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DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
MOKELUMNE RIVER HATCHERY, 1987-88

by

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Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 89-3

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ABSTRACT

This report describes the operation of the Mokelumne River Hatchery from July 1, 1987 through June 30, 1988. The installation consists of a hatchery building, concrete raceways, and rearing ponds for chinook salmon, Oncorhynchus tshawytscha, and steelhead trout, Salmo gairdneri.

The Hatchery received 1,000,400 eyed chinook salmon eggs (1987 BY) and 2,408,000 chinook salmon fingerlings of Feather River origin, to be reared and released when they reach 60/lb or larger. There were 2,340,150 chinook salmon fingerlings and 481,920 chinook salmon yearlings released during the 1987-88 season.

A total of 526,110 eyed steelhead trout eggs (1988 BY) was received from Nimbus and Feather River hatcheries. There were 34,489 steelhead yearlings and 10,000 fingerlings released in the Mokelumne River, with an additional 139,065 yearlings and 341,600 fingerlings released in the Sacramento River.

^{1/} Inland Fisheries Administrative Report No. 89-3. Submitted October 1988, Edited by K. A. Hashagen, California Department of Fish and Game, 1416 Ninth St., Sacramento, California 95814.

INTRODUCTION

This is the 25th annual report for operation of the Mokelumne River Hatchery. It describes operations of the Hatchery from July 1, 1987 through June 30, 1988. 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, 1987 to June 30, 1988.

PRODUCTION SUMMARY

There were 526,110 steelhead eggs received from Nimbus and Feather River hatcheries for rearing to yearling size. A total of 1,000,400 eyed chinook salmon eggs and 2,408,000 chinook salmon fingerlings of Feather River origin were received for rearing to advance fingerling size (Table 1).

TABLE 1. Mokelumne River Hatchery Production Summary, 1986-87

Species	Adults trapped	Eggs taken or received	Fingerlings received	Advanced fing. planted	Yearlings planted	Total pounds planted	Fish on hand
<u>Chinook salmon</u>							
1986-BY	1,913	370,000	4,529,400	1,706,415	153,000	65,885	1,100,000
<u>Chinook salmon</u>							
1987-BY	630	1,000,400	2,408,000	2,340,150	481,920	78,025	28,000
<u>Steelhead</u>							
1987-BY	47	262,000	0	10,000	173,554	62,530	0
1988-BY		526,110	0	341,600	0	1,850	62,200

DISEASE

There were no significant mortalities from diseases at the Hatchery this season. However, low reservoir levels caused low D.O., high water temperatures and extreme hydrogen sulfide levels which caused some heavy steelhead losses through the fall of 1987 before water temperature dropped. Anticipation of the same problems caused early release of all fish during the spring of 1988.

CHINOOK SALMON PROGRAM
History of the 1987-88 Season

There were 630 chinook salmon trapped at the Hatchery this season; 60 adult males, 35 adult females and 535 grilse (< 24 inches FL).

All fish entered the Hatchery between October 22, 1987 and December 24, 1987. River flows were 90 cfs during the entire salmon migration period.

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

Production

On July 1, 1987 there were 1,100,000 chinook salmon fingerlings (1986 BY) on hand. A total of 2,340,150 chinook salmon advanced fingerlings and 481,920 chinook salmon yearlings released during the season. There were 1,000,400 eyed eggs (1987 BY) and 2,408,000 (1987 BY) fingerlings received from Feather River Hatchery. On June 30, 1987, there were 28,000 (1987 BY) fingerlings on hand.

TABLE 2. Chinook Salmon Plants

Date	Release site	Weight (lb)	Number
July 1987	Benicia Ramp	9,150	135,050
	Mare Island	14,420	216,250
August 1987	Benicia Ramp	9,030	130,620
April 1988	Clifton Court	200	18,000
	Berkeley Marina	7,800	524,500
May 1988	Benicia Ramp	7,100	316,300
	Bennett's Marina (Rodeo)	16,000	690,400
	Berkeley Marina	10,800	638,400
	Clifton Court	275	19,250
June 1988	Benicia Ramp	3,250	133,300

Chinook Salmon Tagging and Marking Programs

Early release of chinook salmon and expected poor water conditions prevented the planned tagging of 100,000 fish. The 53,294 tagged 06-48-26 and 53,254 tagged 06-48-30 were mixed with production fish which were released during July and August 1987.

