

Feather/Butte Sub-basin

Sub-basin-level Review of Proposed Projects

Sub-basin Water Requirements and Sources

The Feather/Butte Sub-basin (see Figure 1 in the Introduction and Figure 1 at the end of this sub-basin review) is located within Butte and Sutter counties. The majority of the Feather/Butte Sub-basin is made up of approximately 45 percent of the county (about 750 square miles). The sub-basin's demand for water is 1,447 thousand acre-feet (taf) in a normal year and 1,557 taf in a critically dry year. In normal years, about 70 percent of the demand is used for agriculture, 4 percent for municipal and industrial (M&I) use, 10 percent for environmental (managed wetlands) use, and 16 percent for conveyance losses. In critically dry years, water use is 73, 5, 10, and 12 percent, respectively.

The majority of the water users in the sub-basin are State Water Project (SWP) contractors (settlement contracts); the remaining users utilize either groundwater, local surface water, or surface water reuse. The water sources utilized are 55 percent surface water, 30 percent groundwater, and 15 percent reuse in normal years; in critically dry years, the water sources utilized are 40 percent surface water, 44 percent groundwater, and 16 percent reuse.

Water Requirements/Shortages

Total water availability in the sub-basin exceeds current total requirements and will continue to exceed requirements in the foreseeable future. This statement can be made because more-than-adequate groundwater supplies are available to the sub-basin. However, some areas in the sub-basin do not have access to the groundwater basin and currently experience shortages in critically dry years. The current critically dry-year shortage is about 90 taf. Approximately 92 percent of this shortage occurs in agriculture, 6 percent in wildlife refuges, and 1 percent in M&I areas. Shortages in M&I areas will increase in the future, and one of proposed project's purposes is to determine future demands and the means to eliminate those shortages.

Proposed Projects

Seven projects were proposed and evaluated in the Feather/Butte Sub-basin. Proponents of these projects include Butte County, Western Canal Water District, and districts using the Sutter-Butte Canal. Four of the projects are short-term, and three have both short- and long-term components. The three short-term projects with potential to produce water by 2003 are shown in Table 1 and on Figure 1 (at the end of this review). One of the short-term projects would produce up to 29,000 acre-feet by 2003 with a capital cost of \$322,500 and an O&M cost of \$870,000 per year. Two other short-term projects would produce water by 2003 with a capital cost of \$391,000; however, the full amount of water supply cannot be determined at this time. The other four projects do not produce water by 2003.

TABLE 1
Short-term Projects Proposed to Produce Water by 2003 in the Feather/Butte Sub-basin

Project / Proponent	Project Type	Supply (acre-feet/year)	Cost (\$)	Issues
Western Canal Water District Groundwater Monitoring Project (Project 16A)	Groundwater/Surface Water Planning	29,000	\$322,500 capital and \$870,000 annual cost	Local concerns regarding export of groundwater
Total Conjunctive Water Management		29,000	\$325,000 + \$870,000 annual	
Western Canal Water District Tailwater Recovery System Feasibility Study (Project 16B)	System Improvement	Unknown	\$125,000	Local concerns
Western Canal Water District Water Use Efficiency Project (Project 16C)	System Improvement	Unknown	\$266,000	Local concerns
Total System Improvement		To be Determined	\$391,000	

Current Status of Projects/Existing Funding

All of the proposed projects have been suggested in the past, and some have received funding from the State of California to initiate implementation. All of the projects proposed by Western Canal Water District are short-term projects that would produce water by 2003. The Western Canal Water District Water Use Efficiency Project has been fully funded and is currently being implemented. None of the other projects have been funded or implemented to date.

Interrelationship of Projects

Three of the proposed projects in the Feather/Butte Sub-basin would implement system improvements that would reduce the need for SWP water. The other four proposed projects are designed to provide the information required to determine whether or not a groundwater conjunctive use program in Butte County will be accepted by Butte County, Department of Water Resource (DWR), and U.S. Bureau of Reclamation (USBR). The proposed projects are the Butte County Groundwater Monitoring Program (Project 4B), Butte County Groundwater Modeling Program (Project 4C), Butte County Integrated Watershed and Resource Conservation Program (Project 4A), and Western Canal Water District Groundwater Monitoring Project (Project 16A). The specific information to be attained from these four proposed projects is as follows:

- The groundwater monitoring and modeling information needed to provide accurate projections of the basin's reaction to specific proposed groundwater transfers. This information will provide the information needed by the county, DWR, and USBR to approve or not approve any groundwater transfer proposal.

- The detailed groundwater monitoring information that is required to determine the potential localized impacts on other groundwater pumpers and wildlife habitat, including the development of mitigation programs if required.
- The information required to determine the future urban water supply needs of the county, develop projects to meet that future need, and identify funding mechanisms to meet the future needs.

All of the proposed projects for the Feather/Butte Sub-basin must be implemented to provide the information that is required to determine the potential benefits of a comprehensive groundwater conjunctive use program in Butte County.

