

REF 90173

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
FEATHER RIVER HATCHERY 1981-82

by

Donald L. Schlichting
Region 2, Inland Fisheries

Anadromous Fisheries Branch
Administrative Report No. 83-5

1983

ANNUAL REPORT
FEATHER RIVER HATCHERY, 1981-82^{1/}

by

Donald L. Schlichting
Region 2, Inland Fisheries

ABSTRACT

This report summarizes the operation of Feather River Hatchery from 1 July 1981 through 30 June 1982. Tables present temperature and weather data, numbers of chinook salmon, Oncorhynchus tshawytscha, and steelhead, Salmo gairdneri, entering the hatchery, numbers of eggs taken and received, and numbers of fish released.

We trapped 8,751 chinook salmon and 891 steelhead and planted or transferred 9,317,460 chinook fingerlings, 1,950,635 chinook yearlings, 1,003,706 steelhead fingerlings, and 209,905 steelhead yearlings.

INTRODUCTION

This report describes activities of the Feather River Hatchery during its 15th year of operation, 1 July 1981 through 30 June 1982. The hatchery is located near the upper Thermalito bridge in Oroville, California; it 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

Personnel from the Feather River Hatchery trapped 8,751 chinook salmon *Oncorhynchus tshawytscha*, and 891 steelhead *Salmo gairdneri*, during the 1981-82 season (Table 1). Approximately 18,528,759 salmon eggs and 1,533,041 steelhead eggs were taken and received. We planted 11,268,095 salmon and 1,213,611 steelhead.

MARKING PROGRAMS

Personnel from Anadromous Fisheries Branch marked about 280,000 1980 brood year (BY) chinook salmon with an adipose clip (AD) and coded wire nose tag (CWT). The fish were divided into three groups. One group of about 104,400 was planted at the Maritime Academy in Carquinez Strait in August 1981. The second group of 128,025 was planted in the Feather River at the hatchery in October 1981. The third group of 48,100 was released at Tiburon in November 1981. Five groups of 1981 BY chinook salmon were marked AD and CWT and released: 47,250 spring run chinook salmon were released at the Maritime Academy in May 1982, another group of 99,750 fall run chinook salmon were released at Discovery Park in May 1982. In June 1982 a group of 69,750 was released at Discovery Park, another group of 69,550 at Port Chicago and the final group of 30,800 at Tiburon. In March 1982 four groups of fall run steelhead 1981 BY were marked AD and CWT and released as follows. The first group of 46,690 was released at the Maritime Academy. The second group of 34,120 was released in the Feather River at Yuba City. The third group of 46,830 was released in the Sacramento River at Rio Vista, and the fourth and final group of 35,100 fish was set free in the Feather River at Verona.

CHINOOK SALMON MAINTENANCE PROGRAM

HISTORY OF THE 1981-82 RUNS

1981 BY Spring Run

The fish ladder was opened 1 September 1981 to allow the spring run chinook salmon adults to enter the hatchery. We received 469 spring run fish between 1 September 1981 and 1 October 1981 (Appendix Table 2). The spring run adults were sexed on 1 October 1981. At the time we had 211 males, 145 females and 113 jacks on hand. Of the 145 females, we successfully spawned 132 from 1 October 1981 through 3 November 1981. The spawning yielded 689,932 eggs, for an average of 5,227 eggs per female.

An estimated 584,137 fingerlings were transferred to the ponds, for an average

fertility rate of 84.7%. A total of 47,250 was planted or transferred and an estimated 507,745 remained on hand 30 June 1982.

1981 BY Fall Run

The first fall run chinook salmon entered the hatchery on 1 October 1981 (Appendix Table 1). The season total was 8,282 fish. We spawned 3,167 females between 1 October 1981 and 5 November 1981, and took 17,838,827 eggs, for an average of 5,633 eggs per female. Fry production totaled 13,565,599 fish with an estimated loss of 864,298 mainly to bird predation. Between 14 December 1981 and 30 June 1982 we planted or transferred 8,007,360 fall run 1981 BY smolts. An estimated 4,693,941 remained on hand as of 30 June 1982.

