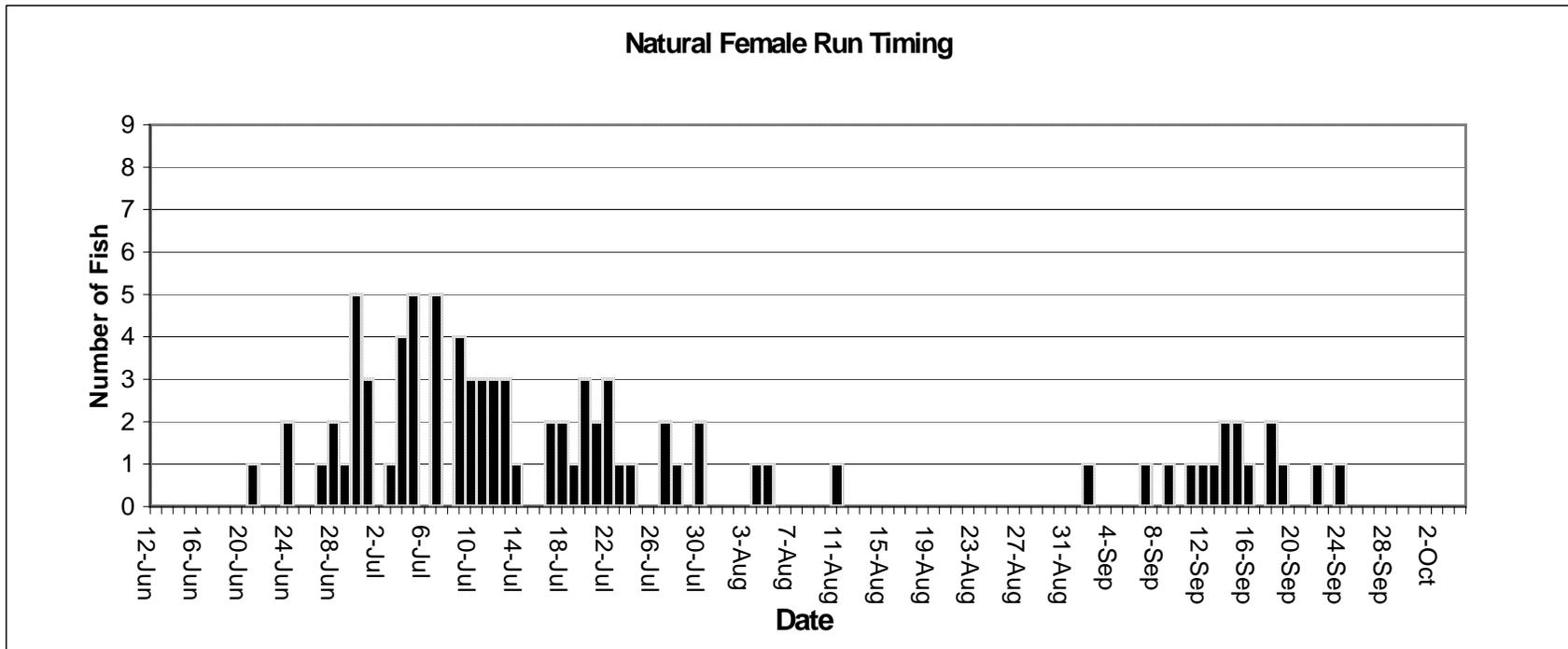
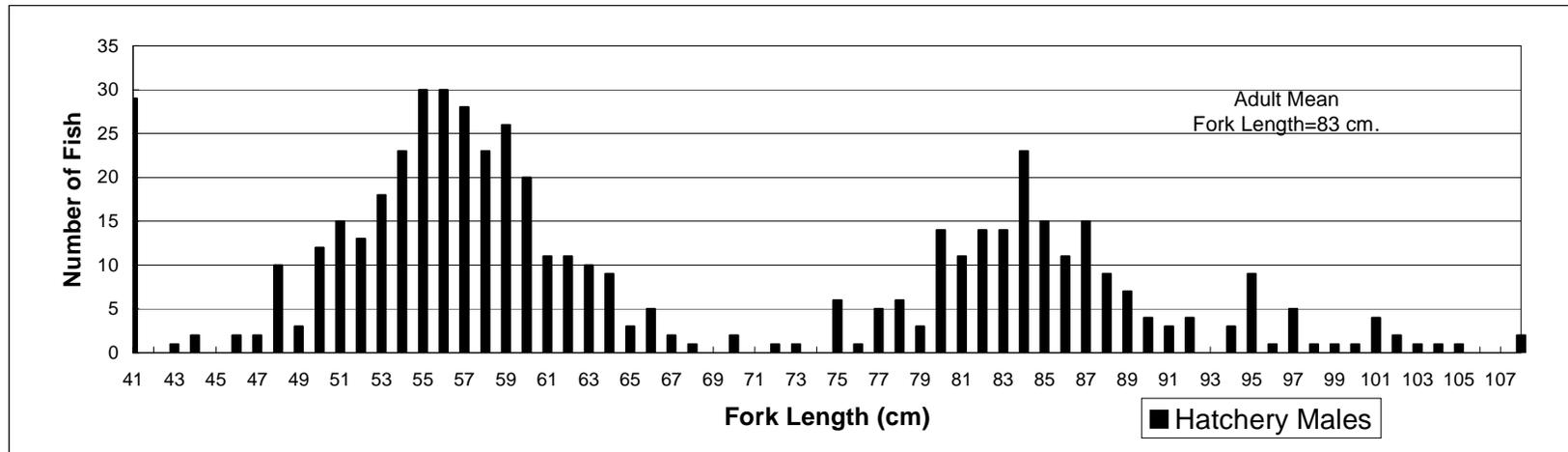


Figure 1B. Pahsimeroi Fish Hatchery Brood Year 2002 natural-origin female summer Chinook salmon run timing.



\* 41 cm. length category includes males (including "mini-jacks") from 28 cm. To 41 cm. Fork Length

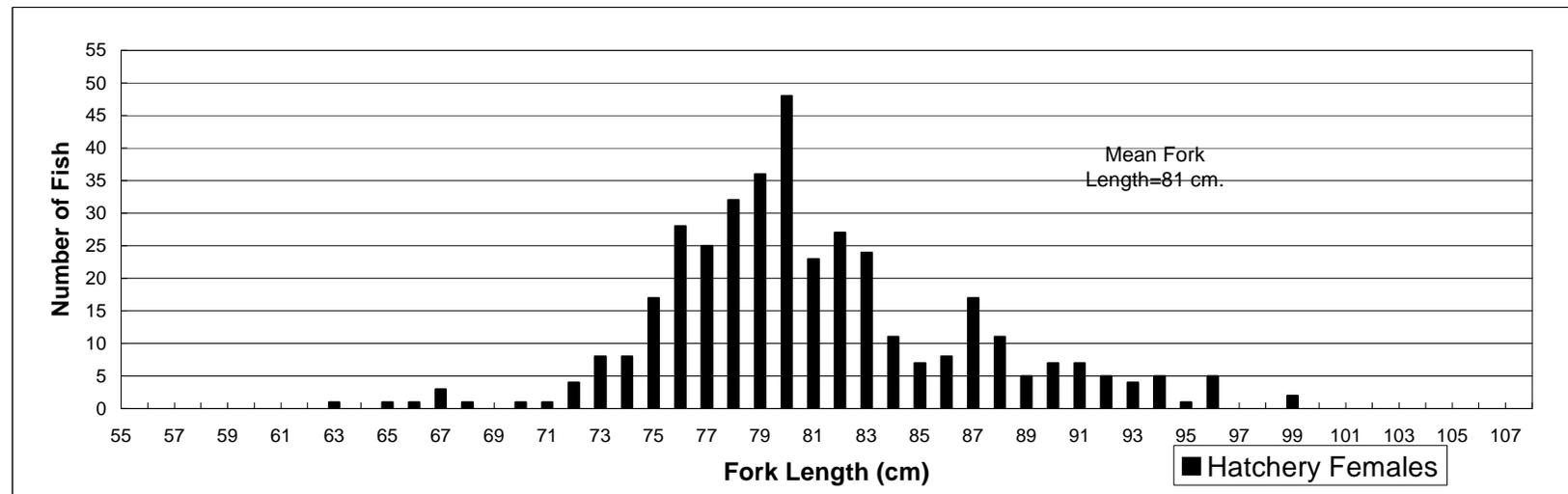


Figure 2. Pahsimeroi Fish Hatchery Brood Year 2002 hatchery-origin summer Chinook salmon length frequency.

Figure 3. Pahsimeroi Fish Hatchery Brood Year 2002 natural origin summer Chinook salmon run timing.

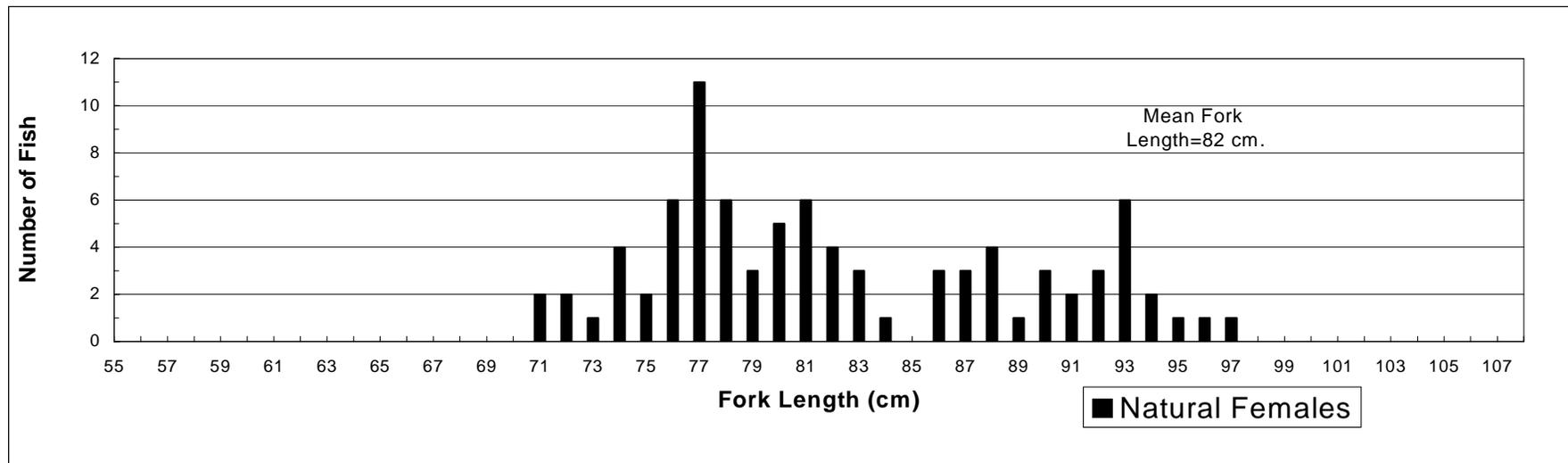
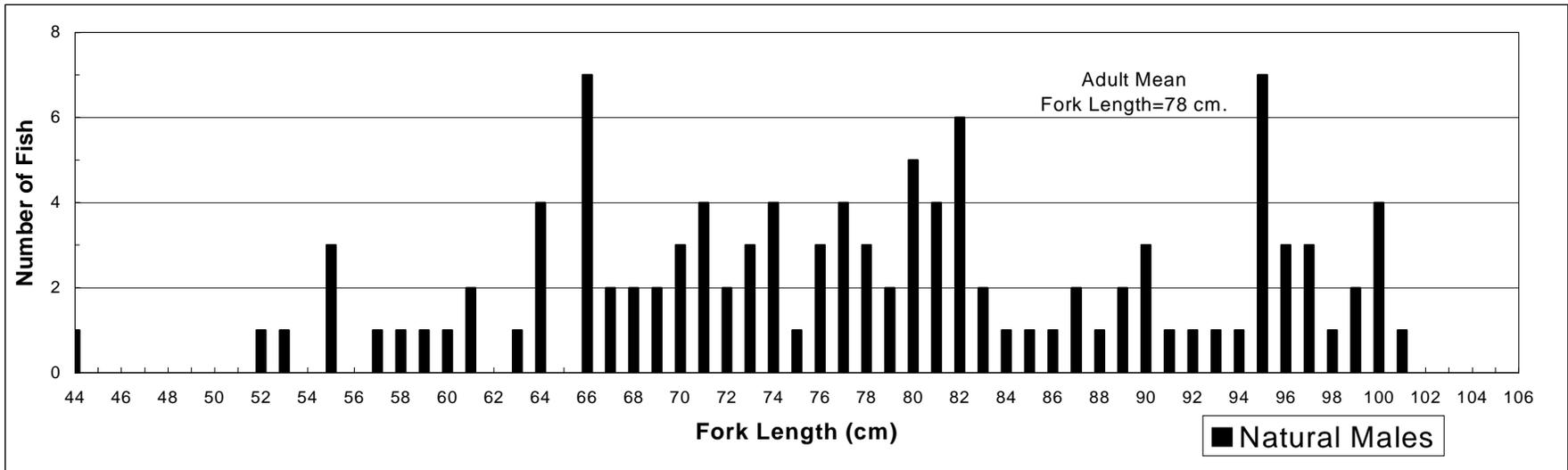
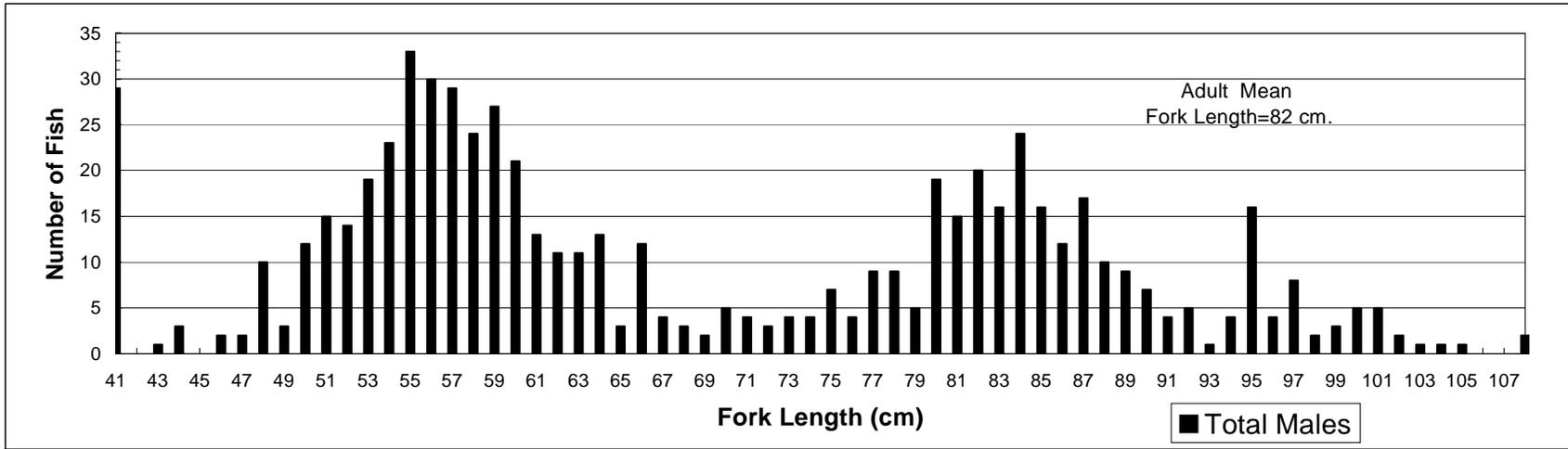


Figure 4. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon length frequencies.



\*41 cm. length category includes males (including "mini-jacks") from 28 cm. To 41 cm. Fork length.

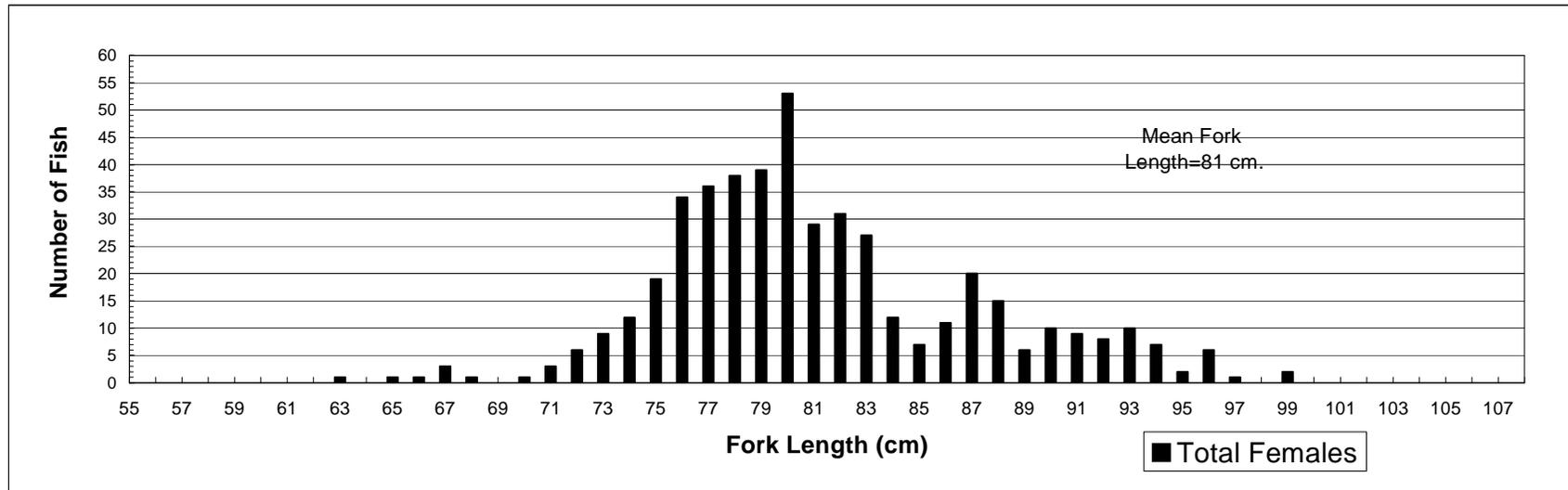


Table 4. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon disposition summary.

