

REF 90171

State of California  
The Resources Agency  
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT  
FEATHER RIVER HATCHERY 1979-80

BY

Donald L. Schlichting  
Region 2, Inland Fisheries

Anadromous Fisheries Branch  
Administrative Report No. 82-33

1982

ANNUAL REPORT  
FEATHER RIVER HATCHERY, 1979-80<sup>1/</sup>

by

Donald L. Schlichting  
Region 2, Inland Fisheries

ABSTRACT

This report summarizes the operation of Feather River Hatchery from 1 July 1979 through 30 June 1980. 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 4,340 chinook salmon and 314 steelhead and planted or transferred 3,847,422 chinook fingerlings, 2,021,482 chinook yearlings, and 332,762 steelhead yearlings. No steelhead were planted as fingerlings this year.

---

<sup>1/</sup> Anadromous Fisheries Branch Administrative Report No. 82-33  
Submitted August 1980.

## INTRODUCTION

This report describes activities of the Feather River Hatchery during its 13th year of operation, 1 July 1979 through 30 June 1980. 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 State 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 Feather River Hatchery trapped 4,340 chinook salmon, Oncorhynchus tshawytscha and 314 steelhead, Salmo gairdneri during the 1979-80 season (Table 1). Approximately 9,520,550 salmon and 520,123 steelhead eggs were taken. We planted or transferred an estimated 5,868,904 salmon and 332,762 steelhead.

## MARKING PROGRAMS

Personnel from Anadromous Fisheries Branch marked about 100,000 1978 brood year (BY) chinook salmon with an adipose fin clip (AD) and a coded wire nose tag (CWT). These fish were planted at Port Chicago in August of 1979. Another 75,000 CWT 1978 BY chinook salmon were planted at Tiburon in the same month. Delta Study personnel marked three groups of 1979 BY fall run chinook salmon AD & CWT. One group of about 200,000 was released at Discovery Park in the Sacramento River, another of 200,000 at Port Chicago and the final 200,000 were released in the Feather river at the hatchery. All releases were made in June of 1980. The entire 1979 BY summer run steelhead were marked with an AD only and the 126,000 fish were released in the Feather River at Yuba City in March of 1980. Three groups of 40,000 each of 1979 BY steelhead were released at Rio Vista, Verona, and Yuba City. These late run groups were marked AD and CWT.

## CHINOOK SALMON MAINTENANCE PROGRAM

### HISTORY OF THE 1979-80 RUNS

#### 1979 BY Spring Run

The fish ladder was opened 4 September 1979 to allow spring run chinook salmon adults to enter the hatchery. We received 250 spring run fish between 4 September 1979 and 28 September 1979 (Appendix Table 1). The spring run adults were sexed on 28 September 1979. At that time we had 83 males and 167 females on hand. We successfully spawned all 167 females from 28 September through 10 October 1979. The spawning yielded 935,631 eggs, for an average of 5,603 eggs per female.

An estimated 727,845 fingerlings were transferred to the ponds, an average fertility rate of 78%. A total of 465,325 was planted as smolts in May. An estimated 182,021 fish remained on hand 30 June 1980. These were to be planted as yearlings the following season.

1979 BY Fall Run

The first fall run chinook salmon entered the hatchery on 26 September 1979 (Appendix Table 1). The season total was 4,090 fish. We spawned 1,552 females between 1 October 1979 and 10 December 1979 and took 8,584,919 eggs, for an average of 5,532 eggs per female. Fry production totaled 7,213,586 with an estimated 637,280 loss to infectious hematopoietic necrosis (IHN) and bird predation. Between 7 May 1980 and 30 June 1980 we planted 2,552,607 fall run 1979 BY smolts. An estimated 4,023,699 remained on hand as of June 1980.

