WR #458183
MAR 10 1989

Memorandum of Understanding
on Interim Measures to Protect Fish
in the Sacramento-San Joaquin River Delta
Prior to the Construction of the Peripheral Canal

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It is recognized that fishery problems exist in the Sacramento-San Joaquin Delta. A factor affecting these problems is the operation of the Central Valley Project and State Water Project. Certain operation procedures could reduce these problems until the Peripheral Canal is operational.

The attached report by the Bureau of Reclamation on "Interim Measures for Protection of Fish and Water Quality", dated January 1968, is accepted as a statement of the current problems associated with fish in the Sacramento-San Joaquin River Delta, need for interim measures, types of measures, priorities, and costs. (3)

This Memorandum of Understanding summarizes objectives to reduce the problems, actions which have been taken to meet these objectives, and a procedure to implement a protection program in the period prior to operation of the Peripheral Canal. This Memorandum will be reevaluated and revised as may be necessary in 1976 if the Peripheral Canal is not operational by that time. (4)

Objectives

Objectives have been established to achieve desirable measures that are compatible with other water resource needs until the proposed joint Federal-State Peripheral Canal can be put in operation. Among these objectives and actions to meet these objectives are:

I hereby certify that all conditions for exemption set forth in State Administrative Manual Section 1201.13 have been complied with and this document is exempt from review by the Department of Finance.

Donald A. Sandison
Signature

I. Improve fish salvage operation at the Tracy Pumping Plant of the Bureau of Reclamation.

A. Modify tank trucks to relieve problems of plugging with fish and debris.

B. Select, develop, and construct two sites in the western Delta for release of fish offshore in deep water.

C. Employ a full-time fishery biologist with responsibilities for developing operational procedures for fish handling.

II. Maintain remnant salmon stocks in the San Joaquin River tributaries.

A. Rear juvenile salmon to yearling size by trapping and artificially spawning fall run king salmon in San Joaquin River tributaries and taking sufficient eggs to produce 200,000 yearling fish annually.

B. Transport yearling salmon in years of low river flow from the San Joaquin River tributaries by live car or truck to release points in the Delta out of the influence of the pumps.

III. Minimize detrimental effects of flow reversal and low levels of dissolved oxygen on salmon runs of the San Joaquin River.

A. Have control structure in Old River in operation when fall flows in the San Joaquin River at Vernalis drop below 1800 cfs and/or critical problems with salmon migration are predicted.

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B. Supplement the flows of the San Joaquin River when the control structure is in place to maintain the dissolved oxygen content in the Stockton Ship Channel generally above 6 ppm when necessary. Supplemental flow not to exceed 60,000 acre-feet in any year.

IV. Protect striped bass eggs and larvae and provide a water quality suitable for bass migration and spawning.

A. Annually plan to reduce pumping during the striped bass spawning period to the maximum extent possible consistent with other project purposes.

B. Annually plan to increase outflow during the period of curtailed pumping to the extent possible consistent with other project purposes.

Action in Progress

To date there has been substantial progress in meeting the above objectives. A summary of the action in progress -- numbered to correspond with the objectives enumerated above -- is as follows:

I. A. Modification of tank trucks is in progress by the Bureau of Reclamation and should be completed about April 1, 1969.

B. Tentative sites for release of fish in deep water in the western Delta have been selected and their development has been discussed with California

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Department of Fish and Game and U. S. Bureau of Sport Fisheries and Wildlife. Cost of development of each site is estimated to be from $15,000 to $20,000. Two sites will be constructed by the Bureau of Reclamation as soon as possible depending on budget limitations. Two sites already developed by the Department of Water Resources are operational and can be utilized by the Bureau of Reclamation pending completion of other sites.

C. Preliminary action has been taken by the Bureau of Reclamation to employ a full-time fishery biologist by July 1970. (The Department of Water Resources has employed a fishery biologist under contract with the Department of Fish and Game to guide the fish salvage program at the State's Delta Pumping Plant and coordinate the operation of the state fish facilities with that of the federal facilities at the Tracy Pumping Plant.)

II. A program to meet these objectives has been carried out by the California Department of Fish and Game for the past three years at a cost of $30,000 annually.

III. The California Department of Water Resources and the U. S. Bureau of Reclamation have acted in 1963, 1964, and 1968 when critical levels of dissolved oxygen have developed in the Stockton Ship Channel to achieve a substantial part of the desired objective. This was accomplished by installing a temporary control structure

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in Old River together with augmentation of flow in the San Joaquin River.

IV. Action on this objective has not been necessary to date because of the limited diversions of the state and federal projects.

The Secretary of the Interior has accepted a proposal of the Bureau of Reclamation to operate the Central Valley Project, beginning in 1969, to achieve certain water quality objectives in the Delta for striped bass migration and spawning until September 30, 1972.

