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ANNUAL REPORT
FEATHER RIVER HATCHERY 1982-83

by

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Region 2, Inland Fisheries

Anadromous Fisheries Branch
Administrative Report No. 83-14

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ABSTRACT

This report summarizes the operation of Feather River Hatchery from 1 July 1982 through 30 June 1983. Tables present temperatures 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 9,688 chinook salmon and 1,238 steelhead and planted or transferred 7,402,433 chinook fingerlings, 1,830,527 chinook yearlings, 535,966 steelhead eggs, and 180,076 steelhead yearlings.

INTRODUCTION

This report describes activities of the Feather River Hatchery during its 16th year of operation, 1 July 1982 through 30 June 1983. 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 9,688 chinook salmon *Oncorhynchus tshawytscha*, and 1,238 steelhead, *Salmo gairdneri*, during the 1982-83 season (Table 1). Approximately 20,018,387 salmon eggs and 1,583,313 steelhead eggs were taken and received. We planted 9,232,960 salmon and 180,076 steelhead.

MARKING PROGRAMS

Personnel from Anadromous Fisheries Branch marked about 226,000 1981 brood year (BY) chinook salmon with an adipose clip (AD) and coded wire nose tag (CWT). The fish were divided into five groups. The first group of about 28,000 was planted at Rio Vista in July. The second group of almost 49,000 was planted at Tiburon in August. The third group of 76,000 was planted at the Maritime Academy in August. In November a group of 47,000 was planted at Tiburon and the final group of 25,000 was planted at the hatchery. Delta Study personnel marked 13 groups of 1982 BY fall run chinook and one group of 1982 BY spring run chinook (AD and CWT). A total of about 900,000 1982 BY chinook salmon was marked. Between March 1982 and May 1982 a total of about 200,000 went into the Sacramento River at Isleton, 200,000 in the Sacramento River at Courtland, 200,000 in Old River, another 200,000 in the Mokelumne River, 50,000 at Port Chicago, and finally 50,000 at the Maritime Academy in Vallejo. One group of 50,000 AD and CWT 1982 BY "early" steelhead was planted in the Feather River at Boyds Pump in March 1983.

CHINOOK SALMON MAINTENANCE PROGRAM

HISTORY OF THE 1982-83 RUNS

1982 BY Spring Run

The fish ladder was opened 1 September 1982 to allow the spring run chinook salmon adults to enter the hatchery. We received 1910 spring run fish between 1 September 1982 and 30 September 1982. The spring run adults were sexed on 1 October 1982. At the time we had 770 males, 930 females, and 210 grilse. We successfully spawned 426 females from 1 October 1982 through 26 October 1982. The spawning yielded 2,217,478 eggs, for an average of 5,205 eggs per female.

An estimated 1,625,020 fingerlings were transferred to the ponds for an average

fertility rate of 73%. A total of 826,450 fingerlings was planted, leaving an estimated 367,100 on hand 30 June 1983 for planting as yearlings the following year.

1982 BY Fall Run

The first fall run chinook salmon entered the hatchery on 1 October 1982 (Appendix Table 2). The season total was 7,778 fish. We spawned 3,693 females between 1 October 1982 and 20 December 1982 and took 17,800,909 eggs, for an average of 4,820 eggs per female. Fry production totaled 13,850,685, with an estimated 3,950,224 lost, mainly to bird predation. Between 12 January 1983 and 30 June 1983, we planted 6,575,983 fall run 1982 BY smolts. Another 2,599,108 were transferred to Nimbus Hatchery as eyed eggs. An estimated 4,859,258 remained on hand as of 30 June 1983.

RECOVERY OF MARKED CHINOOK SALMON

All chinook salmon entering the hatchery were examined for marks. We received a total of 865 marked fish (Appendix Table 1).

CHINOOK SALMON PLANTING

We planted an estimated 7,402,433 fingerlings and 1,830,527 yearling chinook salmon this season (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

HISTORY OF THE 1982-83 PRODUCTION

1983 BY

Steelhead were not counted or held until 15 November 1982. From 15 November 1982 through 14 March 1983, 312 coded wire tagged steelhead were received (See Region 2 Memo Report 21 July 1983).

