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ANNUAL REPORT FEATHER RIVER SALMON AND STEELHEAD HATCHERY
1972-73

by

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Region 2, Inland Fisheries

Anadromous Fisheries Branch
Administrative Report No. 76-5

1976

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ABSTRACT

This report describes the operation of Feather River Hatchery from July 1, 1972 through June 30, 1973. Tables present the numbers of adult salmon and steelhead received, fish produced and planted, records of marked fish observed, and water temperature and flow data.

1/ Anadromous Fisheries Branch Administrative Report No. 76-5
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INTRODUCTION

This report describes activities of Feather River Hatchery, during its sixth year of operation, July 1, 1972 to June 30, 1973.

The hatchery is located near the upper Thermalito Bridge in Oroville, California, and was constructed by the California Department of Water Resources as part of the California Water Project to compensate for loss of spawning area above Oroville Dam. It is operated by the Department of Fish and Game with funds provided by the Department of Water Resources.

PRODUCTION SUMMARY

Spring-run king salmon were first allowed to enter the hatchery on September 6, 1972. The first fall-run king salmon arrived at Feather River Hatchery on October 4, 1972. Steelhead trout were trapped from December 5, 1972 to March 7, 1973.

Production data are summarized as follows:

Table 1

Production Summary, 1972-73 Season

Species/ brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish received	Fish planted fingerlings yearlings	Estimate on hand 6/30/73
Fall-run KS						
1971 BY					548,355	682,988
1972 BY	3,635	717	4,015,200		956,315	800,000
Nimbus:						
1972 BY			5,320,120 ^{a/}		3,837,575	283,000
Trinity:						
1972 BY				9,920 ^{b/}	0	0
Spring-run KS						
1971 BY						167,605
1972 BY	256	90	504,000		50,000	206,385
Winter-run KS						
1973 BY	149 ^{c/}					
Steelhead						
Domestic 1971 BY					960	1,875
Domestic 1972 BY					595,700	181,735
Domestic 1973 BY		247	672,165			608,275
Wild 1972 BY					63,350	0
Wild 1973 BY	1,000	302	1,301,610			997,725
Domestic 67-68 BY (brood stock)					95	0

a/ Received as eyed eggs.

b/ Received as fry for SRCD test; those surviving into the 1973-74 season were destroyed.

c/ Adult fish were put into spawning channel.

VISITOR USE

During the 1972-73 fiscal year, 112,493 people visited this installation. In addition, 4,429 people were conducted through the hatchery on organized tours.

MARKING PROGRAMS

The Anadromous Fisheries Branch marked 401,285 1972 broodyear king salmon (from eggs received from Nimbus Hatchery). The purpose of marking these fish was to test the efficiency of the Tracy Trapping Facility. The fish were marked with an Ad fin clip in combination with coded wire tags (Table 2). These releases are also included in Appendix Table 1.

Table 2

Tracy Tests King Salmon Release Data

Date of release	Area released	Size	Number
4/19/73	San Joaquin River at Antioch	3.7 g	50,000
4/20/73	San Joaquin River at Antioch	3.7 g	50,000
4/26/73	Tracy holding facility	3.7 g	50,000
4/27/73	San Joaquin River at Antioch	3.7 g	50,000
5/ 3/73	Tracy Fish Facility	3.4 g	50,050
5/ 4/73	San Joaquin River at Antioch	3.4 g	50,085
5/14/73	Tracy Fish Facility	3.7 g	50,750
5/15/73	San Joaquin River at Horshoe Bend	3.8 g	50,400
TOTAL			401,285

A total of 60,000 1972 broodyear steelhead were marked and released to compare the returns of domestic and wild fish (Appendix Table 2).

KING SALMON MAINTENANCE PROGRAM

Spring Run

History of the 1972 Broodyear Spring Run

The fish ladder was opened on September 6, 1972 to allow the spring-run king salmon adults to enter the hatchery. We received 256 spring-run fish between September 6 and October 1, 1972. The surviving spring-run adults were sexed on October 6, 1972. At that time we had 116 females and 128 males on hand.

Of the 116 females, we successfully spawned 90, September 4 through October 18, 1972. The spawning yielded 504,000 eggs, for an average of 5,600 eggs per female. We transferred 474,920 fingerlings to the ponds, for an average fertility rate of 94%. A total of 218,535 fish succumbed to SRCD. In June, 1973, 50,000 fish were planted at an average size of 11.2 g/fish (40/lb) (Appendix Table 1).

An estimated 206,835 remained on hand June 30, 1973. They will be planted as yearlings next season.

1971 Broodyear Spring Run

On June 30, 1972 an estimated 324,465 spring run 1971 broodyear king salmon remained in the hatchery. Of these, 167,605 survived to be planted between November 2, 1972 and February 16, 1973, at an average weight of 88 g/fish (5.2/lb) (Appendix Table 1).

Fall Run

1972 Broodyear Fall Run

The first fall-run king salmon entered the hatchery on October 4, 1972 and the last was received on January 6, 1973. The season total was 3,635 (1,387 adults and 2,248 grilse). A total of 717 females was spawned this season, (October 5, 1972 through January 10, 1973) and 4,015,200 eggs were taken, averaging 5,600 eggs per female. Fry production was 3,447,000 (86% hatching). An estimated 1,689,000 fry succumbed to SRCD. Between April 22, 1973 and June 25, 1973, a total of 956,315 fish was planted averaging 6 g/fish (Appendix Table 1). On June 30, 1973, an estimated 800,000 remained on hand.

1972 Broodyear Fall Run (Nimbus)

A total of 5,320,120 eyed eggs was received from Nimbus Hatchery between December 6, 1972 and January 23, 1973. An estimated 1.2 million fish were lost to SRCD between March 1, 1973 and June 30, 1973. A total of 3,837,575 fish was planted between March 15, 1973 and June 18, 1973, at an average size of 3.7g/fish (Appendix Table 1) on June 30, 1973. An estimated 283,000 remained on hand.