On April 21, 1988, 40,000 chinook salmon were spray-dyed by Delta Study personnel for later release at Clifton Court.

STEELHEAD TROUT PROGRAM

There were no steelhead trapped at the Hatchery this season. The river flow was 90 cfs during salmon season and continued at 90 cfs right through the steelhead season. There was very low runoff to help, therefore no steelhead returned to the Hatchery.

A total of 526,110 (1988 BY) eyed steelhead eggs was received from other hatcheries, 350,350 from Feather River and 175,760 from Nimbus. There were 88,810 sub-yearling steelhead received from Nimbus Hatchery.

A total of 173,554 (1987 BY) yearling and 10,000 (1987 BY) sub yearling and 341,600 (1988 BY) fingerlings was released during the season (Table 3). There were 62,000 steelhead on hand June 30, 1988.

TABLE 3. Steelhead Trout Plants

Date	Release site	Average size/lb	Number
July 1987	Mokelumne River	2.1	4,805
August 1987	Mokelumne River	1.8	4,520
Sept. 1987	Mokelumne River	3.3	16,834
Jan. 1988	Sacramento River	3.3	48,805
Feb. 1988	Mokelumne River	2.9	2,900
Feb. 1988	Sacramento River	2.9	90,260
March 1988	Mokelumne River	2.3	1,840
April 1988	Mokelumne River	2.1	5,150
May 1988	Mokelumne River	2.0	6,640
June 1988	Mokelumne River	2.0	1,800
TOTAL			183,553

PUBLIC RELATIONS

During the 1987-88 season, 11,132 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, 1987-88