The total run was 1238 fish: 720 males and 518 females. We successfully spawned 480 females (Table 3). A total of 1,583,313 eggs was taken and an estimated 1,424,431 steelhead fry were transferred to the ponds or another facility for an overall survival rate of 89.96%. Losses amounted to about 72,962 fish, mainly from bird predation. We had on hand 30 June 1983, a total of 815,503 steelhead.

Steelhead Planting

We planted an estimated 180,076 steelhead during the 1982-83 season (Tables 1 and 4).

VISITOR USE

During the 1982-83 fiscal year 21,841 people visited the installation.

TABLE 1. Feather River Hatchery Production Summary, 1982-83

Species brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish planted		Estimate on hand
				fingerlings	yearlings	
Chinook salmon spring run						
1981 BY	0	0	0		260,988	0
1982 BY	1,910	426	2,217,478	826,450		367,100
Chinook salmon fall run						
1981 BY					1,569,539	0
1982 BY	7,778	3,693	17,800,909	6,575,983		4,859,258
Steelhead early						
1982 BY	0	0	0	0	180,076	0
Steelhead						
1983 BY	1,238	480	1,583,313	535,966 ^{a/}		815,503

^{a/} Transferred as eyed eggs to Coleman Hatchery.

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1982-83

Brood year	Race	Month of release	Average size (G)	Number released	Mark	Release site
1981	Spring run	November	76	260,988		Feather River at hatchery
		Total		260,988		
1982	Spring run	January	.33	106,600		Yuba River
		January	.33	106,600		Butte Creek
		January	.33	205,000		Antelope Creek
		February	1.9	110,200		Chico Creek
		May	9	46,550	AD & CWT	Vallejo
		June	11.4	251,500		Vallejo
		Total		826,450		
1981	Fall run	July	7.9	173,600		Vallejo
		July	10.9	27,675	AD & CWT	Rio Vista
		August	17.9	48,750	AD & CWT	Tiburon
		August	15.4	256,425		Vallejo
		August	21	76,400	AD & CWT	Vallejo
		September	34	24,700		Benecia
		September	56	9,600		Vallejo
		September	46	119,884		Feather River at hatchery
		October	64	824,895		Feather River at hatchery
		November	56	47,100	AD & CWT	Tiburon
		November	64	25,160	AD & CWT	Feather River at hatchery
		November	64	518,200		Feather River at hatchery
		Total		2,152,389		
1982	Fall run	January	.34	100,485		Honcut Creek
		January	.34	185,900		Stoney Creek
		February	.34	2,558,400		Feather River
		February	2.3	997,400		Mokelumne Hatchery
		March	.9	49,500	AD & CWT	Sacramento River at Isleton
		March	1	51,504	AD & CWT	Sacramento River at Courtland
		March	1	50,160	AD & CWT	Mokelumne River at B & W Resort
		March	1.15	50,688	AD & CWT	Old River
		March	2.4	559,500		Mokelumne Hatchery
		March	1.25	51,830	AD & CWT	Old River

TABLE 2 (Continued)

Brood year	Race	Month of release	Average size (G)	Number released	Mark	Release site
1982	Fall run	Merch	1.25	50,370	AD & CWT	Mokelumne River
		March	1.27	50,256	AD & CWT	Sacramento River at Isleton
		April	1.4	51,030	AD & CWT	Sacramento River at Courtland
		May	5.1	102,660	AD & CWT	Sacramento River at Courtland
		May	5.6	100,000	AD & CWT	Old River
		May	5.4	90,200	AD & CWT	Mokelumne River
		May	5.8	100,100	AD & CWT	Sacramento River at Isleton
		May	6	49,950	AD & CWT	Port Chicago
		June	7.5	743,200		Vallejo
		Total		5,993,133		

TABLE 3. Steelhead Spawning Data

Date 1982-83	Fish spawned		Date 1982-83	Fish spawned	
	<u>M</u>	<u>F</u>		<u>M</u>	<u>F</u>
12-20-82	12	13	2-14-83	35	33
12-27-82	36	29	2-22-83	46	39
1-3-83	53	28	2-25-83	1	3
1-10-83	53	42	2-28-83	10	8
1-17-83	44	51	3-7-83	42	16
1-24-83	57	55	3-14-83	10	10
1-31-83	101	73	3-21-83	10	6
2-7-83	61	74			