1972 Fall Run (Trinity)

A total of 9,920 fall-run 1972 broodyear fry was received from Trinity Hatchery March 23, 1973. These fish were transferred to Feather River Hatchery to see if they would contract SRCD. The Trinity fish did contract the cold-water virus. None were ever planted. Those surviving into the 1973-74 season were destroyed to prevent any spreading of the disease.

Winter Run

From February 7 through March 8, 1973, 149 winter-run adults (118 males and 31 females) entered the hatchery. Eleven males were killed. All remaining fish were placed in the spawning channel. No attempt was made to determine the subsequent production of fingerlings.

Planting, 1971 Broodyear King Salmon

On July 1, 1972, we had an estimated 1,373,090 1971 broodyear fall-run king salmon on hand. A total of 1,195,543 fish survived to be planted between July 31, 1972 and February 14, 1973 (Appendix Table 1).

Recovery of Marked King Salmon

All king salmon entering the hatchery were examined for marks. We observed a total of 86 marked fish (Appendix Table 3). All marked fish were measured (Appendix Table 4).

STEELHEAD MAINTENANCE PROGRAM

History of the 1973 Brood Year (Wild)

Steelhead were not counted or held until December 4, 1972. From December 4, 1972 through January 22, 1973, marked and tagged fish were counted, and the numbers by mark recorded as the fish entered the hatchery. Fish spawned and released, or dying, during this period, were not measured.

On January 23, all adults remaining on hand were inventoried and measured. All steelhead entering the hatchery after January 23 were measured as they were examined for marks. We observed 260 finmarked steelhead (Appendix Table 5) and 42 tagged fish.

Lengths appear in Appendix Table 6.

The total run, from December 4, 1972, through March 8, 1973, was 1,000 fish: 455 males and 545 females. We spawned 300 females (Table 3) for a total of 1,301,610 eggs. We transferred 1,204,980 fingerlings to the ponds, for an egg-to-fingerling survival rate of 93%. None were planted this season. An estimated 997,725 remained on hand June 30, 1973.

Table 3

Steelhead Spawning Data

Wild fish						Domestic fish (Brood Stock)	
Fish spawned			Fish spawned			Fish spawned	
Date	M	F	Date	M	F	Date	M F
12/26/72	3	7	1/23/73	8	20	2/16	7 25
1/ 3/73	4	12	1/24	9	24	2/22	8 11
1/ 8	5	9	1/26	5	5	2/23	3 4
1/12	6	11	1/29	5	10	2/28	4 7
1/15	9	17	1/31	21	53	3/5	4 11
1/17	3	4	2/ 7	8	37		
1/19	10	24	2/14	6	11		
						12/27/72	12 58
						1/ 3/73	15 48
						1/10	80 48
						1/17	7 26
						1/24	12 33
						1/31	6 14
						2/ 4	6 11
						2/14	5 9

Brood Stock Spawning

A total of 672,165 eggs was taken from 247 domestic steelhead females (steelhead hatched and reared at the installation). A total of 668,385 fish were transferred to the ponds for an egg-to-fingerling survival rate of 99.4%. A total of 608,275 fish remained on hand on June 30, 1973. The brood stock adults (1,875) were held for spawning next season.

STEELHEAD PLANTING

Brood Stock Planting

We planted 95 1967 through 1968 broodyear adult fish and 960 1971 broodyear adult fish in August and September, 1972 (Appendix Table 2). The fish were planted because we had a surplus of brood stock fish at that time.

1972 Broodyear (Wild) Planting

We planted 12,425 wild 1972 broodyear fish in October 1972, averaging 6.3g/fish, and 50,925 in February and March, 1973 at sizes ranging from 86.1 to 89.6 g. Sixty thousand of these fish were marked (Appendix Table 2).

1972 Broodyear (Domestic) Planting

In July, 1972 we released 595,700 1972 broodyear domestic fingerlings at an average size of 2.5 g (182/lb). From October, 1972 through March, 1973 we planted 181,735 1972 broodyear domestic yearlings at sizes ranging from 6.8 to 89.6 g (67-5/lb) (Appendix Table 2).

Appendix Table 1

Feather River Hatchery King Salmon Planting Data, 1972-73 Season

Race and brood year	Date released	Average size (g)	Number released	Release site
Spring-run king salmon 1971 brood year	11/ 2/72	44.8	21,000	Feather River at Yuba City
	11/ 3/72	44.8	22,000	"
	11/15/72	63.8	36,400	"
	12/ 6/72	74.5	21,600	"
	1/30/73	106.4	4,200	"
	2/ 1/73	112.0	9,800	"
	2/ 6/73	101.6	5,280	"
	2/8,9/73	99.4	4,500	"
	2/8,9/73	101.6	5,280	"
	2/8,9/73	104.2	10,320	"
	2/13/73	99.4	10,800	"
	2/14/73	99.4	10,800	"
	2/16/73	99.4	5,625	"
TOTAL			167,605	
Spring-run king salmon 1972 brood year	6/19/73	11.2	50,000	"
TOTAL			50,000	
Fall-run king salmon 1971 brood year	7/31/72	19.6	14,375	Sacramento River at Rio Vista
	8/ 1/72	3.6	20,400	"
	8/ 2/72	19.6	13,800	"
	8/ 4/72	20.7	13,200	"
	8/24/72	31.2	9,800	"
	8/30/72	30.3	12,000	"
	8/31/72	28.3	12,800	"
	9/ 6/72	30.3	12,000	"
	9/ 6/72	34.9	10,400	"
	9/ 7/72	31.2	11,200	"
	9/ 8/72	31.2	49,700	Feather River at Yuba City
	9/11/72	31.2	28,000	"
	9/12/72	26.6	17,000	"
	9/12/72	21.5	40,950	"
	9/12/72	30.3	15,000	"
	9/13/72	30.3	28,200	"
	9/15/72	14.2	76,800	"
	9/18/72	15.6	92,800	"
	9/19/72	12.5	69,930	"
	10/12/72	26.6	68,000	"
	10/12/72	23.8	38,000	"
	10/13/72	24.9	72,000	"
	10/17/72	18.4	71,500	"
	10/18/72	44.8	10,000	"
	10/19/72	44.8	19,000	"
	10/25/72	63.8	14,000	"
	10/25,26/72	41.1	22,000	"
	10/26/72	63.9	14,000	"
	10/27/72	56.7	8,400	"

