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ANNUAL REPORT
IRON GATE SALMON AND STEELHEAD HATCHERY
1983-84

by

Curtis A. Hiser
Region I, Inland Fisheries

Anadromous Fisheries Branch

Administrative Report No. 85-01

1985

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ABSTRACT

This report describes the operation of Iron Gate Hatchery and trapping facilities from July 1, 1983 through June 30, 1984. 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 8,371 fall-run adult chinook salmon, Oncorhynchus tshawytscha, trapped. The 2,679 females spawned produced 5,601,315 eggs. No spring-run chinook salmon were taken. Two hundred and eighteen adult coho salmon, O. kisutch, were trapped and the 25 females spawned produced 44,875 eggs. A total of 832 (470 fall-run and 362 spring-run) steelhead, Salmo gairdneri gairdneri, was trapped and the 288 females spawned produced 565,800 eggs.

About 2,960,652 fingerling and 899,062 yearling chinook salmon, 40,005 fingerling and 78,042 yearling coho, and 200,000 yearling and 374,150 fingerling steelhead were produced, planted or transferred during fiscal year 1983-84.

In 1984, 22,700 steelhead of the 1983 brood year were planted from Bogus Pond.

^{1/} Anadromous Fisheries Branch Administrative Report No. 85-01
Submitted August 1984

INTRODUCTION

This report covers the 23rd 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 19th 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 eight 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, 1983 through June 30, 1984.

Bogus Rearing Pond is located near the mouth of Bogus Creek which enters the Klamath River immediately downstream from Iron Gate Hatchery. It was constructed in 1972 and is intended to be used to rear wild steelhead which are rescued from drying streams in the Klamath River system during late spring and early summer. This report contains a summary of the Bogus Pond production from its initial year through June 1984.

PRODUCTION SUMMARY

No spring-run chinook salmon were trapped in 1983. Fall-run chinook salmon were taken from September 22, to November 21, 1983 (Figure 1). Coho salmon started entering the trap on October 17 and continued until November 28, 1983. Steelhead trout were trapped from September 23, 1983 to March 27, 1984 (Table 1).

TABLE 1. Production Summary, Iron Gate Salmon and Steelhead Hatchery, 1983-84

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 6/30/84
<u>Chinook salmon, spring-run</u>										
1982 BY										
1983 BY	0									
<u>Chinook salmon, fall-run</u>										
1982 BY				899,062	102,208	79,990	2,105			
1983 BY	8371	2679	5,601,315	2,960,652	39,325	388,250	3,932			1,445,470
<u>Coho salmon</u>										
1982 BY				40,005	78,042	8,005				30,400
1983 BY	218	25	44,875							
<u>Steelhead</u>										
1983 BY				540,650	32,163					
1984 BY	832	288	565,800	33,500	32				30,000	473,017

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<u>Coho salmon</u>											
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1983 BY	218	25	44,875								30,400
<u>Steelhead</u>											
1983 BY					540,650	32,163					
1984 BY	832	288	565,800	33,500		32			30,000		473,017