TABLE 4. Steelhead Planting Summary 1982-83

Date	Strain	Average size (G)	Number released	Mark	Release site
1982 November	Early Feather	75	21,055		Feather River at Yuba City
1983 March	Early Feather	186.6	50,090	AD & CWT	Feather River at Boyds Pump
March	Early Feather	186.6	108,931		Feather River at Boyds Pump
		Total	180,076		

APPENDIX TABLE 1. Fork Lengths (to Nearest Centimeter) of Marked Chinook Salmon Trapped at Feather River Hatchery, 1982-83

FL (centimeters)	AD		FL (centimeters)	AD	
	M	F		M	F
55	26	1	80	11	31
56	5	1	81	13	25
57	11	2	82	12	33
58	5	2	83	8	12
59	8	2	84	16	13
60	13	5	85	8	8
61	10	3	86	12	8
62	10	6	87	13	12
63	13	2	88	20	3
64	8	4	89	18	4
65	9	8	90	20	5
66	13	10	91	21	
67	8	5	92	8	2
68	5	7	93	10	1
69	7	11	94	13	1
70	7	9	95	7	1
71	5	11	96	1	
72	3	19	97	3	
73	4	17	98	7	
74	1	12	99	2	
75	9	15	100	2	
76	3	19	101	1	
77	7	26	102		
78	9	29	103	1	
79	11	43			

Grand Total 437 428

APPENDIX TABLE 2. Feather River Salmon and Steelhead
Hatchery Weather, Water, and Fish Data Report, 1982-83

July 1982	Temperature (C°)					Fish trapped			
	Air		Water		Weather	Chinook salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run	M	F
						Adults	Grilse		
1	24.0	14.0	15.0	13.9	Cloudy				
2	26.0	14.8	15.0	14.4	Cloudy				
3	23.3	13.0	15.0	14.4	Cloudy				
4	28.0	14.0	15.0	14.4	Clear				
5	30.5	13.0	15.6	15.0	Clear				
6	31.0	15.0	15.6	15.0	Clear				
7	29.0	12.0	15.6	15.0	Cloudy				
8	31.0	12.0	15.6	14.4	Clear				
9	34.0	15.5	15.6	15.0	Clear				
10	34.0	16.0	15.6	15.0	Clear				
11	35.5	18.0	16.1	15.6	Clear				
12	33.0	19.0	16.1	15.6	Cloudy				
13	36.5	19.0	16.1	15.6	Clear				
14	36.0	15.0	15.6	14.4	Clear				
15	34.5	18.0	14.4	13.9	Clear				
16	28.0	9.0	14.4	14.4	Clear				
17	31.0	12.5	14.4	13.9	Clear				
18	36.0	14.0	14.4	13.9	Clear				
19	35.0	15.0	15.0	13.9	Clear				
20	35.0	16.0	15.0	14.4	Clear				
21	36.0	15.0	15.0	15.0	Clear				
22	36.5	20.0	15.6	15.0	Clear				
23	36.0	17.0	15.6	15.0	Clear				
24	35.0	16.0	15.6	15.0	Clear				
25	34.0	15.0	15.6	15.0	Clear				
26	36.0	14.5	16.1	15.6	Clear				
27	37.0	16.0	16.1	15.6	Clear				
28	39.0	16.5	16.1	15.6	Clear				
29	39.0	17.0	16.1	15.6	Clear				
30			16.1	15.6	Clear				
31			16.7	16.1	Clear				

