



PAHSIMEROI FISH HATCHERY

Brood Year 2006 Summer Chinook Report

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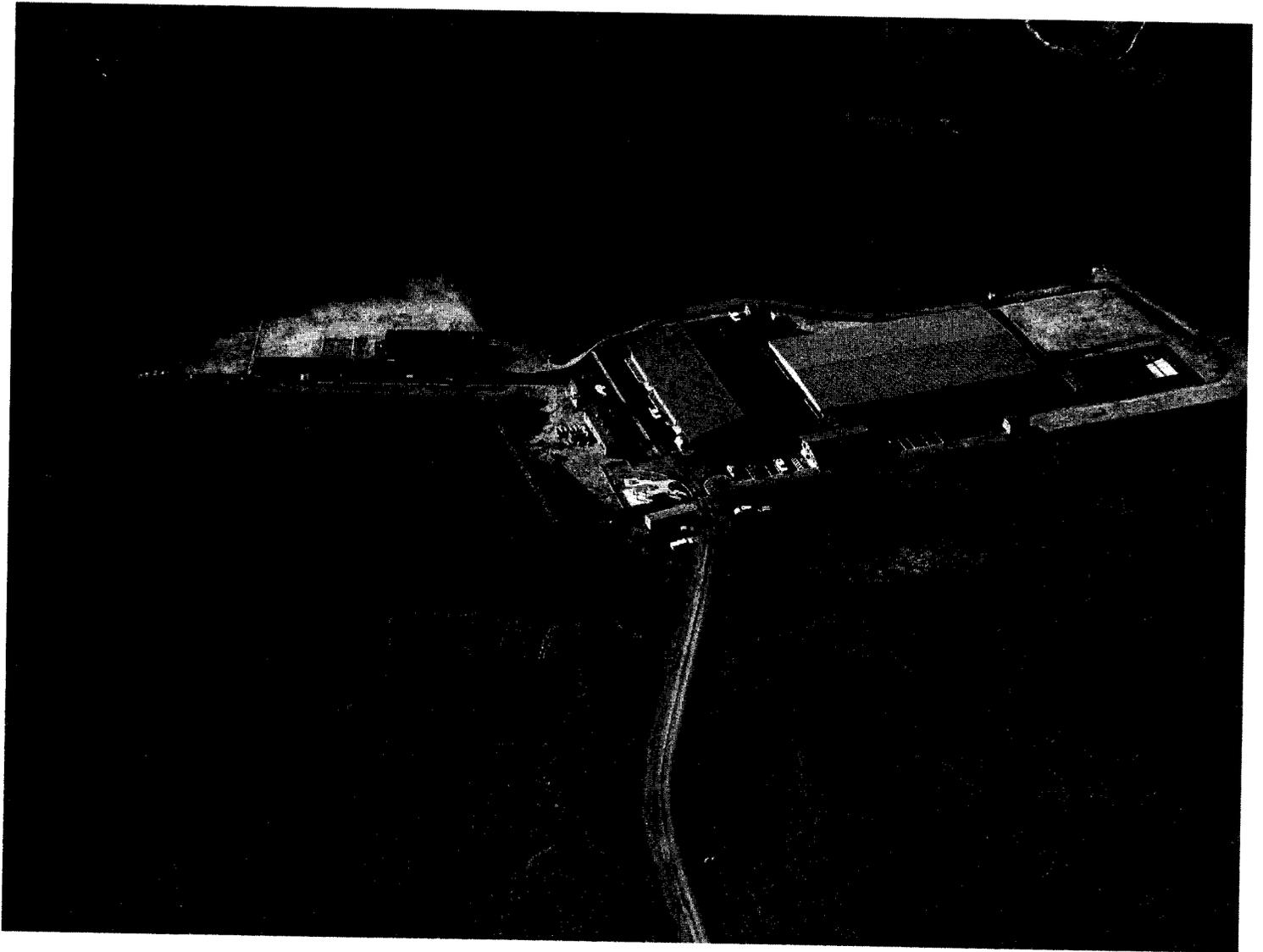
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ABSTRACT

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 (IDFG) and the National Oceanographic and Atmospheric Administration (NOAA). This decision was made in 1992 when Pahsimeroi summer Chinook salmon (*Oncorhynchus tshawytscha*) were listed as threatened under the Federal Endangered Species Act of 1973. 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. The program continues to fulfill IPC's mitigation requirements under its current Federal Energy Regulatory Commission operating license.

On June 25, 2006 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 2, 2006. The first fish was trapped on June 26, 2005 and the last on October 2, 2006. A total of 733 (236 marked males, 357 marked females, 43 marked jacks, 42 unmarked males, 47 unmarked females, 8 unmarked jacks) summer Chinook salmon were trapped during the 2006 brood year. The total pre-spawn mortality was 28 (5.0%), which included 18 females and 10 males.

Artificial spawning of summer Chinook salmon commenced on August 28, 2006 and concluded on October 2, 2006. A total of 290 females were spawned of which 12 were culled. A total of 1,349,657 green eggs were collected for production purposes, for an average fecundity of 4,885 eggs per female. The overall eye-up percentage was 94.4%. 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 well water. This transfer limits the exposure of fry to *Myxobolus cerebralis* (*M. cerebralis*), which is present in the PFH water source. In October 2007, BYR 2006 pre-smolts were transferred to two rearing ponds at the PFH upper hatchery. They were raised on river water until being released in April of 2008.

The outlet screens for the secondary rearing ponds were removed in a staggered fashion beginning March 31, 2008 to allow volitional release of Chinook smolts into the Pahsimeroi River. A total of 1,037,772 smolts were released for a combined weight of 69,884 pounds. The fish averaged 14.85 fish per pound and consisted of one group. A total of 14,761 fish were released with PIT tags. These fish were all classified as reserve group listed at the time of release.

INTRODUCTION

Pahsimeroi Fish Hatchery, located near the town of Ellis, Idaho, consists of two hatchery facilities. The lower hatchery is located one mile upstream of the confluence of the Pahsimeroi and Salmon Rivers. The upper hatchery is located off Dowton Lane seven miles further upstream on the Pahsimeroi River. Both hatcheries were constructed in 1967 by IPC and are owned and funded by IPC. The upper hatchery underwent a complete renovation and substantial completion was done on November 1, 2007. At this point PAH personnel took over day to day operations of the upper facility.

OBJECTIVES

The hatchery's mitigation program goals focus on summer Chinook salmon and A-run Steelhead (*Oncorhynchus 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 for later distribution to Niagara Springs Fish Hatchery.
4. Work with IDFG 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 lower 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 has two sections: one for chemical and machinery storage and a second for non-chemical equipment storage. The sixth building is the spawning shed.

The new upper rearing facility reached the status of substantial completion on November 1, 2007 at which point PFH personnel took over day to day operation. PFH personnel will have the ability to incubate and rear juvenile Chinook salmon on specific pathogen free (SPF) water until a length of 3.5 in. is attained. The walk-in freezer, garage/shop, and storage shed previously on site have been removed. The earthen settling basins previously used for secondary rearing pond effluent have been deemed unnecessary under the new NPDES permit and were removed.

The new upper hatchery features a new incubation and early rearing facility, chilled water system, aeration structure, shop, vehicle storage area, chemical storage room, hospital grade backup generator, electrical room with programmable logic controller (PLC) to control and

BY2002-Comprised of three groups of fish.

Group 1-Hatchery-origin reserve listed, 100% adipose fin clipped, no coded wire tags or 100% adipose fin clipped and coded wire tagged. A total of 904,887 smolts were released from this group.

Group 2-Hatchery-origin ISS supplementation listed, 100% coded wire tagged and no fin clips. A total of 127,800 smolts were released from this group.

Group 3- Hatchery –origin reserve study group listed, 100% adipose fin clipped and coded wire tagged. A total of 103,145 smolts were released from this group.

Group 1, 2, and 3 release numbers from BY2002 total 1,135,832. All smolts from Brood Year 2002 were released in April 2004.

BY2003-Comprised of one group of hatchery reserve fish.

100% of these fish were marked with adipose fin clip only or adipose fish clipped and coded wire tagged fish. No fish in this brood year were destined as ISS fish. A total of 975,252 (866,134 adipose clipped only, 109,118 adipose clipped and coded wire tagged) smolts were released from this group. All smolts from Brood Year 2003 were released in March, 2005.

A total of 733 summer Chinook were trapped in 2006. The hatchery origin component consisted of 43 jacks, and 593 adults (236 males and 357 females). The natural component consisted of 8 jacks, and 89 adults (42 males and 47 females). All natural/wild fish were released for natural reproduction. None were retained for spawning. (Tables 1–4; Figure 1–4).

ADULT AGE CLASS DETERMINATION

Two sets of criteria were used to determine the age classes of summer Chinook that returned to PFH in 2006. The ages of hatchery-origin summer Chinook were determined by a combination of mark types and fork length, while the natural-origin summer Chinook were aged by fork length alone. It should be noted that regardless of criteria used to determine age classes of returning fish, Nampa fisheries research personnel continue to assess and revise age/length relationships as dictated by coded wire tag analysis. Age class results initially reported in table 4 are therefore subject to change prior to the publication of the 2006 Pahsimeroi Hatchery Summer Chinook Brood Year Report.

Mini-jacks are defined as fish equal to or less than 44cm in fork length. Dorsal fin ray cross-section analysis from past samples determined the absence of salt-water annuli. This suggests these fish remain in fresh water for one year prior to returning to the Pahsimeroi Hatchery. No mini-jacks were trapped in 2006.

The age class criteria based on fork length and mark types for hatchery origin returning summer Chinook in 2006 is as follows:

Mark Type	Fork Length (cm)	Resulting Age Classification
Adipose Clip Only (AD)	<66	Age 3 (jacks)**
Adipose Clip Only (AD)	66-85 inclusive	Age 4
Adipose Clip Only (AD)	> 85	Age 5
Adipose Clip and Coded Wire Tag (ADCWT)	<66	Age 3 (jacks)
Adipose Clip and Coded Wire Tag (ADCWT)	>66	Age 4 (no age 5's with this mark combination)
Coded Wire Tag Only (CWT)	<86	Age 4 (no jacks with CWT only)
Coded Wire Tag Only (CWT)	>=86	Age 5

** It should be noted that 9 adipose clipped females and 1 ISS group female were within this size range. While females within this size range are currently coded as age 4, one known age fish, a stray from the Eagle captive rearing program, was confirmed as age 3: a "Jill". Again, age class results are subject to change prior to the publication of the 2006 Brood Year Report.

The age class criteria for natural-origin (unmarked) fish is as follows:

- Chinook with fork lengths greater than 85 cm were classified as five year olds.
- Chinook with fork lengths between 66 cm and 85 cm inclusive were classified as four year olds.
- Chinook with a fork length less than 66 cm were classified as jacks.
- Chinook with a fork length up to, and inclusive of, 44 cm were classified as mini-jacks.
- Table 4 includes a breakdown of age class results.

SPECIAL MARKS/TAGS

Of the 733 Chinook trapped this year, three fish was found to have radio transmitters. All fish were scanned for Coded Wire Tags (CWTs) and PIT tags. The fish containing radio transmitters were part of a study being conducted by the University of Idaho. Five fish contained PIT tags. One fish, a hatchery origin "jill" was jaw tagged. It was determined that she was a stray from the captive rearing program Yankee Fork project. Due to the potential of

Bacterial Kidney Disease transmission, she was killed and not spawned.

