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ANNUAL REPORT
FEATHER RIVER HATCHERY 1984-85

by

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Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 87-3

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ABSTRACT

This report summarizes the operation of Feather River Hatchery and its annex from July 1, 1984 through June 30, 1985. Tables present water temperatures, numbers of chinook salmon, Oncorhynchus tshawytscha, and steelhead rainbow trout, Salmo gairdneri, entering the hatchery, number of eggs taken and received, and numbers of fish released.

We trapped 10,850 chinook salmon and 1,721 steelhead and planted or transferred 9,049,560 chinook fingerlings, 649,600 chinook yearlings, 389,000 steelhead fingerlings and 413,870 steelhead yearlings.

^{1/} Inland Fisheries Administrative Report No. 87-3
Submitted July, 1986

INTRODUCTION

This report describes the activities of the Feather River Hatchery and its annex during the 18th year of operation, July 1, 1984 through June 30, 1985. The hatchery is located near the upper Thermalito bridge in Oroville, Butte County. It was constructed by the Department of Water Resources as part of the California Water Project to compensate for loss of spawning area above Oroville Dam. It is operated by the Department of Fish and Game with funds provided by the Department of Water Resources. The hatchery annex is located along Highway 99, one mile south of Oro Dam Boulevard West. Operating costs for the annex are shared by the Departments of Fish and Game and Water Resources.

PRODUCTION SUMMARY

Personnel from the Feather River Hatchery trapped 10,850 chinook salmon, Oncorhynchus tshawytscha, and 1,721 steelhead, Salmo gairdneri, during the 1984-85 season (Table 1). A total of 17,837,577 salmon eggs and 1,179,905 steelhead eggs was taken and received. We planted 9,699,160 salmon and 803,470 steelhead.

MARKING PROGRAMS

Personnel from the Anadromous Fisheries Branch marked 182,154 brood year (BY) spring-run chinook salmon with an adipose clip (AD) and coded-wire nose tag (CWT). The five groups of fish were planted at Big Chico Creek, Feather River, Vallejo, and two groups in Monterey Bay. Bay Delta personnel marked AD and CWT 622,400 1984 BY fall-run chinook salmon. One group was planted at Wimpy's on the South Fork of the Mokelumne River, another two groups in Old River, one group on the North Fork of the Mokelumne River, a group at Courtland, a group at Ryde, a group at Port Chicago, and another in San Francisco Bay. Marked chinook releases were made in April and May. Two groups of 1984 BY steelhead were released at Yuba City boat ramp, one group in February 1985, and the other group in March 1985 (Table 2).

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1984-85 Runs

1984 BY Spring Run

The fish ladder was opened September 1 to allow the spring-run chinook salmon adults to enter the hatchery. We received 1,562 spring-run fish between September 1, and October 1 (Appendix Table 1). The spring-run fish were sexed on October 1. At that time we had on hand 831 males, 480 females, and 251 grilse. Of the 480 females, we successfully spawned 459 from October 1, through October 21. The spawning yielded 1,852,056 eggs for an average of 4,035 eggs per female.

1984 BY Fall Run

The first fall-run chinook salmon adults entered the hatchery on October 4 (Appendix Table 1). The season total was 9,288 fish. We spawned 3,641 females between October 4 and December 6 and took 15,985,501 eggs for an average of 4,390 eggs per female. Fry production totaled 14,080,811 for an average egg to fry survival rate of 88%. Between January 1 and June 30 we planted a total of 5,927,961 fall-run 1984 BY chinook fingerlings. An estimated 6,437,606 remained on hand as of June 30.

Recovery of Marked Chinook Salmon

All chinook salmon entering the hatchery were examined for marks. We received a total of 862 marked fish (Appendix Table 2).

Chinook Salmon Planting

We planted an estimated 9,049,560 fingerlings and 649,600 yearling chinook salmon this season (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

History of the 1984-85 Production

Steelhead were not counted until November 11. From November 19 through February 5, we received a total of 1,721 fish. Marks and measurements of steelhead were recorded by Region 2 personnel.

