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ANNUAL REPORT
IRON GATE SALMON AND STEELHEAD HATCHERY
1984-85

by

Curtis A. Hiser
Region 1, Inland Fisheries

Inland Fisheries
Administrative Report No. 87-6

1987

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ABSTRACT

This report describes the operation of Iron Gate Salmon and Steelhead Hatchery from July 1, 1984 through June 30, 1985. Appendix tables present daily records of water temperatures and weather conditions, daily numbers of salmonids entering the hatchery, total numbers of salmonids reared and released, and historical records.

There were 5,330 fall-run adult chinook salmon, Oncorhynchus tshawytscha, trapped, which produced 4,955,080 eggs. No spring-run chinook salmon were taken. The 794 adult coho salmon, O. kisutch, produced 981,270 eggs. A total of 1,385 (373 fall-run and 1,012 spring-run) steelhead trout, Salmo gairdneri, produced 1,004,290 eggs.

A total of 3,177,052 fingerling and 1,330,290 yearling chinook salmon; 22,059 yearling coho salmon; and 185,700 yearling steelhead was planted and/or transferred in FY 1984-85.

The production of steelhead from Bogus Rearing Pond ranged from 10,850 in 1976 to 38,580 in 1981. No steelhead were raised in Bogus Pond in 1984.

1/ Inland Fisheries Administrative Report No. 87-6

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INTRODUCTION

This report covers the 24th 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 20th 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 operating 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 July 1, 1984 through June 30, 1985.

Bogus Rearing Pond is located near the mouth of Bogus Creek, which is immediately downstream from 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 1984-85.

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1984 Run

Spring Run, 1984 Brood Year

No spring-run chinook salmon appeared at the trap in 1984.

Fall Run, 1984 Brood Year

A total of 6,094 fall-run chinook salmon was trapped: 2,484 males, 2,846 females, and 764 grilse (<56 cm [22 inches] FL) (Figure 1). There were 1,832 females spawned; they produced 4,955,080 eggs for an average of 2,705 eggs per female (Table 1). Prespawning mortality was 1,014 females (36%). Seventeen lots of eggs were taken, with an average fertility of 85%. Approximately 949,900 chinook salmon fingerlings were on hand as of June 30, 1985.

Distribution of 1983 Brood Year Chinook Salmon

There were 52,500 fingerlings planted and/or transferred from July 2 to July 5, 1984, ranging in size from 67 to 87/lb (Table 2). From October 12 through December 3, 1984, 1,330,290 yearlings were planted which ranged in size from 9 to 10/lb (Table 2). In cooperation with the University of California at Berkeley, about 1,500 salmon were sacrificed by hatchery personnel for smoltification studies.