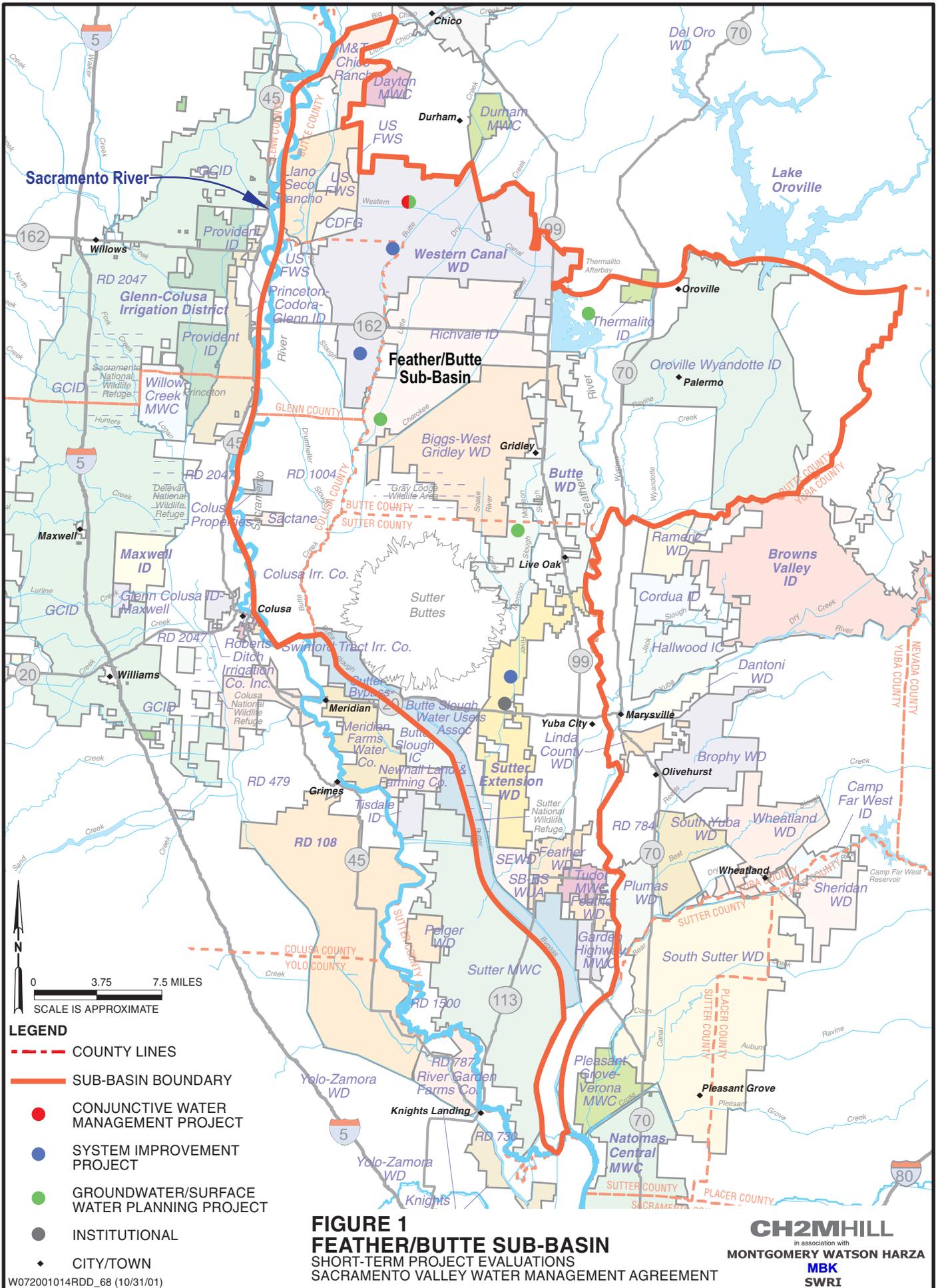
Benefits

The Western Canal Water District Groundwater Monitoring Project would produce up to 29,000 acre-feet of water by 2003. Although the Butte County groundwater modeling and monitoring projects would not produce water by 2003, they would provide valuable information and analysis tools to evaluate a long-term conjunctive use program. Implementing a long-term comprehensive groundwater conjunctive use program could produce as much 200 to 300 taf of new water in dry years if that program can be implemented with either no local impacts or no unmitigated local impacts. The quantity of water produced by the proposed short-term system improvement projects is unknown, but the water would likely be used locally to firm supplies or reduce reliance on SWP supplies. The water produced from a Feather/Butte Sub-basin could be used to:

- Meet the supply needs of users in the Sacramento River Basin.
- Supply water to meet Bay-Delta water quality requirements.
- Meet Butte County funding requirements to meet the county's future water supply needs and funds required by Butte County water users to upgrade their water district delivery systems.
- Supply water to augment the existing supplies available to wildlife refuges in the sub-basin.
- Supply water for environmental needs.

Implementation Challenges

The challenges to implementing the proposed projects, including a comprehensive groundwater conjunctive use program, include the following: (1) local concerns about the export of Butte County groundwater out of the county, and (2) DWR and USBR concerns that groundwater exported from the county is coming in part or totally from the Sacramento and Feather rivers through direct recharge. Therefore, all of the proposed projects are designed to (1) help determine the potential benefits of a comprehensive groundwater conjunctive use program, (2) develop the information needed by the Butte County Board of Supervisors to determine that a comprehensive groundwater conjunctive use program is in the best interest of the county, and (3) develop the technical information needed to answer DWR and USBR concerns about a comprehensive groundwater conjunctive use program.



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