(continued on next page)

Appendix Table 1 (continued)

Race and brood year	Date released	Average size (g)	Number released	Release site
	10/27/72	63.9	7,700	Feather R. at Yuba City
	10/30/72	56.6	8,000	"
	10/31/72	63.9	22,925	"
	11/9-15/72	56.7	65,573	"
	11/17/72	50.2	18,600	"
	11/20/72	63.8	23,400	"
	11/28/72	63.8	27,000	"
	11/29/72	63.8	13,000	"
	12/ 1/72	82.6	11,000	"
	12/ 4/72	82.6	17,900	"
	12/8-12/72	74.5	56,850	"
	12/13/72	74.5	24,900	"
	12/20/72	68.1	9,350	"
	2/1-5/73	112.0	15,250	"
	2/7,8/73	112.0	9,440	"
	2/14/73	112.0	15,200	"
TOTAL			682,988	
Fall-run king	4/25/73	5.0	228,000	"
salmon 1972	4/30/73	0.7	45,600	Feather River at Gridley
brood year	5/ 3/73	5.4	46,200	Feather River at Yuba City
	5/ 7/73	5.9	31,570	"
	5/ 7/73	6.2	75,920	"
	5/ 8/73	5.9	138,600	"
	5/29,30/73	9.4	78,000	Sacramento River at Rio Vist
	6/5-7/73	7.7	155,700	"
	6/20/73	5.9	45,600	"
	6/21-27/73	6.8	74,750	"
	6/25/73	6.0	36,375	"
TOTAL			956,315	
Fall-run king	3/15/73	0.9	456,000	Feather River Hatchery
salmon 1972	3/15/73	1.2	402,960	"
brood year	3/21/73	0.04	886,080	"
(Nimbus strain)	4/19/73*	3.7	50,000	San Joaquin, Tracy
	4/20/73*	3.7	50,000	"
	4/25/73	1.4	252,000	Feather River, Yuba City
	4/26/73*	3.7	50,000	San Joaquin, Tracy
	4/27/73*	3.7	50,000	San Joaquin, Antioch
	4/30/73	0.8	25,200	Feather R. at Gridley Bridge
	5/ 3/73*	3.4	50,050	San Joaquin, Tracy
	5/ 4/73*	3.4	50,085	San Joaquin R. at Antioch
	5/14/73*	3.7	50,750	San Joaquin, Tracy
	5/15/73*	3.8	50,400	San Joaquin R. at Horseshoe Bend
	6/ 8/73	4.4	192,400	Feather R., Yuba boat ramp
	6/11/73	4.4	509,850	"
	6/13/73	3.1	338,400	"
	6/13/73	5.1	133,300	"
	6/14/73	5.8	105,000	Rio Vista, Sacramento River
	6/15/73	4.4	72,100	"
	6/18/73	5.4	63,000	"
TOTAL			3,837,575	

* Marked Ad in combination with a coded wire tag (see p. 3).

Appendix Table 2

Feather River Hatchery Steelhead Planting Data, 1972-73

Race and brood year	Date released	Average size	Number released	Release site
Brood Stock Planting				
1967 & 1968 brood years	9/12/72	2.6 kg	95	Feather River
1971 brood year	8/22/72	716.9 g	960	Feather River
1972 Brood Year (Domestic)				
	7/24-27/72	2.5 g	595,700	Feather River
	10/ 5/72	6.8 g	13,000	"
	10/13/72	15.0 g	7,700	"
	10/18-19/72	15.0 g	41,820	"
	1/23-26/73	74.6 g	36,000	"
	1/24/73	63.9 g	7,000	"
	1/29/73	74.6 g	6,600	"
	3/ 1/73	87.8 g	2,805	"
	3/6,7/73	87.8 g	12,360	"
	3/13/73	79.9 g	14,200	"
	3/14,15/73	89.6 g	40,250a/	"
TOTAL			777,435	
1972 Brood Year (Wild)				
	10/ 4/72	6.3 g	12,425	"
	2/28/73	89.6 g	10,920	"
	3/1,2/73	87.8 g	14,765a/	"
	3/ 7/73	86.1 g	6,240a/	"
	3/13/73	89.6 g	19,000a/	"
TOTAL			63,350	

a/ Each of these groups contains marked fish: 30,000 domestic fish were marked Ad-LV-RP and 30,000 wild fish were marked Ad-RV-LP to compare returns of the two types.

Appendix Table 3

Marked King Salmon Recovered at Feather River Hatchery
1972-73 Season

Mark	Brood year	Number recovered	Release data			Number released	Origin
			Area	Size	Date		
Ad	1968	1	American R. at Nimbus Hatch.	0.4g	March 1969	250,560	Fall run-Nimbus Hatchery
Ad	1969		American R. at Nimbus Hatch.	swim-up	April 1970	257,900	Fall run-Nimbus Hatchery
Ad	1970		American R. at Nimbus Hatch.	0.4g	March 1971	250,900	Fall run-Nimbus Hatchery
Ad-RP	1967	4	Feather River Hatchery	15cm	January 1969	56,400	Feather River Hatchery
Ad-RP	1970	4	Sacramento R. at Red Bluff	37-40mm	October 1970	109,000	Winter-run wild fish
Ad-RV	1968	22	Sacramento R. at Rio Vista	5g	Apr.-Aug. 1969	321,000	Fall-Run Coleman Hatchery
Ad-RV	1969		Sacramento R. at Rio Vista	5g	May 1970	327,000	Fall Run Coleman Hatchery
Ad-RV	1970		Sacramento R. at Rio Vista	5g	March 1971	367,869	Fall Run Coleman Hatchery
An-LP*	1969	31	{ 1/2 at Feather River Hatchery, } 1/2 at Rio Vista	18cm	June 1971	40,000	Fall Run-Feather R. Hatch.
An-LP*	1970	8		18cm	December 1971	120,000	Fall Run-Feather R. Hatch.
An-RP	?	1	?	?	?	?	?
LV-LP	?	1	?	?	?	?	?
LP	?	2	?	?	?	?	?
RP	?	12	?	?	?	?	?