TABLE 1. Feather River Hatchery Production Summary, 1979-80

Species brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish planted or transferred		Estimated number on hand
				fingerlings	yearlings	
Chinook salmon spring run						
1978 BY	0	0	0	0	86,320	0
1979 BY	250	167	935,631	465,325	0	182,021
Chinook salmon fall run						
1978 BY	0	0	0	829,490	1,935,162	0
1979 BY	4,090	1,552	8,584,919	2,552,607 <sup>a/</sup>	0	4,023,699
Steelhead early						
1979 BY	0	0	0	0	83,915	0
1980 BY	76	40	157,655	0	0	73,131
Steelhead late						
1979 BY	0	0	0	0	122,617	0
1980 BY	238	95	362,468	0	0	176,777
Steelhead Nimbus						
1979 BY	0	0	0	0	<sup>b/</sup>	0
1980 BY	0	0	199,980 <sup>c/</sup>	0	0	183,352
Steelhead summer Washougal						
1979 BY	0	0	0	0	126,230	0
1980 BY	0	0	150,381 <sup>d/</sup>	0	0	143,133
Steelhead Klamath						
1980 BY	0	0	26,015 <sup>e/</sup>	0	0	24,851

<sup>a/</sup> Includes 1,507,190 shipped to Mokelumne Installation.

<sup>b/</sup> 1979 BY "late" and 1979 Nimbus were combined and marked.

<sup>c/</sup> Received as eggs from Nimbus.

<sup>d/</sup> Received from Yountville in Region 3 as fish.

<sup>e/</sup> Received as fry from Iron Gate Hatchery.



## RECOVERY OF MARKED CHINOOK SALMON

All chinook salmon entering the hatchery were examined for marks. We observed a total of 427 marked fish (Appendix Table 2).

## CHINOOK SALMON PLANTING

We estimated 3,847,422 fingerlings and 2,021,482 yearling chinook salmon this season (Tables 1 and 2).

## STEELHEAD MAINTENANCE PROGRAM

### HISTORY OF THE 1979-80 PRODUCTION

#### 1980 BY

Steelhead were not counted or held until 1 October 1979. From 1 October through 26 March 1980, eight marked fish were counted and measured as they entered the hatchery (Appendix Table 3).

The total run was 314 fish: 164 males and 150 females. We successfully spawned 135 females (Table 3). Steelhead were divided in to two catagories. "Early" -- adults arriving before 15 December 1979 and "late" -- fish arriving after 15 December 1979. We trapped 76 "early" fish and took a total of 157,655 eggs, and 238 "late" fish and took a total of 362,468 eggs for a combined total of 520,123 eggs. An estimated 129,360 "early" fish were transferred to the ponds, for a survival rate of 82%. An estimated 326,644 "late" fish were transferred to the ponds for a survival rate of 90%. Losses in the "early" fish amounted to about 56,229 and 149,867 in the "late" fish. There were no serious disease losses in the young steelhead, but bird predation was a problem. We had on hand 30 June 1980, 73,131 BY "early" steelhead and 176,777 1980 BY "late" steelhead.

#### 1980 BY Nimbus

A total of 199,980 "late" steelhead eggs were received from Nimbus Hatchery to ensure enough "late" steelhead for yearling production. On 30 June 1980 we had on hand 183,352 fish.

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1979-80

Brood year	Race	Month of release	Average size (G)	Number released	Mark	Release site
1978	Spring run	Oct. 1979	56	86,320		Feather River at hatchery
			Total	86,320		
1978	Fall run	July 1979	6	610,650		Sacto. River at Rio Vista
		July 1979	10	12,040		Bodega Bay
		Aug. 1979	15	94,475	AD & CWT	Port Chicago
		Aug. 1979	15	76,375	AD & CWT	Tiburon
		Aug. 1979	15	35,950		Tiburon
		Oct. 1979	48	1,592,583		Feather River at hatchery
		Dec. 1979	35	342,412		Feather River at hatchery
			Total	2,764,485		
1979	Spring run	May 1980	7	465,325		Sacto. River at Rio Vista
			Total	465,325		
1979	Fall run	May 1980	4.5	1,405,690		Mokelumne Installation
		June 1980	7	101,500		Mokelumne Installation
		June 1980	7	192,430	AD & CWT	Sacto. River at Discovery Park
		June 1980	8	104,544	AD & CWT	Feather River at hatchery
		June 1980	8	93,408	AD & CWT	Feather River at hatchery
		June 1980	4.4	50,000		Feather River at hatchery
		June 1980	8.7	174,975	AD & CWT	Port Chicago
		June 1980	6	21,460		Yuba River
		June 1980	9	323,450		Rio Vista
		June 1980	8.6	85,150		Feather River at Yuba City
			Total	2,552,607		

