REF 90205

ANNUAL REPORT
IRON GATE SALMON AND STEELHEAD HATCHERY 1979-80[1/]

by

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ABSTRACT

This report describes the operation of the hatchery from 1 July 1979 through 30 June 1980. 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 2,301 fall-run adult chinook salmon, Oncorhynchus tshawytscha, trapped. An additional 111 adult female chinook were taken from Shasta River Racks to supplement the egg take to provide adequate fish for the Klamath River Rearing Ponds. The total of 2,412 fish produced 3,837,002 eggs. No spring-run chinook salmon were taken. The 495 adult coho salmon, O. kisutch, produced 441,712 eggs; and 1,657 (505 fall-run and 1,152 spring-run) steelhead, Salmo gairdneri, produced 1,487,989 eggs.

About 1,325,868 fingerling and 1,015,185 yearling chinook salmon, 51,000 yearling coho salmon, and 42,312 fingerling and 299,492 yearling steelhead were planted in FY 1979-80.

The production of steelhead from Bogus Rearing Pond ranged from 10,850 in 1976 to 31,197 in 1973. Because no steelhead were rescued in 1979, 50,000 chinook salmon were stocked in Bogus Pond; however, none survived to be planted.

INTRODUCTION

This report covers the 19th 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 14th report since the hatchery was completed in February 1976. The Department of

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1/ Anadromous Fisheries Branch Administrative Report No. 82-28
Submitted July 1982.

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 1979 through 30 June 1980.

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 1979-80.

PRODUCTION SUMMARY

No spring-run chinook salmon were trapped in 1979 (Table 1). Fall-run chinook salmon were taken from 21 September 1979 to 6 November 1979 (Figure 1). Coho salmon started entering the trap on 5 October 1979 and continued until 22 January 1980. Steelhead trout were trapped from 21 September 1979 to 27 March 1980. (Data on Table 1.)

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1979 Run

Spring Run, 1979 Brood Year

No spring-run chinook salmon appeared at the trap in 1979.

Fall Run, 1979 Brood Year

A total of 2,558 fall-run chinook salmon was trapped: 1,003 males; 1,298 females; and 257 grilse (<56 cm or 22 inches FL). There were 1,273 females spawned (including 111 from Shasta River Racks), producing 3,837,002 eggs, for an average of 3,014 eggs per female. Prespawning mortality was 136 females (10.5%). Twelve lots of eggs were taken with an average fertility of 81%. Approximately 1,080,000 chinook salmon were on hand as of 30 June 1982.

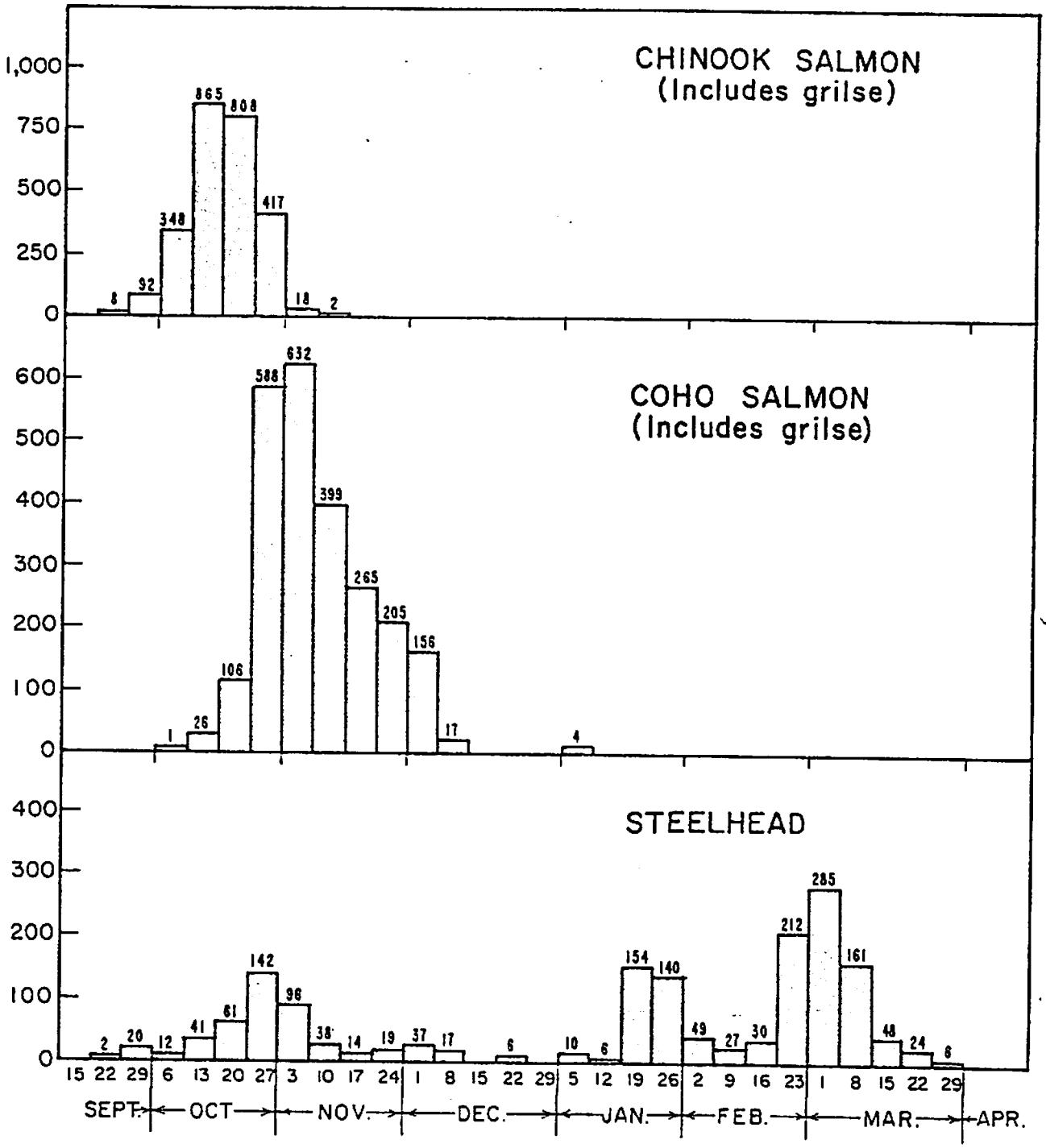
Planting 1978-79 Brood Year Chinook Salmon

