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ANNUAL REPORT
IRON GATE SALMON AND STEELHEAD HATCHERY
1980-81

by

Curtis A. Hiser
Region I, Inland Fisheries

Anadromous Fisheries Branch
Administrative Report No. 82-20

1982

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ABSTRACT

This report describes the operation of the hatchery from 1 July 1980 through 30 June 1981. Tables present daily records of water temperatures and weather conditions, daily numbers of salmonids entering the hatchery, and total numbers of salmonids reared and released.

There were 2,412 fall-run adult chinook salmon, Oncorhynchus tshawytscha, trapped. An additional 30 adult female chinook were spawned at the Shasta River Racks to provide eggs for a fertility test at Big Springs. The chinook taken at the hatchery trap produced 3,494,658 eggs. No spring-run chinook salmon were taken. The 1,800 adult coho salmon, O. kisutch produced 2,653,901 eggs; and 1,247 (359 fall-run and 888 spring-run) steelhead, Salmo gairdneri, produced 874,451 eggs.

About 1,474,920 fingerling and 1,033,965 yearling chinook salmon; 100,320 fingerlings and 99,812 yearling coho salmon; and 372,010 yearling steelhead were planted in FY 1980-81.

The production of steelhead from Bogus Rearing Pond ranged from 10,850 in 1976 to 38,580 in 1981.

^{1/} Anadromous Fisheries Branch Report No.
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INTRODUCTION

This report covers the 20th year of operation of the trapping facilities at Iron Gate Hatchery. These facilities were completed by the Pacific Power and Light Company in February 1962, and have been operated by the Department of Fish and Game during the spring and fall of each year.

The hatchery was constructed by the Pacific Power and Light Company to compensate for spawning and nursery areas blocked by the Iron Gate Project. This is the 15th report since the hatchery was completed in February 1966. The Department of Fish and Game, under agreement with the Pacific Power and Light Company, began operation of the hatchery in March 1966. The trapping facilities and hatchery are located on the Klamath River 8 miles east of Hornbrook, Siskiyou County.

This report summarizes the numbers of fish trapped and spawned, production of eggs and fish, and water and weather conditions from 1 July 1980 through 30 June 1981.

Bogus Rearing Pond is located near the mouth of Bogus Creek adjacent to the Iron Gate Hatchery. It was constructed in 1972 and is usually used to rear wild steelhead which are rescued from drying streams in the Klamath River system in the late spring and early summer. This report contains a summary of the Bogus Pond Production from its initial year through 1980-81.

PRODUCTION SUMMARY

No spring-run chinook salmon were trapped in 1980. Fall-run chinook salmon were taken from 17 September 1980 to 4 November 1980 (Figure 1). Coho salmon started entering the trap on 6 October 1980 and continued until 17 December 1980. Steelhead were trapped from 20 September 1980 to 6 April 1981.

TABLE 1. Production Summary, Iron Gate Salmon and Steelhead Hatchery, 1980-81

	Adults trapped	Females spawned	Number eggs taken	Number fingerlings planted	Number yearlings planted	Total pounds planted
<u>Chinook salmon, spring-run</u>						
1979 BY						
1980 BY	0					
<u>Chinook salmon, fall-run</u>						
1979 BY					1,033,965	92,680
1980 BY	2,412	1,216	3,494,658	1,474,920		21,070
<u>Coho salmon</u>						
1979 BY					99,812	5,417
1980 BY	1,800	1,036	2,653,901	100,320		102
<u>Steelhead</u>						
1980 BY					372,010	19,284
1981 BY	1,247	487	874,451			

TABLE 2. Production Summary, Iron Gate Salmon and Steelhead Hatchery, 1980-81

	Number fingerlings transferred	Total pounds transferred	Green eggs shipped	Eyed eggs shipped	Fish on hand June 30, 1981
<u>Chinook salmon, spring-run</u>					
1979 BY					
1980 BY					
<u>Chinook salmon, fall-run</u>					
1979 BY	34,020	540			
1980 BY	299,446	3,231			1,188,000
<u>Coho salmon</u>					
1979 BY					
1980 BY	419,538	477		421,600	150,000
<u>Steelhead</u>					
1980 BY	50,000	107			
1981				10,088	500,000

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1980 Run

Spring Run, 1980 Brood Year

No spring-run chinook salmon appeared at the trap in 1980.