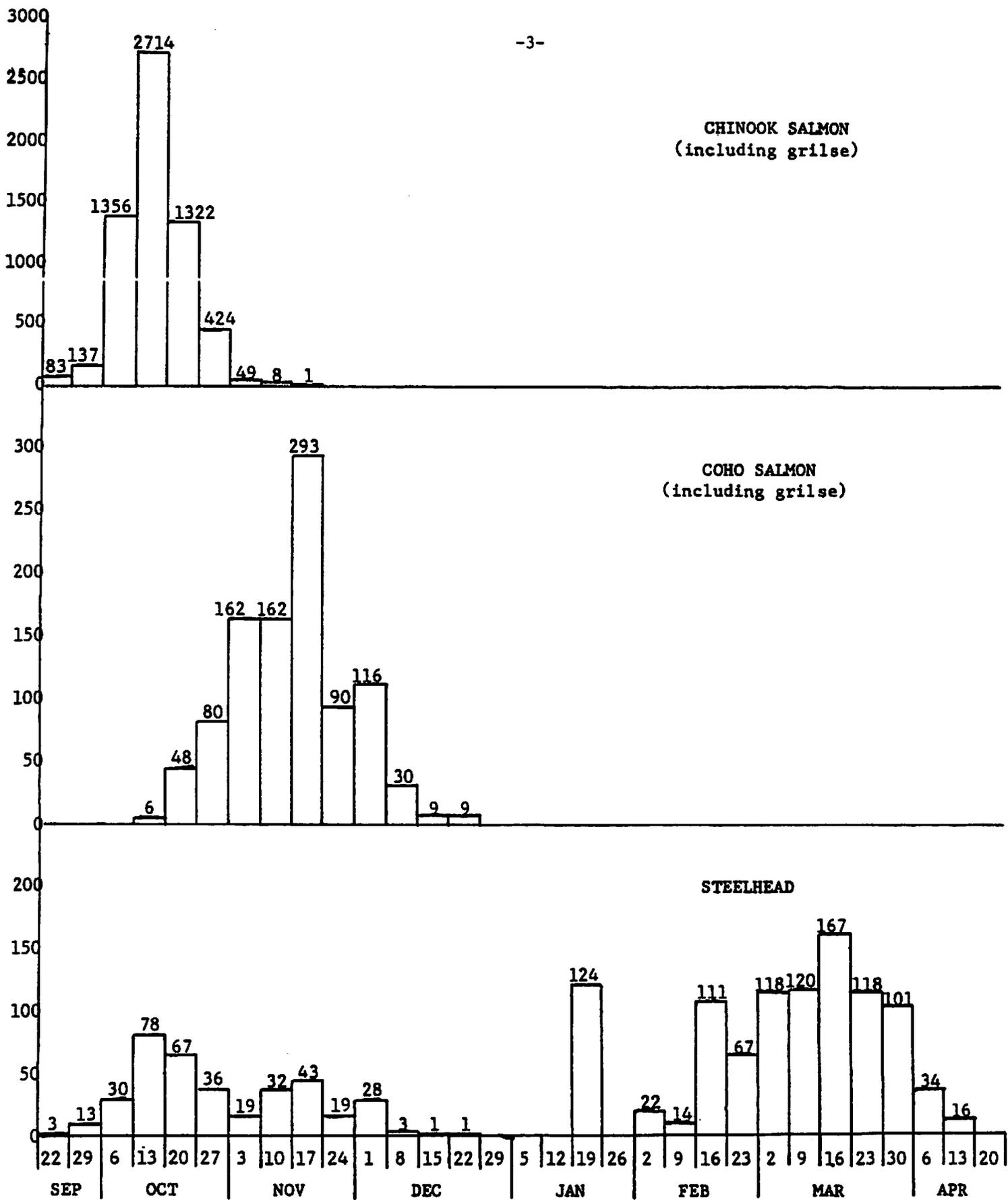


FIGURE 1. Weekly numbers of chinook salmon, coho salmon, and steelhead trapped at Iron Gate Salmon and Steelhead Hatchery, 1984-85 season.

TABLE 1. Iron Gate Hatchery Production Summary, 1984-85

	Adults trapped	Eggs taken or received	Eggs transferred	Fingerlings planted and transferred	Yearlings planted	Total pounds planted and transferred
<u>Chinook Salmon</u>						
1983 BY				52,500	1,330,290	146,814
1984 BY	5,330	4,955,080		3,124,552		27,043
<u>Coho Salmon</u>						
1983 BY					22,059	3,151
1984 BY	794	981,270	215,000			
<u>Steelhead</u>						
1984 BY					185,700	20,000
1985 BY	1,385	1,004,290	460,187			

Distribution of the 1984 Brood Year Chinook Salmon

There were 2,904,176 fingerling salmon planted from June 17 to June 27, 1985, which ranged in size from 100 to 117/1b (Table 2). From June 11 to June 21, 1985, 220,376 fingerling salmon were transferred to the Klamath River Rearing Ponds (Table 2). Approximately 286 salmon were sacrificed by hatchery personnel for smoltification studies being done by the University of California at Berkeley.

Marked Chinook Salmon Recovered

Of the 1,485 marked chinook salmon trapped during 1984-85 (Table 3), 1,160 were Iron Gate marks, 11 were from the Klamath River Rearing Ponds, 9 from Trinity River Hatchery, 13 from Klamath Glen, 7 from the South Fork of the Salmon River, 1 from Cole Rivers Hatchery in Oregon, and 284 (Ad) were of undetermined origin.

COHO SALMON MAINTENANCE PROGRAM

History of the 1984 Run

The first coho salmon entered the trap on October 10, 1984 and the last on December 19, 1984 (Figure 1). A total of 1,005 fish was trapped: 444 males, 350 females, and 211 grilse (56 cm or 22 inches FL). The 344 females spawned produced 981,270 eggs for an average of 2,853 eggs per female (Table 1). There were 15,000 eyed eggs shipped to Humboldt State University at Arcata, and 200,000 to Mad River Hatchery. From July 1, 1984 through June 30, 1985, 800 fingerling and yearling coho were supplied to the University of California at Berkeley for smoltification studies. An additional 664 coho salmon were sacrificed at Iron Gate by hatchery personnel for plasma sampling in cooperation with the University. Approximately 272,000 fingerlings were held for later release.

TABLE 2. Iron Gate Hatchery Chinook Salmon Distribution Data, 1984-85

Race and broodyear	Date released	Average size (lb)	Number released	Release site	Mark (Coded Wire tag No.)
Fall-run, 1983	10/12/84 ^{a/}	10	150,000	IGH	-
	11/7-9/84	9	180,000	IGH	-
	11/14/84	9	6,300	Klamath Glen	Ad(6-59-26)
	11/19/84	9	6,300	Klamath Glen	Ad(6-59-26)
	11/21/84	9	101,000 ^{b/}	IGH	Ad(6-59-25)
	11/21/84	9	25,500 ^{c/}	IGH	Ad(6-59-31)
	11/21/84	9	26,000 ^{d/}	IGH	Ad(6-59-32)
	11/21/84	9	25,000 ^{e/}	IGH	Ad(6-59-33)
	11/21/84	9	797,500	IGH	-
	11/26/84	9	6,300	Klamath Glen	Ad(6-59-26)
	12/3/84	9	6,390	Klamath Glen	Ad(6-59-26)
Total yearlings			1,330,290		
Fall-run, 1983	Transferred to Klamath River Rearing Ponds:				
	7/5/84	67	19,750	Bluff Ck. Pd.	-
	Planted:				
	7/2/84	87	32,750	Klamath Glen	Ad(6-59-24)
Fall-run, 1984	Transferred to Klamath River Rearing Ponds:				
	6/11/85	101	20,000	Indian Ck. Pd.	-
	6/13/85	100	40,000	Indian Ck. Pd.	-
	6/14/85	100	10,200	Indian Ck. Pd.	-
	6/18/85	104	40,040	Camp Creek Pd.	-
	6/19/85	104	40,040	Thompson Ck. Pd.	-
	6/20/85	104	50,024	Bluff Ck. Pd.	-
	6/21/85	104	20,072	Bluff Ck. Pd.	-
	Planted:				
	6/17/85	117	25,038	Klamath Glen	Ad(6-59-28)
	6/19/85	117	25,038	Klamath Glen	Ad(6-59-28)
	6/20/85	104	4,056	Hoopa Tribal Fisheries Hatcher	
	6/24/85	100	25,000	Klamath Glen	Ad(6-59-28)
	6/27/85	100	25,000	Klamath Glen	Ad(6-59-28)
	6/27/85	117	2,600,044	IGH	-
	6/27/85	117	200,000	IGH	Ad(6-59-27)
Total fingerlings			3,177,052		