* Coded wire tag in conjunction with a multiple-fin mark.

Appendix Table 4

Fork Lengths (to Nearest Inch) of Marked King Salmon
Trapped at Feather River Hatchery, 1972-73 Season

FL (inches)	Ad-RV		Ad-RP		An-LP		RP		FL (inches)	Sex
	M	F	M	F	M	F	M	F		
14					3				Ad	
15									28	F
16					1		2			
17					3		2		An-RP	
18	1						3		18	M
19							3			
20			1				1		LV-LP	
21									33	M
22	2		1		1					
23			1						LP	
24			1						19	M
25					2				19	M
26	1				4					
27					4					
28	1				1					
29		1			5	2				
30		2			4	1				
31	1				2	1				
32		1			2	1				
33	2	4			2			1		
34	2									
35	1	2								
36	1		1							
37										
38				1						
39			1							
40			1							
unmeasured										
TOTALS BY										
SEX	12	10	7	1	34	5	11	1		
TOTALS	22		8		39		12			

Marked Steelhead Recoveries, Feather River Hatchery, 1972-73 Season

Mark	Brood year	Number recovered	Area	Average size(g)	Date	Number released	Origin
Ad	1970	163	Feather River at Gridley Bar	57	March 1971	50,200	Feather River Hatchery
Ad-LP	1969	1	Battle Creek	61	Feb.-Apr. 1970	119,036	Coleman National Fish Hatch.
Ad-LP	1970		Battle Creek	60	Feb.-Apr. 1971	213,698	Coleman National Fish Hatch.
Ad-LP	1971		Battle Creek	45	Jan.-Feb. 1972	201,706	Coleman National Fish Hatch.
Ad-LV	1969	2	Sacramento River at Clarksburg	72	March 1970	25,200	Nimbus Hatchery
Ad-LV	1969		Three-mile Slough-Brannon Is.	91	March 1970	980	Mokelumne R. Fish Install.
Ad-LV	1970		Three-mile Slough-Brannon Is.	57	November 1970	9,000	Mokelumne R. Fish Install.
Ad-RP	1969	19	Sacramento R. at Rio Vista	59	Feb.-Apr. 1970	118,186	Coleman Nat'l. Fish Hatch.
Ad-RP	1970		Sacramento R. at Rio Vista	57	Feb.-Apr. 1971	211,652	Coleman Nat'l. Fish Hatch.
Ad-RP	1971		Sacramento R. at Rio Vista	46	February 1972	201,785	Coleman Nat'l. Fish Hatch.
Ad-RV	1969	3	Sacramento R. at Rio Vista	76	March 1970	25,000	Nimbus Hatchery
Ad-RV	1969		Mokelumne R.-New Hope Landing	91	March 1970	980	Mokelumne R. Fish Install.
Ad-RV	1970		Mokelumne R.-New Hope Landing	57	November 1970	6,000	Mokelumne R. Fish Install.
An	?	1	?	?	?	?	?
An-LP	?	1	?	?	?	?	?
LV	1968	22	Three-mile Slough-Brannon Is.	48-67	March 1969	40,951	Mokelumne R. Fish Install.
LV	1969		Three-mile Slough-Brannon Is.	83	March 1970	42,972	Mokelumne R. Fish Install.
LV	1970		Three-mile Slough-Brannon Is.	61-97	Jan.-Mar. 1971	45,452	Mokelumne R. Fish Install.
LV	1970		Feather River at Gridley Bar	30	March 1971	49,500	Feather River Hatchery
LV-RP	1971	1	Sacramento River at Clarksburg	72-86	February 1972	40,232	Nimbus Hatchery
RV-LP-RP	?	1	?	?	?	?	?
LP	1969	5	Sacramento River at Clarksburg	53	March 1970	18,700	Nimbus Hatchery
LP	1970		Sacramento River at Clarksburg	61	April 1971	60,170	Nimbus Hatchery
LP	1971		Sacramento River at Clarksburg	49	March 1972	60,115	Nimbus Hatchery
LV-LP	?	1	?	?	?	?	?
LP-RP	?	1	?	?	?	?	?
RV	1969	30	Mokelumne R.-New Hope Landing	89	March 1969	42,840	Mokelumne R. Fish Install.
RV	1970		Mokelumne R.-New Hope Landing	68	January 1971	20,435	Mokelumne R. Fish Install.
RP	1969	9	American & Sacramento Rivers	142	Jun.-Jul. 1970	12,780	Nimbus Hatchery

Appendix Table 6

Fork Lengths (to Nearest Inch) of Steelhead Trapped at Feather River Hatchery, 1972-73 Season

Unmarked		Ad		Ad-RP		IV		RV		Mark	Miscellaneous Marks		Sex
M	F	M	F	M	F	M	F	M	F		FL		
12	1									Ad-LP	20		F
14	2												
15	3		1							Ad-IV	24		M
16	7		1							Ad-IV	21		F
17	7												
18	12							2		Ad-RV	21		M
19	13								1	Ad-RV	22		M
20	12					1	3		1	Ad-RV	22		M
21	8						4		2				
22	9						1		4	An	21		F
23	14						1		1				
24	21						2		1	An-LP		(1*)	
25	18												
26	13									LV-LP		(1*)	
27	29												
28	25									LV-RP	22		M
29	26												
30	18								1	RV-LP-RP		(1*)	
31	9												
32	1									LP	23		F
33	1									LP	19		M
										LP		(3*)	
Totals fish measured													
247	330	50	103	2	6	6	11	14	11				
							5*		5*				
163*		10*		11*									
TOTAL 740		163		19		22		30					

* Number of fish unmeasured or unsexed.

