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ANNUAL REPORT
FEATHER RIVER HATCHERY 1976-77

by

Donald L. Schlichting
Region 2, Inland Fisheries

Anadromous Fisheries Branch
Administrative Report No. 82-10

1982

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ABSTRACT

This report summarizes the operation of Feather River Hatchery from July 1, 1976 through June 30, 1977. Tables present temperature and weather data, numbers of chinook salmon, Oncorhynchus tshawytscha, and steelhead, Salmo gairdneri, entering the hatchery, numbers of eggs taken and numbers of fish released.

We trapped 5,911 chinook salmon and 163 steelhead and planted 2,656,800 chinook fingerlings and 419,760 steelhead fingerlings in 1976-77.

^{1/} Anadromous Fisheries Branch Administrative Report No. 82-10.
Submitted June 1980.

INTRODUCTION

This report describes activities of the Feather River Hatchery during its 10th year of operation, July 1, 1976 through June 30, 1977. 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 Feather River Hatchery trapped 5,911 chinook salmon, Oncorhynchus tshawytscha, and 163 steelhead, Salmo gairdneri, during the 1976-1977 season (Table 1). Approximately 12,628,223 salmon and 315,704 steelhead eggs were taken. A total of 41,900 summer-run steelhead eggs was imported from Nimbus Hatchery. We planted an estimated 3,595,460 chinook salmon and 618,800 steelhead.

MARKING PROGRAMS

Personnel from Anadromous Fisheries Branch marked 158,680 1975 broodyear (BY) chinook salmon with an adipose clip and tagged them with coded wire nose tags (CWT). A total of 69,540 1975 BY spring-run and 89,140 1975 fall-run fish was marked. The purpose of the marking program was to compare spring-run versus fall-run chinook salmon returns to the Feather River.

CHINOOK SALMON MAINTENANCE PROGRAM

1976 BY Spring Run

The fish ladder was opened on September 1, 1976 to allow the spring-run chinook adults to enter the hatchery. We received 713 spring-run fish (699 adults and 14 grilse) between September 2, 1976 and September 15, 1976. Adult fish were sexed on September 26, 1976. At that time we had 432 females and 281 males on hand. The hatchery crew was able to successfully spawn 354 females between September 26, 1976 and October 25, 1976. The spawning yielded 1,927,590 eggs, for an average of 5,445 eggs/female.

An estimated 1,699,625 fingerlings were transferred to the ponds, for an average fertility rate of 88%. These fish suffered a loss of over 1,071,000 primarily to Infectious Hematopoietic Necrosis (IHN). A total of 449,450 fish was planted as smolts in May and June. An estimated 178,730 fish remained on hand on June 30, 1977; these fish are to be planted as yearlings next season.

1976 BY Fall Run

The first fall-run chinook salmon entered the hatchery on September 27 and the last were received on December 26, 1976. The season total was 5,198 fish. Hatchery personnel spawned 2,140 females between October 4, 1976 and December 9, 1976 and took 10,700,633 eggs, for an average of 5,000 eggs/female. Fry

TABLE 1. Feather River Hatchery Production Summary, 1976-77

Species/ brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish planted		Estimated on hand 6/30/77
				Fingerlings	Yearlings	
<u>Chinook salmon</u>						
Spring run						0
1975 BY	0				129,550 ^{c/}	178,730
1976 BY	713	354	1,927,590	449,450		
<u>Chinook salmon</u>						
Fall run						
1975 BY	0				809,140 ^{b/}	0
1976 BY	5,198 ^{a/}	2,140	10,700,633	2,207,350		897,725
<u>Steelhead</u>						
1976 BY	0			419,760	176,840	0
1976 BY-N ^{d/}	0				22,200	0
1977 BY						
1977 BY-N ^{d/}	163	83	315,704			250,070
	0		41,900			38,440