# 1980 BY Washougal

The Hatchery received a total of 150,381 summer run fry from Region 3 in a continuing attempt to establish summer run steelhead in the Feather River. We had on hand 30 June 1980 an estimated 143,133 fish.

TABLE 3. Steelhead Spawning Data

Date 1980	"Early" fish spawned		Date 1980	"Late" fish spawned	
	<u>M</u>	<u>F</u>		<u>M</u>	<u>F</u>
3 Jan	6	12	3 Jan	4	6
8 Jan	13	8	8 Jan	16	10
15 Jan	4	1	15 Jan	10	11
21 Jan	9	5	21 Jan	15	7
28 Jan	8	5	28 Jan	17	15
13 Feb	4	3	5 Feb	10	11
20 Feb	6	4	13 Feb	5	11
27 Feb	8	2	20 Feb	6	7
			27 Feb	8	3
			5 Mar	5	4
			12 Mar	4	3
			19 Mar	7	3
			26 Mar	5	3
			4 Apr	4	1

# 1980 BY Klamath

In an attempt to establish a Ceratomyxa-resistant strain of steelhead in the Feather River 26,015 eggs were imported from Iron Gate Hatchery. The hatched fry will be raised in untreated water to test their resistance to Ceratomyxa. We had on hand 30 June 1980, 24,851 fry.

## Steelhead Planting

We planted an estimated 332,762 steelhead during the 1979-80 season (Table 4).

## VISITOR USE

During the 1979-80 fiscal year 58,558 people visited the installation.

Table 4. Steelhead Planting Summary, 1979-80

Date 1980	Strain	Average size (g)	Number released	Mark	Release site
March	Early Feather	112	83,915		Feather River at Yuba City and Verona
March	Washougal	50	126,230	AD	Feather River at Yuba City
April	Late Nimbus	90	39,805	AD & CWT	Sacramento River at Rio Vista
April	Late Nimbus	90	39,952	AD & CWT	Feather River at Yuba City
April	Late Nimbus	90	3,200		Feather River at hatchery
April	Late Nimbus	90	39,660	AD & CWT	Feather River at Verona
		Total	332,762		



July 1979	Temperature (C°)				Fish trapped					
	Air		Water		Chinook salmon		Steelhead			
	Maximum	Minimum	Maximum	Minimum	Fall run		Spring run			
					Adults	Grilse	Adults	Grilse	M	F
1	32.0	15.5	15.6	15.0						
2	28.0	14.1	15.6	15.0						
3	27.0	13.0	15.6	14.4						
4	28.5	12.0	15.6	14.4						
5	29.0	11.9	15.0	14.4						
6	29.5	13.0	15.6	14.4						
7	31.5	13.0	16.1	15.0						
8	31.0	12.5	16.1	15.0						
9	26.0	16.5	15.6	15.0						
10	29.0	16.0	15.6	14.4						
11	28.0	12.0	15.6	15.6						
12	37.0	16.0	16.7	15.6						
13	39.5	20.0	16.7	15.0						
14	39.1	18.0	15.0	13.9						
15	37.0	15.0	13.9	13.3						
16	40.0	18.0	14.4	13.3						
17	41.0	19.0	14.4	13.9						
18	34.5	16.5	15.0	13.9						
19	39.0	18.0	15.0	14.4						
20	35.0	20.0	15.6	14.4						
21	22.0	14.0	15.0	14.4						
22	35.0	16.0	15.6	14.4						
23	38.0	23.0	15.6	15.0						
24	38.0	23.5	16.1	15.0						
25			16.1	15.6						
26			16.1	15.0						
27			16.1	15.6						
28			16.1	15.6						
29			16.1	15.6						
30			16.1	15.6						
31			16.7	15.6						
			16.7	16.1						

