

REF 90304

ANNUAL REPORT
MERCED RIVER FISH FACILITY ANNUAL REPORT 1981-82^{1/}

by

Sidney D. Poe
Region 4, Inland Fisheries

ABSTRACT

This report summarizes the operation of the Merced River Fish Facility from July 1, 1981, through June 30, 1982. The facility was constructed to rehabilitate the fall-run chinook salmon, Oncorhynchus tshawytscha, in the Merced River.

A total of 276,850 chinook salmon yearlings (1980 brood year) and 102,572 fingerlings (1981 brood year) was produced and released into the San Joaquin River system.

In the fall of 1981, 923 adults, (645 males, and 278 females) entered the facility. Of the females, 192 were artificially spawned. They yielded 805,481 eggs in nine spawnings. Surplus males (377) and females (61) were released to spawn in the channel.

^{1/} Anadromous Fisheries Branch Administrative Report No. 82-37
Submitted December 1982.

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 24 km (15 miles) northeast of Merced. It is the terminal point for salmon spawning on 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 1,333^m (4,372-ft) long spawning channel (the Reuben E. Schmidt Spawning Channel), three 84 x 9^m (275 x 30 ft) rearing ponds and one 84 x 9^m effluent settling basin. In addition to the channel and ponds, a temporary hatchery shed (2.4 M x 2.4 M) has six double stacks of Heath incubator trays, capable of incubating and hatching approximately 900,000 chinook salmon eggs. Four temporary nursery tanks (1^m x 1.8^m) adjoin the hatchery shed. The tanks each have a capacity of approximately 40,000 "swim-up" size chinook salmon. The adult salmon trapping facility is located in the fish ladder of the spawning channel. The trap consists of a "fyke" trap entrance, two basket hoists, anesthetic tank, sorting table, and holding pen.

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

Spawning Channel Program

The first adult chinook salmon entered the trap on October 24, 1981. Of the 923 adult chinook salmon trapped, 278 were females and 645 males (including 319 grilse or fish under 23.9 inches total length).

The egg taken of 805,481 eggs from 192 females was obtained during nine spawnings. Average fecundity was 4,195 eggs/female.

In addition to the fish trapped and artificially spawned, 438 adult chinook salmon (61 females and 377 males) were released above the trap into the spawning channel and allowed to spawn naturally.

The following is a summary of the season's spawning activities:

Egg Take Record, 1981

| <u>Date</u> | <u>Number of females spawned</u> | <u>Number of eggs taken</u> |
|-------------|----------------------------------|-----------------------------|
| 11/2/81 | 29 | 113,778 |
| 11/6/81 | 20 | 85,044 |
| 11/9/81 | 11 | 50,220 |
| 11/13/81 | 23 | 99,060 |
| 11/16/81 | 52 | 209,988 |
| 11/17/81 | 13 | 57,816 |
| 11/19/81 | 18 | 79,055 |
| 11/23/81 | 18 | 81,090 |
| 11/27/81 | <u>8</u> | <u>29,430</u> |
| TOTAL | 192 | 805,481 |

All of the eggs taken during the season were incubated and hatched at the facility.

Carcass Recovery and Redd Counts

Although some natural spawning took place in the channel, no attempt was made to count redds or recover carcasses. It appeared that most of the fish released into the channel spawned successfully.

Chinook Salmon Rearing Pond Program

1980 Brood Year

We produced and released 276,850 yearlings (1980 BY) into the Merced, Stanislaus, and San Joaquin rivers in the fall of 1981. Coded wire tags (CWT) were applied to 172,984 of the released yearlings. The following is a summary of these releases by location and date:

| <u>Date released</u> | <u>CWT code</u> | <u>Number tagged</u> | <u>Number Untagged</u> | <u>Ave. size</u> | <u>Total released</u> | <u>Location</u> |
|----------------------|-----------------|----------------------|------------------------|------------------|-----------------------|--------------------------------|
| 10/13/81 | 646-16 | 39,534 | 44,926 | 10.3/1b | 84,460 | Stanislaus |
| 10/15/81 | 646-12 | 40,760 | 14,240 | 10.0/1b | 55,000 | Merced |
| 10/19/81 | 646-13 | 22,557 | 15,713 | 8.9/1b | 38,270 | San Joaquin below Old River |
| 10/19/81 | 646-14 | 23,633 | 9,487 | 9.2/1b | 33,120 | San Joaquin above Old River |
| 12/18/81 | 646-15 | <u>46,500</u> | <u>19,500</u> | 6.0/1b | <u>66,000</u> | Stanislaus |
| | TOTALS | 172,984 | 103,866 | | 276,850 | |

1981 Brood Year

In April 1982, 102,572 fingerlings (1981 BY) were tagged with coded wire tags and released into the Merced and San Joaquin rivers. The remaining chinook from the 1981 BY, an estimated 300,000 fish, will be released in the fall of 1982. We are scheduled to coded wire tag an additional 110,000 of these fish in the summer of 1982. The following is a summary of fingerling plants from Merced River Fish Facility in 1982:

| <u>Date Released</u> | <u>CWT #</u> | <u># Tagged</u> | <u># Untagged</u> | <u>Ave. Size</u> | <u>Total Released</u> | <u>Location</u> |
|----------------------|--------------|-----------------|-------------------|------------------|-----------------------|--------------------------------|
| 4/21/82 | 6-46-17 | 49,217 | 2,590 | 132/1b | 51,807 | Merced |
| 4/23/82 | 6-46-28 | <u>48,227</u> | <u>2,538</u> | 132/1b | <u>50,765</u> | San Joaquin below Old River |
| | TOTALS | 97,444 | 5,128 | | 102,572 | |

Water Temperatures

Water temperatures at the Merced River Fish Facility were recorded twice daily with a pocket thermometer.

Maximum/Minimum Water Temperatures (C°) Merced River Fish Facility, 1981-82

| <u>Month (1981)</u> | <u>Maximum</u> | <u>Minimum</u> | <u>Month (1982)</u> | <u>Maximum</u> | <u>Minimum</u> |
|---------------------|----------------|----------------|---------------------|----------------|----------------|
| July | 16.1 | 13.3 | January | 11.7 | 8.3 |
| August | 16.7 | 13.9 | February | 14.4 | 8.9 |
| September | 16.7 | 13.9 | March | 11.1 | 8.9 |
| October | 17.2 | 14.4 | April | 12.2 | 9.4 |
| November | 16.7 | 12.2 | May | 12.8 | 10.6 |
| December | 13.3 | 11.1 | June | 15.0 | 11.1 |