Out of the total run of 1,721 fish there were 1,047 males and 674 females. We successfully spawned 233 females (Table 3). We took a total of 1,179,905 eggs. Of these, 1,067,536 fish were transferred to the ponds for an overall survival rate of 90.5%. We had an estimated 753,812 steelhead on hand June 30.

Steelhead Planting

We planted 803,470 steelhead during the 1984-85 season (Table 4).

VISITOR USE

During the 1984-85 fiscal year 28,966 people visited the installation.

TABLE 1. Feather River Hatchery Production Summary, 1984-85

Species brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish Planted		Estimated numbers on hand
				Fingerlings	Yearlings	
Chinook salmon spring run						
1983 BY	0	0	0	0	72,750	0
1984 BY	1,562	459	1,852,056	1,205,674	0	356,664
Chinook salmon fall run						
1983 BY	0	0	0	1,915,925	576,850	0
1984 BY	9,288	3,641	15,985,501	5,927,961 ^{a/}	0	6,437,606
Steelhead						
1984 BY	0	0	0	0	413,870	0
1985 BY	1,721	233	1,179,905	389,600	0	753,817

^{a/} Includes 3,074,200 to Mokelumne Hatchery

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1984-85

Race	Month of release	Average size (G)	Number released	Release site
Spring run 1983 BY	September	28.0	72,750	Vallejo
		Total	72,750	
Spring run 1984 BY	February	1.2	76,800	Dry Creek
	February	1.3	77,400	Auburn Ravine
	February	1.3	77,400	Doty Ravine
	February	1.2	96,800	Yuba City
	February	0.7	104,720	Coon Creek
	February	1.0	100,280	Secret Ravine
	April	3.3	53,156	Big Chico Creek
	April	3.4	52,272	Feather R. at Hatchery
	April	6.2	32,400	Butte Creek
	April	8.4	24,910	Monterey Bay
	April	8.9	25,400	Monterey Bay
	April	8.6	26,416	Vallejo
	May	4.4	1,100	Feather River
	May	14.9	26,250	Vallejo
	May	21.3	35,700	Vallejo
	May	17.2	43,420	Vallejo
	May	14.9	51,000	Vallejo
	May	15.4	49,300	Vallejo
	May	15.4	49,300	Vallejo
	May	14.4	23,250	Vallejo
	June	10.6	35,700	Vallejo
	June	10.6	18,900	Vallejo
	June	11.7	47,500	Vallejo
	June	14.9	27,000	Vallejo
		Total	1,205,674	

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1984-85
(continued)

Race	Month of release	Average size (G)	Number released	Release site
Fall run 1983 BY	July	15.4	634,550	Vallejo
	August	14.0	230,200	Berkeley Marina
	August	14.0	1,051,175	Vallejo
	September	37.3	100,200	Berkeley Marina
	September	37.3	476,650	Vallejo
	Total		2,492,775	
Fall run 1984 BY	January	0.4	182,400	Feather River
	February	0.9	100,800	Bear River
	February	1.5	1,524,000	Mokelumne Hatchery
	March	3.4	1,367,800	Mokelumne Hatchery
	April	3.2	182,400	Mokelumne Hatchery
	April	6.8	943,050	Vallejo
	May	6.5	104,720	Whimpy's
	May	7.8	91,200	Old River
	May	7.0	106,240	Mokelumne R. N. Fork
	May	7.2	105,400	Courtland
	May	8.9	95,000	Ryde
	May	7.5	53,100	Port Chicago
	May	7.2	52,700	San Francisco Bay
	May	11.4	14,040	Old River
	May	4.4	22,000	Feather River
	May	7.7	10,034	Glenn Colusa Channel
	May	9.3	479,077	Vallejo
	June	8.6	465,500	Vallejo
	June	14.9	28,500	Tiburon
	Total		5,927,961	
Grand Total			9,699,160	

TABLE 3. Steelhead Spawning Data

<u>Date</u>	<u>Fish Spawned</u>	
	M	F
<u>1984-85</u>		
1/2/85	49	52
1/8/85	28	28
1/16/85	47	47
1/22/85	55	51
1/29/85	55	28
2/5/85	23	27
<u>Totals</u>	257	233