- ^{a/} In addition, 51 females spawned in the spawning channel.
^{b/} Nose tagged 89,140.
^{c/} Nose tagged 69,540.
^{d/} Summer-run steelhead eggs received from Nimbus Hatchery.

production totaled 8,775,970 (82%), with an estimated 5,670,895 loss to IHN between May 18 and June 24, 1977. The hatchery crew planted 2,207,350 fall-run fry from the 1976 BY. An estimated 897,725 1976 BY fall run remained on hand as of June 30, 1977. An additional 51 fall-run females spawned in the spawning channel. The estimated yield of this additional 175,000 1976 BY fall-run chinook salmon fingerlings is included in fingerling production.

RECOVERY OF MARKED CHINOOK SALMON

All chinook salmon entering the hatchery were examined for marks. We observed a total of 47 marked fish (Appendix Table 1).

CHINOOK SALMON PLANTING

We planted an estimated 2,656,800 fingerlings and 938,690 yearling chinook salmon this season (Table 2).

STEELHEAD MAINTENANCE PROGRAM HISTORY OF THE 1976-77 PRODUCTION

1977 BY

Steelhead were not counted or held until December 21, 1976. From December 21, 1976 through March 22, 1977, four marked fish were counted and measured as they entered the hatchery.

The total run was 163 fish: 79 males and 84 females. We successfully spawned 83 females (Table 3) and took 315,704 eggs. An estimated 255,828 fry were transferred to the ponds, for a survival rate of 81%. No fish were planted this season. Losses amounted to 5,758 fry, leaving 250,070 fish on hand June 30, 1977.

TABLE 3. Steelhead Spawning Data

Fish spawned			Fish spawned		
Date	M	F	Date	M	F
1977			1977		
1/5	3	3	2/14	9	7
1/10	*	6	2/22	2	15
1/17	*	4	3/1	15	12
1/25	*	4	3/7	7	7
1/31	4	4	3/15	12	5
2/7	5	13	3/22	14	3

* Males spawned not returned to river.

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1976-77

Brood year	Race	Month of release	Average size(g)	Number released	Mark	Release site
1975	Spring run	Dec. 1976	63	69,540	Ad+CWT	Feather River at Gridley
1975	Spring run	Dec. 1976	63	<u>60,010</u>		Feather River at Gridley
		Total		129,550		
1975	Fall run	Oct. 1976	33	20,250		Tiburon
1975	Fall run	Oct. 1976	49	280,330		Feather River at Yuba City
1975	Fall run	Nov. 1976	49	411,320		Feather River at Yuba City
1975	Fall run	Dec. 1976	74	89,140	Ad+CWT	Feather River at Yuba City
1975	Fall run	Dec. 1976	74	<u>8,100</u>		Feather River at Yuba City
		Total		809,140		
1976	Spring run	Jan. 1977	44	93,500		Feather River at Oroville
1976	Spring run	May 1977	6-8	<u>355,950</u>		Rio Vista
		Total		449,450		
1976	Fall run	May 1977	8	61,600	Red dye	Steamboat Slough
1976	Fall run	May 1977	7	67,000	Yellow dye	Mokelumne River
1976	Fall run	May 1977	6-8	853,750		Rio Vista
1976	Fall run	June 1977	6-8	185,100	Red dye	Steamboat Slough
1976	Fall run	June 1977	6-8	195,100	Yellow dye	Wimpys Resort at Mokelumne River
1976	Fall run	June 1977	6-8	227,350	Green dye	Giusti's at Mokelumne River
1976	Fall run	June 1977	6-8	442,450		Rio Vista
1976	Fall run	June 1977	4-5	<u>175,000</u>		Spawning channel at Feather River
		Total		2,207,350		

1977 BY Nimbus

In an attempt to establish a summer run of steelhead in the Feather River, 41,900 summer-run eggs were brought from Nimbus Hatchery on the American River. We had approximately 38,440 on hand June 29, 1977; these will be planted as yearlings next year.