There were 1,015,185 yearlings planted from 5 November 1979 to 23 November 1979 and 1,325,868 fingerlings planted from 16 June to 19 June 1980 (Table 2). Size at planting ranged from 9/lb for the yearlings to 77/lb for the fingerlings. On 28 August 1979, 10,020 chinook salmon were transferred to a rearing tank on Camp

TABLE 1. Production Summary, Iron Gate Salmon and Steelhead Hatchery, 1979-80

	Adults trapped	Females spawned	Number eggs taken	Number fingerlings planted	Number yearlings planted	Total pounds planted	Number fingerlings transferred	Total pounds transferred	Green eggs shipped	Eyed eggs shipped	Fish on hand 30 June 1980
Chinook salmon, spring-run											
1978 BY											
1979 BY	0										
Chinook salmon, fall-run											
1978 BY					1,015,185	111,189	10,020	334			
1979 BY	2,412[a/]	1,273	3,837,002	1,325,868		17,219	132,136	790			1,080,000
Coho salmon											
1978 BY					51,000	5,543					
1979 BY	495	145	441,712								170,000
Steelhead											
1979 BY				42,312	299,492	29,269					
1980 BY	1,657	796	1,487,989							501,767	382,000

a/ Includes 111 females from Shasta River Racks.


CHINOOK SALMON
(Includes grilse)
1,000
750
500
250
0
8
92
348
865
808
417
18
2
COHO SALMON
(Includes grilse)
600
500
400
300
200
100
0
1
26
106
588
632
399
265
205
156
17
4
STEELHEAD
400
300
200
100
0
2
20
12
41
61
142
96
38
14
19
37
17
6
10
6
154
140
49
27
30
212
285
161
48
24
8
15 22 29 6 13 20 27 3 10 17 24 1 8 15 22 29 5 12 19 26 2 9 16 23 1 8 15 22 29
SEPT.
OCT
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JAN.
FEB.
MAR.
APR.

Creek to test the adequacy of the water for the proposed culture of yearling chinook. From 28 May 1980 through 3 June 1980, 132,136 fingerlings were transferred to Klamath River Rearing Ponds. No chinook salmon eggs were shipped from the hatchery.

TABLE 2. Chinook Salmon Planting Data, Iron Gate Salmon and Steelhead Hatchery, 1979-80

Race and brood year	Date released	Average size	Number released	Release site	Mark (Coded wire tag #)
	Transferred:				
Fall-run, 1978	8/28/79	30/lb	10,020	Camp Creek Tank	-
	Planted:				
	11/5-15/79	10/lb	177,429	IGH	-
	11/23/79	9/lb	646,756	IGH	-
	11/23/79	9/lb	191,000	IGH	AD(6-59-1)
Total yearlings			1,025,205		
	Transferred to Klamath River Rearing Ponds:				
Fall-run, 1979	5/28/80	168/lb	34,104	Indian Creek Pond	-
	5/28/80	168/lb	34,104	Thompson Creek Pd.	-
	5/29/80	168/lb	33,936	Camp Creek Pond	-
	5/29/80	168/lb	19,992	Beaver Creek Pond	-
	6/30/80	160/lb	10,000	Perch Creek Pond	-
	Planted:				
	6/16-19/80	77/lb	1,125,868	IGH	-
	6/16-19/80	77/lb	200,000	IGH	AD(6-59-3)
Total fingerlings			1,458,004		

