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The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
FEATHER RIVER HATCHERY, 1988-89

by

Donald L. Schlichting
Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 91-12

1991

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ABSTRACT

This report summarizes the operation of Feather River Hatchery and its annex from July 1, 1988 through June 30, 1989. Tables present water temperatures, numbers of chinook salmon, Oncorhynchus tshawytscha, and steelhead rainbow trout, O. mykiss, entering the Hatchery, number of eggs taken and received, and numbers of fish released.

We trapped 13,313 chinook salmon and 1,106 steelhead and planted or transferred 18,044,569 chinook fingerlings, 427,370 steelhead fingerlings, and 454,107 steelhead yearlings.

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Department of Fish and Game, 1416 Ninth Street,
Sacramento, CA 95814

INTRODUCTION

This report describes activities at the Feather River Hatchery and its annex during its 22nd year of operation, July 1, 1988 through June 30, 1989. 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 the 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 expenses for the annex 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 13,313 chinook salmon, Oncorhynchus tshawytscha, and 1,106 steelhead, O. mykiss, during the 1988-89 season (Table 1). Approximately 25,209,347 salmon eggs and 1,523,370 steelhead eggs were taken. We planted 18,044,569 salmon and 819,337 steelhead.

MARKING PROGRAMS

Bay Delta personnel marked a total of 946,337 1988 brood year (BY) fall-run chinook salmon with an adipose clip (AD) and coded-wire nose tag (CWT). These marked chinook salmon were planted at Ryde, Courtland, Port Chicago, Miller Park, Steamboat Slough, San Joaquin, Upper Old River, Sutter Slough, and Jersey Point (Table 2).

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1988-89 Runs

1988 BY Spring Run

The fish ladder was opened September 7, 1988 to allow the spring-run chinook salmon to enter the Hatchery. We received 6,833 fish between September 7 and October 1 (Appendix Table 1). The spring run were sexed on October 3. At that time we had on hand 3,780 males, 2,770 females, and 283 grilse. Of the 2,770 females, we successfully spawned 1,652 from September 28 through October 13. The spawning yielded 9,529,298 eggs, for an average of 5,768 eggs per female.

An estimated 8,692,277 fingerlings were transferred to the ponds, for an average egg to fingerling survival rate of 91%.

Between December 1988 and June 1989, we planted 5,707,130 1988 BY chinook fingerlings and smolts. A total of 2,474,363 remained on hand June 30.

TABLE 1. Feather River Hatchery Production Summary, 1988-1989

Species brood year	Adults trapped or received	Females spawned	Eggs taken	Fish planted		Estimate on hand 6/30/89
				fingerlings	yearlings	
Chinook salmon Spring run 1988 BY	6,833	1,652	9,529,298	5,707,130 ^a		2,474,363
Chinook salmon Fall run 1987 BY				4,405,970		
Chinook salmon Fall run 1988 BY	6,480	2,722	15,6890,049 ^b	7,931,469 ^c		3,186,574
Steelhead 1988 BY					454,107	
Steelhead 1989 BY	1,106	306	1,523,770 ^d	427,370 ^e		754,922

- a/ Includes 1,515,500 shipped to Mokelumne Hatchery
- b/ Includes 1,491,070 fall run chinook eggs shipped to Mokelumne and 891,583 fall run chinook eggs shipped to Nimbus Hatchery
- c/ Includes 1,795,800 shipped to Mokelumne Hatchery
- d/ 81,783 SH-89 eggs shipped to Coleman Hatchery
- e/ Includes 300,320 shipped to Mokelumne Hatchery

1988 BY Fall Run

The first fall-run chinook salmon adults entered the Hatchery on October 1, (Appendix Table 1). The season total was 6,480 fish: 2,764 males, 3,399 females, and 317 grilse. We spawned 2,722 females between October 7 and December 5 and took 15,680,049 eggs, for an average of 5,900 eggs per female. Fry production totaled 13,930,650, for an average egg to fry survival of 87%. We planted and transferred a total of 7,931,469 fall-run 1988 BY chinook fingerlings. An estimated 3,186,574 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 936 was marked (Appendix Table 2).

Chinook Salmon Planting

We planted an estimated 18,044,569 chinook fingerlings (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM History of the 1988-89 Production

Steelhead were not counted until December 29. We trapped a total of 1,106 fish: 601 males and 505 females. Marks and measurements of steelhead were recorded by Region 2 personnel. We successfully spawned 306 females (Table 3), and took a total of 1,523,770 eggs (4,980 eggs/female). From these eggs, 1,281,495 fish were transferred to the ponds, for an overall survival rate of 84%. We planted 427,370 fingerlings and had an estimated 754,922 steelhead on hand June 30.