RECOVERY OF MARKED CHINOOK SALMON

All chinook salmon entering the hatchery were examined for marks. We received a total of 267 marked fish (Appendix Table 2).

CHINOOK SALMON PLANTING

We planted a total of 9,317,460 fingerlings and 1,950,635 yearling chinook salmon this season (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

HISTORY OF THE 1981-82 PRODUCTION

1982 BY

Steelhead were not counted or held until 3 December 1981. From 3 December through 27 April 1982, 282 coded wire tagged fish were received and recorded by Anadromous Fisheries personnel.

The total run was 891 fish: 450 males and 441 females. We successfully spawned 293 females (Table 3). Steelhead were divided into two categories: "early" (adults arriving before 15 December 1981) and "late" (fish arriving after 15 December 1981). We trapped 354 "early" fish and took a total of 597,849 eggs and 537 "late" fish and took a total of 663,557 eggs, for a combined total of 1,261,406 eggs. An estimated 548,141 "early" fish were transferred to the ponds for a survival rate of 91.7%. An estimated 537,800 "late" fish were planted at swim-up for an estimated survival rate of 81%. Losses in the "early" fish (from bird predation) amounted to about 278,071 fish. Another 69,870 were planted in June 1982 for thinning purposes. We had 200,200 1982 BY "early" fish on hand 30 June 1982.

1981 BY Nimbus

A total of 271,635 "late" steelhead eggs was received from Nimbus Hatchery to insure enough "late" steelhead for yearling production. The Nimbus steelhead were not needed so the surviving 200,912 1982 BY "late" fish were planted in June 1982.

TABLE 1. Feather River Hatchery Production Summary, 1981-82

Species brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish planted		Estimate on hand
				fingerlings	yearlings	
Chinook salmon spring run						
1980 BY	0	0	0	0	129,000	0
1981 BY	469	132	689,932	47,250		507,745
Chinook salmon fall run						
1980 BY	0	0		1,262,850	1,821,635	0
1981 BY	8,282	3,167	17,838,827	8,007,360 ^{a/}		4,693,941
Steelhead early						
1981 BY	0	0	0		77,945	0
1982 BY	354	142	597,849	69,870		200,200
Steelhead late						
1981 BY	0	0	0	30,024	131,960	0
1982 BY	537	151	663,557	629,800		0
Steelhead Nimbus						
1981 BY	0	0	0	73,100		0
1982 BY	0	0	271,635 ^{b/}	200,912		0

^{a/} Includes 333,000 transferred to Mokelumne River Hatchery.

^{b/} Received as eggs from Nimbus Hatchery.

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1981-82

Brood year	Race	Month of release	Average size (G)	Number released	Mark	Release site
1980	Spring run	Oct. 1981	44.8	75,000		Feather River at hatchery
		Nov. 1981	44.8	54,000		Feather River at hatchery
		Total		129,000		
1980	Fall run	July 1981	8.9	814,600		Maritime Academy
		Aug. 1981	13.3	343,850		Maritime Academy
		Aug. 1981	13.3	104,400	AD & CWT	Maritime Academy
		Sept. 1981	21.3	190,510		Maritime Academy
		Oct. 1981	49.7	128,025	AD & CWT	Feather River at hatchery
		Oct. 1981	36	1,330,900		Feather River at hatchery
		Nov. 1981	28	48,100	AD & CWT	Tiburon
		Nov. 1981	28	124,100		Feather River at hatchery
		Total		3,084,485		
1981	Spring run	May 1982	10.6	47,250	AD & CWT	Maritime Academy
		Total		47,250		
1981	Fall run	Dec. 1981	0.34	808,640		Feather River at hatchery
		Jan. 1982	0.32	633,600		Antelope Creek
		Jan. 1982	0.32	307,380		Feather River at hatchery
		Feb. 1982	0.35	896,000		Feather River at hatchery
		March 1982	0.92	2,068,640		Feather River at hatchery
		April 1982	2.4	333,000		Mokelumne Fish Installation
		April 1982	2.4	860,900		Benicia
		May 1982	4.7	99,750	AD & CWT	Discovery Park
		May 1982	7.2	498,930		Benicia
		May 1982	3.4	110,220		Maritime Academy
		June 1982	4.8	69,750	AD & CWT	Discovery Park
		June 1982	4.4	69,550	AD & CWT	Port Chicago
		June 1982	10.1	30,800	AD & CWT	Tiburon
		June 1982	4.6	1,220,200		Maritime Academy
		Total		8,007,360		