COHO SALMON MAINTENANCE PROGRAM

History of the 1979 Run

The first coho salmon entered the trap on 5 October 1979 and the last on 22 January 1980. A total of 2,401 fish was trapped: 213 males, 282 females, and 1,906 grilse (<56 cm or 22 inches FL). The 145 females spawned produced 441,712 eggs for an average of 3,046 eggs per female. No eggs were shipped from the hatchery this year. Approximately 170,000 fingerlings were held for release as yearlings in 1981.

Planting 1978 Brood Year Coho Salmon

There were 51,000 coho salmon planted during the 1979-80 season (Table 3).

TABLE 3. Coho Salmon Planting Data, Iron Gate Salmon and Steelhead Hatchery, 1979-80

Date	Average size	Number released	Release site	Mark (Coded wire tag #)
4/9/80	9.2/lb	51,000	IGH	AD(6-59-41)

Marked Coho Salmon Recovered

During the 1979-80 season, 296 marked coho salmon were trapped (Table 4). Heads were removed from 128 fish and tags recovered from 109 of these. Iron Gate releases accounted for 108 marks and 1 was from Cole Rivers Hatchery.

TABLE 4. Marked Coho Salmon Recovered, Iron Gate Salmon and Steelhead Hatchery, 1979-80[a/]

Mark (Coded wire tag #)	Number trapped	Brood year	Race	Number released	Date released	Mean FL (cm)	Average size	Release site
AD(6-59-40)	108	1977	FRSS	44,998	3/15/79	-	14/lb	IGH
AD(7-17-57)	1	-	-	25,742	3/79	-	-	CRH

STEELHEAD TROUT MAINTENANCE PROGRAM

History of the 1979-80 Run

Between 21 September 1979 and 31 December 1979, 505 steelhead entered the trap and were held for later spawning. An additional 1,152 steelhead were trapped between 2 January 1980 and 27 March 1980. The two groups were held and spawned separately.

The 168 fall-trapped females spawned produced 348,322 eggs, an average of 2,073 eggs per female. The 528 spring-trapped females spawned produced 1,139,667 eggs

a/ Information supplied by L. B. Boydstun, Associate Fisheries Biologist, Rancho Cordova

for an average of 2,158 eggs per female. This made a total of 1,487,989 eggs from 696 females. A total of 475,767 eyed steelhead eggs was shipped to Trinity River Hatchery and 26,000 were shipped to Feather River Hatchery.

Approximately 382,000 steelhead fingerlings from the 1980 brood year were on hand 30 June 1980.

Planting 1979-80 Brood Year Steelhead

We planted 42,312 fingerlings, 119,650 small yearlings, and 179,842 larger yearlings in 1979-80. The smaller yearlings and fingerlings were surplus grade-offs not needed to fulfill planting commitments.

TABLE 5. Juvenile Steelhead Planting Data, Iron Gate Salmon and Steelhead Hatchery, 1979-80

Strain	Brood year	Date released	Average size	Number released	Release site	Mark brand
KR*	1979	9/5/79	328/lb	42,312	Copco Lake	-
KR	1979	3/7-10/80	27/lb	58,050	Mallard Cove	-
KR	1979	4/2/80	22/lb	11,000	Long Gulch	LP
KR	1979	4/2/80	22/lb	18,700	Mirror Cove	LP
KR	1979	4/2/80	22/lb	19,800	Camp Creek	LP
KR	1979	4/2/80	22/lb	12,100	Fall Creek	LP
KR	1979	4/15-16/80	10/lb	59,842	IGH	AD-"T"
KR	1979	5/19/80	7.5/lb	59,000	IGH	AD-"H"
KR	1979	6/25/80	5.9/lb	61,000	IGH	AD-"O"
Total				341,804		

*Klamath River

Marked Steelhead Trapped

A total of 963 marked steelhead were trapped this season (Table 6.) Of these, 929 were Iron Gate marks, 1 was Trinity River Hatchery mark, and 33 were of undetermined origin.