STEELHEAD PLANTING

We planted an estimated 881,477 steelhead during the 1988-89 season (Table 4).

VISITOR USE

During the 1988-89 fiscal year, an estimated 32,996 people visited the installation.

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery, 1988-1989

<u>Race</u>	<u>Month of release</u>	<u>Average size(G)</u>	<u>Number released</u>	<u>Release site</u>
Spring run 1987 BY		0	0	
Spring run 1988 BY	December	.4	502,000	Chico Creek
	December	.4	293,580	Feather River
	February	2.5	1,515,500	Mokelumne Hatchery
	April	4.0	909,200	Feather River
	April	5.8	719,600	Benicia
	May	11.9	1,242,750	Benicia
	June	14.9	<u>524,500</u>	Benicia
	Total		5,707,130	
Fall run 1987 BY	July	17.9	2,701,750	Mare Island/Benicia
	August	33.2	1,595,220	Mare Island/Benicia
	September	56.0	<u>109,000</u>	Mare Island/Benicia
	Total		4,405,970	
Fall run 1988 BY	December	.35	538,400	Feather River
	January	.32	371,800	Feather River
	January	.41	114,704	Colusa Drain
	January	.41	194,072	Dry Creek
	January	.41	100,678	Coon Creek
	January	.41	100,678	Bear Creek
	January	.41	100,678	Secret Ravine
	January	.41	100,678	Miners Ravine
	January	.41	485,616	Colusa Drain
	January	.41	100,678	Auburn Ravine

TABLE 2 (Con't.)

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Race	Month of release	Average size(G)	Number released	Mark	Release site
Fall run					
1988 BY	January	1.1	1,795,600		Mokelumne Hatchery
	April	5.8	685,500		Benicia
	April	3.4	743,450		Gridley
	April	5.8	53,122	06-31-14	San Joaquin
	April	6.0	52,511	06-31-13	Upper Old River
	April	3.7	57,392	H6-1-11-11	Jersey Point
				H6-1-11-12	
	May	7.3	51,572	06-31-11	Courtland
	May	6.8	51,877	06-31-12	Sacramento River (Ryde)
	May	4.5	57,328	H6-1-11-19	Sacramento River (Ryde)
				H6-1-11-10	
	May	10.9	537,000		Benicia
	June	8.2	53,144	06-31-10	Miller Park
	June	10.1	52,828	06-31-08	Courtland
	June	9.3	53,101	06-31-07	Ryde
	June	10.0	52,284	06-31-09	Port Chicago
	June	15.4	43,500	Vibro Treated	Tiburon
	June	7.9	51,676	06-31-16	Sutter Slough
	June	7.3	51,573	06-01-14-01-0	Steamboat Slough
	June	7.1	50,569	06-31-15	Miller Park
	June	7.4	51,564	06-31-17	Miller Park
	June	8.2	48,041	06-58-05	Courtland
	June	8.2	54,375	06-01-14-01-03	Courtland
	June	7.7	52,665	06-01-14-01-02	Ryde
	June	8.6	50,715	06-01-14-01-04	Port Chicago
	June	10.9	<u>972,100</u>		Benicia
	TOTAL		7,931,469		

TABLE 3. Steelhead Spawning Data, 1988-89

Date	M	F
12/29/88	31	23
1/4/89	37	34
1/10/89	31	30
1/17/89	39	39
1/23/89	34	37
1/30/89	41	58
2/6/89	25	27
2/14/89	17	39
2/21/89	8	19
Total		306

TABLE 4. Steelhead Planting Summary, 1988-1989

Date	Strain	Release site	Average size (g)	Number released
May	Feather River	Mokelumne Hatchery	1.2	132,000
June	Feather River	Mokelumne Hatchery	1.9	168,320
June	Feather River	Feather River	2.9	127,050
February	Feather River	Feather River	137.9	62,140
March	Feather River	Feather River	149.3	391,967
Total				881,477

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data
For Feather River Hatchery, 1988-1989

<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			6,550	283		
Oct. 7	1,304	66				
Oct. 8-14	1,853	101				
Oct. 17-21	2,283	150				
Oct. 22-31	501	-0-				
Nov. 3	222	-0-				
December 16					279	201
December 29					103	73
January 4, 1989					25	32
January 10					37	28
January 17					60	38
January 23					20	35
January 30					56	61
February 6					17	29
February 14					4	8
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Season Totals	6,163	317	6,550	283	601	505