A total of 72 snouts containing CWTs were collected this season by hatchery personnel (Table 5). The CWT's from these snouts will be compared against scales collected to determine the accuracy of using scales for aging. Also, dorsal fin ray cross section samples were collected from reserve group fish with fork lengths of 90 cm or greater. This length was chosen because a 90 cm or greater fork length is clearly indicative of an age 5 fish. Snouts that were collected by Nampa Research Personnel are not included in this table.

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

Trap Date	Sex	Fork Length (CM)	Clips or Marks	Origin	Pit Tag or Other Specialty Tag #	Radio Transmitter #
July 2	F	68	None	N	985120008605199	Channel 19, code 85
July 9	M	53	None	N	985120014193067	None
July 9	F	68	None	N	985120019048019	None
July 13	F	85	None	N	985120013017577	None
July 17	F	82	CWT	H	None	Channel 12, code 205
July 18	F	89	CWT	H	985120016801975	Channel 12, code 204
August 11	F	44	ADJT	H	JT# IDFG00179	None

CLIPS OR MARKS: AD = ADIPOSE CLIPPED, CWT = CODED WIRE TAGGED, JT=JAW TAGGED, NONE=UNMARKED; ORIGIN: H= HATCHERY, N = NATURAL

ADULT HANDLING PROCEDURES

During the summer Chinook trapping season, the trap was at least three times weekly and all fish were handled in accordance with protocols established by NOAA Fisheries. All Chinook were initially scanned for Coded Wire Tags (CWT's). As mentioned previously, fish that were marked with CWT's and not adipose clipped were supplementation group fish. All other fish with adipose clips or adipose clips and CWT's were reserve group fish. No reserve group fish were released for natural spawning. Natural-origin and supplementation salmon were anaesthetized in a solution of MS-222. While anaesthetized, fish were scanned for PIT tags, measured to the nearest centimeter for fork length, and identified by sex. Each fish was also preemptively injected with erythromycin at a rate of 20 mg/kg body weight for BKD management. These fish were allowed to recover in a freshwater recovery tank before being ponded or released. The ad-clipped reserve group fish were handled differently than those mentioned above. They were given the same treatment other than the fact that they were usually not anaesthetized. In the cases of extremely large fish, or study group requiring scale sample collection and floy/jaw tags (see section below), hatchery personnel elected to anesthetize these fish to minimize the chance of injury to them.

All summer Chinook containing CWT's as well as most adipose clipped fish with fork lengths of 90 cm or greater that were held for spawning were marked with a floy tag. As an additional precaution against tag loss, most of these fish also received a jaw tag. Scale samples were collected from these fish. When these known age fish were spawned, hatchery

personnel were able to cross reference specific snouts and dorsal fin ray cross sections to the individual floy tags. This sampling was conducted as part of 2 small-scale studies utilizing scales from known age hatchery origin fish. If study results can be obtained prior to the publication of the Pahsimeroi Hatchery 2006 Summer Chinook Brood Year Report, they will be included in that document.

ADULT HOLDING POND RECORD

The number of Chinook retained for spawning each year is determined by IDFG fisheries biologists based on the number and origin of returning adults (Table 4). Beginning July 3rd, 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. Due to the discovery of high levels of "ich" related mortality at SFH, Pahsimeroi hatchery personnel increased the frequency of the formalin treatments to once every day beginning August 4, 2006. This was done upon recommendation and consultation of Eagle Fish Health Laboratory personnel. Treatment frequency was reduced to every other day beginning August 17, 2006. Treatments concluded on September 19, 2006. This year's pre-spawn mortality equated to 5.0% of the 549 fish held for spawning. Female pre-spawn mortality totaled 18 and male pre-spawn mortality totaled 10. The total number of trap mortalities this season was 2. No natural fish were held for spawning.

ADULT RELEASES

All natural origin fish were released to spawn naturally in the Pahsimeroi River. The number of natural origin fish released totaled 97 (47 females, 42 males, and 8 jacks). The total number of ISS fish released for natural reproduction was 76 (40 females, 36 males, no jacks) (Tables 4,6). Scale samples and pelvic fin samples (for genetic sampling) were collected from all released fish.

For an overview of the smolt releases and adult returns throughout PFH's history, please see Appendices A, B.

SUMMER CHINOOK SPAWNING AND INCUBATION

Female Chinook were spawned for the first time on August 28, 2006. Spawning concluded on October 2, 2006. Each ripe female was killed and then spawned by the incision method. Prior to incision, a 1cc sample of ovarian fluid was collected from sixty fish throughout the spawning season to test for Infectious Hematopoetic 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 0.25 or greater. This year, only one female tested high ELISA.

As in previous years the "Dry Method" was used in spawning. However, this year only 2 measured cups of well water was used to activate the milt just prior to swirling the egg/milt mixture in each spawn bucket. Previously, well water was added "by eye" from a garden hose to each bucket prior to mixing. We feel that this change may well have been a major factor responsible for the highest eye-up survival rate in the history of the Pahsimeroi summer Chinook program.

A small pelvic fin sample was collected from each fish (for DNA purposes) that were released above the weir to spawn naturally. These DNA samples were collected as part of a study being conducted by IDFG Nampa Fisheries Research Biologist, 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.

Additionally, two hundred samples were collected from hatchery origin males and females utilized for spawning (table 8). These DNA samples were collected as part of a study being conducted by IDFG Geneticist Matt Powell. This sampling as well as the sampling mentioned above will allow us to potentially address the following types of questions:

- 1). What is the comparative reproductive success of hatchery compared to wild steelhead released above the weir? (Juvenile sampling required)
- 2). What is the individual reproductive success of hatchery fish released above the weir? (Juvenile sampling required)
- 3). How genetically similar/dissimilar is the hatchery population compared to the wild population, and does this change over time depending on management decisions such as more or less hatchery fish released above the weir?
- 4). What is the genetic diversity and effective population size of the hatchery population over time, and how does it compare to other hatchery and wild populations?

All eggs were incubated to eye-up at PFH. Most incubator trays were loaded at the rate of one female per tray. A few trays contained eggs from 2 females. 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 argentine 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 7). 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 argentine before being placed in standard vertical-flow incubators.

A total of 290 females were initially spawned, however, green eggs from the female that tested high for BKD and eleven females with poor egg quality were initially discarded without enumeration. Later, surplus eggs from an additional 23 females were discarded with enumeration leaving the eggs from 255 females to be shipped to SFH for incubation and early rearing (Table 6). The enumerated eggs from all females totaled 1,349,657 green eggs. Fecundity averaged 4,855 eggs per female and the overall eye-up percentage was 94.4% resulting in a yield of 1,274,218 eyed eggs (Table 7). This is the highest eye-up percentage rate in the program's history. The culled eyed eggs numbered 118,544, leaving 1,155,674 eyed eggs shipped to SFH for incubation and early rearing. All viral samples tested negative for IPN and IHN.

CRYOPRESERVATION

This year no cryopreservation was conducted.

ADULT CARCASS DISPOSITION

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

NON-TARGET SPECIES

Below is a list of non-target species that were trapped this season.

Rainbow Trout

Trap Date	Sex	Length (CM)	Disposition
July 6	F	41	Released
July 26	M	42	Released
September 28	M	39	Released

Cutthroat Trout

Trap Date	Sex	Length(CM)	Disposition
August 4	M	28	Released

FISH PRODUCTION

Starting September 11 brood year 2006 Pahsimeroi summer Chinook were transferred to PFH by Niel Ring and another driver. Two Idaho Power tankers hauled 1,042,638 fish

(37,855 lbs) making eight trips. A total of 525,665 fish were transferred from SFH raceways 3, 4, and 5 to PFH outdoor rearing pond 1. The remaining 516,973 fish from SFH raceways 6, 7, and 8 were placed in PFH outdoor rearing pond 2. Of these fish, 166,372 were marked AD/CWT, all of which came from SFH raceway 8. The fish averaged 28 fish per pound upon arrival, with an average length of 4.94.

Due to the previous outbreak of "ICH" at SFH, the fish were treated shortly after arrival with Formalin by PFH staff. From September 12th to September 16th, pond 2 was treated four times with 55 gallons of Formalin each time. From September 14th to September 16th, pond 1 was treated three times with 55 gallons of Formalin each time. Fish in both ponds were also started on medicated feed. A total of 9,284 pounds of medicated feed was fed to the fish between September 14th and September 30th. At the end of September, there were a total of 2,792 mortalities, which were mainly hauling mortalities (2,421 clipped only; 371 clipped and CWT) bringing the total number of fish in holding to 1,039,846 (524,549 in pond 1; 515,297 in pond 2).

Brood Year 2006 smolts were fed a total of 72,644 pounds of feed during their rearing cycle, resulting in a conversion of 1.1 (Table 11). 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 cannot be quantified.

Feed costs are summarized in Table 8, production costs are summarized in table 9, and survival percentages by life stage are summarized in table 10.

SMOLT RELEASES

Pahsimeroi Brood Year 2006 smolts were released volitionally from the secondary rearing ponds on March 31, 2008 to April 18, 2008. To reduce the chance of large numbers of fish entering the intake canal at the lower facility, the smolt release was staggered, with screens removed on alternating days between ponds for the first week of the release. Dam boards were removed in a staggered fashion as per screen removal. Towards the end of the release, Regional Fisheries personnel assisted Pahsimeroi Hatchery with electro-fishing an estimated 300 remaining smolts from the ponds.

A total of 523,172 smolts were released from pond 1 all of which were adipose clipped fish. Pond 1 smolts averaged 14.8 fish per pound at the time of release. Additionally, 14,761 fish from pond 1 were PIT tagged.

A total of 348,763 ad clipped smolts and 165,837 ad/cwt marked smolts were released from pond 2 for a total of 514,600 fish. Pond 2 smolts averaged 14.9 fish per pound at the time of release.

The individual pond release numbers above bring the total Brood Year 2006 smolt release to 1,037,772. The fish size for both ponds combined averages 14.85 fish per pound for a total weight of 69,884 pounds. All fish were classified as Reserve group listed status.

For an overview of the brood stock history and smolt releases throughout PFH's history, see Appendix A

PAHSIMEROI FISH HEALTH SECTION

Diseases Encountered and Treatment. While being early reared at Sawtooth Hatchery, these fish became infested with *Ichthyophthirius multifiliis*, the causative agent of "ICH". These fish were treated 3 times per week with formalin at 167 mg/l until signs of infestation ceased. This infestation was caught and treated successfully before mortalities commenced.

These fish received 2 erythromycin medicated feed treatments as a pre-emptive treatment for BKD. The target dose was 100 mg/kg/day for 28 days. Pre-liberation sampling did not detect pathogens in the 20 fish sampled.

Acute Losses. Neither acute nor chronic losses were experienced by this program at either Sawtooth Hatchery or Pahsimeroi Hatchery.

Other Assessments. A cooperative effort between IDFG and IPC to renovate Pahsimeroi Hatchery is now complete. This project reduces exposure of young fish to *Myxobolus cerebralis* during the most susceptible period. At present, the construction has been completed and BY2008 is now currently being incubated on site with BY2007 being reared in the two newly renovated ponds awaiting release in April of 2009.

NEW UPPER HATCHERY CONSTRUCTION PROGRESS FOR BROOD YEAR 2005

The renovation of the Pahsimeroi Fish Hatchery Upper Facility was completed in September 2007, day to day operations were then taken over by PFH staff.

RECOMMENDATIONS

Brood Year 2008 Chinook salmon are scheduled to be the first generation of Pahsimeroi Summer Chinook to utilize the newly remodeled facility. Many things have been brought to light during early planning for the ponding of BY2008, one of most importance would be the necessity of automatic belt feeders for early rearing in the vats supplied with SPF water. Since the ponding and early rearing reaches a climax during the climax of steelhead season, the belt feeders would greatly assist PFH personnel during this time due to personnel constraints.