TABLE 6. Marked Steelhead Recovered, Iron Gate Salmon and Steelhead Hatchery, 1979-80[a/]

Mark	Number trapped	Brood year	Race	Number released	Date released	Mean FL (cm)	Average size	Release site
D-AD	51	1976	IGH	14,144	4/28/77	13.2	-	IGH
AD-LP	589	1976	IGH	429,306	5/03/77	10.7	-	IGH
AD-RP	85	1976	IGH	40,292	5/03/77	15.2	-	IGH
LV-RV	204	1977	IGH	200,000	4/14/78	11.7	-	IGH
AD	26	-	-	-	-	-	-	-
AD-LV-RV	1	1977	TRH	152,876	4/7-17/78	17.5	-	TRH
RV	3	-	-	-	-	-	-	-
LV	1	-	-	-	-	-	-	-
RP	1	-	-	-	-	-	-	-
LP	1	-	-	-	-	-	-	-
Dor	1	-	-	-	-	-	-	-

BOGUS REARING POND[1/]

Releases of yearling steelhead reared in Bogus Pond since 1972 have ranged from 10,850 - 31,197 (Table 7). In August 1979, 50,000 chinook salmon were stocked in Bogus Pond; however, none survived to be planted in 1980. As of 30 June 1980, we had 183,000 rescued steelhead in Bogus Pond.

PUBLIC RELATIONS

During the 1979-80 fiscal year, 3,674 people visited the hatchery, including 110 people in organized groups.

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a/ Information supplied by L. B. Boydstun, Associate Fisheries Biologist, Rancho Cordova

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

TABLE 7. Summary of Bogus Rearing Pond Steelhead Production 1972-73 through 1979-80[a]

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.	-
		5,408	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		
1975-76	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.			

a/ Information supplied by Robert P. Caddell, Fish Habitat Supervisor, Yreka Screen Shop

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	1,651	2,488	110	2,598		
1965-66			141	224	365	313	678		
1966-67			1,129	1,610	2,739	325	3,064		
1967-68			850	1,275	2,125	562	2,687		
1968-69			946	1,690	2,636	72	2,708	50	6
1969-70	8	3	518	436	954	1,914	2,868	51	0
1970-71	2	0	2,889	7,395	10,284	219	10,503	10	0
1971-72	16	0	4,412	6,031	10,443	326	10,769	80	0
1972-73	97	4	1,126	1,897	3,023	476	3,499	49	0
1973-74	18	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	3,918	6,945	925	7,870	0	0
1979-80	0	0	1,003	1,298	2,301	257	2,558	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 Coho Salmon and Steelhead Trout Runs, Iron Gate Salmon and Steelhead Hatchery

	Coho salmon					Steelhead*		
Season	Males	Females	Adults	Grilse	Total	Fall-trapped early run	Spring-trapped late run	Total
1963-64	81	95	176	14	190			1,542
1964-65	0	0	0	0	0			1,065
1965-66	2	0	2	0	2			227
1966-67	2	2	4	0	4			299
1967-68	27	24	51	28	79			984
1968-69	14	10	24	333	357			370
1969-70	84	118	202	749	951	381	813	1,194
1970-71	716	671	1,387	236	1,623	292	2,073	2,365
1971-72	74	52	126	21	147	174	3,583	3,757
1972-73	38	18	56	35	91	226	1,060	1,286
1973-74	201	212	413	428	841	665	1,200	1,865
1974-75	193	263	456	41	497	1,062	2,165	3,227
1975-76	45	37	82	478	560	423	1,100	1,523
1976-77	581	795	1,376	381	1,757	695	1,246	1,941
1977-78	92	159	251	375	626	3,197	1,214	4,411
1978-79	263	236	499	250	749	812	1,267	2,079
1979-80	213	282	495	1,906	2,401	505	1,152	1,657

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

APPENDIX 3. Fork Length (to nearest cm) of Measured Steelhead

Steelhead at Iron Gate Hatchery were randomly sampled for fork length (FL). The sample totaled 941 fish.

The fall-trapped steelhead sampled totaled 155 fish: 4 adult males, 149 adult females, and 2 half-pounders. The fall-trapped males averaged 54.0 cm FL, the females 49.5 cm FL, and the half-pounders 40.0 cm FL.

The spring-trapped fish sampled total 667 fish: 4 adult males, 659 adult females, and 4 half-pounders. The males averaged 56.5 cm FL, females 51.3 cm FL, and half-pounders 37.8 cm FL.

There were 119 steelhead including 114 females and 5 half-pounders that were not identified as either fall- or spring-run fish. The females averaged 51.5 cm FL and the half-pounders 38.8 cm FL.