TABLE 4. Steelhead Planting Summary 1984-85

Date	Strain	Release site <u>1/</u>	Average size (G)	Number released
February	Feather R.	Yuba City	149.0	37,165
March	Feather R.	Yuba City	138.0	45,080
March	Feather R.	Yuba City	138.0	25,880
March	Feather R.	Boyd's Pump	138.0	74,610
April	Feather R.	Yuba City	149.0	44,660
April	Feather R.	Boyd's Pump	149.0	186,475
May	Feather R.	Gridley	24.8	144,000
June	Feather R.	Gridley	41.6	245,600
Total				803,470

1/ All releases were made into the Feather River

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data
Feather River Hatchery, 1984-85

Week	<u>Chinook Salmon</u> <u>Fall Run</u>		<u>Chinook Salmon</u> <u>Spring Run</u>		<u>Steelhead Trout</u>	
	Adults	Grilse	Adults	Grilse	Males	Females
Sept. 1 - Oct. 1			1,311	251		
Oct. 1 - 6	703	61				
Oct. 7 - 13	2,885	131				
Oct. 14 - 20	1,613	100				
Oct. 21 - 27	1,594	62				
Oct. 28 - Nov. 3	1,479	42				
Nov. 18 - 24	375	16			295	163
Nov. 25 - Dec. 1	160	2			139	92
Dec. 2 - 8	29	28			34	44
Dec. 9 - 15	0	0			90	39
Dec. 16 - 22	7	1			179	109
Dec. 23 - 29					103	50
Dec. 30 - Jan. 5					74	55
Jan 6 - 12					109	67
Jan 13 - 19					11	22
Jan. 20 - 26					11	15
Jan. 27 - Feb. 2					2	12
Feb. 3 - 9						6
Season Totals	8,845	443	1,311	251	1,047	674

APPENDIX TABLE 2. Fork Lengths (to Nearest Centimeter) of Marked Chinook Salmon Trapped at Feather River Hatchery, 1984-85

