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ANNUAL REPORT  
FEATHER RIVER HATCHERY, 1986-87

by

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Region 2, Inland Fisheries

Inland Fisheries  
Administrative Report No. 88-10

1988

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ABSTRACT

This report summarizes the operation of Feather River Hatchery and its annex from July 1, 1986 through June 30, 1987. 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 10,061 chinook salmon and 1,018 steelhead and planted or transferred 15,210,966 chinook fingerlings, 1,636,250 chinook yearlings, 788,010 steelhead fingerlings, and 452,455 steelhead yearlings.

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<sup>1/</sup> Inland Fisheries Administrative Report No. 88-10.  
Submitted May 1988.

## INTRODUCTION

This report describes activities of the Feather River Hatchery and its annex during its 20th year of operation, July 1, 1986 through June 30, 1987. 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 10,061 chinook salmon, Oncorhynchus tshawytscha, and 1,018 steelhead, Salmo gairdneri, during the 1986-87 season (Table 1). Approximately 18,560,100 salmon eggs and 1,549,144 steelhead eggs were taken. We planted 16,847,216 salmon and 1,240,465 steelhead.

## MARKING PROGRAMS

Personnel from Inland Fisheries Division marked 208,679 spring-run chinook salmon of the 1986 brood year (BY) with an adipose clip (AD) and coded-wire nose tag (CWT). The fish were split into two approximately equal groups and planted in Big Chico Creek and the Feather River (Table 2).

Bay Delta personnel marked a total of 104,370 1985 BY fall-run chinook salmon with an AD and CWT, and 467,431 1986 BY fall-run chinook salmon with an AD and CWT. The 1985 BY fall-run chinook salmon group was planted at Benicia. One 1986 BY group was planted in the Yuba River and at Courtland, Benicia, and Ryde (Table 2). No marked steelhead releases were made during this report period.

TABLE 1. Feather River Hatchery Production Summary, 1986-1987

Species brood year	Adults trapped or received	Females spawned	Eggs taken	Fish planted		Estimate on hand
				Fingerlings	Yearlings	
Chinook salmon						
Spring run						
1985 BY	0	0	0	719,325	184,800	0
1986 BY	1,433	408	2,063,363	1,206,879		587,607
Chinook salmon						
Fall run						
1985 BY	0	0	0	3,756,595	1,451,450	0
1986 BY	8,628	2,810	16,496,737	9,528,167 <sup>a/</sup>		5,610,131
Steelhead						
1986 BY	0	0			452,455	0
1987 BY	1,018	294	1,549,144	788,010		637,006

<sup>a/</sup> Includes 4,529,400 to Mokelumne Hatchery

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery, 1986-1987.

Race	Month of release	Average size(G)	Number released	Mark	Release site
Spring Run 1985 BY	July	15.2	278,600		Benicia
	August	18.6	125,950		San Francisco Bay
	September	24.8	314,775		San Francisco Bay
	October	37.3	184,800		Feather River
	Total		904,125		
Spring Run 1986 BY	April	4.0	106,400	AD & CWT	Big Chico Creek
	April	3.7	102,279	AD & CWT	Feather River
	April	7.9	251,000		Benicia
	May	12.7	740,900		Benicia
	June	14.4	60,200		Benicia
	Total		1,260,879		
Fall Run 1985 BY	July	13.1	52,920	AD & CWT	Benecia
	July	13.1	51,450	AD & CWT	Benecia
	July	13.1	1,136,800		Benecia
	August	19.4	1,829,275		San Francisco Bay
	September	27.0	686,150		San Francisco Bay
	October	40.7	1,451,450		Feather River
Total		5,208,045			

TABLE 2. (Continued)

Race	Month of release	Average size(G)	Number released	Mark	Release site
Fall Run 1986 BY	January	.44	50,400		Dry Creek
	January	.44	50,400		Auburn Ravine
	January	.44	100,000		Secret Ravine
	January	.44	24,640		Dry Creek
	January	.44	49,280		Doty Ravine
	January	.44	24,640		Coon Creek
	January	.63	101,376		Bear River
	January	1.49	2,148,000		Mokelumne Hatchery
	February	1.65	2,381,400		Mokelumne Hatchery
	April	3.8	11,620	AD & CWT	Yuba River
	April	5.8	53,200	AD & CWT	Ryde
	April	6.0	106,945	AD & CWT	Courtland
	April	4.3	821,300		Benicia
	May	6.3	103,620	AD & CWT	Courtland
	May	5.0	39,101	AD & CWT	Yuba River
	May	6.1	52,925	AD & CWT	Ryde
	May	6.5	926,500		Benicia
	June	10.7	2,382,800		Benicia
June	10.7	49,985	AD & CWT	Benicia	
June	10.7	50,035	AD & CWT	Benicia	
	Total		9,528,167		

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Grand Total 16,901,216

## CHINOOK SALMON MAINTENANCE PROGRAM

### History of the 1986-87 Runs

#### 1986 BY Spring Run

The fish ladder was opened September 1, 1986 to allow the spring-run chinook salmon to enter the Hatchery. We received 1,433 fish between September 1 and October 1 (Appendix Table 1). The spring-run were sexed on October 1. At that time we had on hand 546 males, 696 females, and 191 grilse. Of the 696 females, we successfully spawned 408 from September 30 through October 21. The spawning yielded 2,063,363 eggs, for an average of 5,057 eggs per female.