Fall Run, 1980 Brood Year

A total of 2,863 fall-run chinook salmon was trapped: 948 males; 1,464 females; and 451 grilse (≤ 56 cm or 22 inches FL). There were 1,216 females spawned, producing 3,494,658, eggs for an average of 2,874 eggs per female. Prespawning mortality was 248 females (16.9%). Nine lots of eggs were taken with an average fertility of 87%. A total of 30 chinook females from the Shasta Racks were spawned for a fertilization test at Big Springs. The overall fertility was 88% for the test. Approximately 1,188,000 chinook salmon fingerling were on hand as of 30 June 1981.

Planting 1979-80 Broodyear Chinook Salmon

There were 1,033,965 yearlings planted from 11 November to 21 November 1980 and 1,474,920 fingerlings planted in June 1981 (Table 2). Size at planting ranged from 11/lb for the yearlings to 70/lb for the fingerlings. No chinook salmon eggs were shipped from the hatchery. In July 1980, 34,020 chinook fingerlings were shipped to Beaver Creek Pond. From 13 May through 23 June 1981, 299,446 fingerlings were transferred to Klamath River Rearing Ponds.

TABLE 2. Chinook Salmon Planting Data, Iron Gate Salmon and Steelhead Hatchery, 1980-81

Race and broodyear	Date released	Average size	Number released	Release site	Mark (Coded wire tag #)	
Fall run, 1979	11/11-11/80	12/lb	173,320	IGH	-	
	11/17-21/80	11/lb	100,341	IGH	AD(6-59-2)	
	11/17-21/80	11/lb	324,093	IGH	LV	
	11/17-21/80	11/lb	435,211	IGH	-	
Total yearlings			1,033,965			
Transferred to Klamath River Rearing Ponds:						
Fall run, 1979	7/9-11/80	63/lb	34,020	Beaver Creek Pd.	-	
Fall run, 1980	5/13/81	100/lb	36,761	Beaver Creek Pd.	AD(6-59-12)	
	5/13/81	100/lb	3,239	Beaver Creek Pd.	-	
	5/19/81	111/lb	13,270	Thompson Ck. Pd.	LV	
	5/19/81	111/lb	26,630	Thompson Ck. Pd.	-	
	5/20-21/81	106/lb	39,750	Redcap Creek Pd.	AD(6-59-14)	
	5/26-27/81	100/lb	40,000	Camp Creek Pond	AD(6-59-15)	
	5/28-29/81	100/lb	2,074	Indian Creek Pd.	-	
	5/28-29/81	100/lb	37,926	Indian Creek Pd.	AD(6-59-16)	
	6/9/81	66/lb	19,800	Perch Creek Pd.	AD(6-59-17)	
	6/11-12/81	100/lb	40,000	Camp Creek Pond	LV	
	6/22-23/81	66/lb	13,270	Beaver Creek Pd.	LV	
	6/22-23/81	66/lb	26,726	Beaver Creek Pd.	-	
	Planted:					
		6/81	70/lb	330,000	IGH	LV
	6/81	70/lb	202,900	IGH	AD(6-59-5)	
	6/81	70/lb	942,020	IGH	-	
Total fingerlings			1,508,386			

Marked Chinook Salmon Recovered

During 1980-81, 11 marked chinook salmon were trapped (Table 3). Eight were Iron Gate marks and three were from Trinity River Hatchery.