STEELHEAD PLANTING

We planted an estimated 618,800 steelhead during the 1976-77 season (Table 4).

TABLE 4. Steelhead Planting Summary, 1976-77

Date	Race and BY	Average size(g)	Number released	Release site
Jul. 1976	SH-FR-76	2.5	419,760	Feather River - Oroville
Jan. 1977	SH-FR-76	75	37,520	Feather River - Yuba City
Feb. 1977	SH-FR-76	74	113,770	Feather River - Yuba City
Mar. 1977	SH-FR-76	149	25,550	Feather River - Yuba City
Mar. 1977	SH-N-76 ^{a/}	74	22,200	Feather River - Yuba City

^{a/} Eggs received from Nimbus Hatchery.

VISITOR USE

During 1976-77, 65,857 people visited the installation.

APPENDIX TABLE 1. Marked Chinook Salmon Recovered at Feather River Hatchery, 1976-77
Release data

Mark	Number recovered	Area	Size(g)	Date	Number released	Origin
LV-LP	10	Feather River	37	Jan. 1974	100,000	Feather River Hatchery
Ad+CWT	37	San Joaquin River	5	May-Jun. 1974	311,692	Feather River Hatchery
LV*	8	Feather River	37	Jan. 1974	100,000	Feather River Hatchery
LP*	2	Feather River	37	Jan. 1974	100,000	Feather River Hatchery
Ad+CWT	37	San Joaquin River	5	May 1974	311,692	Feather River Hatchery

* Mark has to be regenerated LV-LP mark. LV or RV alone not planted in California according to Pacific Marine Fisheries mark list (1977).

APPENDIX TABLE 2. Fork Lengths (to Nearest Inch) of Marked Chinook Salmon Trapped at Feather River Hatchery, 1976-77

FL (inches)	Ad		LP		LV	
	M	F	M	F	M	F
21	1					
22	1			1		
23	1					
24	1				3	
25					1	
26	1	3			3	
27	2	2			1	
28	1	5				
29		4				
30		5				
31		4				
32	1	1				
33		1				
34						
35	1					
36	1					
37						
38		1		1		
TOTALS	11	26		2	8	

APPENDIX TABLE 3. Feather River Salmon and Steelhead Hatchery
Weather, Water, and Fish Data Report, 1976-77

July 1976	Temperature (C°)					Fish trapped				
	Air		Water		Weather	Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1	30.5	11.0	14.4	13.3	Clear					
2	30.5	12.5	14.4	13.9	Clear					
3	32.0	12.5	14.4	13.9	Clear					
4	35.5	15.0	13.9	13.3	Clear					
5	36.0	15.0	13.9	13.3	Clear					
6	36.0	15.0	14.4	13.9	Clear					
7	35.0	14.5	15.0	14.4	Clear					
8	36.0	14.0	15.0	13.9	Clear					
9	35.5	15.5	15.0	14.4	Clear					
10	34.0	15.0	15.0	15.0	Clear					
11	35.0	17.5	15.6	15.0	Clear					
12	37.0	16.5	15.6	15.0	Clear					
13	35.0	14.5	16.1	15.6	Clear					
14	37.0	18.0	16.1	15.6	Clear					
15	37.0	19.0	16.1	15.6	Clear					
16	32.0	14.0	16.1	15.6	Clear					
17	32.0	16.5	16.1	15.0	Rain					
18	32.0	15.0	15.6	15.0	Clear					
19	34.0	14.0	16.1	15.6	Clear					
20	34.0	15.5	16.1	15.6	Clear					
21	34.0	15.0	16.1	16.1	Clear					
22	36.0	22.0	16.1	13.3	Clear					
23	36.0	17.0	14.4	12.8	Clear					
24	47.5	20.0	13.9	13.3	Clear					
25	38.5	18.5	13.9	12.8	Clear					
26	40.0	16.5	14.4	11.1	Clear					
27	38.0	18.0	15.0	13.3	Cloudy					
28		15.0	15.0	12.8	Cloudy					
29	29.0	12.5	15.0	13.9						
30	36.0	17.0	15.0	13.9	Cloudy					
31	30.5	17.0	15.0	14.4	Cloudy					

