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State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
FEATHER RIVER HATCHERY 1985-86

by

Donald L. Schlichting
Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 87-19
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ABSTRACT

This report summarizes the operation of Feather River Hatchery and its annex from July 1, 1985 through June 30, 1986. 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 7,443 chinook salmon and 1,553 steelhead and planted or transferred 13,099,643 chinook fingerlings, 370,150 chinook yearlings, 938,240 steelhead fingerlings, and 440,562 steelhead yearlings.

^{1/} Inland Fisheries Administrative Report No. 87-19
Submitted October 1987

INTRODUCTION

This report describes activities of the Feather River Hatchery and its annex during its 19th year of operation, July 1, 1985 through June 30, 1986. The Hatchery is located near the upper Thermalito Bridge in Oroville, Butte County. It was constructed by the California 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, 1 mile south of Oro Dam Boulevard West. Operating costs are shared by Department of Fish and Game (5/6) and Department of Water Resources (1/6).

PRODUCTION SUMMARY

Personnel from Feather River Hatchery trapped 7,443 chinook salmon Oncorhynchus tshawytscha, and 1,553 steelhead, Salmo gairdneri, during the 1985-86 season. (Table 1). Approximately 19,885,646 salmon eggs and 1,975,589 steelhead eggs were taken and received. We planted 13,469,793 salmon and 1,378,802 steelhead.

MARKING PROGRAMS

Personnel from Inland Fisheries Division marked 210,763 spring-run chinook salmon of the 1985 brood year (BY) with an adipose clip (AD) and coded-wire nose tag (CWT). The two groups of fish were planted at Big Chico Creek and the Feather River. Bay Delta personnel marked a total of 724,825 1985 BY fall-run chinook salmon with an AD and CWT.

One group was planted at each of the following sites. Courtland, Whimpy's, Mokelumne River North Fork, Sacramento River, Old River, Port Chicago, Fort Baker, and Mokelumne Hatchery. In addition, a total of 173,875 1984 BY fall-run chinook was planted at Vallejo, Tiburon, Fort Baker, and Emeryville in July and August 1986. There was no marked steelhead releases during this report period.

TABLE 1. Feather River Hatchery Production Summary, 1985-1986

Species brood year	Adults trapped or received	Females spawned	Eggs taken or received	Fish planted		Estimate on hand
				Fingerlings	Yearlings	
Chinook Salmon						
Spring Run						
1984 BY	0	0	0		257,350	0
1985 BY	1,632	589	3,217,934	1,583,363		1,243,378
Chinook Salmon						
Fall Run						
1984 BY	0	0	0	6,495,655	112,800	0
1985 BY	5,811	2,737	16,667,712	5,020,625 ^{a/}		7,957,518
Steelhead						
1985 BY	0	0			440,562	0
1986 BY	1,553	436	1,975,589	938,240		704,517

a/ Includes 3,181,775 to Mokelumne Hatchery

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1985-86 Runs

1985 BY Spring Run

The fish ladder was opened September 1, 1985 to allow the spring-run chinook salmon to enter the Hatchery. We received 1,632 fish between September 1 and October 1, (Appendix Table 1). The spring-run were sexed on October 1. At the time we had on hand 801 males, 792 females, and 39 grilse. Of the 792 females, we successfully spawned 589 from September 30 through October 21. The spawning yielded 3,217,934 eggs for an average of 5,463 eggs per female.

An estimated 3,029,629 fingerlings were transferred to the ponds, for an average egg to fingerling survival rate of 94%. Between March and May, we planted 1,583,363 spring-run 1985 BY chinook fingerlings and smolts. An estimated 1,243,378 remained on hand June 30.