ACKNOWLEDGEMENTS

We would also like to thank the crew at SFH for all their help with the incubation and early rearing of BY2006. They did a great job of keeping us informed on issues facing BY2006 Summer Chinook and their cooperation was greatly appreciated.

Table 1. Brood Year 2006 summer Chinook daily trap record.

Date Trapped	Hatchery Males	Natural Males	Total Males	Hatchery Females	Natural Females	Total Females	Total Trapped
26-Jun	1	0	1	3	1	4	5
27-Jun	0	0	0	4	0	4	4
28-Jun	1	0	1	1	0	1	2
29-Jun	5	1	6	8	0	8	14
30-Jun	5	1	6	8	2	10	16
1-Jul	7	0	7	5	2	7	14
2-Jul	5	1	6	10	4	14	20
3-Jul	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0
5-Jul	26	6	32	36	3	39	71
6-Jul	1	1	2	16	0	16	18
7-Jul	10	2	12	16	3	19	31
8-Jul	0	0	0	0	0	0	0
9-Jul	13	3	16	21	2	23	39
10-Jul	0	0	0	0	0	0	0
11-Jul	22	3	25	23	6	29	54
12-Jul	9	3	12	10	0	10	22
13-Jul	13	0	13	16	3	19	32
14-Jul	6	0	6	10	0	10	16
15-Jul	0	0	0	0	0	0	0
16-Jul	0	0	0	0	0	0	0
17-Jul	25	0	25	28	5	33	58
18-Jul	7	1	8	9	2	11	19
19-Jul	7	0	7	15	0	15	22
20-Jul	0	0	0	0	0	0	0
21-Jul	4	1	5	7	0	7	12
22-Jul	0	0	0	0	0	0	0
23-Jul	0	0	0	0	0	0	0
24-Jul	14	2	16	11	1	12	28
25-Jul	0	0	0	0	0	0	0
26-Jul	3	0	3	4	1	5	8
27-Jul	0	0	0	0	0	0	0
28-Jul	2	1	3	1	0	1	4
29-Jul	0	0	0	0	0	0	0
30-Jul	0	0	0	0	0	0	0
31-Jul	7	1	8	5	0	5	13
1-Aug	0	0	0	0	0	0	0
2-Aug	0	0	0	1	0	1	1
3-Aug	0	0	0	0	0	0	0
4-Aug	0	0	0	2	1	3	3
5-Aug	0	0	0	0	0	0	0

6-Aug	0	0	0	0	0	0	0	
7-Aug	4	0	4	2	0	2	6	
8-Aug	0	0	0	0	0	0	0	
9-Aug	0	0	0	0	0	0	0	
10-Aug	0	0	0	0	0	0	0	
11-Aug	10	2	12	4	1	5	17	
12-Aug	0	0	0	0	0	0	0	
13-Aug	0	0	0	0	0	0	0	
14-Aug	8	0	8	7	0	7	15	
15-Aug	0	0	0	0	0	0	0	
16-Aug	0	0	0	0	0	0	0	
17-Aug	1	0	1	3	0	3	4	
18-Aug	3	0	3	2	1	3	6	
19-Aug	0	0	0	0	0	0	0	
20-Aug	0	0	0	0	0	0	0	
21-Aug	8	4	12	5	0	5	17	
22-Aug	0	0	0	0	0	0	0	*
23-Aug	4	1	5	6	1	7	12	
24-Aug	0	0	0	0	0	0	0	*
25-Aug	0	1	1	1	0	1	2	
26-Aug	0	0	0	0	0	0	0	*
27-Aug	0	0	0	0	0	0	0	*
28-Aug	7	0	7	6	0	6	13	
29-Aug	0	0	0	0	0	0	0	*
30-Aug	5	0	5	4	1	5	10	
31-Aug	0	0	0	0	0	0	0	*
1-Sep	0	0	0	0	0	0	0	*
2-Sep	0	0	0	0	0	0	0	*
3-Sep	0	0	0	0	0	0	0	*
4-Sep	0	0	0	0	0	0	0	*
5-Sep	17	2	19	14	2	16	35	
6-Sep	0	0	0	0	0	0	0	*
7-Sep	0	0	0	0	0	0	0	*
8-Sep	4	4	8	7	1	8	16	
9-Sep	0	0	0	0	0	0	0	*
10-Sep	0	0	0	0	0	0	0	*
11-Sep	11	4	15	9	1	10	25	
12-Sep	0	0	0	0	0	0	0	*
13-Sep	0	0	0	0	0	0	0	*
14-Sep	2	2	4	10	2	12	16	
15-Sep	0	0	0	0	0	0	0	*
16-Sep	0	0	0	0	0	0	0	*
17-Sep	0	0	0	0	0	0	0	*
18-Sep	0	1	1	1	0	1	2	
19-Sep	0	0	0	0	0	0	0	*
20-Sep	0	0	0	0	0	0	0	*

Table 2. Length frequency of male summer Chinook BY2006

MALES										
FORK LENGTH (CM)	AD-CLIP PONDED	AD-CLIP RELEASED	ADCWT PONDED	ADCWT RELEASED	CWT PONDED	CWT RELEASED	UNMARKED PONDED	UNMARKED RELEASED	TOTAL TRAPPED	
41	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0
45	1	0	0	0	0	0	0	0	0	1
46	1	0	0	0	0	0	0	0	0	1
47	2	0	0	0	0	0	0	0	0	2
48	2	0	0	0	0	0	0	0	0	2
49	2	0	0	0	0	0	0	0	1	3
50	0	0	0	0	0	0	0	0	0	0
51	1	0	1	0	0	0	0	0	0	2
52	2	0	0	0	0	1	0	0	0	3
53	1	0	0	0	0	0	0	0	1	2
54	1	0	0	0	0	0	0	0	0	1
55	3	0	0	0	0	0	0	0	1	4
56	3	0	0	0	0	0	0	0	0	4
57	2	0	0	0	2	0	0	0	0	4
58	0	0	0	0	0	0	0	0	0	0
59	2	0	0	0	0	0	0	0	0	2
60	3	0	0	0	1	0	0	0	0	4
61	0	0	0	0	1	1	0	0	2	4
62	4	0	0	0	1	1	0	0	0	6
63	5	0	1	0	2	1	0	0	0	9
64	3	0	0	0	0	0	0	0	1	4
65	3	0	0	0	0	0	0	0	2	5
66	2	0	0	0	0	1	0	0	0	3
67	0	0	0	0	0	1	0	0	1	2
68	2	0	1	0	0	0	0	0	1	4

Table 3. Length frequency of female summer Chinook BY2006

FORK LENGTH (CM)	AD-CLIP PONDED	AD-CLIP RELEASED	ADCWT PONDED	ADCWT RELEASED	CWT PONDED	CWT RELEASED	UNMARKED PONDED	UNMARKED RELEASED	TOTAL TRAPPED
55*	1	0	0	0	0	0	0	0	1
56	0	0	0	0	0	0	0	0	0
57	1	0	0	0	0	0	0	0	1
58	1	0	0	0	0	0	0	0	1
59	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	1	1
63	1	0	0	0	1	0	0	0	2
64	3	0	1	0	0	0	0	0	4
65	2	0	0	0	0	0	0	0	2
66	2	0	0	0	0	0	0	1	3
67	2	0	0	0	0	0	0	1	3
68	1	0	1	0	1	0	0	3	6
69	6	0	1	0	0	0	0	3	10
70	9	0	3	0	1	3	0	1	17
71	14	0	2	0	1	1	0	2	20
72	13	0	1	0	1	2	0	2	19
73	14	0	0	0	2	3	0	0	19
74	17	0	1	0	1	0	0	2	21
75	22	0	3	0	0	1	0	5	31
76	17	0	0	0	0	3	0	1	21
77	18	0	2	0	0	3	0	3	26
78	12	0	0	0	0	0	0	2	14

107	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS:	272	0	0	19	0	26	40	0	0	0	47	0	404

* This Female is Actually a 44 cm "Jill" from the Eagle Captive Rearing Program.

Table 4. Summer Chinook trap disposition summary, Brood Year 2006

Table 4 Summer Chinook Trap disposition summary, Brood Year 2006

Pahsimeroi Brood Year 2006 Chinook Disposition Summary:

10/2/2006

Released For Natural Spawning				Hatchery Origin Adult Females				Natural Origin Adult Males				Natural Origin Adult Females			
Age 4 Males	Age 4 Males	Age 5 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females	Age 4 Males	Age 5 Males	Age 4 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females
Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)
0	33	0	3	0	35	0	35	0	33	0	33	0	39	0	39
0.0%	66.0%	0.0%	75.0%	0.0%	62.5%	0.0%	62.5%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%
Total				Total				Total				Total			
33				35				33				39			
0.0%				62.5%				0.0%				100.0%			
%				%				%				%			
Total				Total				Total				Total			
33				35				33				39			
0.0%				62.5%				0.0%				100.0%			
%				%				%				%			
Released				Released				Released				Released			

Ponded For Hatchery Production*				Hatchery Origin Adult Females				Natural Origin Adult Males				Natural Origin Adult Females			
Age 4 Males	Age 4 Males	Age 5 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females	Age 4 Males	Age 5 Males	Age 4 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females
Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)
129	17	53	1	234	21	57	5	0	0	0	0	0	0	0	0
100.0%	34.0%	100.0%	25.0%	100.0%	37.5%	100.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total				Total				Total				Total			
129				234				5				0			
100.0%				100.0%				50.0%				0.0%			
%				%				%				%			
Ponded				Ponded				Ponded				Ponded			

Recycled to Fishery				Hatchery Origin Adult Females				Natural Origin Adult Males				Natural Origin Adult Females			
Age 4 Males	Age 4 Males	Age 5 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females	Age 4 Males	Age 5 Males	Age 4 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females
Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total				Total				Total				Total			
0				0				0				0			
0.0%				0.0%				0.0%				0.0%			
%				%				%				%			
Recyc				Recyc				Recyc				Recyc			

Trapping Totals by Gender, Year Class, and Origin for Brood Year 2006															
Hatchery Origin Adult Males				Hatchery Origin Adult Females				Natural Origin Adult Males				Natural Origin Adult Females			
Age 4 Males	Age 4 Males	Age 5 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females	Age 4 Males	Age 5 Males	Age 4 Males	Age 5 Males	Age 4 Females	Age 5 Females	Age 4 Females	Age 5 Females
Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)	Adipose Marked (L)	CWT (L)
129	50	53	4	234	56	57	10	33	9	33	9	39	8	39	8
17.6%	6.6%	7.2%	0.5%	31.8%	7.6%	7.8%	1.4%	4.5%	1.2%	4.5%	1.2%	5.3%	1.1%	5.3%	1.1%
Total				Total				Total				Total			
129				234				10				39			
17.6%				31.8%				1.4%				5.3%			
%				%				%				%			
Total Trapped				Total Trapped				Total Trapped				Total Trapped			
129				234				10				39			
17.6%				31.8%				1.4%				5.3%			
%				%				%				%			

Trap Totals by Origin for Brood Year 2006				Total Natural Origin Adults				Total Hatchery Origin Adults				Total Chinook Trapped			
Hatchery Adult Males	Hatchery Adult Females	Natural Origin Adult Males	Natural Origin Adult Females	Hatchery Origin Adult Males	Hatchery Origin Adult Females	Natural Origin Adult Males	Natural Origin Adult Females	Hatchery Origin Adult Males	Hatchery Origin Adult Females	Total Males	Total Females	Total Males	Total Females		
236	357	42	47	86	43	51	733	51	733	51	733	51	733		
32.2%	48.7%	80.9%	5.7%	12.1%	6.4%	7.0%	100.0%	1.1%	5.9%	7.0%	100.0%	1.1%	5.9%		
Total				Total				Total				Total			
236				86				51				733			
32.2%				12.1%				7.0%				100.0%			
%				%				%				%			

Trap Totals for Today's Date

2-Oct

Table 5. Pahsimeroi summer Chinook coded wire tag summary, Brood Year 2006.