Appendix Table 3 (Continued)

August 1976	Temperature (C°)				Fish trapped			
	Air		Water		Chinook salmon			
	Maximum	Minimum	Maximum	Minimum	Weather	Fall run		
						Adults	Grilse	Steelhead
1	25.0	15.5	15.0	13.9	Cloudy			
2	28.0	14.0	15.0	13.3	Clear			
3	29.0	14.0	15.0	14.4	Clear			
4			15.0	13.9	Clear			
5	27.0	14.0	15.0	14.4	Clear			
6	23.0	12.0	15.0	13.9	Clear			
7	39.0	14.0	15.0	13.9	Cloudy			
8	33.5	21.0	15.6	14.4	Cloudy			
9	34.0	16.0	15.6	14.4	Clear			
10	34.0	15.0	15.6	13.3	Clear			
11	33.0	13.5	12.8	11.1	Cloudy			
12	33.0	14.0	12.2	11.7	Clear			
13	25.0	12.0	12.2	11.7	Cloudy			
14			12.2	11.1	Cloudy			
15			12.2	10.6	Cloudy			
16			12.2	10.6	Rain			
17	24.0	14.0	13.3	11.1	Cloudy			
18	22.0	12.5	13.3	12.8	Cloudy			
19	29.0	14.0	12.8	12.8	Clear			
20	32.0	15.0	13.3	12.8	Clear			
21	30.0	16.0	13.3	12.8	Cloudy			
22	26.0	14.5	13.3	13.3	Rain			
23	30.0	15.0	13.9	12.2	Clear			
24	32.0	15.0	13.9	13.3	Clear			
25	36.0	13.0	13.9	13.3	Clear			
26	35.5	12.5	13.9	13.3	Clear			
27	36.0	17.5	14.4	13.9	Clear			
28	36.0	15.0	14.4	13.3	Clear			
29	38.0	22.0	13.9	12.8	Clear			
30	42.0	19.0	14.4	12.8	Clear			
31			14.4	13.9	Clear			

Appendix Table 3 (Continued)

September 1976	Temperature (C°)					Fish trapped				
	Air		Water		Weather	Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1			15.0	13.9	Clear					
2			13.9	13.3	Clear					
3	36.0	15.5	13.9	13.3	Clear					
4	35.0	16.0	14.4	13.3	Clear					
5	34.0	14.5	13.9	12.8	Clear					
6	30.0	13.0	13.0	12.2	Clear					
7	34.5	14.0	13.9	12.2	Clear					
8	37.0	21.0	13.9	12.8	Clear					
9			13.9	13.9	Clear					
20	32.0	12.0	14.4	13.9	Cloudy					
11	31.0	13.0	15.0	14.4	Rain					
12	30.0	11.0	15.0	14.4	Clear					
13	31.5	15.0	15.0	14.4	Clear					
14	30.5	13.5	14.4	13.9	Rain					
15	22.0	12.0	14.4	11.7	Clear					
16	22.0	14.0	13.9	11.1	Clear					
17	27.0	16.0	11.7	11.1	Clear					
18	20.0	16.0	11.1	10.6	Clear					
19	25.0	11.0	11.7	10.6	Clear					
20	30.0	10.5	12.2	10.6	Cloudy					
21	24.0	14.0	11.7	10.6	Cloudy					
22	31.0	16.5	12.2	11.1	Clear					
23	31.0	18.0	12.2	11.7	Clear					
24	33.0	11.0	13.3	12.2	Clear					
25	22.0	11.0	13.9	13.3	Clear					
26	20.0	14.5	13.9	13.3	Clear			699	14	
27	24.0	16.0	14.4	12.8	Cloudy	78	11			
28	30.0	10.0	13.9	13.3	Cloudy					
29			13.9	13.3	Cloudy					
30	27.0	13.0	13.3	10.6	Clear					
TOTALS						78	11	699	14	