**Released For Natural Spawning**

	Age 4 Males Adipose Marked (L)	Age 5 Males Adipose Marked (L)	Age 4 Females Adipose Marked (L)	Age 5 Females Adipose Marked (L)	Age 4 Males Unmarked (L)	Age 5 Males Unmarked (L)	Age 4 Females Unmarked (L)	Age 5 Females Unmarked (L)	Jacks Unmarked (L)	Jacks OWT (L)
Total	21	19	72	24	52	30	40	26	9	6
% of Total Rel.	22.1%	13.9%	27.2%	20.2%	83.9%	78.9%	76.9%	76.5%	75.0%	6.5%

**Ponded For Hatchery Production**

	Age 4 Males Adipose Marked (L)	Age 5 Males Adipose Marked (L)	Age 4 Females Adipose Marked (L)	Age 5 Females Adipose Marked (L)	Age 4 Males Unmarked (L)	Age 5 Males Unmarked (L)	Age 4 Females Unmarked (L)	Age 5 Females Unmarked (L)	Jacks Unmarked (L)	Jacks OWT (L)
Total	74	118	193	95	10	8	12	8	3	86
% of Total Prnd	77.9%	86.1%	72.8%	79.8%	16.1%	21.1%	23.1%	23.5%	25.0%	93.5%

**Trap Totals by Year Class and Origin for Brood Year 2002**

	Age 4 Males Adipose Marked (L)	Age 5 Males Adipose Marked (L)	Age 4 Females Adipose Marked (L)	Age 5 Females Adipose Marked (L)	Age 4 Males Unmarked (L)	Age 5 Males Unmarked (L)	Age 4 Females Unmarked (L)	Age 5 Females Unmarked (L)	Jacks Unmarked (L)	Jacks OWT (L)
Total	95	137	265	119	62	38	52	34	12	92
% of Total Trpd	8.5%	12.2%	23.6%	10.6%	5.5%	3.4%	4.6%	3.0%	1.1%	8.2%

**Trap Totals by Origin for Brood Year 2002**

	Hatchery Adult Males	Hatchery Adult Females	Total Hatchery Adults	Natural Adult Males	Natural Adult Females	Total Natural Adults	Hatchery Jacks	Natural Jacks	Total Jacks	Total Chinook Trapped
Total	232	384	616	100	86	186	308	12	320	1,122
% of Total Trpd	20.7%	34.2%	54.9%	8.9%	7.7%	16.6%	27.5%	1.1%	28.5%	100.0%

Table 5. Brood Year 2002 summer Chinook salmon egg incubation record for Pahsimeroi Fish Hatchery.

LOT NO.	SPAWN DATE	TOTAL SPAWNED	FEMALES CULLED	CULLED EGGS**	EYED EGGS	DEAD EGGS	TOTAL EGGS TAKEN	TOTAL EGGS KEPT	PERCENT EYE-UP***	AVERAGE FECUNDITY	RESERVE EYED	ISS EYED	BKD RESULTS
1	9/3/02	17	1	4,953	73,747	5,500	84,200	79,247	93.1%	4,953	73,747	0	16 LOW, 1 HIGH POS (CULLED)
2	9/9/02	27	0	0	118,734	14,693	133,427	133,427	89.0%	4,942	103,914	14,820	ALL LOW
3	9/12/02	47	1	4,195	166,016	26,945	197,156	192,961	86.0%	4,195	146,484	19,532	46 LOW, 1 HIGH POS (CULLED)
4	9/16/02	57	5	25,849	242,738	26,088	294,675	268,826	90.3%	5,170	219,721	23,017	52 LOW, 5 HIGH POS (CULLED)
5	9/20/02	51	3	16,839	246,460	22,960	286,259	269,420	91.5%	5,613	187,463	58,997	51 LOW, 3 HIGH POS (CULLED)
6	9/23/02	32	1	5,915	172,520	10,854	189,289	183,374	94.1%	5,915	150,432	22,088	32 LOW, 1 HIGH POS (CULLED)
7	9/26/02	25	2	11,206	118,484	10,383	140,073	128,867	91.9%	5,603	118,484	0	25 LOW, 2 HIGH POS (CULLED)
8	9/30/02	7	1	6,167	35,259	1,742	43,168	37,001	95.3%	6,167	35,259	0	6 LOW, 1 HIGH POS (CULLED)
<b>TOTALS</b>		<b>263</b>	<b>14</b>	<b>75,123</b>	<b>1,173,958</b>	<b>119,165</b>	<b>1,368,246</b>	<b>1,293,123</b>	<b>90.8%</b>	<b>4,917</b>	<b>1,035,504</b>	<b>138,454</b>	

\* EGGS FROM THESE FISH CULLED WITHOUT ENUMERATION

\*\* The number of eggs culled were estimated by using the average fecundity of females spawned on a given day multiplied by the number of females culled on a given day.

\*\*\* Percent eye up calculations do not include the number of culled eggs in the total eggs.

Table 6. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon coded wire tag summary

DATE COLLECTED	SEX	FL(CM)	CLIPS OR MARKS	SNOUT BAG NUMBER
11-Jul	m	50	cwt	02is435
12-Jul	m	55	cwt	02is434
12-Jul	m	52	cwt	02is433
12-Jul	m	54	cwt	02is391
13-Jul	m	55	cwt	02is407
13-Jul	m	53	cwt	02is409
14-Jul	m	54	cwt	02is412
14-Jul	m	55	cwt	02is411
14-Jul	m	58	cwt	02is410
14-Jul	m	59	cwt	02is408
15-Jul	m	48	cwt	02is414
15-Jul	m	56	cwt	02is415
15-Jul	m	48	cwt	02is416
15-Jul	m	50	cwt	02is413
16-Jul	m	57	cwt	02is436
16-Jul	m	53	cwt	02is437
16-Jul	m	57	cwt	02is438
16-Jul	m	62	cwt	02is439
17-Jul	m	50	cwt	02is440
17-Jul	m	48	cwt	02is441
17-Jul	m	54	cwt	02is442
18-Jul	m	58	cwt	02is443
19-Jul	m	57	cwt	02is444
19-Jul	m	57	cwt	02is445
19-Jul	m	44	cwt	02is446
20-Jul	m	48	cwt	02is447
20-Jul	m	53	cwt	02is448
20-Jul	m	59	cwt	02is449
20-Jul	m	60	cwt	02is450
20-Jul	m	55	cwt	02is451
21-Jul	m	58	cwt	02is452
22-Jul	m	59	cwt	02is453
22-Jul	m	61	cwt	02is454
22-Jul	m	54	cwt	02is455
23-Jul	m	58	cwt	02is456
23-Jul	m	61	cwt	02is457
24-Jul	m	56	cwt	02is458
24-Jul	m	55	cwt	02is459
26-Jul	m	50	cwt	02is460
26-Jul	m	48	cwt	02is461
27-Jul	m	54	cwt	02is462

Table 6. Continued.

DATE COLLECTED	SEX	FL(CM)	CLIPS OR MARKS	SNOUT BAG NUMBER
31-Jul	m	53	cwt	02is463
31-Jul	m	47	cwt	02is464
1-Aug	m	53	cwt	02is465
2-Aug	m	59	cwt	02is466
3-Aug	m	58	cwt	02is467
3-Aug	m	52	cwt	02is468
4-Aug	m	49	cwt	02is469
5-Aug	m	56	cwt	02is470
6-Aug	m	51	cwt	02is471
7-Aug	m	56	cwt	02is472
8-Aug	m	48	cwt	02is473
8-Aug	m	48	cwt	02is474
9-Aug	m	60	cwt	02is475
9-Aug	m	56	cwt	02is476
13-Aug	m	67	cwt	02is477
13-Aug	m	59	cwt	02is478
27-Aug	m	57	cwt	02is479
12-Sep	m	34	cwt	02is660
13-Sep	m	48	cwt	02is480
14-Sep	m	32	cwt	02is392
16-Sep	m	31	cwt	02is655
24-Sep	m	54	cwt	02is647
24-Sep	m	50	cwt	02is641
24-Sep	m	52	cwt	02is637
24-Sep	m	50	cwt	02is643
24-Sep	m	50	cwt	02is651
24-Sep	m	51	cwt	02is394
24-Sep	m	55	cwt	02is649
24-Sep	m	61	cwt	02is639
24-Sep	m	65	cwt	02is656
24-Sep	m	66	cwt	02is653
24-Sep	m	63	cwt	02is395
24-Sep	m	63	cwt	02is652
24-Sep	m	63	cwt	02is640
24-Sep	m	68	cwt	02is654
24-Sep	m	60	cwt	02is646
24-Sep	m	58	cwt	02is648
24-Sep	m	31	cwt	02is392
24-Sep	m	30	cwt	02is393
24-Sep	m	63	cwt	02is657
24-Sep	m	49	cwt	02is650
24-Sep	m	55	cwt	02is645
24-Sep	m	54	cwt	02is644
24-Sep	m	49	cwt	02is642
24-Sep	m	61	cwt	02is638
30-Sep	m	66	cwt	02is636

## **ADULT HANDLING PROCEDURES**

During the summer Chinook trapping season, the trap was checked daily and all fish were handled in accordance with protocols established by NOAA Fisheries. All salmon were anaesthetized in a solution of MS-222. While anaesthetized, fish were examined for fin clips, measured to the nearest centimeter for fork length, and identified by sex. Each fish was also intraperitoneally injected with erythromycin at a rate of 20 mg/kg body weight for BKD management. All fish were allowed to recover in a freshwater recovery tank before being ponded or released.

All summer Chinook held for spawning were marked with a floy tag. Floy tagging each salmon during trapping makes the tracking of these fish easier during spawning season.

## **ADULT HOLDING POND RECORD**

Department fisheries biologists determine the number of Chinook retained for spawning each year based on the number and origin of returning adults. In 2002, 3 natural-origin jacks, 86 hatchery-origin jacks, 18 natural-origin males, 192 hatchery-origin males, 20 natural-origin females, and 288 hatchery-origin females were ponded for spawning.

The natural-origin males that were ponded included 8 five-year-olds, 10 four-year-olds, and 3 three-year-olds (jacks). The hatchery-origin males that were ponded included 118 five-year-olds, 74 four-year-olds, and 86 three-year-olds. Of the natural-origin females ponded, 8 were five-year-olds and 12 were four-year-olds. Of the hatchery-origin females, 95 were five-year-olds and 193 were four-year-olds (Table 4).

Beginning July 1 and continuing through September 15, 2002 both the male and female holding ponds were treated 3 times weekly with a 1-hour, 167 ppm formalin treatment to prevent mortality caused by secondary mycotic infections.

Pre-spawn mortality this year equated to 5.4% of the 607 fish held for spawning. There were 29 female pre-spawn mortalities and 4 male pre-spawn mortalities. Only two of the total pre-spawn mortalities were of natural-origin (both were females). The total number of trap mortalities this season was four (one natural-origin male, one natural-origin female, one hatchery-origin male and one hatchery-origin female).

## **ADULT RELEASES**

Nine natural-origin and six hatchery-origin jacks, eighty-two natural-origin and forty hatchery-origin adult male, and sixty-six natural-origin and ninety-six hatchery-origin adult female summer Chinook salmon were released to spawn naturally in the Pahsimeroi River (Table 4). Most of the fish released for natural spawning were released the same day they were trapped and two group-releases were made during the season.

For an overview of the smolt releases and adult returns throughout PFHs history, please see Appendix C.

## **SUMMER CHINOOK SPAWNING AND INCUBATION**

Female Chinook were sorted for ripeness for the first time on August 29, 2002. Spawning began September 3 and concluded September 30, 2002. Each ripe female was killed and then spawned by incision method. Prior to incision, a 1-cc sample of ovarian fluid was collected from sixty fish throughout the spawning season to test for Infectious Hematopoietic Necrosis (IHN) and Infectious Pancreatic Necrosis (IPN). After egg collection and fertilization, kidney samples were collected from all females to test for BKD and 20 head wedges were collected to test for whirling disease. All samples were sent to the Eagle Fish Health Laboratory (EFHL). Eggs from fish that tested high positive for BKD were culled. Normally, PFH culls eggs from fish that have an Enzyme Linked Immunosorbant Assay (ELISA) optical density of 0.4, or greater. In 2002, EFHL pathologists used a different reagent and the ELISA optical density was adjusted to 0.25. Only 14 females had optical densities of 0.25, or greater.

A small piece of pelvic fin was also removed from all summer Chinook during each spawning session and placed into a vial of lysis buffer for DNA analysis and conservation genetics studies being conducted by the Department (Appendix A). The fish that were released above the weir to spawn naturally were also sampled for DNA as part of a study being conducted by Nampa Fisheries Research Technician, Brian Leth. His goal is to determine what contribution hatchery fish are making to the natural population versus wild fish. Collecting DNA samples from spawning adults and out-migrating juvenile salmon will allow Brian to determine genetically which group of fish makes the most contribution.

Two groups of fish were created from Brood Years 1997-1999 this season. The first group was the hatchery reserve (listed) group and the second group was the Idaho Supplementation Study (listed) group. To create the hatchery reserve listed group, 1:1 male/female crosses were made from hatchery supplementation listed x hatchery supplementation listed fish and hatchery supplementation listed x hatchery reserve group unlisted fish (Appendix B). The hatchery reserve group unlisted fish were Brood Year 1999 jacks. To create the ISS group, 4:1 male/female crosses were made from natural-origin x natural-origin and natural-origin x hatchery-origin supplementation listed fish. The eggs from the natural-origin and the hatchery-origin supplementation listed females were divided into quarters and each was placed into a separate bucket. Then, natural-origin and hatchery-origin supplementation listed males were selected at random and a different male was used to fertilize one-quarter of the eggs from each of four females (Appendix B-1). Each male was spawned directly into the bucket and the sperm was allowed to fertilize the eggs for 15 to 30 seconds. Then, the eggs from a single female were pooled back together and egg buckets were set aside for five minutes. Some males were spawned more than once because there was no way to segregate spawned and un-spawned males. Wellwater was used to rinse the eggs and then they were water-hardened in a 100-ppm solution of Argentyne for 60 minutes. Finally, eggs were poured directly into vertical-flow incubator trays at PFH. The spawning methods listed above to create the two groups of fish were used to increase and maintain genetic diversity.

All eggs were incubated to eye-up at PFH. The incubator trays were loaded at the rate of one female per tray. From 48 hours after spawning until eye-up, eggs at PFH were treated three times a week with a 1,667-ppm formalin treatment to prevent fungal growth on the eggs,

and three times a week with a 100-ppm Argentyne treatment to prevent soft shell disease, a disease caused by a bacteria that results in increased egg mortality and pre-mature hatching. At eye-up (approximately 450 Fahrenheit temperature units [FTUs]), the eggs were shocked twice by dropping them into a bucket of water from a height of approximately 16 inches.

Dead eggs were picked and enumerated with a Jensorter electronic counter/picker. The number of dead eggs and eyed-eggs were added together to obtain the total number of green eggs per female. By dividing the number of eyed-eggs by the number of green eggs, the overall eye-up percentage per female was determined (Table 5). Once the eggs reached the eyed stage, they were placed in coolers of water and transported to SFH for final incubation and early rearing. Prior to transport, ice was placed in the coolers to chill the water and eggs. Upon arrival at SFH, all eggs were tempered and disinfected with Argentyne before being placed in standard vertical-flow incubators.

A total of 263 females were spawned, yielding 1,293,123 green eggs. Fecundity averaged 4,917 eggs per female and the overall eye-up percentage was 90.8% or 1,173,958 eyed-eggs (Table 5). All viral samples tested negative for IPN and IHN. Kidney sample test results ranged from negative to high positive for BKD. Eggs from those females testing high positive were destroyed.

## **CRYOPRESERVATION**

With the future projection of few returning adult summer Chinook salmon to the PFH, the Nez Perce Tribe (NPT) has initiated a cryopreservation program. During the spawning season, personnel from the NPT collected milt from naturally produced and artificially propagated adult male summer Chinook salmon. The milt was tested for motility prior to freezing and is currently being stored in repositories at the University of Idaho and Washington State University (Table 7).

## **ADULT CARCASS DISPOSITION**

During the spawning season all carcasses not donated to charity were placed in a refrigeration unit and frozen. At the conclusion of the spawning season, the frozen carcasses were transported to a refinery in Kuna, ID.

## **NON-TARGET SPECIES**

Multiple non-target species were trapped this season including bull trout (*Salvelinus confluentus*), cutthroat trout (*Oncorhynchus clarkii*), brook trout (*Salvelinus fontinalis*), rainbow trout (*O. mykiss*), steelhead, bridgelip sucker (*Catostomus columbianus*) and mountain whitefish (*Prosopium williamsoni*). Pahsimeroi Fish Hatchery personnel attempted to take length measurements and identify the sex of each non-target species that was trapped. Some of the

Table 7. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon cryopreservation sampling.