- ^{a/} Early release to relieve crowded condition in ponds.
- ^{b/} Abernathy feed test group.
- ^{c/} Oregon moist pellet feed test group.
- ^{d/} Silver cup feed test group.
- ^{e/} Salt treated test group.

TABLE 3 . Coded-wire-tag (CWT) Recoveries for Iron Gate Hatchery (IGH) With Release Data ^{1/}

Cwt code	Egg source	Brood year	Release information				Recovery information					
			Date	Number	Size (#/lb)	Site	CWT recoveries			Mean fl(cm)a/		
							Year	Actual	Expanded	Male	Female	Unknown
FALL CHIN												
06 59 02	IGH	1979	11/17-21/80	91,000	11	IGH	81-82	6	6	--b/	--	48(6)
							82-83	124	165	--	--	65(124)
							83-84	64	94	--	72(64)	
							84-85	3	3	81(3)	--	
06 59 03	IGH	1979	6/16-19/80	189,420	77	IGH	81-82	16	16	--	--	52(12)
							82-83	169	225	--	--	71(169)
							83-84	41	60	--	--	72(41)
							84-85	3	3	74(1)	67(2)	
06 59 05	IGH	1980	6/8-9/81	185,857	74	IGH	82-83	55	73	--	--	52(3)
							83-84	97	143	--	--	62(97)
							84-85	20	21	70(8)	71(10)	
06 59 06	IGH	1980	10/26-30/81	87,450	9	IGH	82-83	12	16	--	--	46(12)
							83-84	114	168	--	--	59(114)
							84-85	75	79	71(25)	70(2)	
06 59 13	IGH	1980	10/26/81	1,800	7.3	Thompson Cr.	82-83	1	1	--	--	55(1)
							83-84	1	1	--	--	57(1)
							84-85	1	1	--	69(1)	
06 59 14	IGH	1980	10/9/81	18,709	20.5	Red Cap Cr.	82-83	1	1	--	--	
							83-84	2	4	--	--	57(2)
							84-85	2	2	--	71(2)	
06 59 15	IGH	1980	5/26-27/81	35,803	220.5	Camp Cr.	82-83	2	3	--	--	67(2)
							83-84	0	0	--	--	
							84-85	2	2	--	66(1)	
06 59 16	IGH	1980	10/27/81	12,770	13.2	Indian Cr.	82-83	7	9	--	--	55(7)
							83-84	2	3	--	--	58(2)
							84-85	3	3	--	71(3)	
06 59 17	IGH	1980	10/9-28/81	13,939	15.9	Camp Cr.	82-83	4	5	--	--	48(4)
							83-84	1	1	--	--	60(1)
							84-85	3	3	67(1)	75(1)	
06 61 18	IGH	1980	6/5/81	201,090	189.2	TRH	84-85	1	1	41(1)	--	
06 59 04	IGH	1981	11/15-18/82	65,385	20.9	IGH	83-84	2	2	--	--	44(2)
							84-85	36	38	62(10)	63(13)	
06 59 07	IGH	1981	6/23-24/82	159,092	238.1	IGH	83-84	9	9	--	--	44(36)
							84-85	183	193	66(65)	64(83)	

^{1/} Coded wire tag data obtained using funds provided in part through the Anadromous Fish Conservation Act (PL 89-304) under California Projects AFC-16 (Salmon and Steelhead Research, management, and Enhancement Project) and AFS-20 (Klamath-Trinity Salmon and Steelhead Research, Management and Restoration Project).

TABLE 3. Coded-wire-tag (CWT) Recoveries for Iron Gate Hatchery (IGH) with Release Data (cont'd)

CWT code	Egg source	Brood year	Date	Number	Size (l/lb)	Site	Recovery information					
							CWT recoveries	Mean Fl/cm	Actual Expands/Male Female Unknown			
06 59 18	IGH	1981	11/15-18/82	25,586	20.9	IGH	82-83	2	3	--	--	39(1)
FALL CHIR (continued)												
06 59 19	IGH	1981	11/15-18/82	30,781	20.9	IGH	84-85	14	14	63(6)	62(7)	
06 61 22	TRH	1981	10/12/82	94,991	36.7	TRH	84-85	2	2	--	57(1)	
06 50 10	IGH	1982	11/7-9/83-12/5/83	39,127	16.5	IGH	84-85	24	25	49(18)	--	
06 50 11	IGH	1982	11/7-9/83-12/5/83	36,997	16.5	IGH	84-85	34	36	50(28)	69(1)	
06 56 07	TRH	1982	6/29/83	88,854	145.7	TRH	84-85	1	1	74(1)	--	
06 56 10	TRH	1982	11/14/83	20,902	13.4	TRH	84-85	1	1	48(1)	--	
06 59 08	IGH	1982	11/7-9/83-12/5/83	70,171	7.5	IGH	84-85	21	22	48(16)	65(1)	
06 59 09	IGH	1982	6/27-28/83	158,824	66.0	IGH	84-85	9	10	49(7)	--	
06 59 10	IGH	1982	6/23/83	83,023	75.2	Klamath Glen	84-85	4	4	51(3)	--	
06 59 11	IGH	1982	11/28-29/83	7,099	7.5	Klamath Glen	84-85	9	10	49(16)	--	
06 59 20	IGH	1982	6/2-8/83	47,040	114.2	S.F. Salmon R.	84-85	7	7	59(4)	65(2)	
06 61 29	TRH	1982	11/83	96,583	6.1	TRH	84-85	1	1	--	--	
07 26 14	CRH	1982	10/83	26,775	7.1	CRH	84-85	1	1	--	65(1)	
10 00 00c/												
82-83												
83												
129												
172												
83-84												
14												
21												
84-85												
65												
69												
--												
--												