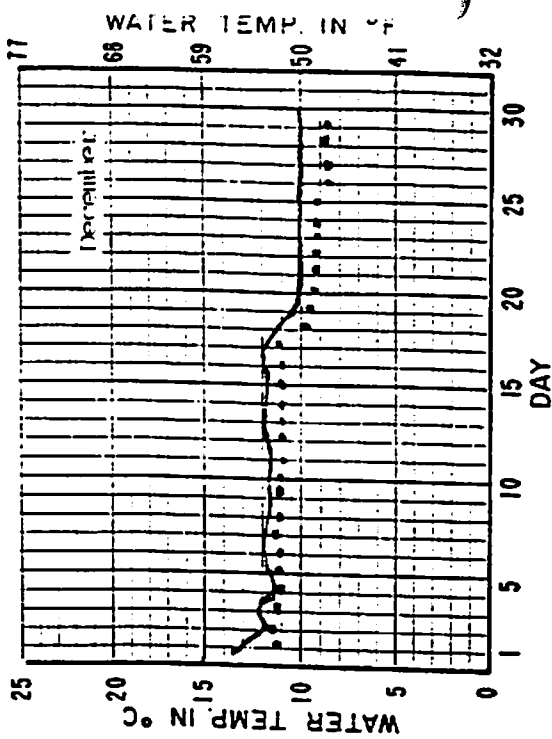
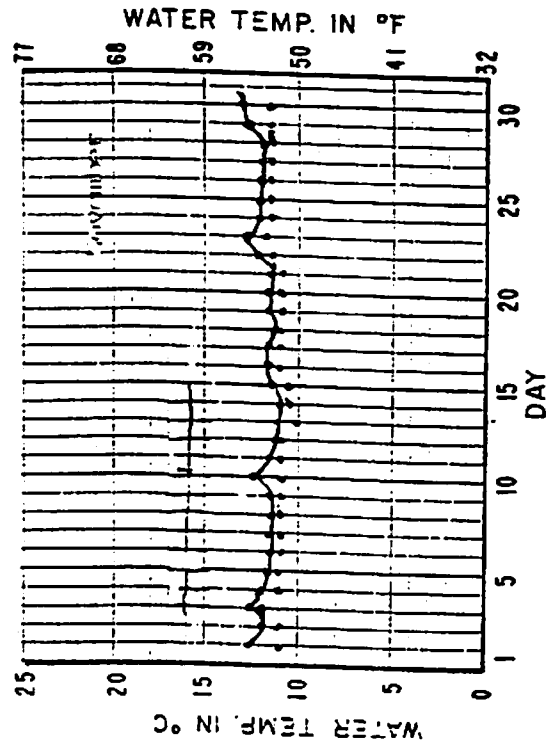
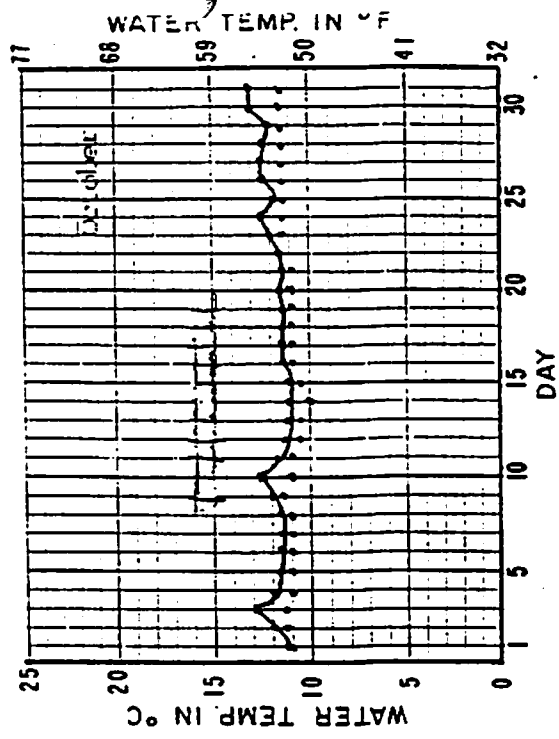
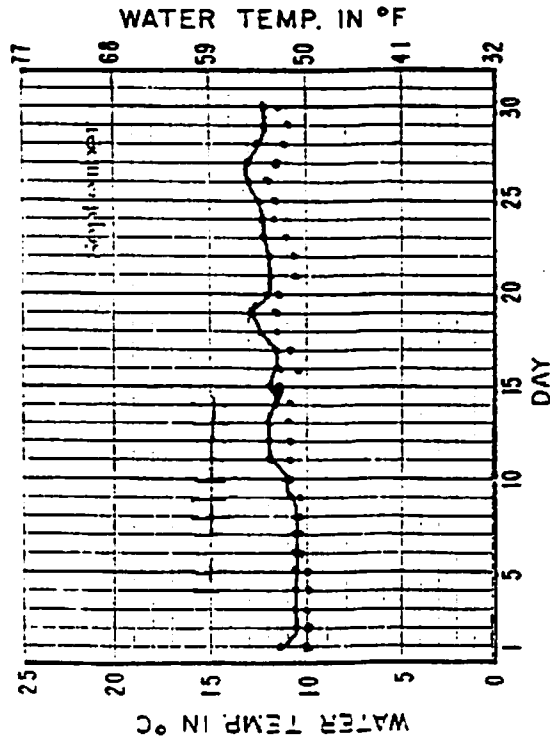
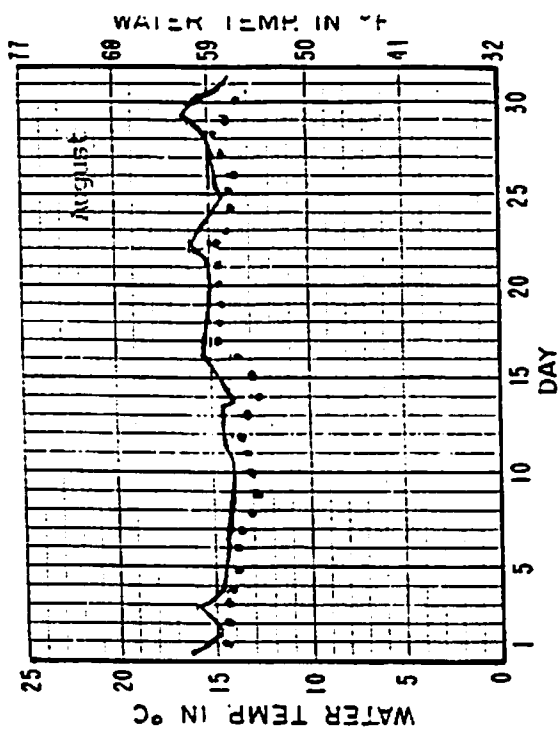
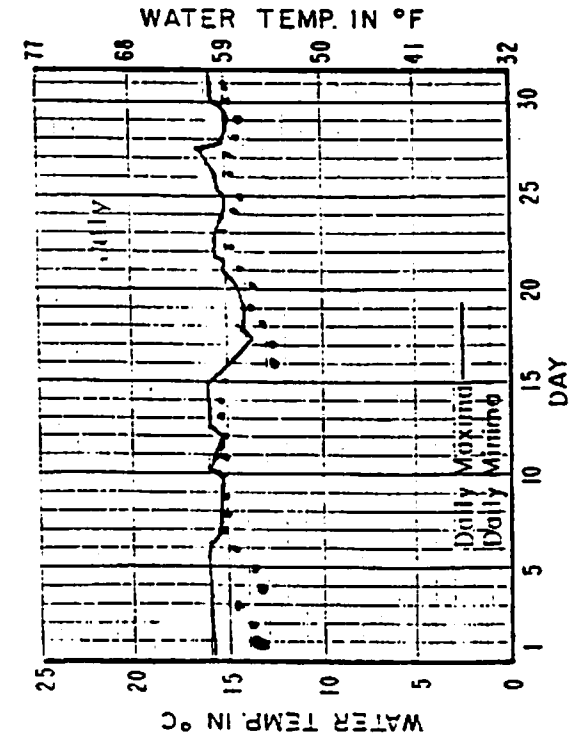
APPENDIX TABLE 2. Fork Lengths (to Nearest Centimeter) of Adipose Marked Chinook Salmon Trapped at Feather River Hatchery, 1988-1989