July 1979, 1979-80

Appendix Table 1 (Continued)

August 1979	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon		Spring run		M	F
	Maximum	Minimum	Maximum	Minimum		Fall run Adults	Grilse	Adults	Grilse		
1	41.0		16.7	16.1	Clear						
2	40.0	16.0	16.7	15.0	Clear						
3	38.0	17.0	15.6	14.4	Clear						
4	36.5	15.5	15.6	13.9	Clear						
5	35.0	11.5	15.6	13.3	Clear						
6	37.0	16.0	16.1	14.4	Clear						
7	36.0	16.0	16.1	14.4	Clear						
8			15.6	14.4	Clear						
9			16.1	14.4	Clear						
10			16.1	15.6	Clear						
11			16.1	15.0	Clear						
12			16.1	15.0	Clear						
13	24.0	16.0	15.6	14.4	Cloudy						
14	31.0	14.0	15.6	14.4	Clear						
15	31.0	13.9	15.6	15.0	Clear						
16	31.1	13.0	15.6	14.4	Clear						
17	33.0	13.5	16.1	15.0	Clear						
18	34.0	17.5	16.1	15.0	Clear						
19	29.0	13.0	15.6	14.4	Cloudy						
20	26.5	14.4	15.0	13.9	Rain						
21			16.1	15.0	Clear						
22	28.5		16.1	15.6	Clear						
23	31.0	14.0	16.1	16.1	Clear						
24	32.5	13.0	16.1	15.6	Clear						
25	33.5	13.0	16.1	15.0	Clear						
26	33.5	14.5	16.1	15.6	Clear						
27	33.0	16.0	16.1	16.1	Clear						
28	27.0	18.0	16.1	16.1	Cloudy						
29	26.0	15.9	16.1	13.3	Rain						
30	26.0	17.0	13.9	12.2	Clear						
31	32.0	13.9	13.9	12.8	Clear						

Appendix Table 1 (Continued)

September 1979	Temperature (C°)				Weather	Fish trapped			
	Air		Water			Chinook salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Fall run Adults	Spring run Adults	M	F
1	28.0	15.0	13.3	12.8	Clear				
2	30.0	15.0	13.3	12.2	Clear				
3	32.0	16.0	13.3	12.2	Clear				
4	31.0	14.0	13.3	12.2	Clear				
5	35.0	15.0	14.4	12.8	Clear				
6	37.0	18.0	14.4	13.3	Clear				
7	36.0	20.5	13.3	13.3	Clear				
8	33.0	10.0	13.9	12.8	Clear				
9	33.0	13.0	13.3	11.7	Clear				
10	36.0	12.0	13.3	11.1	Clear				
11	35.0	14.0	11.1	10.6	Clear				
12	40.0	16.0	11.7	11.1	Clear				
13	39.8	18.0	12.2	11.7	Clear				
14	38.9	15.0	12.2	11.7	Clear				
15	39.0	15.5	11.7	10.6	Clear				
16	39.5	17.0	11.7	10.6	Clear				
17	34.0	16.8	11.7	10.6	Clear				
18	31.5	11.0	11.7	10.6	Clear				
19	32.0	11.0	11.7	10.0	Clear				
20	32.4	13.0	11.7	10.6	Clear				
21	33.0	13.0	11.7	11.1	Clear				
22	32.0	13.0	12.2	11.1	Clear				
23	34.0	12.6	12.2	11.1	Clear				
24	32.0	13.0	12.2	11.1	Rain				
25	24.0	14.0	12.2	11.7	Cloudy				
26	27.0	10.0	12.2	11.7	Cloudy				
27	30.0	14.0	11.7	11.7	Clear				
28	32.0	14.0	12.8	11.7	Clear				
29	33.0	14.0	12.8	11.7	Clear				
30	32.0	13.5	12.8	11.7	Clear				
Total						122	10	248	2