An estimated 1,832,685 fingerlings were transferred to the ponds, for an average egg to fingerling survival rate of 89%. Between March and May, we planted 1,206,879 spring-run 1986 BY chinook fingerlings and smolts. An estimated 587,607 remained on hand June 30.

#### 1986 BY Fall Run

The first fall-run chinook salmon adults entered the Hatchery on October 2, (Appendix Table 1). The season total was 8,628 fish. We spawned 2,810 females between October 2 and December 1 and took 16,496,737 eggs, for an average of 5,870 eggs per female. Fry production totaled 15,899,609, for an average egg to fry survival of 96%. We planted and transferred a total of 9,528,167 fall-run 1986 BY chinook fingerlings. An estimated 5,610,131 remained on hand as of June 30.

#### Recovery of Marked Chinook Salmon

All chinook salmon entering the Hatchery were examined for marks; a total of 541 was marked (Appendix Table 2).

#### Chinook Salmon Planting

We planted an estimated 15,210,966 chinook fingerlings and 1,636,250 chinook yearlings. (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

History of the 1986-87 Production

Steelhead were not counted until January 5. We trapped a total of 1,018 fish. Marks and measurements of steelhead were recorded by Region 2 personnel.

Out of the total run of 1,018 fish, there were 483 males and 535 females. We successfully spawned 294 females (Table 3), and took a total of 1,549,144 eggs (5,296 eggs/female). Of these eggs, 1,436,920 were transferred to the ponds for an overall survival rate of 92.7%. We planted 788,010 as fingerlings and had an estimated 637,006 steelhead on hand June 30.

TABLE 3. Steelhead Spawning Data, 1986-87.

Date	Fish spawned	
	M	F
1/5/87	47	18
1/12/87	44	83
1/20/87	25	70
1/26/87	38	49
2/2/87	13	42
2/9/87	10	32
	177	294



STEELHEAD PLANTING

We planted an estimated 1,240,465 steelhead during the 1986-87 season (Table 4).

TABLE 4. Steelhead Planting Summary, 1986-1987.

Date	Strain	Release site	Average size(G)	Number released
January	Feather River	Feather River	90.0	10,560
February	Feather River	Feather River	140.0	245,695
March	Feather River	Feather River	131.0	196,200
April	Feather River	Chico Creek	.04	100,800
May	Feather River	Chico Creek	.05	229,360
May	Feather River	Dry Creek	.8	100,800
May	Feather River	Feather River	1.9	357,050
			Total	1,240,465

VISITOR USE

During the 1986-87 fiscal year, an estimated 26,820 people visited the installation.

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data  
For Feather River Hatchery, 1986-1987.