APPENDIX TABLE 4. Iron Gate Salmon and Steelhead Hatchery, Weather, Water, and Fish Data
1 July 1979 through 30 June 1980

	Temperature (Degree F)					Fish trapped				
	Water		Air			Chinook salmon		Coho salmon		Steelhead
July	Maximum	Minimum	Maximum	Minimum	Weather	Adults	Grilse	Adults	Grilse	trout
1	57	55	71	47	clear					
2	57	55	83	44	clear					
3	57	55	81	50	pty cloudy					
4	57	55	83	54	pty cloudy					
5	57	56	85	50	pty cloudy					
6	57	56	80	53	pty cloudy					
7	57	56	83	51	pty cloudy					
8	57	56	80	52	cloudy					
9	57	55	78	55	cloudy					
10	57	55	82	51	pty cloudy					
11	58	56	83	51	pty cloudy					
12	58	56	80	52	clear					
13	58	56	90	52	clear					
14	59	56	97	55	clear					
15	60	57	99	59	clear					
16	60	58	102	60	clear					
17	60	58	102	65	clear					
18	60	58	102	66	clear					
19	60	58	104	64	smokey					
20	60	58	99	65	pty cloudy					
21	59	58	93	65	pty cloudy					
22	59	58	93	56	clear					
23	59	58	96	58	clear					
24	59	58	97	58	clear					
25	59	58	100	59	clear					
26	59	58	98	60	clear					
27	59	58	94	60	clear					
28	58	58	90	57	clear					
29	58	58	94	55	clear					
30	58	58	94	55	clear					
31	58	58	101	62	clear					
TOTALS										

APPENDIX TABLE 4. (continued)

August	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish trapped Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1			99	64	clear					
2			101	60	clear					
3			98	59	clear					
4			94	57	clear					
5			94	56	clear					
6	58	55	92	52	clear					
7	58	56	88	58	clear					
8	57	55	92	50	clear					
9	57	55	94	52	clear					
10	57	56	90	50	pty cloudy					
11			91	60	clear					
12			98	58	pty cloudy					
13	58	55	78	50	cloudy					
14	57	56	82	50	clear					
15	57	56	83	49	clear					
16	58	56	84	48	clear					
17	57	56	84	48	clear					
18			89	53	pty cloudy					
19			70	57	cloudy					
20	57	56	72	46	cloudy					
21	57	56	74	49	clear					
22	57	56	70	42	cloudy					
23			82	52	pty cloudy					
24	57	56	82	44	clear					
25			90	53	pty cloudy					
26			87	54	pty cloudy					
27	58	57	80	48	clear					
28	57	56	72	52	rain					
29	57	56	73	50	rain					
30	57	56	70	52	cloudy					
31	57	57	78	44	clear					
TOTALS										

APPENDIX TABLE 4. (continued)

September	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish trapped Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	58	55	76	48	rain					
2	57	56	76	48	cloudy					
3	57	56	79	52	pty cloudy					
4	57	56	78	48	pty cloudy					
5	58	56	82	48	clear					
6	57	56	84	44	clear					
7	58	56	86	46	clear					
8	57	56	87	38	pty cloudy					
9	57	56	89	44	clear					
10	58	57	88	46	clear					
11	58	56	88	48	clear					
12	57	56	97	44	clear					
13	57	56	94	46	clear					
14	57	56	90	48	clear					
15	58	56	88	44	pty cloudy					
16	58	56	89	44	clear					
17	57	56	90	45	clear					
18	58	56	90	44	clear					
19	57	56	92	42	clear					
20	57	56	92	42	clear					
21	58	56	90	42	clear	7	1			2
22	58	56	89	44	clear					
23	58	56	88	42	clear	6	1			6
24	58	56	89	42	pty cloudy	5	2			2
25	58	56	70	50	rain	10	2			4
26	58	56	79	53	cloudy					
27	58	56	82	42	clear	17	1			3
28	59	57	84	44	clear	15	3			1
29	58	57	82	44	clear	25	5			4
30	59	57	84	44	clear					
TOTALS						85	15			22
CUMULATIVE TOTALS						85	15			22

Appendix Table 4 (cont.)

August	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	59	58	90	50	clear					
2	58	57	98	50	clear					
3	58	57	101	54	clear					
4	57	57	102	56	clear					
5	58	57	100	58	clear					
6	58	57	100	58	clear					
7	58	57	102	58	clear					
8	58	57	103	60	clear					
9	58	57	104	60	clear					
10	59	58	91	58	clear					
11	59	59	95	50	clear	1				1
12	59	59	75	47	cloudy					
13	59	58	70	42	pty cloudy					
14	59	58	82	42	clear					
15	59	58	82	46	cloudy					
16	59	59	73	44	cloudy					
17	59	58	73	42	clear					
18	58	57	81	41	clear					
19	58	57	75	45	clear					
20	58	57	60	46	clear					
21	58	57	56	45	rain					
22	58	57	67	46	cloudy					
23	57	57	72	44	cloudy	1				
24	57	56	70	49	cloudy					
25	57	56	70	49	cloudy	3				
26	57	56	78	48	pty cloudy	2				
27	57	56	84	44	clear	2				
28	57	56	84	46	clear	3				
29	57	56	89	50	clear					
30	57	56	79	46	cloudy	1				
31	58	56	70	50	cloudy	1				
ALS						14				1

Appendix Table 4 (cont.)

