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DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
MOKELUMNE RIVER HATCHERY, 1988-89

by

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Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 90-6

1990

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ABSTRACT

This report describes the operation of the Mokelumne River Hatchery from July 1, 1988 through June 30, 1989. The installation consists of a hatchery building, concrete raceways, and rearing ponds for chinook salmon, Oncorhynchus tshawytscha, and steelhead trout, O. mykiss.

The Hatchery received 1,491,070 eyed chinook salmon eggs (1988 BY) and 3,311,300 chinook salmon fingerlings from Feather River Hatchery, to be reared and released when they reach 60/lb or larger. There were 2,474,800 chinook salmon fingerlings released during the 1988-89 season.

A total of 169,666 eyed steelhead trout eggs (1989 BY) was received from Nimbus Hatchery.

Also received from Feather River Hatchery were 300,320 steelhead fingerlings (1989-BY). Due to the poor water quality during the summer of 1988, no steelhead were carried to yearling size.

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INTRODUCTION

This is the 26th annual report for operation of the Mokelumne River Hatchery. It describes operations of the Hatchery from July 1, 1988 through June 30, 1989. Copies of previous annual reports are available upon request from Inland Fisheries Division, Rancho Cordova.

The Mokelumne River Hatchery is located on the south bank of the Mokelumne River at the base of Camanche Dam in San Joaquin County. Camanche Dam is presently the upper limit of anadromous fish migration in the Mokelumne River. The Mokelumne River enters the San Joaquin River about 61 miles downstream from Camanche Dam.

Mokelumne River Hatchery was constructed to compensate for the loss of fall-run chinook salmon and steelhead trout spawning and rearing areas inundated by Camanche Dam. The Hatchery is operated by the California Department of Fish and Game. The East Bay Municipal Utility District paid total construction costs of the Hatchery and also pays the annual operation and maintenance costs for all mitigation fish. Production costs for enhancement fish are funded by the Commercial Salmon Trollers Stamp fund (Salmon Stamp).

This report summarizes the number of fish trapped, eggs and fish received, and the production of fish. Appendix tables detail trapping data and water conditions from July 1, 1988 to June 30, 1989.

PRODUCTION SUMMARY

There were 169,666 steelhead eggs received from Nimbus Hatchery and 300,320 fingerlings from Feather River Hatchery for rearing to yearling size. A total of 1,491,070 eyed chinook salmon eggs and 3,311,300 chinook salmon fingerlings of Feather River origin were received for rearing to advance fingerling size (Table 1).

Disease

There were no significant mortalities from diseases at the Hatchery this season. However, low reservoir levels caused low D.O. levels, high water temperatures, and extreme hydrogen sulfide levels. Water temperatures were 65°F by July 1 and climbed to 75°F by August 30. These conditions prevented the holding of any fish until November 15, 1988 when eyed chinook eggs were received from Feather River Hatchery.

TABLE 1. Mokelumne River Hatchery Production Summary, 1988-89

<u>Species</u>	<u>Adults trapped</u>	<u>Eggs taken or received</u>	<u>Fingerlings received</u>	<u>Advanced fing. planted</u>	<u>Yearlings planted</u>	<u>Total pounds planted</u>	<u>Fish on hand</u>
<u>Chinook salmon</u>							
1987-BY	630	1,000,400	2,408,000	2,340,150	481,920	78,025	28,000
<u>Chinook salmon</u>							
1988-BY	128	1,491,070	3,311,300	2,474,800	----	70,150	1,458,100
<u>Steelhead</u>							
1988-BY		526,110	0	341,600	0	1,850	62,200
1989-BY	7	169,666	300,320	0	0	0	431,020

CHINOOK SALMON PROGRAM
History of the 1988-89 Season

There were 128 chinook salmon trapped at the Hatchery this season; 47 adult males, 46 adult females and 35 grilse (< 24 inches FL).

All fish entered the Hatchery between October 24, 1988 and February 16, 1989. Water releases from Camanche Reservoir into the Mokelumne River were 80 to 90 cfs during the entire salmon migration period.

Four fish with the adipose fin removed were recovered. Their heads were removed and sent to be checked for coded-wire tags.