Appendix Table 1 (Continued)

October 1979	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon					
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		M	F
						Adults	Grilse	Adults	Grilse		
1	35.0	15.5	12.8	11.7	Clear	42	2				1
2	31.5	15.0	12.8	12.2	Pt. Cloudy						
3	34.0	15.0	12.8	12.2	Cloudy						
4	32.0	16.0	12.2	11.1	Clear	39	6				
5	30.0	12.0	11.7	11.1	Clear						
6	27.0	13.7	11.7	11.1	Clear						
7	26.0	11.1	12.2	11.1	Cloudy						
8	27.7	11.0	12.8	11.1	Rain						
9			12.2	11.7	Clear	106	11				
10			12.2	11.1	Clear						
11			12.2	11.7	Cloudy						
12			12.2	11.7	Cloudy	120	16				
13			12.2	10.6	Rain						
14			11.7	11.1	Rain						
15			12.2	11.1	Clear	169	36				
16			12.2	11.1	Clear						
17			12.2	11.1	Clear						
18	17.9	10.0	11.7	11.1	Rain	137	25				1
19	17.0	9.0	11.1	11.1	Rain						
20	14.0	9.0	11.1	10.6							
21	19.2	12.0	11.1	10.6							
22	18.9	11.9	10.6	10.0	Rain	329	67			1	
23	18.9	8.0	10.6	10.0	Cloudy						
24	20.0		10.6	10.0	Cloudy						
25	19.0	7.9	10.6	10.0	Rain	279	57				
26	23.0	8.0	11.1	10.6	Clear						
27	22.9		11.7	10.6	Clear						
28	20.0	4.0	11.7	11.1	Cloudy						
29	15.0	6.0	11.7	11.1	Clear	359	69				
30	18.5	6.0	11.1	11.1	Clear						
31			11.1	11.1	Clear						
Total						1,580	289			1	2
Cumulative total						1,702	299				

November 1979	Temperature (C°)				Fish trapped			
	Air		Water		Chinook salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum	Fall run	Spring run		
					Adults	Grilse	Adults	Grilse
							M	P
1								
2	11.1		11.1	11.1	187	46	4	4
3	11.1		11.1	11.1				
4	11.1		11.1	11.1				
5	11.1		11.1	11.1				
6	11.7		11.1	11.1	332	79	6	1
7	11.7		10.6					
8	11.7		11.1	11.1				
9	11.7		11.1	11.1				
10	11.7		11.1	11.1	193	46	2	
11	11.7		11.1	11.1	43	14	1	
12	11.7		11.1	11.1				
13	11.1		11.1	11.1				
14	11.1		11.1	11.1				
15	11.1		11.1	11.1	292	42	2	2
16	11.1		11.1	11.1				
17	11.1		11.1	11.1	163	30		7
18	11.1		11.1	11.1				
19	11.1		11.1	11.1				
20	11.1		10.6	10.6				
21	11.1		10.6	10.6	207	40	1	3
22	11.1		10.6	10.6				
23	11.1		11.1	11.1	68	4	1	1
24	11.1		11.1	11.1				
25	11.1		11.1	11.1				
26	11.1		10.6	10.6				
27	10.6		10.6	10.6	180	30	2	5
28	10.6		10.0	10.0				
29	10.6		10.6	10.6				
30	10.6		10.6	10.6	43	6		2
Total								
Cumulative total					1,708	337	19	25
					3,410	636	20	27