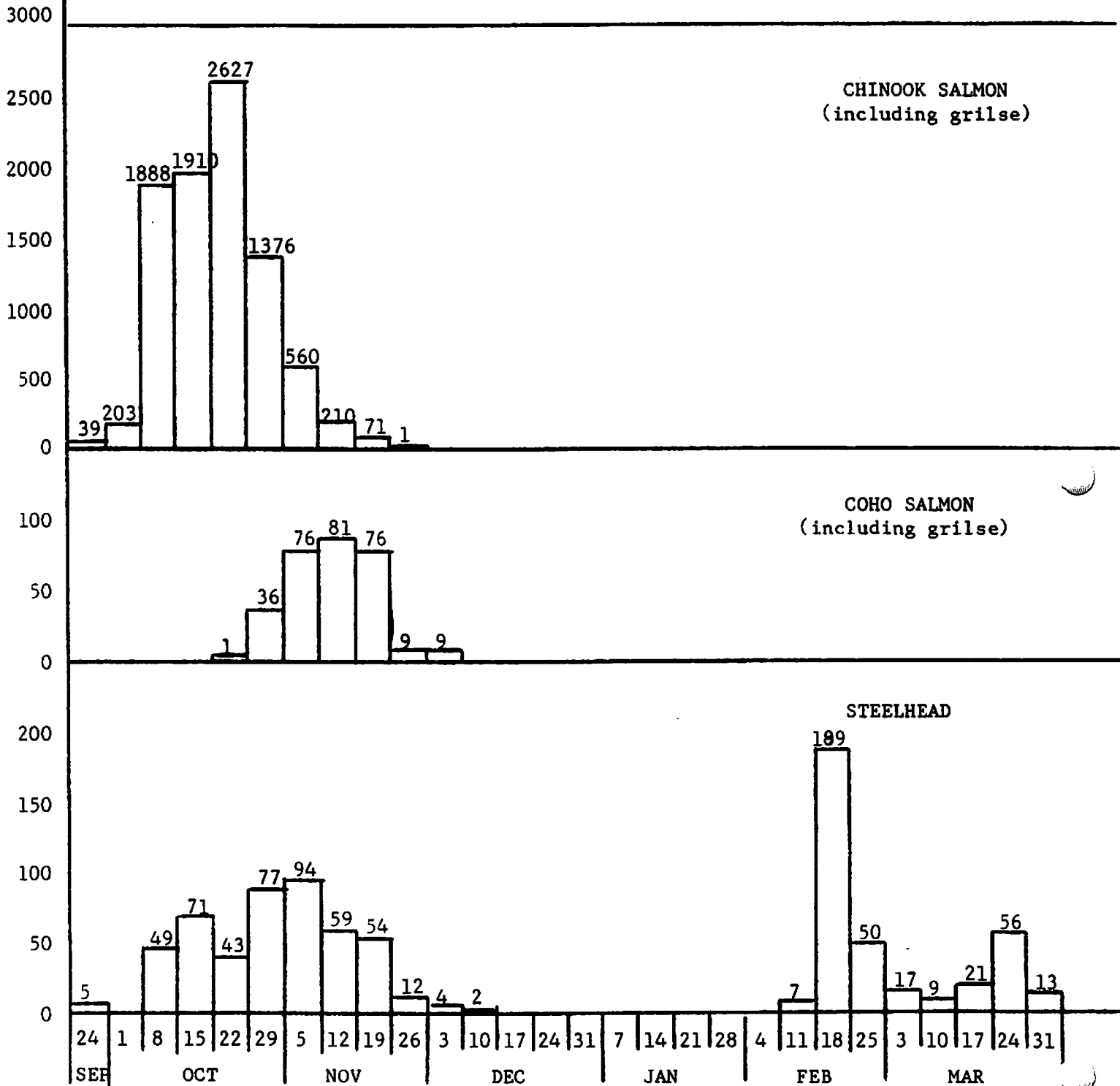


FIGURE 1. Weekly numbers of chinook salmon, coho salmon, and steelhead trapped at Iron Gate Salmon and Steelhead Hatchery, 1983-84 season.

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1983 Run

Spring Run, 1983 Brood Year

No spring-run chinook salmon appeared at the trap in 1983.

Fall Run, 1983 Brood Year

A total of 8,885 fall-run chinook salmon was trapped: 3,927 males, 4,444 females, and 514 grilse (less than 56 cm or 22 inches FL). The 2,679 females spawned produced 5,601,315 eggs, for an average of 2,091 eggs per female which is 1,000 eggs below normal. Prespawning mortality was 1,765 females (40%). Lower fecundity, generally smaller size of adult fish and higher mortality may be associated with abnormal ocean conditions. Nineteen lots of eggs were taken with an average fertility of 93%. After planting and transferring 3,348,902 fish, approximately 1,445,470 chinook salmon fingerlings were on hand as of June 30, 1984.

Distribution of 1983 Brood Year Chinook Salmon

There were 2,960,652 fingerlings averaging 93 per pound planted in the Klamath River. These were released from June 25 to June 28, 1984. In April 1984, 2,000 chinook fingerlings were transferred to the Mad River Hatchery for use in a study involving Proliferative Kidney Disease. There were 388,250 fingerlings transferred to the Klamath River Rearing Ponds.

Distribution of 1982 Brood Year Chinook Salmon

There were 899,652 yearlings planted in the Klamath River that averaged 7.5 per pound. This includes 180,000 fish that were raised in the Fall Creek Ponds.

TABLE 2. Chinook Salmon Distribution Data
Iron Gate Salmon and Steelhead Hatchery, 1983-84

Race and brood Year	Date released	Average size/lb	Number released	Release site	Mark (Coded Wire)
Fall run, 1982	Transferred to Klamath River Rearing Ponds:				
	8/25-29/83	38	79,990	Indian Crk II	-
	11/7-14/83	10	530,000	IGH	a/
	11/28-30/83	7.5	11,062 ^{b/}	Klamath Glen	AD(6-59-11)
	12/5/83	7.5	358,000	IGH	a/
Total yearlings			899,062		
Total fingerlings			79,990		
Fall run, 1983	5/30/84	108	80,000	Indian Crk II	-
	5/30/84	108	40,000	Beaver Creek	-
	5/31/84	108	40,000	Camp Creek	-
	5/31/84	108	40,000	Red Cap Creek	-
	6/1/84	108	40,000	Elk Creek	-
	6/1/84	108	40,000	Indian Crk I	-
	6/7/84	100	40,000	Thompson Ck	-
	6/14/84	94	10,000	Perch Creek	-
	6/14/84	94	8,000	Pecwan Creek	-
	6/27/84	67	50,250	Bluff Creek	-
	Planted:				
	6/25/84	93	33,480	Klamath Glen	AD(6-59-24)
	6/28/84	87	34,800	Klamath Glen	AD(6-59-24)
	6/28/84	75	204,000	IGH	AD(6-59-23)
	6/28/84	75	2,688,372	IGH	-
Total fingerlings			3,348,902		

a/ AD(6-59-8) -- 95,861 Abernathy feed group.
AD(6-50-10)-- 48,909 Oregon Moist Pellet feed group.
AD(6-50-11)-- 47,251 Silver Cup feed group.
LV -- 244,428 marked

b/ Number tagged - 22,642 - difference escaped from ponds.

Marked Chinook Salmon Recovered

During 1983-84, 1,794 marked chinook salmon were trapped (Table 3). 1,418 were Iron Gate marks, 10 were from Klamath River Rearing Ponds, 359 (AD), 7 (RV), and 1 RVLV of undetermined origin. In addition, 13 chinook salmon that had been marked with jaw tags by USFWS in October and November 1983 were trapped.