TABLE 3. Marked Chinook Salmon Recovered, Iron Gate Salmon and Steelhead Hatchery, 1980-81^{a/}

Mark (Coded wire tag #)	Number trapped	Brood year	Race	Number released	Date released	Mean FL (mm)	Average release	
							Size	Site
AD(6-59-1)	8	1978	TRMS	191,000	11/23/79	-	9/1b	IGH
AD(6-61-1)	1	1976	-	-	-	-	-	TRH
AD(6-61-6)	1	1976	-	-	-	-	-	TRH
AD(6-61-5)	1	1977	-	-	-	-	-	TRH

^{a/} Information supplied by Even Paulsen, Fisheries Biologist, Treka.

COHO SALMON MAINTENANCE PROGRAM

History of the 1980 Run

The first coho salmon entered the trap on 6 October 1980 and the last on 17 December 1980. A total of 2,051 fish was trapped: 580 males; 1,220 females; and 251 grilse (≤ 56 cm or 22 inches FL). The 1,036 females spawned produced 2,563,901 eggs for an average of 2,562 eggs per female. A total of 421,600 eyed eggs was shipped to Warm Springs Hatchery. From 23 December 1980 through 5 June 1981, 4,088 yearling coho salmon were supplied for the smoltification study at the University of California at Berkeley. During March and April 1981, 419,538 fingerling coho salmon were transferred to Mad River Hatchery. Approximately 150,000 fingerlings were held for release as yearlings in 1982.

Planting 1979-80 Broodyear Coho Salmon

There were 619,670 coho salmon planted and/or transferred during the 1980-81 season (Table 4).

TABLE 4. Coho Salmon Planting Data, Iron Gate Salmon and Steelhead Hatchery, 1980-81

Date	Average size	Number released	Release site	Mark (Coded wire tag #)
Transferred:				
3/26/81	346/lb	154,318	Mad River Hatchery	-
3/26/81	1,040/lb	56,160	Mad River Hatchery	-
4/81	1,072/lb	107,200	Mad River Hatchery	-
4/30/81	724/lb	101,360	Mad River Hatchery	-
Planted:				
2/27/81	27/lb	25,169	IGH	AD(6-59-44)
4/4/81	17/lb	24,004	IGH	AD(6-59-45)
4/17/81	17/lb	25,007	IGH	AD(6-59-46)
4/22/81	1,056/lb	63,360	Prairie Creek Hatchery	-
4/22/81	380/lb	36,960	Prairie Creek Hatchery	-
5/4/81	16/lb	25,632	IGH	AD(6-59-47)
Total		619,670		

Marked Coho Salmon Recovered

During 1980-81, 573 marked coho salmon were trapped (Table 5). Iron Gate releases accounted for 565 marks and 8 were from Oregon.

TABLE 5. Marked Coho Salmon Recovered, Iron Gate Salmon and Steelhead Hatchery, 1980-81^{a/}

Mark (Coded wire tag #)	Number trapped	Brood year	Race	Number released	Date released	Mean FL (mm)	Average size	Release site
AD(6-59-10)	310	1977	FRSS	52,263	3/11-16/79	-	11/1b	IGH
AD(6-59-11)	225	1978	FRSS	51,000	4/9/80	-	9/1b	IGH
AD(7-17-57)	2	-	-	-	-	-	-	CR
AD(7-17-58)	5	-	-	-	-	-	-	CR
AD(7-20-2)	1	-	-	-	-	-	-	CR

^{a/} Information supplied by Ivan Paulsen, Fisheries Biologist, Yreka.

STEELHEAD TROUT MAINTENANCE PROGRAM

History of the 1980-81 Run

Between 20 September 1980 and 31 December 1980, 359 steelhead entered the trap and were held for later spawning. An additional 388 steelhead were trapped between 6 January 1981 and 6 April 1981. The two groups were spawned together.

The 487 females spawned produced 874,451 eggs, an average of 1,796 eggs per female. A total of 10,088 eyed eggs was shipped to Six Rivers National Forest; 50,000 fingerlings were transferred to Feather River Hatchery.

Approximately 500,000 steelhead fingerlings from the 1981 broodyear were on hand 30 June 1981.

