



CALFED Progress Report  
California Sea Grant College Program

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Preparer Information

PrepName\_1A Sara Hughes  
PrepEmail\_1B sara.hughes@gmail.com  
PrepPhone\_1C 810-835-1748

Project Information

ProjectNo\_2C R/SF-30 StartDate\_3a 01/2008 EndDate\_3b 06/2011  
ProjectTitle\_4 Environmental Water: Developing Indicators and Identifying Opportunities

CALFed Fellow contact information

FelTitle\_5A Dr. FelLast\_5B Hughes FelFirst\_5C Sara Fellnit\_5D M  
FelInstitution\_5E University of California, Santa Barbara  
FelDepartment\_5F Environmental Science and Management  
FelStreetAddr\_5G 205 W. Islay St. Apt. 5  
FelCity\_5H Santa Barbara FelState\_5I CA FelZip\_5J 93101  
FelPhone\_5K 810-835-1748 FelFax\_5L  
FelEmail\_5M sara.hughes@gmail.com  
FelPositionTitle\_5N Postdoctoral Research Associate

Research Mentor (for additional please see #8)

RMTitle\_6A Dr. RMLastName\_6B Young RMFirstName\_6C Oran RMInit\_6D R  
RMIInstitution\_6E University of California, Santa Barbara  
RMDepartment\_6F Environmental Science and Management  
RMStreetAddr\_6G 4518 Bren Hall  
RMCity\_6H Santa Barbara RMState\_6I CA RMZip\_6J 93106  
RMPhone\_6K 805-893-8747 RMFax\_6L  
RMEmail\_6M young@bren.ucsb.edu  
RMPositionTitle\_6N Professor Emeritus

Community Mentor (for additional please see #9)

CMTitle\_7A Dr. CMLastName\_7B Baxter CMFirstName\_7C Randy CMInit\_7D  
CMInstitution\_7E Department of Fish and Game  
CMDepartment\_7F Region 3 Bay Delta  
CMStreetAddr\_7G 4001 North Wilson Way  
CMCity\_7H Stockton CMState\_7I CA CMZip\_7J 95205  
CMPPhone\_7K 209-942-6081 CMFax\_7L  
CMEmail\_7M rbaxter@dfg.ca.gov  
CMPositionTitle\_7N Senior Biologist

Additional Research Mentors and Community Mentors

Additional Research Mentors\_8

Form with 10 horizontal lines for entering additional research mentors.

Additional Community Mentors\_9

Form with 10 horizontal lines for entering additional community mentors.

**Project Objectives: Please type your responses, and answer the questions in a style appropriate for laymen.**

**ProjectObjectives\_10**

The objectives of the project are to better understand the drivers of decision making for urban water supplies. Cities are the fastest growing water user in California. A better understanding of city-scale decision making about water resources is needed to understand the implications of growth in this sector for fisheries and other environmental amenities in California. This project has developed a 15-year dataset of urban water production and provision in California using the Public Water System Survey. The data are being analyzed to determine (1) what the patterns of urban water production have been over time, (2) how institutions and risk influence these decisions over time, and (3) how California water policy can better target the incentives of cities to achieve desired outcomes. In addition, the study examines the influence of political institutions on the production of recycled water in cities in California. Recycled water is a local source of water cities can develop to meet growing needs. Using recycled water could reduce urban water demand on freshwater sources leaving more water in rivers and lakes. Australia is used as a comparative case: while California and Australia share many climatic characteristics they have very different systems of government.

**Summary of progress in meeting each of these goals and objectives**

**ProgressSummary\_11**

A 15-year dataset of urban water production and provision in California has been compiled and analyses have been completed. The data were gathered from the Department of Water Resources in Sacramento. Additional data on the institutional features of urban water management have been compiled, including their participation in urban water conservation programs. The data have been used to predict whether and why urban water agencies are willing to commit to a voluntary water conservation program (the CUWCC MOU on urban water conservation) and whether joining the program has resulted in decreased water use per capita over time. The findings show that municipal water agencies and small agencies are less likely to participate in the program. The findings also show that the program has not resulted in significantly more water savings for agencies that have joined. Policy and institutional analyses for recycled water development has been completed for both California and Australia. The findings show that California's more decentralized system of urban water management has generated significant challenges to recycled water development. However, both Australia and California have experience a reorganization in water governance as a result of introducing recycled water targets for local agencies to reach. Finally, the results of this work have been used to make recommendations about two major events in urban water management: the infrastructure funding gap and climate change.

**PROJECT MODIFICATIONS:** Please explain any substantial modifications in research plans, including new directions pursued. Describe major problems encountered, especially problems with experimental protocols and how they were resolved. Describe any ancillary research topics developed.

**Modifications\_12**

The PWSS production data turned out to have many missing values so complete time series were not able to be produced. As a result an alternative approach has been developed: the data that are available are used to generate baseline values of water production and use that are then used to predict an agency's decision to voluntarily commit to a water conservation program and to evaluate whether the program has resulted in a reduction in per capita water use.

**BENEFITS AND APPLICATIONS:** Suggest the relevance of these new findings to management. Describe any accomplishment, that is significant effects your project has had on resource management or user group behavior. CALFED is looking for "management cue" (see <http://science.calwater.ca.gov/pdf/soemgmtcues.pdf>).

**BenefitsApplic\_13**

The findings demonstrate that political institutions play a role in urban water agencies' decisions about conserving water. This influence can be targeted or taken into account when developing incentive programs for water conservation. For example, more resources may be needed for small urban water agencies.

On a broader scale, the results show that coalition building among water agencies is a consistently successful strategy for making programs more efficient, tapping into federal money, and gaining the benefits scale economies. This coalition building should be encouraged.

**PUBLICATIONS:** List any publications, presentations, or posters that have resulted from this funded research. Give as many details as possible, including status of paper (e.g., in review; in press), journal name, conference location and date of presentation. Please note (as outlined in the conditions of the award) that each fellow is required to submit an abstract for an oral or poster presentation at each State of the Estuary conference and CALFED Science Conference during the duration of the fellowship.

**Publications\_14**

(under second review) "Voluntary Environmental Programs in the Public Sector: Evaluating an Urban Water Conservation Program in California" the Policy Studies Journal

Presentation: "Multilevel Governance and Environmental Change: The scale politics of recycled water development for cities in California and Australia", the Earth System Governance meeting, Fort Collins, CO. 2011

Lined area for additional entries.