TABLE 3. Steelhead Spawning Data

Date 1981-82	"Early" fish spawned		Date 1981-82	"Late" fish spawned	
	<u>M</u>	<u>F</u>		<u>M</u>	<u>F</u>
12-15-81	25	9	12-28-81	9	7
12-21-81	14	5	1-4-82	28	9
12-28-81	15	13	1-11-82	7	13
1-4-82	16	11	1-18-82	12	10
1-11-82	7	19	1-25-82	12	19
1-18-82	10	23	2-1-82	25	25
1-25-82	10	8	2-8-82	26	17
2-1-82	12	8	2-16-82	19	31
2-8-82	16	8	2-22-82	13	20
2-16-82	11	10			
2-22-82	13	10			
3-1-82	6	6			
3-8-82	6	7			
3-15-82	11	5			

Steelhead Planting

We planted an estimated 1,213,611 steelhead during the 1981-82 season (Table 4).

VISITOR USE

During the 1981-82 fiscal year 34,083 people visited the installation.

TABLE 4. Steelhead Planting Summary, 1981-82

Date	Strain	Average size (G)	Number released	Mark	Release site
1981					
July	Late Feather	8.2	30,024		Yuba Gold Field
	Nimbus	10.4	73,100		Nimbus Hatchery
		Total	103,124		
1982					
February	Early Feather	130.5	42,845		Feather River at Yuba City
March	Late Feather	.44	130,000		Feather River at hatchery
	Late Feather	101	46,690	AD & CWT	Vallejo
	Late Feather	90	34,120	AD & CWT	Feather River at Yuba City
	Late Feather	90	4,320		Feather River at Yuba City
	Late Feather	90	46,830	AD & CWT	Sacto. River at Rio Vista
	Late Feather	115	35,100	AD & CWT	Feather River at Verona
April	Late Feather	.28	407,800		Feather River at hatchery
May	Nimbus	.95	200,912		Feather River at hatchery
June	Late Feather	.28	92,000		Feather River at hatchery
	Early Feather	2.6	69,870		Feather River at hatchery
		Total	1,110,487		

APPENDIX TABLE 1. Feather River Salmon and Steelhead Hatchery
Weather, Water, and Fish Data Report, 1981-82

July 1981	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run				
						Adults	Grilse	Adults	Grilse		
1			13.9	13.3	Clear						
2			14.4	13.9	Clear						
3			14.4	13.9	Clear						
4			14.4	13.9	Clear						
5			14.4	13.9	Cloudy						
6			15.0	14.4	Clear						
7			15.0	14.4	Clear						
8			15.0	15.0	Clear						
9			15.0	14.4	Clear						
10			15.0	15.0	Clear						
11			15.6	14.4	Clear						
12			15.6	14.4	Clear						
13			15.6	14.4	Clear						
14			16.1	15.0	Clear						
15			16.1	15.6	Clear						
16			16.1	15.6	Clear						
17			16.1	15.6	Clear						
18			15.6	15.0	Clear						
19			15.6	15.6	Clear						
20			15.6	15.6	Clear						
21			16.1	15.6	Clear						
22			16.1	15.6	Clear						
23			16.1	15.6	Clear						
24			16.7	16.1	Clear						
25			16.7	16.1	Clear						
26			16.7	16.1	Clear						
27			16.7	16.1	Clear						
28			16.7	16.1	Clear						
29			16.7	16.1	Clear						
30			16.7	16.1	Clear						
31			14.4	13.9	Clear						

Appendix Table 2 (Continued)