Appendix Table 7
 Feather River Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data Report
 July 1, 1972 through June 30, 1973

Temperature (C)					Fish Trapped
July	Air		Water		Weather
	Maximum	Minimum	Maximum	Minimum	
1	37.2	18.9	17.2	16.7	Clear
2	31.1	14.4	16.7	16.1	Clear
3	34.4	12.2	16.7	15.6	Clear
4	34.4	13.9	16.1	15.6	Clear
5	31.1	15.0	16.7	16.1	Clear
6	31.1	11.1	16.1	16.1	Clear
7	30.0	11.1	16.1	16.1	Clear
8	31.1	11.7	16.7	16.1	Clear
9	30.6	13.3	16.7	16.1	Clear
10	32.2	13.3	16.7	14.4	Clear
11	36.1	14.4	14.4	13.9	Clear
12	39.4	17.8	14.4	13.3	Clear
13	41.1	18.9	13.9	13.3	Clear
14	43.3	17.8	14.4	13.3	Clear
15	41.7	21.1	15.0	14.4	Clear
16	32.2	16.7	14.4	13.9	Clear
17	31.7	15.6	14.4	13.3	Clear
18	27.8	15.6	15.0	14.4	Clear
19	24.4	12.2	15.0	14.4	Clear
20	22.2	10.6	15.6	13.9	Clear
21	26.7	11.1	15.6	14.4	Clear
22	29.4	12.8	16.1	15.6	Clear
23	28.9	12.2	16.1	14.4	Clear
24	30.0	11.1	15.0	13.9	Clear
25	32.2	11.1	15.6	14.4	Clear
26	35.6	14.4	16.1	15.0	Clear
27	38.9	16.1	16.7	15.0	Clear
28	34.4	15.6	16.7	16.1	Clear
29	34.4	15.6	16.7	16.1	Clear
30	35.6	11.7	16.7	16.1	Clear
31	31.1	13.9	16.7	15.6	Clear

Temperature (C)					Fish trapped
August	Air		Water		Weather
	Maximum	Minimum	Maximum	Minimum	
1	38.3	14.4	17.2	16.1	Clear
2	38.3	13.3	17.2	16.1	Clear
3	32.2	13.9	17.2	16.1	Clear
4	37.8	12.2	17.2	16.1	Clear
5	43.3	22.2	16.7	16.1	Clear
6	43.0	21.1	16.7	16.7	Clear
7	35.0	16.1	16.7	15.6	Clear
8	34.4	15.6	16.1	15.0	Clear
9	34.4	15.3	16.7	15.6	Clear
10	33.9	16.7	16.7	15.0	Clear
11	32.2	15.6	16.1	15.6	Clear
12	30.0	11.7	17.2	16.1	Clear
13	26.7	12.2	17.2	17.2	Clear
14	23.9	12.2	17.2	15.0	Clear
15	22.2	11.1	15.0	13.3	Cloudy
16	20.0	11.1	14.4	13.3	Cloudy
17	26.7	10.0	15.0	14.4	Clear
18	26.7	12.2	15.0	14.4	Clear
19	25.6	11.1	15.0	14.4	Clear
20	28.3	12.2	15.0	14.4	Clear
21	32.2	12.2	15.6	15.0	Clear
22	33.3	13.3	15.6	15.0	Clear
23	34.4	13.3	15.6	15.0	Clear
24	32.2	12.8	15.6	15.0	Clear
25	36.7	14.4	16.1	15.0	Clear
26	37.2	13.3	16.1	16.1	Clear
27	32.2	14.4	16.1	16.1	Clear
28	30.0	14.4	16.1	15.0	Cloudy
29	32.8	17.2	16.1	15.6	Clear
30	34.4	16.7	16.1	13.3	Clear
31	33.9	15.6	13.3	11.7	Clear

Appendix Table 7 (Continued)

September	Temperature (C)				Weather	Fish trapped	
	Air		Water			King salmon	
	Maximum	Minimum	Maximum	Minimum		Spring run	
						Adults	Grilse
1	33.3	13.3	13.3	11.7	Clear		
2	27.8	13.3	13.3	12.8	Clear		
3	31.1	11.7	13.3	12.8	Clear		
4	25.6	13.9	13.3	13.3	Cloudy		
5	27.8	15.6	13.9	12.2	Clear		
6	30.0	13.3	13.9	13.3	Clear	83	
7	30.0	12.2	13.3	12.2	Clear		
8	30.0	10.6	12.8	11.1	Clear		
9	26.7	10.6	12.8	12.8	Clear		
10	22.2	7.8	13.3	12.8	Clear		
11	24.4	11.1	12.8	10.6	Clear		
12	26.7	10.0	10.6	10.0	Clear		
13	28.9	8.9	11.1	10.6	Clear		
14	28.9	10.0	11.1	10.0	Clear		
15	26.7	10.0	11.1	10.0	Clear		
16	25.6	7.8	10.6	10.6	Clear		
17	22.2	8.3	11.1	10.6	Clear		
18	24.4	11.1	10.6	10.0	Clear		
19	22.8	10.0	10.6	10.0	Clear		
20	27.2	8.3	11.1	10.0	Clear		
21	28.3	13.3	11.7	11.1	Clear		
22	27.2	13.3	11.1	10.0	Clear		
23	23.3	6.7	11.1	10.6	Clear		
24	23.3	5.0	11.7	10.6	Clear		
25	17.8	8.3	11.1	10.0	Clear	36	
26	26.1	12.2	11.7	10.6	Rain	27	
27	22.2	11.1	12.2	11.1	Clear	20	
28	25.6	8.9	11.7	11.1	Clear		
29	28.9	8.9	11.7	11.7	Clear		
30	26.7	11.7	12.2	11.7	Cloudy		
Total September						166	