Planting 1980 Broodyear Steelhead

We planted 174,010 small steelhead yearlings and 198,000 larger yearlings in 1980-81 (Table 6). The smaller yearlings were surplus grade-offs not needed to fulfill planting commitments.

TABLE 6. Juvenile Steelhead Planting Data, Iron Gate Salmon and Steelhead Hatchery, 1980-81

Strain	Brood year	Date released	Average size	Number released	Release site	Mark brand
	Transferred:					
KR	1980	7/25/80	468/lb	50,000	Feather River Hatchery	-
	Planted:					
KR	1980	7/80	463/lb	100,000	Iron Gate Lake	-
KR	1980	4/15/81	10/lb	66,000	IGH	LV-"H"
KR	1980	4/16/81	22/lb	31,000	Mallard Cove	-
KR	1980	4/16-17/81	22/lb	43,010	Iron Gate Lake	-
KR	1980	5/15/81	13/lb	66,000	IGH	LV-"H"
KR	1980	6/15/81	17/lb	66,000	IGH	LV-"H"
Total				422,010		

Marked Steelhead Trapped

A total of 420 marked steelhead was trapped this season (Table 7). Of these, 384 were Iron Gate marks, 8 were Trinity River Hatchery marks, and 28 were of undetermined origin.

TABLE 7. Marked Steelhead Recovered, Iron Gate Salmon and Steelhead Hatchery, 1980-81^{a/}

Mark	Number trapped	Brood year	Race	Number released	Date released	Mean FL (cm)	Average size	Release site
AD-LP	11	1976	IGH	429,306	5/3/77	10.7	-	IGH
LV-RV	230	1977	IGH	200,000	4/11/78	11.7	-	IGH
LV	23	1978	IGH	216,194	4/16/79	11.8	-	IGH
RV	117	1978	IGH	119,264	4/16/79	11.8	-	IGH
AD-LV-RV	1	1977	TRH	152,876	4/7-17/78	17.5	-	TRH
LP	3	1978	TRH	324,774	3/22-23/79	17.6	-	TRH
RP	1	1978	TRH	68,133	4/4/79	18.2	-	TRH
AD	21	-	-	-	-	-	-	-
LV-RP	2	-	-	-	-	-	-	-
LV-LP	1	-	-	-	-	-	-	-
LP-RP	1	-	-	-	-	-	-	-

^{a/} Information supplied by L. B. Boydston, Associate Fisheries Biologist, Rancho Cordova.

BOGUS REARING POND^{1/}

Releases of yearling steelhead reared in Bogus Pond since 1972 have ranged from 10,850 - 38,580 (Table 8). As of 30 June 1981, we have no rescued steelhead in Bogus Pond.

PUBLIC RELATIONS

During the 1980-81 fiscal year, 4,154 people visited the hatchery.

^{1/} Data provided by Robert P. Caddell, Fish Habitat Supervisor, Yreka Screen Shop.

TABLE 8. Summary of Bogus Rearing Pond Steelhead Production
1972-73 through 1980-81

Season	Number of fry stocked	Number of yearlings released	Location	Mark
1972-73	196,553	17,929	Klamath R. @ Ager Br.	-
		7,860	Shasta R. @ Anderson Grade Br.	-
		5,108	Klamath R. @ Iron Gate Hatchery	-
Total		31,197		
1973-74	129,712	21,000	Bogus Creek	-
		3,060	Kidder Creek	-
		3,060	Scott River	-
		2,970	Mill Creek	-
Total		30,090		
1974-75	85,395	6,032	Mill Creek	-
		5,900	McAdams Creek	-
		2,775	Kidder Creek	-
		2,500	Klamath River	-
Total		17,207		
1975-75	131,200	3,300	Kidder Creek	-
		2,800	Mill Creek	-
		2,750	McAdams Creek	-
		2,000	Bogus Creek	-
Total		10,850		
1976-77	119,352	14,144	Klamath R. @ Iron Gate Hatchery	Ad-D
1977-78	Pond used to rear coho salmon. No estimate of numbers.			
1978-79	123,868	11,810	Klamath R. @ Happy Camp	
1979-80	Pond used for chinook salmon. Total loss.			
1980-81	183,000	38,580	Klamath R. @ Iron Gate Hatchery	LV-"X"

Information supplied by Robert P. Caddell, Fish Habitat Supervisor and Ivan Paulsen, Fisheries Biologist, Yreka.