TABLE 3. Marked Chinook Salmon Recovered
Iron Gate Salmon and Steelhead Hatchery, 1983-84^{a/}

Mark (Coded Wire)	Number trapped	Brood year	Race	Number released	Date released	Mean FL(mm)	Average Release size/lb	site
AD(6-59-2)	64	1979	FRKS	91,000 ^{b/}	11/17-21/80	141	11	IGH
AD(6-59-3)	41	1979	FRKS	189,420 ^{c/}	6/16-19/80	77	77	IGH
AD(6-59-4)	2	1981	FRKS	93,141	11/82	129	9.5	IGH
AD(6-59-5)	97	1980	FRKS	202,900	6/81	83	70	IGH
AD(6-59-6)	114	1980	FRKS	100,621	10/26-30/81	172	9	IGH
AD(6-59-7)	9	1981	FRKS	191,216	6/82	70	76	IGH
AD(6-59-12) ^{d/}	4	1980	FRKS	36,761	6/8/81	-	100	Beaver Ck.
AD(6-59-13)	1	1980	FRKS	5,000	10/26/81	-	7.3	Thompson Ck.
D(6-59-14)	2	1980	FRKS	22,000	10/9/81	-	9	Red Cap Ck.
AD(6-59-16)	2	1980	FRKS	14,625	10/27/81	-	6.5	Indian Ck.
AD(6-59-17)	1	1980	FRKS	10,788	10/28/81	-	8.7	Camp Ck.
AD(6-59-18) ^{e/}	1	1981	FRKS	36,762	11/15-18/82	161	9.5	IGH
AD(?)	359	-	-	-	-	-	-	-
LV	1090	-	FRKS	Combined annual releases			-	IGH
RV	7	-	-	-	-	-	-	-
RVLV	1	-	-	-	-	-	-	-

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

^{b/} Number indicates corrected number of fish planted after quality control check.
Total number tagged was 100,841.

^{c/} Number indicates corrected number of fish planted after quality control check.
Total number tagged was 207,397.

^{d/} Fish escaped from Beaver Creek Pond into Klamath River in May 1981.

^{e/} Oregon Moist Pellet group of feed experiment.

The fish were released between November 11 and December 5, 1983. Approximately 756 salmon were sacrificed at Iron Gate by hatchery personnel for plasma sampling in conjunction with smoltification studies conducted at the University of California at Berkeley. An additional 106 salmon were shipped to the University for further study. There were 79,990 fingerlings transferred to the Klamath River Rearing Ponds.

Coho Salmon Maintenance Program

History of the 1983 Run

The first coho salmon entered the trap on October 17, 1983 and the last on November 28, 1983. A total of 289 fish was trapped: 128 males, 90 females and 71 girls (56 cm or 22 inches FL). The 25 females spawned produced 44,875 eggs for an average of 1,795 eggs per female. As in the case of chinook salmon the coho fecundity was lower than normal and adult mortality was extremely high. Approximately 30,400 fingerlings are being held for release as yearlings in 1985.

Distribution of 1982 Brood Year Coho Salmon

There were 78,042 coho salmon planted in the Klamath River averaging 11 per pound. The Humboldt Fish Action Council received 40,005 fingerling salmon averaging 45 per pound for culture to yearling size in their Cochran Creek Pond. From July 1983 through June 1984, 5,367 salmon were shipped to the University of California at Berkeley for use in smoltification studies. In addition, 1,376 salmon were sacrificed at Iron Gate by Fish and Game personnel for plasma sampling in conjunction with smoltification studies at the University.

TABLE 4. Coho Salmon Distribution Data
Iron Gate Salmon and Steelhead Hatchery 1983-84

Date	Average size	Number	Brood year	Release site	Mark (Coded Wire)
8/17/83	45	40,005	1982	Cochran Ck Pd ^{a/}	-
2/23/84	12	20,000	1982	IGH	AD(6-59-56)
4/1/84	10	19,000	1982	IGH	AD(6-59-57)
4/16/84	11	19,042	1982	IGH	AD(6-59-58)
4/30/84	11	20,000	1982	IGH	AD(6-59-59)
Total		118,047			

^{a/} Humboldt Fish Action Council

Marked Coho Salmon Recovered

During 1983-84, 191 marked coho salmon were trapped (Table 5). Ninety-seven were Iron Gate marks, 1 from Cole Rivers Hatchery, and 93 (AD) of undetermined origin.

TABLE 5. Marked Coho Salmon Recovered
Iron Gate Salmon and Steelhead Hatchery 1983-84^{a/}

Mark (Coded Wire)	Number trapped	Brood year	Race	Number released	Date released	Mean FL (mm)	Average Release size/lb	Release site
AD(6-59-48)	6	1980	FRSS	25,514	2/16/82	132	14.5	IGH
AD(6-59-49)	18	1980	FRSS	25,842	3/25/82	135	14	IGH
AD(6-59-50)	13	1980	FRSS	25,000	4/8/82	152	11	IGH
AD(6-59-51)	20	1980	FRSS	25,500	4/23/82	154	11	IGH
AD(6-59-52)	8	1981	FRSS	20,257	2/4/83	137	14	IGH
AD(6-59-53)	8	1981	FRSS	20,000	3/14/83	139	14	IGH
AD(6-59-54)	13	1981	FRSS	20,015	3/28/83	146	12	IGH
AD(6-59-55)	11	1981	FRSS	20,400	4/13/83	152	12	IGH
AD(7-25-42)	1	-	-	-	4/82	-	-	CRH
AD(?)	93	-	-	-	-	-	-	-

