

## **Water Resources Advisor Colusa, Sutter, and Yuba Counties**

***Position Description:*** The Water Resources Advisor position will address the UC ANR Strategic Initiative to Improve Water Quality, Quantity, and Security. The general disciplinary focus of the Water Resources Advisor will be in the area of water resources management. Primary emphasis will be on water quality, water conservation, water policy and managing water for multiple uses. The candidate is expected to have a minimum of a Master's Degree in Water Resources, Hydrology, Watershed Management or other closely related discipline and to have demonstrated excellence in the areas of applied research and extension. UCCE Sutter/Yuba and Colusa are the proposed supporting units for this position.

***Justification:*** Water supply and quality for agricultural, urban, and environmental systems are critical issues facing California over the next 20 years and beyond. As the state population increases, water availability decreases and competition for these limited supplies will continue to intensify among agricultural, urban, and environmental users. Degradation of water quality has become a more important public issue as supplies become tighter and legal and regulatory decisions play a larger role in water management decisions. There are a number of local issues needing research based information to inform decision makers in making sound policy decisions.

The Feather, Yuba and Bear Rivers have some of the highest mercury contamination levels due to gold rush era mining legacy issues that threaten farming, wildlife habitat, recreation, and the Sacramento Delta. Mercury levels are so high that fish consumption limits exist for Englebright and Camp Far West Reservoirs. To further expand anadromous fisheries, the National Marine Fisheries Service is considering the removal of Englebright Dam even though the primary purpose for constructing this dam was to prevent mercury containing sediments from moving downstream. This is a critical issue that must be addressed to protect valuable local water resources as well as those of other downstream communities.

The Yuba County Water Agency (YCWA) is extremely interested in water research and education on the Yuba River system. YCWA is active in water and hydroelectric energy sales and has significant resources to invest in local water research and education programs. In addition to water quality issues, they are interested in water use efficiency and a better understanding of area groundwater resources to assist in developing comprehensive irrigation management plans to balance surface and groundwater resources.

Although much has been done to improve agricultural water use efficiency, public pressure will continue challenging agricultural users to seek further efficiencies. More farm research and education is needed to further increase the efficient use of water in agriculture. There are over 25 irrigation districts in the three-county area. These districts have a critical need for assistance in improving water use efficiency in their operations and conveyance. For example, Yuba County's Browns Valley Irrigation District (BVID) has a great deal of pasture land that is irrigated with contour ditches that were constructed in the late 1800s. BVID is very interested in research and technology transfer that would assist them in the conversion of these lands to more water efficient irrigation systems at a reasonably affordable cost.

Sutter, Yuba and Colusa County watersheds have a unique mix of agricultural, urban and environmental requirements for water that are often in conflict. For example, the old “leaky” irrigation systems of the Sierra Foothills often create wetlands that provide habitat for local species such as the California Black Rail. As irrigation districts are encouraged to increase water conservation efforts, other consequences such as loss of wildlife habitat must be considered in the overall scheme of water valuation.

There are currently several high priority issues that could greatly benefit from the academic leadership this position would offer in the way of direct research and service to clientele as a local resource of science-based information. The critical issues addressed by this position include water quality, water conservation, water policy and managing water for multiple uses. The Water Resources Advisor will address these critical issues in an integrated approach that balances the needs of Californians with those of resource conservation and environmental protection.

The likelihood of significant outcomes and impacts resulting from the leadership of this position are high as the issues addressed are at the forefront of policy decisions and are critical to the long-term sustainability of the State of California. In addition, local stakeholders are interested in proactively addressing concerns related to water resource management. The Advisor will be an essential link between university research and education units to facilitate collaboration and teamwork for the development and delivery of effective local applied research and extension programs that address critical needs, have statewide impact, and inform policy decisions. The Advisor will identify and consider the needs of all relevant major clientele groups in the prioritization, planning, development and execution of applied research and education programs to address critical issues related to water resources.

***Extension:*** The Water Resources Advisor will provide local leadership for planning and coordination of extension education and implementation of research-based practices and technologies that enhance water resource management practices in the three-county area. In addition, the Advisor will collaborate with other academics to contribute to appropriate statewide extension activities. Expected extension activities will include planning and participation in collaborative educational activities and presentation of relevant research-based material at workshops, short courses, field demonstrations and other educational programs independently and/or in conjunction with other UC academics. The Advisor will contribute to educational materials such as publications, newsletters, appropriate UC websites, and other relevant social and print media to extend information on water resources related issues. The Advisor will also serve as a key local resource of science-based information on water resources issues.

Key clientele include water agencies, irrigation districts, policy makers, environmental agencies, other public agencies, water users, farm managers, landowners, conservation/environmental groups, and consumers.

***Research:*** The Water Resources Advisor will provide local leadership for planning, coordinating and conducting applied research activities related to water resources in Sutter, Yuba and Colusa Counties for the University of California. Stimulating interdisciplinary collaboration will be an essential role for this position. Research activities and creative activities pursued by this position may include: Developing innovative scientific techniques, products, and processes to improve

water use efficiency and water conservation management practices; developing and encouraging the adoption of management practices that prevent degradation of watersheds and water resources caused by pesticides, salinity, chemicals, animal wastes, nutrients, sediments, and pathogens; and assisting in the development of flexible and effective water policies and strategies using UC's econometric, hydrological, and policy expertise.

Research results will be disseminated through a variety of publication outlets including those for clientele as well as academic colleagues. Publications may include popular press, internet websites and blogs, technical reports to funding agencies/government agencies, policy papers, California Agriculture, ANR peer-reviewed publications, Professional Society Proceedings, and appropriate peer-reviewed scientific journals.

***ANR Continuum:*** The Water Resources Advisor will be expected to work as an integral team member with others to address critical research and outreach priorities that have statewide impacts. Collaborative partnerships will be formed with other UCCE Advisors, California Institute for Water Resources, Sierra Foothill REC researchers and staff, campus-based UC faculty and CE Specialists in appropriate discipline related departments, UC-affiliated USDA scientists, UC Agricultural Sustainability Institute, as well as others. Disciplinary collaborations may include public policy, plant nutrition, plant physiology, soil science, irrigation and water resources, environmental toxicology, wildlife biology, engineering, economics, vertebrate pest management, and others. This position will also be expected to integrate into appropriate UC ANR Program Teams and Workgroups to identify opportunities and develop collaborative projects to meet clientele and UC needs.

The generally acknowledged gap in this network of research and extension efforts is a lack of knowledge and capacity of local staff to address the critical research needs of clientele served by the proposed position. The Yuba County Water Agency and local irrigation districts have contacted the local UCCE many times in the past few years requesting information and assistance with specific technical issues that we do not have the expertise or capacity to handle. The Water Resources Advisor would serve as a point person to address these requests when possible and draw in other UC resources when needed. In addition, the Advisor will serve as a sounding board for clientele and thus bring forth research and extension needs and opportunities to the broader UC community in order to develop effective collaborative strategies to address these issues.

***Support:*** UCCE Sutter/Yuba and Colusa will provide office space, administrative support, transportation, office supplies, IT support services, internet access, and telephone access.

***Other support:*** The Water Resources Advisor will compete for research and extension support grants for appropriate projects from funding agencies such as Yuba County Water Agency, water districts, USDA-AFRI, DWR, DPR, NRCS, local Resource Conservation Districts, Western SARE, ANR Competitive Grants Program, conservation groups, EPA, and others.

***Location:*** The Water Resources Advisor position will have responsibilities for Sutter, Yuba, and Colusa Counties. These units are currently moving towards a multi-county partnership and the proposed headquarters location for this position is UCCE Sutter/Yuba.