Appendix Table 3 (Continued)

October 1976	Temperature (C°)				Weather	Fish trapped				
	Air		Water			Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1	20.0	14.0	12.2	11.7	Clear					
2	17.0	9.0	12.2	12.2	Cloudy					
3	20.0	10.0	12.2	12.2	Clear					
4	29.0	10.0	12.8	12.2	Clear	85	20			
5			12.2	11.7	Clear					
6	33.5	17.5	12.2	11.7	Clear					
7	34.0	12.5	11.7	11.1	Clear	64	21			
8	34.0	13.5	12.2	11.7	Clear					
9	33.0	13.5	12.8	11.7	Clear					
10	31.0	10.5	12.8	12.2	Clear					
11	31.0	10.5	12.8	12.2	Clear					
12	34.0	12.0	12.8	12.2	Clear	247	57			
13	33.0	11.5	12.8	11.7	Clear					
14	32.0	10.0	13.3	11.7	Clear					
15	29.0	13.0	13.3	11.7		263	63			
16	28.0	10.0	13.3	11.7	Clear					
17	29.5	10.0	12.8	11.7	Clear					
18	28.0	9.0	12.8	10.6	Clear	252	71			
19	27.0	9.0	11.7	10.0	Clear					
20	33.0	11.0	11.1	10.0	Clear					
21	28.0	13.0	11.7	10.0	Rain	142	22			
22	26.0	9.0	11.7	11.7	Clear	49	8			
23	24.0	8.0	12.2	11.7	Clear					
24	21.5	10.0	12.2	11.7	Clear	565	145			
25	22.0	8.0	12.2	11.1	Clear					
26	25.5	10.0	12.2	11.7	Clear					
27	26.5		12.2	11.7	Clear					
28	23.0	10.5	12.2	11.7	Clear	401	97			
29	20.0	6.0	12.2	11.7	Clear					
30	23.0	11.0	11.7	11.7	Clear					
31	23.0	7.5	11.7	11.1	Clear					
TOTALS						2068	504			
CUMULATIVE TOTALS						2146	515	699	14	

Appendix Table 3 (Continued)

November 1976	Temperature (C°)					Fish trapped				
	Air		Water		Weather	Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1	25.0	8.0	11.7	10.6	Clear	292	62			
2	26.0	6.0	11.1	10.6	Clear					
3	29.7	7.0	11.1	10.0	Clear					
4	28.0	7.0	10.6	10.6	Clear	141	38			
5	28.0	7.0	11.1	10.6	Clear					
6	27.0	9.0	11.1	10.6	Clear					
7	27.0	7.0	11.1	10.6	Clear					
8	24.0	10.5	11.1	10.0	Cloudy	209	50			
9	25.0	12.0	11.1	10.0	Cloudy					
10			11.1	10.6	Cloudy					
11			11.1	11.1	Cloudy					
12			11.1	11.1	Cloudy	195	36			
13			11.1	11.1	Rain					
14			11.7	11.1	Clear					
15			11.7	11.7	Clear	235	65			
16			11.7	11.1	Clear					
17			11.1	10.6	Foggy					
18			11.1	10.6	Clear	290	39			
19			10.6	10.6	Clear					
20			10.6	10.6	Clear					
21			11.1	10.6	Clear					
22			10.6	10.6		314	34			
23			10.6	10.6	Clear					
24			11.1	10.6	Clear	42	14			
25			11.1	10.6	Clear					
26			10.6	10.6	Clear					
27			10.6	10.6						
28			10.6	10.0						
29			10.0	9.4	Clear	121	19			
30			10.6	10.0	Clear					
TOTALS						1839	357			
CUMULATIVE TOTALS						3985	872	699	14	

