

Sutter Sub-basin

Sub-basin-level Review of Proposed Projects

Sub-basin Water Requirements and Sources

The Sutter Sub-basin (see Figure 1 in the Introduction and Figure 1 at the end of this sub-basin review) is located east of the Sacramento River in Sutter County. Agricultural land use dominates the sub-basin with needs totaling approximately 350 thousand acre-feet per year and accounting for 99 percent of the water demand. The Sutter National Wildlife Refuge and a small amount of municipal and industrial use account for the remaining percentage of demand within the sub-basin. The majority of water users within the sub-basin are Central Valley Project (CVP) contractors (Sacramento River Settlement Contractors [SRSCs]); the remaining users either utilize groundwater, drainwater, or possess other surface water rights. Four SRSC are within the sub-basin and include Sutter Mutual Water Company, Meridian Farms Mutual Water Company, Tisdale Irrigation and Drainage Company, and Pelger Mutual Water Company.

Surface water, mainly the Sacramento River (via CVP contract), is a primary source of supply currently used within the sub-basin. Another surface water source includes diversions from Butte Slough in the northern end of the sub-basin used by non-CVP contractors. In addition, individual Sacramento River contractors and riparian users divert water from the Sacramento River into the sub-basin. Groundwater accounts for a minor portion (less than 1 percent) of the sub-basin supply because of its poor quality resulting from geological conditions at the Sutter Buttes. This poor-quality connate water flows via subsurface into the drains and is used when the quality of water in the drainage system is adequate. Drainwater use in the Sutter Sub-basin supplies approximately 69,000 acre-feet (ac-ft), which is equivalent to approximately 20 percent of the total sub-basin requirement. This drainwater use is limited because of the concern for quality as a result of the connate groundwater inflow to the sub-basin drainage system.

Water Requirements/Shortages

Water availability in the sub-basin generally exceeds current total requirements in average conditions. In critically dry conditions (years when SRSC supply is reduced by 25 percent and Water Services Contractors' supplies are further reduced), requirements are projected to be met by increased drainwater reuse. However, because of the complex issue of groundwater quality flowing into the drainage system, the level of drainwater reuse remains uncertain. Opportunities exist for SRSCs in the Sutter Sub-basin to assist in meeting water supply shortages, both north and south of the Delta, when SRSCs receive full supplies through transfer (i.e., Central Valley Project Improvement Act Project Water and Forbearance Agreement) or other means.

Proposed Projects

Five projects were evaluated in the Sutter Sub-basin. One project, the Sutter Mutual Water Company's Conveyance System Modernization (Project 22A) has been combined and is included under the Basinwide Water Management Plan Sub-basin-level Water Measurement (Project 11A). Table 1 shows the proposed short-term projects in the sub-basin. None of the projects within the sub-basin are expected to produce water by 2003. Three of the projects are groundwater planning-type projects proposed by Sutter County, Sutter Mutual Water Company, and Reclamation District No. 1500 (RD 1500). These projects have a short-term component that would include data gathering and analysis for a total of approximately \$1.3 million. Depending upon the outcome of these projects, water supplies would potentially be made available in future periods.

The fourth project is a system improvement project proposed by Sutter Mutual Water Company to increase drainwater reuse. This is a feasibility analysis that could lead to long-term water supplies of approximately 25,000 ac-ft.

Short-term Projects

Table 1 summarizes all proposed short-term projects in the Sutter Sub-basin.

TABLE 1
Short-term Projects Proposed in the Sutter Sub-basin

Project / Proponent	Project Type	Supply (acre-feet/year)	Cost (\$)	Issues
Sutter County Groundwater Management Plan (Project 20A)	GW Planning	0	250,000	Data gathering and analysis to obtain local understanding and support of conjunctive use
Sutter County Watershed Assessment and Monitoring Program (Project 20B)	GW Planning (SW/GW WQ)	0	86,000	Same as above but includes SW and WQ
RD 1500 Sutter Basin Groundwater Monitoring Well (Project 23A)	Conjunctive Water Management; GW/SW Planning	1,500 to 2,500	550,000	Monitoring well and data collection to achieve local understanding and support of conjunctive use
Sutter Mutual Water Company Irrigation Recycle Project (Project 22B)	System Improvement	0	500,000	Evaluate ability to increase reuse
Total		1,500 to 2,500	1.4 million	

GW = groundwater
SW = surface water
WQ = water quality

Current Status of Projects

The Sutter Sub-basin's most significant issue is the connate water inflow to the drainage system and the lack of groundwater use due to water quality concerns. Many studies relative to this issue have been completed over the years. Studies to evaluate the problem and potential concerns have been completed by the University of California at Davis, Cal Poly San Luis Obispo, and others. The above studies are the local interests' efforts at evaluating the groundwater quality concerns and the method by which to manage those

concerns. The proposed projects would facilitate the progress of local interests' efforts to address the concerns and improve management of the available resources.

Existing Funding

All three of the Sutter Sub-basin groundwater planning projects unsuccessfully requested funding from either AB 303 or the CALFED Watershed Grant Program. The Sutter Mutual Water Company's increased drainwater reuse evaluation has not requested funding in past proposals.

Interrelationship of Projects

The four projects proposed for the Sutter Sub-basin are all interrelated because of the underlying concern about the poor groundwater quality. Sutter County's two proposed projects would facilitate data gathering and analysis to assist in developing local understanding of the groundwater issues and potential support for future conjunctive use. The groundwater planning project of RD 1500 and Sutter Mutual Water Company would be a more focused monitoring and data collection program relative to groundwater use within that portion of Sutter County. The Sutter Mutual Water Company system improvement project that proposes to optimize the level of drainwater reuse would also need to be coordinated with other projects because of the inflow of the groundwater into the surface drains within the Sutter Sub-basin. Knowledge and data gathered as a result of this system improvement project may be useful in the overall understanding of the groundwater basin.

Benefits

The benefits of these projects are focused on local interests and their improvement in water management for the area. However, the system improvement project could result, depending on the outcome, in greater reuse, reduced diversions, and associated benefits for environmental and other uses.

The groundwater planning projects would provide a database to facilitate future conjunctive use projects, if possible, within the Sutter Sub-basin. Facilitating the groundwater planning projects in Sutter County would allow the local entities to be better prepared to meet future water management challenges.

Implementation Challenges

No significant implementation challenges are involved with the projects in the Sutter Sub-basin because they are data gathering and analysis projects to facilitate future conjunctive use, if possible. Therefore, the most significant challenge is obtaining funding to allow the project proponents to proceed with the proposed projects.