August 1981	Temperature (C°)					Fish trapped				Steelhead	
	Air		Water		Weather	Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run				
						Adults	Grilse	Adults	Grilse		
1			14.4	14.4	Clear						
2			15.0	14.4	Clear						
3			15.0	14.4	Clear						
4			15.6	15.0	Clear						
5			15.6	15.0	Clear						
6			15.6	14.4	Clear						
7			15.6	15.0	Clear						
8			16.1	15.6	Clear						
9			15.6	15.0	Clear						
10			15.6	15.0	Clear						
11			16.1	15.6	Clear						
12			16.1	15.6	Clear						
13			16.1	15.6	Clear						
14			16.1	13.9	Clear						
15			15.0	14.4	Clear						
16			14.4	12.8	Clear						
17			14.4	13.3	Pt. Cloudy						
18			14.4	13.9	Clear						
19			14.4	13.9	Clear						
20			14.4	13.9	Clear						
21			15.0	14.4	Clear						
22			15.6	15.0	Clear						
23			16.1	14.4	Clear						
24			15.6	13.3	Clear						
25			15.6	14.4	Clear						
26			15.6	15.0	Clear						
27			16.1	15.6	Clear						
28			16.1	15.6	Clear						
29			15.6	15.0	Clear						
30			15.0	14.4	Clear						
31			15.6	11.7	Clear						

Appendix Tab-- 2 (Continued)

September 1981	Temperature (C°)					Fish trapped				Steelhead	
	Air		Water		Weather	Chinook salmon		M	F		
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run				
						Adults	Grilse			Adults	Grilse
1			11.7	10.6	Clear						
2			11.1	10.6	Clear						
3			10.6	10.6	Clear						
4			11.1	10.6	Clear						
5			11.1	10.6	Clear						
6			11.1	10.6	Clear						
7			11.7	10.6	Clear						
8			12.2	10.6	Clear						
9			12.2	11.1	Clear						
10			12.8	11.7	Clear						
11			12.8	11.1	Clear						
12			12.2	11.1	Clear						
13			11.7	10.6	Clear						
14			11.7	10.0	Clear						
15			11.7	10.6	Clear						
16			11.7	10.6	Clear						
17			11.1	11.1	Clear						
18			11.1	11.1	Clear						
19			11.7	11.1	Clear						
20			12.2	11.7	Clear						
21			12.8	12.2	Clear						
22			12.8	12.8	Clear						
23			12.8	11.7	Cloudy						
24			12.2	11.1	Rain						
25			11.7	10.6	Cloudy						
26			11.7	11.1	Rain						
27			11.7	11.1	Rain						
28			12.8	11.1	Clear						
29			12.2	12.2	Clear						
30			12.8	11.7	Clear			469			
Total								469			

Appendix Table 2 (Continued)

October 1981	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run	Adults	Grilse		
						Adults	Grilse	Adults	Grilse		
1			12.8	12.2	Clear	462	67				
2			12.8	12.8	Rain						
3			12.8	12.8	Pt. Cloudy						
4			13.3	11.7	Clear						
5			12.2	10.6	Clear	282	71				
6			11.1	11.1	Rain						
7			11.1	10.6	Cloudy						
8			11.1	10.6	Clear	903	107				
9			11.7	11.1	Clear						
10			11.1	11.1	Rain						
11			11.1	10.6	Pt. Cloudy						
12			11.7	10.6	Clear						
13			11.7	11.1	Clear	768	112				
14			11.7	11.1	Clear						
15			12.2	11.7	Clear						
16			12.2	11.7	Clear	477	71				
17			12.2	11.7	Clear						
18			12.2	11.7	Clear						
19			12.2	11.1	Clear	353	82				
20			11.7	11.7	Clear	356	73				
21			12.2	11.7	Clear						
22			12.2	12.2	Clear	449	58				
23			12.8	12.2	Clear	101	11				
24			12.2	12.2	Clear						
25			12.2	11.7	Clear						
26			12.8	11.7	Cloudy	522	58				
27			12.2	11.7	Rain	262	19				
28			11.7	11.7	Rain						
29			11.7	11.1	Clear	1063	117				
30			11.7	11.1	Clear	217	48				
31			11.1	11.1	Clear						
Total						6215	894	469			
Cumulative total						6215	894	469			

Appendix Table 2 (Continued)

