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ANNUAL REPORT  
MOKELUMNE RIVER HATCHERY, 1991-92

by

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Region 2, Inland Fisheries

Inland Fisheries  
Administrative Report No. 92-9  
1992

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ABSTRACT

This report describes the operation of the Mokelumne River Hatchery from July 1, 1991 through June 30, 1992. 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 1,489,150 chinook salmon fingerlings from Feather River, and 1,852,000 chinook salmon fingerlings from Nimbus Hatchery, to be reared and released when they reach a size of 60/lb or larger.

There were 2,795,684 chinook salmon smolts and 418,950 chinook salmon yearlings released during the 1991-92 season. There were also 72,430 yearling steelhead released during the 1991-92 season.

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

## INTRODUCTION

This is the 29th annual report for operation of the Mokelumne River Hatchery. It describes operations of the Hatchery from July 1, 1991 through June 30, 1992. 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 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, 1991 to June 30, 1992.

## PRODUCTION SUMMARY

A total of 1,513,645 chinook salmon eggs (1991 BY) was received from Feather River Hatchery to be incubated and reared for release at smolt size. There were 197,620 1991-BY chinook salmon eggs received from Nimbus Hatchery to be incubated and reared for release at yearling size in the fall of 1992. East Bay Municipal Utility District has fin-clipped and placed coded-wire tags (CWT) in 124,000 during June 1992. A total of 1,489,150 chinook salmon fingerlings of Feather River origin and 1,852,000 chinook salmon fingerlings from Nimbus Hatchery received for rearing to smolt size (Table 1).

## Disease

There were no significant mortalities from diseases at the Hatchery this season. We did have low dissolved oxygen and minor hydrogen sulfide problems with the incoming water by late summer. East Bay Municipal Utility District (EBMUD) operated the potassium permanganate injection system from mid-August through November. The floating pump station was operated from October 3 through November. Water on Lake Camanche was pumped from a level of 46-feet and blended with regular intake water. Fish losses remained normal, with only minor problems during this period.

During May and early June of 1992, turbid water and heavy loading of chinook salmon in the ponds caused some gill bacteria problems. Several treatments of salt and potassium permanganate plus the feeding of treated feed cured the problem quickly with only minor losses.

TABLE 1. Mokelumne River Hatchery Production Summary, 1991-92.

Species	Fish trapped	Eggs taken or received	Fingerlings received	Smolts planted	Yearlings planted	Total pounds planted
<u>Chinook salmon</u>						
1990 BY	68	25,600	2,529,160	1,555,600	722,950	108,700
1991 BY	41	1,711,265	3,341,150	2,795,684	0	60,032
<u>Steelhead</u>						
1990 BY					20,453	14,875
1991 BY	20	0	100,000	0	51,977	26,362
1992	29	0	0	0	0	0

TABLE 2. Chinook Salmon Plants, 1991-92.

Date	Release site	Weight (lb)	Number
July 1991	Rodeo Marina	36,865	390,600
October 1991	Mokelumne River (at Hatchery)	4,725	28,350
March 1992	Clifton Court	34	5,100
	Mokelumne River (Bio-Systems)	40	6,000
April 1992	Bryon (Bay-Delta)	350	36,050
	Mokelumne River (New Hope Landing/CWT)	950	104,500
	Rio Vista	6,160	472,840
May 1992	Rodeo Marina	600	39,000
	Mokelumne River (New Hope Landing/CWT)	998	102,794
June 1992	Rodeo Marina	18,500	967,537
	Rodeo Marina	<u>32,400</u>	<u>1,091,873</u>
	TOTAL	101,622	3,244,634

## CHINOOK SALMON PROGRAM History of the 1991-92 Season

There were 41 chinook salmon trapped at the Hatchery this season: 22 adult males, 11 adult females, and 8 grilse (<24 inches FL).

All fish entered the Hatchery between November 4, 1991 and January 30, 1992. The dam at Woodbridge was removed on October 31, 1991. The river flow was increased to 500 cfs on November 1, 1991 and remained at that level until November 11 when it was reduced to 200 cfs. The flow was held at 200 cfs until December 15, then reduced to 160 cfs, where it remained until January 15, 1992; it was then increased to 200 cfs for the remainder of the trapping season.

### Production

A total of 3,214,634 chinook salmon was released during the report period. A total of 1,489,150 (1991 BY) fingerlings received from Feather River Hatchery and 1,852,000 (1991 BY) fingerlings received from Nimbus Hatchery. On June 30, 1992, there were 1,921,415 (1991 BY) chinook salmon on hand.