December 1979	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon		Spring run		M	F
	Maximum	Minimum	Maximum	Minimum		Fall run	Adults	Grilse	Adults		
1	10.6		10.6								
2	10.6		10.6								
3	10.6		10.6								
4	10.6		10.6					24	4	6	2
5	10.6		10.6		Clear						
6	10.6		10.6		Clear			6	3	1	1
7	10.6		10.6		Clear						
8	10.6		10.6		Clear						
9	10.6		10.6		Clear						
10	10.6		10.0		Clear			7		10	9
11	10.0		10.0		Clear						
12	11.1		10.0		Cloudy						
13	11.1		10.6		Clear						
14	11.1		11.1		Clear						
15	11.1		10.6		Clear						
16	10.6		10.6		Clear						
17	10.6		10.6		Clear						
18	10.6		10.6		Clear						
19	10.6		10.6		Rain						
20	10.6		10.6		Rain						
21	10.6		10.6		Clear					9	7
22	10.6		10.6		Clear						
23	10.6		10.6		Rain						
24	10.6		10.0		Rain						
25	10.0		10.0		Cloudy						
26	10.0		9.4		Clear						
27	9.4		9.4		Cloudy						
28	9.4		9.4		Cloudy						
29	9.4		9.4		Cloudy						
30	9.4		9.4		Rain					27	14
31	9.4		9.4		Rain						
Total								37	7	53	33
Cumulative total								3,447	643	73	60

[illegible]

## Appendix Table (Continued)

February 1980	Temperature (C°)				Weather	Fish trapped			
	Air		Water			Chinook salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Fall run Adults	Spring run Grilse	M	F
1	13.0	4.0	8.3	8.3	Cloudy				
2	12.0	6.0	8.3	8.3	Cloudy				
3	11.0	8.0	8.3	8.3	Cloudy				
4	12.0	4.0	8.3	8.3	Cloudy				
5	10.5	6.5	8.3	8.3	Fog			3	7
6	17.0	4.0	8.3	8.3	Fog				
7	18.5	5.0	8.3	8.3	Fog				
8	16.0	8.0	8.3	8.3	Clear				
9	16.0	7.0	8.3	8.3	Cloudy				
10			8.3	8.3	Cloudy				
11			8.3	8.3	Cloudy				
12			8.3	8.3	Cloudy				
13			8.3	8.3	Cloudy			1	7
14			8.3	8.3	Cloudy				
15			8.3	8.3	Rain				
16			8.3	8.3	Rain				
17			8.3	7.8	Rain				
18			7.8	7.8	Rain				
19			7.8	7.2	Rain				
20			8.3	7.2	Rain				
21			8.3	8.3	Rain			2	1
22			8.3	8.3	Cloudy				
23			8.3	8.3	Cloudy				
24			8.3	8.3	Cloudy				
25			8.3	8.3	Cloudy				
26			8.3	8.3	Cloudy				
27	18.0		8.9	8.3	Cloudy			4	3
28	18.0	9.5	8.9	8.3	Cloudy				
29	17.0	5.0	8.3	7.8	Clear				
			7.8	7.8	Clear				
Total								10	18
Cumulative								156	143

Appendix Table 1 (Continued)