						Fish trapped				Steelhead	
Temperature (C°)						Chinook salmon					
						Fall run		Spring run			
						Adults	Grilse	Adults	Grilse	M	F
November 1981	Air		Water		Weather						
	Maximum	Minimum	Maximum	Minimum							
1			11.7	11.1	Clear						
2			11.7	11.1	Clear	457	44				
3			11.7	10.6	Clear						
4			11.1	10.6	Cloudy						
5			11.1	10.6	Cloudy	421	67				
6	22.0	9.0	11.1	11.1	Clear						
7	22.0	8.0	11.1	11.1	Clear						
8	27.0	10.0	11.1	11.1	Clear						
9	28.0	9.0	11.1	11.1	Clear	96	12				
10	14.0	9.0	11.1	11.1	Cloudy	62	14				
11	24.0	9.0	11.1	11.1	Cloudy						
12			11.1	11.1	Rain						
13	11.0	8.0	11.1	11.1	Rain						
14	22.0	7.0	11.1	11.1	Rain						
15	22.0	11.0	11.1	11.1	Rain						
16	23.0	8.0	11.7	11.1	Rain						
17	17.0	12.0	11.7	11.7	Clear						
18	21.0	8.0	11.7	10.6	Clear						
19	15.0		10.6	10.6	Cloudy						
20	14.0	11.0	10.6	10.6	Cloudy						
21	13.0	11.0	10.6	10.6	Rain						
22	16.0	12.0	10.6	10.6	Rain						
23	15.0	11.0	11.7	10.0	Rain						
24	15.5	10.5	11.7	11.7	Clear						
25	14.0	5.0	12.2	11.7	Clear						
26	10.0	7.0	11.7	11.1	Rain						
27	8.0	5.5	11.1	11.1	Rain						
28	16.5	2.0	11.1	10.6	Clear						
29	12.5	2.5	10.6	10.0	Clear						
30	11.0	3.0	10.0	9.4	Cloudy						
Total						1036	137				
Cumulative total						7251	1031				

Appendix Table 2 (Continued)

December 1981	Temperature (C°)					Fish trapped				Steelhead	
	Air		Water		Weather	Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run			
						Adults	Grilse	Adults	Grilse		
1			9.4	9.4							
2			9.4	9.4	Clear						
3	13.0	5.0	10.0	9.4	Fog					32	50
4	10.0	5.0	10.6	10.0	Fog						
5	13.0	6.0	10.0	10.0	Fog						
6	10.0	9.0	10.0	10.0	Fog						
7	9.5	8.0	10.0	10.0	Fog					81	77
8	12.0	7.0	10.0	10.0	Fog						
9	12.0	7.0	10.0	10.0	Rain						
10	13.0	4.0	10.0	9.4	Cloudy						
11	8.0	7.0	10.0	10.0	Cloudy						
12	11.5	9.0	10.0	10.0	Rain						
13	12.0	8.0	10.0	10.0	Rain						
14			10.0	10.0	Rain						
15			10.0	10.0	Cloudy					68	46
16			10.0	9.4	Clear						
17	11.0	5.0	10.0	10.0	Cloudy						
18	9.0	8.0	10.0	10.0	Rain						
19	12.0	6.0	10.0	9.4	Rain						
20	12.0	8.0	10.0	9.4	Rain						
21			10.6	10.0	Clear					40	44
22			10.6	10.6	Clear						
23			10.6	10.0	Clear						
24			10.0	10.0	Clear						
25			10.0	10.0	Clear						
26			10.0	9.4	Rain						
27			9.4	8.9	Clear						
28			9.4	8.9	Cloudy					69	68
29			9.4	9.4	Rain						
30			9.4	8.9	Cloudy						
31	9.5	8.5	9.4	9.4	Rain						
Total										290	285
Cumulative total										290	285

Appendix Table 2 (Continued)