October	Temperature (C)					Fish trapped			
	Air		Water		Weather	King salmon			
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run	
						Adults	Grilse	Adults	Grilse
1	21.1	9.4	17.2	16.1	Cloudy				
2	27.2	10.0	17.2	16.1	Clear			67	
3	24.4	10.6	17.2	16.1	Clear				
4	21.1	09.4	17.2	16.1	Clear	23	6		
5	28.3	9.4	16.7	16.1	Clear				
6	30.0	16.7	16.7	16.7	Clear	23		23*	
7	26.7	11.7	16.7	15.6	Cloudy				
8	21.1	11.1	16.1	15.0	Cloudy				
9	17.8	11.1	16.7	15.6	Rain				
10	16.7	11.1	16.7	15.0	Rain	202	155		
11	16.1	5.6	16.1	15.6	Rain	50	39		
12	16.7	6.7	17.2	16.1	Cloudy				
13	20.0	8.9	17.2	17.2	Rain	61	71		
14	15.6	10.0	17.2	15.0	Rain				
15	17.2	10.0	15.0	13.3	Cloudy				
16	15.6	6.7	14.4	13.3	Cloudy	143	254		
17	19.4	12.8	15.0	14.4	Cloudy	14	25		
18	20.6	8.3	15.0	14.4	Rain	27	43		
19	15.6	6.7	15.0	14.4	Clear				
20	18.3	10.0	15.0	14.4	Clear	81	208		
21	18.3	8.3	15.6	15.0	Clear				
22	19.4	9.4	15.6	15.0	Clear				
23	22.2	7.2	15.6	15.0	Clear				
24	18.9	7.2	15.6	15.0	Clear	30	151		
25	19.4	7.8	16.1	15.0	Clear	31	116		
26	20.0	10.6	16.1	16.1	Clear	21	105		
27	25.6	4.4	16.1	16.1	Clear	34	206		
28	15.6	6.7	16.1	15.0	Clear				
29	15.6	1.7	16.1	15.6	Clear				
30	14.4	4.4	16.1	13.3	Clear	34	136		
31	10.6	4.4	13.3	11.7	Clear	11	52		
Total October						785	1,567	90	

* When we sorted and sexed spring-run fish October 6 we determined that 23 fish had entered the hatchery uncounted between September 6 and October 2.

Appendix Table 7 (Continued)

November	Temperature (C)				Weather	King salmon		Fish trapped
	Air		Water			Fall run		
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	
1	15.6	8.9	13.3	11.7	Clear	14	45	
2	17.2	11.1	13.3	12.8	Clear	18	78	
3	21.1	7.8	13.3	12.8	Rain	22	91	
4	15.6	11.7	13.3	13.3	Cloudy			
5	17.2	10.0	13.9	12.2	Clear			
6	18.3	8.9	12.8	11.1	Clear	39	89	
7	16.7	8.3	13.3	12.2	Clear			
8	11.7	5.6	12.8	11.1	Clear	31	78	
9	15.0	7.2	12.8	12.8	Rain	16	55	
10	12.8	7.8	10.6	10.0	Rain	16	26	
11	11.1	6.1	12.8	10.6	Rain			
12	12.8	5.0	10.6	10.0	Cloudy			
13	11.1	7.2	11.1	10.0	Rain	39	76	
14	11.1	8.3	11.1	10.0	Rain	19	30	
15	11.1	7.8	11.1	10.0	Rain	7	16	
16	12.2	7.2	10.6	10.6	Rain			
17	16.1	7.2	11.1	10.6	Rain	32	26	
18	15.0	6.7	10.6	10.0	Rain			
19	10.0	7.2	10.6	10.0	Clear			
20	12.8	5.6	11.1	10.0	Clear	29	13	
21	13.9	6.7	10.6	10.0	Rain			
22	11.1	6.1	11.0	10.0	Rain	11	2	
23	18.3	2.8	11.1	10.6	Clear			
24	12.2	3.9	11.7	10.6	Clear	9	4	
25	11.1	3.3	11.1	10.0	Clear			
26	11.7	4.4	11.7	10.6	Clear			
27	13.3	4.4	12.2	11.1	Cloudy	45	8	
28	22.8	3.9	11.7	11.1	Cloudy			
29	13.3	3.3	11.7	11.7	Cloudy			
30	11.7	1.7	12.2	11.7	Cloudy			
Total November						347	637	

Appendix Table 7 (Continued)

December	Temperature (C)				Weather	King salmon		Fish trapped		
	Air		Water			Fall run		Steelhead		
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Steelhead		
								M	F	
1	5.6	2.2	10.0	9.4	Cloudy	48	5			
2	3.9	1.7	9.4	9.4	Cloudy					
3	6.1	1.7	9.4	9.4	Cloudy					
4	7.2	3.9	9.4	8.9	Clear	16	4			
5	7.8	-02.2	8.9	8.9	Rain			4	2	
6	4.4	-02.2	8.9	8.9	Rain-snow	10		5	4	
7	3.9	-00.6	8.9	8.9	Cloudy					
8	00.0	-05.6	8.9	8.9	Cloudy	28		1	1	
9	-01.1	-07.8	8.9	8.3	Cloudy					
10	3.3	-05.6	8.3	7.8	Cloudy					
11	3.3	-06.7	8.8	7.8	Cloudy	17		2	3	
12	1.7	-05.6	7.8	7.8	Snow					
13	5.6	-05.6	7.8	7.8	Clear					
14	-02.2	-03.9	7.8	7.8	Cloudy					
15	11.1	-05.6	7.8	7.8	Cloudy	11			1	
16	5.0	2.8	7.8	7.8	Cloudy					
17	15.0	6.1	7.8	7.8	Clear					
18	7.8	3.9	9.3	3.9	Clear	32	5	6	5	
19	15.6	15.0	7.8	7.8	Cloudy					
20	15.0	6.7	7.8	7.8	Cloudy					
21	15.6	15.0	8.3	7.8	Clear					
22	11.7	-01.1	8.3	7.8	Clear	40	28	7	14	
23	11.7	2.2	8.3	7.8	Clear					
24	13.3	5.0	8.3	7.8	Clear	28		28	19	
25	17.8	3.9	7.8	7.8	Cloudy					
26	10.0	00.0	7.8	7.8	Cloudy	7		6	3	
27	5.6	2.2	8.3	7.8	Rain	8	2	9	2	
28	10.0	-01.1	8.3	8.3	Rain	8				
29	10.6	-01.7	8.3	8.3	Clear			20	25	
30	8.0	00.0	8.3	7.8	Clear					
31	12.2	-01.1	7.8	7.8	Clear					
Total December						253	44	88	79	