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

STEELHEAD TROUT MAINTENANCE PROGRAM

History of the 1983-84 Run

Between September 23 and December 31, 1983, 470 steelhead entered the trap and were held for later spawning. An additional 362 steelhead were trapped between January 16 and March 27, 1984. The 288 females spawned produced 565,800 eggs, an average of 1,965 eggs per female (slightly lower than normal). Six Rivers National Forest received 30,000 eyed eggs for use in hatch boxes in tributaries of the Klamath River.

Approximately 473,017 steelhead fingerlings from the 1984 broodyear were on hand June 30, 1984.

Distribution of 1983 Brood Year Steelhead

There were 263,000 fingerling steelhead planted in Iron Gate Lake that ranged in size from 20/lb to 50/lb. There were 200,000 yearlings released in the Klamath River at the hatchery which averaged nine per pound. In addition, 67,650 fingerlings averaging 45/lb were planted in several tributaries of the Klamath River downstream from the hatchery. There were 100,000 fingerlings transferred to facilities managed by an Indian fisheries program at Orleans. Eight hundred and seventy steelhead were shipped to the University of California at Berkeley for use in smoltification studies. In addition, 264 steelhead were sacrificed by Fish and Game personnel at the hatchery for plasma samples in cooperation with the University.

Distribution of 1984 Brood Year Steelhead

The Hoopa Indian Fisheries Program at Hoopa received 30,000 small steelhead fingerlings for raising to yearling size. In an experiment to test survival and longevity, 3,500 fingerlings were planted by airplane in several higher elevation lakes in Siskiyou and Shasta counties (Table 6).

TABLE 6. Juvenile Steelhead Distribution Data
Iron Gate Salmon and Steelhead Hatchery 1983-84

Strain	Brood year	Date released	Average size/lb	Number released	Release site	Mark
KR	1983	11/1/83	45	1,350	Humbug Creek ^{a/}	-
KR	1983	11/1/83	45	1,800	Beaver Creek ^{a/}	-
KR	1983	11/2/83	45	4,500	Horse Creek ^{a/}	-
KR	1983	11/4/83	45	2,250	Empire Creek ^{a/}	-
KR	1983	11/4/83	45	2,250	Lumgrey Creek ^{a/}	-
KR	1983	11/7/83	45	4,500	McKinney Creek ^{a/}	-
KR	1983	11/8/83	45	2,250	Ash Creek ^{a/}	-
KR	1983	11/8/83	45	2,250	Barkhouse Creek ^{a/}	-
KR	1983	11/9/83	45	4,500	Seiad Creek ^{a/}	-
KR	1983	11/16/83	45	3,500	Slippery Creek ^{a/}	-
KR	1983	11/16/83	45	250	Four Mile Creek ^{a/}	-
KR	1983	11/16/83	45	250	Five Mile Creek ^{a/}	-
KR	1983	11/17/83	45	4,000	West Branch Creek ^{a/}	-
KR	1983	11/18/83	45	4,000	Mill Creek ^{a/}	-
KR	1983	11/21/83	45	4,400	China Creek ^{a/}	-
KR	1983	11/21/83	45	400	Cade Creek ^{a/}	-
KR	1983	11/22/83	45	4,000	Ti Creek ^{a/}	-
KR	1983	11/23/83	45	4,400	Swillip Creek ^{a/}	-
KR	1983	11/25/83	45	4,400	Coon Creek ^{a/}	-
KR	1983	11/27/83	45	4,000	Bear Creek ^{a/}	-
KR	1983	11/28/83	45	4,400	East Fork Elk Creek ^{a/}	-
KR	1983	11/29/83	45	4,000	Doolittle Creek ^{a/}	-
KR	1983	11/28/83	50	170,000	Iron Gate Lake	-
KR	1983	12/15/83	26	10,000	Perch Creek Tank ^{b/}	-
KR	1983	5/15/84	9	200,000	IGH	-
KR	1983	5/21-22/84	20	93,000	Iron Gate Lake	-
KR	1984	5/23/84	1307	30,000	Hoopa Tribal Fish Hatchery	-
KR	1984	6/27/84	368	1,000	Telephone Lake	LV
KR	1984	6/27/84	368	500	McCoy Flat Reserv.	LV
KR	1984	6/27/84	368	1,000	West Boulder Lake	LV
KR	1984	6/27/84	368	500	Section Line Lake	LV
KR	1984	6/27/84	368	500	Hooligan Lake	LV
Total				574,150		

^{a/} Planted by United States Forest Service personnel.
^{b/} Northern California Indian Development Council.

Marked Steelhead Trapped

A total of 558 marked steelhead was trapped this season (Table 7). Of these, 483 were Iron Gate marks, 5 were Trinity River Hatchery marks, and 19 (LV ?), 45 (RV ?), and 6 (AD) were of undetermined origin.