August 1982	Temperature (C°)					Fish trapped				Steelhead M F	
	Air		Water		Weather	Chinook salmon					
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run			
						Adults	Grilse	Adults	Grilse		
1			16.7	16.1	Clear						
2			17.2	16.1	Clear						
3			16.7	15.6	Clear						
4	34.0	15.0	16.7	15.6	Clear						
5	37.0	18.0	17.2	16.1	Clear						
6	30.0	23.0	16.7	16.1	Clear						
7	39.0	20.0	16.1	15.6	Cloudy						
8	32.0	17.0	16.1	15.6	Clear						
9	32.0	13.0	16.1	15.6	Clear						
10	30.0	16.0	16.1	15.6	Clear						
11	34.0	17.0	16.7	16.1	Clear						
12	33.0	17.0	16.7	16.1	Clear						
13	29.0	13.0	17.2	15.6	Clear						
14	29.5	13.0	16.1	15.6	Clear						
15	34.5	15.5	16.1	15.6	Clear						
16	36.5	18.0	16.7	15.6	Clear						
17	35.5	17.0	15.6	15.0	Clear						
18			15.6	15.0	Clear						
19	27.5	15.0	15.6	15.0	Cloudy						
20	36.5	15.5	16.1	15.6	Clear						
21	40.0	18.0	16.7	15.6	Clear						
22	39.0	19.0	16.7	15.0	Clear						
23	37.0	18.0	16.1	16.1	Clear						
24	37.0	16.0	16.1	15.0	Clear						
25	31.0	13.0	15.6	14.4	Clear						
26	30.5	14.0	15.6	15.0	Clear						
27	26.0	12.5	15.6	14.4	Cloudy						
28	28.0	15.0	15.6	15.0	Cloudy						
29	29.0	17.0	15.6	15.6							
30	32.0	12.0	15.6	13.9	Clear						
31	33.0	14.0	13.9	13.3	Clear						

Appendix Table 2 (Continued)

September 1982	Temperature (C°)					Fish trapped					
	Air		Water		Weather	Chinook salmon		Steelhead			
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run			
						Adults	Grilse	Adults	Grilse	M	F
1	34.0	17.0	13.3	12.2	Clear						
2	33.0	17.0	13.3	12.8	Cloudy						
3	30.5	14.0	12.8	11.7	Cloudy						
4	32.5	12.0	12.2	11.7	Clear						
5	31.0	13.0	12.2	11.7	Clear						
6	35.0	18.0	12.2	12.2	Clear						
7	37.0	14.5	12.2	12.2	Clear						
8	37.0	18.0	12.8	12.2	Clear						
9	32.0	15.0	12.2	12.2	Clear						
10	30.5	14.0	13.3	12.2	Clear						
11	33.0	12.0	13.3	12.8	Clear						
12	31.0	13.0	13.3	12.8	Clear						
13			13.3	12.8	Clear						
14			12.8	11.7	Rain						
15	23.0	12.0	12.2	11.7	Cloudy						
16	24.0	12.0	12.8	11.7	Cloudy						
17	21.0	13.0	12.8	11.7	Cloudy						
18	17.0	13.5	12.2	11.7	Rain						
19	23.5	12.0	13.3	11.7	Pt. Cloudy						
20	25.5	10.0	13.3	12.2	Clear						
21	29.0	12.5	12.2	11.7	Clear						
22	33.0	9.0	11.7	11.7	Clear						
23	28.0	14.0	11.7	11.7	Cloudy						
24	25.0	17.0	11.7	11.7	Cloudy						
25	23.5	18.5	12.2	11.7	Rain						
26	24.0	11.5	12.2	11.7	Clear						
27	24.0	9.0	12.8	12.2	Clear						
28	24.0	9.5	12.8	12.2	Clear						
29	24.0	10.0	12.8	12.2	Clear						
30	24.0	10.0	13.3	12.8	Clear						

Appendix Table 2 (Continued)

October 1982	Temperature (C°)				Weather	Fish trapped				Steelhead M F	
	Air		Water			Chinook salmon					
	Maximum	Minimum	Maximum	Minimum		Fall run	Grilse	Spring run	Adults	Grilse	
											Adults
1	26.0	11.5	13.3	12.2	Clear	215		1700	210		
2	27.0	10.5	13.3	12.2	Clear						
3	26.5	11.5	13.3	12.8	Clear						
4	23.5	11.5	13.3	12.8	Clear	371					
5	26.5	9.5	13.3	12.8	Clear						
6	25.5		12.8	12.2	Rain	390	99				
7	31.0	14.0	12.8	11.7	Clear						
8	30.0	14.0	12.8	12.2	Clear	476	85				
9	29.0	10.5	12.8	10.6	Clear						
10	30.0	13.0	11.7	10.6	Clear						
11	29.0	11.0	11.7	11.1	Clear						
12			12.2	10.6	Clear	737	185				
13			12.2	11.7	Cloudy						
14	29.0	14.0	11.7	11.1	Clear	326	70				
15	29.5	15.0	11.7	11.1	Clear						
16	27.0	12.0	11.7	11.1	Clear						
17			11.7	11.1	Clear						
18			11.7	11.1	Clear	210	133				
19			11.1	11.1	Cloudy						
20	22.0	14.0	11.7	11.1	Cloudy						
21	19.0	14.0	11.7	11.1	Rain	678	99				
22	21.0	14.0	11.7	11.1	Rain						
23	25.0	14.0	11.7	11.1	Cloudy						
24	21.0	11.5	11.7	11.7	Rain						
25	17.5	14.0	11.7	11.7	Rain	962	197				
26	18.0	8.0	11.7	11.7	Clear	86	17				
27	18.5	6.0	12.2	11.7	Clear						
28	17.0	6.0	12.2	11.7	Cloudy	479	70				
29	13.0	10.5	12.2	11.7	Rain						
30	21.0	10.0	11.7	11.7	Pt. Cloudy						
31	21.0	7.0	11.7	11.7	Clear						
Total						4930	955	1700	210		