January 1982	Temperature (C°)					Fish trapped				Steelhead		
	Air		Water		Weather	Chinook salmon				M	F	
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run				
						Adults	Grilse	Adults	Grilse			
1	10.0	2.0	9.4	8.9	Rain							
2	10.0	4.0	8.9	8.9	Rain							
3	6.5	1.5	8.9	8.9	Rain							
4	7.0	2.5	8.9	8.9	Rain					30	30	
5	8.0	4.0	8.9	8.9	Cloudy							
6	13.0	-1.0	8.9	8.9	Clear							
7	13.5	.0	8.9	8.9	Clear							
8	15.0	.0	8.9	8.9	Clear							
9	14.0	2.0	8.9	8.3	Clear							
10	14.5	2.0	8.3	8.3	Clear							
11	13.0	1.5	8.3	8.3	Clear					6	6	
12	14.0	2.5	8.3	8.3	Clear							
13	12.0	2.0	8.3	8.3	Clear							
14	8.5	1.0	8.3	8.3	Fog							
15	7.0	1.0	8.3	8.3	Fog							
16	4.0	4.0	8.3	8.3	Fog							
17	4.0	3.0	8.3	8.3	Fog							
18	8.0	3.0	8.3	8.3	Cloudy					38	30	
19	6.0	4.0	8.3	7.8	Rain							
20	8.0	2.0	7.8	7.8	Rain							
21	9.0	2.5	7.8	7.8	Cloudy							
22	9.0	1.0	7.8	7.8	Cloudy							
23	11.0	5.0	7.8	7.8	Pt. Cloudy							
24	11.0	1.0	7.8	7.8	Cloudy							
25	10.0	5.0	7.8	7.8	Cloudy					21	23	
26	13.0	7.0	7.8	7.8	Cloudy							
27	12.0	5.0	7.8	7.8	Cloudy							
28	10.0	5.0	7.8	7.8	Cloudy							
29	13.5	1.0	7.8	7.8	Pt. Cloudy							
30	14.0	3.0	7.8	7.8	Clear							
31	15.0	3.0	7.8	7.8	Clear							
Total											95	89
Cumulative total											385	374

Appendix Table 2 (Continued)

February 1982	Temperature (C°)					Fish trapped				Steelhead		
	Air		Water		Weather	Chinook salmon				M	F	
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run					
						Adults	Grilse	Adults	Grilse			
1			7.8	7.8	Clear					16	22	
2			7.8	7.8	Clear							
3	18.0	5.5	7.8	7.8	Clear							
4	13.5	2.0	7.8	7.8	Clear							
5	14.0	-5.0	7.8	7.8	Clear							
6	14.0		7.8	7.8	Clear							
7	12.5	1.0	7.8	7.8	Cloudy							
8	16.0	2.0	7.8	7.2	Clear					11	11	
9	11.0	7.0	7.8	7.2	Cloudy							
10	14.5	4.0	7.8	7.2	Clear							
11	17.5	4.0	7.2	7.2	Clear							
12	15.0	2.0	7.2	7.2	Clear							
13	11.0	9.0	7.8	7.2	Rain							
14	14.5	11.0	7.8	7.2	Rain							
15	13.0	12.0	7.2	7.2	Rain							
16	16.0	12.0	7.8	7.2	Cloudy					14	12	
17	16.5	2.0	8.3	7.8	Clear							
18	15.0	6.0	8.3	8.3	Cloudy							
19	19.0	9.0	8.3	8.3	Clear							
20	22.5	8.0	8.3	7.8	Clear							
21	17.0	12.0	7.8	7.8	Cloudy							
22	16.0	7.0	7.8	7.2	Clear					10	15	
23	14.5	1.0	7.2	7.2	Clear							
24	18.0	4.0	7.8	7.2	Clear							
25	17.0	6.0	7.8	7.8	Clear							
26	11.0	8.0	7.8	7.8	Rain							
27	16.0	7.5	7.8	7.8	Clear							
28	14.0	8.0	8.3	7.8	Rain							
Total											51	60
Cumulative total											436	434

Appendix Table 2 (Continued)