September	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	57	56	82	49	clear					
2	57	56	88	48	clear					
3	57	56	83	48	clear					
4	57	57	80	50	cloudy	3				
5	57	57	59	48	rain					
6	58	57	68	50	rain					
7	57	57	59	44	rain					
8	57	57	68	40	rain					
9	57	56	68	48	rain					
10	56	56	64	42	rain					
11	57	56	62	41	pty cloudy					
12	57	56	72	41	clear	2				2
13	57	56	64	40	rain	5				
14	57	56	75	40	clear	1				
15	57	56	67	43	clear	12				
16	56	55	70	39	cloudy					
17	56	55	70	48	clear					
18	56	55	71	37	pty cloudy	47	1			
19	56	55	70	31	clear	24				
20	56	55	69	35	clear	21	1			
21	56	55	69	50	clear	24				1
22	56	55	72	40	clear	72	1			1
23	57	56	79	40	clear					
24	57	56	86	40	clear	137	3			
25	57	56	84	42	pty cloudy	166	7			
26	57	56	82	44	clear	133	3			
27	56	56	76	44	clear	121	2			1
28	57	56	73	40	clear	180	6			3
29	57	56	79	36	clear					
30	57	56	74	34	clear	434	16			3
TOTALS						1,382	40			11
Cumulative Totals						1,396	40			12

Appendix Table 4 (cont.)

October	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	57	56	74	32	clear	300	18			2
2	57	56	78	34	clear	249	9			3
3	58	56	80	30	clear	287	13			6
4	58	56	80	36	clear	419	32			10
5	57	55	82	34	clear	268	15			7
6	57	55	82	36	clear	320	22		1	11
7	57	55	79	36	clear	436	27			6
8	57	56	78	33	clear	292	27		1	10
9	57	56	78	34	clear	354	35		1	8
10	57	56	78	32	clear	338	68			23
11	56	56	79	36	clear	306	61			9
12	57	56	79	36	clear	221	49		6	7
13	57	56	81	40	clear	323	59			11
14	57	56	83	34	clear	228	60	1		
15	58	57	84	40	clear	186	51	2	7	24
16	58	57	78	38	clear	72	26			19
17	58	57	75	39	clear	131	43	8		18
18	58	57	74	35	clear	163	66	14		42
19	58	57	74	32	pty cloudy	128	44	12		26
20	58	57	76	36	pty cloudy					
21	57	56	72	36	pty cloudy					
22	57	57	68	26	clear					
23	57	58	71	28	clear	234	62	34	12	76
24	57	57	74	28	clear					
25	57	57	73	32	clear					
26	57	57	73	30	clear	123	52	51	18	75
27	57	57	72	28	clear					
28	57	57	68	28	clear					
29	57	57	78	22	cloudy					
30	57	57	74	25	clear	76	23	11	95	63
31	57	57	75	27	clear					
TOTALS						5,454	862	133	141	456
Cumulative Totals						6,850	902	133	141	468

Appendix Table 4 (cont.)

November	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	57	56	69	34	clear	40	19	48	30	77
2	56	56	69	31	clear					
3	56	56	69	34	cloudy	18		64		47
4	56	56	58	42	cloudy					
5	56	56	66	31	clear					
6	56	55	70	31	clear					
7	56	55	72	32	pty cloudy	38		58	43	85
8	56	55	71	31	cloudy					
9	55	55	52	33	pty cloudy					
10	55	54	40	28	pty cloudy	7	4	38	13	15
11	55	55	36	19	clear					
12	55	54	36	18	cloudy					
13	55	54	51	21	clear	7		33	10	29
14	55	54	44	19	cloudy					
15	54	54	48	34	cloudy	2		20	5	23
16	54	53	60	35	pty cloudy					
17	55	53	57	26	pty cloudy					
18	54	53	51	36	cloudy					
19	54	53	45	33	cloudy					
20	55	53	45	32	cloudy					
21	53	52	44	32	cloudy			13		1
22	52	52	44	33	clear					
23	52	51	38	28	cloudy					
24	51	51	45	29	clear					
25	51	50	52	26	clear					
26	50	50	54	23	clear					
27	50	49	49	23	pty cloudy					
28	49	48	43	34	rain					
29	49	48	52	40	cloudy					
30	49	48	46	34	rain			40	4	18
TOTALS						112	23	314	105	295
Cumulative Totals						6,962	925	447	246	763

Appendix Table 4 (cont.)