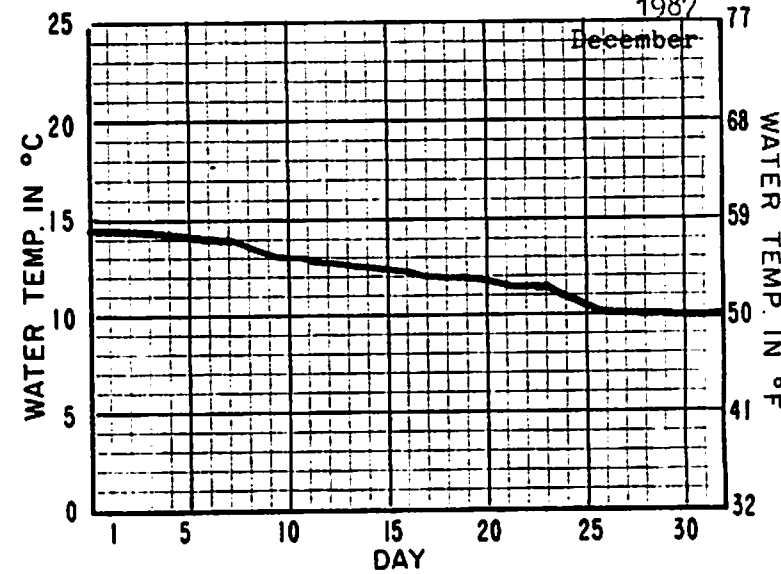
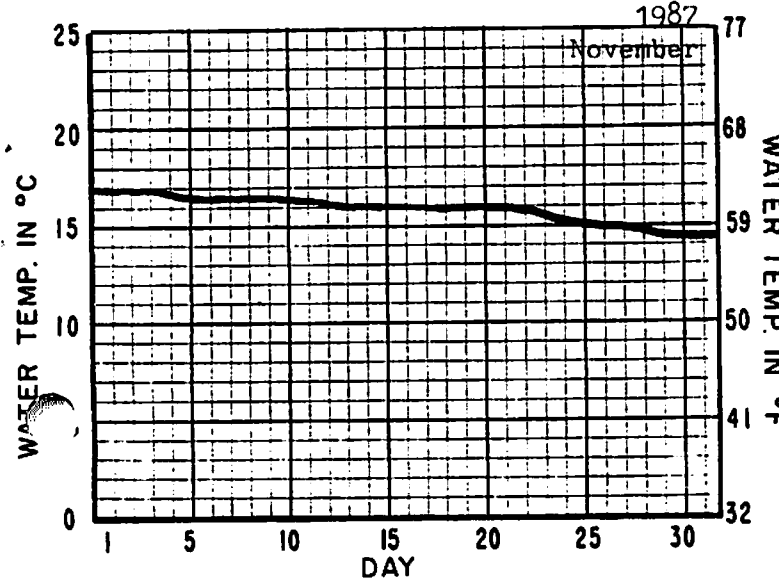
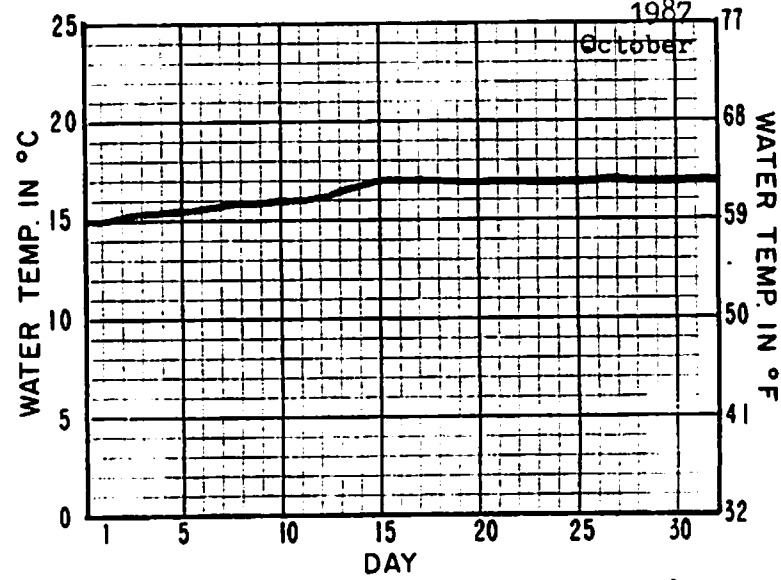
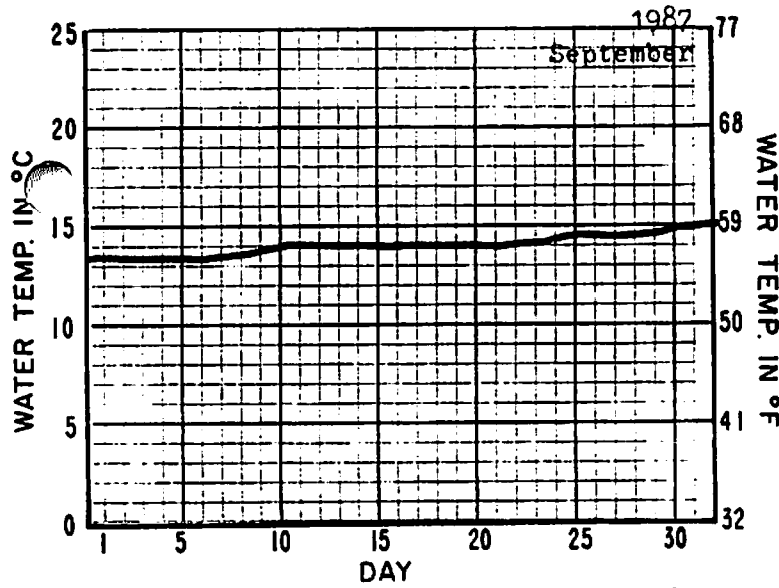
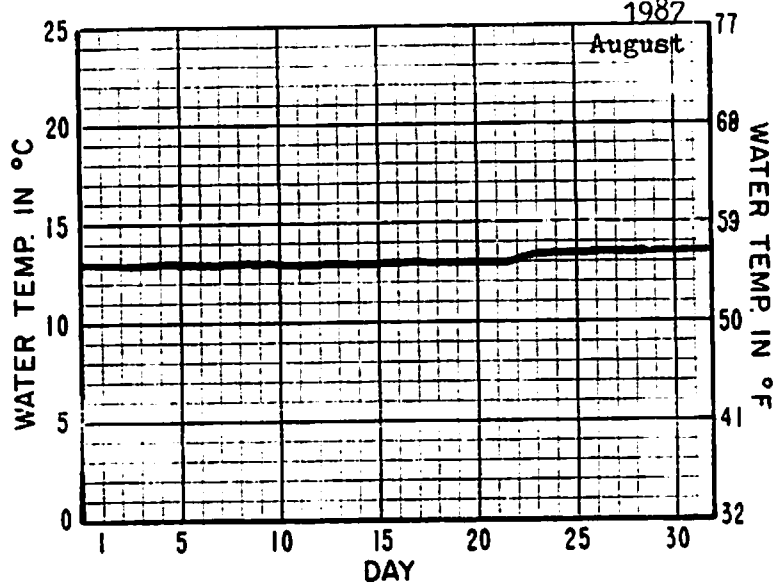
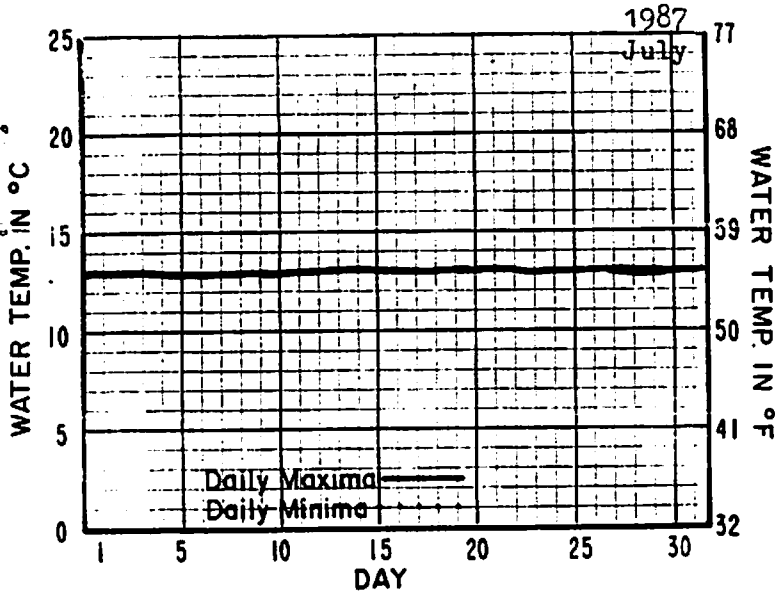
<u>Week</u>	<u>Chinook salmon</u>		<u>Steelhead trout</u>	
	<u>Adults</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
Oct. 18-24	3	4		
Oct. 25-31	9	20		
Nov. 1-7	13	38		
Nov. 8-14	16	109		
Nov. 15-21	19	165		
Nov. 22-28	12	87		
Nov. 29-Dec. 5	13	58		
Dec. 6-12	8	45		
Dec. 13-19	2	5		
Dec. 20-26	-	4		
<hr/>				
Season Totals	95	535		

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

<u>Year</u>	<u>Chinook Salmon</u>			<u>Steelhead Trout</u>	
	<u>Males</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	—	—

APPENDIX FIGURE 1. Daily Water Temperatures for Mokelumne River Hatchery from July 1, 1987 through June 30, 1988.

DAILY WATER TEMPERATURES BY MONTH



DAILY WATER TEMPERATURES BY MONTH