TABLE 7. Marked steelhead recovered
Iron Gate Salmon and Steelhead Hatchery 1983-84^{a/}

Mark Brand	Number trapped	Brood year	Race	Number released	Date released	Mean FL (mm)	Average size	Release site
AD-"H"	1	1979	IGH	59,000	5/19/80	173	7.5	IGH
LV-"H"	20	1980	IGH	66,000	4/15/81	150	10	IGH
LV-"O"	8	1980	IGH	66,000	5/15/81	149	13	IGH
LV-"T"	2	1980	IGH	66,000	6/15/81	149	17	IGH
LV-"X"	8	1980	Rescued	38,580	-	145	-	IGH
LV-"?"	19	-	-	-	-	-	-	-
RV-"H"	6	1981	IGH	66,980	6/15/82	-	8	IGH
RV-"O"	26	1981	IGH	66,750	5/14/82	-	10	IGH
RV-"T"	22	1981	IGH	66,000	4/15/82	-	10.5	IGH
RV-"?"	45	-	-	-	-	-	-	-
LP	1	1978	IGH	324,774	3/22/79	175	-	TRH
RVLP	1	1979	TRH	154,462	4/9-17/80	147	-	TRH
AD	6	-	-	-	-	-	-	-
LV	76	1978	IGH	216,850	4/16/79	119	24	IGH
RV	314	1978	IGH	119,264	4/16/79	147	13	IGH
RP	1	1978	IGHXTRH	67,570	4/4/79	183	-	TRH
AD-RV	1	1978	TRH	14,753	2/9-3/13/79	206	-	TRH
AD-LV	1	1978	TRH	30,418	4/4/79	198	-	TRH

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

BOGUS REARING POND

Releases of yearling steelhead reared in Bogus Pond since 1972 have ranged from 10,850 - 38,580 (Appendix Table 5). As of June 30, 1984, there are no rescued steelhead in Bogus Pond.

PUBLIC RELATIONS

During the 1983-84 fiscal year, 2,707 people visited the hatchery, including 452 people in organized groups.

APPENDIX TABLE 1. Summary of Coho Salmon and Steelhead Trout
Iron Gate Salmon and Steelhead Hatchery

Season	Fall-trapped spring run*		Fall run				Spring-trapped spring run*	
	Adults	Grilse	Males	Females	Adults	Grilse	Adults	Grilse
1962-63	+							
1963-64					1,723	448		
1964-65			837	1,651	2,488	110		
1965-66			141	224	365	313		
1966-67			1,129	1,610	2,739	325		
1967-68			850	1,275	2,125	562		
1968-69			946	1,690	2,636	72	50	6
1969-70	8	3	518	436	954	1,914	51	0
1970-71	2	0	2,889	7,395	10,284	219	10	0
1971-72	16	0	4,412	6,031	10,443	326	80	0
1972-73	97	4	1,126	1,897	3,023	476	49	0
1973-74	18	5	3,273	4,135	7,408	1,294	4	0
1974-75	19	8	4,024	5,371	9,395	410	0	0
1975-76	25	28	3,131	4,571	7,702	3,425	0	0
1976-77	13	0	4,604	7,991	12,595	1,130	0	0
1977-78	0	0	1,514	2,799	4,313	520	0	0
1978-79	17	0	3,027	3,918	6,945	925	0	0
1979-80	0	0	1,003	1,298	2,301	257	0	0
1980-81	0	0	948	1,464	2,412	451	0	0
1981-82	0	0	904	1,151	2,055	540	0	0
1982-83	0	0	3,805	4,548	8,353	1,833	0	0
1983-84	0	0	3,927	4,444	8,371	514	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

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	1,714	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	70	288	470	362	832

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

APPENDIX TABLE 3. Fork Length (to nearest cm) of Measured Steelhead, Iron Gate Salmon and Steelhead Hatchery, 1983-84^{a/}

Length	Number trapped	
	Males	Females
36		1
37		1
38	1	
39		2
40		9
41		7
42	3	14
43	2	15
44	1	11
45	4	20
46		15
47	4	9
48	1	7
49	3	5
50	1	14
51		13
52		11
53		13
54		7
55		2
56	3	2
57		3
58	1	1
59	1	3
60		2
61		
62		
63		1
64		
65		
66		
67	1	1
Average	48.4	47.6

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

APPENDIX TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

July	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	trout
1	52	50	69	52	showers					
2	52	50	70	55	pty cloudy					
3	52	51	81	40	pty cloudy					
4	52	50	85	47	clear					
5	52	50	85	50	clear					
6	52	50	72	50	clear					
7	52	51	70	48	pty cloudy					
8	54	52	64	42	pty cloudy					
9	55	54	70	40	clear					
10	55	54	74	38	clear					
11	55	54	92	37	clear					
12	55	54	90	53	clear					
13	55	53	90	52	clear					
14	55	54	70	52	clear					
15	56	53	70	40	clear					
16	56	53	75	37	clear					
17	56	53	76	46	pty cloudy					
18	56	53	79	40	pty cloudy					
19	56	53	80	40	clear					
20	55	54	80	40	clear					
21	56	48	89	42	clear					
22	56	48	92	52	clear					
23	56	53	92	52	clear					
24	56	53	91	50	clear					
25	56	55	82	54	clear					
26	57	54	82	44	clear					
27	57	54	80	48	clear					
28	57	54	86	50	clear					
29	57	54	92	52	clear					
30	56	54	98	56	clear					
31	56	54	98	58	clear					

