

STATE OF CALIFORNIA
THE RESOURCES AGENCYFinal Report (1968-1975)
May 30, 1975**DRAFT**PRELIMINARY DATA
SUBJECT TO REVISIONOROVILLE PROJECT FISH INVESTIGATION PROGRAMA study
by the
Department of Fish and Game
for the
Department of Water ResourcesThe biological studies were supervised and
conducted by
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In accordance with Federal
Power Commission License No. 2100

FOREWARD

This final report of the Oroville Project Fish Investigation describes the program objectives, field programs and recommendations resulting from biological studies of the effects of the Oroville Facility and its operation upon the fish life of the Feather River. The area of study is from Oroville to the rivers confluence with the Sacramento River at Verona, a distance of 71 miles.

Acknowledgments

Under Interagency Agreement No. 456705, the Department of Fish and Game conducted the biological studies and prepared this report. The Department of Water Resources provided the funds and engineering support.

Area Description:

The Feather River, the largest tributary of the Sacramento River, originates in the Sierra Nevada with headwater elevations up to 10,000 feet, and flows westward into the Sacramento Valley at Oroville. Oroville Dam is on the Feather River about 6 miles upstream from the town of Oroville. Downstream from Oroville Dam, part of the flow is diverted at the Thermalito Diversion Dam for power generation and irrigation supply. Some of the diverted water is returned to the main channel from Thermalito Afterbay. A short distance below Oroville Dam, the fish barrier dam, acts as a barrier to migrating fish and diverts a small amount of water to the Feather River Fish Hatchery. Downstream from the fish barrier dam, the Feather River flows through agricultural lands on the valley floor to its confluence with the Sacramento River, a distance of 71 miles.

Throughout the study reach, the Feather River channel has been affected by gravel deposits, much of which were accumulated during the hydraulic mining era of 1857-84. Channel and flood plain changes also occurred during dredge-mining operations between 1905 and 1952. Additional changes in the study reach

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resulted when new levees along the main channel were built and most of the dredge tailings on the flood plain were used in the construction of Oroville Dam. Further changes occurred with completion of Oroville Dam in 1967, which caused changes in the regimen of flows and quality of water in the Feather River.

Suitable gravel for chinook salmon spawning is found in the Feather River from Oroville to Honcut Creek. This reach of the river in years past has supported salmon spawning populations ranging from 10,000 to 86,000 adult king salmon spawners. Downstream of Honcut Creek the river changes to shifting sand and silt bottom.

The Feather River channel has conveyed flood flows of 230,000 cfs during March of 1907 and as little as 300 cfs during November of 1931, from recorded data at Oroville. On the average peak flows of 54,000 cfs are expected every two years.

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FINAL REPORT OF THE LOWER FEATHER RIVER STUDY
(1968-1975)
INTRODUCTION

To fulfill requirements under the Federal Power Commission License No. 2100, the Departments of Fish and Game and Water Resources agreed to an eight year study of the effects of the Oroville Project on the fish and fisheries of the Feather River. To satisfy this Interagency Agreement, No. 456705, this final report is hereby submitted.

The principal objectives of the study were:

1. Discover if any changes occurred in the fish populations in the Feather River as a result of the operation of the Oroville Dam Complex.
2. Recommend any changes in the operation of Oroville Dam and/or its facilities necessary to prevent fish losses or to enhance fish survival and production.

The field program began in March of 1968. The original work schedule, as outlined in the contract (Appendix I, Figure 1), was followed until December 1970. Then a program review was conducted in conjunction with an evaluation by a select panel of fisheries experts (Appendix I, Part B). Certain program changes were made (Appendix I, Figure 2). These will be noted as they apply during the following discussions.

This report is divided into three parts. Part one is a synopsis that describes the purpose, findings, and conclusions made from each one of the studies. Part two is a detailed presentation of data collection, discussion, and conclusions for each program. The third part is a discussion of other subjects investigated using the same data collected during the ordinary study period.

In addition, there are three appendixes, one containing pertinent parts of the work agreement between the Department of Fish and Game and the Department of

Water Resources, another is an extensive section containing all of the figures and tables used to compliment the written presentation, and the third is a compendium of flow and water temperature data pertinent to the study.