TABLE 3.

Coded-wire-tag (CWT) Recoveries for Iron Gate Hatchery (IGH) With Release Data (Cont'd)

CWT code	Egg source	Brood year	Release information				Recovery information					
			Date	Number	Size (#/lb)	Site	CWT recoveries			Mean FL(cm)		
							Year	Actual	Expanded ^a	Male	Female	Unknown
COHO												
06 56 06	TRH	1981	4/13/83	33,949	14.5	TRH	84-85	2	3	--	66(2)	
06 59 52	IGH	1981	2/4/83	19,042	6.2	IGH	83-84	8	8	--	--	43(9)
							84-85	49	77	68(24)	69(21)	
06 59 53	IGH	1981	3/14/83	18,920	14.0	IGH	83-84	8	8	--	--	42(8)
							84-85	108	170	69(46)	69(49)	
06 59 54	IGH	1981	3/28/83	19,335	12.0	IGH	83-84	13	14	--	--	39(13)
							84-85	149	234	69(70)	69(61)	
06 59 55	IGH	1981	4/13/83	18,870	10.0	IGH	83-84	11	12	--	--	42(8)
							84-85	140	220	69(60)	70(64)	
06 59 52	IGH	1982	2/23/84	18,300	12.0	IGH	84-85	26	41	45(25)	--	
06 59 57	IGH	1982	4/1/84	18,640	11.0	IGH	84-85	16	25	44(15)	--	
06 59 58	IGH	1982	4/16/84	18,185	11.0	IGH	84-85	23	36	43(20)	62(1)	
06 59 59	IGH	1982	4/30/84	18,400	10.0	IGH	84-85	39	61	43(35)	69(3)	
10 00 00	--	--	--	--	--	--	84-85	5	4	--	--	

a/ Sample size in parentheses.

b/ -- = Data not available.

c/ 10 00 00 = No CWT in head of Ad-marked fish.

d/ 20 00 00 = CWT lost during head dissection.

Planting 1982-83 Brood Year Coho Salmon

There were 22,059 coho salmon planted during the 1984-85 season (Table 4).

TABLE 4. Iron Gate Hatchery Coho Salmon Planting Data, 1984-85

Date	Average size/lb	Number	Brood year	Release site	Mark (Coded Wire tag No.)
3/21/85	7	22,059	1983	IGH	Ad (6-59-30)
Total yearlings		22,059			

Marked Coho Salmon Recovered

Of the 866 marked coho salmon recovered in the trap (Table 5) 656 were of Iron Gate origin, 2 were from Trinity River Hatchery, and 208 (Ad) were of undetermined origin.

TABLE 5. Marked Coho Salmon Recovered at Iron Gate hatchery 1984-85^{a/}

Mark (Coded wire Tag No.)	Number trapped	Release Data						
		Brood year *	Race	Number released	Date released	Mean FL(mm)	Average Release size /lb site	
Ad(6-59-52)	57	1981	FRSS	20,257	2/4/83	-	14 IGH	
Ad(6-59-53)	132	1981	FRSS	20,000	3/14/83	-	14 IGH	
Ad(6-59-54)	174	1981	FRSS	20,015	3/28/83	-	12 IGH	
Ad(6-59-55)	175	1981	FRSS	20,400	4/13/83	-	12 IGH	
Ad(6-59-56)	34	1982	FRSS	20,000	2/23/84	-	12 IGH	
As(6-59-57)	20	1982	FRSS	19,000	4/1/84	-	10 IGH	
Ad(6-59-58)	23	1982	FRSS	19,042	4/16/84	-	11 IGH	
Ad(6-59-59)	41	1982	FRSS	20,000	4/30/84	-	11 IGH	
Ad(6-56-6)	2	1981		34,438	4/13/83	-	14.5 TRH	
Ad(?)	208	-	-	-	-	-	-	

^{a/} Information supplied by Ivan Paulsen, Fisheries Biologist, Yreka, and Iron Gate Files.

STEELHEAD TROUT MAINTENANCE PROGRAM

History of the 1984-85 Run

Between September 21 and December 31, 1984, 373 steelhead entered the trap and were held for later spawning. An additional 1,012 steelhead were trapped between January 1 and April 10, 1985 (Figure 1).

The 449 females spawned produced 1,004,290 eggs for an average of 2,237 eggs per female. 460,187 green eggs were shipped to Trinity River Hatchery (Table 1).

83,000 grade-off steelhead (BY 1984) have been held at the hatchery to be released as two-year-old fish.