Appendix Table 3 (Continued)

December 1976	Temperature (C°)				Fish trapped			
	Air		Water		Chinook salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum	Fall run Adults	Grilse	Spring run Adults	Grilse
1			10.6	10.0	84	14		
2			10.6	10.0				
3			10.6	10.0				
4			10.0	10.0				
5			10.0	10.0				
6			10.0	10.0	105	7		
7			10.0	10.0				
8		2.0	10.0	10.0				
9	17.0	1.0	10.0	10.0		6		
10	15.0	2.0	10.0	9.4	50			
11	19.0	3.0	10.0	9.4				
12	15.0	6.5	10.0	10.0				
13	17.0	4.0	10.0	9.4				
14	19.0	2.0	10.0	9.4	46	3		
15	16.0	2.0	9.4	8.9				
16			9.4	8.9				
17	17.0	1.0	8.9	8.9				
18	17.0	1.0	8.9	8.9				
19	17.0	1.0	9.4	8.9				
20	16.0	2.0	8.9	8.9				
21	14.0	4.0	8.9	8.9	26			
22	14.0	5.0	8.9	8.9				
23	13.0	1.0	8.9	8.9				
24	10.5	6.0	8.9	8.9				
25	9.0	2.0	8.9	8.9				
26	13.5		8.9	8.9				
27			8.9	8.9				
28			8.9	8.3				
29			8.3	8.3				
30			8.3	8.3				
31			8.3	8.3				
TOTALS					311	30		
CUMULATIVE TOTALS					4298	902	699	14

January 1977	Temperature (C°)					Fish trapped				
	Air		Water		Weather	Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1			8.3	8.3	Rain					
2			8.3	8.3	Rain					
3			8.3	8.3	Clear					
4			8.3	8.3	Clear					
5	7.0	0.0	8.3	7.8	Clear					40
6	15.5	- 0.1	7.8	7.8	Clear					
7	12.0	8.5	7.8	7.8	Clear					
8	12.5	0.0	7.8	7.8	Clear					
9	10.0	3.0	7.8	7.2	Clear					
10	12.0	0.0	7.2	7.2	Clear					
11	12.0	0.0	7.8	7.2	Fog					9
12	3.0	3.0	7.8	7.8	Fog					
13	10.0	3.0	7.8	7.8	Fog					
14	8.0	0.0	7.8	7.8	Fog					
15	10.0	0.0	7.8	7.8	Fog					
16	4.0	1.0	7.8	7.2	Fog					
17	2.5	0.5	7.8	7.8	Fog					
18	3.0	0.0	7.8	7.8	Fog					3
19	2.0	0.0	7.8	7.8	Fog					
20			7.8	7.8	Fog					
21			7.8	7.8	Fog					
22			7.8	7.8	Clear					
23			7.8	7.8	Clear					
24			7.8	7.8	Clear					
25			7.8	7.8	Clear					
26	12.0	10.5	7.8	7.8	Fog					9
27	14.5	1.5	7.8	7.8	Fog					
28	16.0	4.0	7.8	7.8	Fog					
29	14.0	3.0	7.8	7.8	Fog					
30	17.0	5.0	7.8	7.8	Fog					
31	18.0	9.5	7.8	7.8	Fog					20
TOTAL										
CUMULATIVE TOTALS						4296	902	699	14	81

Appendix Table 3 (Continued)