DATE COLLECTED	SEX	FLOY TAG	FL(CM)	CLIPS OR MARKS	SNOUT BAG NUMBER	COMMENTS
1-Jul	None	None	None	m	72	cwt
24-Jul	1371	None	ss43	m	70	cwt
24-Jul	1381	None	ss53	f	63	cwt
26-Jul	1373	None	ss45	f	86	cwt
30-Jul	24	15	ss71	f	72	adcwt
3-Aug	42	28	ss84	f	99	ad
3-Aug	1335	None	ss14	f	75	adcwt
4-Aug	13	8	ss64	m	86	cwt
11-Aug	38	25	ss81	m	63	adcwt
11-Aug	44	30	ss86	m	74	cwt
28-Aug	53	38	SS92	f	74	adcwt
28-Aug	1343	None	SS22	f	64	adcwt
5-Sep	61	None	Not Collected	f	84	cwt
5-Sep	1342	None	ss21	f	75	adcwt
5-Sep	1346	None	ss6	f	73	adcwt
5-Sep	36	23	ss79	f	80	cwt
5-Sep	62	None	ss100	f	73	cwt
5-Sep	1384	None	ss56	f	71	adcwt
5-Sep	63	46	ss101	f	74	cwt
5-Sep	1364	None	SS36	f	73	cwt
5-Sep	1337	None	ss16	f	68	adcwt
5-Sep	1362	None	SS34	f	70	adcwt
8-Sep	1331	None	ss10	f	86	cwt
8-Sep	26	17	ss73	m	94	ad
11-Sep	1351	None	ss24	f	72	cwt
11-Sep	14	9	ss65	m	51	adcwt
11-Sep	65	None	Not Collected	f	79	cwt
11-Sep	15	10	ss66	f	77	adcwt
11-Sep	1380	None	ss52	f	69	adcwt
11-Sep	1370	None	ss42	m	69	adcwt
11-Sep	1330	None	ss9	m	83	cwt
11-Sep	51	36	ss91	m	93	ad
11-Sep	1	1	ss57	f	80	adcwt
11-Sep	1365	None	ss37	m	70	cwt
11-Sep	19	12	ss68	f	77	adcwt
11-Sep	45	31	ss87	m	79	cwt
11-Sep	54	39	ss93	m	92	ad
11-Sep	29	20	ss76	m	92	ad
11-Sep	None	None	ss103	m	91	ad
12-Sep	1372	None	ss44	f	92	ad
14-Sep	None	None	None	m	71	cwt
14-Sep	Missing	Missing	Unknown	f	70	adcwt
14-Sep	Missing	Missing	Unknown	m	69	adcwt
14-Sep	Missing	Missing	Unknown	m	77	adcwt
14-Sep	57	42	ss96	f	70	adcwt
14-Sep	1349	None	ss2	f	70	adcwt
14-Sep	50	34	ss90	m	83	adcwt
14-Sep	64	47	ss102	f	79	cwt
14-Sep	39	26	ss82	f	70	cwt
14-Sep	66	None	ss104	f	84	cwt
14-Sep	37	24	ss80	m	79	cwt
14-Sep	Missing	Missing	Unknown	m	68	adcwt

14-Sep	1369	None	ss41	f	91	ad
14-Sep	1363	None	ss35	f	93	ad
14-Sep	67	None	ss105	f	80	cwt
14-Sep	55	40	ss94	f	90	ad
14-Sep	68	None	ss106	f	75	cwt
14-Sep	5	4	ss60	f	71	cwt
14-Sep	1336	None	ss15	f	71	adcwt
14-Sep	22	13	ss69	m	97	ad
14-Sep	1353	None	ss26	m	61	cwt
18-Sep	58	43	ss97	m	57	cwt
18-Sep	43	29	ss85	m	84	cwt
18-Sep	Missing	Missing	Unknown	m	87	cwt
18-Sep	1344	None	ss23	f	71	cwt
18-Sep	17	11	ss67	f	90	adcwt
18-Sep	Missing	Missing	Unknown	f	75	adcwt
18-Sep	59	44	ss98	m	91	ad
21-Sep	1367	None	ss39	f	90	ad
21-Sep	1333	None	ss12	f	87	cwt
21-Sep	1355	None	ss28	f	90	ad
21-Sep	1359	None	SS32	f	90	AD
21-Sep	missing	missing	n/a	f	81	cwt
21-Sep	40	27	ss83	f	91	ad
21-Sep	1339	None	ss18	f	94	ad
21-Sep	1332	None	ss11	m	90	ad
25-Sep	1382		ss54	f	80	cwt
25-Sep	2	2	ss58	f	90	adcwt
25-Sep	23	14	ss70	f	82	CWT
25-Sep	35	22	ss78	f	88	ad
25-Sep	12	7	ss63	f	81	cwt
25-Sep	52	37	not collected	f	80	cwt
25-Sep	9	5	ss61	f	91	ad
25-Sep	25	16	ss72	m	60	cwt
25-Sep	28	19	ss75	m	76	cwt
25-Sep	48	32	ss88	m	96	ad
28-Sep	missing	missing	#N/A	m	76	cwt
28-Sep	49	33	ss89	m	92	ad
28-Sep	1376	None	ss48	m	62	cwt
28-Sep	1374	None	ss46	f	89	ad
28-Sep	missing	missing	Unknown	f	91	cwt
28-Sep	missing	missing	Unknown	f	69	cwt
2-Oct	34	21	ss77	f	79	cwt
2-Oct	3	3	ss59	f	91	ad
2-Oct	11	6	ss62	m	95	ad
2-Oct	missing	missing	Unknown	m	56	cwt
2-Oct	missing	missing	Unknown	m	82	adcwt
2-Oct	1357	None	SS30	m	92	AD

Table 6. Summer Chinook adult disposition summary, Brood Year 2006.

Disposition	Males	Females
Trap Mortality	1	1
Ponded-Pre-Spawn Mortality	11	19
Recycled for Fishery	0	0
Surplus-Killed for Charities and Tribes*	0	0
Surplus Females in Holding-Killed Without Spawning	0	7
Females Spawmed-Eyed Eggs Shipped to Sawtooth Hatchery	0	255
Females Spawmed-Eggs Rejected During Spawning or Culled Later	0	35
Released Above Weir	86	87
Mini-Jacks- Killed	0	0
Males Spawmed and Killed	212	0
Males- Died in Holding After 30 percent Spawning Completed	19	0
Total Chinook Trapped Brood Year 2006 Pahsimeroi Hatchery	329	404

Table 7. Brood Year 2006 summer Chinook spawning summary.

LOT	SPAWN	TOTAL FEMALES	FEMALES-	FEMALES-	EYED	EYED	BAD	TOTAL	PERCENT	AVERAGE	
NO.	DATE	SPAWNED	EGGS REJECTED (BKD)*	EGGS REJECTED (QUALITY)*	EGGS SHIPPED	EGGS OBTAINED	EGGS	EGGS	EYE-UP	FECUNDITY	COMMENTS
1	8/28/06	3	0	1	4,475	4,475	1,440	5,915	75.7%	2,958	1 "JILL" SIZE FEMALE
2	9/5/06	33	0	2	111,961	111,961	23,055	135,016	82.9%	4,355	
3	9/8/06	24	1	0	102,975	102,975	9,018	111,993	91.9%	4,869	
4	9/11/06	40	0	1	172,535	172,535	15,060	187,595	92.0%	4,810	
5	9/14/06	51	0	1	227,900	227,900	5,294	233,194	97.7%	4,664	
6	9/18/06	30	0	0	148,502	148,502	2,194	150,696	98.5%	5,023	1 "JILL" SIZE FEMALE
7	9/21/06	50	0	1	226,276	226,276	13,006	239,282	94.6%	4,883	
8	9/25/06	35	0	4	161,050	161,050	2,844	163,894	98.3%	5,287	
9	9/28/06	15	0	0	0	82,633	1,572	84,205	98.1%	5,614	ALL EGGS CULLED
10	10/2/06	9	0	1	0	35,911	1,956	37,867	94.8%	4,733	ALL EGGS CULLED
TOTALS		290	1	11	1,155,674	1,274,218	75,439	1,349,657	94.4%	4,855	

Table 8. Brood Year 2006 feed summary.

Feed Type/Size	Pounds Fed This Month	Pounds Fed To Date	Cost per Pound	Total Feed Cost
Bio-Vita Starter #0		1056	\$1.13	\$1,193.28
Bio-Vita Starter #1		2024	\$1.13	\$2,287.12
Bio-Vita Starter #2		3828	\$1.13	\$4,325.64
MD Aqua 100 1.2 mm 2.25%		4840	\$1.31	\$6,340.40
Bio-Diet Grower 1.2 mm		176	\$1.14	\$200.64
Bio-Diet Grower 1.5 mm		6248	\$0.99	\$6,185.52
Bio-Diet Grower 2.5 mm		16,192.0	\$0.92	\$14,896.64
Bio-Vita Aqua 100 Grower 2.0 mm 2.25%		8,800.0	\$1.71	\$15,048.00
Bio-Vita Aqua 100 Grower 2.0 mm 3%		8,184.0	\$1.84	\$15,058.56
Rangen Soft Moist 6% TM-100	3,784.0	3,784.0	N/A	
Bio-Olympic Fry 2.0 mm Pro-Active	4,180.0	17,512.0	\$0.98	\$17,126.74
Totals:	7,964.0	72,644.0		\$82,662.54

Table 9. Brood Year 2006 production costs.

Number of fish	Pounds of feed	Cost of Feed	Pounds of Fish	Conversion	Total Budget	Cost per Thousand Fish	Cost per Pound of Fish
1,037,772	72,644	\$82,662.54	69,884	1.0	\$1,148,722.15	\$1,106.67	\$16.44

*Does not include capital outlay

Table 10. Brood Year 2005 smolt survival by life stage.

Life Stages	Numbers	Survival Percentages
Green Eggs	1,349,657	
Egg Pickoff	75,349	
Eyed Eggs	1,274,218	94.4%
Eggs Shipped To SFH	1,155,674	
Alevin Pickoff	14,483	
Fry Poned	1,141,191	98.7%
Fry Mortality	16,460	
Fingerling Poned	1,124,731	98.6%
Fingerling Mortality	86,952	
Smolts Released	1,037,772	92.3%

FIGURES

Figure 1. Brood Year 2006 summer Chinook salmon run timing.