Approximately 539,000 steelhead fingerlings from the 1985 brood year were on hand June 30, 1985.

Planting 1984 Brood Year Steelhead

We planted 185,700 steelhead yearlings in 1984-85 (Table 6).

Table 6. Iron Gate Hatchery Juvenile Steelhead Planting Data, 1984-85

Strain	Brood year	Date released	Average size/lb	Number released	Release site	Mark Brand
KR	1984	5/15-17/85	9	185,700	IGH	-

Marked Steelhead Trapped

A total of 286 marked steelhead were trapped this season (Table 7). Of these, 96 were Iron Gate marks; 28 were Trinity River Hatchery marks; 1 was a Cole Rivers mark; and 141 (RV "?"), 6 (LV "?"), 2 (Ad), 9 (RVRP), 2 (RPLP), and 1 (AdRV) were of undetermined origin.

TABLE 7. Marked Steelhead Recovered at Iron Gate Hatchery
1984-85 Run ^{a/}

Mark Brand	Number trapped	Brood year	Race	Number released	Release Data			
					Date released	Mean FL (mm)	Average size	Release site
RV "H"	33	1981	IGH	66,980	6/15/82	-	8/1b	IGH
RV "O"	50	1981	IGH	66,750	5/14/82	-	10/1b	IGH
RV "T"	11	1981	IGH	66,000	4/15/82	-	10.5/1b	IGH
RV "7" _{b/}	141	-	-	-	-	-	-	-
LV "H"	1	1980	IGH	66,000	4/15/81	150	10/1b	IGH
LV "O"	1	1980	IGH	66,000	5/15/81	149	13/1b	IGH
LV "7" _{b/}	6	-	-	-	-	-	-	-
RVRM	1	1979	Cole R. Rogue R.	-	4/81	-	-	-
RVLP	6	1979	TRH	139,211	4/80	174	18.9/k	TRH
AdLP	1	1979	TRH	18,365	4/80	178	16.5/k	TRH
RP	13	1978	IGHXTRH	67,570	4/04/79	183	-	TRH
LP	8	1978	IGH	324,774	3/22/79	175	-	TRH
RVRP	9	-	-	-	-	-	-	-
Ad	2	-	-	-	-	-	-	-
RPLP	2	-	-	-	-	-	-	-
AdRV	1	-	-	-	-	-	-	-

^{a/} Information supplied by Ivan Paulsen, Fisheries Biologist, and Iron Gate Files.
_{b/} Indicates freeze-branded letter not distinguishable.

BOGUS REARING POND

Releases of yearling steelhead reared in Bogus Pond since 1972 have ranged from 10,850 - 38,580 (Table 8). As of June 30, 1985, there are no steelhead in Bogus Pond.

PUBLIC RELATIONS

During the 1984-85 fiscal year, 2,207 people visited the hatchery, including 291 people in organized groups.

TABLE 6. Summary of Bogus Creek Rearing Pond Steelhead Production 1972-73 through 1984-85^{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 Di.	-
		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.			
1980-81	183,000	38,580	Klamath R. @ Iron Gate	LV-"X"
1981-82	No fish were reared in Bogus Pond.			
1982-83	92,536	22,200	Klamath R. @ Iron Gate	-
1983-84	40,000	21,150	Iron Gate Lake	-
		1,550	Klamath R. @ Iron Gate	-
Total		22,700		
1984-85	No fish were reared in Bogus Pond.			

^{a/} Information supplied by Robert P. Caddell, Fish Habitat Supervisor; Ivan Paulsen, Fisheries Biologist; and Iron Gate records.

APPENDIX TABLE 1. Summary of Chinook Salmon Runs to Iron Gate Salmon and Steelhead Hatchery

Season	Fall-trapped		Fall run				Spring-trapped		
	Spring run*		Males	Females	Total		Total Fall run	Spring run*	
Adults	Grilse	Adults			Grilse	Adults		Grilse	Adults
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
1980-81	0	0	948	1,464	2,412	451	2,863	0	0
1981-82	0	0	904	1,151	2,055	540	2,595	0	0
1982-83	0	0	3,805	4,548	8,353	1,833	10,186	0	0
1983-84	0	0	3,927	4,444	8,371	514	8,885	0	0
1984-85	0	0	2,484	2,846	5,330	764	6,094	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 to Iron Gate Salmon and Steelhead Hatchery

Season	Coho Salmon					Steelhead*		Total
	Males	Females	Adults	Grilse	Total	Fall-trapped early run	Spring-trapped late run	
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
1980-81	580	1,220	1,800	251	2,051	359	888	1,247
1981-82	402	502	904	93	997	1,903	358	2,261
1982-83	499	634	1,133	496	1,629	1,267	1,436	2,703
1983-84	128	90	218	71	289	470	362	832
1984-85	444	350	794	211	1,005	373	1,012	1,385

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

APPENDIX TABLE 3. Fork Length (to nearest cm) of Steelhead Measured at Iron Gate Salmon and Steelhead Hatchery^{1/}

Length	Number trapped	
	Males	Females
35		1
36		1
37	2	
38	6	4
39	3	10
40	8	9
41	11	18
42	12	18
43	6	9
44	20	20
45	6	24
46	16	26
47	23	35
48	23	25
49	14	30
50	18	36
51	22	30
52	17	30
53	19	21
54	16	14
55	10	12
56	25	7
57	22	4
58	20	5
59	7	3
60	14	2
61	8	2
62	14	
63	6	2
64	3	1
65	4	
66		1
67		
68		
69		1
70		
71		
72	1	
73	1	
Average	51.5	48.4

^{1/} Information supplied by Ivan Paulsen, Fisheries Biologist, Yreka.

