

**SAN JOAQUIN RIVER REAL-TIME WATER
QUALITY MANAGEMENT PROGRAM**

proposed by
California Department of Water Resources
San Joaquin District

EXECUTIVE SUMMARY

Project Description and Primary Biological/Ecological Objectives. The San Joaquin River Real-time Water Quality Management Program uses telemetered stream stage and salinity data and computer models to simulate and forecast water quality conditions along the lower SJR. The primary stressor addressed by the Program is contaminants entering the SJR, and its primary goal is to increase the frequency of meeting SJR water quality objectives for salinity, thereby reducing the number and/or magnitude of high quality releases made specifically for meeting SJR salinity objectives. The water saved could be used to increase SJR basin streamflow for anadromous fish restoration efforts.

Since the January floods, many key SJR stream stage monitoring sites have been equipped with satellite-telemetered data collection platforms. The proposed work would equip these sites with sensors that monitor streamflow temperature and salinity as electrical conductivity. The Program's temperature data would be useful in the calibration of streamflow temperature models throughout the lower SJR basin. These models, in turn, may be part of adaptive management strategies to reduce streamflow temperature. Species that would benefit from such activities include white and green sturgeon, chinook salmon, steelhead trout, and American shad. The Program's salinity database can also be used to monitor critical splittail habitat in the lower SJR.

Approach/Tasks/Schedule. The Program shall take a collaborative approach that encourages and facilitates SJRMP participants to voluntarily reduce water quality impacts on one another. One Program goal is to reduce the number of days salinity levels exceed water quality objectives at the key compliance point along the SJR near Vernalis. Program work shall involve: (1) expansion of the SJR Real-time Water Quality Monitoring Network, (2) operation and maintenance of Network sensors, (3) continuous sampling of water quality at key Network sites, and (4) data assessment and water quality modeling and management activities. A draft memorandum of understanding (MOU) to express commitment to the operation, maintenance and expansion of the Network is now circulating among SJR stakeholders. One MOU provision is to actively pursue funds to support full implementation of the Network and the Program's water quality modeling and management activities. This proposal asks CALFED to fund the Program for three years. Network expansion would be completed within the first year.

Justification for Project and Funding by CALFED. Current SJR water quality monitoring and management is in a state of flux. Past interest in SJR water quality monitoring has been intermittent and sporadically funded. Decreasing support of the cooperative DWR/USGS water quality and quantity monitoring program has caused several key water quality monitoring stations to be discontinued. Some stations at the base of the lower SJR were reinstated by the interim USBR Grassland Bypass Compliance Monitoring Program. With the real-time data generated by these stations, plus the Merced River station near Stevinson, the SJRMP Water Quality

Subcommittee developed and demonstrated the capabilities of real-time SJR water quality monitoring and management. Since February 1996, weekly forecasts of the SJR discharge and salinity near Vernalis have been a regular feature of this collaborative effort. The demonstration project also provided a forum for exchanging information on SJR water quality management activities, especially with USBR-CVO staff operating New Melones Reservoir. Water saved as a result of future Program forecasts and information exchange can be used to increase SJR basin streamflow to enhance anadromous fish restoration efforts. Program data can be used to monitor adaptive management strategies that concern or affect SJR basin water quality, such as efforts to reduce streamflow temperature and improve habitat conditions for chinook salmon and steelhead trout. The Program could assist other CALFED efforts to improve the overall water quality of Bay-Delta water supplies for agricultural, municipal, industrial, environmental, and recreational beneficial uses.

Budget Costs and Third Party Impacts. Full implementation and operation of the Program for at least three years is expected to cost approximately \$1.35 million. This estimate includes a first-year expenditure of \$102,000 for Network expansion, and operation expenditures of approximately \$415,000 per year. Funds for full implementation shall not replace funds provided by existing programs. Major Program costs are for Network expansion and maintenance and SJR water quality modeling and management activities. Program staff shall interact frequently with SJR stakeholders and consult with SJRMP participants on opportunities to improve SJR water quality. By providing this forum for information exchange, the Program should help reduce conflicts among reservoir operators, wetlands managers, and agricultural drainage dischargers in meeting SJR water quality objectives.

Applicant Qualifications. DWR, a CALFED participant, has monitored SJR water quality over the past several decades. While DWR is the designated applicant, actual Program implementation and management shall be overseen by the SJRMP Water Quality Subcommittee. Key Program personnel consists of staff from DWR, CRWQCB-CVR, and USBR/LBNL. This inter-departmental staff collaborated on a recently-completed two-year grant to demonstrate the feasibility of a real-time water quality management program for the lower SJR.

Monitoring and Data Evaluation. The Program's primary function is water quality monitoring and data evaluation. Signatories of the pending MOU shall receive the Program's custom-designed software that graphically depicts current and forecasted SJR discharge and salinity and transmits water management schedules and model run output over the Internet. Program work shall be posted regularly on the SJRMP web site. Progress reports shall be provided annually to CALFED on Network expansion and/or operation, and on the past year's real-time and forecast data, water management activities, public outreach activities and in-kind services (e.g., staff time contributed by participating agencies for Program operation not funded by the current proposal).

Program Support and Compatibility with CALFED Objectives. The Program shall provide a forum for entities with an interest in managing SJR water quality to exchange information. Major Program goals include improving the overall water quality of Bay-Delta water supplies for beneficial uses (e.g., agricultural, municipal, industrial, environmental, and recreational) and increasing lower SJR basin streamflow.