1985 BY Fall Run

The first fall-run chinook salmon adults entered the hatchery on October 3, (Appendix Table 1). The season total was 5,811 fish. We spawned 2,737 females between October 3 and October 24 and took 16,667,712 eggs, for an average of 6,089 eggs per female. Fry production totaled 14,064,655, for an average egg to fry survival of 84%. We planted a total of 5,020,625 fall-run 1985 BY chinook fingerlings. An estimated 7,957,518 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 481 marked fish (Appendix Table 2).

Chinook Salmon Planting

We planted an estimated 13,099,643 chinook fingerlings and 370,150 chinook yearlings. (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

History of the 1985-86 Production

Steelhead were not counted until January 2. We received a total of 1,554 fish. Marks and measurements of steelhead were recorded by Region 2 personnel.

Out of the total run of 1,554 fish there were 752 males and 802 females. We successfully spawned 436 females (Table 3). We took a total of 1,975,589 eggs. Of these eggs 1,671,203 were transferred to the ponds for an overall survival rate of 84.5%. We had an estimated 704,517 steelhead on hand June 30.

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1985-1986

Race	Month of release	Average size(G)	Number released	Mark	Release site
Spring Run 1984 BY	September	28.0	<u>257,350</u>		Vallejo
		Total	257,350		
Spring Run 1985 BY	March	2.2	105,868	AD & CWT	Big Chico Creek
	March	2.3	104,895	AD & CWT	Feather River
	March	7.4	93,000		Benicia
	April	6.3	876,850		Benicia
	May	7.4	<u>402,750</u>		Benicia
	Total		1,583,363		
Fall Run 1984 BY	July	9.7	100,125	AD & CWT	Vallejo
	July	14.4	23,250	AD & CWT	Tiburon
	July	13.1	25,500	AD & CWT	Fort Baker
	July	13.0	2,412,575		Vallejo
	August	18.0	25,000	AD & CWT	Emeryville
	August	18.0	2,190,825		Vallejo
	September	24.0	1,718,380		Benicia
	October	29.0	<u>112,800</u>		Benicia
	Total		6,608,455		
Fall Run 1985 BY	February	.9	24,000		Coon Creek
	February	.9	24,000		Doty Ravine
	February	.9	24,000		Auburn Ravine
	February	.9	84,000		Dry Creek
	February	.9	24,000		Secret Ravine
	February	.9	79,200		Bear River
	March	3.4	3,076,850		Mokelumne Hatchery
	April	1.8	14,400		Feather River
	May	2.1	8,400		Feather River
	May	7.0	<u>573,750</u>		Benicia

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery 1984-1985 (Continued)

Race	Month of release	Average size(G)	Number released	Mark	Release site
	May	5.3	104,000	AD & CWT	Courtland
	May	5.3	103,750	AD & CWT	Whimpy's
	May	5.2	105,350	AD & CWT	Mokelumne R. N.Fork
	May	5.2	106,250	AD & CWT	Sacramento River
Fall Run 1985 BY	May	5.0	102,350	AD & CWT	Old River
	June	5.0	48,400	AD & CWT	Port Chicago
	June	5.3	49,800	AD & CWT	Fort Baker
	June	4.7	104,925	AD & CWT	Mokelumne Hatchery
	June	11.2	50,000	Vibro Inoc.	Tiburon
	June	10.1	313,200		Benicia
		Total	5,020,625		
		Grand Total	13,469,793		

TABLE 3. Steelhead Spawning Data

<u>Date</u> <u>1985-86</u>	<u>Fish Spawnd</u>	
	<u>M</u>	<u>F</u>
1/2/86	43	95
1/9/86	50	76
1/16/86	60	83
1/22/86	60	74
1/30/86	50	70
2/4/86	<u>27</u>	<u>38</u>
Totals	290	436

Steelhead Planting

We planted an estimated 1,378,802 steelhead during the 1985-86 season (Table 4).