Appendix Table 2 (Continued)

November 1982	Temperature (C°)				Weather	Fish trapped				Steelhead	
	Air		Water			Chinook salmon				M	F
	Maximum	Minimum	Maximum	Minimum		Fall run	Spring run	Adults	Grilse		
1	19.0	8.0	11.7	11.1	Clear	154	52				
2	21.5	6.0	11.7	11.1	Clear						
3	24.0	7.0	11.7	11.7	Clear						
4	29.0	5.5	11.7	11.7	Clear	346	52				
5	21.0	6.0	11.7	11.7	Clear						
6	18.5	9.0	11.7	11.1	Clear						
7	19.5	8.5	11.1	11.1	Cloudy						
8	12.0	7.0	11.1	11.1	Cloudy	107	19				
9	11.0	4.0	11.1	11.1	Cloudy						
10	10.0	7.0	11.1	11.1	Rain						
11	13.0	3.0	11.1	11.1	Cloudy						
12	13.0	4.5	11.1	11.1	Cloudy						
13	18.0	1.5	11.1	11.1	Clear						
14	16.7	1.7	11.1	11.1	Fog						
15	4.4	1.1	11.1	11.1	Fog	393	74			45	34
16	9.4	2.8	11.1	11.1	Fog						
17	6.7	4.4	11.1	11.1	Rain						
18	11.1	4.4	11.1	10.0	Rain						
19	13.3	8.3	11.1	10.0	Clear						
20	16.1	5.6	11.1	11.1	Cloudy						
21	15.6	6.7	11.1	11.1	Cloudy						
22	15.6	3.9	11.1	11.1	Rain	324	47			112	79
23	10.6	7.2	11.1	11.1	Cloudy						
24	15.0	3.9	11.1	11.1	Cloudy						
25	16.7	2.2	11.1	11.1	Fog						
26	11.7	5.0	11.1	10.6	Fog						
27	11.1	6.1	11.1	11.1	Rain						
28	12.2	10.0	10.6	10.6	Rain						
29	13.3	10.0	10.6	10.0	Rain	183	34			127	71
30	12.2	7.8	10.6	9.4	Cloudy						
Total						1507	278			284	184
Cumulative total						6437	1233			284	184

December 1982	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	12.2	3.3	10.6	10.6	Cloudy						
2	13.3	3.3	10.6	10.6	Cloudy						
3	10.0	6.7	10.6	10.0	Cloudy						
4	12.8	3.3	10.0	10.0	Cloudy						
5	15.6	6.7	10.0	10.0	Cloudy						
6	11.1	9.4	10.0	10.0	Cloudy	81	10			79	48
7			10.0	10.0	Clear						
8			10.0	8.9	Clear						
9	18.9	1.7	10.0	8.9	Clear						
10	17.8	2.2	10.0	9.4	Clear						
11	18.9	2.2	9.4	8.9	Clear						
12	16.7	3.3	8.9	8.9	Cloudy						
13	16.1	2.8	8.9	8.9	Cloudy					51	34
14	12.8	1.7	8.9	8.9	Cloudy						
15	11.1	3.9	9.4	8.9	Rain						
16	15.0	14.4	9.4	9.4	Cloudy						
17	15.6	10.6	9.4	8.9	Rain						
18	15.6	3.9	9.4	8.9	Clear						
19	15.6	1.1	9.4	9.4	Clear						
20	14.4	2.8	9.4	9.4	Rain	17				41	21
21	12.2	7.8	9.4	8.9	Rain						
22	11.1	7.8	9.4	8.9	Rain						
23	13.3	4.4	9.4	9.4	Clear						
24	12.2	- 0.6	9.4	9.4	Clear						
25	14.4	1.1	9.4	9.4	Cloudy						
26	8.9	3.3	9.4	8.9	Rain						
27	10.0	2.2	8.9	8.9	Clear					146	114
28	12.8	- 1.1	8.9	8.9	Clear						
29	12.8	- 1.1	8.9	8.9	Clear						
30	15.6	6.1	8.9	8.9	Clear						
31	16.7	0.0	8.9	8.9	Fog						
Total						98	10			317	217
Cumulative total						6535	1243			601	401