<u>FL</u>	<u>Males</u>	<u>Females</u>	<u>FL</u>	<u>Males</u>	<u>Females</u>
50	3		78	11	30
51			79	9	29
52	3		80	26	49
53			81	19	20
54	2	1	82	17	29
55	1		83	23	16
56	2		84	27	31
57	2		85	29	21
58	4	1	86	28	13
59	4		87	15	15
60	7	3	88	25	9
61	1	1	89	20	8
62	11		90	29	6
63	7	1	91	9	3
64	3	1	92	11	2
65	4	4	93	10	3
66	3	2	94	20	1
67	5	1	95	8	1
68	2	3	96	5	
69	2	3	97	5	1
70	4	15	98	5	1
71	1	8	99	4	
72	2	18	100	6	
73	5	15	101		
74	7	20	102	1	
75	3	17	103		
76	12	29	104	2	
77	6	32	105	1	
			106	1	
			107		
			108		
			109		
			Totals	472	464

Daily Water Temperature for Feather River Hatchery Salmon and Steelhead
 July 1, 1988 thru June 30, 1989

DAILY WATER TEMPERATURES BY MONTH

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Daily Water Temperature for Feather River Hatchery Salmon and Steelhead
July 1, 1988 thru June 30, 1989

DAILY WATER TEMPERATURES BY MONTH

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