March 1980	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon		Adults	Grilse	Adults	Grilse
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run				
1	15.5	9.0	8.3	8.3	Rain						
2	12.0	9.0	8.3	8.3	Rain						
3	14.0	6.0	8.3	8.3	Rain						
4	12.0	7.0	8.3	8.3	Cloudy						
5	12.0	6.0	8.3	7.8	Rain						
6	15.0	5.0	8.3	7.8	Cloudy					4	4
7	19.0	4.0	8.3	8.3	Clear						
8	21.5	4.0	8.3	8.3	Clear						
9	22.0	7.0	8.9	8.3	Clear						
10			8.9	8.3	Clear						
11			8.9	8.3	Clear						
12	16.0	5.0	8.3	8.3	Clear						
13	16.5	6.0	8.3	8.3	Cloudy					1	
14	12.0	10.0	8.3	8.3	Rain						
15	14.0	5.0	8.3	7.8	Cloudy						
16	19.0	3.0	8.3	8.3	Clear						
17	16.0	8.0	8.9	8.3	Cloudy						
18	20.0	4.0	8.9	8.3	Clear						
19	23.0	5.0	9.4	8.9	Clear						
20	17.0	9.0	8.9	8.9	Clear					3	2
21	19.0	5.0	8.9	8.3	Clear						
22	23.0	6.0	8.9	8.9	Clear						
23	21.0	6.0	9.4	8.9							
24	18.0	5.0	9.4	9.4	Clear						
25	12.0	7.0	9.4	9.4	Rain						
26	16.0	3.0	9.4	9.4	Clear						
27	19.0	5.0	10.0	9.4	Clear						1
28	22.5	6.0	9.4	8.9	Clear						
29	22.5		10.0	8.9	Clear						
30	20.0	6.0	10.0	9.4	Clear						
31	17.0	7.0	10.0	9.4	Clear						
Total											
Cumulative total											
										8	7
										164	150

Appendix Table . (Continued)

April 1980	Temperature (C°)					Fish trapped				Steelhead	
	Air		Water		Weather	Chinook salmon					
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		M	F
						Adults	Grilse	Adults	Grilse		
1	19.0	4.0	10.6	10.0	Clear						
2	18.5	5.0	10.0	9.4	Clear						
3	15.0	6.0	10.0	10.0	Cloudy						
4	14.0	8.0	10.0	9.4	Clear						
5	16.0	10.0	10.0	9.4	Clear						
6	18.5	10.0	10.0	8.9	Clear						
7	16.0	5.0	8.9	8.3	Clear						
8	16.0	7.0	9.4	8.3	Cloudy						
9	20.0	13.0	10.0	8.9	Cloudy						
10	23.0	6.0	10.0	8.9	Clear						
11	28.0	9.0	10.0	9.4	Clear						
12	27.0	11.0	11.1	10.0	Clear						
13	25.0	11.0	11.1	10.0	Clear						
14	22.0	13.0	11.1	10.0	Clear						
15	26.5	8.0	11.1	10.0	Clear						
16	28.0	13.0	11.1	10.0	Clear						
17	27.0	14.5	11.1	10.6	Clear						
18	21.0	8.0	11.1	11.1	Clear						
19	27.0	10.5	11.1	11.1	Rain						
20	15.5	7.0	11.1	11.1	Rain						
21	13.0	7.0	11.1	10.0	Cloudy						
22			10.6	10.0	Rain						
23	15.0	10.0	10.6	10.6	Cloudy						
24	20.0	10.0	11.1	10.6	Cloudy						
25	23.0	8.0	11.1	10.6	Clear						
26	23.0	9.5	11.1	11.1	Clear						
27	29.0	11.0	11.1	10.6	Clear						
28	22.0	15.0	11.7	11.1	Clear						
29	24.0	10.5	11.7	11.1	Clear						
30	27.0	10.0	12.2	10.6	Clear						



Appendix Table 1 (Continued)