Appendix Table 1. Summary of Chinook Salmon Runs
Iron Gate Salmon and Steelhead Hatchery

Season	Fall-trapped spring run*		Fall run				Spring-trapped spring run*		
	Adults	Grilse	Males	Females	Total adults	Grilse	Total fall run	Adults	Grilse
1962-63	+						1,339		
1963-64					1,723	448	2,171		
1964-65			837	1,451	2,288	110	2,398		
1965-66			141	224	365	313	678		
1966-67			1,129	1,610	2,739	325	3,064		
1967-68			350	1,275	2,125	562	2,687		
1968-69			946	1,690	2,636	72	2,708	50	6
1969-70	3	3	513	436	954	1,914	2,868	51	0
1970-71	2	0	2,389	7,395	10,234	219	10,503	10	0
1971-72	16	0	4,412	6,031	10,443	326	10,769	60	0
1972-73	97	4	1,126	1,397	3,023	476	3,499	49	0
1973-74	13	5	3,273	4,135	7,408	1,294	8,702	4	0
1974-75	19	8	4,024	5,371	9,395	410	9,805	0	0
1975-76	25	28	3,131	4,571	7,702	3,425	11,127	0	0
1976-77	13	0	4,604	7,991	12,595	1,130	13,725	0	0
1977-78	0	0	1,514	2,799	4,313	520	4,833	0	0
1978-79	17	0	3,027	3,913	6,945	925	7,870	0	0
1979-80	0	0	1,003	1,298	2,301	257	2,558	0	0
1980-81	0	0	943	1,464	2,412	451	2,863	0	0

* Fall-trapped spring-run chinook salmon are the same brood year as the spring-trapped spring-run salmon of the preceding reporting period. Spring run not differentiated from fall run prior to 1968-69.

+ Blanks indicate data not available.

Appendix Table 2. Summary of Cona Salmon and Steelhead Trout Runs from Lake Cona and Steelhead Hatchery.

Season	Cona Salmon		Steelhead*	
	Wales	Parales	Wales	Parales
1963-64	31	35	11	190
1964-65	0	0	0	0
1965-66	2	0	0	2
1966-67	2	4	0	4
1967-68	27	24	23	79
1968-69	14	10	33	357
1969-70	37	118	749	951
1970-71	715	671	236	1,623
1971-72	74	52	21	147
1972-73	38	13	35	91
1973-74	201	212	122	311
1974-75	193	263	41	497
1975-76	45	37	473	560
1976-77	531	795	381	1,757
1977-78	32	159	375	626
1978-79	263	236	250	749
1979-80	213	232	1,306	2,401
1980-81	580	1,220	251	2,051
Total	1,512	1,065	2,227	1,557

* Fall-trapped steelhead not differentiated from spring-trapped prior to 1969-70.

Appendix Table 3. Fork length (to Nearest Centimeter) of Measured Steelhead
 Iron Gate Salmon and Steelhead Hatchery
 1980-81^{a/}

Length	Number trapped	
	Males	Females
35	1	
36	2	
37	1	1
38	1	4
39	3	6
40	1	21
41	2	14
42	12	26
43	18	34
44	15	23
45	15	54
46	15	40
47	9	38
48	4	26
49	6	25
50	9	30
51	7	13
52	5	15
53	1	12
54	2	3
55	1	14
56	2	6
57	1	1
58		2
59		2
60	3	2
61		1
62	1	
Average	46.1	46.6

^{a/} Information supplied by Ivan Paulsen, Fisheries Biologist, Yreka.

