

REF 90267

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
MOKELUMNE RIVER HATCHERY, 1989-90

by

Don F. Estey
Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 92-6.

1992

ANNUAL REPORT
MOKELUMNE RIVER HATCHERY, 1989-90^{1/}

by

Don F. Estey
Region 2, Inland Fisheries

ABSTRACT

This report describes the operation of Mokelumne River Hatchery from July 1, 1989 through June 30, 1990. The installation consists of a hatchery building, concrete raceways, and rearing ponds for chinook salmon, Oncorhynchus tshawytscha, and steelhead trout, Oncorhynchus mykiss.

The hatchery received 1,898,568 eyed chinook salmon eggs (1989 BY) and 1,895,900 chinook salmon fingerlings of Feather River origin, to be reared and released when they reach 60/lb or larger. There were 2,998,445 chinook released during the 1989-90 season.

A total of 684,631 eyed steelhead eggs (1990 BY) was received from Nimbus Hatchery and Coleman National Hatchery. There were 200,020 yearling steelhead released during the 1989-90 season.

^{1/} Inland Fisheries Administrative Report No. 92-6
Submitted September 1990. Edited by K. A. Hashagen,
California Department of Fish and Game, 1416 Ninth Street,
Sacramento, CA 95814.

INTRODUCTION

This is the 27th annual report for operation of the Mokelumne River Hatchery. It describes operation of the Hatchery from July 1, 1989 through June 30, 1990. Copies of previous annual reports are available upon request from the 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. East Bay Municipal Utility District (EBMUD) paid original 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, 1989 to June 30, 1990.

PRODUCTION SUMMARY

There were 684,631 steelhead eggs received from Nimbus Hatchery and Coleman National Hatchery for rearing to yearling size. A total of 1,898,568 chinook salmon eggs and 1,895,900 chinook salmon fingerlings of Feather River origin was received for rearing to advance fingerling size (Table 1).

TABLE 1. Mokelumne River Hatchery Production Summary, 1989-90

<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>							
1988-BY	128	1,491,070	3,311,300	2,575,420	1,374,800	166,870	0
<u>Chinook salmon</u>							
1989-BY	81	1,898,568	1,895,900	1,523,025	0	39,243	1,515,075
<u>Steelhead</u>							
1989-BY	7	169,666	300,320	0	193,820	69,450	431,020
1990-BY	11	684,631	0	0	0	0	484,400

DISEASE

There were no significant mortalities from diseases at the Hatchery this season. However, the facility again experienced low water levels in Camanche Reservoir, with only small amounts of water being released from Pardee Reservoir. By late September, this caused low dissolved oxygen levels, high hydrogen sulfide levels, and extremely high mineral and metal levels. During October, when the facility experienced the worst water conditions, 153,000 sub-yearling steelhead were lost. East Bay Municipal Utility District started releasing 380 cfs from Pardee Reservoir on October 13. By October 24, losses were back to normal and all remaining fish were on their way to recovery; water quality improved, with the hydrogen sulfide odor no longer evident.

CHINOOK SALMON PROGRAM

History of the 1989-90 Season

There were 81 chinook salmon trapped at the Hatchery this season; 23 adult males, 26 adult females and 32 grilse (<24 inches FL).

All fish entered the Hatchery between October 24, 1989 and February 2, 1990. Water releases from Camanche Reservoir into the Mokelumne River varied from 400 to 88 cfs during the salmon migration period. The flows were 138 cfs until November 2, when they were increased to 400 cfs for 5 days. On November 8, flows

were reduced to 130 cfs and held at that level until November 17. River flows were then further reduced to 106 cfs, where they remained until December 11, when they were reduced to 88 cfs for the remainder of the season.

PRODUCTION

A total of 2,998,445 chinook salmon was released during the season. There were 1,898,568 eyed eggs (1989 BY) and 1,895,900 (1989 BY) fingerlings received from Feather River Hatchery. On June 30, 1989, there were 1,515,075 (1989 BY) fingerlings on hand.