Future Implementation

After reviewing the progress to date and work now in progress, it is apparent that objective No. I will be substantially achieved and should be continued as planned. The California Department of Fish and Game will continue to fulfill objective No. II as required. To achieve objectives Nos. III and IV, it will be necessary to provide for a year-by-year review of conditions relating to the total operational requirements of the federal and state water projects. To insure that objectives Nos. III and IV are given full consideration, the following procedure will be adopted.

1. In March of each year, the four agencies will meet to consider the striped bass needs in the forthcoming spring months in relation to runoff conditions, operation schedules, and local Delta needs. Differences which cannot be resolved at this meeting will be decided upon at a special meeting of the Directors of the agencies.

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2. In June of each year the four agencies will meet for the purpose of discussing the needs of the salmon fishery during the fall, and more specifically, to determine the need and/or scheduling of a closure of Old River and the estimated flow augmentation required. The same procedure for considering operational plans and resolving differences will be followed as set forth in Item 1 above.

Division of Responsibilities

Subject to the availability of funds, the initial assignment of responsibility for implementing measures to achieve protection of San Joaquin salmon is as follows:

1. The Department of Fish and Game will be responsible for the rearing and transporting of yearling salmon.

2. The Department of Water Resources will be responsible for the control structure in Old River.

3. The U. S. Bureau of Reclamation will be responsible for San Joaquin River flow augmentation.

4. The U. S. Bureau of Sport Fisheries and Wildlife will be responsible for coordination of measures with the Department of Fish and Game and continued evaluation of the adequacy of the current measures.

CALIFORNIA DEPARTMENT OF WATER RESOURCES

By W.R. Gianelli

U. S. BUREAU OF RECLAMATION REGION II

By R.J. Rutherford

CALIFORNIA DEPARTMENT OF FISH AND GAME

By

Administrative Officer

U. S. BUREAU OF SPORT FISHERIES AND WILDLIFE, REGION I

By Travis S Reinhardt

Acting Regional Director

Attachment

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from May 1991 WQ Control Plan - SWRCB 91-15 WR

Although there was no testimony presented on temperature requirements specifically for the winter-run, based on the hearing record and the testimony presented at the hearing, consideration of the more conservative temperature objective (66°F) for the fall-run Chinook salmon would be appropriate for the winter-run (Appendix 5.3, Chinook Salmon) during the period they are in the Sacramento River.

The winter-run Chinook salmon temperature objective is a cap to prevent water temperature from going higher than the present temperatures in the Delta. It is not a goal. This objective is just one of several ways of providing protection from elevated water temperatures. Other such protection measures include the Thermal Plan (see in Section 5.5.2.5) and the State Board "anti-degradation policy", "Statement of Policy With Respect to Maintaining High Quality of Water in California," Resolution 68-16.

5.5.2.4 Dissolved Oxygen

No objectives for dissolved oxygen were developed in D-1485.

The Central Valley Basin Plan (1975, Vol. I-4-12) states that: "The following objectives apply to Delta waters: The dissolved oxygen concentrations shall not be reduced below the following levels:

- 7.0 mg/l in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; and,

- 5.0 mg/l in all other Delta waters except for those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use."

"Temperatures over 65°F have partially blocked migrations in the San Joaquin River past Stockton and ... dissolved oxygen concentrations of less than 5 mg/l constitute a virtual barrier to adult migrants" (USFWS,31,94). According to Hallock et al. (1970), after four years of investigation, "... no salmon moved past Stockton until the dissolved oxygen had risen to about 4.5 ppm, and the run did not become steady until oxygen levels were above 5 ppm." To address the problem of low dissolved oxygen levels in the San Joaquin River, an agreement was reached in 1969 between the USFWS, USBR, DWR, and DFG, in part, to take specific actions "...to maintain the dissolved oxygen content in the Stockton Ship Channel generally above 6 ppm when necessary...." DWR monitors DO levels in the San Joaquin River between Stockton and Turner Cut (Stockton Ship Channel) during the fall Chinook salmon migration. (Monitoring data are summarized and a report is submitted by DWR to the SWRCB annually in accordance with Water Right Decision 1485, Order 4(f)). If DO levels drop to 6 mg/l, a temporary rock barrier is installed across the head of Old River to increase San Joaquin River flows past Stockton, thus improving DO levels (T,XXXVII,85:4-22). Better treatment of cannery wastes since 1978 (reducing the biochemical oxygen demand) and improved flows and water quality from New Melones Reservoir operations were reported to have helped alleviate this problem (USFWS,31,94). Since then, the Old River barrier has been installed in the fall of 1979, 1981, 1984, 1987, 1988 and 1989 (H. Proctor, DWR, pers. comm.).

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