December	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	49	48	44	31	cloudy					
2	49	47	46	30	pty cloudy					
3	48	47	50	24	cloudy					
4	48	47	54	36	cloudy					
5	48	47	36	28	pty cloudy			36	4	3
6	47	46	36	22	cloudy					
7	48	46	34	18	clear					
8	47	46	35	17	pty cloudy					
9	47	46	34	24	cloudy					
10	46	45	45	29	cloudy					
11	46	45	40	33	rain					
12	46	45	40	30	cloudy			16		5
13	45	44	52	33	clear					
14	46	44	46	20	clear					
15	45	44	45	24	clear					
16	45	44	43	20	cloudy					
17	45	44	36	31	cloudy					
18	45	44	42	21	pty cloudy					
19	44	44	40	10	clear					
20	44	43	31	12	cloudy					
21	44	43	44	27	pty cloudy					
22	44	43	32	23	snow					
23	44	42	40	30	pty cloudy					
24	43	41	36	28	cloudy					
25	42	40	40	26	clear					
26	42	40	34	22	cloudy					
27	42	40	37	25	pty cloudy					
28	40	39	27	16	clear					
29	40	39	31	10	clear					
30	40	39	30	10	clear					
31	40	39	40	14	pty clear					41
TOTALS								52	4	49
Cumulative Totals						6,962	925	499	250	812

Appendix Table 4 (cont.)

January	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	39	38	38	20	cloudy					
2	39	38	39	22	cloudy					
3	39	38	40	22	cloudy					
4	39	38	53	31	clear					
5	39	38	44	32	pty cloudy					
6	38	38	45	26	pty cloudy					
7	38	37	38	29	snow					
8	38	37	40	31	rain					
9	38	37	46	30	cloudy					
10	38	37	43	35	rain					
11	37	37	58	38	cloudy					
12	38	37	48	35	pty cloudy					
13	37	37	38	26	cloudy					
14	37	37	46	32	cloudy					
15	37	37	52	32	pty cloudy					
16	37	37	50	25	clear					
17	38	37	42	28	clear					18
18	38	37	48	21	clear					
19	38	37	52	27	clear					
20	38	38	53	27	pty cloudy					
21	38	37	54	26	clear					
22	39	38	47	27	pty cloudy					
23	39	38	52	23	clear					
24	39	38	42	28	cloudy					
25	39	38	40	22	pty cloudy					
26	40	39	43	13	cloudy					
27	40	40	40	26	cloudy					
28	40	39	40	18	cloudy					
29	40	39	39	15	cloudy					
30	40	39	43	21	cloudy					
31	40	39	43	24	cloudy					
TOTALS										18
Cumulative Totals						6,962	925	499	250	830

Appendix Table 4 (cont.)

February	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	40	39	35	20	cloudy					
2	40	39	46	14	clear					
3	40	39	43	19	cloudy					
4	39	39	54	32	pty cloudy					
5	40	39	44	26	cloudy					
6	40	39	57	26	pty cloudy					
7	40	39	52	34	cloudy					8
8	40	40	62	31	cloudy					
9	40	40	58	36	cloudy					
10	40	40	55	34	lt. rain					
11	41	40	52	40	cloudy					
12	40	40	49	36	rain					
13	40	40	42	38	rain					
14	40	39	44	33	cloudy					18
15	40	39	42	26	cloudy					
16	40	39	44	28	cloudy					
17	39	38	48	35	cloudy					
18	39	38	44	34	cloudy					
19	40	38	50	30	pty cloudy					
20	40	39	40	32	lt. rain					
21	41	39	46	28	cloudy					72
22	40	39	45	31	lt. rain					
23	40	39	39	30	rain					
24	40	39	51	32	cloudy					
25	40	40	52	36	cloudy					
26	40	40	43	34	cloudy					
27	40	40	50	29	cloudy					
28	40	39	42	35	snow					
TOTALS										98
Cumulative Totals						6,962	925	499	250	928

Appendix Table 4 (cont.)