May 1980	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	26.0	10.0	12.2	11.7	Clear						
2	26.0	10.0	12.8	12.2	Clear						
3	29.0	12.0	12.8	12.2	Clear						
4	30.0	10.0	12.8	12.2	Clear						
5	26.0	14.0	12.8	12.2	Clear						
6	25.0	9.0	12.8	11.7	Clear						
7	24.0	10.0	12.8	12.2	Clear						
8	26.0	10.0	12.8	12.8	Cloudy						
9	25.0	10.0	12.8	11.1	Rain						
10	31.0	11.5	11.1	10.6	Cloudy						
11			11.7	10.6	Cloudy						
12			12.2	11.7	Cloudy						
13			12.2	12.2	Cloudy						
14			12.2	12.2	Clear						
15			12.8	12.2	Clear						
16			12.8	12.2	Clear						
17			12.8	12.2	Clear						
18			13.3	12.8	Clear						
19			13.3	12.8	Clear						
20			13.3	13.3	Clear						
21			13.3	13.3	Clear						
22	22.0		13.9	12.8	Clear						
23	17.5	7.0	13.3	12.8	Cloudy						
24	18.0	5.0	13.3	12.8	Cloudy						
25	20.0	7.5	13.3	12.8	Cloudy						
26	23.0	10.0	13.3	12.8	Cloudy						
27	24.0	11.0	13.3	12.8	Clear						
28	23.0	11.0	13.3	12.2	Clear						
29	25.0	9.0	13.3	12.2	Clear						
30	25.0	12.0	13.3	12.8	Clear						
31	26.0	11.0	12.8	12.8	Clear						

Appendix Table (Continued)

June 1980	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	24.0	13.0	12.8	12.8	Clear						
2	23.0	13.0	13.3	12.8	Clear						
3	21.5	10.5	13.9	12.8	Cloudy						
4	18.0	11.0	12.8	12.2	Rain						
5	23.0		13.9	12.2	Clear						
6	27.0	9.0	13.3	12.2	Clear						
7	26.0	9.0	13.3	12.2	Clear						
8	29.0	11.0	13.3	12.8	Clear						
9	31.5	10.5	13.3	13.3	Clear						
10	31.0	13.0	13.9	13.3	Clear						
11	22.0	11.0	13.3	12.8	Clear						
12	24.5	11.0	13.3	12.2	Cloudy						
13	21.5	11.0	13.9	12.8	Cloudy						
14	22.0	11.0	13.9	13.9	Clear						
15	26.0	10.0	13.9	13.9	Clear						
16	31.0	12.0	13.9	13.9	Clear						
17	33.0	15.0	14.4	13.9	Clear						
18	36.0	18.0	14.4	13.9	Clear						
19	33.0		14.4	13.9	Clear						
20	30.0	12.0	14.4	13.9	Clear						
21	30.0	11.0	14.4	13.9	Clear						
22	23.0	11.0	14.4	13.3	Clear						
23	27.0	11.0	14.4	13.9	Clear						
24	26.5	12.0	15.0	14.4	Cloudy						
25	26.0	12.5	14.4	13.3	Clear						
26	26.0		15.0	13.3	Clear						
27	29.0	10.0	15.0	14.4	Clear						
28	34.0	12.0	14.4	13.3							
29	36.0	21.0	14.4	13.9							
30	28.5	18.0	14.4	13.3	Clear						

Appendix Table 2

Fork Lengths (to Nearest Inch) of Marked Chinook Salmon  
Trapped at Feather River Hatchery, 1979-80

FL (inches)	AD		RVLP		RP		AD & RP	
	M	F	M	F	M	F	M	F
15								
16								
17	1							
18	7							
19	9							
20	11							
21	2	1						
22	5				1			
23	10	1						
24	9	1						
25	7	4						
26	11	5						
27	7	5					1	
28	11	20						
29	6	15						
30	14	23						
31	11	32						1
32	9	32						
33	20	26						
34	18	20				1		
35	9	9	1					
36	9	4						
37	7	6						
38	4							
39	4	1	1		1			
40	4							
41	2							
42	5							
43	1							
44	1	1						

Appendix Table 3

Fork Lengths (to Nearest Inch) of Marked Steelhead  
Trapped at Feather River Hatchery, 1979-80

FL (inches)	LVRV		RP		DLV		D	
	M	F	M	F	M	F	M	F
13								
14							1	
15								
16								
17								
18	2							
19						1		1
20	1							
21								
22								
23				1				
24								
25				1				