TABLE 2. Chinook Salmon Plants

Date	Release site	Weight (lb)	Number
July 1989	Bennett's Marina (Rodeo)	31,100	476,700
	Berkeley Marina	5,920	149,320
August 1989	Bennett's Marina (Rodeo)	52,400	761,800
September 1989	Bennett's Marina (Rodeo)	3,100	37,200
	Mokelumne River	4,200	50,400
March 1990	Clifton Court Forebay	2.5	500
	Mokelumne River	1,970	350,600
April 1990	Clifton Court Forebay	2.25	300
May 1990	Clifton Court Forebay	5	300
June	Lake Lodi	138	4,000
	Bennett's Marina (Rodeo)	16,250	517,500
	Benicia Ramp	20,875	649,825

CHINOOK SALMON TAGGING AND MARKING PROGRAM

There were no chinook salmon (1989 BY) marked or tagged at the Hatchery this season. Two groups of 1988 BY chinook salmon, which were marked by removing the adipose fin and CWT, were released at Berkeley Marina on July 10 and 11. The group released on July 10 were planted at 2300 hours and were tagged with tag number 06-48-31. There were 50,400 fish in this group, weighing a total of 1,800 lb and averaging 28 fish per lb. A group released on July 11 were tagged with tag number 06-48-32 and were planted at 1345 hours. There were 50,220 fish in this group, weighing a total of 1,620 lb and averaging 31 fish per lb. This was a daylight versus night time comparison plant.

STEELHEAD TROUT PROGRAM

There were 11 adult steelhead trapped at the Hatchery this season, 8 males and 3 females.

All fish entered the Hatchery between November 11, 1989 and February 2, 1990. River flows were at 88 cfs during most of the steelhead migration period, with only moderate rainfall to assist them in finding their way back to the Hatchery.

A total of 684,631 (1990 BY) eyed steelhead eggs was received from Nimbus Hatchery (221,058) and Coleman National Hatchery (463,573).

PRODUCTION

Even with the poor water quality during October 1989, when 153,000 subyearling steelhead were lost, a total of 200,020 steelhead yearlings was released during this report period. There were 16,013 (BY 89) and 484,400 (BY 90) steelhead on hand June 30, 1990.

TABLE 3. Steelhead Trout Plants

<u>Date</u>	<u>Release site</u>	<u>Weight (lb)</u>	<u>Number</u>
December 1989	Rancho Seco Lake	1,600	4,960
	Oak Grove Park Lake	400	1,240
January 1990	Sacramento River (Rio Vista)	17,200	53,900
	Lower Mokelumne River	22,900	72,520
	Rancho Seco Lake	1,500	4,685
February 1990	Oak Grove Park Lake	2,250	6,860
	Lower Mokelumne River	3,000	10,000
	Mokelumne River	2,600	8,820
	Rancho Seco Lake	700	2,240
March 1990	Oak Grove Park Lake	700	2,240
	Mokelumne River	6,900	15,260
April 1990	Mokelumne River	2,600	4,580
May 1990	Mokelumne River	4,950	7,385
June 1990	Mokelumne River	4,150	5,330

PUBLIC RELATIONS

During the 1989-90 season, 10,080 persons visited the Mokelumne River Hatchery. Tours were conducted for special interest groups and talks given to sports and civic organizations upon request. With the poor water quality and resulting fish losses, several television crews and newspaper reporters were on site periodically during the year.

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping
Data for Mokelumne River Hatchery, 1989-90