Appendix Table 2 (Continued)

January 1983	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	12.8	- 3.3	8.3	8.3	Fog						
2	5.0	- 2.8	8.3	8.3	Fog						
3	6.7	- 1.1	8.3	8.3	Fog					38	26
4	6.1	2.8	8.3	8.3	Fog						
5	5.6	3.3	8.3	8.3	Fog						
6	6.1	3.3	8.3	8.3	Fog						
7	5.6	2.8	8.3	8.3	Fog						
8			8.3	8.3	Fog						
9			8.3	8.3	Clear						
10	17.8	0.0	8.3	7.8	Fog					7	5
11	7.2	- 0.6	8.3	7.8	Fog						
12	6.1	0.0	8.3	8.3	Fog						
13	5.0	- 0.6	8.3	7.8	Fog						
14	4.4	- 1.1	7.8	7.8	Fog						
15	4.4	- 1.7	7.8	7.8	Rain						
16	7.8	1.7	7.8	7.8	Fog						
17	7.8	1.1	7.8	7.8	Fog					10	7
18	10.0	6.7	7.8	7.8	Rain						
19	8.9	6.7	7.8	7.8	Clear						
20	12.2	1.1	7.8	7.8	Clear						
21	12.2	3.3	7.8	7.8	Cloudy						
22	12.8	5.6	7.8	7.8	Rain						
23	13.3	5.0	7.8	7.8	Rain						
24	16.6	8.3	7.8	7.2	Rain					24	26
25	16.6	7.2	7.8	7.2	Cloudy						
26	18.3	10.6	7.8	7.8	Rain						
27	22.8	9.4	7.8	7.2	Rain						
28	13.9	6.1	8.3	7.8	Cloudy						
29	15.0	7.2	8.3	8.3	Cloudy						
30	12.8	6.7	8.3	7.8	Clear						
31	15.0	2.2	7.8	7.8	Clear					23	28
Total										102	92
Cumulative total										703	493

Appendix Table 2 (Continued)

February 1983	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	15.6	4.4	7.8	7.8	Clear						
2	15.0	3.3	7.8	7.8	Cloudy						
3	15.0	3.9	7.8	7.8	Clear						
4	15.0	3.3	7.8	7.8	Clear						
5	15.6	3.3	7.8	7.8	Rain						
6	12.2	8.9	7.8	7.8	Rain					1	10
7	11.7	9.4	7.8	7.2	Rain						
8	11.1	8.3	7.2	7.2	Rain						
9	12.2	8.3	7.8	7.2	Cloudy						
10	13.3	10.0	7.8	7.8	Cloudy						
11	18.9	8.9	7.8	7.8	Cloudy						
12	17.8	10.0	7.8	7.8	Rain						
13	13.3	9.4	7.8	7.8	Clear					9	6
14	15.6	7.8	8.3	7.8	Pt. Cloudy						
15	13.3	7.8	8.3	8.3	Cloudy						
16	14.4	5.6	8.3	8.3	Clear						
17	17.8	7.2	8.3	8.3	Cloudy						
18	18.3	6.7	7.8	7.8	Cloudy						
19	19.4	6.1	7.8	7.8	Pt. Cloudy						
20	16.7	3.9	7.8	7.8	Cloudy						
21	17.2	3.9	8.3	7.8	Pt. Cloudy					4	6
22	17.8	6.7	8.3	7.8	Cloudy						
23	17.8	6.1	7.8	7.8	Cloudy						
24	20.0	8.3	7.8	7.8	Cloudy						
25	14.4	7.8	7.8	7.8	Rain						
26	15.6	7.8	7.8	7.2	Rain						
27	12.2	4.4	7.2	7.2	Rain					1	2
28	14.4	9.4	7.8	7.2	Rain						
Total										15	24
Cumulative total										718	517