Collection Date	Sex	Floy Tag ID No.	NPT Sample Number	Straw Number	WSU % Sperm Motility	WSU 0.5 ML	UI % Sperm Motility	UI 0.5 ml.	UI 5.0 ml	Listing Status
09/24/02	m	1319	NPT-635-02	562	90	20				
09/24/02	m	n/a	NPT-636-02	563	70	20	50	20		
09/24/02	m	572	NPT-637-02	564	90	20	60	20		
09/24/02	m	n/a	NPT-638-02	565	80	20	30	20		
09/24/02	m	163	NPT-639-02	566	90	20	70	20		
09/24/02	m	n/a	NPT-640-02	567	80	20	70	19		
09/24/02	m	n/a	NPT-641-02	568	70	20	70	20		
09/24/02	m	n/a	NPT-642-02	569	30	20	80	20		
09/24/02	m	n/a	NPT-643-02	570	90	20	70	20		
09/24/02	m	1669	NPT-644-02	571	80	20	30	20		
09/24/02	m	n/a	NPT-645-02	572	10		10	20		
09/24/02	m	1584	NPT-646-02	573	70	20	30	20		
09/24/02	m	58	NPT-647-02	574	40		50	19		
09/24/02	m	n/a	NPT-648-02	575	90	20	30	20		
09/24/02	m	n/a	NPT-649-02	576	70	20	30	20		
09/24/02	m	909	NPT-650-02	577	90	20	80	20		
09/24/02	m	n/a	NPT-651-02	578	90	20	10	20		
09/24/02	m	n/a	NPT-652-02	579	70	20	80	20		
09/24/02	m	217	NPT-653-02	580	40		80	20		u*
09/24/02	m	1582	NPT-654-02	581	90	20	50	20		
10/01/02	m	74	NPT-655-02	582	80	20	50	20		
10/01/02	m	n/a	NPT-656-02	583	80	20	80	20		
10/01/02	m	897	NPT-657-02	584	80	20	70	20		
10/01/02	m	880	NPT-658-02	585	20		50	20		
10/01/02	m	n/a	NPT-659-02	586	90	20	20	20		
10/01/02	m	n/a	NPT-660-02	587	40		60	20		
10/01/02	m	n/a	NPT-661-02	588	90	20	60	20		
10/01/02	m	1528	NPT-662-02	589	90	20	50	20		
10/01/02	m	1530	NPT-663-02	590	90	20	50	20		
10/01/02	m	1652	NPT-664-02	591	80	20	70	20		
10/01/02	m	n/a	NPT-665-02	592	90	20	80	20		
10/01/02	m	n/a	NPT-667-02	593	90	20	40	20		
10/01/02	m	271	NPT-668-02	594	90	20	20	20		
10/01/02	m	n/a	NPT-669-02	595	90	20	20	20		
10/01/02	m	n/a	NPT-670-02	596	40		50	20		
10/01/02	m	898	NPT-671-02	597	90	20	70	20		
10/01/02	m	n/a	NPT-672-02	598	80	20	50	20		
10/01/02	m	n/a	NPT-673-02	599	90	20	40	20		
10/01/02	m	1645	NPT-674-02	600	90	20	50	20		

\* The only unlisted year class in 2002 was adipose clipped jacks.

species were difficult to sex, so if their sex was undetermined, "N/A" was written in the tables below. All non-target fish trapped were released back into the Pahsimeroi River above the weir. Because PFH personnel were unable to sex the bridgelip suckers and the mountain whitefish and large numbers of these species were trapped, only a running total was kept for these species. Eight hundred and fifty-seven adult bridgelip suckers and eighty-nine adult mountain whitefish were trapped this season between June 7, and August 14, 2002.

#### Bull Trout

Trap Date	Sex	Length (CM)	Disposition
7/6/02	M	32	Released
9/9/02	M	26	Released
9/11/02	M	22	Released
9/23/02	M	23	Released

#### Cutthroat Trout

Trap Date	Sex	Length (CM)	Disposition
6/10/02	N/A	33	Released
7/6/02	F	37	Released
7/13/02	M	34	Released
7/17/02	N/A	25	Released
7/19/02	N/A	33	Released

#### Brook Trout

Trap Date	Sex	Length (CM)	Disposition
6/17/02	N/A	18	Released
6/18/02	N/A	20	Released
9/11/02	F	31	Released

### Rainbow Trout

Trap Date	Sex	Length (CM)	Disposition
6/7/02	M	43	Released
6/7/02	F	37	Released
6/7/02	F	34	Released
6/7/02	F	34	Released
6/7/02	F	26	Released
6/10/02	F	30	Released
6/10/02	N/A	23	Released
6/10/02	N/A	28	Released
6/10/02	N/A	28	Released
6/12/02	M	34	Released
6/12/02	M	33	Released
6/14/02	N/A	24	Released
6/17/02	M	27	Released
6/17/02	F	35	Released
6/18/02	M	33	Released
6/18/02	NA	28	Released
6/18/02	NA	23	Released
6/19/02	N/A	20	Released
6/20/02	M	36	Released
6/21/02	N/A	22	Released
7/6/02	M	37	Released
7/13/02	F	47	Released
7/13/02	F	30	Released
7/17/02	N/A	30	Released
7/17/02	N/A	29	Released
7/19/02	N/A	37	Released
7/19/02	N/A	28	Released
8/5/02	N/A	45	Released
8/14/02	N/A	32	Released
8/14/02	N/A	32	Released
9/9/02	F	45	Released
9/11/02	F	40	Released
9/17/02	F	37	Released
9/17/02	M	34	Released
9/17/02	F	19	Released
9/17/02	F	37	Released
9/18/02	F	36	Released
9/18/02	F	26	Released
9/23/02	M	41	Released

### Adult Steelhead

Trap Date	Sex	Length (CM)	Disposition
6/7/02	M	61	Released
6/7/02	M	58	Released
6/7/02	F	56	Released

All adult steelhead listed above were adipose fin clipped.

## FISH PRODUCTION

Because Chinook salmon are more susceptible to whirling disease when they are less than 3.5 inches in length, it is recommended that they be reared on Specific-Pathogen-Free (SPF) water until they reach that size. Once the salmon have reached that size, whirling disease symptoms become less overt and fish can be transferred to outside raceways supplied with river water.

In December 2002 and January 2003, SFH personnel transferred 855,536 PFH summer Chinook salmon from indoor vertical-flow incubators to six indoor vats. In January and February 2003, a total of 298,294 fry were transferred to PFH and ponded in the early rearing raceways due to lack of space and water at SFH. Sawtooth Fish Hatchery reared the remaining summer Chinook salmon (reserve group) according to Integrated Hatcheries Operation Team (IHOT) guidelines for density and flow indices. In February, the fish were transferred from the indoor vats to outdoor raceways. The fish were placed into small raceways 1-3 and large raceway 9. In April, half of the fish in large raceway 9 were moved to large raceway 10. In May, the fish from the small raceways were marked and transferred into large raceways 9 and 10 to prepare for transport to PFH. From June 9 through June 11, 2003 Department transport operator Gary Ady transferred these fish back to the PFH rearing ponds.

To control BKD, fish are normally administered two prophylactic-medicated feed treatments. The first medicated feed treatment at PFH took place in June 2003, but was terminated seven days into a twenty-eight day treatment due to increased fish mortality. Eagle Fish Health Lab Pathologist Doug Munson diagnosed the fish with erythromycin toxicity (tetany). Apparently, there was too much erythromycin in the feed and it was transferred to Clearwater Fish Hatchery. The second medicated feed treatment was administered in September 2003 for 28 days and no erythromycin toxicity was observed during this treatment.

Brood Year 2002 smolts were fed 85,629 lbs of feed during their rearing cycle, resulting in a feed conversion of 1.0 (Table 9). The conversion rate was calculated using the original number of summer Chinook minus the number of mortalities observed. It should be noted, however, that predation by river otters and various bird species was observed; therefore many mortalities cannot be quantified. Attempts to live-trap otters in the past were unsuccessful and predation of fish by otters is becoming a yearly occurrence. This year, the PFH manager purchased a trappers license and trapped nine otters, twelve minks and ten raccoons that had been preying on the juvenile salmon.

Common mergansers also invade the ponds in March and April when the fish are beginning to smolt. An attempt was made to obtain a kill permit from the US Fish and Wildlife Service in 2002, but was unsuccessful since no attempt had been made to install bird screens around the ponds. Idaho Power Company was made aware of this problem and it will be addressed when construction of the new upper facility hatchery begins in 2005.

Pre-release organosomatic indices can be found in Table 8, feed costs are summarized in Table 9, and production costs are summarized in Table 9A. Survival percentages by life stage are summarized in Table 10.



Table 9. Brood Year 2002 feed summary for Pahsimeroi Fish Hatchery.

<b>Feed Type/Size</b>	<b>Pounds Fed This Month</b>	<b>Pounds Fed To Date</b>	<b>Cost per Pound</b>	<b>Total Feed Cost</b>
Rangen Soft-Moist Starter		572.0	\$0.89	\$509.08
Rangen Soft-Moist 1/32"		968.0	\$0.84	\$810.22
Rangen Soft-Moist 3/64"		2,640.0	\$0.81	\$2,138.40
Rangen Soft-Moist 1/16"		2,244.0	\$0.79	\$1,763.78
Rangen Soft-Moist 3/32"		9,810.0	\$0.80	\$7,798.95
Bio-Diet Starter #2		220.0	\$1.01	\$222.20
Bio-Diet Starter #3		616.0	\$1.01	\$622.16
Bio-Diet Grower 1.0 mm		484.0	\$0.80	\$387.20
Bio-Diet Grower 1.3 mm		1,320.0	\$0.78	\$1,029.60
Bio-Diet Grower 1.5 mm		792.0	\$0.72	\$570.24
Bio-Diet Grower 1.5 mm AQM-100		1,364.0	\$1.60	\$2,182.40
Bio-Diet Grower 2.0 mm		4,400.0	\$0.68	\$2,992.00
Bio-Diet Grower 3.0 mm	6,022.0	49,461.0	\$0.55	\$26,956.25
Bio-Diet Grower 2.5 mm AQM-100		10,738.0	\$2.29	\$24,590.02
<b>Totals:</b>	<b>6,022.0</b>	<b>85,629</b>		<b>\$72,572.50</b>

Table 9A. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon production costs.

<b>Number of fish</b>	<b>Pounds of feed</b>	<b>Cost of Feed</b>	<b>Pounds of Fish</b>	<b>Conversion</b>	<b>Total Budget</b>	<b>Cost per Thousand Fish</b>	<b>Cost per Pound of Fish</b>
1,108,028	85,629	\$72,572.50	82,477	1.0	\$888,958.19	\$802.11	\$10.38

\*Does not include capital outlay

Table 10. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon smolt survival rates.

<b>Life Stages</b>	<b>Number</b>	<b>Survival Percentages From Eyed Eggs</b>
Green Eggs	1,293,123	N/A
Egg Pickoff	119,165	N/A
Eyed Eggs	1,173,958	90.80%
Alevin Pickoff	20,128	N/A
Fry Poned	1,153,830	98.30%
Fry Mortality	15,328	N/A
Fingerling Poned	1,138,502	96.70%
Fingerling Mortality	30,474	N/A
Smolts Released	1,108,028	94.40%

## SMOLT RELEASES

A total of 1,135,832 smolts were volitionally released from April 11 through April 21, 2004. The outlet screens for pond 2 and pond 1 were pulled on April 11, 2004 and April 12, 2004 respectively, and a set of dam boards was pulled each day thereafter until all fish had migrated from the ponds. Three groups of fish were released this year: reserve group (904,887 adipose clipped only), ISS group (127,800 coded-wire-tagged only), and reserve study group (from SFH: 70,356 adipose-clipped and coded-wire-tagged and from PFH: 32,789 adipose-clipped and coded-wire-tagged).

Although the volitional release from the rearing ponds went well, a large number of smolts entered the lower facility intake canal during the night where they became trapped between the Parshall flume and the roller screens. The Parshall flume is located only 60 ft above the roller screens. Subsequent investigation into this matter by the Idaho Department of Water Resources (IDWR) revealed the velocity through the Parshall flume to be 7.4 feet per second. Fish were observed attempting to swim back upstream, but given the high velocity, were unable to do so. This caused severe stress on the fish and was the cause of the mortality. The canal is equipped with NOAA Fisheries-approved rotating drum screens and a 12" bypass pipe, which under normal operating conditions allows fish to return to the river. Apparently, the bypass pipe plugged with debris causing fish to accumulate in the canal overnight. Pahsimeroi Fish Hatchery personnel feel that should the bypass pipe become obstructed, as it appears to have done in this case, fish should still be able to escape through it back into the river. As densities increased the fish became stressed and died. This resulted in a mortality of 27,804 hatchery reared Chinook smolts.

Various IPC, Department and NOAA Fisheries staff conducted an investigation into the matter in the days following the mortality. Based on the available information, it appears that record low discharge from the Pahsimeroi River (ongoing drought conditions exacerbated by the start-up of numerous irrigation diversions) caused a larger than normal number of fish to enter the intake canal that supplies river water to the lower hatchery facility. Had the Parshall flume not been present, PFH personnel feel that this mortality could have been avoided.

After the fish mortalities were enumerated, the final release numbers were adjusted accordingly and are as follows: reserve group- 885,147 adipose clipped only, ISS group- 124,185 coded-wire-tagged only, and reserve study group- 98,696 (67,321 adipose clipped and coded-wire-tagged from SFH and 31,375 adipose clipped and coded-wire-tagged from PFH. Final release numbers were 1,108,028 smolts.

For an overview of the brood stock history and smolt releases throughout PFHs history, please see Appendix D.

## FISH HEALTH

**Diseases Encountered and Treatment.** A portion of the Brood Year 2002 Pahsimeroi summer Chinook salmon were early reared at SFH and the remainder of the salmon were reared at PFH. After experiencing heavy sediment loads during run-off at SFH, the summer Chinook salmon at SFH were transported back to PFH to complete rearing in the earthen ponds at the upper hatchery. Shortly after arrival, the first prophylactic treatment of erythromycin-medicated

feed (INAD 6013) was applied to all juvenile fish on the hatchery. Both ponds began experiencing elevated mortality and fish netted for necropsy exhibited typical signs of erythromycin toxicity (tetany). Because the elevated mortality occurred within the first seven days of a twenty-eight day treatment, the treatment was cancelled to reduce the potential for a disastrous loss of fish that might be caused by the continued feeding of the medicated diet. The remaining medicated feed was shipped to the Department's Clearwater Fish Hatchery for use with spring Chinook. In mid-August 2003, elevated mortalities (160+fish/day) were experienced in both earthen ponds. Five fish were netted and a necropsy was performed. The diagnostic examination found *Ichthyophthirius multifiliis* in numbers "too-numerous-to-count" in the gills of the fish that were examined. *Renibacterium salmoninarum* (*R. salmoninarum*) was also detected by direct fluorescent antibody technique (DFAT) in all five fish examined. The hatchery staff was instructed to treat both ponds with formalin (200 ppm) twice a week. These flow-through treatments lasted one hour in length and were continued until the water temperatures dropped in September 2003. Additionally, these fish received a full application of erythromycin medicated feed treatment in September 2004 at the standard rate of 100 mg/kg/day. Losses to bacterial kidney disease (BKD) were not realized at this facility during this reporting period. *M. cerebralis* was detected in one of 20 fish sampled at preliberation.

In addition to its summer Chinook salmon program, PFH is utilized as an egg-taking station for adult steelhead trout returning from the Pacific Ocean. Eggs taken at this facility were provided to Niagara Springs Fish Hatchery, Magic Valley Steelhead Hatchery, and Hagerman National Fish Hatchery for rearing to smolt stage. Ovarian fluid samples taken from 150 of the 1,219 females spawned in 2002 tested negative for viral replicating agents. Kidney smears taken from sixty fish were examined for *R. salmoninarum* with DFAT and none tested positive. Head wedges taken from 20 fish were examined for whirling disease, and one adult steelhead tested positive for *M. cerebralis*.

Upon arrival at PFH, an intraperitoneal injection of Gallimycin (injectable erythromycin) was administered to all adult summer Chinook salmon that were ponded for spawning at a rate of 20 mg/kg. This antibiotic injection was utilized to limit pre-spawning mortality due to BKD. Pre-spawning mortality was at 6% and was not considered a problem at this facility in 2002. In 2002, the EFHL lowered the ELISA culling point to an optical density of 0.25 or greater (using current KPL antibodies) because a different reagent was used in 2002 than in previous years. The ELISA culling rate for Pahsimeroi summer Chinook salmon was at 0.9% for 2002. Viral replicating agents (60 fish sampled) and *M. cerebralis* (20 fish sampled) were not detected during routine sampling.

**Acute Losses.** Acute losses were not experienced at this hatchery during this reporting period.

**Other Assessments.** On January 22, 2004, after many years of data collection and collaborative work with IPC, the director of the IDWR recommended that IPCs application for additional well water at the upper hatchery site be granted. These wells should provide 14 cfs of groundwater that will be utilized to early-rear summer Chinook salmon to the size of 3.5 inches to limit deleterious impacts of *M. cerebralis* on these fish. A hatchery renovation is being planned for the future.

**Organosomatic Index.** See Table 8.

## FISH MARKING

All 307,450 reserve group fingerlings at PFH were adipose fin clipped from May 7 to May 14, 2003. Of these, 33,220 also received a CWT implant. The fish-marking inventory total was 3.53% higher than PFHs inventory (296,606 fish) at the time of marking. All fingerlings were transferred from PFH early rearing raceways 1-4 to rearing pond 2 from May 13 through May 16, 2003.

Pahsimeroi Summer Chinook at SFH were marked from May 13 through May 23, 2003. The total number of fish marked was 841,807. The breakdown of marked fish is as follows: reserve group: 639,477 adipose clipped only; ISS group: 130,965 coded wire tagged only; reserve study group: 71,365 adipose clipped and coded wire tagged. These fish were transferred to PFH rearing ponds from June 9 through June 11, 2003. Additionally, a total of 1,000 fish (500 reserve group and 500 ISS fish) from Pond 1 were PIT-tagged on February 26, 2004.

## HATCHERY IMPROVEMENTS

- New fish screens were built for the raceways at the main hatchery.
- A new entrance gate was installed at the main hatchery.
- A new entrance gate was installed at the upper hatchery.
- IT installed a new modem on the hatchery laptop.
- IT installed a new Dell desktop computer in the office.
- A flow meter and electric pump were installed on the bulk fuel tank.
- RV outlets were installed on the west side of the dormitory and a sub-panel was installed in the east garage bay.
- New baseboard heaters were installed in the office.
- New wiring was installed on all automatic feeders, and conduit and junction boxes were replaced at the upper facility.
- A new fan was installed in the spawn shed.
- Additional storage cabinets were installed in the master bathroom of Residence 1.
- A new attic fan was installed in Residence 2.
- Robinson Electric re-routed the electrical wire to the head screens on rearing ponds 1 and 2 because it was under water. This was pointed out by the State Safety Inspector.
- A new microwave was purchased for the dorm.
- New metal doors were installed on the spawn shed.
- A new brochure/regulations box was built and installed by Tim Wilkins.
- An emergency shut-off switch was installed on Residence 1 for the bulk fuel tank.
- A new stove was purchased for the dorm.
- A new storage rack was built for the baffles used in the early rearing raceways.
- New plugs were purchased for and installed on the Heath incubator trays.
- A 6" and 10" orifice plate was built and installed by the Screen Shop at the upper hatchery.
- The landscaping rock on the west side of the dorm was removed and replaced.
- New MPC laptop and desktop computers were purchased and installed.