February 1977	Temperature (C°)					Fish trapped				
	Air		Water		Weather	Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1	11.0	5.0	7.8	7.8	Fog					
2			7.8	7.8	Fog					
3			7.8	7.8	Fog					
4	23.5	8.0	7.8	7.8	Cloudy					
5	20.0	6.0	7.8	7.8	Fog					
6	21.0	5.5	7.8	7.8	Clear					
7	27.0	11.0	7.8	7.8	Cloudy					
8	24.0	11.0	7.8	7.8	Clear					25
9	24.0	8.0	7.8	7.8	Clear					
10	26.0	8.0	7.8	7.8	Clear					
11			7.8	7.8	Clear					
12			8.3	7.8	Clear					
13			8.3	8.3	Clear					
14			8.9	8.3	Clear					
15			8.9	8.9	Clear					23
16			8.9	8.9	Clear					
17			8.9	8.9	Clear					
18			8.9	8.3	Clear					
19			8.9	8.9	Rain					
20			8.9	8.9	Rain					
21	15.0	3.0	8.9	8.9	Clear					
22	15.0	1.0	8.9	8.3	Rain					9
23	14.0	1.5	8.3	8.3	Rain					
24	18.5	2.5	8.3	7.8	Clear					
25	19.5	6.0	8.3	7.8	Clear					
26			8.3	7.8	Clear					
27			8.9	8.3	Clear					
28			8.9	8.3	Clear					
TOTAL										57
CUMULATIVE TOTALS						4296	902	699	14	138

Appendix Table 3 (Continued)

March 1977	Temperature (C°)					Fish trapped				
	Air		Water		Weather	Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1	15.0	2.5	8.9	8.3	Clear					15
2	20.0	6.0	8.3	8.3	Clear					
3	27.0	1.0	8.3	8.3	Clear					
4	22.0	6.0	8.3	8.3	Clear					
5	13.0	7.0	8.3	8.3	Clear					
6	12.0	4.0	8.9	8.3						3
7	18.0	14.5	9.4	8.9						
8			8.9	8.3	Clear					
9			8.9	8.3	Clear					
10			8.3	8.3	Clear					
11			8.3	8.3	Clear					
12			8.9	8.3	Rain					
13			9.4	8.9	Rain					
14	24.5	13.0	9.4	8.9	Clear					
15	24.5	11.0	9.4	8.9	Rain					6
16	15.0	8.0	8.9	8.3	Rain					
17	20.0	2.0	8.9	8.3						
18			8.9	8.3	Clear					
19			9.4	8.3	Clear					
20			10.6	9.4	Clear					
21	15.0	3.0	10.6	10.6	Clear					
22	15.0	2.0	11.1	10.6	Clear					1
23	16.0	6.0	11.1	10.6	Clear					
24	18.0	7.0	11.1	9.4	Rain					
25	20.0	5.5	9.4	8.9	Clear					
26			9.4	8.9	Clear					
27			10.0	8.9	Clear					
28	26.0	5.5	10.0	8.9	Clear					
29	27.0	9.0	10.0	9.4	Clear					
30	29.0	10.0	10.0	9.4	Clear					
31	26.0	9.0	10.0	9.4	Clear					
TOTAL										25
CUMULATIVE TOTALS						4296	902	699	14	163

Appendix Table 3 (Continued)

April 1977	Temperature (C°)				Fish trapped			
	Air		Water		Chinook salmon			
	Maximum	Minimum	Maximum	Minimum	Weather	Fall run		Spring run
						Adults	Grilse	
1	15.5	7.0	10.0	9.4	Clear			
2	16.5	5.0	10.6	10.0	Clear			
3	24.0	7.0	10.6	10.0	Clear			
4	26.0	10.0	11.1	9.3	Clear			
5	28.5	9.0	11.1	10.0	Clear			
6	25.0	7.0	11.1	10.0	Clear			
7	21.0	9.0	11.1	10.6	Clear			
8	30.0	10.0	10.6	10.6	Clear			
9			11.1	10.6	Clear			
10			11.7	10.6	Clear			
11			11.7	10.6	Clear			
12			11.7	10.6	Clear			
13			11.7	10.6	Clear			
14			11.1	10.6	Clear			
15			11.7	10.6	Clear			
16			11.7	11.1	Clear			
17			12.2	11.1	Clear			
18			12.2	11.7	Clear			
19			12.8	12.2	Clear			
20			12.8	12.8	Clear			
21			12.8	11.7	Clear			
22			11.7	11.1	Clear			
23			11.7	11.7	Clear			
24			12.8	11.7	Clear			
25	21.0		12.8	11.7	Rain			
26	26.0		11.7	11.1	Clear			
27	26.0		12.2	11.7	Clear			
28	24.0		12.2	11.7	Clear			
29	19.0		11.7	11.7	Cloudy			
30	21.5		12.2	11.7	Rain			