Appendix Table 7 (Continued)

January	Temperature (C)				Weather	King salmon		Fish trapped	
	Air		Water			Fall run		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	M	F
1	Temperature		7.8	7.8	Clear				
2	recording device		7.8	7.8	Cloudy			16	10
3	broken during		7.8	7.8	Cloudy			9	10
4	month		7.8	7.8	Cloudy			5	3
5			7.8	7.8	Rain	2		2	
6			7.8	7.8	Rain				
7			7.8	7.8	Rain				
8			7.2	7.8	Clear			10	6
9			7.2	7.8	Clear				
10			7.2	7.8	Clear			10	5
11			7.2	7.8	Cloudy				
12			7.2	7.8	Cloudy			13	16
13			7.2	7.8	Clear				
14			7.2	7.8	Rain				
15			7.2	7.8	Cloudy			25	19
16			7.2	6.7	Rain				
17			7.2	6.7	Rain			14	9
18			7.2	7.2	Rain			28	23
19			7.2	7.2	Rain			24	17
20			7.2	7.2	Cloudy				
21	16.7	00.6	7.2	7.2	Clear				
22	15.6	00.2	7.2	7.2	Clear				
23	19.4	02.8	7.2	7.2	Clear				
24	20.0	03.9	7.2	7.2	Clear			20	27
25	12.8	02.2	7.2	7.2	Clear			24	23
26	13.3	00.0	7.2	7.2	Clear				
27	12.2	00.0	7.2	7.2	Clear			16	38
28	11.7	01.7	7.2	7.2	Clear				
29	09.4	02.2	7.2	7.2	Clear				
30	06.7	05.0	7.2	7.2	Clear			29	74
31	12.2	03.3	7.2	7.2	Rain			23	16
Total January						2	0	4	17
								277	113

Appendix Table 7 (Continued)

February	Temperature (C)				Weather	King salmon		Fish trapped	
	Air		Water			Winter run		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Males	Females	M	F
1	14.4	00.0	7.2	7.2	Clear			10	15
2	13.9	01.1	7.2	7.2	Cloudy				
3	12.8	02.2	7.2	7.2	Cloudy				
4	11.7	12.2	7.2	7.2	Cloudy				
5	11.1	04.4	7.2	7.2	Rain				
6	13.9	01.7	7.2	7.2	Rain	26	9	16	23
7	17.8	02.2	7.2	7.2	Rain	11	5	7	4
8	15.0	02.8	7.2	7.2	Clear				
9	17.2	02.2	7.2	7.2	Clear			10	17
10	15.6	14.4	7.2	7.2	Clear				
11	05.6	02.8	7.2	7.2	Cloudy				
12	10.0	01.1	7.2	6.7	Cloudy				
13	10.0	01.1	7.2	6.7	Cloudy	5	1	3	4
14	13.3	03.3	7.2	6.7	Rain	3	1	3	4
15	13.3	02.8	7.2	6.7	Cloudy				
16	13.3	04.4	7.2	6.7	Rain	6		5	25
17	11.7	00.0	7.8	6.7	Rain				
18	06.7	14.4	7.8	6.7	Rain				
19	12.2	05.6	7.8	6.7	Cloudy				
20	10.0	01.1	7.8	6.7	Cloudy	11	1	7	16
21	07.8	02.2	7.8	7.8	Clear				
22	11.1	01.1	7.8	7.8	Clear	9	3	2	21
23	10.0	1.7	7.8	7.8	Clear	8	2	1	5
24	16.7	02.2	7.8	7.8	Clear				
25	14.4	05.6	7.8	7.8	Clear				
26	11.7	06.7	7.8	7.8	Clear				
27	13.3	07.8	8.3	7.8	Clear				
28	08.9	03.9	7.8	7.8	Clear	17	4	5	10
29									
30									
Total February						96	26	69	144

						Fish Trapped			
March	Temperature (C)				Weather	King salmon		Steelhead	
	Air		Water			Winter run			
	Maximum	Minimum	Maximum	Minimum		Males	Females	Males	Females
1	11.1	03.3	7.8	7.8	Rain				
2	10.0	04.4	7.8	7.8	Rain				
3	11.1	05.0	7.8	7.8	Clear				
4	12.2	01.1	7.8	7.8	Clear				
5	13.3	03.9	7.8	7.8	Cloudy	13	4	16	2
6	09.9	06.7	7.8	7.2	Cloudy				
7	14.4	04.4	7.2	7.2	Rain				
8	11.7	01.1	7.2	7.2	Rain	9	1	1	3
9	11.1	01.1	7.8	7.2	Cloudy				4
10	15.0	04.4	7.8	7.8	Cloudy				
11	08.3	06.7	7.8	7.8	Cloudy				
12	13.3	06.1	7.8	7.8	Cloudy				
13	15.0	04.4	7.8	7.8	Clear				
14	16.7	02.2	8.3	7.8	Clear				
15	17.8	06.7	8.3	8.3	Clear				
16	17.8	10.0	8.9	8.3	Clear				
17	16.7	08.3	8.3	8.3	Clear				
18	21.1	07.2	8.9	8.3	Clear				
19	22.2	06.1	8.9	8.3	Clear				
20	21.7	04.4	8.3	7.8	Clear				
21	15.6	04.4	8.3	7.8	Clear				
22	15.6	07.8	8.3	7.8	Clear				
23	13.3	16.1	7.8	7.8	Clear				
24	13.3	05.0	8.3	7.8	Clear				
25	10.0	07.8	8.3	8.3	Rain				
26	12.2	08.9	8.9	8.3	Rain				
27	10.0	08.3	8.9	8.3	Cloudy				
28	14.4	10.0	8.9	8.3	Rain				
29	15.0	10.0	8.9	8.3	Rain				
30	10.0	06.7	8.9	8.9	Rain				
31	13.9	02.2	8.3	8.3	Rain				
Total March						22	5	21	9