- The cracked concrete in front of the public restroom was removed and replaced with gravel.
- The door on the walk-in freezer was replaced, as it would no longer seat properly in its frame.
- A satellite-internet connection was installed for use in the office.
- New wireless cards were installed on the office computers by IT.
- The interiors of the spawn shed, public restroom, incubator room and spring pump-house were repainted.
- The exterior doors on every hatchery building at the main hatchery (including garage doors) were repainted with the exception of the new spawn shed doors.
- Railroad ties around the office lawn; lift station and dorm were dug up and resealed, since frost heaves had pushed several of them out of place.

## **RECOMMENDATIONS**

Recommendations for PFH include developing a Specific-Pathogen-Free (SPF) water source to provide pathogen-free water for use in rearing juvenile fish. Due to the presence of whirling disease at PFH, all Chinook eggs are currently sent eyed to SFH for incubation and early rearing. A minimum of 14 cfs of SPF water will be needed to raise one million Chinook to a size of 3.5 inches prior to exposure to river water containing *M. cerebralis*, the causative agent of whirling disease. Complete renovation of the upper hatchery will begin in the spring of 2005.

## **ACKNOWLEDGEMENTS**

We would like to thank Paul Abbott and the staff at IPC for their continued support. We would also like to thank the crew at SFH for all their help with the incubation and early rearing of our fish.

## **APPENDICES**

Appendix A. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon genetic tracking form.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p1	3-Sep	74	F	162	Ponded	Spawned	N
p2	3-Sep	79	F	232	Ponded	Spawned	N
p3	3-Sep	81	F	n/a	Ponded	Spawned	N
p4	3-Sep	75	F	n/a	Ponded	Spawned	N
p5	3-Sep	79	F	895	Ponded	Spawned	N
p6	3-Sep	90	F	n/a	Ponded	Spawned	N
p7	3-Sep	81	F	n/a	Ponded	Spawned	N
p8	3-Sep	82	F	79	Ponded	Spawned	N
P9	3-Sep	80	F	71	Ponded	Spawned	N
P10	3-Sep	78	F	102	Ponded	Spawned	N
P11	3-Sep	87	F	149	Ponded	Spawned	N
P12	3-Sep	80	F	586	Ponded	Spawned	N
P13	3-Sep	77	F	103	Ponded	Spawned	N
P14	3-Sep	91	F	585	Ponded	Spawned	N
P15	3-Sep	89	F	263	Ponded	Spawned	N
P16	3-Sep	87	F	1327	Ponded	Spawned	N
P17	3-Sep	75	F	37	Ponded	Spawned	N
p18	9-Sep	78	F	48	Ponded	Spawned	N
p19	9-Sep	91	F	1579	Ponded	Spawned	N
p20	9-Sep	74	F	6	Ponded	Spawned	N
p21	9-Sep	80	F	127	Ponded	Spawned	N
p22	9-Sep	83	F	482	Ponded	Spawned	N
p23	9-Sep	77	F	133	Ponded	Spawned	N
p24	9-Sep	88	F	244	Ponded	Spawned	N
p25	9-Sep	77	F	4	Ponded	Spawned	Y
P26	9-Sep	81	F	1315	Ponded	Spawned	N
P27	9-Sep	73	F	10	Ponded	Spawned	N
P28	9-Sep	78	F	908	Ponded	Spawned	N
P29	9-Sep	77	F	1627	Ponded	Spawned	N
P30	9-Sep	90	F	178	Ponded	Spawned	N
P31	9-Sep	89	F	1577	Ponded	Spawned	N
P32	9-Sep	77	F	N/A	Ponded	Spawned	N
P33	9-Sep	75	F	139	Ponded	Spawned	N
p34	9-Sep	78	F	220	Ponded	Spawned	N
p35	9-Sep	78	F	n/a	Ponded	Spawned	N
p36	9-Sep	87	F	n/a	Ponded	Spawned	Y
p37	9-Sep	80	F	876	Ponded	Spawned	N
p38	9-Sep	74	F	1310	Ponded	Spawned	N
p39	9-Sep	92	F	115	Ponded	Spawned	N
p40	9-Sep	79	F	439	Ponded	Spawned	N
p41	9-Sep	68	F	n/a	Ponded	Spawned	N
p42	9-Sep	80	F	119	Ponded	Spawned	N
p43	9-Sep	77	F	142	Ponded	Spawned	N
p44	9-Sep	81	F	293	Ponded	Spawned	N
p45	12-Sep	80	F	197	Ponded	Spawned	N
p46	12-Sep	81	F	298	Ponded	Spawned	N
p47	12-Sep	78	F	140	Ponded	Spawned	N
p48	12-Sep	79	F	n/a	Ponded	Spawned	N
p49	12-Sep	83	F	143	Ponded	Spawned	N
p50	12-Sep	75	F	38	Ponded	Spawned	N

Vials number with a "P" prefix denote fish held for spawning. Vials without a "P" prefix denote fish released.

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p51	12-Sep	88	F	460	Ponded	Spawned	N
p52	12-Sep	78	F	n/a	Ponded	Spawned	N
p53	12-Sep	81	F	80	Ponded	Spawned	N
p54	12-Sep	92	F	925	Ponded	Spawned	N
p55	12-Sep	79	F	171	Ponded	Spawned	N
p56	12-Sep	75	F	111	Ponded	Spawned	N
p57	12-Sep	86	F	1632	Ponded	Spawned	N
p58	12-Sep	77	F	1623	Ponded	Spawned	N
p59	12-Sep	79	F	456	Ponded	Spawned	N
p60	12-Sep	75	F	112	Ponded	Spawned	N
p61	12-Sep	79	F	1634	Ponded	Spawned	N
p62	12-Sep	73	F	51	Ponded	Spawned	N
p63	12-Sep	78	F	n/a	Ponded	Spawned	N
p64	12-Sep	79	F	1594	Ponded	Spawned	N
p65	12-Sep	94	F	1322	Ponded	Spawned	N
p66	12-Sep	82	F	1256	Ponded	Spawned	N
p67	12-Sep	73	F	121	Ponded	Spawned	N
p68	12-Sep	78	F	n/a	Ponded	Spawned	N
p69	12-Sep	83	F	1258	Ponded	Spawned	N
p70	12-Sep	78	F	34	Ponded	Spawned	N
p71	12-Sep	87	F	245	Ponded	Spawned	N
p72	12-Sep	75	F	41	Ponded	Spawned	N
p73	12-Sep	78	F	426	Ponded	Spawned	N
p74	12-Sep	82	F	1642	Ponded	Spawned	N
p75	12-Sep	76	F	23	Ponded	Spawned	N
p76	12-Sep	75	F	8	Ponded	Spawned	N
p77	12-Sep	76	F	32	Ponded	Spawned	N
p78	12-Sep	78	F	20	Ponded	Spawned	N
p79	12-Sep	77	F	187	Ponded	Spawned	N
p80	12-Sep	89	F	n/a	Ponded	Spawned	N
p81	12-Sep	83	F	n/a	Ponded	Spawned	N
p82	12-Sep	71	F	63	Ponded	Spawned	N
p83	12-Sep	73	F	273	Ponded	Spawned	N
p84	12-Sep	79	F	194	Ponded	Spawned	N
p85	12-Sep	80	F	172	Ponded	Spawned	N
p86	12-Sep	81	F	1565	Ponded	Spawned	Y
p87	12-Sep	94	F	n/a	Ponded	Spawned	Y
p88	12-Sep	75	F	491	Ponded	Spawned	Y
p89	12-Sep	78	F	1636	Ponded	Spawned	Y
p90	12-Sep	80	F	204	Ponded	Spawned	Y
p91	12-Sep	95	F	175	Ponded	Spawned	Y
p92	16-Sep	66	M	1371	Ponded	Spawned	N
p93	16-Sep	85	M	598	Ponded	Spawned	N
p94	16-Sep	82	F	1635	Ponded	Spawned	Y
p95	16-Sep	87	F	n/a	Ponded	Spawned	Y
p96	16-Sep	78	F	432	Ponded	Spawned	Y
p97	16-Sep	72	F	1674	Ponded	Spawned	Y
p98	16-Sep	75	M	261	Ponded	Spawned	N
p99	16-Sep	82	M	911	Ponded	Spawned	N
p100	16-Sep	90	M	n/a	Ponded	Spawned	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p101	16-Sep	98	M	n/a	Ponded	Spawned	N
p102	16-Sep	76	F	1655	Ponded	Spawned	Y
p103	16-Sep	91	F	1670	Ponded	Spawned	Y
p104	16-Sep	70	M	1536	Ponded	Spawned	N
p105	16-Sep	65	M	n/a	Ponded	Spawned	N
p106	16-Sep	83	M	561	Ponded	Spawned	N
p107	16-Sep	80	F	n/a	Ponded	Spawned	N
p108	16-Sep	76	F	923	Ponded	Spawned	N
p109	16-Sep	77	F	455	Ponded	Spawned	N
p110	16-Sep	75	F	14	Ponded	Spawned	N
p111	16-Sep	97	F	265	Ponded	Spawned	N
p112	16-Sep	76	F	253	Ponded	Spawned	N
p113	16-Sep	77	F	62	Ponded	Spawned	N
p114	16-Sep	79	F	1289	Ponded	Spawned	N
p115	16-Sep	74	F	1560	Ponded	Spawned	N
p116	16-Sep	83	F	n/a	Ponded	Spawned	N
p117	16-Sep	62	M	924	Ponded	Spawned	N
p118	16-Sep	57	M	n/a	Ponded	Spawned	N
p119	16-Sep	63	M	1596	Ponded	Spawned	N
p120	16-Sep	79	F	210	Ponded	Spawned	N
p121	16-Sep	87	F	222	Ponded	Spawned	N
p122	16-Sep	80	F	1619	Ponded	Spawned	N
p123	16-Sep	76	F	104	Ponded	Spawned	N
p124	16-Sep	89	F	n/a	Ponded	Spawned	N
p125	16-Sep	79	F	160	Ponded	Spawned	N
p126	16-Sep	73	F	n/a	Ponded	Spawned	N
p127	16-Sep	74	F	457	Ponded	Spawned	N
p128	16-Sep	80	F	1282	Ponded	Spawned	N
p129	16-Sep	84	F	878	Ponded	Spawned	N
p130	16-Sep	56	M	224	Ponded	Spawned	N
p131	16-Sep	104	M	118	Ponded	Spawned	N
p132	16-Sep	52	M	918	Ponded	Spawned	N
p133	16-Sep	67	F	1260	Ponded	Spawned	N
p134	16-Sep	76	F	n/a	Ponded	Spawned	N
p135	16-Sep	79	F	46	Ponded	Spawned	N
p136	16-Sep	93	F	470	Ponded	Spawned	N
p137	16-Sep	76	F	1313	Ponded	Spawned	N
p138	16-Sep	80	F	110	Ponded	Spawned	N
p139	16-Sep	87	F	241	Ponded	Spawned	N
p140	16-Sep	80	F	1304	Ponded	Spawned	N
p141	16-Sep	82	F	129	Ponded	Spawned	N
p142	16-Sep	87	F	467	Ponded	Spawned	N
p143	16-Sep	54	M	136	Ponded	Spawned	N
p144	16-Sep	50	M	n/a	Ponded	Spawned	N
p145	16-Sep	82	F	562	Ponded	Spawned	N
p146	16-Sep	83	F	1339	Ponded	Spawned	N
p147	16-Sep	72	F	350	Ponded	Spawned	N
p148	16-Sep	76	F	493	Ponded	Spawned	N
p149	16-Sep	79	F	n/a	Ponded	Spawned	N
p150	16-Sep	87	F	1297	Ponded	Spawned	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p151	16-Sep	81	F	n/a	Ponded	Spawned	N
p152	16-Sep	78	F	174	Ponded	Spawned	N
p153	16-Sep	75	F	18	Ponded	Spawned	N
p154	16-Sep	96	F	239	Ponded	Spawned	N
p155	16-Sep	55	M	n/a	Ponded	Spawned	N
p156	16-Sep	78	F	120	Ponded	Spawned	N
p157	16-Sep	75	F	89	Ponded	Spawned	N
p158	16-Sep	86	F	1676	Ponded	Spawned	N
p159	16-Sep	80	F	596	Ponded	Spawned	N
p160	16-Sep	80	F	59	Ponded	Spawned	N
p161	16-Sep	79	F	201	Ponded	Spawned	N
p162	16-Sep	77	F	213	Ponded	Spawned	N
p163	16-Sep	65	F	19	Ponded	Spawned	N
p164	16-Sep	77	F	188	Ponded	Spawned	N
p165	16-Sep	82	F	1286	Ponded	Spawned	N
p166	16-Sep	80	F	1575	Ponded	Spawned	N
p167	16-Sep	54	M	281	Ponded	Spawned	N
p168	16-Sep	55	M	286	Ponded	Spawned	N
p169	17-Sep	82	M	n/a	Ponded	Spawned	N
p170	17-Sep	81	M	n/a	Ponded	Spawned	N
p171	18-Sep	77	M	n/a	Ponded	Spawned	Y
p172	20-Sep	77	F	231	Ponded	Spawned	N
p173	20-Sep	94	F	n/a	Ponded	Spawned	N
p174	20-Sep	79	F	330	Ponded	Spawned	N
p175	20-Sep	80	F	1593	Ponded	Spawned	N
p176	20-Sep	95	M	1688	Ponded	Spawned	Y
p177	20-Sep	82	M	n/a	Ponded	Spawned	Y
p178	20-Sep	83	M	n/a	Ponded	Spawned	Y
p179	20-Sep	96	M	571	Ponded	Spawned	Y
p180	20-Sep	78	F	25	Ponded	Spawned	N
p181	20-Sep	97	F	n/a	Ponded	Spawned	N
p182	20-Sep	91	F	464	Ponded	Spawned	N
p183	20-Sep	87	F	915	Ponded	Spawned	N
p184	20-Sep	86	M	n/a	Ponded	Spawned	Y
p185	20-Sep	100	M	n/a	Ponded	Spawned	Y
p186	20-Sep	70	M	n/a	Ponded	Spawned	Y
p187	20-Sep	84	M	1654	Ponded	Spawned	Y
p188	20-Sep	78	F	226	Ponded	Spawned	N
p189	20-Sep	88	F	195	Ponded	Spawned	N
p190	20-Sep	97	M	447	Ponded	Spawned	Y
p191	20-Sep	76	F	1336	Ponded	Spawned	Y
p192	20-Sep	83	F	1667	Ponded	Spawned	Y
p193	20-Sep	80	M	1369	Ponded	Spawned	N
p194	20-Sep	66	F	1657	Ponded	Spawned	N
p195	20-Sep	77	F	1257	Ponded	Spawned	N
p196	20-Sep	74	F	887	Ponded	Spawned	N
p197	20-Sep	83	F	1292	Ponded	Spawned	N
p198	20-Sep	88	F	1253	Ponded	Spawned	N
p199	20-Sep	91	F	1295	Ponded	Spawned	N
p200	20-Sep	91	F	105	Ponded	Spawned	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p201	20-Sep	85	F	264	Ponded	Spawned	N
p202	20-Sep	82	F	n/a	Ponded	Spawned	N
p203	20-Sep	85	F	n/a	Ponded	Spawned	N
p204	20-Sep	85	F	n/a	Ponded	Spawned	N
p205	20-Sep	79	F	274	Ponded	Spawned	N
p206	20-Sep	73	F	53	Ponded	Spawned	N
p207	20-Sep	80	F	900	Ponded	Spawned	N
p208	20-Sep	76	F	1686	Ponded	Spawned	N
p209	20-Sep	83	F	1658	Ponded	Spawned	N
p210	20-Sep	88	F	1692	Ponded	Spawned	N
p211	20-Sep	77	F	144	Ponded	Spawned	N
p212	20-Sep	78	F	45	Ponded	Spawned	N
p213	20-Sep	83	F	1367	Ponded	Spawned	N
p214	20-Sep	86	F	1682	Ponded	Spawned	N
p215	20-Sep	86	F	1328	Ponded	Spawned	N
p216	20-Sep	79	F	1345	Ponded	Spawned	N
p217	20-Sep	93	F	n/a	Ponded	Spawned	N
p218	20-Sep	79	F	138	Ponded	Spawned	N
p219	20-Sep	96	F	54	Ponded	Spawned	N
p220	20-Sep	81	F	1358	Ponded	Spawned	N
p221	20-Sep	72	F	17	Ponded	Spawned	N
p222	20-Sep	82	F	477	Ponded	Spawned	N
p223	20-Sep	81	F	1656	Ponded	Spawned	N
p224	20-Sep	79	F	332	Ponded	Spawned	N
p225	20-Sep	87	F	1615	Ponded	Spawned	N
p226	20-Sep	79	F	1680	Ponded	Spawned	N
p227	20-Sep	77	F	n/a	Ponded	Spawned	N
p228	20-Sep	76	F	1567	Ponded	Spawned	N
p229	20-Sep	83	F	128	Ponded	Spawned	N
p230	20-Sep	84	F	1514	Ponded	Spawned	N
p231	20-Sep	90	F	1683	Ponded	Spawned	N
p232	20-Sep	84	F	577	Ponded	Spawned	N
P233	23-Sep	85	M	72	Ponded	Spawned	N
P234	23-Sep	n/a	M	n/a	Ponded	Spawned	N
P235	23-Sep	n/a	M	n/a	Ponded	Spawned	N
P236	23-Sep	n/a	M	n/a	Ponded	Spawned	N
P237	23-Sep	n/a	M	n/a	Ponded	Spawned	N
P238	23-Sep	n/a	M	n/a	Ponded	Spawned	N
P239	23-Sep	n/a	M	n/a	Ponded	Spawned	N
P240	23-Sep	n/a	M	n/a	Ponded	Spawned	N
p241	23-Sep	95	M	1580	Ponded	Spawned	Y
p242	23-Sep	82	M	472	Ponded	Spawned	Y
p243	23-Sep	67	M	233	Ponded	Spawned	Y
p244	23-Sep	69	M	n/a	Ponded	Spawned	Y
p245	23-Sep	81	F	1705	Ponded	Spawned	N
p246	23-Sep	99	F	428	Ponded	Spawned	N
p247	23-Sep	80	F	n/a	Ponded	Spawned	N
p248	23-Sep	82	F	n/a	Ponded	Spawned	N
p249	23-Sep	82	F	1543	Ponded	Spawned	Y
p250	23-Sep	102	M	n/a	Ponded	Spawned	N

Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p251	23-Sep	96	M	n/a	Ponded	Spawned	N
p252	23-Sep	99	M	n/a	Ponded	Spawned	N
p253	23-Sep	102	M	n/a	Ponded	Spawned	N
p254	23-Sep	84	F	1341	Ponded	Spawned	N
p255	23-Sep	77	F	39	Ponded	Spawned	N
p256	23-Sep	80	F	n/a	Ponded	Spawned	N
p257	23-Sep	81	F	1274	Ponded	Spawned	N
p258	23-Sep	85	F	1521	Ponded	Spawned	N
p259	23-Sep	83	F	n/a	Ponded	Spawned	N
p260	23-Sep	81	F	1318	Ponded	Spawned	N
p261	23-Sep	80	F	1697	Ponded	Spawned	N
p262	23-Sep	81	F	882	Ponded	Spawned	N
p263	23-Sep	81	F	1293	Ponded	Spawned	N
p264	23-Sep	87	M	1668	Ponded	Spawned	N
p265	23-Sep	81	F	1261	Ponded	Spawned	N
p266	23-Sep	91	F	1534	Ponded	Spawned	N
p267	23-Sep	94	F	n/a	Ponded	Spawned	N
p268	23-Sep	96	F	1702	Ponded	Spawned	N
p269	23-Sep	80	F	n/a	Ponded	Spawned	N
p270	23-Sep	92	F	570	Ponded	Spawned	N
p271	23-Sep	81	F	1691	Ponded	Spawned	N
p272	23-Sep	82	F	1251	Ponded	Spawned	N
p273	23-Sep	78	F	1576	Ponded	Spawned	N
p274	23-Sep	77	F	463	Ponded	Spawned	N
p275	23-Sep	83	F	1701	Ponded	Spawned	N
p276	23-Sep	76	F	145	Ponded	Spawned	N
p277	23-Sep	77	F	78	Ponded	Spawned	N
p278	23-Sep	77	F	5	Ponded	Spawned	N
p279	23-Sep	80	F	246	Ponded	Spawned	N
p280	23-Sep	80	F	1695	Ponded	Spawned	N
p281	23-Sep	81	F	1279	Ponded	Spawned	N
p282	23-Sep	73	M	n/a	Ponded	Spawned	N
p283	23-Sep	83	M	n/a	Ponded	Spawned	N
p284	23-Sep	86	M	n/a	Ponded	Spawned	N
P285	24-Sep	87	M	N/A	Ponded	Spawned	Y
P286	24-Sep	92	M	N/A	Ponded	Spawned	Y
P287	24-Sep	64	M	1319	Ponded	Spawned	Y
P288	24-Sep	66	M	572	Ponded	Spawned	Y
P289	24-Sep	78	M	N/A	Ponded	Spawned	Y
P290	24-Sep	97	M	163	Ponded	Spawned	Y
P291	24-Sep	84	M	N/A	Ponded	Spawned	Y
P292	24-Sep	75	M	N/A	Ponded	Spawned	N
P293	24-Sep	63	M	N/A	Ponded	Spawned	N
P294	24-Sep	86	M	N/A	Ponded	Spawned	N
P295	24-Sep	84	M	N/A	Ponded	Spawned	N
P296	24-Sep	82	M	N/A	Ponded	Spawned	N
P297	24-Sep	86	M	1669	Ponded	Spawned	N
P298	24-Sep	92	M	N/A	Ponded	Spawned	N
P299	24-Sep	83	M	1584	Ponded	Spawned	N
P300	24-Sep	78	M	58	Ponded	Spawned	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
P301	24-Sep	86	M	N/A	Ponded	Spawned	N
P302	24-Sep	100	M	N/A	Ponded	Spawned	N
P303	24-Sep	62	M	N/A	Ponded	Spawned	N
P304	24-Sep	83	M	909	Ponded	Spawned	N
P305	24-Sep	102	M	N/A	Ponded	Spawned	N
P306	24-Sep	51	M	217	Ponded	Killed	N
P307	24-Sep	63	M	1582	Ponded	Killed	N
P308	24-Sep	63	M	N/A	Ponded	Killed	N
P309	24-Sep	65	M	1553	Ponded	Spawned	N
P310	24-Sep	69	M	1639	Ponded	Killed	N
P311	24-Sep	66	M	1556	Ponded	Killed	N
P312	24-Sep	63	M	1583	Ponded	Killed	N
P313	24-Sep	50	M	190	Ponded	Killed	N
P314	24-Sep	49	M	N/A	Ponded	Killed	N
P315	24-Sep	55	M	218	Ponded	Killed	N
P316	24-Sep	58	M	1703	Ponded	Killed	N
P317	24-Sep	53	M	275	Ponded	Spawned	N
P318	24-Sep	81	M	N/A	Ponded	Spawned	N
P319	24-Sep	64	M	N/A	Ponded	Spawned	N
P320	24-Sep	63	M	N/A	Ponded	Spawned	N
P321	24-Sep	51	M	205	Ponded	Spawned	N
P322	24-Sep	64	M	N/A	Ponded	Spawned	N
P323	24-Sep	57	M	1263	Ponded	Spawned	N
P324	24-Sep	66	M	1371	Ponded	Spawned	N
P325	24-Sep	80	M	N/A	Ponded	Spawned	N
p326	27-Sep	102	M	884	Ponded	Spawned	N
p327	27-Sep	84	M	n/a	Ponded	Spawned	N
p328	27-Sep	88	M	n/a	Ponded	Spawned	N
p329	27-Sep	86	M	n/a	Ponded	Spawned	N
p330	27-Sep	102	M	n/a	Ponded	Spawned	N
p331	27-Sep	60	M	n/a	Ponded	Spawned	N
p332	27-Sep	82	M	207	Ponded	Spawned	N
p333	27-Sep	92	M	113	Ponded	Spawned	N
p334	27-Sep	73	F	580	Ponded	Spawned	N
p335	27-Sep	79	F	905	Ponded	Spawned	N
p336	27-Sep	83	F	1700	Ponded	Spawned	N
p337	27-Sep	78	F	1573	Ponded	Spawned	N
p338	27-Sep	86	F	593	Ponded	Spawned	N
p339	27-Sep	80	F	1559	Ponded	Spawned	N
p340	27-Sep	79	F	n/a	Ponded	Spawned	N
p341	27-Sep	83	F	891	Ponded	Spawned	N
p342	27-Sep	75	F	1285	Ponded	Spawned	N
p343	27-Sep	83	F	n/a	Ponded	Spawned	N
p344	27-Sep	85	M	n/a	Ponded	Spawned	N
p345	27-Sep	86	M	n/a	Ponded	Spawned	N
p346	27-Sep	85	M	1693	Ponded	Spawned	N
p347	27-Sep	97	M	1375	Ponded	Spawned	N
p348	27-Sep	85	M	156	Ponded	Spawned	N
p349	27-Sep	95	M	n/a	Ponded	Spawned	N
p350	27-Sep	101	M	1548	Ponded	Spawned	N

Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p351	27-Sep	85	M	n/a	Ponded	Spawned	N
p352	27-Sep	82	M	1630	Ponded	Spawned	N
p353	27-Sep	91	M	n/a	Ponded	Spawned	N
p354	27-Sep	98	M	n/a	Ponded	Spawned	N
p355	27-Sep	79	F	n/a	Ponded	Spawned	N
p356	27-Sep	96	F	1508	Ponded	Spawned	N
p357	27-Sep	80	F	1340	Ponded	Spawned	N
p358	27-Sep	83	F	1572	Ponded	Spawned	N
p359	27-Sep	83	F	n/a	Ponded	Spawned	N
p360	27-Sep	85	F	n/a	Ponded	Spawned	N
p361	27-Sep	82	F	n/a	Ponded	Spawned	N
p362	27-Sep	84	F	1355	Ponded	Spawned	N
p363	27-Sep	87	F	n/a	Ponded	Spawned	N
p364	27-Sep	94	M	n/a	Ponded	Spawned	N
p365	27-Sep	88	M	n/a	Ponded	Spawned	N
p366	27-Sep	82	M	n/a	Ponded	Spawned	N
p367	27-Sep	86	M	n/a	Ponded	Spawned	N
p368	27-Sep	83	M	459	Ponded	Spawned	N
p369	27-Sep	89	M	n/a	Ponded	Spawned	N
p370	27-Sep	97	M	450	Ponded	Spawned	N
p371	27-Sep	102	M	n/a	Ponded	Spawned	N
p372	27-Sep	87	M	1660	Ponded	Spawned	N
p373	27-Sep	75	F	225	Ponded	Spawned	N
p374	27-Sep	78	F	1308	Ponded	Spawned	N
p375	27-Sep	76	F	451	Ponded	Spawned	N
p376	27-Sep	77	F	n/a	Ponded	Spawned	N
p377	27-Sep	76	F	44	Ponded	Spawned	N
p378	27-Sep	90	F	475	Ponded	Spawned	N
p379	27-Sep	98	M	250	Ponded	Spawned	N
p380	27-Sep	81	M	1259	Ponded	Spawned	N
p381	27-Sep	83	M	n/a	Ponded	Spawned	N
p382	27-Sep	83	M	1555	Ponded	Spawned	N
p383	27-Sep	87	M	1267	Ponded	Spawned	N
p384	27-Sep	80	M	1526	Ponded	Spawned	N
p385	27-Sep	88	M	n/a	Ponded	Spawned	N
p386	27-Sep	100	M	n/a	Ponded	Spawned	N
p387	27-Sep	83	M	n/a	Ponded	Spawned	N
p388	30-Sep	61	M	1561	Ponded	Spawned	N
p389	30-Sep	93	M	164	Ponded	Spawned	N
p390	30-Sep	96	M	n/a	Ponded	Spawned	N
p391	30-Sep	81	M	43	Ponded	Spawned	N
p392	30-Sep	87	M	n/a	Ponded	Spawned	N
p393	30-Sep	81	F	1566	Ponded	Spawned	N
p394	30-Sep	80	F	589	Ponded	Spawned	N
p395	30-Sep	91	F	1368	Ponded	Spawned	N
p396	30-Sep	82	F	n/a	Ponded	Spawned	N
p397	30-Sep	82	F	1296	Ponded	Spawned	N
p398	30-Sep	94	F	1268	Ponded	Spawned	N
p399	30-Sep	78	F	595	Ponded	Spawned	N
p400	30-Sep	80	M	1359	Ponded	Spawned	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p401	30-Sep	87	M	n/a	Ponded	Spawned	N
p402	30-Sep	77	M	913	Ponded	Spawned	N
p403	30-Sep	84	M	1527	Ponded	Spawned	N
p404	30-Sep	90	M	n/a	Ponded	Spawned	N
p405	30-Sep	82	M	906	Ponded	Spawned	N
p406	30-Sep	88	M	1515	Ponded	Spawned	N
p407	30-Sep	86	M	1324	Ponded	Spawned	N
p408	30-Sep	83	M	n/a	Ponded	Spawned	N
p409	30-Sep	78	M	1547	Ponded	Spawned	N
p410	30-Sep	85	M	591	Ponded	Spawned	N
p411	30-Sep	76	M	n/a	Ponded	Spawned	N
p412	30-Sep	92	M	n/a	Ponded	Spawned	N
p413	30-Sep	86	M	n/a	Ponded	Spawned	N
p414	30-Sep	80	M	1520	Ponded	Spawned	N
p415	30-Sep	91	M	n/a	Ponded	Spawned	N
p416	30-Sep	90	M	1698	Ponded	Spawned	N
p417	30-Sep	79	M	n/a	Ponded	Spawned	N
p418	30-Sep	64	M	n/a	Ponded	Spawned	N
p419	30-Sep	80	M	n/a	Ponded	Spawned	N
1	23-Jun	71	M	7	Released	Released	Y
2	24-Jun	72	F	11	Released	Released	Y
3	24-Jun	90	F	12	Released	Released	Y
4	27-Jun	79	F	40	Released	Released	Y
5	28-Jun	76	F	60	Released	Released	Y
6	28-Jun	74	F	61	Released	Released	Y
7	29-Jun	87	F	76	Released	Released	Y
8	30-Jun	92	F	85	Released	Released	Y
9	30-Jun	79	M	90	Released	Released	Y
10	30-Jun	81	F	91	Released	Released	Y
11	30-Jun	77	F	92	Released	Released	Y
12	1-Jul	82	F	101	Released	Released	Y
13	1-Jul	67	M	107	Released	Released	Y
14	1-Jul	76	F	108	Released	Released	Y
15	1-Jul	93	F	116	Released	Released	Y
16	2-Jul	77	M	124	Released	Released	Y
17	2-Jul	74	M	132	Released	Released	Y
18	3-Jul	78	M	146	Released	Released	Y
19	15-Jul	78	F	27	Ponded	Released	N
20	15-Jul	78	F	453	Ponded	Released	Y
21	15-Jul	77	F	144	Ponded	Released	N
22	15-Jul	79	F	469	Ponded	Released	N
23	15-Jul	88	F	499	Ponded	Released	Y
24	15-Jul	76	F	249	Ponded	Released	N
25	15-Jul	78	F	42	Ponded	Released	N
26	15-Jul	92	M	114	Ponded	Released	N
27	15-Jul	75	F	227	Ponded	Released	N
28	15-Jul	74	F	200	Ponded	Released	Y
29	15-Jul	70	F	49	Ponded	Released	N
30	15-Jul	93	F	192	Ponded	Released	Y
31	15-Jul	74	F	242	Ponded	Released	Y

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
p401	30-Sep	87	m	n/a	Ponded	Spawned	n
p402	30-Sep	77	m	913	Ponded	Spawned	n
p403	30-Sep	84	m	1527	Ponded	Spawned	n
p404	30-Sep	90	m	n/a	Ponded	Spawned	n
p405	30-Sep	82	m	906	Ponded	Spawned	n
p406	30-Sep	88	m	1515	Ponded	Spawned	n
p407	30-Sep	86	m	1324	Ponded	Spawned	n
p408	30-Sep	83	m	n/a	Ponded	Spawned	n
p409	30-Sep	78	m	1547	Ponded	Spawned	n
p410	30-Sep	85	m	591	Ponded	Spawned	n
p411	30-Sep	76	m	n/a	Ponded	Spawned	n
p412	30-Sep	92	m	n/a	Ponded	Spawned	n
p413	30-Sep	86	m	n/a	Ponded	Spawned	n
p414	30-Sep	80	m	1520	Ponded	Spawned	n
p415	30-Sep	91	m	n/a	Ponded	Spawned	n
p416	30-Sep	90	m	1698	Ponded	Spawned	n
p417	30-Sep	79	m	n/a	Ponded	Spawned	n
p418	30-Sep	64	m	n/a	Ponded	Spawned	n
p419	30-Sep	80	m	n/a	Ponded	Spawned	n
1	23-Jun	71	M	7	Released	Released	y
2	24-Jun	72	F	11	Released	Released	y
3	24-Jun	90	F	12	Released	Released	y
4	27-Jun	79	f	40	Released	Released	y
5	28-Jun	76	f	60	Released	Released	y
6	28-Jun	74	f	61	Released	Released	y
7	29-Jun	87	f	76	Released	Released	y
8	30-Jun	92	f	85	Released	Released	y
9	30-Jun	79	m	90	Released	Released	y
10	30-Jun	81	f	91	Released	Released	y
11	30-Jun	77	f	92	Released	Released	y
12	1-Jul	82	f	101	Released	Released	y
13	1-Jul	67	m	107	Released	Released	y
14	1-Jul	76	f	108	Released	Released	y
15	1-Jul	93	f	116	Released	Released	y
16	2-Jul	77	m	124	Released	Released	y
17	2-Jul	74	m	132	Released	Released	y
18	3-Jul	78	m	146	Released	Released	y
19	15-Jul	78	f	27	Ponded	Released	n
20	15-Jul	78	f	453	Ponded	Released	y
21	15-Jul	77	f	144	Ponded	Released	n
22	15-Jul	79	f	469	Ponded	Released	n
23	15-Jul	88	f	499	Ponded	Released	y
24	15-Jul	76	f	249	Ponded	Released	n
25	15-Jul	78	f	42	Ponded	Released	n
26	15-Jul	92	m	114	Ponded	Released	n
27	15-Jul	75	f	227	Ponded	Released	n
28	15-Jul	74	f	200	Ponded	Released	y
29	15-Jul	70	f	49	Ponded	Released	n
30	15-Jul	93	f	192	Ponded	Released	y
31	15-Jul	74	f	242	Ponded	Released	y

Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
32	15-Jul	93	F	333	Ponded	Released	Y
33	15-Jul	81	F	443	Ponded	Released	Y
34	15-Jul	71	F	206	Ponded	Released	Y
35	15-Jul	77	F	291	Ponded	Released	N
36	15-Jul	78	F	461	Ponded	Released	Y
37	15-Jul	76	F	22	Ponded	Released	N
38	15-Jul	80	F	565	Ponded	Released	N
39	15-Jul	81	F	186	Ponded	Released	N
40	15-Jul	78	F	82	Ponded	Released	N
41	15-Jul	87	F	240	Ponded	Released	N
42	15-Jul	93	F	479	Ponded	Released	Y
43	15-Jul	77	F	167	Ponded	Released	Y
44	15-Jul	83	F	500	Ponded	Released	Y
45	15-Jul	97	F	498	Ponded	Released	Y
46	15-Jul	84	F	554	Ponded	Released	N
47	15-Jul	77	F	434	Ponded	Released	N
48	15-Jul	87	F	556	Ponded	Released	Y
49	15-Jul	82	F	266	Ponded	Released	N
50	15-Jul	92	F	148	Ponded	Released	Y
51	15-Jul	78	F	67	Ponded	Released	N
52	15-Jul	76	F	141	Ponded	Released	N
53	15-Jul	72	F	1	Ponded	Released	N
54	15-Jul	80	F	590	Ponded	Released	N
55	15-Jul	83	F	277	Ponded	Released	N
56	15-Jul	88	F	488	Ponded	Released	N
57	15-Jul	77	F	131	Ponded	Released	N
58	15-Jul	75	F	462	Ponded	Released	N
59	15-Jul	80	F	219	Ponded	Released	N
60	15-Jul	90	F	247	Ponded	Released	Y
61	15-Jul	76	F	55	Ponded	Released	N
62	15-Jul	93	F	327	Ponded	Released	N
63	15-Jul	88	F	478	Ponded	Released	N
64	15-Jul	82	F	583	Ponded	Released	N
65	15-Jul	76	F	203	Ponded	Released	N
66	15-Jul	77	F	93	Ponded	Released	Y
67	15-Jul	76	F	431	Ponded	Released	Y
68	15-Jul	76	F	36	Ponded	Released	N
69	15-Jul	86	F	262	Ponded	Released	Y
70	15-Jul	78	F	109	Ponded	Released	N
71	15-Jul	79	F	16	Ponded	Released	N
72	15-Jul	63	F	117	Ponded	Released	N
73	15-Jul	81	F	202	Ponded	Released	Y
74	15-Jul	77	F	329	Ponded	Released	Y
75	15-Jul	90	F	126	Ponded	Released	N
76	15-Jul	87	F	346	Ponded	Released	N
77	15-Jul	77	F	259	Ponded	Released	Y
78	15-Jul	78	F	95	Ponded	Released	N
79	15-Jul	76	F	335	Ponded	Released	Y
80	15-Jul	83	F	83	Ponded	Released	Y
81	15-Jul	82	F	9	Ponded	Released	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
82	15-Jul	77	F	468	Ponded	Released	Y
83	15-Jul	80	F	168	Ponded	Released	Y
84	15-Jul	80	F	196	Ponded	Released	N
85	15-Jul	96	F	581	Ponded	Released	Y
86	15-Jul	64	M	191	Ponded	Released	Y
87	15-Jul	73	M	272	Ponded	Released	Y
88	15-Jul	87	M	458	Ponded	Released	N
89	15-Jul	81	M	183	Ponded	Released	N
90	15-Jul	83	M	193	Ponded	Released	Y
91	15-Jul	87	M	70	Ponded	Released	N
92	15-Jul	83	M	592	Ponded	Released	N
93	15-Jul	77	M	2	Ponded	Released	N
94	15-Jul	89	M	252	Ponded	Released	Y
95	15-Jul	82	M	483	Ponded	Released	Y
96	15-Jul	88	M	166	Ponded	Released	N
97	15-Jul	74	M	165	Ponded	Released	Y
98	15-Jul	82	M	568	Ponded	Released	Y
99	15-Jul	90	M	476	Ponded	Released	N
100	15-Jul	51	M	84	Ponded	Released	N
101	15-Jul	66	M	578	Ponded	Released	Y
102	15-Jul	81	M	569	Ponded	Released	Y
103	15-Jul	82	M	280	Ponded	Released	N
104	15-Jul	81	M	489	Ponded	Released	Y
105	15-Jul	89	M	338	Ponded	Released	N
106	15-Jul	95	M	448	Ponded	Released	N
107	15-Jul	95	M	155	Ponded	Released	Y
108	15-Jul	78	M	564	Ponded	Released	Y
109	15-Jul	80	M	31	Ponded	Released	N
110	15-Jul	80	M	429	Ponded	Released	N
111	15-Jul	71	M	555	Ponded	Released	Y
112	15-Jul	82	M	567	Ponded	Released	Y
113	15-Jul	62	M	575	Ponded	Released	N
114	15-Jul	84	M	588	Ponded	Released	Y
115	15-Jul	69	M	294	Ponded	Released	Y
116	15-Jul	77	M	481	Ponded	Released	Y
117	15-Jul	54	M	230	Ponded	Released	N
118	15-Jul	87	M	484	Ponded	Released	Y
119	15-Jul	90	M	159	Ponded	Released	Y
120	15-Jul	84	M	494	Ponded	Released	N
121	15-Jul	73	M	473	Ponded	Released	Y
122	15-Jul	95	M	446	Ponded	Released	Y
123	15-Jul	76	M	229	Ponded	Released	Y
124	15-Jul	89	M	88	Ponded	Released	N
125	15-Jul	82	M	47	Ponded	Released	N
126	15-Jul	83	M	254	Ponded	Released	N
127	15-Jul	96	M	n/a	Ponded	Released	Y
128	15-Jul	99	M	66	Ponded	Released	Y
129	15-Jul	85	F	597	Released	Released	N
130	15-Jul	66	M	599	Released	Released	N
131	15-Jul	88	M	883	Released	Released	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
132	15-Jul	96	F	892	Released	Released	N
133	16-Jul	79	M	893	Released	Released	N
134	16-Jul	95	M	899	Released	Released	N
135	16-Jul	90	M	903	Released	Released	Y
136	16-Jul	83	M	910	Released	Released	N
137	17-Jul	77	M	916	Released	Released	N
138	17-Jul	78	F	917	Released	Released	N
139	17-Jul	80	F	921	Released	Released	N
140	17-Jul	77	F	922	Released	Released	Y
141	17-Jul	73	F	1252	Released	Released	Y
142	17-Jul	67	N	1254	Released	Released	N
143	18-Jul	71	N	1262	Released	Released	Y
144	18-Jul	91	F	1269	Released	Released	Y
145	18-Jul	95	F	1270	Released	Released	N
146	18-Jul	95	N	1271	Released	Released	Y
147	18-Jul	94	F	1275	Released	Released	Y
148	18-Jul	81	M	1276	Released	Released	N
149	18-Jul	78	F	1278	Released	Released	N
150	18-Jul	84	M	1280	Released	Released	N
151	18-Jul	91	M	1281	Released	Released	Y
152	18-Jul	63	M	1284	Released	Released	Y
153	19-Jul	78	F	1287	Released	Released	Y
154	19-Jul	83	F	1288	Released	Released	N
155	19-Jul	90	M	1290	Released	Released	Y
156	19-Jul	64	M	1298	Released	Released	Y
157	19-Jul	64	M	1303	Released	Released	Y
158	19-Jul	55	M	1309	Released	Released	Y
159	20-Jul	77	F	1314	Released	Released	Y
160	20-Jul	55	M	1316	Released	Released	Y
161	20-Jul	80	F	1317	Released	Released	Y
162	20-Jul	78	F	1320	Released	Released	Y
163	21-Jul	78	M	1329	Released	Released	Y
164	21-Jul	86	F	1332	Released	Released	Y
165	21-Jul	80	F	1337	Released	Released	N
166	21-Jul	83	F	1338	Released	Released	N
167	22-Jul	81	F	1347	Released	Released	Y
168	22-Jul	80	F	1348	Released	Released	N
169	22-Jul	82	F	1351	Released	Released	Y
170	22-Jul	73	M	1352	Released	Released	Y
171	22-Jul	78	F	1354	Released	Released	N
172	22-Jul	84	F	1356	Released	Released	Y
173	22-Jul	82	F	1357	Released	Released	N
174	23-Jul	72	M	1364	Released	Released	Y
175	23-Jul	101	M	1365	Released	Released	Y
176	23-Jul	66	M	n/a	Released	Released	Y
177	23-Jul	77	F	n/a	Released	Released	Y
178	23-Jul	80	F	n/a	Released	Released	N
179	24-Jul	70	M	n/a	Released	Released	Y
180	24-Jul	81	F	n/a	Released	Released	N
181	24-Jul	88	F	n/a	Released	Released	Y

Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
182	24-Jul	66	M	n/a	Released	Released	Y
183	24-Jul	66	M	n/a	Released	Released	Y
184	25-Jul	79	F	1507	Released	Released	N
185	25-Jul	80	M	1512	Released	Released	Y
186	27-Jul	89	F	1522	Released	Released	Y
187	27-Jul	70	M	1523	Released	Released	Y
188	27-Jul	89	F	1524	Released	Released	N
189	27-Jul	90	F	1525	Released	Released	Y
190	28-Jul	80	F	1526	Released	Released	N
191	28-Jul	71	F	1531	Released	Released	Y
192	29-Jul	64	M	1535	Released	Released	N
193	8-Aug	88	M	1578	Released	Released	N
194	25-Aug	48	M	1609	Released	Released	N
195	26-Aug	48	M	1610	Released	Released	N
196	26-Aug	87	F	1613	Released	Released	N
197	26-Aug	44	M	n/a	Released	Released	Y
198	31-Aug	78	F	n/a	Released	Released	N
199	31-Aug	63	M	n/a	Released	Released	N
200	31-Aug	66	M	n/a	Released	Released	Y
201	31-Aug	66	M	n/a	Released	Released	N
202	31-Aug	73	F	1283	Ponded	Released	N
203	31-Aug	82	F	485	Ponded	Released	N
204	31-Aug	79	F	28	Ponded	Released	N
205	31-Aug	82	F	1599	Ponded	Released	N
206	31-Aug	78	F	278	Ponded	Released	N
207	31-Aug	80	F	290	Ponded	Released	N
208	31-Aug	76	F	287	Ponded	Released	N
209	31-Aug	79	F	914	Ponded	Released	N
210	31-Aug	76	F	198	Ponded	Released	N
211	31-Aug	78	F	1273	Ponded	Released	N
212	31-Aug	74	F	26	Ponded	Released	N
213	31-Aug	81	F	487	Ponded	Released	N
214	31-Aug	84	F	465	Ponded	Released	N
215	31-Aug	87	F	587	Ponded	Released	N
216	31-Aug	87	F	594	Ponded	Released	N
217	31-Aug	77	F	94	Ponded	Released	N
218	31-Aug	94	F	289	Ponded	Released	N
219	31-Aug	79	F	1545	Ponded	Released	N
220	31-Aug	77	F	889	Ponded	Released	N
221	31-Aug	72	F	1590	Ponded	Released	N
222	31-Aug	90	F	888	Ponded	Released	N
223	31-Aug	78	F	1361	Ponded	Released	N
224	31-Aug	76	F	208	Ponded	Released	N
225	31-Aug	76	F	87	Ponded	Released	N
226	31-Aug	81	F	486	Ponded	Released	N
227	31-Aug	85	M	1541	Ponded	Released	N
228	31-Aug	84	M	1305	Ponded	Released	N
229	31-Aug	54	M	296	Ponded	Released	N
230	31-Aug	51	M	345	Ponded	Released	N
231	31-Aug	73	M	885	Ponded	Released	N

## Appendix A. Continued.

VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	HATCHERY FLOY TAG NO.	INITIAL DISPOSITION	FINAL DISPOSITION	UNMARKED FISH (Y/N)
232	31-Aug	75	M	1614	Ponded	Released	N
233	31-Aug	83	M	894	Ponded	Released	N
234	31-Aug	80	M	1603	Ponded	Released	N
235	31-Aug	79	M	33	Ponded	Released	N
236	31-Aug	75	M	349	Ponded	Released	N
237	1-Sep	66	M	1621	Released	Released	Y
238	1-Sep	80	F	n/a	Released	Released	N
239	3-Sep	87	F	n/a	Released	Released	N
240	2-Sep	79	F	1622	Released	Released	Y
241	9-Sep	76	M	n/a	Released	Released	Y
242	10-Sep	76	M	n/a	Released	Released	Y
243	10-Sep	88	M	n/a	Released	Released	Y
244	10-Sep	69	M	n/a	Released	Released	Y
245	10-Sep	71	M	n/a	Released	Released	Y
246	12-Sep	57	M	n/a	Released	Released	Y
247	12-Sep	59	M	n/a	Released	Released	Y
248	13-Sep	53	M	n/a	Released	Released	Y
249	14-Sep	81	M	n/a	Released	Released	Y
250	14-Sep	79	M	n/a	Released	Released	Y
251	14-Sep	80	F	n/a	Released	Released	Y
252	14-Sep	100	M	n/a	Released	Released	Y
253	14-Sep	82	F	n/a	Released	Released	Y
254	15-Sep	83	F	n/a	Released	Released	N
255	15-Sep	100	M	n/a	Released	Released	Y
256	15-Sep	61	M	n/a	Released	Released	Y
257	16-Sep	86	M	n/a	Released	Released	Y
258	16-Sep	74	M	n/a	Released	Released	Y
259	16-Sep	68	M	n/a	Released	Released	Y
260	16-Sep	52	M	n/a	Released	Released	Y
261	16-Sep	72	M	n/a	Released	Released	Y
262	17-Sep	74	M	n/a	Released	Released	Y
263	18-Sep	75	F	n/a	Released	Released	Y
264	18-Sep	100	M	n/a	Released	Released	Y
265	18-Sep	92	M	n/a	Released	Released	Y
266	19-Sep	74	F	n/a	Released	Released	Y
267	19-Sep	96	M	n/a	Released	Released	Y
268	20-Sep	80	M	n/a	Released	Released	Y
269	20-Sep	94	M	n/a	Released	Released	Y
270	20-Sep	80	M	n/a	Released	Released	Y
271	21-Sep	87	M	n/a	Released	Released	Y
272	21-Sep	80	M	n/a	Released	Released	Y
273	22-Sep	97	M	n/a	Released	Released	Y
274	22-Sep	95	M	n/a	Released	Released	Y
275	22-Sep	89	M	n/a	Released	Released	Y
276	22-Sep	93	F	n/a	Released	Released	Y
277	22-Sep	80	M	n/a	Released	Released	Y
278	23-Sep	77	M	n/a	Released	Released	Y
279	24-Sep	75	M	n/a	Released	Released	Y
280	24-Sep	93	M	n/a	Released	Released	Y
281	24-Sep	80	F	n/a	Released	Released	N
282	24-Sep	81	F	n/a	Released	Released	Y
283	24-Sep	95	M	n/a	Released	Released	Y
284	30-Sep	76	F	1518	Ponded	Released	N
285	30-Sep	84	F	552	Ponded	Released	N
286	30-Sep	81	F	1342	Ponded	Released	N
287	30-Sep	80	F	1562	Ponded	Released	N
288	30-Sep	75	F	344	Ponded	Released	N

Appendix B. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon reserve group mating summary.

Female Disp. Codes:  
 1=Spawmed/Killed  
 2=SpawmedOut  
 3=Killed/Rejected(Disease)  
 4=Killed/Rejected(Egg Quality)  
 5=Killed/Green

Male Disp. Codes  
 1=Spawmed/Ponded  
 2=Spawmed/Killed  
 3=Spawmed/Released

Clip Type Codes:  
 ad=Adipose Clip  
 pit=PIT tagged

ADULT SUMMER CHINOOK DATA SECTION														EGG TRACKING SECTION		
ADULT FEMALE DATA					MALE #1 DATA					MALE #2 (Backup) DATA				INCUBATION		
SPAWN DATE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	BUCKET NUMBER	TRAY #	COMMENTS	
9/3/2002	162	1	74	ad	1291	1	80	ad			#N/A	#N/A	1	st1,tr1		
9/3/2002	232	1	79	ad	72	1	85	ad			#N/A	#N/A	2	st1,tr2		
9/3/2002	n/a	1	81	ad	442	1	84	ad			#N/A	#N/A	3	st1,tr3		
9/3/2002	n/a	1	75	ad	113	1	92	ad			#N/A	#N/A	4	st1,tr4		
9/3/2002	895	1	79	ad	n/a	1	89	ad			#N/A	#N/A	5	st1,tr5		
9/3/2002	n/a	1	90	ad	209	1	82	ad	125	1	95	ad	6	st1,tr6		
9/3/2002	n/a	1	81	ad	100	1	55	ad	207	1	82	ad	7	st1,tr7		
9/3/2002	79	1	82	ad	275	1	53	ad	1584	1	83	ad	8	st1,tr8		
9/3/2002	71	1	80	ad	156	1	85	ad			#N/A	#N/A	9	st1,tr9		
9/3/2002	102	1	78	ad	1624	1	89	ad	176	1	85	ad	10	st1,tr10	10% over-ripe	
9/3/2002	149	1	87	ad	154	1	57	ad			#N/A	#N/A	11	st1,tr11		
9/3/2002	586	1	80	ad	909	1	83	ad			#N/A	#N/A	12	st1,tr12		
9/3/2002	103	1	77	ad	444	1	97	ad			#N/A	#N/A	13	st1,tr13		
9/3/2002	585	1	91	ad	n/a	1	87	ad			#N/A	#N/A	14	st1,tr14		
9/3/2002	263	1	89	ad	205	1	51	ad	n/a	1	102	ad	15	st1,tr15	bloody skeine	
9/3/2002	1327	1	87	ad	n/a	1	90	ad			#N/A	#N/A	16	st2,tr1		
9/3/2002	37	1	75	ad	100	1	55	ad	598	1	85	ad	17	st2,tr2		
9/9/2002	48	1	78	ad	n/a	1	81	ad			#N/A	#N/A	1	st2, tr3		
9/9/2002	1579	1	91	ad	156	1	85	ad			#N/A	#N/A	2	st2, tr4		
9/9/2002	6	1	74	ad	156	1	85	ad			#N/A	#N/A	3	st2,tr5		
9/9/2002	127	1	80	ad	1346	1	86	ad			#N/A	#N/A	4	st2,tr6		
9/9/2002	482	1	83	ad	58	1	78	ad			#N/A	#N/A	5	st2,tr7		
9/9/2002	133	1	77	ad	58	1	78	ad			#N/A	#N/A	6	st2,tr8		
9/9/2002	244	1	88	ad	427	1	101	ad			#N/A	#N/A	7	st2,tr9		
9/9/2002	1315	1	81	ad	292	1	82	ad			#N/A	#N/A	12	st2,tr11		
9/9/2002	10	1	73	ad	292	1	82	ad			#N/A	#N/A	13	st2,tr12		
9/9/2002	908	1	78	ad	N/A	1	99	ad			#N/A	#N/A	14	st2,tr13		
9/9/2002	1627	1	77	ad	N/A	1	99	ad	598	1	85	ad	15	st2,tr14		
9/9/2002	178	1	90	ad	598	1	85	ad			#N/A	#N/A	16	st2,tr15		
9/9/2002	1577	1	89	ad	1606	1	82	ad			#N/A	#N/A	17	st3,tr1	partial over-ripe	
9/9/2002	N/A	1	77	ad	342	1	95	ad	1503	1	88	ad	18	st3,tr2		
9/9/2002	139	1	75	ad	1503	1	88	ad			#N/A	#N/A	19	st3,tr3		
9/9/2002	876	1	80	ad	n/a	1	84	ad			#N/A	#N/A	29	st3,tr7		
9/9/2002	1310	1	74	ad	n/a	1	83	ad			#N/A	#N/A	30	st3,tr8		
9/9/2002	115	1	92	ad	n/a	1	74	ad			#N/A	#N/A	31	st3,tr9		
9/9/2002	439	1	79	ad	n/a	1	74	ad			#N/A	#N/A	32	st3,tr10		
9/9/2002	n/a	1	68	ad	441	1	82	ad			#N/A	#N/A	33	st3,tr11		
9/9/2002	119	1	80	ad	1371	1	66	ad	1291	1	80	ad	34	st3,tr12		
9/9/2002	142	1	77	ad	1291	1	80	ad			#N/A	#N/A	35	st3,tr13	slightly green	
9/9/2002	293	1	81	ad	1350	1	75	ad			#N/A	#N/A	36	st3,tr14		
9/12/2002	197	1	80	ad	1334	1	86	ad			#N/A	#N/A	1	st4,tr1		