Production

A total of 2,474,800 chinook salmon advanced fingerlings was released during the season. There were 1,491,070 eyed eggs (1988 BY) and 3,311,300 (1988 BY) fingerlings received from Feather River Hatchery. On June 30, 1989, there were 1,458,100 (1988 BY) fingerlings on hand.

TABLE 2. Chinook Salmon Plants

Date	Release site	Weight (lb)	Number
April 1989	Mokelumne River	2,650	418,700
May 1989	Benicia Ramp	2,800	92,400
	Bennetts Marina (Rodeo)	25,400	896,800
June 1989	Bennetts Marina (Rodeo)	39,300	1,066,900
TOTAL		70,150	2,474,800

Chinook Salmon Tagging and Marking Programs

Two groups of 50,000 chinook salmon were marked by removing the adipose fin and implanting a coded-wire tag (CWT). These fish will be released at the Berkeley Marina when they near 25 fish per pound. One group will be released at night and the other group are to be released during daylight hours to compare survival.

STEELHEAD TROUT PROGRAM

There were only seven steelhead trapped at the Hatchery this season, six adult males and one adult female. The river flow was

reduced to 90 cfs on October 5, 1988, further reduced to 80 cfs on February 9, 1989, and held at that level thru March 22, 1989, when it was further reduced to 65 cfs, where it remained until mid April.

A total of 169,666 (1989 BY) eyed steelhead eggs was received from Nimbus Hatchery during March 1989. Also 300,320 steelhead fingerlings were received from Feather River Hatchery.

No steelhead were released during this report period. There were 431,020 steelhead on hand June 30, 1989.

TABLE 3. Steelhead Trout Plants

<u>Date</u>	<u>Release site</u>	<u>Average size/lb</u>	<u>Number</u>
June 1988	Sacramento River	185	341,600

PUBLIC RELATIONS

During the 1988-89 season, 11,231 persons visited the Mokelumne River Hatchery. Tours were conducted for special interest groups and talks given to sports and civic organizations upon request.

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data for Mokelumne River Hatchery, 1988-89