March 1982	Temperature (C°)					Fish trapped				Steelhead			
	Air		Water		Weather	Chinook salmon		Adults	Grilse	Adults	Grilse	M	F
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run						
1	12.0	9.0	8.3	7.8	Rain							3	
2	15.0	9.0	7.8	7.2	Cloudy								
3	16.0	11.0	7.8	7.2	Cloudy								
4	16.0	5.0	7.8	7.8	Clear								
5	19.0	4.5	8.3	7.8	Clear								
6	16.0	6.0	8.3	8.3	Clear								
7	15.0	8.0	8.3	8.3	Cloudy								
8	18.0	10.0	8.3	8.3	Rain							2	2
9	17.0	9.0	8.3	8.3	Pt. Cloudy								
10	13.5	11.0	8.3	8.3	Rain								
11	15.0	11.0	8.3	8.3	Pt. Cloudy								
12	21.0	7.0	8.9	8.3	Clear								
13	17.0	8.5	8.9	8.3	Clear								
14	11.0	8.0	8.9	8.3	Rain								
15	11.0	6.0	8.9	8.3	Pt. Cloudy								
16	9.0	4.0	8.3	8.3	Rain								
17	13.0	5.0	8.3	8.3	Rain								
18	13.0	6.0	8.3	8.3	Rain								
19	14.0	6.5	8.3	8.3	Cloudy								
20	17.5	4.0	8.9	8.3	Clear								
21	19.0	5.0	8.9	8.3	Clear								
22	21.0	4.0	8.9	8.3	Clear							1	2
23	23.0	5.0	8.9	8.3	Clear								
24	18.0	7.5	8.9	8.3	Clear								
25	17.0	9.0	8.9	8.9	Pt. Cloudy								
26	12.0	9.0	8.9	8.3	Rain								
27	14.0	8.5	8.9	8.3	Clear								
28	11.0	7.0	8.3	8.3	Rain								
29	8.0	4.0	8.3	7.8	Rain							2	1
30	8.0	6.0	7.8	7.8	Rain								
31	10.0	5.0	7.8	7.2	Rain								
Total												8	5
Cumulative total												444	439

Appendix Table 2 (Continued)

April 1982	Temperature (C°)					Fish trapped				Steelhead		
	Air		Water		Weather	Chinook salmon				M	F	
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run				
						Adults	Grilse	Adults	Grilse			
1	8.5	5.0	7.8	7.2	Rain							
2	12.0	8.0	7.8	7.8	Rain							
3	15.0	5.0	7.8	7.8	Rain							
4	11.0	7.0	7.8	7.8	Pt. Cloudy							
5	13.0	2.0	7.8	7.8	Rain					2	1	
6	13.0	3.5	7.8	7.8	Pt. Cloudy							
7	17.0	3.0	7.8	7.8	Pt. Cloudy							
8	21.0	4.0	8.3	7.8	Clear							
9	15.0	10.0	8.3	8.3	Clear							
10	16.5	12.0	8.3	8.3	Rain							
11	14.0	10.0	8.3	7.8	Rain							
12	20.0	10.0	8.3	7.8	Rain							
13			8.3	8.3	Cloudy							
14	16.0	16.0	8.3	7.8	Rain							
15	17.0	6.0	8.3	7.8	Clear							
16	21.0	4.0	8.9	8.3	Clear							
17	23.0	8.0	8.9	8.9	Clear							
18	20.0	6.5	9.4	8.9	Clear							
19	25.0	8.5	9.4	8.9	Clear					1	1	
20	26.0	9.0	10.0	9.4	Clear							
21	27.0	10.0	10.0	10.0	Clear							
22	27.5	8.0	9.4	8.9	Clear							
23	26.0	10.0	9.4	8.9	Clear							
24	26.0	9.0	9.4	9.4	Clear							
25	24.0	9.0	10.0	8.9	Clear							
26	23.5	10.0	10.0	9.4	Clear							
27	27.0	8.0	10.0	9.4	Clear					3		
28	28.0	9.0	10.6	10.0	Clear							
29	27.0	10.0	11.1	10.0								
30	25.0	8.0	11.1	10.6	Clear							
Total											6	2
Cumulative total											450	441

Appendix Table 2 (Continued)