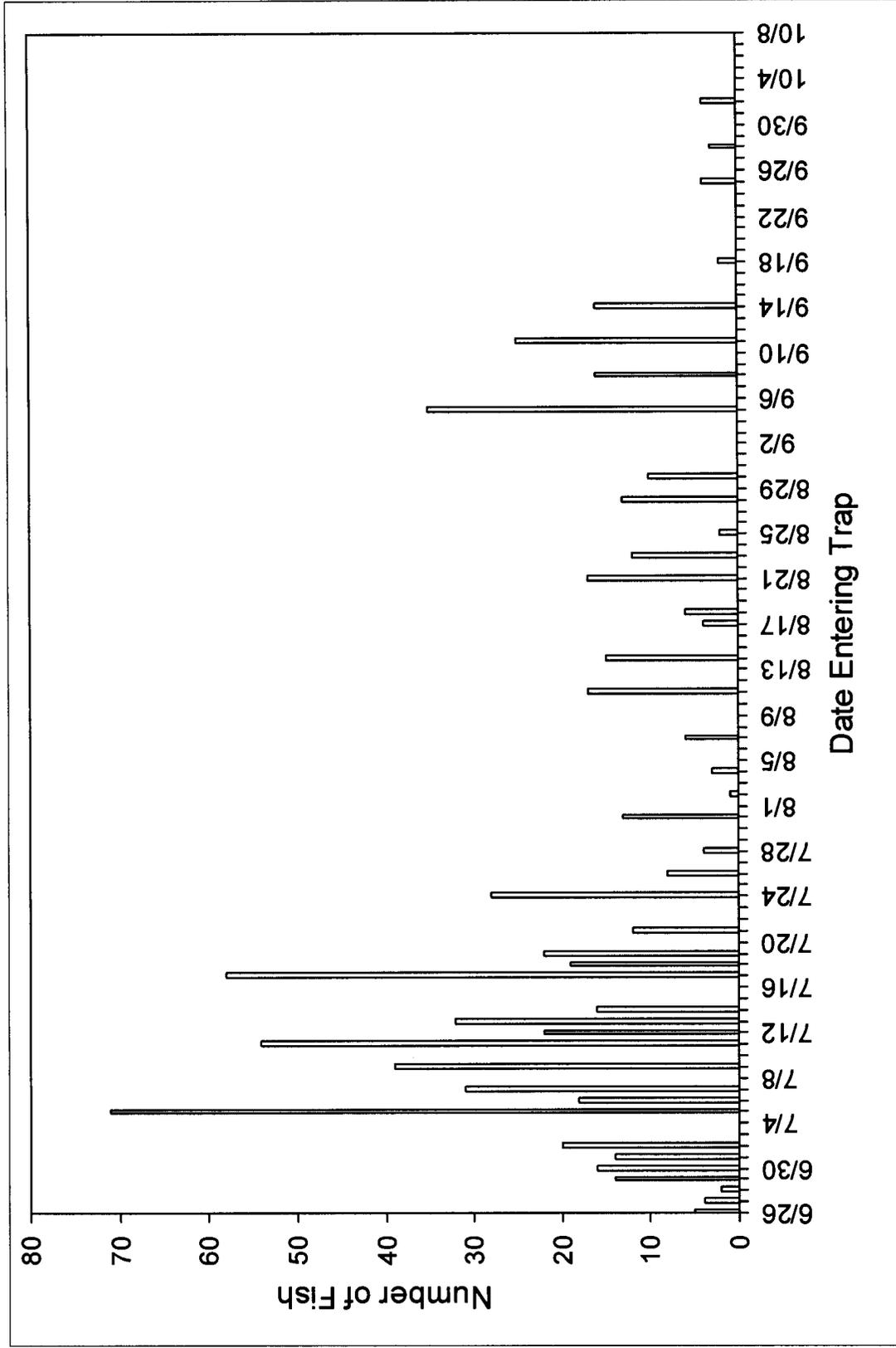


Figure 1-A. Brood Year 2006 unmarked male summer Chinook run timing.

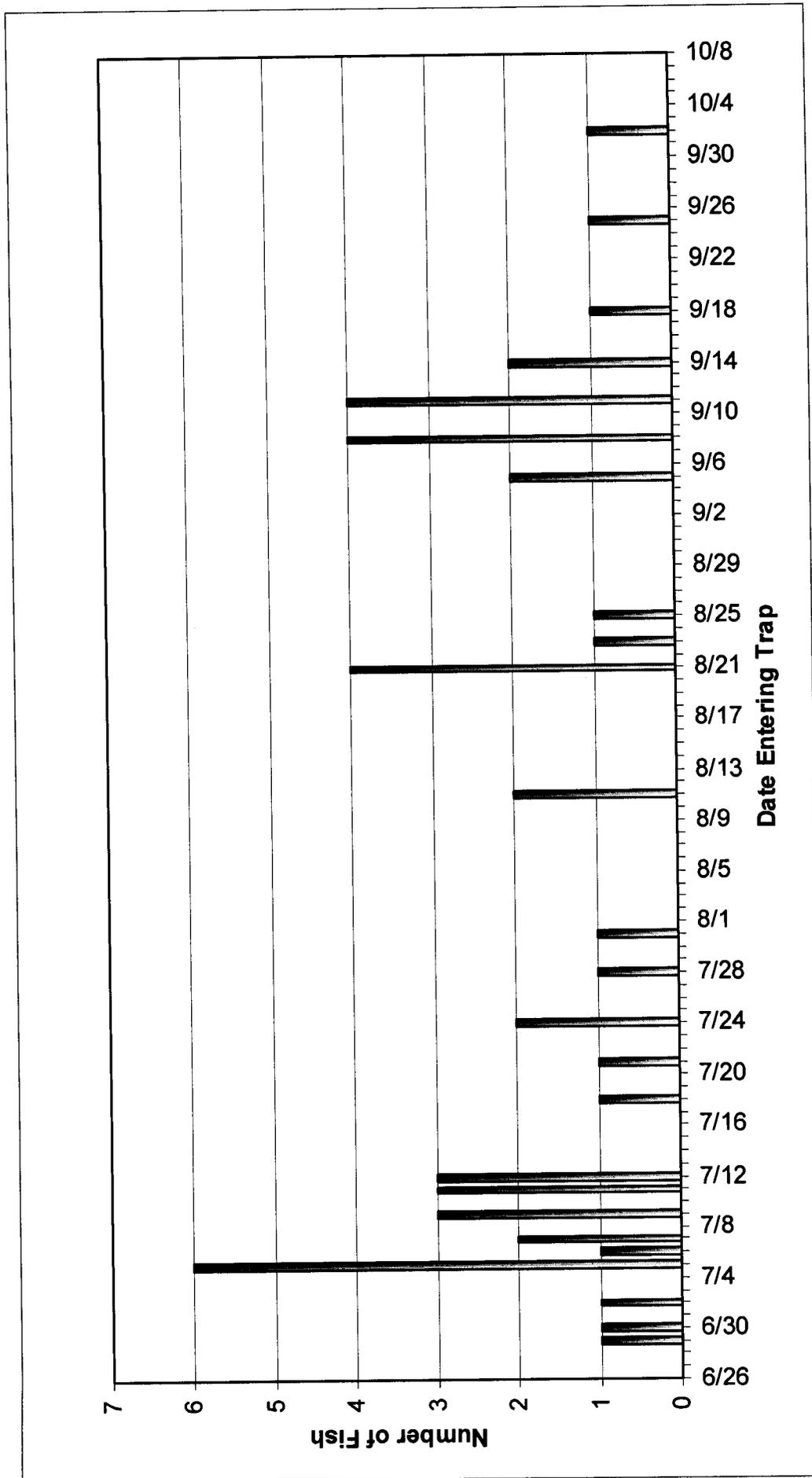


Figure 1-B. Brood Year 2006 unmarked female summer Chinook run timing.

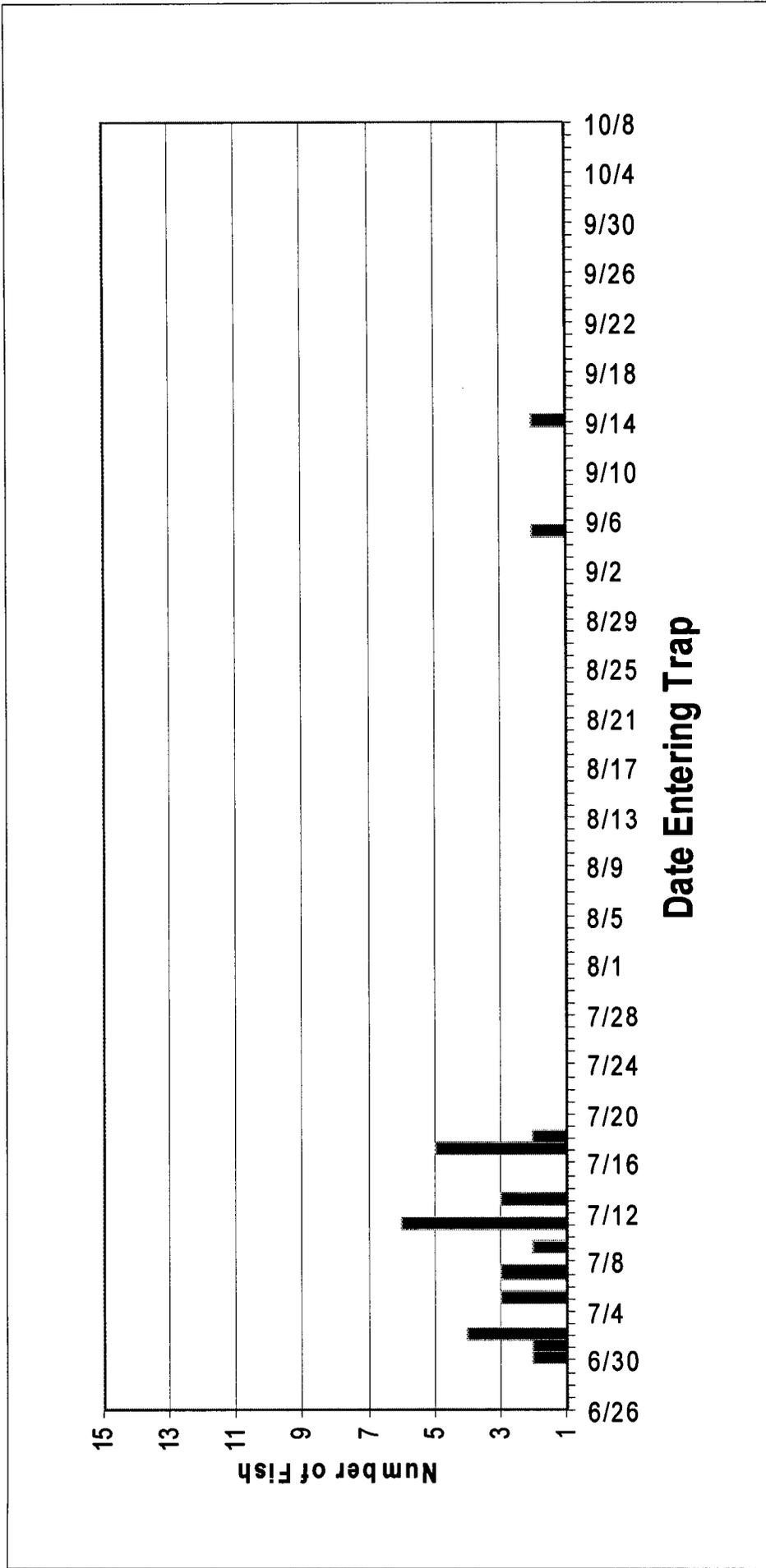


Figure 1-C. Brood Year 2006 hatchery male summer Chinook run timing.