### Chinook Salmon Tagging and Marking Programs

Three groups of chinook salmon (1991 BY) were marked and tagged at the Hatchery this report period. They were marked by removing the adipose fin and then tagged with a coded-wire injected in the nose of the fish.

Two groups were released in the lower Mokelumne River at New Hope Landing. The first group of 104,500 fish averaged 110 per pound and were released on April 21; the second group of 102,784 averaged 103 fish per pound and were released on May 6. The third group of 120,000 were marked and tagged in June and will be held for release in October 1992 as yearlings.

### STEELHEAD TROUT PROGRAM

There were 29 adult steelhead trapped at the Hatchery during this report period, 21 males and 8 females.

The fish entered the Hatchery between November 4, 1991 and January 31, 1992. The river flows for steelhead trapping were the same as outlined in the Chinook Salmon Program for the 1991-92 season.

### Production

There were a total of 72,430 fish weighing 41,237 pounds planted in the Mokelumne River and local waters. There were 255,292 (1991 BY) steelhead on hand June 30, 1992.

TABLE 3. Steelhead Trout Plants, 1991-92.

<u>Date</u>	<u>Release site</u>	<u>Weight (lb)</u>	<u>Number</u>
July 1991	Mokelumne River	4,150	7,310
August 1991	Mokelumne River	5,520	6,600
September 1991	Mokelumne River	3,850	4,755
October 1991	Mokelumne River	1,625	1,788
December 1991	Rancho Seco Lake	700	2,275
	Oak Grove Park Lake	1,050	3,325
January 1992	Rancho Seco Lake	2,050	4,845
	Oak Grove Park Lake	1,700	3,970
February 1992	Mokelumne River	15,950	29,900
	Rancho Seco Lake	1,100	1,980
	Oak Grove Park Lake	1,100	1,980
April 1992	Mokelumne River	712	1,102
May 1992	Mokelumne River	700	910
June 1992	Mokelumne River	<u>1,300</u>	<u>1,690</u>
	TOTAL	41,237	72,430

#### PUBLIC RELATIONS

During the 1991-92 season, 12,334 people visited the Mokelumne River Hatchery. Tours were conducted for special interest groups and talks given to sports and civic organizations upon request. Many more persons use the day use area below the Hatchery for picnics, bird watching, relaxing and, of course, fishing; people who use only the day use area are not counted as visitors.

We again had a booth at the San Joaquin County Conservation Faire which is held at Mickey Grove Park. We also participated in free fishing day on June 6 with the Lodi Parks and Recreation Department at Lodi Lake.

APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping  
Data for Mokelumne River Hatchery, 1991-92.

Week	Chinook salmon		Steelhead Trout	
	Adults	Grilse	Males	Females
Nov. 3-9	1		3	2
Nov. 10-16	14	5	3	2
Nov. 17-23	5			
Nov. 24-30				
Dec. 1-7	7	1	3	2
Dec. 8-14	4	1	2	
Dec. 15-21	1		1	
Dec. 22-28			1	1
Dec. 29-Jan. 4		1	2	1
Jan. 5-11				
Jan. 12-18			2	
Jan. 19-25			2	
Jan. 26-Feb. 1	1		2	
Season Totals	33	8	321	8