May 1982	Temperature (C°)					Fish trapped				Steelhead	
	Air		Water		Weather	Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run			
						Adults	Grilse	Adults	Grilse		
1	28.0	8.0	10.6	10.0	Clear						
2	30.0	12.0	10.6	10.0	Clear						
3	30.0	11.0	11.1	10.0	Clear						
4	31.0	10.0	11.7	10.6	Clear						
5	33.0	10.0	12.2	11.7	Clear						
6	30.0	12.0	11.7	11.1	Clear						
7	24.0	11.0	11.7	11.1	Clear						
8	21.0	10.0	11.7	11.1	Clear						
9	21.0	7.0	11.1	10.6	Pt. Cloudy						
10	25.0	7.0	11.7	10.6	Cloudy						
11	21.0	10.0	12.2	11.1	Clear						
12			11.7	11.1	Clear						
13	25.0	11.0	11.7	10.6	Pt. Cloudy						
14	27.0	11.0	11.7	10.6	Clear						
15	30.0	11.0	11.7	11.1	Clear						
16	30.5	12.0	11.7	11.1	Clear						
17	23.0	13.0	11.7	11.1	Cloudy						
18	25.0	8.0	11.7	10.6	Clear						
19	30.0	14.0	12.2	11.7	Clear						
20	30.0	16.0	12.2	11.1	Clear						
21	29.5	12.0	12.2	11.7	Clear						
22	32.0	13.0	12.2	11.7	Clear						
23	35.5	12.5	12.8	12.2	Clear						
24	37.0	20.0	13.9	12.8	Clear						
25	38.0	22.5	13.9	12.8	Clear						
26	27.0	12.0	13.9	12.8	Clear						
27	25.5	13.0	12.8	12.2	Clear						
28	29.0	11.5	13.3	12.2	Clear						
29	26.0	10.5	13.9	12.8	Clear						
30	26.0	10.0	13.9	12.8	Pt. Cloudy						
31	22.0	11.0	13.3	12.2							

Appendix Table 2 (Continued)

June 1982	Temperature (C°)					Fish trapped				Steelhead	
	Air		Water		Weather	Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run			
						Adults	Grilse	Adults	Grilse		
1	24.5	9.0	12.8	11.1	Clear						
2			13.3	12.8	Clear						
3	24.0	8.0	13.3	12.8	Clear						
4	22.0	8.5	13.3	12.2	Clear						
5	24.0	8.0	13.9	12.8	Clear						
6	25.0	11.0	13.9	12.8	Clear						
7	27.0	9.5	13.9	12.8	Clear						
8	31.0	11.0	13.9	12.8	Clear						
9	32.0	13.0	13.9	13.3	Clear						
10	29.5	13.5	13.9	13.3	Clear						
11	23.0	11.5	13.9	13.3	Cloudy						
12	24.0	13.0	13.3	13.3	Cloudy						
13	28.0	12.0	13.9	13.3	Clear						
14	34.0	16.0	13.9	13.3	Clear						
15	37.0	17.5	14.4	13.9	Clear						
16	38.0	18.0	14.4	13.9	Clear						
17	35.5	18.0	14.4	13.9	Clear						
18	28.0	17.0	14.4	13.9	Cloudy						
19	30.0	14.0	14.4	13.9	Clear						
20	32.0	15.0	15.0	14.4	Clear						
21	32.0	15.0	15.0	14.4	Clear						
22	31.0	15.0	15.0	14.4	Clear						
23	26.5	14.0	15.0	15.0	Pt. Cloudy						
24	28.0	14.0	15.0	14.4	Clear						
25	30.0	15.0	15.0	14.4	Pt. Cloudy						
26	28.0	19.0	15.6	14.4	Clear						
27	21.5	14.0	15.6	13.9	Clear						
28	21.0	13.0	15.0	13.9	Rain						
29			15.0	14.4	Cloudy						
30	23.0	14.0	15.0	14.4	Cloudy						

APPENDIX TABLE 2. Fork Lengths (to Nearest Inch) of Marked Chinook Salmon Trapped at Feather River Hatchery, 1981-82

FL (inches)	AD		LP		RP	
	M	F	M	F	M	F
18		1				
19		3				
20		2				
21		13				
22		18				
23		30		1		
24		30		1		
25		30		2		
26		27		2		
27		19		2		
28		6		7		
29		4		5		
30		3		5		
31				6		
32		1		7		
33		3		10		
34		5		4		
35		2		2		
36		4		2		1
37				2		
38		2				
39		3				