Appendix Table 2 (Continued)

March 1983	Temperature (C°)				Weather	Fish trapped				Steelhead M F		
	Air		Water			Chinook salmon						
	Maximum	Minimum	Maximum	Minimum		Fall run Adults	Grilse	Spring run Adults	Grilse			
1	15.6	9.4			Rain							
2	15.6	5.0	8.3	8.3	Rain							
3	14.4	9.4	8.3	8.3	Rain							
4	17.8	8.9	8.3	8.3	Clear							
5	17.8	7.2	8.3	8.3								
6	18.3	8.3	8.3	8.3								
7	17.2	9.4	8.3	8.3								
8	18.3	9.4	8.3	8.3	Pt. Cloudy							
9	21.7	9.4	8.9	8.3	Pt. Cloudy							
10	21.7	10.0	8.9	8.3	Rain							
11	21.1	10.0	8.9	8.9	Cloudy							
12	15.6	7.2	8.9	8.9	Rain							
13	16.7	7.8	8.9	7.8	Rain							
14	16.7	7.8	8.9	7.8	Clear					2	1	
15	17.8	4.4	8.9	8.9	Clear							
16	16.7	6.7	8.9	8.9	Rain							
17	18.3	8.9	8.9	8.3	Rain							
18	14.4	6.7	8.9	8.9	Pt. Cloudy							
19	16.7	6.7	8.9	8.9	Clear							
20	14.4	6.7	8.9	8.9	Rain							
21	17.8	6.1	8.9	8.3	Rain							
22	15.0	7.8	8.3	8.3	Rain							
23	15.6	6.7	8.3	7.8	Rain							
24	13.9	5.6	8.3	7.8	Rain							
25	10.6	7.2	8.3	7.8	Pt. Cloudy							
26	13.3	6.1	8.3	8.3	Rain							
27	13.3	7.8	8.3	8.3	Cloudy							
28	15.6	7.2	8.3	8.3	Cloudy							
29	15.6	8.9	8.3	8.3	Cloudy							
30	15.6	8.3	8.3	8.3	Rain							
31	18.3	7.8	8.3	7.8	Clear							
Total											2	1
Cumulative total											720	518

Appendix Table 2 (Continued)

April 1983	Temperature (C°)					Fish trapped					
	Air		Water		Weather	Chinook salmon				Steelhead	
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		M	F
						Adults	Grilse	Adults	Grilse		
1	20.0	7.2	8.9	8.3	Clear						
2	21.1	10.0	8.9	8.3	Cloudy						
3	17.8	7.8	8.9	8.3	Clear						
4	17.8	6.7	9.4	8.9	Clear						
5	20.0	6.7	9.4	8.9	Clear						
6	21.1	5.6	9.4	8.9	Clear						
7	22.2	7.8	9.4	8.9	Clear						
8	14.4	6.1	8.9	8.9	Clear						
9	16.7	6.7	8.9	8.3	Cloudy						
10	14.4	5.6	8.3	7.8	Pt. Cloudy						
11	16.7	6.7	8.9	8.3	Rain						
12	15.6	3.3	9.4	8.9	Pt. Cloudy						
13	16.7	5.6	9.4	9.4	Clear						
14	19.4	5.6	9.4	8.9	Clear						
15	20.0	6.7	9.4	9.4	Clear						
16	22.2	7.8	9.4	9.4	Clear						
17	26.7	11.1	10.0	8.9	Pt. Cloudy						
18	21.7	7.8	9.4	8.9	Rain						
19	17.8	11.1	9.4	8.9	Cloudy						
20	21.1	12.2	9.4	9.4	Cloudy						
21	20.0	11.1	9.4	9.4	Cloudy						
22	21.1	11.1	9.4	8.9	Cloudy						
23	14.4	13.3	8.9	8.9	Rain						
24	11.1	7.1	8.9	8.3	Rain						
25	14.4	8.9	8.9	8.3	Cloudy						
26	17.8	5.0	9.4	8.9	Cloudy						
27	18.9	8.9	9.4	9.4	Cloudy						
28	15.6	8.9	9.4	9.4	Rain						
29	16.7	7.8	10.0	9.4	Rain						
30	17.2	7.8	10.0	9.4	Rain						