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

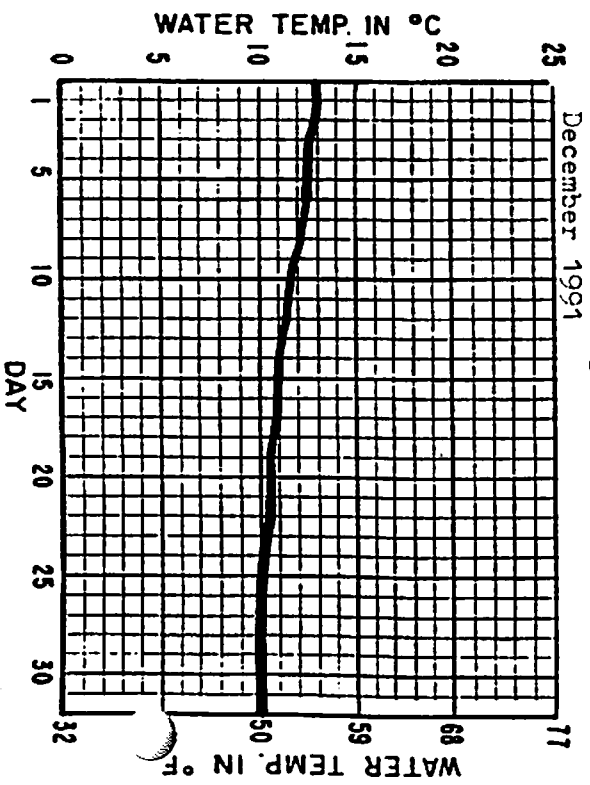
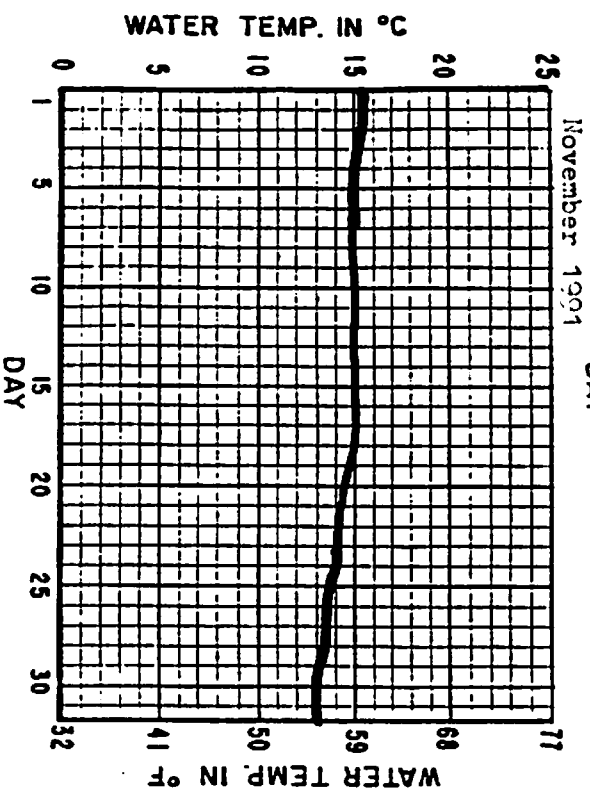
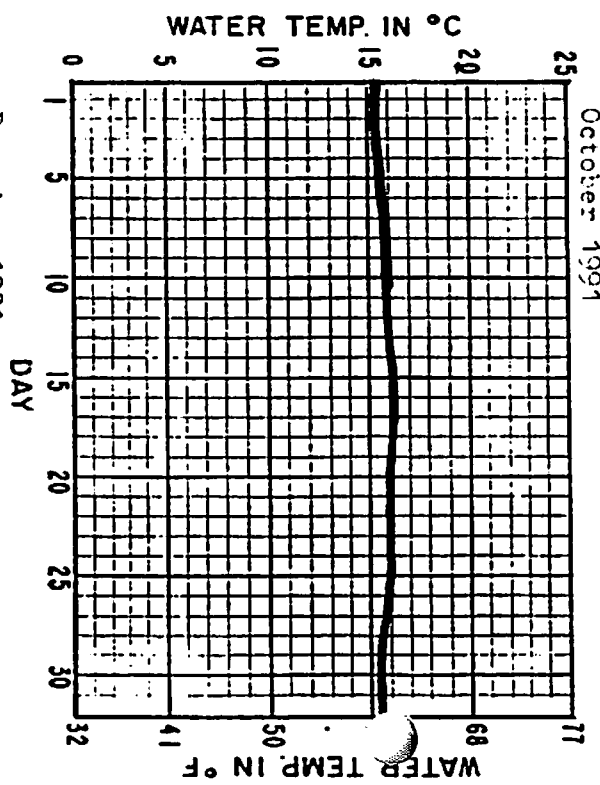
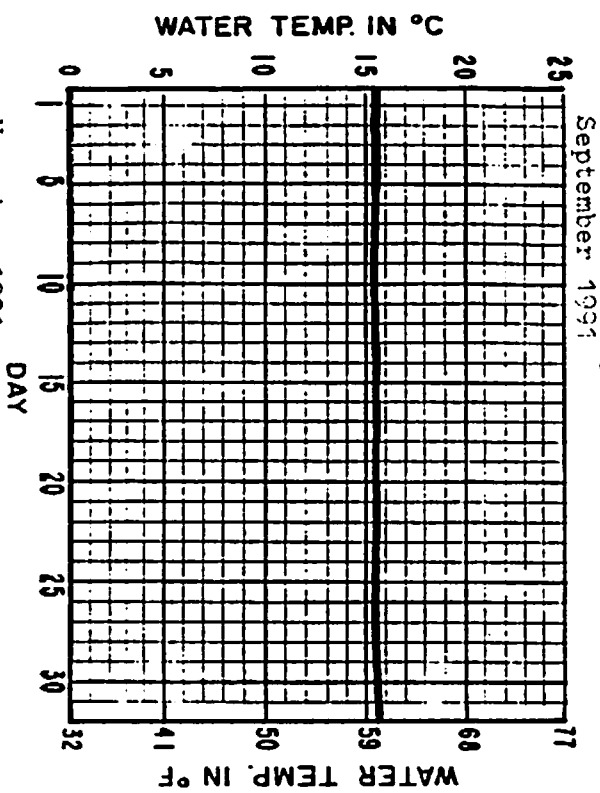
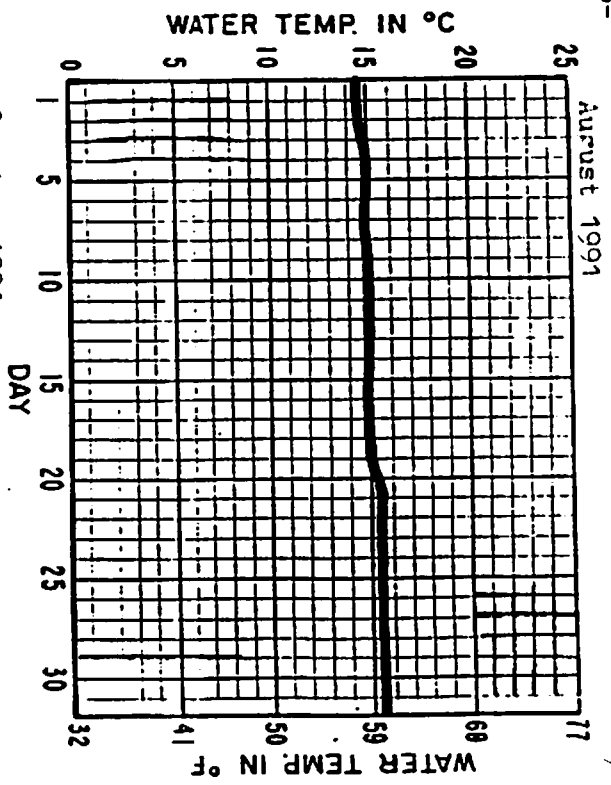
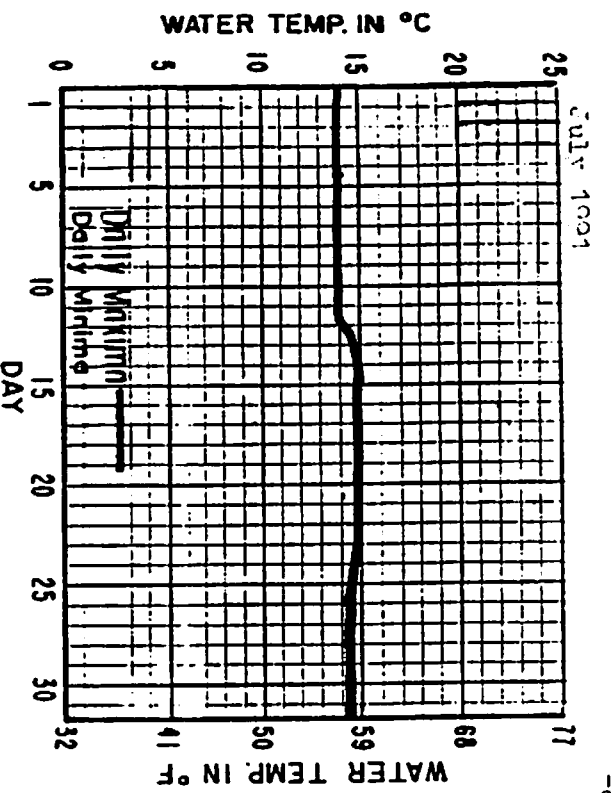
<u>Year</u>	<u>Chinook salmon</u>			<u>Steelhead trout</u>	
	<u>Male</u>	<u>Females</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
1964-65	184	178		30	15
1965-66	60	35	78	20	10
1966-67	181	99	200	10	7
1967-68	99	97	54	60	43
1968-69	202	159	593	16	8
1969-70	182	314	119	109	25
1970-71	423	305	180	97	118
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
1989-90	23	26	31	8	3
1990-91	16	9	43	11	9
1991-92	22	11	8	21	8



Appendix Figure 1. Daily Water Temperature for Kokelume River Hatchery from July 1, 1991 through June 30, 1992.

DAILY WATER TEMPERATURES BY MONTH

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## DAILY WATER TEMPERATURES BY MONTH

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