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TOTALS

APPENDIX TABLE 4
 Iron Gate Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data
 July 1, 1983 through June 30, 1984

August	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	trout
1	56	53	94	56	clear					
2	57	54	83	43	clear					
3	58	54	88	51	clear					
4	57	54	88	49	clear					
5	58	54	90	45	clear					
6	58	54	100	47	clear					
7	58	54	98	53	clear					
8	58	54	99	59	clear					
9	58	54	94	50	clear					
10	58	55	80	52	clear, windy					
11	60	55	84	44	clear					
12	58	55	83	44	clear					
13	58	56	78	45	pty cloudy					
14	59	56	84	50	clear					
15	58	54	94	54	showers					
16	58	54	90	42	clear					
17	59	55	97	56	clear					
18	59	55	96	54	pty cloudy					
19	58	55	70	64	cloudy					
20	58	55	72	58	cloudy					
21	58	55	75	54	rain					
22	59	56	85	44	rain					
23	58	56	70	52	rain					
24	58	56	80	44	clear					
25	58	56	80	44	pty cloudy					
26	58	56	82	44	clear					
27	58	56	84	44	cloudy					
28	58	56	79	44	clear					
29	58	56	64	52	rain					
30	58	56	74	52	rain					
31	58	56	76	52	cloudy					

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TOTALS

APPENDIX TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

September	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	58	56	70	38	pty cloudy					
2	58	56	70	39	clear					
3	58	56	82	41	clear					
4	58	56	82	42	clear					
5	58	56	87	42	clear					
6	58	56	88	42	clear					
7	58	56	82	46	clear					
8	60	56	77	40	pty cloudy					
9	59	57	70	34	clear					
10	59	56	72	38	clear					
11	59	56	74	38	clear					
12	59	56	86	36	clear					
13	59	56	92	48	clear					
14	60	57	82	42	clear					
15	58	56	88	42	clear					
16	58	57	90	42	clear					
17	59	57	80	40	clear					
18	59	57	80	40	clear					
19	60	57	70	42	clear, windy					
20	61	57	78	49	clear					
21	60	58	80	32	cloudy					
22	60	59	75	48	rain	27	1			
23	60	59	78	42	clear	11				5
24	60	59	78	42	clear					
25	61	59	80	42	clear					
26	61	59	80	41	clear	52				
27	61	60	70	32	clear					
28	61	60	70	31	clear	143	8			
29	60	60	73	38	cloudy					
30	60	59	70	32	clear					
TOTALS						233	9			5

APPENDIX A TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

October	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	60	59	70	38	clear					
2	60	59	71	37	clear					
3	60	58	72	34	clear	281	15			
4	60	58	78	40	pty cloudy	295	22			13
5	60	58	76	40	clear	211	18			4
6	60	58	76	42	pty cloudy	590	44			18
7	59	58	78	42	pty cloudy	377	35			14
8	59	57	78	44	pty cloudy					
9	59	57	65	40	cloudy					
10	59	57	68	44	pty cloudy					
11	59	57	70	32	clear	798	59			36
12	58	57	72	32	clear					
13	58	57	72	34	clear	387	33			7
14	58	57	72	40	clear	581	52			28
15	58	56	60	28	clear					
16	57	56	65	28	clear					
17	57	55	68	30	clear	745	38	1	1	26
18	57	55	67	30	clear					
19	56	55	69	30	pty cloudy	881	57			
20	56	55	68	30	pty cloudy					
21	56	55	65	30	pty cloudy	857	49			17
22	56	55	52	32	pty cloudy					
23	56	55	58	30	rain					
24	55	54	60	30	clear	639	26	9	3	37
25	Thermograph broken		67	32	clear					
26			74	36	clear	350	13	8	4	18
27			65	38	cloudy					
28			69	40	cloudy	322	26	8	4	22
29			64	40	cloudy					
30			62	49	light rain					
31			62	47	light rain	258	7	24	10	28
TOTALS						7,572	494	50	22	268
Cumulative Totals						7,805	503	50	22	273

APPENDIX TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

November	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	Thermograph		60	41	light rain					
2	broken		56	41	rain	171	3	20	5	29
3			58	46	light rain					
4			56	44	light rain	118	3	17		37
5	53	53	54	30	cloudy					
6	53	52	50	42	rain					
7	53	52	44	44	cloudy	126	5	35	12	40
8	53	52	44	22	pty cloudy					
9	52	51	48	38	cloudy					
10	52	50	52	36	rain, windy	79		22	11	19
11	51	50	54	32	pty cloudy					
12	50	49	54	30	rain					
13	50	50	54	28	rain					
14	50	49	42	28	cloudy	56		35	13	12
15	50	49	48	29	cloudy					
16	49	48	48	30	rain					
17	48	47	47	32	cloudy					
18	48	47	48	25	clear	15		24	4	42
19	46	45	47	31	rain					
20	46	45	43	30	cloudy					
21	45	44	42	30	pty cloudy	1		9		12
22	45	44	40	21	snow					
23	44	43	32	30	snow					
24	43	42	38	30	rain					
25	42	41	40	30	pty cloudy					
26	42	40	58	24	clear					
27	41	40	46	24	clear					
28	41	40	48	20	cloudy			6	3	4
29	41	40	48	20	cloudy					
30	41	40	48	25	cloudy					
TOTALS						566	11	168	48	195
Cumulative Totals						2271	614	218	70	468