March	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	40	39	40	30	rain					
2	40	39	40	30	cloudy					75
3	40	39	43	34	rain					
4	40	39	59	36	cloudy					
5	40	39	60	34	clear					
6	42	39	64	44	clear					222
7	45	43	65	32	clear					
8	45	43	63	26	clear					
9	45	43	78	42	clear					217
10	45	43	66	40	cloudy					
11	45	43	66	40	cloudy					
12	45	45	70	45	clear					
13	47	45	73	28	clear					
14	47	45	64	33	cloudy					347
15	47	46	56	40	rain					
16	47	47	50	31	rain					
17	48	48	53	35	pty cloudy					
18	48	48	52	37	rain					
19	49	49	58	26	clear					
20	49	49	58	26	clear					
21	50	49	60	24	clear					136
22	49	49	60	34	clear					
23	50	49	66	28	clear					
24	50	49	73	36	cloudy					
25	50	49	68	36	cloudy					
26	51	49	58	38	clear					
27	50	49	51	42	rain					
28	50	49	62	34	cloudy					44
29	50	49	59	36	pty cloudy					
30	50	49	53	32	pty cloudy					
31	50	49	56	28	pty cloudy					
TOTALS										1,157
Cumulative Totals						6,962	925	499	250	2,079

Appendix Table 4 (cont.)

April	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	50	49	57	32	clear					
2	50	49	53	38	cloudy					
3	50	49	60	30	pty cloudy					
4	51	49	76	34	clear					
5	51	50	73	40	cloudy					
6	52	50	47	43	lt. rain					
7	51	50	70	42	clear					
8	52	51	70	37	cloudy					
9	52	51	56	36	cloudy					
10	51	51	41	34	rain					
11	51	51	50	39	pty cloudy					
12	51	50	64	39	cloudy					
13	52	51	66	38	clear					
14	52	51	62	37	cloudy					
15	52	51	68	36	pty cloudy					
16	52	51	54	38	cloudy					
17	52	51	48	34	cloudy					
18	52	51	53	31	cloudy					
19	53	51	62	28	pty cloudy					
20	53	52	69	31	clear					
21	53	52	68	44	cloudy					
22	53	52	59	45	pty cloudy					
23	53	53	60	38	cloudy					
24	53	53	65	38	cloudy					
25	54	53	73	38	clear					
26	54	53	60	50	cloudy					
27	54	53	66	41	clear					
28	54	53	74	38	clear					
29	54	53	70	44	cloudy					
30	54	54	73	44	cloudy					
OTALS						6,262	925	199	250	2,079

Appendix Table 4 (cont.)

May	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	54	54	57	50	pty cloudy					
2	54	53	76	39	clear					
3	55	54	80	43	pty cloudy					
4	54	54	66	48	cloudy					
5	54	54	51	44	cloudy					
6	54	53	44	38	rain					
7	54	53	49	35	rain					
8	54	53	53	33	rain					
9	54	54	60	40	pty cloudy					
10	55	54	72	37	clear					
11	55	54	78	40	clear					
12	55	54	83	45	clear					
13	55	54	89	46	clear					
14	56	54	88	48	clear					
15	55	54	84	49	clear					
16	55	54	88	50	clear					
17	56	54	82	49	clear					
18	56	54	83	51	clear					
19	55	54	88	53	clear					
20	55	55	90	54	clear					
21	55	55	90	54	clear					
22	56	55	78	54	cloudy					
23	55	55	77	53	cloudy					
24	55	55	81	47	clear					
25	55	55	90	50	clear					
26	55	55	81	54	clear					
27	56	55	67	46	clear					
28	56	55	70	37	clear					
29	56	55	78	42	pty cloudy					
30	56	55	84	42	clear					
31	56	55	86	45	clear					
TOTALS						6,962	925	499	250	2,079

Appendix Table 4 (cont.)

June	Temperature (Degree F) Water Maximum	Water Minimum	Air Maximum	Air Minimum	Weather	Fish Trapped: Chinook salmon Adults	Chinook salmon Grilse	Coho salmon Adults	Coho salmon Grilse	Steelhead trout
1	56	55	90	50	clear					
2	56	55	96	55	clear					
3	56	55	94	56	clear					
4	56	55	87	56	clear					
5	56	55	88	54	clear					
6	56	55	71	49	clear					
7	56	55	74	41	clear					
8	56	55	84	42	clear					
9	56	55	90	49	pty cloudy					
10	57	56	91	55	clear					
11	57	56	91	54	clear					
12	57	56	89	51	clear					
13	56	56	78	48	clear					
14	56	56	74	45	clear					
15	56	56	77	46	clear					
16	56	55	63	46	lt. rain					
17	56	55	61	41	cloudy					
18	56	55	62	48	cloudy					
19	56	55	79	50	clear					
20	56	55	83	49	pty cloudy					
21	56	56	85	50	clear					
22	57	56	88	49	clear					
23	57	56	91	53	clear					
24	57	56	95	54	clear					
25	57	56	95	59	pty cloudy					
26	57	56	95	63	pty cloudy					
27	57	56	96	58	clear					
28	57	56	91	57	clear					
29	57	55	81	50	clear					
30	57	55	76	45	pty cloudy					
TOTALS						6,262	225	100	250	2,079