TABLE 4. Steelhead Planting Summary 1985-1986

<u>Date</u>	<u>Strain</u>	<u>Release site *</u>	<u>Average size(G)</u>	<u>Number released</u>
<u>1985</u>				
March	Feather River	Gridley	130.5	221,330
April	Feather River	Gridley	130.5	219,232
<u>1986</u>				
May	Feather River	Gridley	.44	125,000
May	Feather River	Gridley	2.1	813,240
Total				1,378,802

* All releases made into the Feather River

Visitor Use

During the 1985-86 fiscal year, an estimated 29,351 people visited the installation.

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data
For Feather River Hatchery, 1985-1986

<u>Week</u>	<u>Chinook salmon</u> <u>fall run</u>		<u>Chinook salmon</u> <u>spring run</u>		<u>Steelhead trout</u>	
	<u>Adults</u>	<u>Grilse</u>	<u>Adults</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
Sept.1 - Oct. 1			1,593	39		
Oct. 2-5	537	34				
Oct. 6-12	2,853	113				
Oct. 13-19	1,750	55				
Oct. 20-26	460	9				
Jan. 2-4					316	392
Jan. 5-11					57	95
Jan. 12-18					26	61
Jan. 19-25					6	25
Jan. 26-Feb. 1					29	87
Feb. 2-8					3	7
Feb. 9-10					315	135
Season Totals	<u>5,600</u>	<u>211</u>	<u>1,593</u>	<u>39</u>	<u>752</u>	<u>802</u>