APPENDIX TABLE 4
 Iron Gate Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data
 July 1, 1983 through June 30, 1984

December	Temperature (°F)				Weather	Fish trapped				Steelhead trout
	Water		Air			King salmon		Coho salmon		
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	39	38	46	28	cloudy					
2	38	38	46	32	rain					
3	38	38	40	30	rain					
4	38	37	40	30	pty cloudy					
5	38	37	40	30	cloudy					2
6	38	38	48	33	rain					
7	38	38	50	32	cloudy					
8	38	38	56	28	cloudy					
9	38	37	50	31	pty cloudy					
10	38	37	48	46	rain					
11	38	37	48	32	cloudy					
12	38	37	40	28	rain, snow					
13	38	38	38	33	rain					
14	38	38	39	33	rain					
15	38	37	50	36	pty cloudy					
16	38	38	50	38	rain					
17	38	38	40	40	cloudy					
18	38	38	46	38	pty cloudy					
19	39	38	44	34	pty cloudy					
20	39	39	40	26	pty cloudy					
21	40	39	35	20	pty cloudy					
22	40	39	30	8	clear					
23	39	38	28	12	snow					
24	39	38	48	16	snow					
25	37	36	52	42	cloudy					
26	36	36	50	44	cloudy					
27	36	35	50	43	pty cloudy					
28	36	35	50	43	pty cloudy					
29	36	35	50	43	pty cloudy					
30	35	35	50	42	foggy					
31	35	35	48	42	pty cloudy					
TOTALS										2
Cumulative Tables						8371	514	218	70	470

APPENDIX TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

January	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	35	35	50	42	clear					
2	35	34	50	41	pty cloudy					
3	35	35	52	42	clear					
4	35	34	58	40	clear					
5	35	35	56	42	clear					
6	35	35	54	40	foggy					
7	35	35	54	40	foggy					
8	35	35	57	40	foggy					
9	36	35	59	40	clear					
10	37	36	59	41	clear					
11	37	36	54	40	clear					
12	37	36	54	38	clear					
13	37	36	52	40	clear					
14	37	36	56	20	clear					
15	37	36	50	30	snow					
16	38	37	56	38	clear					
17	38	37	50	38	clear					
18	38	37	52	38	clear					
19	37	36	54	40	clear					
20	37	36	54	40	cloudy					
21	37	36	52	30	rain					
22	37	36	50	36	cloudy					
23	37	37	56	40	pty cloudy					
24	36	35	58	42	clear					
25	36	35	58	38	clear					
26	36	35	56	38	clear					
27	37	35	58	40	clear					
28	37	35	60	20	clear					
29	37	35	60	25	clear					
30	39	36	60	38	clear					
31	38	36	60	38	clear					

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APPENDIX TABLE 4
 Iron Gate Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data
 July 1, 1983 through June 30, 1984

February	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	38	36	60	40	clear					
2	39	38	62	33	clear					
3	38	37	62	33	clear					
4	39	38	64	20	clear					
5	39	38	62	20	cloudy					
6	39	37	56	20	clear					
7	39	38	58	20	clear					7
8	39	38	58	21	clear					
9	40	39	56	23	rain					
10	40	39	56	24	pty cloudy					
11	40	40	42	30	rain					
12	40	40	46	34	cloudy					
13	41	41	50	34	rain					
14	41	40	40	21	pty cloudy					114
15	41	40	41	23	pty cloudy					
16	41	40	43	29	pty cloudy					
17	41	40	42	21	cloudy					75
18	41	40	46	24	pty cloudy					
19	41	40	50	30	pty cloudy					
20	40	40	52	38	clear					
21	40	40	53	30	clear					
22	41	40	52	18	clear					50
23	41	40	42	20	cloudy					
24	40	40	36	28	rain, windy					
25	40	40	42	30	pty cloudy					
26	40	39	48	20	high clouds					
27	40	39	58	23	pty cloudy					
28	40	39	53	40	pty cloudy					17
29	40	39	50	28	high clouds					
<hr/>										
TOTALS										263
Cumulative Totals						8,371	514	218	70	733

APPENDIX TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

March	Temperature (°F)				Weather	Fish trapped				Steelhead trout
	Water		Air			King salmon		Coho salmon		
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adult	Grilse	
1	40	39	52	38	showers					
2	40	39	52	22	clear					
3	40	39	60	19	clear					
4	41	39	59	20	clear					
5	41	39	62	20	clear					
6	40	39	62	22	clear					9
7	40	39	63	31	clear					
8	42	39.	66	26	clear					
9	41	39	63	38	cloudy					
10	41	39	64	39	clear					
11	42	40	58	38	cloudy					
12	42	41	60	33	pty cloudy					
13	43	41	60	40	rain					21
14	44	42	52	38	cloudy					
15	44	42	52	34	cloudy					
16	46	42	48	34	rain					
17	46	42	49	26	pty cloudy					
18	46	45	50	30	cloudy					
19	46	44	65	34	clear					
20	46	44	62	36	cloudy					56
21	46	44	61	34	cloudy					
22	46	44	62	36	cloudy					
23	46	44	62	36	cloudy					
24	46	44	56	30	clear, windy					
25	46	45	46	31	rain					
26	46	45	48	42	rain					
27	46	45	59	31	pty cloudy					13
28	46	45	60	40	cloudy					
29	46	45	59	41	cloudy					
30	46	45	60	34	cloudy					
31	46	45	58	30	rain					