APPENDIX TABLE 4. (continued)

October	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	57	56	90	49	clear	32	4			1
2	56	55	90	51	clear	55	5			1
3	55	55	96	62	clear	44	2			4
4	57	56	94	54	clear	50	3			2
5	56	55	90	53	pty cloudy	69	2		1	3
6	57	55	77	58	cloudy	72	10			2
7	55	55	81	49	cloudy	95	7		1	7
8	56	55	83	54	clear	113	5			4
9	58	57	81	57	clear	177	16		5	9
10	58	56	86	48	clear					
11	58	56	80	48	cloudy	158	9		9	7
12	58	57	83	46	pty cloudy	140	15		8	7
13	57	56	79	56	cloudy	114	16		3	7
14	58	57	62	48	rain	153	15		10	10
15	58	57	71	51	clear	107	4		16	11
16	58	57	71	42	clear	116	12		13	6
17	58	57	70	46	pty cloudy	142	10		22	10
18	58	56	49	48	rain	157	20		18	10
19	57	56	51	46	rain	62	10		27	14
20	58	57	43	37	cloudy					
21	58	56	56	36	cloudy	150	27		77	15
22	57	55	50	45	cloudy	56	12		57	21
23	57	55	61	43	cloudy	43	8		4	21
24	57	55	59	45	cloudy	23	5		15	16
25	57	55	57	46	pty cloudy	35	8		12	18
26	56	55	63	36	clear	31	11		31	24
27	55	54	56	42	cloudy	7	1		13	27
28	55	54	54	37	pty cloudy	2	2		19	20
29	54	54	57	30	cloudy	3	2		18	23
30	54	54	54	35	pty cloudy	7	1		25	11
31	54	54	61	40	pty cloudy	1			34	8
TOTALS						2,214	242	172	973	319
CUMULATIVE TOTALS						2,299	257	172	973	341

APPENDIX TABLE 4. (continued)

November	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	54	53	54	34	cloudy			24	80	12
2	54	53	52	42	cloudy			21	83	21
3	53	52	50	41	cloudy					
4	53	52	50	40	cloudy					
5	53	52	55	42	cloudy					
6	53	52	62	36	cloudy	2		74	103	21
7	52	51	64	34	clear					
8	52	51	63	34	clear					
9	52	51	63	30	clear			60	162	17
10	52	50	61	29	clear					
11	51	50	60	26	clear					
12	51	50	58	27	clear					
13	51	50	60	28	clear					
14	50	50	61	28	clear			65	200	14
15	50	50	62	34	rain					
16	50	49	47	44	rain					
17	50	50	54	40	cloudy					
18	49	49	45	32	cloudy					
19	49	49	47	32	pty cloudy					
20	49	48	46	24	clear					
21	48	48	50	24	cloudy			50	155	19
22	48	48	44	33	cloudy					
23	48	48	39	30	rain					
24	48	47	48	34	cloudy					
25	48	47	34	30	snow					
26	47	47	42	28	cloudy					
27	47	46	37	22	cloudy					
28	47	46	43	25	cloudy			26	130	37
29	46	46	41	27	cloudy					
30	46	45	46	23	clear					
TOTALS						2		320	913	141
CUMULATIVE TOTALS						2,301	257	492	1,886	482

APPENDIX TABLE 4. (continued)

December	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	45	45	44	18	pty cloudy					
2	46	46	44	30	rain					
3	45	45	60	28	pty cloudy					
4	45	45	58	32	rain					
5	45	45	56	26	pty cloudy			2	15	17
6	45	45	42	24	fog					
7	46	45	43	23	fog					
8	45	44	46	28	fog					
9	44	43	49	27	fog					
10		thermograph broken	46	27	fog					
11			45	24	cloudy					
12			46	22	pty cloudy					
13			44	15	pty cloudy					
14			49	16	clear					
15			46	14	clear					
16			43	16	clear					
17			45	18	cloudy					
18			55	25	cloudy					
19			58	24	cloudy					
20			49	30	cloudy					6
21			59	32	rain					
22			46	16	clear					
23			39	26	cloudy					
24			37	19	rain					
25			34	29	fog					
26			44	18	cloudy					
27			42	17	sunny					
28			40	18	cloudy					
29			48	24	clear					
30			50	32	clear					
31			50	33	clear					
TOTALS								2	15	23
CUMULATIVE TOTALS								494	1,901	505

