State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
MERCED RIVER FISH FACILITY ANNUAL REPORT
1979-80

by

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Region 4, Inland Fisheries

Anadromous Fisheries Branch

Administrative Report No. 82-24

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ABSTRACT

This report summarizes the operation of the Merced River Fish Facility from 1 July 1979 to 30 June 1980. The facility was constructed to rehabilitate the fall run chinook salmon, Oncorphyncus tshawytscha, resource in the Merced River.

In the fall of 1979, an estimated 75 adult female chinook salmon spawned in the channel, depositing an estimated 376,500 eggs. Approximately 16,940 chinook salmon yearlings from the 1978 brood year were produced and released into the Merced River. All 1978 brood year yearlings were adipose marked and tagged with CWT# 6-46-11.

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INTRODUCTION

The Merced River Fish Facility is located immediately downstream from Crocker-Huffman Dam on the Merced River (a tributary to the San Joaquin River) about 15 miles northeast of Merced. It is the terminal point for salmon migrating up the Merced River.

The facility was built by the Merced Irrigation District (MID) with Davis-Grunsky Act funds. Operations began in the fall of 1970.

The facility is comprised of a 4,372 ft-long spawning channel (the Reuben E. Schmidt Spawning Channel), three 275x30-ft rearing ponds and one 275x30 ft. effluent basin (settling pond). Each rearing pond has the capacity for approximately 150,000 chinook salmon yearlings. Menchen (1972) described the facilities in detail.

The installation is operated by the California Department of Fish and Game, with operating assistance and partial funding of maintenance costs provided by the MID.

SPAWNING CHANNEL PROGRAM

1979-80 Season

On 5 November 1979, the flow in the spawning channel was increased to 4.6 m^3/sec (165 cfs). This allowed fall-run adults free passage into the channel until 9 November 1979, when a trap was installed in the fish ladder (fishway) in an attempt to capture adult salmon for spawning. This trap on the channel entrance followed an unsuccessful attempt to capture and spawn salmon on the Merced River near the Gallo Ranch. Early rains and high runoff in early November forced the discontinuation of the effort at the Gallo Ranch site.

The trap in the fish ladder was operated around the clock from 9 November 1979 to 1 December 1979, when trapping was discontinued. Due to a shortage of females, no eggs were taken. The number of spawners using the channel was computed by actual counts during the trapping operation, carcass recovery, and redd counts in the channel.

The first adult salmon was observed entering the channel on 21 October 1979. Muddy water and high flows at the close of the season prevented observation of final spawning activity.

A total of 76 adult salmon was trapped from 9 November 1979 through 30 November 1979 (73 males and 3 females) and all fish were released into the spawning channel above the trap. One hundred and twenty "jacks" (salmon under 23.9 inches) were recovered and counted.

Carcass Recovery and Redd Counts

The spawning channel was surveyed on a daily basis throughout the spawning season. A total of 227 carcasses was recovered from the channel this season (171 males and 56 females). Seventy-five individual redds were counted. Based on this information, I estimate a total run into the channel of 263 males and 86 females.

Estimated Egg Deposition

The egg deposition of 376,500 in the channel was estimated using an average fecundity of 5,020 eggs per female. This is the mean number found in the females in the Stanislaus River.

CHINOOK SALMON REARING POND PROGRAM

1978 Brood Year

The Merced River Fish Facility produced 16,940 1978 brood year (BY) yearlings for release in the Merced River near Gallo Ranch on 26 September 1979. These yearlings came mostly from spawning channel outmigrant fingerlings trapped in the spring of 1979.

1979 Brood Year

High flows in the river hampered successful trapping and spawning of adults and prevented the capture of any outmigrant fingerlings; therefore, no 1979 BY fish were available to be raised as yearlings.

Construction at Merced River Fish Facility

Installation of a new water supply pipe for the rearing ponds was completed in December 1979. The 24-inch diameter pipe will supply water to the ponds directly from Crocker-Huffman Lake. The new pipeline is capable of delivering 20 cfs of water and eliminates the problem of the channel-warmed water temperature experienced during the summer months. Merced Irrigation District (MID) contracted the job with our Department and was reimbursed for costs of materials, equipment, and personnel.

Water Temperatures

Water temperatures at the facility were recorded twice daily with a pocket thermometer.

Water Temperatures (C^{O}) Merced River Fish Facility
1979-80 Season

Month (1979)	Max.	Min.	Month (1980)	Max.	Min.
July	18.9	12.2	January	11.7	10.0
August	18.3	12.8	February	11.7	10.0
September	16.7	12.2	March	11.7	9.4
October	14.4	12.2	April	12.2	10.0
November	13.3	10.6	May	15.0	10.0
December	12.2	10.0	June	16.7	12.8