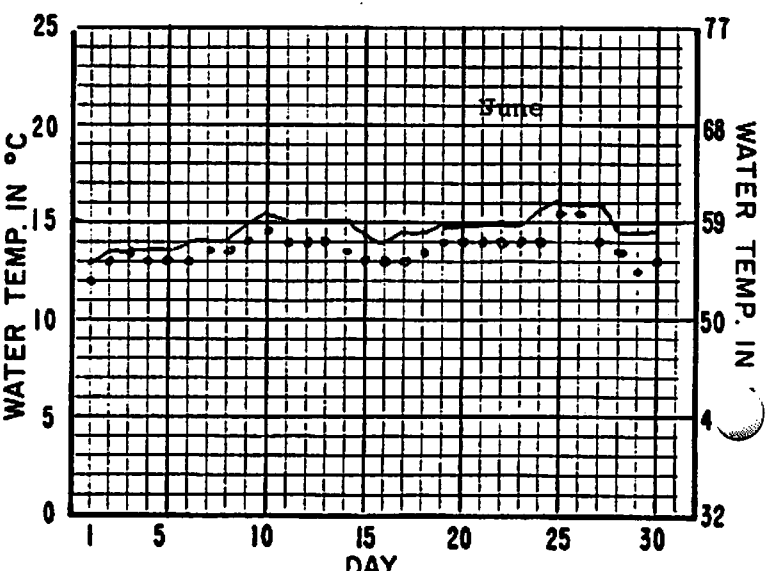
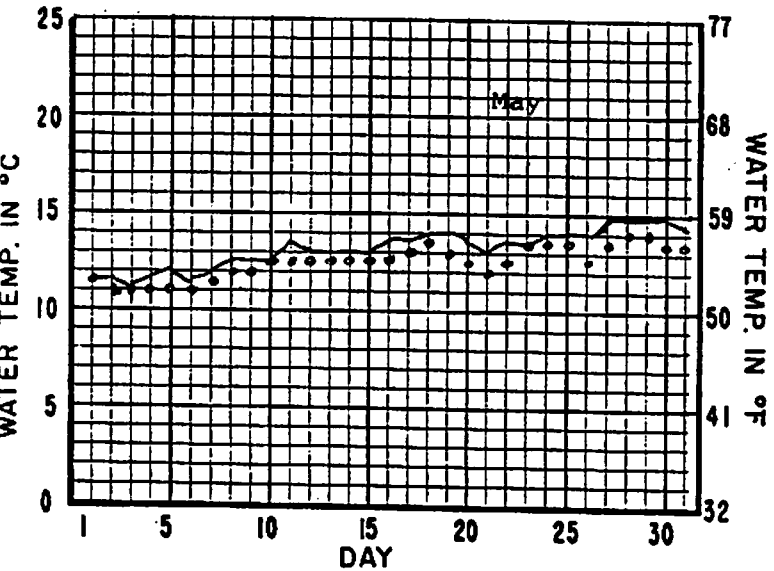
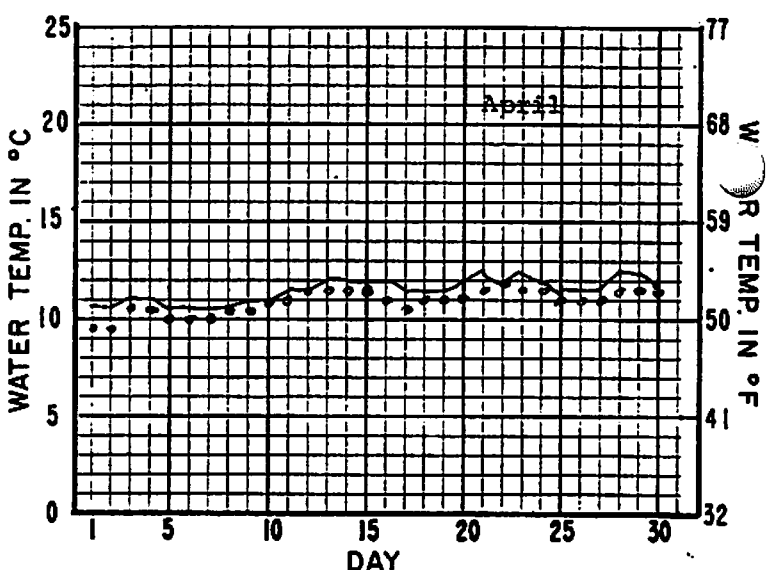
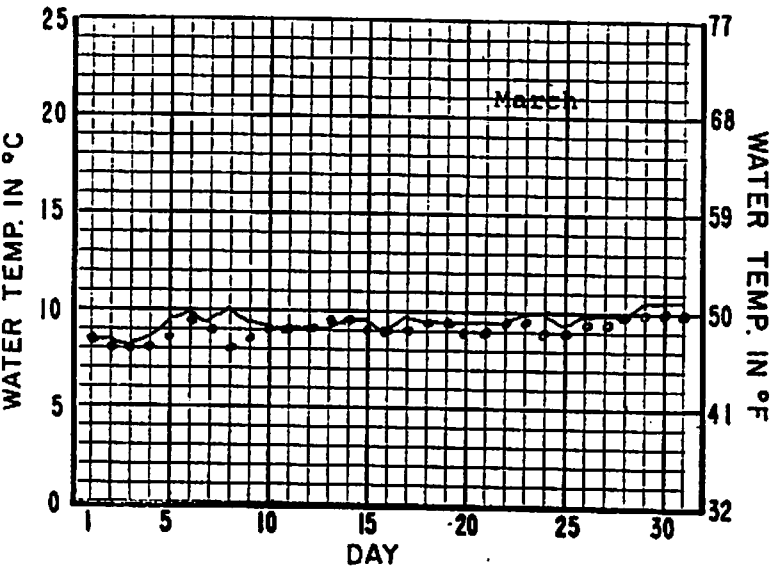
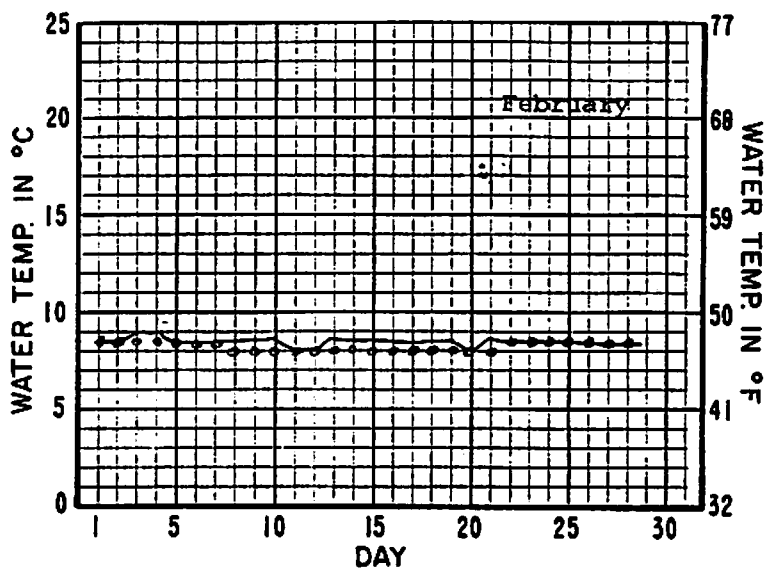
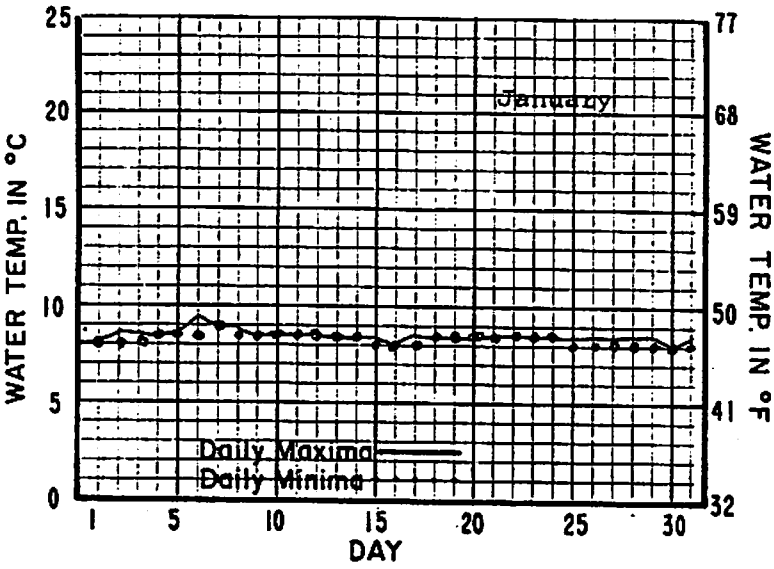
APPENDIX TABLE 2. Fork Lengths (to Nearest Centimeter) of Marked Chinook Salmon Trapped at Feather River Hatchery, 1985-1986

FL	M	AD	F	FL	M	AD	F
50				82	6		16
51	1			83	7		15
52	1			84	4		12
53	1			85	12		11
54	2			86	10		17
55				87	2		12
56				88	7		15
57				89	7		8
58				90	10		9
59				91	7		16
60	3		1	92	4		8
61	6			93	8		2
62	2			94	4		4
63	2			95	10		1
64				96	7		5
65	1		1	97	6		1
66			2	98	4		
67	5		1	99	1		1
68	1		1	100	7		1
69	2			101	1		
70	4		4	102	3		
71	3		5	103	3		
72	5		2	104			
73	2		5	105			
74	1		6	106			
75	6		8	107			
76	3		8	108	1		
77	6		7	109			
78	3		17	110	1		
79	3		15	111			
80	5		13	112			
81	4		26	113			
				114	1		
				<hr/>			
				Totals	205		276

APPENDIX TABLE 3. Fork Lengths (to Nearest Centimeter) of Marked Steelhead Trapped at Feather River Hatchery, 1985-1986

FL (centimeters)	M	AD	F	FL (centimeters)	M	AD	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		
66			2	98	4		

DAILY WATER TEMPERATURES BY MONTH



DAILY WATER TEMPERATURES BY MONTH