TOTALS

CUMULATIVE TOTALS

APPENDIX TABLE 4. (continued)

January	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	thermograph broken		54	35	cloudy					
2			40	28	cloudy			1	3	9
3			44	32	cloudy					
4			48	33	cloudy					1
5			43	39	cloudy					
6			51	34	clear					
7			41	30	cloudy					
8			47	27	cloudy					6
9			37	32	cloudy					
10			37	27	cloudy					
11			40	29	rain					
12			52	39	rain					
13			47	41	rain					
14			46	39	cloudy					
15			47	32	cloudy					
16			44	39	cloudy					154
17			44	36	pty cloudy					
18			40	28	clear					
19			45	27	clear					
20			46	23	clear					
21			46	23	clear					
22			52	26	clear				2	140
23			51	26	clear					
24			56	26	clear					
25			54	23	clear					
26			50	22	pty cloudy					
27			41	23	clear					
28			42	18	clear					
29			42	17	clear					
30			39	21	pty cloudy					49
31			42	25	cloudy					
TOTALS								1	5	359
CUMULATIVE TOTALS						2,301	257	495	1,906	864

APPENDIX TABLE 4. (continued)

February	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	thermograph broken		49	35	cloudy					
2			52	36	rain					
3			56	39	pty cloudy					
4			49	36	cloudy					18
5			44	30	rain					
6			50	30	pty cloudy					
7			58	27	clear					9
8			54	32	pty cloudy					
9			58	20	cloudy					
10			62	29	clear					
11			59	27	pty cloudy					11
12			58	27	cloudy					
13			60	26	clear					
14			51	30	cloudy					19
15			54	31	rain					
16			48	41	cloudy					
17			50	43	cloudy					
18			49	38	rain					
19			43	37	lt rain					101
20			47	36	pty cloudy					
21			50	36	pty cloudy					111
22			51	36	pty cloudy					
23			52	31	cloudy					
24			54	41	cloudy					
25			52	40	cloudy					227
26			59	45	cloudy					
27			64	45	rain					
28			54	40	pty cloudy					58
29			52	30	cloudy					
TOTALS										554
CUMULATIVE TOTALS						2,301	257	495	1,906	1,418

APPENDIX TABLE 4, (continued)

March	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	thermograph broken		48	34	cloudy					
2			56	37	cloudy					
3			48	40	rain					
4			53	31	cloudy					
5	41	40	52	34	cloudy					
6	42	40	59	30	pty cloudy					161
7	42	41	58	29	pty cloudy					
8	43	41	58	28	cloudy					
9	42	41	67	28	clear					
10	43	42	47	38	cloudy					
11	43	42	46	26	cloudy					
12	43	42	48	38	cloudy					
13	43	42	42	38	pty cloudy					48
14	43	42	43	28	cloudy					
15	44	42	56	24	clear					
16	44	43	48	30	cloudy					
17	44	43	67	29	clear					
18	43	43	50	32	pty cloudy					
19	44	43	66	27	clear					
20	45	44	48	32	cloudy					24
21	45	44	46	27	cloudy					
22	45	44	61	30	clear					
23	45	44	58	30	clear					
24	46	44	59	30	clear					
25	45	44	58	35	pty cloudy					
26	45	44	52	32	pty cloudy					
27	45	44	56	34	clear					6
28	46	44	67	28	clear					
29	45	45	64	30	pty cloudy					
30	45	45	55	29	clear					
31	46	44	49	30	cloudy					

TOTALS

239

CUMULATIVE TOTALS

2,301

257

495

1,906

1.657

APPENDIX TABLE 4. (continued)