TOTALS

APPENDIX TABLE 4
 Iron Gate Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data
 July 1, 1983 through June 30, 1984

April	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	47	46	60	26	clear					
2	47	46	60	24	clear					
3	47	46	60	34	cloudy					
4	47	46	56	38	rain					
5	48	47	55	40	cloudy					
6	48	47	54	24	cloudy					
7	48	47	58	42	cloudy					
8	48	47	60	34	rain, hail					
9	48	47	54	38	rain					
10	48	47	52	39	rain					
11	48	47	54	37	rain					
12	47	46	60	28	pty cloudy					
13	47	45	72	34	clear					
14	47	45	80	34	clear					
15	47	46	74	34	clear, windy					
16	48	47	49	40	rain					
17	48	47	56	42	cloudy, windy					
18	48	47	62	40	cloudy					
19	48	48	50	38	rain					
20	48	47	57	35	cloudy					
21	48	47	60	34	clear					
22	49	47	62	35	clear					
23	49	48	60	38	clear, windy					
24	50	44	66	30	snow showers					
25	50	46	48	30	snow showers					
26	50	47	50	24	pty cloudy, windy					
27	50	47	55	25	clear					
28	50	47	60	24	clear					
29	50	47	68	40	cloudy					
30	50	48	56	40	rain					
TOTALS										
Cumulative Totals						8,371	514	218	70	832

APPENDIX TABLE 4
Iron Gate Salmon and Steelhead Hatchery
Weather, Water, and Fish Data
July 1, 1983 through June 30, 1984

May	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	50	48	58	40	rain					
2	50	49	60	38	cloudy, windy					
3	50	49	61	41	rain					
4	50	49	59	41	rain					
5	50	49	58	40	cloudy, windy					
6	50	49	57	42	clear, windy					
7	50	49	70	40	clear, windy					
8	50	49	72	40	clear, windy					
9	50	49	60	41	cloudy					
10	50	49	66	40	cloudy, windy					
11	50	49	65	40	rain					
12	50	49	70	42	pty cloudy					
13	50	49	70	41	clear					
14	50	49	78	40	cloudy					
15	51	49	57	32	clear					
16	51	49	60	32	cloudy					
17	51	49	76	24	clear					
18	50	49	80	48	clear					
19	50	49	82	40	high clouds					
20	51	49	70	40	clear, windy					
21	51	49	71	39	clear, windy					
22	51	49	82	46	clear					
23	51	49	68	32	clear					
24	51	49	76	34	clear					
25	51	49	73	39	clear					
26	51	49	82	36	clear					
27	51	49	90	45	clear					
28	51	49	96	47	clear					
29	51	49	98	48	cloudy					
30	51	50	70	47	clear, windy					
31	52	50	66	34	cloudy					

TOTALS

Cumulative Totals

8,371

514

218

70

832

APPENDIX TABLE 4
 Iron Gate Salmon and Steelhead Hatchery
 Weather, Water, and Fish Data
 July 1, 1983 through June 30, 1984

June	Temperature (°F)				Weather	Fish trapped				
	Water		Air			King salmon		Coho salmon		Steelhead trout
	Maximum	Minimum	Maximum	Minimum		Adults	Grilse	Adults	Grilse	
1	51	49	74	38	clear					
2	51	49	75	41	clear, windy					
3	51	49	70	40	cloudy					
4	51	49	76	44	rain					
5	51	49	68	44	rain					
6	51	49	52	40	rain					
7	51	49	58	42	cloudy					
8	51	49	58	30	clear					
9	51	49	65	32	cloudy					
10	51	49	70	30	clear					
11	51	49	70	44	clear					
12	51	49	72	38	clear					
13	52	49	80	42	clear					
14	52	49	80	42	pty cloudy					
15	52	49	79	54	clear					
16	52	49	80	45	clear					
17	52	49	79	39	clear					
18	52	50	74	43	showers					
19	52	49	63	43	cloudy					
20	52	49	64	41	clear					
21	52	49	65	39	clear					
22	52	49	80	37	clear					
23	52	49	86	42	clear					
24	52	49	93	50	clear					
25	52	49	94	50	clear					
26	52	49	94	46	clear					
27	52	49	93	52	clear					
28	52	49	93	55	clear					
29	52	49	91	53	clear					
30	52	49	90	52	clear					

Totals

Cumulative Totals

8,371

514

218

70

832

APPENDIX TABLE 5. Summary of Bogus Rearing Pond Steelhead Production
1972-73 through 1983-84^{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 silver salmon. No estimate of numbers.			-
1978-79	123,868	11,810	Klamath R. @ Happy Camp	-
1979-80	Pond used for king salmon. Total loss.			-
1980-81	183,000	38,580	Klamath R. @ Iron Gate Hatchery	LV-"X"
1981-82	No fish were reared in Bogus Pond.			-
1982-83	92,536	22,200	Klamath R. @ Iron Gate Hatchery	-
1983-84	40,000	1,550	Klamath R. @ Iron Gate Hatchery	-
		21,150	Iron Gate Lake	-
Total		22,700		

^{a/} Information supplied by Yreka Screen Shop personnel, Ivan Paulsen, Fisheries Biologist, and Iron Gate Records.