



CITY OF STOCKTON

DWR WAREHOUSE

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CALFED BAY-DELTA PROGRAM
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CATEGORY III INQUIRY SUBMITTAL: IMPROVEMENT OF WATER QUALITY AND DISSOLVED OXYGEN CONDITIONS IN THE SAN JOAQUIN RIVER NEAR STOCKTON

On behalf of the City of Stockton, enclosed is an inquiry submittal regarding projects to improve dissolved oxygen (D.O.) in the San Joaquin River. The City has developed considerable technical expertise in this area, and believes CALFED participation in D.O. improvement projects can lead to significant ecosystem benefits.

Seasonal sags in D.O. in the lower San Joaquin River are considered detrimental to aquatic species, including chinook salmon migrating up the river. Many factors affect D.O. concentrations in the San Joaquin River, including flow and circulation conditions, water temperature, dredging, sediment, algae blooms, nonpoint sources, and point sources including Stockton's wastewater discharge. Stockton has constructed tertiary treatment to meet its mitigation responsibilities, and has been in compliance with its permits. Nonetheless, river D.O. concentrations remain a problem, as conditions throughout the watershed contribute to low D.O. conditions experienced at Stockton.

Stockton is willing to play a significant role in bringing about cost-effective water quality improvements. If other sources contributing to the D.O. sag are controllable, programs should be developed to control them. Also, there may be significant opportunity to improve D.O. through specific projects such as development of side-stream or instream aeration, or planning and operation of the Old River barrier, or other projects incorporating D.O. considerations.

The City requests CALFED's support and participation in all programs designed to help address these watershed-wide issues.

Please call me if you have any questions or need additional information.

MORRIS L. ALLEN
DIRECTOR OF MUNICIPAL UTILITIES

MLA:DMD

attachment

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City of Stockton Category III Inquiry Submittal

A. Project Title - Improvement of Water Quality/Dissolved Oxygen Conditions in the Lower San Joaquin River near Stockton

A2. Applicant's Name - City of Stockton Municipal Utilities Division (MUD) Wastewater Group. Mr. Morris Allen - Director of Municipal Utilities; Mr. Don Dodge - Assistant Director of Municipal Utilities.

B. Project Description and Primary Biological/Ecological Factors

The lower San Joaquin River suffers from low dissolved oxygen levels during summer and fall in most years from a combination of lack of flow, high temperatures and various sources of oxygen demand. Depressed river DO levels are attributable to numerous regional point and nonpoint sources including, but not limited to, agricultural drainage, stormwater runoff, industrial discharges and municipal wastewater discharges. During fall, DO can be depressed below levels suitable for resident fish and anadromous fish species and may be a barrier to migrating San Joaquin river salmon. We are evaluating various alternatives to improve river DO levels including constructed wetlands, sidestream/instream aeration or an operable gate at Old River. A preliminary engineering analysis indicates river DO levels could be improved through the use of two sidestream aeration stations at a reasonable cost when compared to other alternatives. The City has developed a river water quality model and is using the model as a tool to better understand spatial and temporal DO dynamics in the river. The City is currently modifying the existing DO model to include sidestream aeration to more definitively evaluate the expected benefits from this approach to improving DO. If modeling results indicate that instream or sidestream aeration is a long-term and economically viable solution, the City and the East Delta Watershed Program (EDWP) may consider applying for Category III funds to fund further investigations or a DO enhancement demonstration project. Additionally, the City currently maintains over 600 acres of oxidation ponds as part of the treatment process that are used by resident water birds and seasonally migrating waterfowl. These ponds could potentially be converted to managed wetlands that would enhance and improve waterfowl habitat and could be designed to include Delta fish spawning and rearing habitat.

The San Joaquin river fall-run salmon is one of the priority species in the CALFED ERPP and Category III programs. The San Joaquin River salmon and ecosystem would benefit from a DO improvement project. The DO problem is a watershed issue that requires a watershed solution. Low DO levels represent a migration barrier to adult salmon. Water quality improvement will benefit salmon and resident fish species and improve spawning and rearing habitat conditions. Water quality improvement will improve adult migration upstream and increase the survival rates of juvenile San Joaquin river fall-run salmon. The City is investigating the benefits of an operable gate to control flows at the head of Old River. The gate would be closed during salmon migration periods and could be used to increase San Joaquin river flow east of Stockton for water quality management. An operable gate would allow operations to respond to water quality and fish monitoring information.

C. Approach/Tasks and Schedule

The City is currently evaluating the alternatives and is developing a watershed stakeholders group to identify problems and regional solutions to river quality problems. Our approach is to analyze the costs and environmental benefits of the various alternatives to identify a project for future Category III funding cycles.

D. Justification for Project and Funding by CALFED

The DO improvement project is consistent with CALFED goals and objectives to improve anadromous fisheries habitat and river water quality conditions. Low DO levels have been identified as a stressor by CALFED in the San Joaquin River. The DO depression requires a watershed based solution. The lower San Joaquin River is a water quality-limited river and does not support designated beneficial uses by the regional board.

E. Budget Costs and Third Party Impacts

The City has not developed a specific project at this time to estimate costs. We envision submitting a specific project and cost proposal to the committee in future funding cycles. We do not envision any third party impacts from any of our solutions at this time.

F. Applicant Qualifications

The City of Stockton has a fully staffed Municipal Utilities Department which includes engineers, technicians, wastewater operators at various grade levels, environmental/operational planning, and consultants working on alternatives that will both enhance the San Joaquin River and assist the City in its long-term wastewater treatment program. The City of Stockton holds an NPDES permit for discharging tertiary treated effluent wastewater to the river issued by the Central Valley Regional Water Quality Control Board. The NPDES permit is a direct link to the river water quality conditions and associated actions in the Bay Delta system as they may pertain to the Stockton area of the Delta.

G. Monitoring and Data Evaluation

The City's MUD has a full-service water chemistry department and maintains a river quality database. The existing continuous water quality monitoring and City water quality sampling programs will be augmented to evaluate specific project effects.

H. Local Support /Coordination with other programs/Compatibility with CALFED Objectives.

San Joaquin County and the City of Stockton are working together to develop support for a East Delta Watershed Program (EDWP) and stakeholders group for the San Joaquin River. This group has prepared a separate Category III funding request for development and administration of the stakeholders group.