APPENDIX TABLE 4.
 Iron Gate Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data
 July 1, 1984 through June 30, 1985

July	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	Trout
1	53	50	94	50	clear					
2	53	50	87	39	clear					
3	54	49	95	49	clear					
4	53	49	99	52	clear					
5	54	49	99	51	clear					
6	54	50	90	56	clear					
7	55	49	83	45	clear					
8	54	49	82	44	clear					
9	54	49	83	44	clear					
10	54	49	92	46	clear					
11	54	50	86	51	clear					
12	54	49	84	44	clear					
13	54	49	87	44	clear					
14	54	50	89	48	clear					
15	54	49	100	52	clear					
16	54	49	100	59	clear					
17	53	50	87	59	clear					
18	53	51	91	58	clear					
19	54	50	87	52	clear					
20	55	50	90	50	clear					
21	54	50	84	48	clear					
22	54	50	87	44	clear					
23	53	51	90	54	clear					
24	54	51	85	53	clear					
25	54	51	91	45	clear					
26	54	51	90	48	clear					
27	55	51	90	49	clear					
28	55	51	90	60	clear					
29	55	51	92	54	clear					
30	55	51	92	48	clear					
31	55	51	94	48	clear					

APPENDIX TABLE 4 (cont'd)

August	Temperature (Degree F)				Weather	Fish Trapped		
	Water		Air			King Salmon	Silver Salmon	Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Trout
1	54	51	95	59	clear			
2	55	51	96	48	clear			
3	55	52	92	52	clear			
4	56	52	92	51	clear			
5	55	52	82	48	clear			
6	55	52	82	46	clear			
7	56	52	95	45	clear			
8	54	50	98	50	clear			
9	54	51	99	50	clear			
10	55	51	90	48	clear			
11	55	52	98	50	clear			
12	53	51	86	43	clear			
13	55	53	90	44	clear			
14	55	53	89	44	clear			
15	55	53	90	46	clear			
16	56	53	86	47	cloudy			
17	56	53	89	56	clear			
18	56	53	88	58	clear			
19	56	53	89	53	clear			
20	56	53	89	50	clear			
21	56	53	95	56	clear			
22	56	53	91	55	clear			
23	54	53	88	54	clear			
24	54	53	78	52	cloudy			
25	54	53	86	54	pty cloudy			
26	54	53	90	52	clear			
27	54	52	82	44	pty cloudy			
28	55	53	93	46	clear			
29	54	53	89	45	rain			
30	55	54	72	46	rain			
31	55	54	70	45	rain			

APPENDIX TABLE 4 (cont'd)

September	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead Trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	56	53	80	41	clear					
2	56	53	85	43	pty cloudy					
3	56	54	86	44	clear					
4	56	53	90	42	clear					
5	55	54	87	40	cloudy					
6	56	55	78	40	pty cloudy					
7	56	55	88	42	clear					
8	55	54	90	52	clear					
9	55	54	93	56	clear					
10	55	54	87	47	clear					
11	57	55	79	42	clear					
12	57	55	80	39	clear					
13	56	55	86	43	clear					
14	57	55	80	42	rain					
15	56	55	85	34	clear					
16	57	55	85	40	clear					
17	56	55	89	43	clear					
18	56	55	92	43	pty cloudy					
19	56	55	85	41	rain					
20	57	55	80	42	rain					
21	56	56	79	40	clear	78	5			3
22	56	56	92	38	clear					
23	56	56	84	39	clear					
24	57	55	87	40	clear					
25	57	56	71	39	clear					
26	58	56	82	38	clear					
27	59	56	88	39	clear	126	11			13
28	59	57	92	40	clear					
29	59	57	82	33	clear					
30	59	57	79	40	rain					
TOTALS						204	16			16

APPENDIX 4. (con't)

Date	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	Trout
1	60	58	70	38	clear	232	18			15
2	60	58	78	32	clear	93	6			1
3	60	58	78	33	clear					
4	59	59	76	33	cloudy	455	42			10
5	57	56	79	38	cloudy	460	50			4
6	57	56	78	48	pty cloudy					
7	57	56	84	46	clear					
8	57	55	68	40	cloudy					
9	57	55	79	38	cloudy	372	32			14
10	57	55	64	42	rain	1,438	71		1	27
11	56	55	52	40	pty cloudy	233	35	1	1	8
12	56	56	62	34	cloudy	449	84	1	2	29
13	56	56	62	34	cloudy					
14	56	54	53	37	cloudy					
15	54	53	56	30	pty cloudy	515	90		4	23
16	54	52	54	26	rain	88	21		1	12
17	54	53	44	28	rain	169	37	1	12	15
18	54	54	48	26	rain	149	59	5	16	13
19	53	52	47	33	rain	137	57	3	6	4
20	53	51	58	34	cloudy					
21	50	50	48	28	cloudy					
22	50	48	62	28	clear	233	90	11	21	20
23	50	48	66	34	cloudy					
24	50	48	62	28	clear	47	24	4	25	13
25	48	46	64	30	cloudy					
26	47	46	51	44	cloudy	20	10	9	10	3
27	47	46	60	22	pty cloudy					
28	47	47	45	34	rain, snow					
29	46	45	54	32	cloudy	29	16	33	38	9
30	46	45	54	28	cloudy					
31	46	45	54	26	clear			30	18	8
Totals						5,119	742	98	155	228
Cumulative Totals						5,323	758	98	155	244