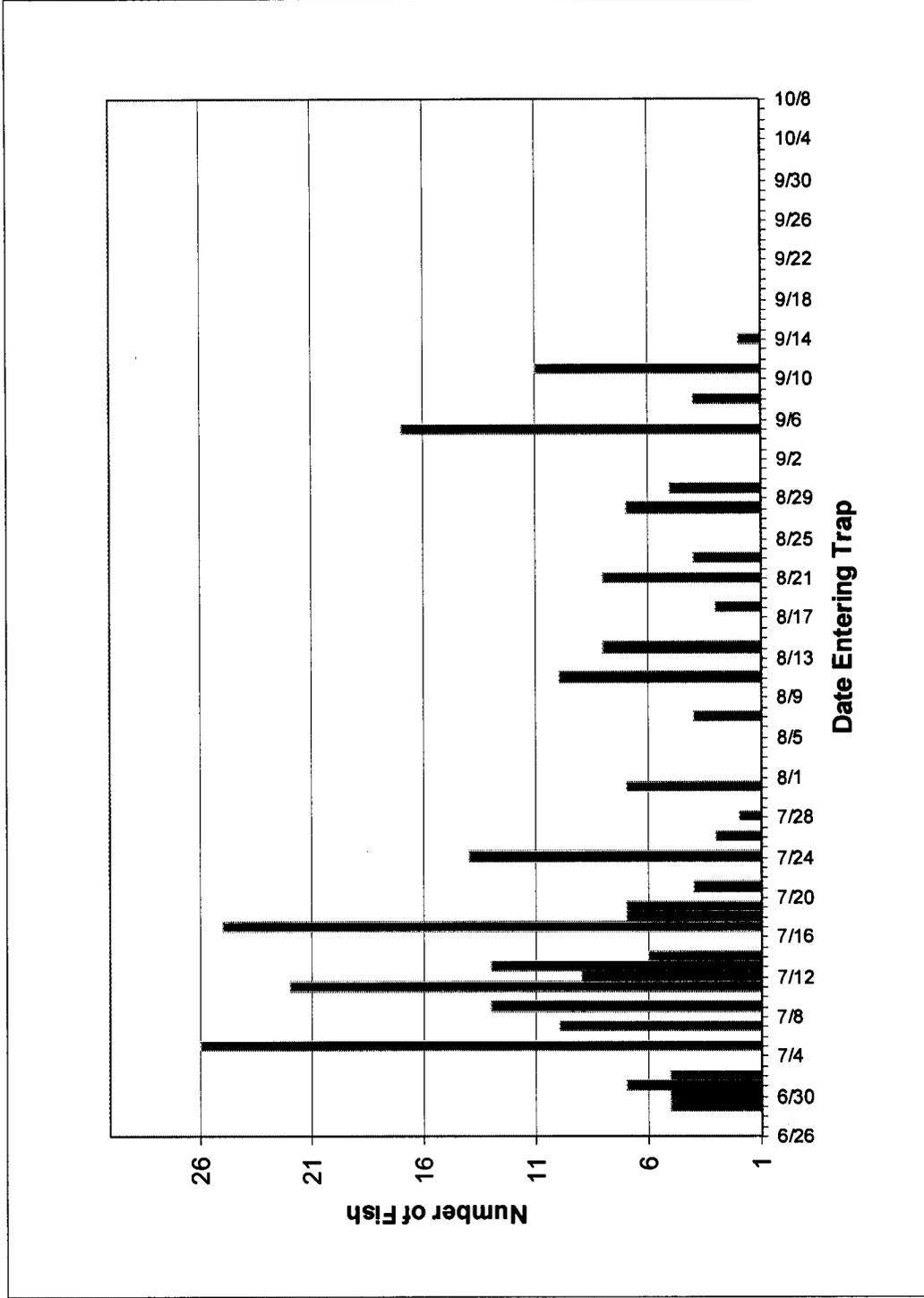


Figure 1-D. Brood Year 2006 hatchery female summer Chinook run timing.

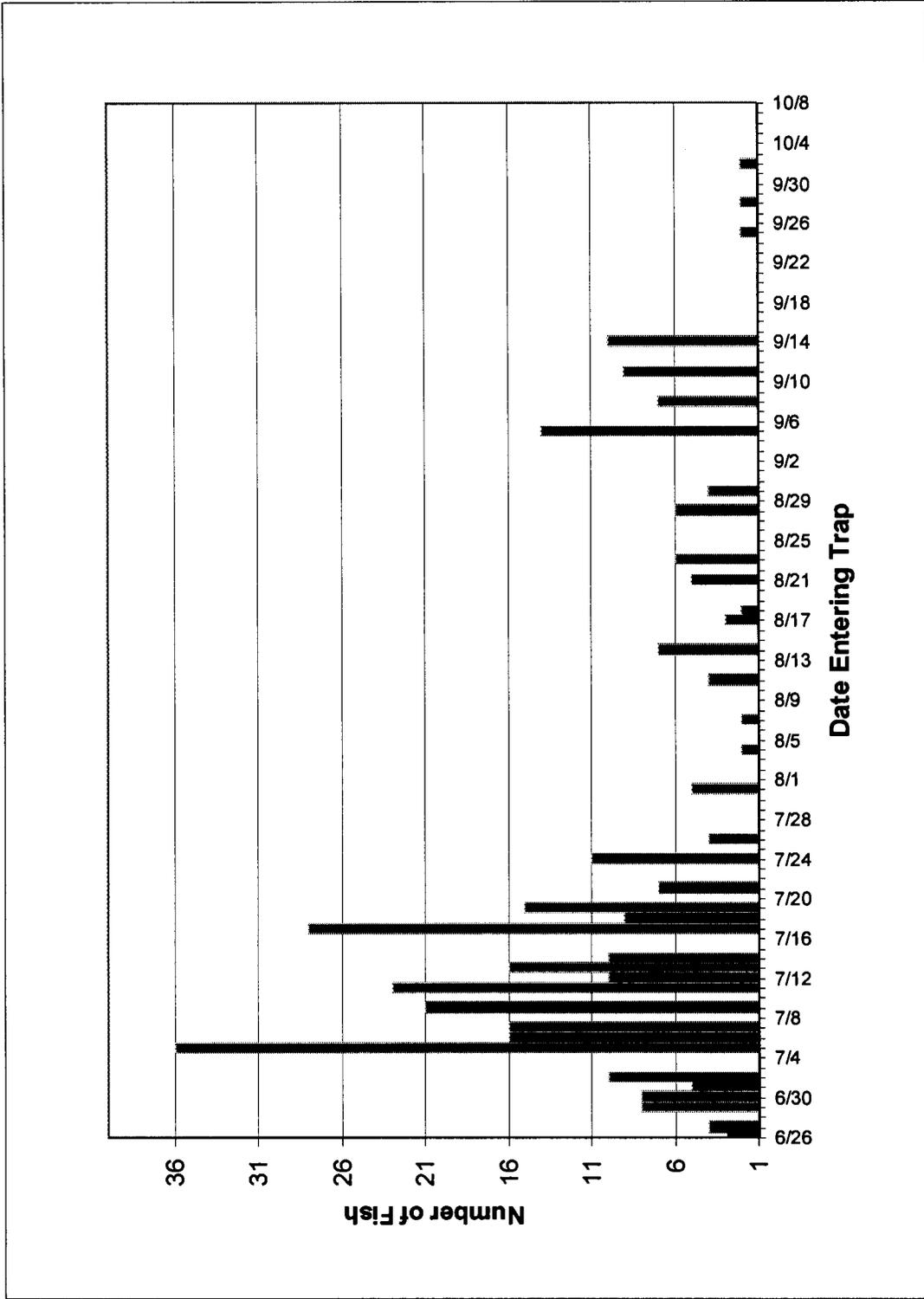


Figure 2. Length frequency of hatchery summer Chinook trapped, Brood Year 2006

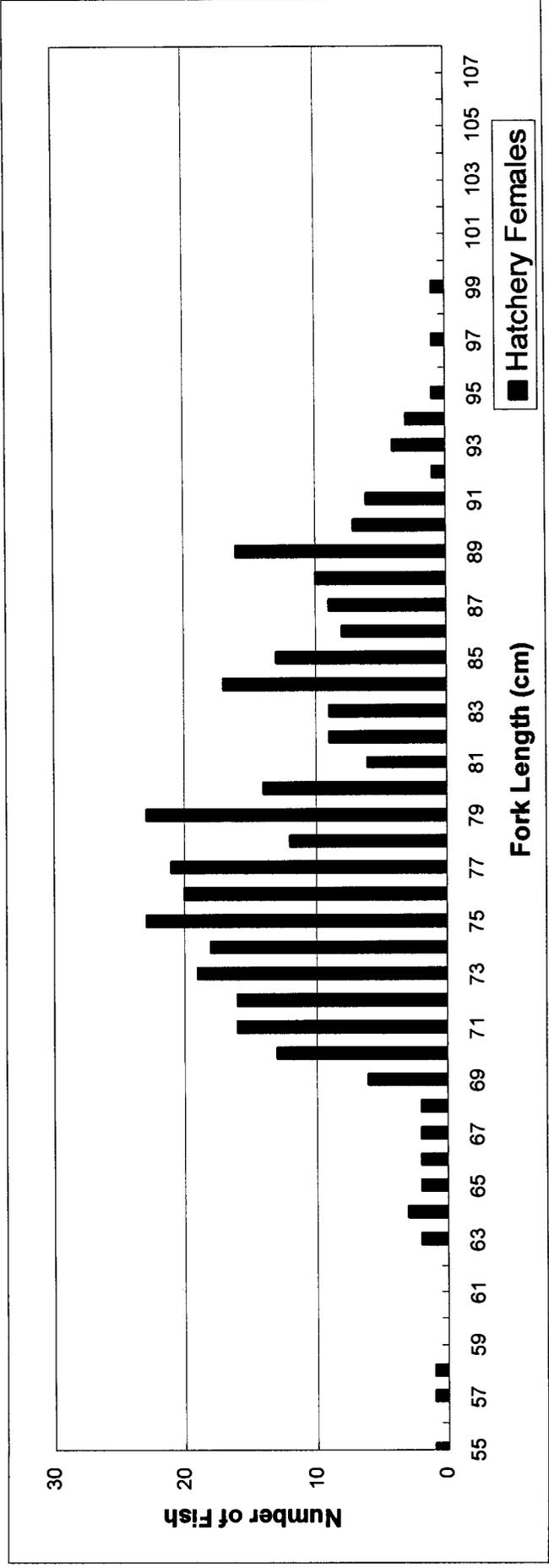
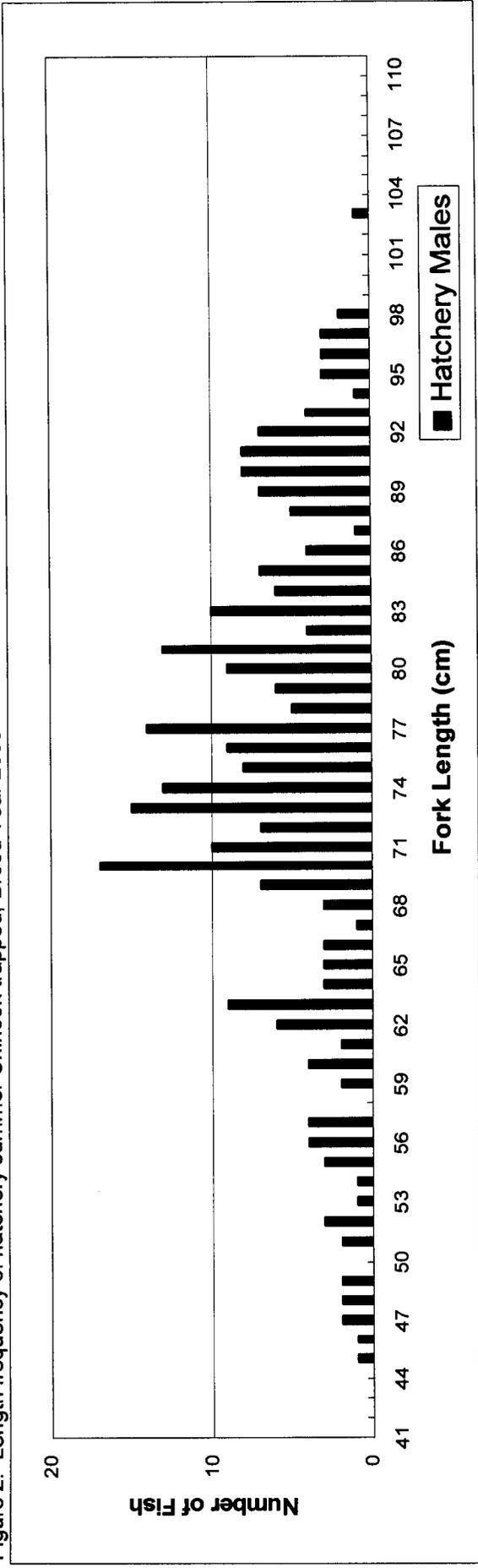