Appendix Table 2 (Continued)

May 1983	Temperature (C°)					Fish trapped					
	Air		Water		Weather	Chinook salmon				Steelhead	
	Maximum	Minimum	Maximum	Minimum		Fall run		Spring run		M	F
						Adults	Grilse	Adults	Grilse		
1	15.6	6.7	9.4	9.4	Pt. Cloudy						
2	19.4	7.8	10.0	9.4	Clear						
3	22.2	8.3	10.0	9.4	Clear						
4	23.3	11.1	10.0	9.4	Cloudy						
5	16.7	10.0	9.4	8.9	Cloudy						
6	15.0	5.6	9.4	8.3	Clear						
7	20.0	7.2	10.0	9.4	Clear						
8	20.6	9.4	10.0	9.4	Pt. Cloudy						
9	20.6	3.3	10.6	9.4	Clear						
10	20.6	7.8	11.1	10.6	Clear						
11	23.3	6.7	11.1	10.6	Clear						
12	21.7	10.6	10.6	10.6	Clear						
13	25.0	10.0	10.6	10.0	Clear						
14	29.4	11.7	11.1	10.6	Clear						
15	28.9	11.7	11.1	10.6	Clear						
16	28.3	11.1	12.2	10.6	Clear						
17	26.7	8.9	12.2	11.1	Clear						
18	30.0	12.8	12.2	11.1	Clear						
19	30.0	14.4	12.8	11.1	Clear						
20	33.3	14.4	13.3	12.2	Clear						
21	33.3	16.7	12.2	11.7	Clear						
22	33.3	14.4	12.2	11.7	Clear						
23	33.3	15.0	12.8	11.7	Clear						
24	33.9	13.9	12.8	11.7	Clear						
25	34.4	14.4	12.8	12.2	Clear						
26	35.6	15.6	12.8	12.2	Clear						
27	37.2	20.0	12.8	12.2	Clear						
28	40.6	23.3	12.2	12.2	Clear						
29	34.4	20.0	12.2	11.7	Clear						
30	33.3	18.9	12.2	11.7	Clear						
31	30.0	12.2	12.8	11.7	Cloudy						

Appendix Table 2 (Continued)

June 1983	Temperature (C°)				Weather	Chinook salmon				Fish trapped	
	Air		Water			Fall run		Spring run		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	M	F
1	25.6	14.4	12.8	12.2	Cloudy						
2	22.2	13.9	12.8	11.7	Pt. Cloudy						
3	26.7	12.8	13.9	12.8	Clear						
4	28.3	11.1	13.3	12.8	Clear						
5	33.9	13.9	13.9	12.2	Clear						
6	34.4	15.6	13.9	13.3	Clear						
7	35.6	15.6	13.9	13.3	Clear						
8	31.1	16.7	13.9	12.8	Clear						
9	31.1	16.7	13.3	12.8	Clear						
10	32.2	16.7	14.4	13.3	Rain						
11	27.8	13.9	14.4	13.3	Clear						
12	27.2	12.2	14.4	13.3	Clear						
13	32.2	13.3	14.4	13.3	Clear						
14	34.4	14.4	16.0	13.3	Pt. Cloudy						
15	32.2	12.8	14.4	12.2	Clear						
16	32.8	13.9	14.4	13.3	Clear						
17	35.6	16.1	14.4	12.2	Clear						
18	33.9	12.2	13.9	11.7	Clear						
19	30.0	12.8	14.4	13.3	Clear						
20	31.1	14.4	15.0	13.9	Clear						
21			14.4	13.9	Clear						
22	32.2	13.3	14.4	13.9	Clear						
23	32.2	14.4	13.9	13.3	Clear						
24			13.9	12.8	Clear						
25	33.3	11.1	14.4	13.9	Clear						
26	34.4	17.8	15.0	14.4	Clear						
27	29.4	14.4	15.0	13.3	Clear						
28	29.4	13.3	14.4	13.9	Clear						
29	28.9	14.4	14.4	13.9	Clear						
30	30.6	14.4	14.4	13.9	Clear						