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## California Projects

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# Water-Use Information for California

1998 Project Number: CA007

Cooperating Agency: California Department of Water Resources

Project Chief: William E. Templin

Period of Project: Continuing

**Problem:** California continually uses the largest volume of water of any State in the Nation. Because water resources are managed at three levels--national, state, and local--estimates of water-use must be consistently updated and reevaluated to ensure their validity (comparisons between estimates and actual use). Good water-use information is an important part of most district studies that will help water managers determine the long-term effects of water-use patterns on a limited resource and to help ensure the long-term availability of that resource. In California, the challenge is to gather water-use information from the many water-management agencies in the state, incorporate that information into databases and GIS coverages, and to make effective use of that information in predictive tools, such as computer models.

**Objectives:** Water-use studies in the California District collect, analyze, and store water-use data as input to broader studies. Specific objectives include developing estimates of the quantity and purpose of fresh and saline water withdrawals from surface- and ground-water sources and the actual consumptive use of those withdrawals (that is, withdrawals minus returns to surface- and ground-water sources after use). The District objectives, as overseen by the coordinator of water-use, are to identify and evaluate methods used to collect, analyze, and disseminate water-use information; to help develop and apply new methods that will improve the quality of information in the database; to enhance data availability (in the State and Nationally); and to improve the consistency and quality of available information in coordination with other Federal, state, and local agencies.

**Approach:** In the California District, no projects aimed solely at collecting, analyzing, and storing water-use data are currently active. Instead, many projects are allocated National Water Use Federal Matching Funds (FMFs) in order to estimate water use as input to a broader objective, such as the development of models of ground-water flow, optimization, and transport, that will help predict the effects of water use and water management scenarios. These projects maintain and improve computerized systems to store and retrieve state-wide and site-specific water-use information, through the use of tools such as advanced geographic information systems (GIS) and techniques. Many surface-water gaging stations monitor stage-discharge relations for various water-use purposes, such as adjudicated streams, water rights, diversions (canals and power plants), instream uses (fish maintenance) and returns. Some of these projects are cooperatively funded and some are funded fully by other agencies. Therefore, more water-use data are being collected in California than are funded by National Water Use Program cooperative FMFs. Potential exists for additional water-use cooperative agreements in California, if additional National Water Use Program cooperative FMFs become available. In FY 1998, we are continuing to use National Water Use Program cooperative funding for both interpretive projects and data collection activities. Interpretive projects will continue to include such activities as developing water budgets for ground-water models and load calculations. We are now looking closer at stream gaging activities as an opportunity to meet local, state, and national water-use data needs with existing and(or) new cooperators.

**Progress and Significant Results in FY 1997:** In FY 1997 water-use FMF's were used to match cooperative interpretive project efforts that contained water use components related to ground-water models, water budgets, land use, and water rights.



**Plans for Fiscal Year 1998:** Water-use data bases (including GIS coverages) from projects and the data program will be identified and merged with National aggregate and site-specific data bases. Improvements in the AWUDS data base for 1995 will be made as time and priorities allow. Additional facility-level data on public water suppliers will be entered into the data base that was used to compile the 1995 estimate, which will help determine the accuracy of the estimates that were made for the USGS circular "Estimated Use of Water in the United States in 1995." Water use information will be provided for the Santa Ana NAWQA and data for the National NAWQA "Public Supply and Waste Water Treatment" data bases for California likely will be enhanced. A water-use home page may be developed in order to display the 1995 state-wide data by hydrologic unit and county for selected categories such as irrigation and public supply; and sources, such as surface-water, ground-water, and reclaimed water. A poster may be produced for the November 1998 AWRA conference to be held in Point Clear, Alabama. Water-use data collected as part of projects (such as pumpage from and artificial recharge to ground water sources, withdrawals from and returns to surface water sources, conveyance losses, and consumptive uses) will be compiled in a central location in California District computer files and entered into Nationally available, site-specific data bases.

### Reports:

Templin, W.E., and Cherry, D.E., 1997, Drainage-return, surface-water withdrawal, and land-use data for the Sacramento-San Joaquin Delta, with emphasis on Twitchell Island, California: U.S. Geological Survey Open-File Report 97-350, 31p.

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