Figure 3. Length Frequency of unmarked summer Chinook trapped, Brood Year 2006

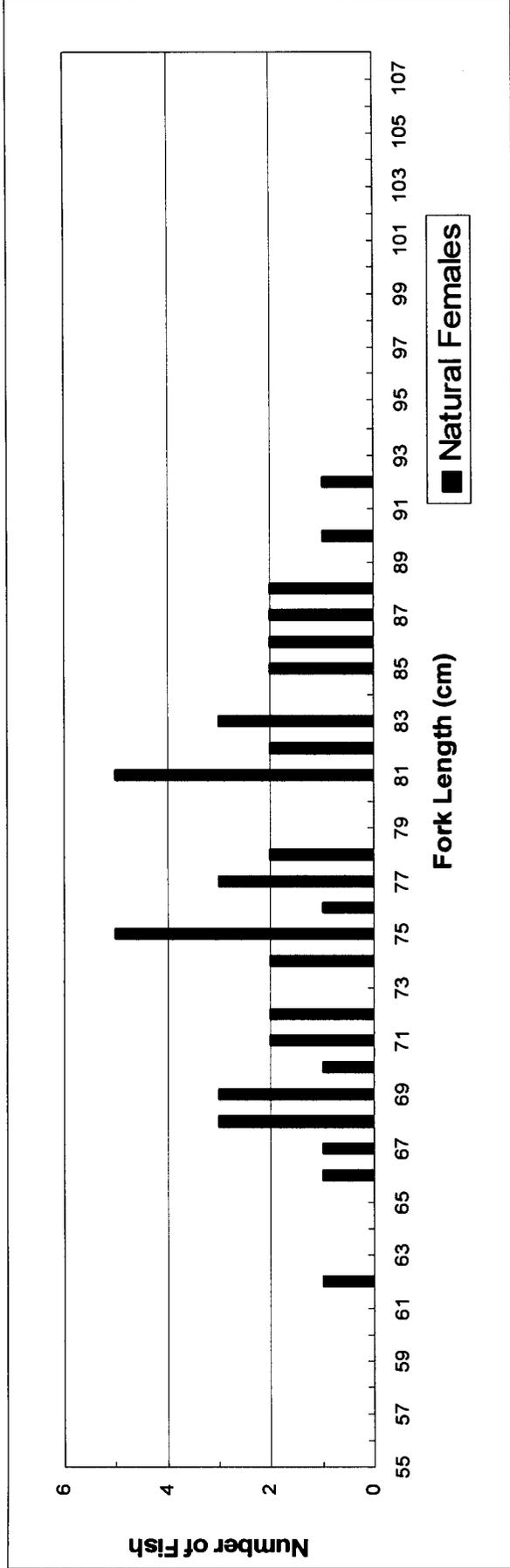
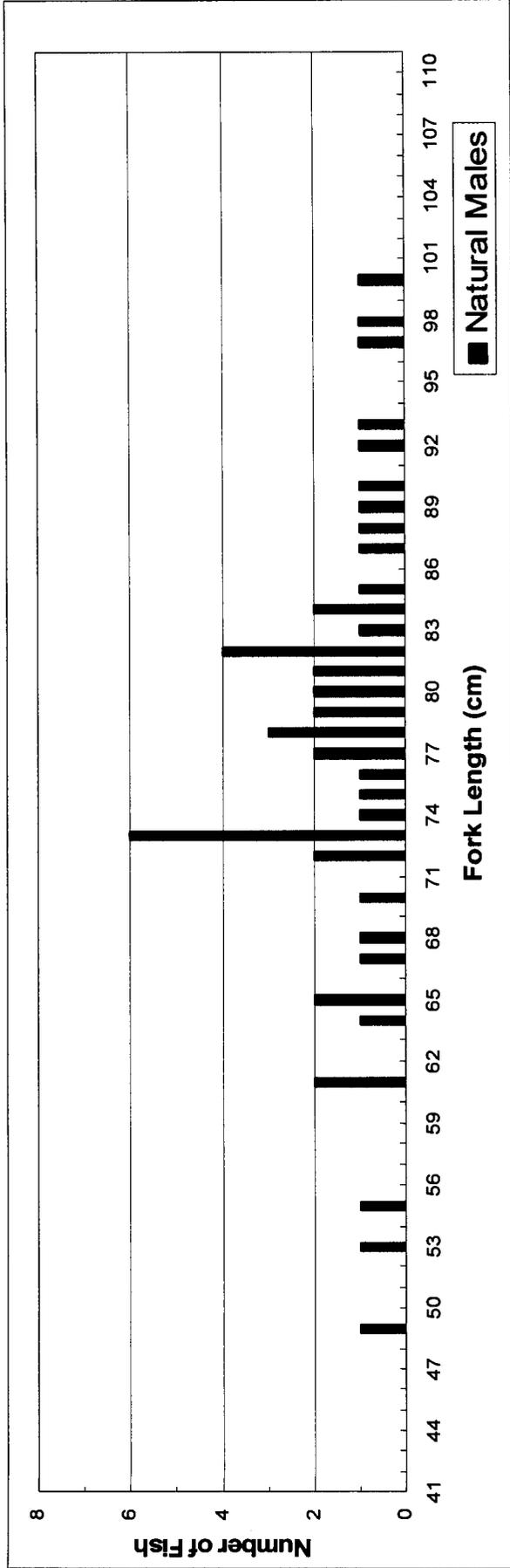
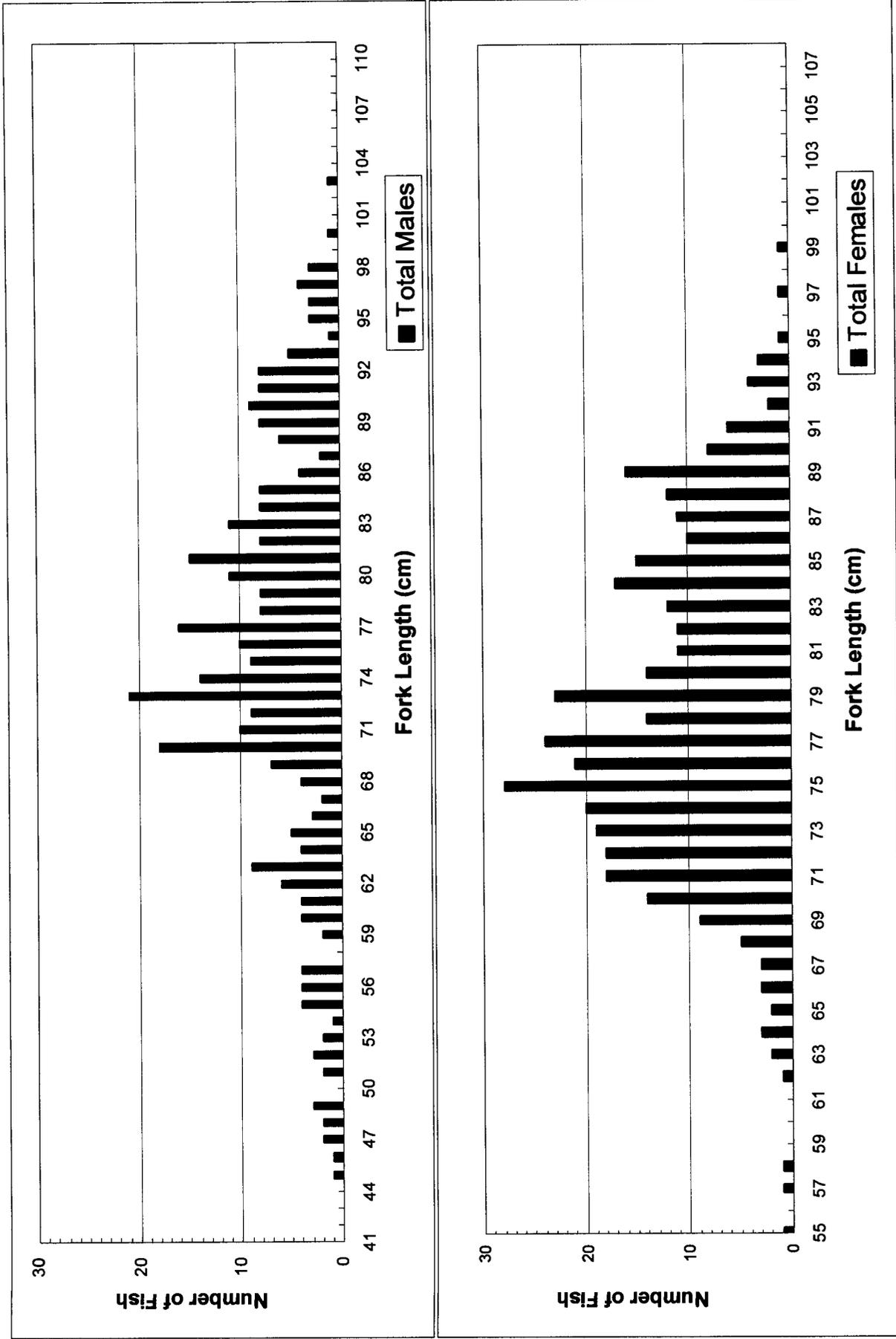


Figure 4. Length frequency of all summer Chinook trapped, Brood Year 2006.



APPENDICES

Appendix A. Pahsimeroi Fish Hatchery 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
2001	Pahsimeroi	1,700,097	Summer Chinook	2003	1,205,918	Pahsimeroi River
2002	Pahsimeroi	1,293,123	Summer Chinook	2004	1,108,028	Pahsimeroi River
2003	Pahsimeroi	1,587,310	Summer Chinook	2005	975,252	Pahsimeroi River
2004	Pahsimeroi	1,620,513	Summer Chinook	2006	1,073,951	Pahsimeroi River
2005	Pahsimeroi	1,335,191	Summer Chinook	2007	987,460	Pahsimeroi River
2006	Pahsimeroi	1,349,657	Summer Chinook	2008	1,037,772	Pahsimeroi River

Appendix B. Pahsimeroi Fish Hatchery summer Chinook smolt release and adult return information.