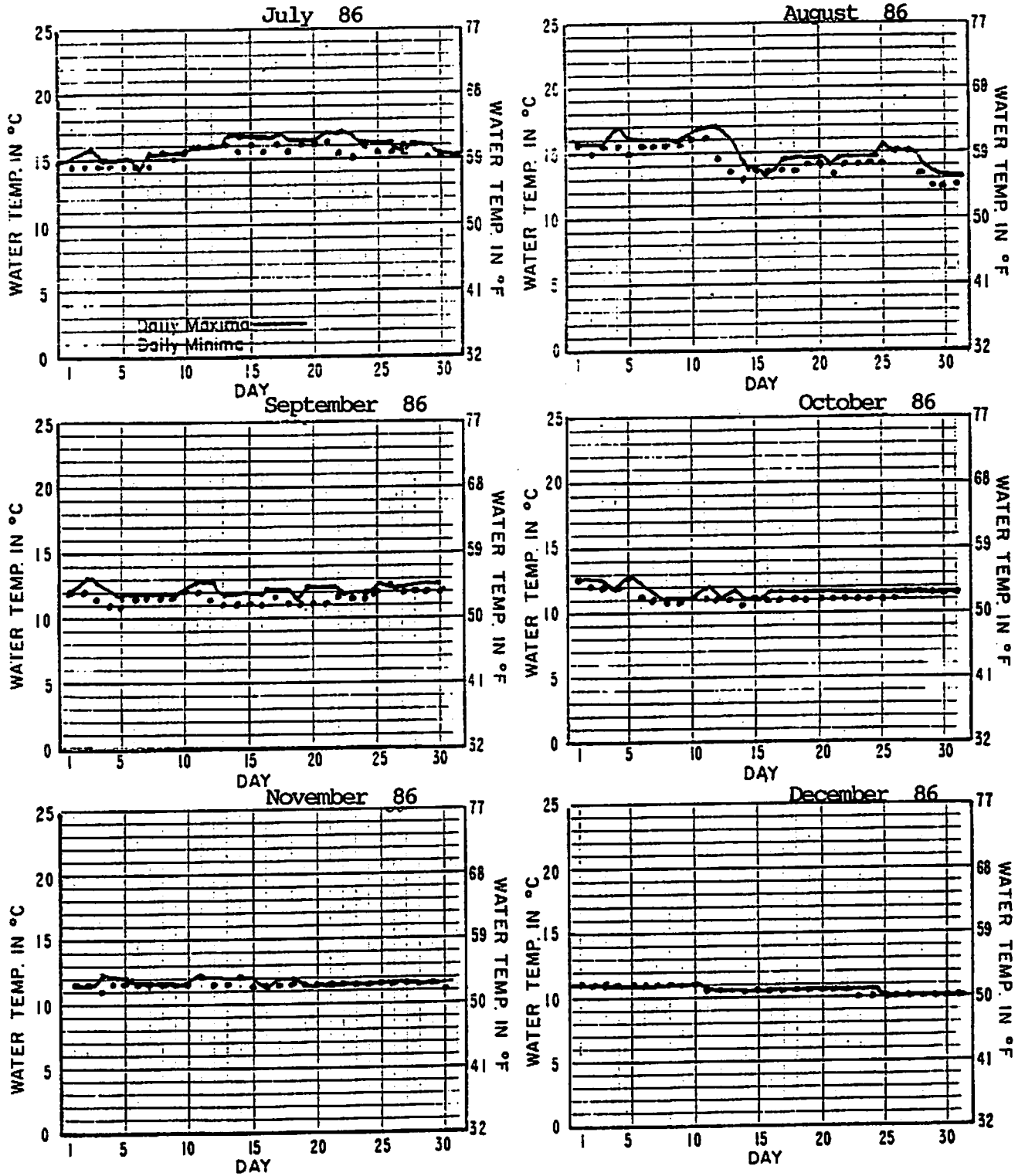
<u>Week</u>	<u>Chinook salmon</u> <u>fall run</u>		<u>Chinook salmon</u> <u>spring run</u>		<u>Steelhead trout</u>	
	<u>Adults</u>	<u>Grilse</u>	<u>Adults</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
Sept.1 - Oct. 2			1,242	191		
Sept. 28 - Oct. 4	571	249				
Oct. 5-11	567	257				
Oct. 12-18	1,354	859				
Oct. 19-25	1,038	648				
Oct. 26 - Nov. 1	880	497				
Nov. 2-8	732	237				
Nov. 9-15	356	48				
Nov. 16-22	194	14				
Nov. 23-29	77	2				
Nov. 30 - Dec. 6	48	0				
Jan. 4-10					326	306
Jan. 11-17					117	127
Jan. 18-24					10	22
Jan. 25-31					15	17
Feb. 1-7					11	37
Feb. 8-14					4	26
Season Totals	5,817	2,811	1,242	191	483	535

APPENDIX TABLE 2. Fork Lengths (to Nearest Centimeter) of Adipose Marked Chinook Salmon Trapped at Feather River Hatchery, 1986-1987.

FL	AD		FL	AD	
	Males	Females		Males	Females
39			76	4	20
40			77		14
41			78	1	16
42	2		79	2	10
43	4		80	3	13
44	1		81	2	8
45	4		82	5	6
46	5		83	3	13
47	3				
48	9		84	9	10
49	6		85	4	7
50	7		86	10	7
51	9		87	7	3
52	15		88	10	4
53	11	1	89	7	2
54	18		90	12	5
55	10		91	8	3
56	18		92	6	2
57	12		93	4	3
58	12		94	10	3
59	9		95	2	2
60	4		96	6	2
61	1		97	2	
62	6	1	98	4	3
63	2	1	99	2	2
64	1	1	100	2	
65	4		101		
66	3	3	102	2	1
67	1	1	103		
68		3	104	2	
69		3	105	2	
70	2	4	106	2	
71		1	107		
72	3	10	108	2	
73		5	109		
74	1	10	110	7	
75	2	10	111	1	
			<hr/>		
			Totals	328	213

APPENDIX FIGURE 1. Daily Water Temperatures for Feather River Salmon and Steelhead Hatchery from July 1, 1986 through June 30, 1987.

DAILY WATER TEMPERATURES BY MONTH



APPENDIX FIGURE 1. (cont.)

DAILY WATER TEMPERATURES BY MONTH