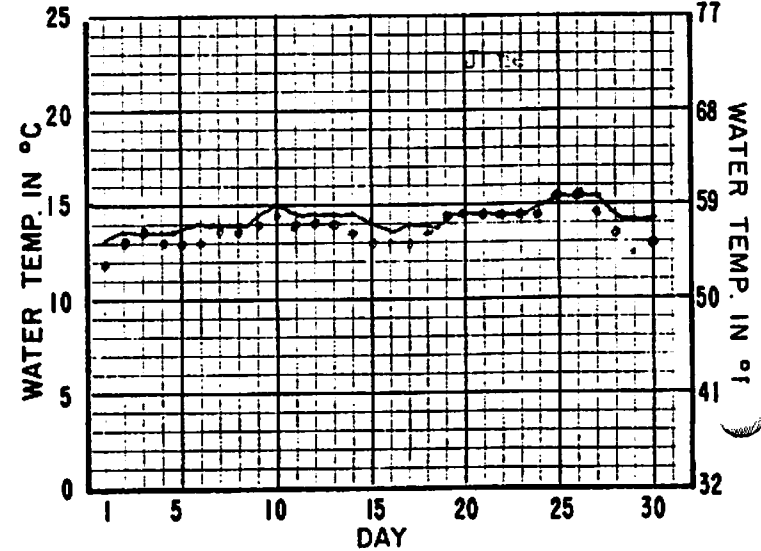
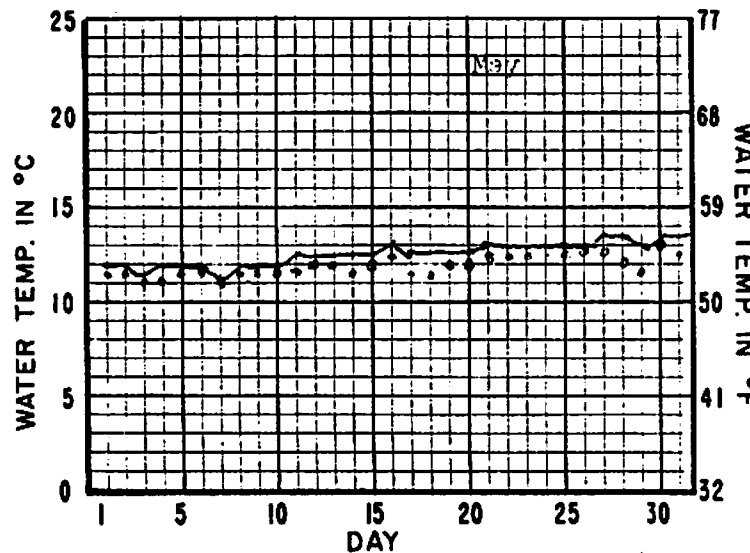
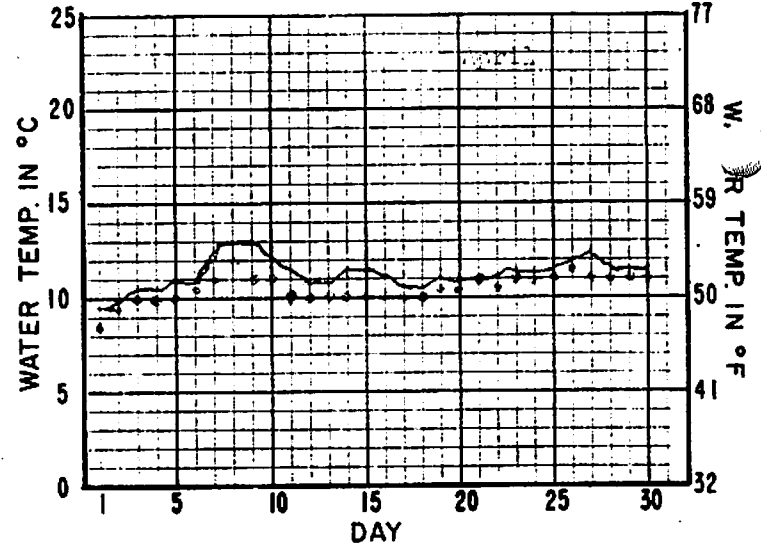
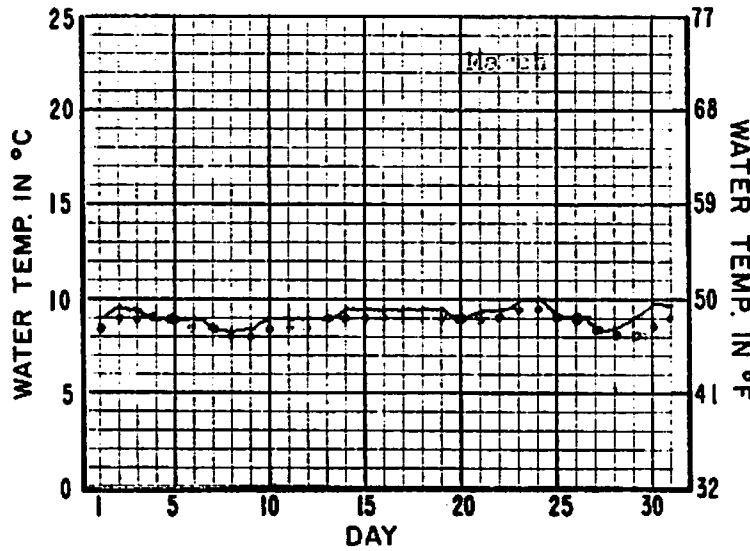
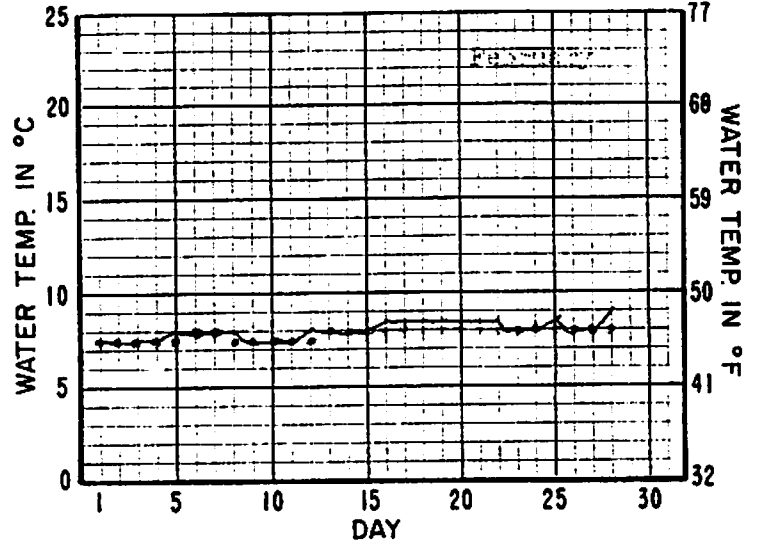
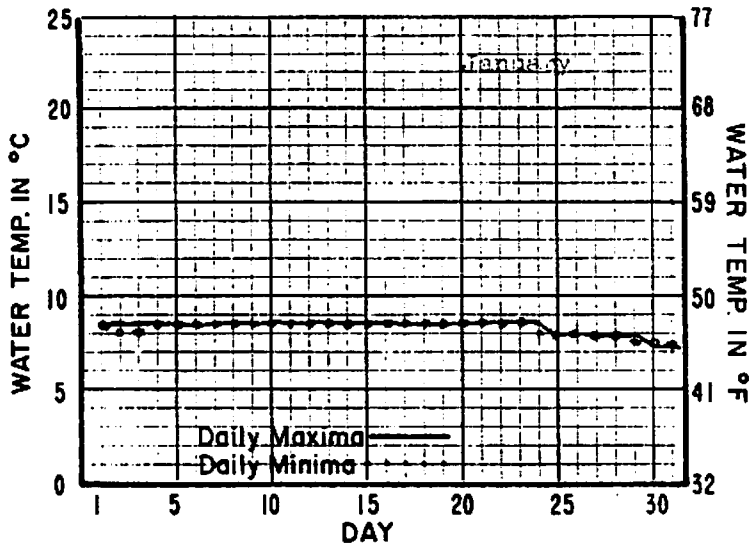
FL	AD		FL	AD	
	M	F		M	F
39	1		71	15	20
40			72	18	21
41	1		73	15	25
42			74	14	15
43	2		75	14	12
44	1		76	8	12
45	1		77	8	6
46	4		78	12	15
47	2		79	7	9
48	4		80	11	10
49	1		81	8	4
50	3	1	82	13	5
51	3		83	10	2
52	1		84	9	1
53	3	1	85	8	1
54	3	4	86	3	3
55	4	2	87	7	
56	2	9	88	5	2
57	13	3	89	3	1
58	7	9	90	1	2
59	8	16	91	1	
60	16	12	92	1	
61	11	10	93	1	
62	18	15	94	3	
63	15	18	95	1	
64	15	15	96		
65	15	9	97		
66	20	29	98	2	
67	17	28	99		
68	16	20	100	1	
69	17	29	101		
70	12	29	102	2	
			Totals	437	425

APPENDIX TABLE 3. Fork Lengths (to Nearest Centimeter) of Marked Steelhead Trapped at Feather River Hatchery, 1984-85

FL	AD		FL	AD	
	M	F		M	F
39			66		
40			67		
41	1		68	2	
42	2		69		
43	1		70		1
44	2	1	71		
45	4	5	72	1	
46	3	4	73		
47	5	4	74		
48	2	1	75		1
49	6	4	76		
50	4	7	77		
51	3		78		
52	4	3	79		
53	3	1	80		
54	3	3	81		
55	2		82		
56		1	83		
57	4	1	84		
58	1		85		
59			86		
60		1	87		
61		1	88		
62			89		
63	1		90		
64			91		
65	1	1	92	1	
			Totals	56	40

Appendix Figure 1

DAILY WATER TEMPERATURES BY MONTH



DAILY WATER TEMPERATURES BY MONTH