Fish trapped

April	Temperature (C)				Weather
	Air		Water		
	Maximum	Minimum	Maximum	Minimum	
1	23.3	06.7	9.4	8.9	Clear
2	15.6	04.4	8.9	8.9	Clear
3	15.6	02.2	9.4	8.9	Clear
4	14.4	02.2	9.4	8.9	Clear
5	15.6	02.2	10.0	9.4	Clear
6	20.6	07.8	10.6	9.4	Rain
7	22.2	08.3	11.1	10.0	Clear
8	23.9	06.1	11.1	9.4	Clear
9	26.7	10.0	10.6	9.4	Clear
10	27.8	11.1	11.1	9.4	Clear
11	30.6	06.1	11.1	10.0	Clear
12	31.1	12.2	10.6	10.0	Clear
13	30.6	14.4	11.1	10.0	Clear
14	30.0	16.7	11.1	10.0	Clear
15	30.0	12.8	11.1	10.0	Clear
16	31.1	13.3	10.6	10.0	Clear
17	33.3	16.7	10.6	10.0	Clear
18	33.3	17.2	10.6	10.0	Clear
19	27.2	12.8	10.6	10.0	Clear
20	23.3	08.9	11.1	10.6	Clear
21	26.7	08.9	11.7	11.1	Clear
22	26.7	10.0	11.7	11.1	Clear
23	25.6	10.0	11.1	10.6	Clear
24	16.7	12.2	11.1	10.6	Rain
25	20.6	11.7	11.7	11.1	Clear
26	22.2	11.1	11.1	11.1	Clear
27	28.9	10.0	11.1	10.6	Clear
28	33.3	11.7	11.1	10.6	Clear
29	34.4	19.4	11.1	11.1	Cloudy
30	29.4	18.9	11.7	10.6	Cloudy

Appendix Table 7 (Continued)

Temperature (C)					Fish trapped
MAY	Air		Water		Weather
	Maximum	Minimum	Maximum	Minimum	
1	15.6	04.4	11.7	11.7	Clear
2	15.6	06.7	11.7	11.1	Clear
3	15.6	02.2	11.7	10.6	Clear
4	14.4	02.2	11.1	11.1	Clear
5	14.4	02.2	11.1	10.6	Clear
6	23.3	06.1	11.7	10.6	Clear
7	21.1	06.7	11.7	11.1	Clear
8	25.0	08.9	12.2	11.1	Clear
9	23.3	07.8	12.2	11.1	Clear
10	20.0	07.3	12.2	11.7	Clear
11	21.1	06.7	12.2	11.7	Clear
12	21.7	07.8	12.2	11.7	Clear
13	13.3	10.0	12.2	11.7	Rain
14	17.8	05.6	12.8	11.7	Cloudy
15	17.2	07.8	12.2	11.7	Clear
16	16.1	07.2	12.2	11.7	Clear
17	16.1	08.3	12.2	11.7	Clear
18	16.1	02.2	12.2	12.2	Clear
19	16.7	04.4	12.2	11.7	Clear
20	20.0	04.4	13.3	12.2	Clear
21	22.2	05.7	12.8	11.7	Clear
22	24.4	10.0	12.8	12.8	Clear
23	25.6	07.2	13.3	12.8	Clear
24	26.1	06.7	13.3	12.2	Clear
25	29.4	08.9	12.8	11.1	Clear
26	27.8	12.2	12.2	11.7	Clear
27	26.1	10.0	12.8	11.7	Clear
28	19.4	07.2	13.3	12.2	Clear
29	21.7	06.1	13.9	12.2	Clear
30	21.7	05.6	13.9	13.9	Clear
31	22.8	13.9	13.9	13.3	Rain

Appendix Table 7 (Continued)

June	Temperature (C)					Fish trapped						Steelhead	
	Air		Water		Weather	King salmon							
	Maximum	Minimum	Maximum	Minimum		Winter run		Fall run		Spring run			
						Male	Female	Adults	Gilse	Adults	Gilse	Male	Female
1	33.3	11.1	14.4	13.3	Clear								
2	27.8	11.1	13.9	13.9	Cloudy								
3	27.2	12.2	14.4	13.9	Cloudy								
4	31.1	11.1	13.9	12.8	Clear								
5	32.2	14.4	14.4	13.3	Clear								
6	33.9	18.9	14.4	13.3	Clear								
7	35.6	16.7	15.0	14.4	Clear								
8	36.7	15.6	15.0	14.4	Clear								
9	34.4	17.8	15.0	14.4	Clear								
10	28.3	12.8	15.0	14.4	Cloudy								
11	26.1	11.1	15.0	14.5	Cloudy								
12	27.8	10.0	15.0	13.9	Cloudy								
13	21.1	12.8	14.4	13.9	Cloudy								
14	22.2	10.0	14.4	13.9	Cloudy								
15	23.3	09.4	14.4	14.5	Clear								
16	22.8	12.2	15.0	14.4	Clear								
17	22.2	10.0	15.0	14.4	Clear								
18	28.9	09.4	15.0	14.4	Clear								
19	35.6	12.2	15.6	13.9	Clear								
20	36.1	16.7	15.0	15.0	Clear								
21	36.7	20.0	15.0	15.0	Clear								
22	27.2	11.7	15.0	15.0	Clear								
23	24.4	13.3	15.0	15.0	Clear								
24	31.1	12.2	15.0	14.4	Clear								
25	34.4	14.4	15.0	13.9	Clear								
26	36.7	16.7	15.6	14.4	Clear								
27	36.7	20.0	14.4	13.9	Clear								
28	33.9	18.3	14.4	13.9	Clear								
29	29.4	14.4	14.4	13.3	Clear								
30	28.3	12.2	14.4	13.3	Clear								

Totals July 1, 1972 through June 30, 1973	118	31	1,387	2,248	256	0	455	545
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