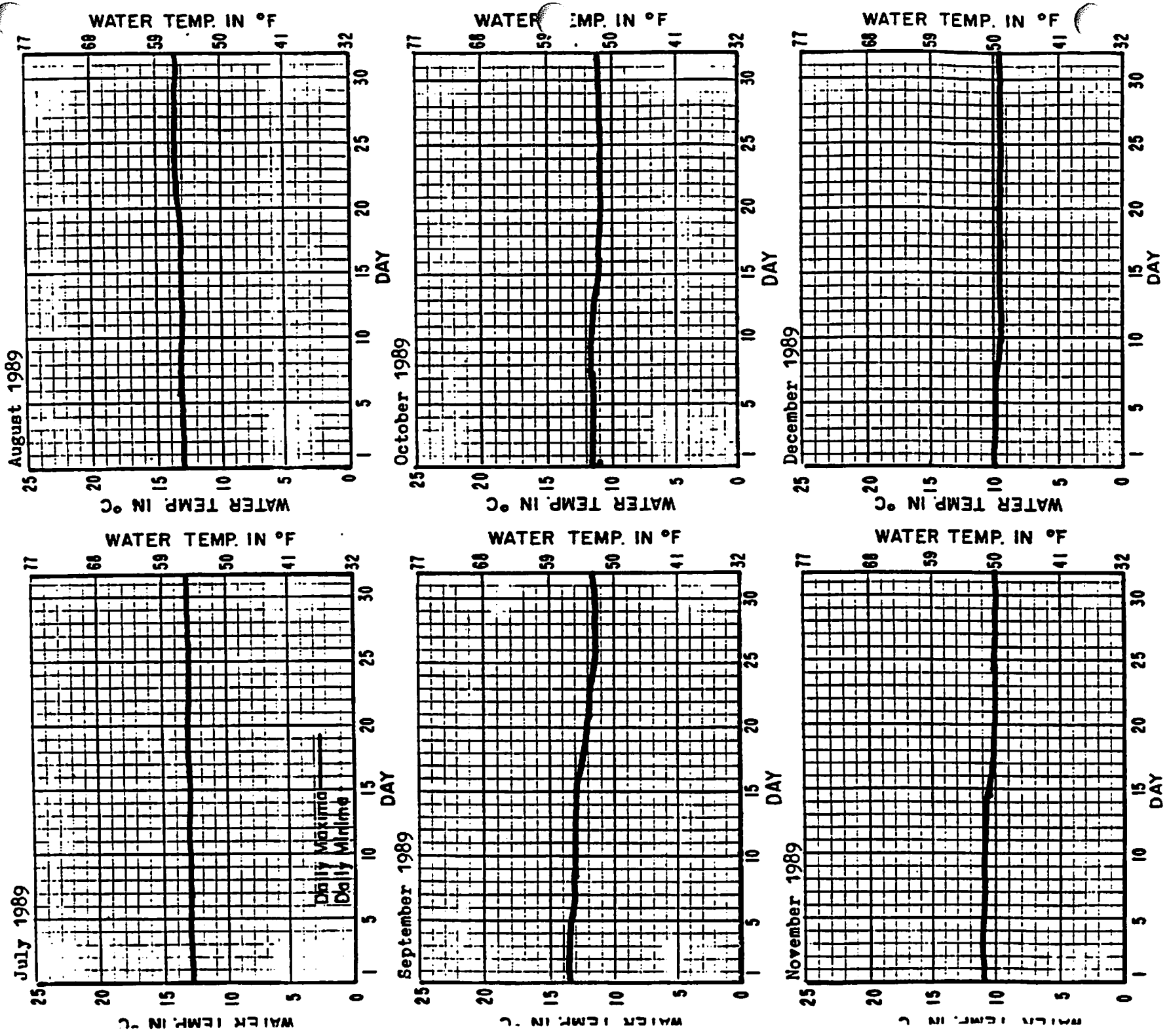
	<u>Chinook salmon</u>		<u>Steelhead trout</u>	
	<u>Adult</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
Oct. 22-28	1	1		
Oct. 29 - Nov. 4	0	0		
Nov. 5 - 11	12	13		
Nov 12 - 18	6	2	1	
Nov. 19 - 25	4	2	1	
Nov. 26 - Dec. 2	11	5	1	
Dec. 3 - 9	2	1		
Dec. 10 - 16	5	1		1
Dec. 17 - 23	1	1		
Dec. 24 - 30	1	2		
Dec. 31 - Jan. 6	2	3		
Jan. 7 - 13	1	1	1	
Jan. 14 - 20	2			
Jan. 21 - 27				
Jan. 28 - Feb. 3	1		1	1
Feb. 4 - 10				
Feb. 11 - 17			1	1
Feb. 18 - 24			2	
Feb. 25 - 28				
<hr/>				
Season Total	49	32	8	3

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>Female</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	129	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
1989-90	23	26	31	8	3

Appendix Figure 1. Daily Water Temperature for Mokelumne River Hatchery from July 1, 1989 through June 30, 1990.

DAILY WATER TEMPERATURES BY MONTH



DAILY WATER TEMPERATURES BY MONTH