April	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	45	44	49	31	cloudy					
2	46	45	56	26	pty cloudy					
3	47	45	52	30	cloudy					
4	47	45	54	36	cloudy					
5	47	46	51	36	cloudy					
6	48	45	47	33	pty cloudy					
7	47	46	52	28	cloudy					
8	46	46	61	38	cloudy					
9	46	46	58	42	pty cloudy					
10	47	46	63	31	clear					
11	48	46	74	40	clear					
12	48	47	82	41	clear					
13	47	47	74	41	pty cloudy					
14	47	46	62	49	pty cloudy					
15	48	46	78	32	clear					
16	47	46	83	36	clear					
17	47	46	82	43	cloudy					
18	48	46	78	38	clear					
19	48	47	78	42	cloudy					
20	48	47	70	35	rain					
21	48	47	52	34	cloudy					
22	49	48	66	41	clear					
23	48	47	72	37	clear					
24	47	47	72	40	pty cloudy					
25	48	47	75	39	clear					
26	48	46	77	43	clear					
27	50	47	85	45	clear					
28	49	48	79	49	clear					
29	48	48	65	44	clear					
30	49	48	66	45	clear					

TOTALS

CUMULATIVE TOTALS

2,301 257 495 1,906 1,657

APPENDIX TABLE 4. (continued)

May	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	49	47	80	46	pty cloudy					
2	49	48	81	45	pty cloudy					
3	49	49	84	44	clear					
4	49	49	84	44	clear					
5	49	48	82	44	clear					
6	49	48	70	47	pty cloudy					
7	49	48	78	37	clear					
8	49	48	61	43	cloudy					
9	50	48	57	40	rain					
10	50	49	52	36	cloudy					
11	50	49	66	46	pty cloudy					
12	50	49	70	47	pty cloudy					
13	50	49	72	42	cloudy					
14	50	49	68	43	clear					
15	51	49	72	38	clear					
16	50	49	76	40	clear					
17	50	49	81	40	clear					
18	50	49	88	44	clear					
19	51	49	88	48	clear					
20	50	49	93	48	clear					
21	50	49	85	52	pty cloudy					
22	50	49	58	44	cloudy					
23	50	50	56	33	pty cloudy					
24	51	50	57	37	cloudy					
25	50	49	61	39	cloudy					
26	50	49	66	40	cloudy					
27	50	49	70	41	pty cloudy					
28	51	49	78	41	pty cloudy					
29	51	49	78	46	clear					
30	51	50	77	46	clear					
31	51	50	77	46	clear					

TOTALS

CUMULATIVE TOTALS

2,301 257 495 1,906 1.657

APPENDIX TABLE 4. (continued)

June	Temperature (Degree F)				Weather	Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	51	50	67	44	pty cloudy					
2	50	49	58	39	cloudy					
3	50	49	65	40	pty cloudy					
4	50	49	61	41	cloudy					
5	50	49	57	44	cloudy					
6	50	49	65	44	cloudy					
7	50	49	74	46	pty cloudy					
8	51	49	79	45	clear					
9	51	50	81	51	clear					
10	51	50	80	48	clear					
11	51	49	75	48	cloudy					
12	50	49	60	46	cloudy					
13	50	49	61	47	cloudy					
14	50	49	62	49	cloudy					
15	50	49	82	40	clear					
16	51	50	80	52	clear					
17	51	50	84	46	clear					
18	51	50	85	47	clear					
19	51	50	90	50	pty cloudy					
20	51	50	85	53	pty cloudy					
21	51	51	84	50	clear					
22	52	51	66	51	cloudy					
23	52	51	75	44	cloudy					
24	52	51	71	50	cloudy					
25	52	51	72	51	pty cloudy					
26	52	51	70	46	clear					
27	52	51	77	43	clear					
28	52	51	96	52	clear					
29	52	51	88	53	pty cloudy					
30	52	51	89	51	pty cloudy					
TOTALS										
CUMULATIVE TOTALS						2,301	257	495	1,906	1,657