

**American Water Resources Association
2015 SUMMER SPECIALTY CONFERENCE**

Climate Change Adaptation

June 15 - 17, 2015

New Orleans, LA

Wednesday, June 17

3:30 PM – 5:00 PM

SESSION 22: Social and Cultural Factors

The Role of Climate and Water Resources Data for Adapating to Climatic Variations Within the Klamath Basin of Oregon and California - Mark Deutschman, Houston Engineering, Inc., Maple Grove, MN

There has been a drastic increase in the development of geospatial decision support systems (DSS) for water resource management. However, rarely have these developments accounted for the information needs of differing socio-economic end users to make decisions under an uncertain climate regimes. This presentation highlights the result of research that evaluated the relationship between climate, water, and drought data and the resulting adaptive resource management decisions in the Klamath Basin, Oregon and California through the use of stakeholder Focus Groups. The results document the relationship between societal resource management decisions to adapt to climatic variation made on a frequent basis within the Klamath Basin, the temporal and spatial scales of these decisions and the data relied upon for decision-making. Through this research a "data vertical integration" process is being developed that harvests climate, water, and drought data (including forecasts) and presents it to a wide range of socio-economic end-users in a customized format that is tailored to their decision making to adapt to climatic variations.

Closing the Climate Knowledge Gap - Erica Rohr, Marstel-Day, Alexandria, VA

Ensuring community, governmental and the business community buy-in for climate adaptation planning is critical to ensuring success. In this presentation, we look to share successful approaches that lead to political leaders, the scientific community, and the general public discussing climate adaptation in terms that resonate within their own communities; thereby achieving a buy-in on a personal level. Through our analyses, we have developed methods and strategies that can help communities identify, influence, and adapt to land use changes, resources constraints, emerging ecosystem services markets, and climate change risks and adaptation and will provide examples of these methodologies. In specific, examples of successes to be discussed include: * Incorporation of climate change implications into assessments of long-term water supplies at Marine Corps and Air Force bases to help them fully assess the ramifications of climate variability and its risks to their operations and missions. As part of these efforts, we help them identify and build partnerships with pivotal stakeholders, government and business leaders, and community members who are integral to ensuring that

their established goals and objectives are met. * Incorporation of climate change factors as a selection criteria in the selection of innovative Public-Private partnerships that promote installation and public/private sector community leaders develop and implement collaborative projects that reduce operations and services costs, or reduce risks, and provide mutual value to the government entities and local communities. * Development and execution of the "conservation conveyance" statute, Title 10 U.S. Code 2694a, speeding property disposals, while simultaneously conserving natural resources. Our conservation conveyance work has provided a means for nonprofit conservators and public conservation agencies to work together to own and manage and conserve natural resources in creative ways that exploit their respective strengths and resources. We conclude with recommendations participants can consider incorporating into their own efforts to influence decision makers and facilitate adaptation implementation in the public and private sectors will be presented for ongoing discussion.

An Approach to Assessing the Climate Resiliency of Snow-Fed Arid Land River Systems: Preliminary Results From a Study of the Truckee-Carson River System - Kelley Sterle, University of Nevada, Reno, Reno, NV (co-authors: D. Kauneckis, L. Singletary, K.Simpson, M. Dettinger, G. Pohl)

Management of water supplies in snow-fed arid land river systems in the western United States is challenged by a variety of issues. Variable climate conditions effect these systems, which are already under stress from increasing water demands for industrial and urban water uses, agriculture, and ecosystems. An in-depth study of the Truckee-Carson River System (TCRS) in northern Nevada aims to build a research model for exploring climate resilience and adaptive capacity in snow-fed arid basins. Climate stress scenarios are being identified through interviews with water managers and will be used to drive climate and hydrologic models. A highly multidisciplinary team is working with local managers and users to assess the impact of selected climate scenarios and identify options for adaptation in terms of water management and allocation under drought conditions. The project will use an iterative process for engaging a broad stakeholder community in the development of integrated groundwater, surface water and climate models and scenarios in order to better understand how policy changes might improve the resilience and adaptive capacity of the system. The long-term goal is to use stakeholder-generated scenarios to assess the resiliency of the system and to develop drought adaptation strategies for the region. This presentation will describe the project objectives, describe the structure and components of the hydrologic and policy models, explain the role of stakeholders in the collaborative modeling process, and discuss preliminary results of an organization survey administered to water managers on the river system.

Climate Change in a Closed Basin: The Truckee River Basin Study - Jeffrey Payne, MWH Americas, Sacramento, CA (co-author: A. Nickel)

The 3,060 square miles of the Truckee Basin provide a compelling demonstration for how changes in demands and/or a region's climate could influence both natural and human water uses. The Truckee River begins as the sole outlet from Lake Tahoe, on the border between

California and Nevada. From Lake Tahoe, the Truckee flows 121 miles northeast into the Great Basin, where it empties into Pyramid Lake. Packed into this relatively small Basin is every form of water use and every type of water user that exists in the Western United States: correspondingly, the diversity of water uses within its borders has made the Basin home to every type of water resources conflict in the West. In addition, the 'closed' nature of this basin creates a zero-sum water supply environment that amplifies scarcity: because the river terminates at a lake instead of an ocean, changes in water use by any one entity have an easily measurable effect on the resources of others. Despite these natural sources of conflict, communities in the Basin have historically managed and adapted to water scarcity for as long as the arid region has been inhabited. The US Bureau of Reclamation-sponsored Truckee Basin Study provides a foundational understanding for how changes in future climate and water demand might alter the balance between supplies and demands among the Basin's varied water user communities. In summary, climate changes may introduce new risks that threaten the balance between supplies and demands that have been provided by previous infrastructure investments and painstakingly debated laws and policies. The Basin Study also offers insights into the options and strategies that may be applied to manage future imbalances.