RELEASE DATE	NUMBER	3-YRS	4-YRS	5-YRS	TOTAL	RETURN YEARS	% RETURN
May-70	300,000	89	N/A	101	N/A	71,72,73	N/A
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	N/A
May-76	121,000	7	X	32	X	77,78,79	N/A
May-77	235,000	X	O	4	X	78,79,80	N/A
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%
Apr-84	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	0.622%
Apr-00	53,837	28	360	403	791	01,02,03	1.47%
Apr-01	283,063	308	1,072	284	1,664	02,03,04	0.59%
Apr-02	508,340	1,039	2,668	142	3,849	03,04,05	0.757%
Mar-03	1,205,918	385	1,629	124	2,138	04,05,06	0.177%
Apr-04	1,108,028	69	469	n/a	n/a	05,06,07	n/a
Mar-05	975,252	43	n/a	n/a	n/a	06,07,08	n/a
Mar-06	1,073,951	n/a	n/a	n/a	n/a	07,08,09	n/a

Appendix C. Pahsimeroi Brood Year 2006 hatchery summer Chinook genetic sampling.

SAMPLE NUMBER	VIAL NUMBER	SAMPLE DATE	FORK LENGTH	SEX	MARK TYPE	FLOY NUMBER	JAW NUMBER	COMMENTS
1	pah1	28-Aug	74	f	adcwt	53	38	
2	pah2	28-Aug	64	f	adcwt	1343		
3	pah3	28-Aug	75	f	ad			
4	pah4	5-Sep	77	f	ad			
5	pah5	5-Sep	84	f	cwt	61	None	Arrived Ripe
6	pah6	5-Sep	87	f	ad			
7	pah7	5-Sep	75	f	adcwt	1342	None	
8	pah8	5-Sep	74	f	ad			
9	pah9	5-Sep	78	f	ad			
10	pah10	5-Sep	74	f	ad			
11	pah11	5-Sep	72	f	ad			
12	pah12	5-Sep	73	f	adcwt	1346	None	
13	pah13	5-Sep	80	f	cwt	36	23	
14	pah14	5-Sep	73	f	ad			
15	pah15	5-Sep	86	f	ad			
16	pah16	5-Sep	71	f	ad			
17	pah17	5-Sep	73	f	cwt	62	None	Arrived ripe
18	pah18	5-Sep	67	f	ad			
19	pah19	5-Sep	78	f	ad			
20	pah20	5-Sep	85	f	ad			
21	pah21	5-Sep	58	f	ad			
22	pah22	5-Sep	74	f	ad			
23	pah23	5-Sep	77	f	ad			
24	pah24	8-Sep	74	f	ad			
25	pah25	8-Sep	75	f	ad			
26	pah26	8-Sep	86	f	ad			
27	pah27	8-Sep	77	f	ad			
28	pah28	8-Sep	72	f	ad			
29	pah29	8-Sep	86	f	cwt			
30	pah30	8-Sep	84	f	ad			
31	pah31	8-Sep	84	f	ad			
32	pah32	8-Sep	79	f	ad			
33	pah33	8-Sep	86	f	ad			
34	pah34	8-Sep	80	f	ad			
35	pah35	8-Sep	66	f	ad			
36	pah36	8-Sep	89	f	ad			
37	pah37	8-Sep	76	f	ad			
38	pah38	11-Sep	76	f	ad			
39	pah39	11-Sep	68	f	ad			
40	pah40	11-Sep	81	f	ad			

41	pah41	11-Sep	74	f	ad			
42	pah42	11-Sep	66	f	ad			
43	pah43	11-Sep	92	f	ad			
44	pah44	11-Sep	88	f	ad			
45	pah45	11-Sep	72	f	cwt	1351	None	
46	pah46	11-Sep	83	f	ad			
47	pah47	11-Sep	74	f	ad			
48	pah48	11-Sep	45	m	ad			
49	pah49	11-Sep	92	m	ad	54	39	
50	pah50	11-Sep	88	m	ad			
51	pah51	11-Sep	79	m	ad			
52	pah52	11-Sep	56	m	ad			
53	pah53	11-Sep	51	m	adcwt	14	9	
54	pah54	11-Sep	88	m	ad			
55	pah55	11-Sep	99	m	ad			shed tag
56	pah56	11-Sep	71	m	ad			
57	pah57	11-Sep	92	m	ad	29	20	
58	pah58	11-Sep	93	m	ad			
59	pah59	11-Sep	82	m	ad			
60	pah60	11-Sep	53	m	ad			
61	pah61	11-Sep	55	m	ad			
62	pah62	11-Sep	73	m	ad			
63	pah63	11-Sep	78	m	ad			
64	pah64	11-Sep	69	m	adcwt	1370	None	
65	pah65	11-Sep	83	m	cwt	1330	None	
66	pah66	11-Sep	77	m	ad			
67	pah67	11-Sep	69	m	ad			
68	pah68	11-Sep	69	m	ad			
69	pah69	11-Sep	70	m	ad			
70	pah70	11-Sep	79	m	ad			
71	pah71	11-Sep	79	m	cwt	45	31	
72	pah72	11-Sep	73	m	ad			
73	pah73	11-Sep	81	m	ad			
74	pah74	11-Sep	86	m	ad			
75	pah75	11-Sep	70	m	ad			
76	pah76	11-Sep	66	m	ad			
77	pah77	11-Sep	64	m	ad			
78	pah78	14-Sep	74	f	ad			
79	pah79	14-Sep	71	f	adcwt			
80	pah80	14-Sep	76	f	ad			
81	pah81	14-Sep	91	f	cwt			
82	pah82	14-Sep	85	f	ad			
83	pah83	14-Sep	73	f	ad			
84	pah84	14-Sep	74	f	ad			
85	pah85	14-Sep	86	f	ad			
86	pah86	14-Sep	74	f	ad			

87	pah87	14-Sep	91	f	ad		
88	pah88	14-Sep	90	f	ad		
89	pah89	14-Sep	71	f	ad		
90	pah90	14-Sep	74	f	ad		
91	pah91	14-Sep	73	f	ad		
92	pah92	14-Sep	88	f	ad		
93	pah93	14-Sep	78	f	ad		
94	pah94	14-Sep	84	f	cwt		
95	pah95	14-Sep	78	f	ad		
96	pah96	14-Sep	80	f	cwt		
97	pah97	14-Sep	70	f	ad		
98	pah98	14-Sep	77	m	ad		
99	pah99	14-Sep	82	m	ad		
100	pah100	14-Sep	82	m	ad		
101	pah101	14-Sep	75	m	ad		
102	pah102	14-Sep	62	m	ad		
103	pah103	14-Sep	90	m	ad		
104	pah104	14-Sep	90	m	ad		
105	pah105	14-Sep	74	m	ad		
106	pah106	14-Sep	77	m	ad		
107	pah107	14-Sep	82	m	ad		
108	pah108	14-Sep	82	m	ad		
109	pah109	14-Sep	89	m	ad		
110	pah110	14-Sep	82	m	cwt	37	24
111	pah111	14-Sep	92	m	ad	1360	None
112	pah112	14-Sep	82	f	ad		
113	pah113	14-Sep	70	f	ad		
114	pah114	14-Sep	84	f	cwt	66	None
115	pah115	14-Sep	71	m	ad		
116	pah116	14-Sep	71	m	ad		
117	pah117	14-Sep	71	m	ad		
118	pah118	14-Sep	72	m	ad		
119	pah119	14-Sep	68	m	ad		
120	pah120	14-Sep	58	m	ad		
121	pah121	14-Sep	79	m	ad		
122	pah122	14-Sep	73	m	ad		
123	pah123	14-Sep	77	m	ad		
124	pah124	14-Sep	83	m	ad		
125	pah125	18-Sep	71	f	cwt	1344	None
126	pah126	18-Sep	79	f	ad		
127	pah127	18-Sep	76	f	ad		
128	pah128	18-Sep	76	f	ad		
129	pah129	18-Sep	70	f	ad		
130	pah130	18-Sep	75	f	ad		
131	pah131	18-Sep	75	f	ad		
132	pah132	18-Sep	87	f	ad		

133	pah133	18-Sep	71	f	ad			
134	pah134	18-Sep	77	f	ad			
135	pah135	18-Sep	78	f	ad			
136	pah136	18-Sep	78	f	ad			
137	pah137	18-Sep	87	f	ad			
138	pah138	18-Sep	76	f	adcwt			
139	pah139	18-Sep	73	f	ad			
140	pah140	18-Sep	84	f	ad			
141	pah141	18-Sep	88	f	ad			
142	pah142	18-Sep	72	f	ad			
143	pah143	18-Sep	78	f	ad			
144	pah144	18-Sep	77	f	ad			
145	pah145	18-Sep	71	m	ad			pre-spawn mort
146	pah146	21-Sep	78	f	ad			
147	pah147	21-Sep	76	f	ad			
148	pah148	21-Sep	75	f	ad			
149	pah149	21-Sep	76	f	ad			
150	pah150	21-Sep	70	f	ad			
151	pah151	21-Sep	78	f	ad			
152	pah152	21-Sep	74	f	ad			
153	pah153	21-Sep	87	f	cwt	1333	None	
154	pah154	21-Sep	78	f	ad			
155	pah155	21-Sep	91	f	ad			
156	pah156	28-Sep	68	m	ad			
157	pah157	28-Sep	75	m	ad			
158	pah158	28-Sep	77	m	ad			
159	pah159	28-Sep	75	m	ad			
160	pah160	28-Sep	82	m	ad			
161	pah161	28-Sep	76	m	ad			
162	pah162	28-Sep	55	m	ad			
163	pah163	28-Sep	70	m	ad			
164	pah164	28-Sep	61	m	ad			
165	pah165	28-Sep	56	m	ad			
166	pah166	28-Sep	45	m	ad			
167	pah167	28-Sep	58	m	ad			
168	pah168	28-Sep	62	m	ad			
169	pah169	28-Sep	69	m	ad			
170	pah170	28-Sep	72	m	ad			
171	pah171	28-Sep	69	m	ad			
172	pah172	28-Sep	89	m	ad			
173	pah173	28-Sep	97	m	ad			
174	pah174	28-Sep	76	m	cwt			
175	pah175	28-Sep	92	m	cwt	49	33	
176	pah176	28-Sep	75	m	ad			
177	pah177	28-Sep	62	m	cwt	1376	None	
178	pah178	2-Oct	86	m	ad			

179	pah179	2-Oct	72	m	ad			
180	pah180	2-Oct	81	m	ad			
181	pah181	2-Oct	49	m	ad			
182	pah182	2-Oct	75	m	ad			
183	pah183	2-Oct	75	m	ad			
184	pah184	2-Oct	84	m	ad			
185	pah185	2-Oct	95	m	ad	11	6	
186	pah186	2-Oct	84	m	ad			
187	pah187	2-Oct	63	m	ad			
188	pah188	2-Oct	56	m	cwt			
189	pah189	2-Oct	74	m	ad			
190	pah190	2-Oct	91	m	ad			
191	pah191	2-Oct	92	m	ad			
192	pah192	2-Oct	82	m	ad			
193	pah193	2-Oct	82	m	adcwt			
194	pah194	2-Oct	76	m	ad			
195	pah195	2-Oct	94	m	ad			
196	pah196	2-Oct	84	m	ad			
197	pah197	2-Oct	83	m	ad			
198	pah198	2-Oct	83	m	ad			
199	pah199	2-Oct	78	m	ad			
200	pah200	2-Oct	80	m	ad			

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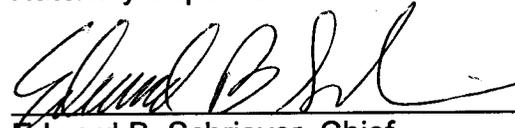
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