ADULT SUMMER CHINOOK DATA SECTION													EGG TRACKING SECTION		
ADULT FEMALE DATA					MALE #1 DATA				MALE #2 (Backup) DATA				INCUBATION		
SPAWN DATE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	BUCKET NUMBER	TRAY #	COMMENTS
9/12/2002	298	1	81	ad	1334	1	86	ad			#N/A	#N/A	2	st4,tr2	
9/12/2002	140	1	78	ad	n/a	1	103	ad			#N/A	#N/A	3	st4,tr3	
9/12/2002	n/a	1	79	ad	n/a	1	103	ad			#N/A	#N/A	4	st4,tr4	
9/12/2002	143	1	83	ad	1294	1	64	ad			#N/A	#N/A	5	st4,tr5	
9/12/2002	38	1	75	ad	n/a	1	87	ad			#N/A	#N/A	6	st4,tr6	partial over-ripe, re-use male
9/12/2002	460	1	88	ad	n/a	1	76	ad	n/a	1	89	ad	7	st4,tr7	
9/12/2002	n/a	1	78	ad	248	1	82	ad			#N/A	#N/A	8	st4,tr8	partial over-ripe
9/12/2002	80	1	81	ad	248	1	82	ad			#N/A	#N/A	9	st4,tr9	
9/12/2002	925	1	92	ad	100	1	55	ad			#N/A	#N/A	10	st4,tr10	
9/12/2002	171	1	79	ad	1548	1	101	ad	271	1	84	ad	11	st4,tr11	
9/12/2002	111	1	75	ad	1548	1	101	ad			#N/A	#N/A	12	st4,tr12	
9/12/2002	1632	1	86	ad	58	1	78	ad			#N/A	#N/A	13	st4,tr13	partial over-ripe
9/12/2002	1623	1	77	ad	1640	1	108	ad			#N/A	#N/A	14	st4,tr14	
9/12/2002	456	1	79	ad	1350	1	75	ad	176	1	85	ad	15	st4,tr15	
9/12/2002	112	1	75	ad	1625	1	84	ad			#N/A	#N/A	16	st5,tr1	
9/12/2002	n/a	5	85	ad	n/a		#N/A	#N/A			#N/A	#N/A	n/a	n/a	rejected-eggs green
9/12/2002	1634	1	79	ad	1571	1	63	ad			#N/A	#N/A	17	st5,tr2	
9/12/2002	51	1	73	ad	137	1	53	ad	1618	1	84	ad	18	st5,tr3	
9/12/2002	n/a	1	78	ad	1618	1	84	ad			#N/A	#N/A	19	st5,tr4	
9/12/2002	1594	1	79	ad	1353	1	81	ad			#N/A	#N/A	20	st5,tr5	
9/12/2002	1322	1	94	ad	1353	1	81	ad			#N/A	#N/A	21	st5,tr6	
9/12/2002	1256	1	82	ad	1581	1	64	ad			#N/A	#N/A	22	st5,tr7	partial over-ripe
9/12/2002	121	1	73	ad	1561	1	61	ad			#N/A	#N/A	23	st5,tr8	
9/12/2002	n/a	1	78	ad	450	1	97	ad			#N/A	#N/A	24	st5,tr9	
9/12/2002	1258	1	83	ad	n/a	1	100	ad			#N/A	#N/A	25	st5,tr10	re-used male
9/12/2002	34	1	78	ad	292	1	82	ad			#N/A	#N/A	26	st5,tr11	
9/12/2002	245	1	87	ad	97	1	76	ad			#N/A	#N/A	27	st5,tr12	
9/12/2002	41	1	75	ad	n/a	1	94	ad			#N/A	#N/A	28	st5,tr13	
9/12/2002	426	1	78	ad	n/a	1	94	ad			#N/A	#N/A	29	st5,tr14	
9/12/2002	1642	1	82	ad	n/a	1	85	ad			#N/A	#N/A	30	st5,tr15	
9/12/2002	23	1	76	ad	907	1	82	ad			#N/A	#N/A	31	st6,tr1	
9/12/2002	8	1	75	AD	907	2	82	ad	1542	1	83	ad	32	st6,tr2	
9/12/2002	32	1	76	ad	137	1	53	ad			#N/A	#N/A	33	st6,tr3	over-ripe
9/12/2002	20	1	78	adpit	n/a	1	59	ad					34	st6,tr4	
9/12/2002	187	1	77	ad	1633	1	81	ad			#N/A	#N/A	35	st6,tr5	
9/12/2002	n/a	1	89	ad	1647	1	87	ad			#N/A	#N/A	36	st6,tr6	
9/12/2002	n/a	1	83	ad	n/a	1	106	ad			#N/A	#N/A	37	st6,tr7	
9/12/2002	63	1	71	ad	282	1	53	ad			#N/A	#N/A	38	st6,tr8	
9/12/2002	273	1	73	ad	909	1	83	ad			#N/A	#N/A	39	st6,tr9	
9/12/2002	194	1	79	ad	1643	1	91	ad			#N/A	#N/A	40	st6,tr10	
9/12/2002	172	1	80	ad	880	1	84	ad			#N/A	#N/A	41	st6,tr11	
9/16/2002	n/a	1	80	ad	898	1	87	ad			#N/A	#N/A	25	st7,tr9	
9/16/2002	923	1	76	ad	n/a	1	78	ad	1678	1	85	ad	26	st7,tr10	
9/16/2002	455	1	77	ad	591	1	85	ad			#N/A	#N/A	27	st7,tr11	
9/16/2002	14	1	75	AD	n/a	1	88	ad			#N/A	#N/A	28	st7,tr12	
9/16/2002	265	1	97	ad	1649	1	81	ad			#N/A	#N/A	29	st7,tr13	
9/16/2002	253	1	76	ad	1596	2	63	ad			#N/A	#N/A	30	st7,tr14	
9/16/2002	62	1	77	ad	n/a	2	57	ad			#N/A	#N/A	31	st7,tr15	
9/16/2002	1289	1	79	ad	924	2	62	ad			#N/A	#N/A	32	st8,tr1	
9/16/2002	1560	1	74	ad	n/a	1	81	#N/A	1665	1	94	ad	33	st8,tr2	

ADULT SUMMER CHINOOK DATA SECTION													EGG TRACKING SECTION		
ADULT FEMALE DATA					MALE #1 DATA				MALE #2 (Backup) DATA				INCUBATION		
SPAWN DATE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	BUCKET NUMBER	TRAY #	COMMENTS
9/16/2002	n/a	1	83	ad	1665	1	94	ad			#N/A	#N/A	34	st8,tr3	
9/16/2002	210	1	79	ad	n/a	1	102	ad			#N/A	#N/A	35	st8,tr4	partial over-ripe
9/16/2002	222	1	87	ad	1584	1	83	ad			#N/A	#N/A	36	st8,tr5	
9/16/2002	1619	1	80	ad	471	1	77	ad	918	2	59	ad	37	st8,tr6	
9/16/2002	104	1	76	ad	1557	1	62	ad			#N/A	#N/A	38	st8,tr7	
9/16/2002	n/a	1	89	ad	890	1	78	ad	1669	1	86	ad	38	st8,tr8	
9/16/2002	160	1	79	ad	1669	1	86	ad			#N/A	#N/A	40	st8,tr9	
9/16/2002	n/a	1	73	ad	n/a	1	103	ad			#N/A	#N/A	41	st8,tr10	
9/16/2002	457	1	74	ad	224	2	56	ad			#N/A	#N/A	42	st8,tr11	
9/16/2002	1282	1	80	ad	n/a	1	104	ad			#N/A	#N/A	43	st8,tr12	
9/16/2002	878	1	84	ad	118	2	52	ad			#N/A	#N/A	44	st8,tr13	
9/16/2002	1260	1	67	ad	886	1	101	ad			#N/A	#N/A	45	st8,tr14	
9/16/2002	n/a	1	76	ad	886	1	101	ad			#N/A	#N/A	46	st8,tr15	
9/16/2002	46	1	79	ad	1677	1	92	ad			#N/A	#N/A	47	st9,tr1	
9/16/2002	470	1	93	ad	250	1	98	ad			#N/A	#N/A	48	st9,tr2	
9/16/2002	1313	1	76	ad	1527	1	84	ad			#N/A	#N/A	49	st9,tr3	
9/16/2002	110	1	80	ad	920	1	80	ad	n/a	2	57	ad	50	st9,tr4	
9/16/2002	241	1	87	ad	n/a	1	86	ad			#N/A	#N/A	51	st9,tr5	
9/16/2002	1304	1	80	ad	136	2	54	ad			#N/A	#N/A	52	st9,tr6	
9/16/2002	129	1	82	ad	n/a	2	54	ad			#N/A	#N/A	53	st9,tr7	
9/16/2002	467	1	87	ad	1637	1	64	ad			#N/A	#N/A	54	st9,tr8	
9/16/2002	562	1	82	ad	334	2	53	ad			#N/A	#N/A	55	st9,tr9	
9/16/2002	1339	1	83	ad	1671	1	89	ad			#N/A	#N/A	56	st9,tr10	
9/16/2002	350	1	72	ad	n/a	1	91	ad			#N/A	#N/A	57	st9,tr11	
9/16/2002	493	1	76	ad	906	1	82	ad			#N/A	#N/A	58	st9,tr12	
9/16/2002	n/a	1	79	ad	906	1	82	ad			#N/A	#N/A	59	st9,tr13	
9/16/2002	1297	1	87	ad	1652	1	88	ad			#N/A	#N/A	60	st9,tr14	
9/16/2002	n/a	1	81	ad	1267	1	87	ad			#N/A	#N/A	61	st9,tr15	
9/16/2002	174	1	78	ad	74	1	89	ad			#N/A	#N/A	62	st10,tr1	
9/16/2002	18	1	75	ad	74	1	89	ad			#N/A	#N/A	63	st10,tr2	
9/16/2002	239	1	96	ad	1668	1	87	ad			#N/A	#N/A	64	st10,tr3	
9/16/2002	120	1	78	ad	286	2	55	ad			#N/A	#N/A	65	st10,tr4	over-ripe
9/16/2002	89	1	75	ad	238	1	80	ad	164	1	93	ad	66	st10,tr5	
9/16/2002	1676	1	86	ad	164	1	93	ad			#N/A	#N/A	67	st10,tr6	over-ripe
9/16/2002	596	1	80	ad	1529	1	80	ad			#N/A	#N/A	68	st10,tr7	
9/16/2002	59	1	80	ad	1515	1	88	ad	281	2	54	ad	69	st10,tr8	
9/16/2002	201	1	79	ad	281	2	54	ad			#N/A	#N/A	70	st10,tr9	
9/16/2002	213	1	77	ad	1516	1	88	ad			#N/A	#N/A	71	st10,tr10	
9/16/2002	19	1	65	ad	1331	1	84	ad			#N/A	#N/A	72	st10,tr11	
9/16/2002	188	1	77	ad	1546	1	84	ad			#N/A	#N/A	73	st10,tr12	
9/16/2002	1286	1	82	ad	480	1	84	ad	n/a	1	87	ad	74	st10,tr13	
9/16/2002	1575	1	80	ad	1547	1	78	ad			#N/A	#N/A	75	st10,tr14	
9/20/2002	1657	1	66	ad	n/a	1	85	ad			#N/A	#N/A	49	st11,tr13	
9/20/2002	1257	1	77	ad	72	1	85	ad			#N/A	#N/A	50	st11,tr14	
9/20/2002	887	1	74	ad	72	1	85	ad			#N/A	#N/A	51	st11,tr15	
9/20/2002	1292	1	83	ad	459	1	83	ad			#N/A	#N/A	52	st12,tr1	
9/20/2002	1253	1	88	ad	896	1	85	ad			#N/A	#N/A	53	st12,tr2	
9/20/2002	1295	1	91	ad	n/a	1	90	ad			#N/A	#N/A	54	st12,tr3	
9/20/2002	105	1	91	ad	43	1	81	ad			#N/A	#N/A	55	st12,tr4	
9/20/2002	264	1	85	ad	n/a	1	91	ad			#N/A	#N/A	56	st12,tr5	

ADULT SUMMER CHINOOK DATA SECTION													EGG TRACKING SECTION		
ADULT FEMALE DATA				MALE #1 DATA				MALE #2 (Backup) DATA				INCUBATION			
SPAWN DATE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	BUCKET NUMBER	TRAY #	COMMENTS
9/20/2002	n/a	1	82	ad	1324	1	86	ad			#N/A	#N/A	57	st12,tr6	
9/20/2002	n/a	1	85	ad	1530	1	86	ad			#N/A	#N/A	58	st12,tr7	
9/20/2002	n/a	1	85	ad	1371	1	66	ad			#N/A	#N/A	59	st12,tr8	
9/20/2002	274	1	79	ad	1263	1	57	ad			#N/A	#N/A	60	st12,tr9	
9/20/2002	53	1	73	ad	156	1	85	ad			#N/A	#N/A	61	st12,tr10	
9/20/2002	900	1	80	ad	1354	1	78	ad			#N/A	#N/A	62	st12,tr11	
9/20/2002	1686	1	76	ad	214	1	46	ad			#N/A	#N/A	63	st12,tr12	
9/20/2002	1658	1	83	ad	1550	1	83	ad			#N/A	#N/A	64	st12,tr13	
9/20/2002	1692	1	88	ad	n/a	1	85	ad			#N/A	#N/A	65	st12,tr14	
9/20/2002	144	1	77	ad	1335	1	80	ad			#N/A	#N/A	66	st12,tr15	
9/20/2002	45	1	78	ad	209	1	82	ad			#N/A	#N/A	67	st13,tr1	
9/20/2002	1367	1	83	ad	1350	1	75	ad			#N/A	#N/A	68	st13,tr2	
9/20/2002	1328	1	86	ad	n/a	1	87	ad			#N/A	#N/A	70	st13,tr4	
9/20/2002	1345	1	79	ad	n/a	1	82	ad			#N/A	#N/A	71	st13,tr5	
9/20/2002	n/a	1	93	ad	n/a	1	99	ad			#N/A	#N/A	72	st13,tr6	partially green
9/20/2002	138	1	79	ad	1362	1	84	ad			#N/A	#N/A	73	st13,tr7	
9/20/2002	54	1	96	ad	1325	1	81	ad			#N/A	#N/A	74	st13,tr8	partially overripe
9/20/2002	1358	1	81	ad	1277	1	82	ad			#N/A	#N/A	75	st13,tr9	
9/20/2002	17	1	72	ad	1259	1	81	ad			#N/A	#N/A	76	st13,tr10	
9/20/2002	477	1	82	ad	207	1	82	ad			#N/A	#N/A	77	st13,tr11	
9/20/2002	1656	1	81	ad	n/a	1	87	ad			#N/A	#N/A	78	st13,tr12	
9/20/2002	332	1	79	ad	474	1	67	ad			#N/A	#N/A	79	st13,tr13	
9/20/2002	1615	1	87	ad	1528	1	81	ad			#N/A	#N/A	80	st13,tr14	partial overripe
9/20/2002	1680	1	79	ad	1675	1	86	ad			#N/A	#N/A	81	st13,tr15	
9/20/2002	n/a	1	77	ad	1679	1	87	ad			#N/A	#N/A	82	st14,tr1	
9/20/2002	1567	1	76	ad	n/a	1	88	ad			#N/A	#N/A	83	st14,tr2	
9/20/2002	128	1	83	ad	n/a	1	88	ad			#N/A	#N/A	84	st14,tr3	
9/20/2002	1514	1	84	ad	n/a	1	85	ad			#N/A	#N/A	85	st14,tr4	
9/20/2002	1683	1	90	ad	1266	1	65	ad			#N/A	#N/A	86	st14,tr5	
9/20/2002	577	1	84	ad	n/a	1	104	ad			#N/A	#N/A	87	st14,tr6	
9/23/2002	1341	1	84	ad	880	1	84	ad			#N/A	#N/A	21	st15,tr6	
9/23/2002	39	1	77	ad	1671	1	89	ad			#N/A	#N/A	22	st15,tr7	partial over-ripe
9/23/2002	n/a	1	80	ad	1362	1	84	ad			#N/A	#N/A	23	st15,tr8	
9/23/2002	1274	1	81	ad	113	1	92	ad			#N/A	#N/A	24	st15,tr9	
9/23/2002	1521	1	85	ad	n/a	1	82	ad	n/a	1	82	ad	25	st15,tr10	
9/23/2002	n/a	1	83	ad	n/a	1	82	ad			#N/A	#N/A	26	st15,tr11	
9/23/2002	1318	1	81	ad	1530	1	86	ad			#N/A	#N/A	27	st15,tr12	
9/23/2002	1697	1	80	ad	471	1	77	ad			#N/A	#N/A	28	st15,tr13	
9/23/2002	882	1	81	ad	35	1	80	ad			#N/A	#N/A	29	st15,tr14	
9/23/2002	1293	1	81	ad	896	1	85	ad			#N/A	#N/A	30	st15,tr15	
9/23/2002	1261	1	81	ad	1668	2	87	ad			#N/A	#N/A	31	st16,tr1	
9/23/2002	1534	1	91	ad	913	1	77	ad			#N/A	#N/A	32	st16,tr2	
9/23/2002	n/a	1	94	ad	1324	1	86	ad	n/a	1	87	ad	33	st16,tr3	
9/23/2002	1702	1	96	ad	n/a	1	106	ad			#N/A	#N/A	34	st16,tr4	
9/23/2002	n/a	1	80	ad	480	1	84	ad			#N/A	#N/A	35	st16,tr5	
9/23/2002	570	1	92	ad	n/a	1	80	ad			#N/A	#N/A	36	st16,tr6	
9/23/2002	1691	1	81	ad	43	1	81	ad			#N/A	#N/A	37	st16,tr7	
9/23/2002	1251	1	82	ad	43	1	81	ad			#N/A	#N/A	38	st16,tr8	
9/23/2002	1576	1	78	ad	884	1	102	ad			#N/A	#N/A	39	st16,tr9	
9/23/2002	463	1	77	ad	n/a	1	64	ad			#N/A	#N/A	40	st16,tr10	partial green

Appendix B. Continued.