APPENDIX 4. (cont'd)

November	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead Trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	46	45	57	26	cloudy					
2	46	45	49	41	rain	2	2	29	14	2
3	46	45	47	34	rain					
4	46	45	53	30	pty cloudy					
5	46	44	56	20	cloudy	2		53	10	11
6	45	44	52	38	cloudy					
7	44	44	48	34	cloudy					
8	45	44	40	38	cloudy					
9	45	44	36	30	cloudy	3	3	92	7	21
10	45	44	50	36	cloudy					
11	45	44	44	38	rain					
12	45	44	50	40	cloudy					
13	44	44	56	36	rain		1	185	12	29
14	46	44	46	34	cloudy			7		2
15	45	44	47	32	rain					
16	45	44	56	32	clear			85	4	12
17	45	44	52	24	cloudy					
18	43	41	53	37	cloudy					
19	41	40	46	28	cloudy			48	3	8
20	41	40	46	34	rain					
21	41	40	46	21	clear			38	1	11
22	41	40	46	20	cloudy					
23	41	40	40	24	rain					
24	41	40	36	30	snow					
25	41	40	44	26	cloudy					
26	41	40	38	20	cloudy			55	2	11
27	41	40	34	30	rain					
28	41	40	42	37	rain					
29	40	40	52	36	rain, snow					
30	39	38	56	48	cloudy			57	2	17
Totals						7	6	649	55	124
Cumulative Totals						5,330	764	747	210	368

APPENDIX TABLE 4. (cont'd)

December	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	Trout
1	39	38	44	22	pty cloudy					
2	39	38	42	24	rain					
3	39	38	46	30	clear					
4	39	38	43	32	clear					
5	39	38	50	30	clear			29	1	3
6	38	37	48	32	clear					
7	38	36	47	22	clear					
8	38	36	36	22	clear					
9	38	36	43	32	cloudy					
10	38	36	40	34	cloudy			5		1
11	38	36	36	24	rain					
12	38	36	38	32	cloudy					
13	38	36	46	22	clear					
14	37	36	44	20	clear			4		
15	37	36	44	28	cloudy					
16	37	35	42	18	pty cloudy					
17	36	35	38	24	snow					
18	36	36	38	26	clear					
19	36	35	37	14	clear			9		1
20	36	35	30	10	cloudy					
21	36	35	44	24	clear					
22	36	35	37	18	clear					
23	36	35	27	14	pty cloudy					
24	36	35	26	18	fog					
25	36	36	38	18	fog					
26	36	35	38	26	cloudy					
27	36	35	37	17	cloudy					
28	36	35	42	29	cloudy					
29	36	35	36	22	cloudy					
30	36	35	44	24	cloudy					
31	35	34	40	20	clear					
Cumulative Totals						5,330	764	794	211	373

APPENDIX TABLE 4. (Cont'd)

January	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead Trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	35	34	44	20	clear					
2	35	34	40	18	clear					
3	35	34	44	19	clear					
4	35	34	42	20	cloudy					
5	35	34	39	27	cloudy					
6	35	35	40	29	overcast					
7	35	35	41	31	rain					
8	35	34	50	32	clear					
9	35	34	49	28	snow					
10	35	34	47	22	clear					
11	35	34	46	24	cloudy					
12	36	35	44	22	clear					
13	36	35	44	15	clear					
14	36	34	47	16	clear					
15	36	34	50	21	clear					
16	36	34	54	22	clear					
17	36	34	53	22	clear					124
18	36	35	45	24	cloudy					
19	36	35	48	23	cloudy					
20	36	35	53	26	clear					
21	36	35	49	30	clear					
22	36	35	52	29	clear					
23	36	35	54	20	clear					
24	36	35	54	25	cloudy					
25	37	35	46	24	cloudy					
26	37	36	48	28	clear					
27	37	36	46	18	cloudy					
28	37	36	44	26	cloudy					
29	37	36	38	25	cloudy					
30	37	36	40	18	clear					22
31	37	36	44	26	snow					
Total										146
Cumulative Totals						5,330	764	794	211	519

APPENDIX TABLE 4. (Cont'd)

February	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	Trout
1	37	37	33	23	snow					
2	37	37	38	24	snow					
3	37	36	40	29	snow					
4	37	36	37	12	clear					
5	37	36	46	18	snow					
6	37	36	44	22	cloudy					14
7	38	36	43	36	rain					
8	37	37	38	28	clear					
9	37	37	40	28	cloudy					
10	38	37	42	16	cloudy					
11	38	37	44	28	rain					
12	37	37	54	34	cloudy					
13	37	36	54	26	clear					111
14	37	36	54	26	pty cloudy					
15	37	36	61	37	clear					
16	38	36	54	28	pty cloudy					
17	38	36	53	26	clear					
18	38	36	62	33	clear					
19	38	36	50	26	cloudy					
20	38	37	46	30	clear					67
21	38	37	60	24	clear					
22	38	37	62	30	clear					
23	39	37	66	28	clear					
24	39	37	60	32	clear					
25	38	37	56	28	clear					
26	39	37	50	30	cloudy					118
27	39	37	59	32	clear					
28	40	38	64	27	clear					
Totals										316
Cumulative Totals						5,330	764	794	211	829

