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ANNUAL REPORT
MERCED RIVER FISH FACILITY ANNUAL REPORT 1978-79^{1/}

by

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ABSTRACT

This report summarizes the operation of the Merced River Fish Facility from 1 July 1978 to 30 June 1979. The facility was constructed to rehabilitate the fall run chinook salmon, Oncorhynchus tshawytscha, resource in the Merced River.

In the fall of 1978, an estimated 45 adult female chinook salmon spawned in the channel, depositing an estimated 226,000 eggs. Approximately 245,000 1977 brood year (BY) chinook salmon yearlings were produced and released into the Merced River on 29 September 1978.

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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 spawning channel (the Reuben E. Schmidt Spawning Channel), 275 x 30-ft rearing ponds and one 275 x 30-ft effluent basin (settling pond). Each rearing pond has the capacity for approximately 150,000 chinook salmon yearlings.

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

1978-79 Season

On 16 October 1978, the flow in the channel was increased to 4.6m³/sec (165 cfs). This allowed fall-run adults access to the spawning channel. All adult salmon received in the channel entered voluntarily. No attempt was made to trap or count the fish as they entered. The number of spawners using the channel was estimated by carcass recovery and redd counts.

Carcass Recovery and Redd Counts

The channel was inspected approximately 3 days a week with a total of 43 carcasses recovered (16 males and 27 females) and 45 individual redds counted. Predators and fish drifting out of the channel no doubt accounted for the missing carcasses. The estimated number of adults using the channel was 25 males and 42 females.

Estimated Egg Deposition

We have no information on the fecundity of Merced River salmon. The Stanislaus River is in the same system (San Joaquin River drainage) as the Merced; female fish in the Stanislaus River average 5,020 eggs (Moccasin Creek Hatchery files). Based on this information and the estimated redd count, we believe that egg deposition was approximately 226,000.

CHINOOK SALMON REARING POND PROGRAM

1977 Brood Year

We released 245,000 yearlings from the 1977 brood year into the Merced River on 29 September 1978.

1978 Brood Year

Attempts were made to trap juvenile chinook salmon using fyke nets at several sites along the Merced River. The fish were to be reared to yearling size; however, the attempts to capture fish were unsuccessful. Higher than normal spring river flows limited this outmigrant trapping to the spawning channel outlet after 18 May 1979. A total of 21,500 salmon was collected; 20,100 from the channel and 1,400 from the river stations (Figure 1).

Water Temperatures

Water temperatures at the facility were recorded daily with a pocket thermometer at the upstream end of pond #3 (early AM and late afternoon).

Monthly water temperatures (C^o) were:

<u>Month (1978)</u>	<u>Max.</u>	<u>Min.</u>	<u>Month (1979)</u>	<u>Max.</u>	<u>Min.</u>
July	16.7	12.8	January	11.7	10.0
August	16.7	12.2	February	10.6	8.9
September	15.6	11.7	March	11.7	10.0
October	15.0	12.2	April	13.9	12.2
November	13.3	10.6	May	16.7	12.8
December	11.7	10.0	June	18.3	11.7