ADULT SUMMER CHINOOK DATA SECTION													EGG TRACKING SECTION		
ADULT FEMALE DATA					MALE #1 DATA				MALE #2 (Backup) DATA				INCUBATION		
SPAWN DATE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	FLOY TAG	DISP. CODE:	FL(CM)	MARK TYPE	BUCKET NUMBER	TRAY #	COMMENTS
9/23/2002	1701	1	83	ad	n/a	2	74	ad			#N/A	#N/A	41	st16,tr11	
9/23/2002	145	1	76	ad	n/a	2	82	ad			#N/A	#N/A	42	st16,tr12	
9/23/2002	78	1	77	ad	n/a	1	95	ad			#N/A	#N/A	43	st16,tr13	
9/23/2002	5	1	77	AD	1684	1	81	ad			#N/A	#N/A	44	st16,tr14	
9/23/2002	246	1	80	ad	584	1	84	ad			#N/A	#N/A	45	st16,tr15	
9/23/2002	1695	1	80	ad	584	1	84	ad			#N/A	#N/A	46	st17,tr1	
9/23/2002	1279	1	81	ad	n/a	1	86	ad			#N/A	#N/A	47	st17,tr2	
9/27/2002	580	1	73	ad	n/a	2	99	ad			#N/A	#N/A	1	st17,tr3	
9/27/2002	905	1	79	ad	1630	2	82	ad			#N/A	#N/A	2	st17,tr4	
9/27/2002	1700	1	83	ad	1548	2	101	ad			#N/A	#N/A	3	st17,tr5	
9/27/2002	1573	1	78	ad	1375	2	97	ad	n/a	2	84	ad	4	st17,tr6	
9/27/2002	593	1	86	ad	n/a	2	95	ad			#N/A	#N/A	5	st17,tr7	
9/27/2002	1559	1	80	ad	156	2	85	ad			#N/A	#N/A	6	st17,tr8	
9/27/2002	n/a	1	79	ad	1693	2	85	ad			#N/A	#N/A	7	st17,tr9	
9/27/2002	891	1	83	ad	n/a	2	87	ad			#N/A	#N/A	8	st17,tr10	
9/27/2002	1285	1	75	ad	n/a	2	93	ad			#N/A	#N/A	9	st17,tr11	
9/27/2002	n/a	1	83	ad	n/a	2	86	ad			#N/A	#N/A	10	st17,tr12	
9/27/2002	n/a	1	79	ad	1660	2	87	ad			#N/A	#N/A	11	st17,tr13	
9/27/2002	1333	5	80	ad	n/a		#N/A	#N/A			#N/A	#N/A	n/a	n/a	green-rejected
9/27/2002	1508	1	96	ad	450	2	97	ad			#N/A	#N/A	12	st17,tr14	
9/27/2002	1340	1	80	ad	n/a	2	102	ad			#N/A	#N/A	13	st17,tr15	
9/27/2002	1572	1	83	ad	459	2	83	ad			#N/A	#N/A	14	st18,tr1	
9/27/2002	n/a	1	83	ad	n/a	2	87	ad			#N/A	#N/A	15	st18,tr2	
9/27/2002	n/a	1	85	ad	n/a	2	89	ad			#N/A	#N/A	16	st18,tr3	partial over-ripe
9/27/2002	n/a	1	82	ad	n/a	2	88	ad			#N/A	#N/A	17	st18,tr4	
9/27/2002	1355	1	84	ad	n/a	2	93	ad			#N/A	#N/A	18	st18,tr5	
9/27/2002	n/a	1	87	ad	n/a	2	81	ad			#N/A	#N/A	19	st18,tr6	
9/27/2002	225	1	75	ad	n/a	2	82	ad			#N/A	#N/A	20	st18,tr8	
9/27/2002	1308	1	78	ad	n/a	2	100	ad			#N/A	#N/A	21	st18,tr9	
9/27/2002	451	1	76	ad	n/a	2	100	ad	1526	2	80	ad	22	st18,tr10	
9/27/2002	n/a	1	77	ad	1555	2	83	ad					23	st18,tr11	
9/27/2002	44	1	76	ad	1267	2	87	ad	250	2	98	ad	24	st18,tr12	
9/27/2002	475	1	90	ad	1259	2	81	ad			#N/A	#N/A	25	st18,tr13	
9/30/2002	1566	1	81	ad	1698	2	90	ad			#N/A	#N/A	1	st1,tr1	
9/30/2002	589	1	80	ad	1698	2	90	ad			#N/A	#N/A	2	st1,tr2	
9/30/2002	1368	1	91	ad	n/a	2	91	ad			#N/A	#N/A	3	st1,tr3	
9/30/2002	1549	2	82	ad	n/a	n/a	n/a	n/a			#N/A	#N/A	n/a	n/a	rejected-overripe
9/30/2002	n/a	1	82	ad	591	2	85	ad			#N/A	#N/A	4	st1,tr4	partial green
9/30/2002	1296	1	82	ad	1520	2	80	ad			#N/A	#N/A	5	st1,tr5	
9/30/2002	1268	1	94	ad	591	2	85	ad			#N/A	#N/A	6	st1,tr6	
9/30/2002	595	1	78	ad	1515	2	88	ad			#N/A	#N/A	7	st1,tr7	
9/30/2002	1302	2	82	ad	n/a	n/a	#N/A	#N/A			#N/A	#N/A	n/a	n/a	rejected-overripe
9/30/2002	1641	2	80	ad	n/a	n/a	#N/A	#N/A			#N/A	#N/A	n/a	n/a	rejected-overripe

Appendix B-1. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook ISS group mating summary.

**NATURAL (UNMARKED) FEMALE X HATCHERY (MARKED) MALE SPAWNING CROSSES FOR ISS GROUP**

UNMARKED FEMALE DATA			MARKED (HATCHERY) ORIGIN MALE DATA											
Female ID			MALE 1			MALE 2			MALE 3			MALE 4		
SPAWN DATE	FLOY TAG	FL(CM)	Floy No#	Bucket No.	Tray No.	Floy No.	Bucket No.	Tray No.	Floy No.	Bucket No.	Tray No.	Floy No.	Bucket No.	Tray No.
9/9/02	4	77	407	8*	st2,tr10	84 cm	9	st2,tr10	90 cm	10	st2,tr10	110 cm	11	st2,tr10
9/9/02	n/a	87	64 cm	28	st3,tr6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9/12/02	1565	81	1644	42*	st6,tr12	1638	43	st6,tr12	13	44	st6,tr12	442	45	st6,tr12
9/12/02	n/a	94	1644	46*	st6,tr13	1638	47	st6,tr13	13	48	st6,tr13	442	49	st6,tr13
9/12/02	491	75	1644	50*	st6,tr14	1638	51	st6,tr14	13	52	st6,tr14	442	53	st6,tr14
9/12/02	1636	78	1644	54*	st6,tr15	1638	55	st6,tr15	13	56	st6,tr15	442	57	st6,tr15
9/12/02	204	80	66 cm	58*	st7,tr1	1307	59	st7,tr1	561	60	st7,tr1	1536	61	st7,tr1**
9/12/02	175	95	66 cm	62*	st7,tr2	1307	63	st7,tr2	561	64	st7,tr2	1536	65	st7,tr2**
9/16/02	1635	82	261	1*	st7,tr3	90 cm	2	st7,tr3	98 cm	3	st7,tr3	911	4	st7,tr3
9/16/02	n/a	87	261	5*	st7,tr4	90 cm	6	st7,tr4	98 cm	7	st7,tr4	911	8	st7,tr4
9/16/02	432	78	261	9*	st7,tr5	90 cm	10	st7,tr5	98 cm	11	st7,tr5	911	12	st7,tr5
9/16/02	1674	72	261	13*	st7,tr6	90 cm	14	st7,tr6	98 cm	15	st7,tr6	911	16	st7,tr6
9/16/02	1655	76	561	17*	st7,tr7	65 cm	18	st7,tr7	1536	19	st7,tr7	1369	20	st7,tr7
9/16/02	1670	91	561	21*	st7,tr8	65 cm	22	st7,tr8	1536	23	st7,tr8	1369	24	st7,tr8
9/20/02	1336	#REF!	1369	41*	st11,tr11	204	42	st11,tr11	449	43	st11,tr11	84 cm	44	st11,tr11
9/20/02	1667	#REF!	1369	45*	st11,tr12	204	46	st11,tr12	449	47	st11,tr12	84 cm	48	st11,tr12
9/20/02	1682	#REF!	87 cm	69	st13,tr3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9/23/02	1543	#REF!	102 cm	17	st15,tr5	96 cm	18	st15,tr5	99 cm	19	st15,tr5	102 cm	20	st15,tr5

\* All eggs combined into this bucket after 4 way mating complete.  
 # Fork length (cm) provided if floy tag no. was not available.

**NATURAL (UNMARKED) MALE X HATCHERY (MARKED) FEMALE CROSSES FOR ISS GROUP**

Marked Female Data			UNMARKED (NATURAL) ORIGIN MALE DATA											
SPAWN DATE	FLOY TAG	FL(CM)	MALE 1			MALE 2			MALE 3			MALE 4		
			Floy No.	Bucket No.	Tray No.	Floy No.	Bucket No.	Tray No.	Floy No.	Bucket No.	Tray No.	Floy No.	Bucket No.	Tray No.
9/9/02	220	78	78ncm	20*	st3,tr4	257	21	st3,tr4	447	22	st3,tr4	163	23	st3,tr4
9/9/02	n/a	78	78cm	24*	st3,tr5	257	25	st3,tr5	447	26	st3,tr5	66 cm	27	st3,tr5
9/20/02	231	#REF!	1688	1*	st11,tr1	81 cm	2	st11,tr1	84 cm	3	st11,tr1	571	4	st11,tr1
9/20/02	n/a	94 cm	1688	5*	st11,t2	81 cm	6	st11,t2	84 cm	7	st11,t2	571	8	st11,t2
9/20/02	330	#REF!	1688	9*	st11,tr3	81 cm	10	st11,tr3	84 cm	11	st11,tr3	571	12	st11,tr3
9/20/02	1593	#REF!	1688	13*	st11,tr4	81 cm	14	st11,tr4	84 cm	15	st11,tr4	571	16	st11,tr4
9/20/02	25	#REF!	87 cm	17*	st11,tr5	100 cm	18	st11,tr5	71 cm	19	st11,tr5	1654	20	st11,tr5
9/20/02	n/a	97 cm	87 cm	21*	st11,tr6	100 cm	22	st11,tr6	71 cm	23	st11,tr6	1654	24	st11,tr6
9/20/02	464	#REF!	87 cm	25*	st11,tr7	100 cm	26	st11,tr7	71 cm	27	st11,tr7	1654	28	st11,tr7
9/20/02	915	#REF!	87 cm	29*	st11,tr8	100 cm	30	st11,tr8	71 cm	31	st11,tr8	1654	32	st11,tr8
9/20/02	226	#REF!	447	33*	st11,tr9	91 cm	34	st11,tr9	92 cm	35	st11,tr9	1511	36	st11,tr9
9/20/02	195	#REF!	447	37*	st11,tr10	91 cm	38	st11,tr10	92 cm	39	st11,tr10	1511	40	st11,tr10
9/2													4	st15,tr1
9/2													8	st15,tr2
9/2													12	st15,tr3
9/23/02	n/a	82	1580	13*	st15,tr4	472	14	st15,tr4	233	15	st15,tr4	69 cm	16	st15,tr4

Appendix B-1. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon ISS group mating survey.

Appendix C. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon smolt release and adult return information.

RELEASE DATE	NUMBER	3-YRS	4-YRS	5-YRS	TOTAL	RETURN YEARS	%RETURN
May-70	300,000	89	NA	101	NA	71,72,73	NA
May-71	250,000	40	425	14	479	72,73,74	0.192%
May-72	250,000	20	138	76	234	73,74,75	0.094%
May-73	347,000	1	5	32	38	74,75,76	0.011%
May-74	330,000	8	189	436	633	75,76,77	0.192%
May-75	114,000	53	115	X	X	76,77,78	NA
May-76	121,000	7	X	32	X	77,78,79	NA
May-77	235,000	X	O	4	X	78,79,80	NA
May-78	218,000	1	29	13	43	79,80,81	0.020%
Mar-83	13,690	11	72	30	113	84,85,86	0.825%
CA	55,800	27	278	52	357	85,86,87	0.640%
Apr-85	209,155	37	408	716	1,161	86,87,88	0.555%
Mar-86	12,095	13	47	31	91	87,88,89	0.752%
Mar-87	258,600	75	180	42	297	88,89,90	0.115%
Mar-88	598,500	135	389	79	603	89,90,91	0.101%
Mar-89	1,016,300	39	139	27	205	90,91,92	0.020%
Mar-90	1,058,000	20	98	119	237	91,92,93	0.022%
Mar-91	227,500	6	37	1	44	92,93,94	0.019%
Mar-92	605,900	13	26	0	39	93,94,95	0.006%
Apr-93	375,000	7	73	8	88	94,95,96	0.023%
Apr-94	130,510	7	27	9	43	95,96,97	0.033%
Apr-95	147,429	5	60	34	99	96,97,98	0.067%
Apr-96	0	n/a	n/a	n/a	n/a	97,98,99	n/a
Apr-97	122,017	18	207	32	257	98,99,00	0.210%
Apr-98	65,648	78	259	308	645	99,00,01	0.980%
Apr-99	135,669	73	515	256	844	00,01,02	n/a
Apr-00	53,837	28	360	n/a	n/a	01,02,03	n/a
Apr-01	283,063	308	n/a	n/a	n/a	02,03,04	n/a

Appendix D. Pahsimeroi Fish Hatchery Brood Year 2002 summer Chinook salmon stock history

Brood Year	Egg Source	No. Eggs	Genetic Stock	Release Year	Smolts Released	Release Site
1981	Hayden Creek	<500,000	Spring Chinook	1983	437,332	Pahsimeroi River
1981	Pahsimeroi	<25,000	Summer Chinook	1983	13,700	Pahsimeroi River
1982	Pahsimeroi	75,402	Summer Chinook	1984	55,800	Pahsimeroi River
1982	Hayden Creek	107,234	Spring Chinook	1984	99,750	Pahsimeroi River
1982	Sawtooth	451,902	Spring Chinook	1984	420,400	Pahsimeroi River
1982	Rapid River	669,500	Spring Chinook	1984	622,850	Pahsimeroi River
1983	Pahsimeroi	261,188	Summer Chinook	1985	209,105	Pahsimeroi River
1983	Hayden Creek	279,398	Spring Chinook	1985	178,800	Pahsimeroi River
1984	Pahsimeroi	23,999	Summer Chinook	1986	12,100	Pahsimeroi River
1984	Hayden Creek	145,341	Spring Chinook	1986	81,000	Pahsimeroi River
1985	Pahsimeroi	2,602,404	Spring Chinook	1987	1,200,000	Hayden Creek and Yankee Fork
1985	Pahsimeroi	200,448	Summer Chinook	1987	158,007	Pahsimeroi River
1985	Pahsimeroi	127,332	Summer Chinook	1987	100,593	Pahsimeroi River
1987	Pahsimeroi	2,128,750	Spring Chinook	1989	1,128,750	Sawtooth Hatchery
1987	Pahsimeroi	696,004	Summer Chinook	1989	536,500	Pahsimeroi River
1987	McCall	605,091	Summer Chinook	1989	479,800	Pahsimeroi River
1988	Pahsimeroi	1,053,536	Summer Chinook	1990	808,536	Pahsimeroi River
1988	McCall	317,272	Summer Chinook	1990	245,000	Pahsimeroi River
1989	Pahsimeroi	294,893	Summer Chinook	1991	227,500	Pahsimeroi River
1990	Pahsimeroi	662,641	Summer Chinook	1992	605,900	Pahsimeroi River
1991	Pahsimeroi	22,235	Spring Chinook	1993	15,000	Rapid River
1991	Pahsimeroi	437,157	Summer Chinook	1993	375,000	Pahsimeroi River
1992	Pahsimeroi	172,139	Summer Chinook	1994	130,510	Pahsimeroi River
1993	Pahsimeroi	167,200	Summer Chinook	1995	147,429	Pahsimeroi River
1994	Pahsimeroi	0	Summer Chinook	1996	0	Pahsimeroi River
1995	Pahsimeroi	157,938	Summer Chinook	1997	122,017	Pahsimeroi River
1996	Pahsimeroi	85,660	Summer Chinook	1998	65,648	Pahsimeroi River
1997	Pahsimeroi	171,836	Summer Chinook	1999	135,669	Pahsimeroi River
1998	Pahsimeroi	74,105	Summer Chinook	2000	53,837	Pahsimeroi River
1999	Pahsimeroi	371,354	Summer Chinook	2001	283,063	Pahsimeroi River
2000	Pahsimeroi	633,906	Summer Chinook	2002	508,340	Pahsimeroi River

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