APPENDIX TABLE 4. (Cont'd)

Date	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead Trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	40	39	43	34	rain, snow					
2	40	40	41	28	snow					
3	40	40	47	18	cloudy					
4	40	40	42	30	pty cloudy					
5	40	39	44	22	cloudy					
6	40	39	44	24	pty cloudy					
7	41	40	44	30	clear					120
8	40	40	52	22	clear					
9	40	40	62	24	clear					
10	42	41	59	20	cloudy					
11	42	40	64	28	clear					
12	42	40	60	28	clear					
13	42	40	65	22	clear					167
14	42	41	68	27	clear					
15	42	40	70	27	clear					
16	43	41	67	32	clear					
17	42	41	57	33	cloudy					
18	42	41	67	32	cloudy					
19	42	41	68	30	clear					
20	42	41	61	33	cloudy					
21	43	42	46	23	cloudy					118
22	43	42	54	20	cloudy					
23	43	42	56	30	cloudy					
24	43	42	44	32	pty cloudy					
25	44	42	46	24	cloudy					
26	44	42	32	24	snow					
27	44	43	39	28	snow					
28	44	43	40	24	snow, rain					
29	44	43	50	25	pty cloudy					101
30	44	43	62	36	cloudy					
31	44	43	69	38	cloudy					
Total										506
Cumulative Totals						5,330	764	794	211	1,335

APPENDIX TABLE 4. (Cont'd)

April	Temperature (Degree F)		Fish Trapped				Weather					
	Water		King Salmon		Silver Salmon				Steelhead Trout.			
	Maximum	Minimum	Adults	Grilse	Adults	Grilse						
1	44	42					32	clear				
2	44	42					38	clear				
3	44	43					36	high clouds	34			
4	44	43					30	clear				
5	44	43					32	clear				
6	44	42					42	clear				
7	44	42					42	clear				
8	44	42					38	clear				
9	44	42					38	clear				
10	44	42					38	pty cloudy	16			
11	44	43					36	pty cloudy				
12	44	43					36	clear				
13	44	43					35	clear				
14	44	43					35	clear				
15	44	43					40	clear				
16	44	43					44	cloudy				
17	45	43					40	clear				
18	45	44					38	rain				
19	45	44					38	clear				
20	46	45					29	clear				
21	47	44					45	clear				
22	48	44					36	clear				
23	47	44					42	clear				
24	47	45					32	pty cloudy				
25	47	44					34	clear				
26	45	45					35	clear				
27	46	45					25	clear				
28	46	45					22	clear				
29	46	45					34	clear				
30	47	45					36	clear				
Totals:								50				
Cumulative Totals								5,330	764	794	211	1,385

APPENDIX TABLE 4. (Cont'd)

May	Temperature (Degree F)				Weather	Fish Trapped				
	Water		Air			King Salmon		Silver Salmon		Steelhead Trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	48	44	85	40	cloudy					
2	48	44	82	40	clear					
3	48	44	82	40	clear					
4	48	44	80	40	cloudy					
5	47	45	80	30	cloudy					
6	47	46	80	30	clear					
7	47	46	72	34	cloudy					
8	47	46	68	20	clear					
9	48	46	74	24	pty cloudy					
10	48	45	60	34	cloudy					
11	48	46	70	30	clear					
12	48	47	75	30	clear					
13	48	46	78	26	pty cloudy					
14	49	45	62	32	clear					
15	47	45	74	36	clear					
16	48	47	62	36	cloudy					
17	48	46	75	32	clear					
18	48	46	76	33	clear					
19	50	47	76	40	clear					
20	50	46	85	38	high clouds					
21	49	45	84	44	pty cloudy					
22	50	45	84	46	pty cloudy					
23	49	46	68	44	clear					
24	49	45	80	40	clear					
25	49	46	81	41	clear					
26	51	46	75	41	rain					
27	51	46	76	40	clear					
28	50	46	49	44	rain					
29	50	47	59	32	cloudy					
30	50	47	70	34	cloudy					
31	50	47	65	33	rain					
Totals						5,330	764	794	211	1,385

APPENDIX TABLE 4. (Cont'd)

June	Temperature (Degree F)				Weather	Fish Trapped					
	Water		Air			King Salmon		Silver Salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum		Adults	Grilæ	Adults	Grilæ	Trout	
1	50	47	60	37	rain						
2	50	47	68	38	clear						
3	50	48	78	34	clear						
4	50	48	76	50	cloudy						
5	50	48	74	50	cloudy						
6	50	48	80	50	pty cloudy						
7	50	47	77	40	cloudy						
8	50	47	80	40	clear						
9	50	47	80	40	clear						
10	58	47	85	40	clear						
11	63	48	90	40	clear						
12	51	45	88	40	clear						
13	50	47	84	42	clear						
14	51	47	82	48	clear						
15	51	47	80	50	clear						
16	51	47	90	48	clear						
17	54	48	102	66	clear						
18	63	54	88	64	pty cloudy						
19	55	53	90	65	clear						
20	55	53	89	58	clear						
21	55	53	92	40	clear						
22	56	52	90	55	clear						
23	56	52	79	50	clear						
24	57	52	89	46	clear						
25	57	55	83	38	clear						
26	57	55	88	48	clear						
27	57	55	88	50	clear						
28	57	55	89	48	clear						
29	57	55	70	45	clear						
30	57	55	80	44	clear						
Totals											
Cumulative totals						5,330	764	794	211	1,385	