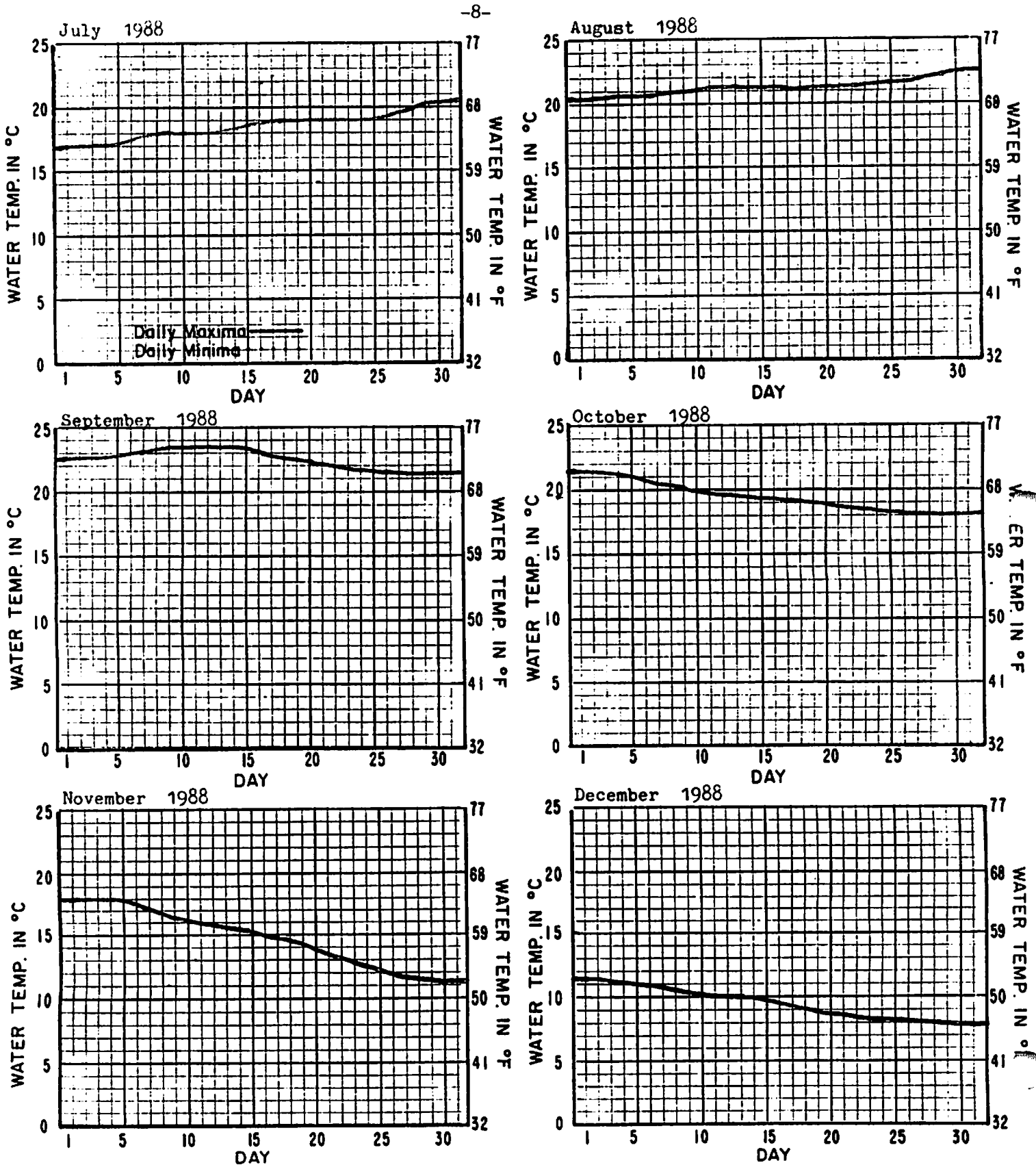
<u>Week</u>	<u>Chinook salmon</u>		<u>Steelhead trout</u>	
	<u>Adults</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
Oct. 23-29	4	2		
Oct. 30-Nov. 5	4	8		
Nov. 6-12	5	4		
Nov. 13-19	4	3		
Nov. 20-26	4	4		
Nov. 27-Dec. 3	51	9		
Dec. 4-10	--	--		
Dec. 11-17	4	2		
Dec. 18-24	3	1		
Dec. 25-31	6	0		
Jan. 1-7	0	2	1	
Jan. 8-14	0	0	1	
Jan. 15-21	--	--	1	1
Jan. 22-28	2	--	--	--
Jan. 29-Feb. 4	2	--	2	--
Feb. 5-11	2	--	--	--
Feb. 12-18	2	--	--	--
Feb. 19-25	--	--	--	--
Feb. 26-Mar. 4	--	--	1	--
<hr/>				
Season Totals	93	35	6	1

APPENDIX TABLE 2. Summary of Fish Runs to Mokelumne River Fish Hatchery

<u>Year</u>	<u>Chinook salmon</u>			<u>Steelhead Trout</u>	
	<u>Male</u>	<u>Females</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
1964-65	184	178		30	15
1965-66	60	35	78	20	10
1966-67	181	99	200	10	7
1967-68	99	97	54	60	43
1968-69	202	159	593	16	8
1969-70	182	314	119	109	25
1970-71	423	305	180	97	118
1971-72	520	539	171	8	6
1972-73	285	30	38	7	4
1973-74	222	128	58	13	5
1974-75	49	37	134	2	--
1975-76	68	81	250	--	--
1976-77	11	6	57	--	--
1977-78	--	--	--	--	--
1978-79	161	143	180	--	--
1979-80	181	64	262	--	--
1980-81	192	228	219	--	--
1981-82	572	490	324	--	--
1982-83	830	952	895	--	--
1983-84	494	1,191	2,888	--	--
1984-85	348	456	155	--	--
1985-86	119	65	39	--	--
1986-87	434	681	798	31	17
1987-88	60	35	535	--	--
1988-89	47	46	35	6	1

Appendix Figure 1. Daily Water Temperature for Mokelumne River Hatchery from July 1, 1988 through June 30, 1989.

DAILY WATER TEMPERATURES BY MONTH



DAILY WATER TEMPERATURES BY MONTH