Appendix Table 3 (Continued)

May 1977	Temperature (C°)				Weather	Fish trapped				
	Air		Water			Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1			12.2	11.7	Rain					
2			12.8	11.7	Clear					
3			12.8	12.2	Clear					
4			12.2	10.6	Clear					
5			12.2	11.1	Rain					
6			12.8	11.7	Overcast					
7			12.8	12.2						
8			12.8	12.2						
9	16.0		12.8	12.2	Rain					
10	15.0		12.8	12.2	Rain					
11	20.0		12.8	12.2	Overcast					
12	23.0		12.8	12.2	Overcast					
13	22.0		12.8	12.2	Clear					
14	21.0		13.3	12.2	Clear					
15	20.0		13.3	12.2	Clear					
16	22.0		14.4	12.8	Clear					
17	24.0		13.9	12.2	Clear					
18	15.5		13.9	13.3	Cloudy					
19	27.0		13.9	13.3	Clear					
20	29.5		13.9	13.3	Clear					
21	27.0		14.4	13.3	Clear					
22			13.9	13.3	Cloudy					
23			14.4	13.3	Cloudy					
24			14.4	13.3	Clear					
25	32.5	10.5	14.4	13.3	Cloudy					
26	30.0	13.0	13.0	12.8	Clear					
27	24.0	8.5	13.9	12.8	Clear					
28	26.0	9.0	13.9	13.3	Clear					
29	24.0	14.0	13.9	13.9	Clear					
30	32.0	17.0	13.9	13.9						
31	35.5	13.0	14.4	12.8	Clear					

Appendix Table 3 (Continued)

June 1977	Temperature (C°)				Weather	Fish trapped				
	Air		Water			Chinook salmon				Steelhead
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		
						Adults	Grilse	Adults	Grilse	
1			14.4	13.9	Clear					
2			15.0	13.9	Clear					
3			15.0	14.4	Clear					
4			15.6	14.4	Clear					
5			15.6	15.0	Clear					
6			15.6	14.4	Clear					
7			15.6	13.9	Cloudy					
8	33.0	16.0	14.4	12.8	Clear					
9	19.5	12.0	13.3	12.8	Clear					
10	19.5	12.0	13.3	12.8	Cloudy					
11	16.0	13.0	13.3	12.8	Cloudy					
12	27.0	12.5	13.3	12.8	Cloudy					
13	28.0	11.0	13.3	12.2	Cloudy					
14	30.0	12.0	13.3	13.3	Clear					
15	36.0	21.0	13.9	13.3	Clear					
16	32.0	22.0	13.9	13.3	Clear					
17	34.0	15.0	14.4	13.9	Clear					
18	31.0	15.0	14.4	13.3	Clear					
19	29.0	13.0	13.9	13.3	Cloudy					
20	17.5	11.0	14.4	13.3	Clear					
21	32.0	13.0	15.0	13.9	Clear					
22	34.0	15.0	15.6	14.4	Clear					
23	30.0	14.5	15.0	14.4	Clear					
24	35.0	13.0	15.6	15.0	Clear					
25	30.0	13.5	15.6	15.6	Clear					
26	36.0	16.0	16.1	15.0	Clear					
27	37.0	15.5	16.1	14.4	Clear					
28	32.0	13.0	16.1	15.6	Clear					
29			16.1	15.6	Clear					
30			16.7	16.1	Clear					