



## FOR IMMEDIATE RELEASE

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## National Science Foundation Funds San Joaquin River Research

*Scientists at UC Merced will examine climate-change data to see how changes are affecting the river's flows and, in turn, how those changes affect water users and wildlife*

MERCED, Calif. — People talk about climate change all the time.

But researchers at the University of California, Merced, are working to find out exactly how it will affect the millions of people who depend on the San Joaquin River for their drinking water, irrigation and food growth, and energy.

Water experts with the [Sierra Nevada Research Institute](#) have received a \$1.5 million grant from the National Science Foundation to synthesize data about the San Joaquin River and how climate change is affecting the timing and number of flows from the snowmelt at higher elevations.

Those changes, in turn, change the way reservoirs are operated and the way and time in which water is delivered to users, including the thousands of farmers who depend heavily on the river for their crops and livelihoods, said Professor Thomas Harmon, with UC Merced's School of Engineering and the Sierra Nevada Research Institute.

### Quick Facts

- The National Science Foundation has awarded a \$1.5 million grant to analyze how climate change is affecting the San Joaquin River and those dependent on it.
- UC Merced researchers involved with the Sierra Nevada Research Institute say the work will take three years.
- Besides producing recommendations for river management, the analyses will examine how changing river flows are affecting salmon-restoration projects.

“We know the climate is changing,” Harmon said. “We want to take the next step and see how it will affect people. We know qualitatively that timing of snowmelt will change as warming continues in the Sierra and that will affect the filling of dams and the supply of water to farmers and salmon. We now have more empirical evidence in hand and will look to explore what our human response should be to these climatic impacts.”

The study could inform decision makers who will depend on accurate and timely water accounting in the future, as they adapt to a warmer climate.

Additionally, the analyses will look at the effects on salmon restoration work that continues on the river.

Using data already gathered by other UC Merced researchers and from government agencies, Harmon and colleagues will perform intensive analyses to develop models for managing the river’s water supply. The research team includes five doctoral students, one post-doctoral researcher, professors Andres Aguilar, Yihsu Chen and Qinghua Guo, and Sierra Nevada Research Institute Director Roger Bales.

The work will take about three years, and will also involve undergraduate students who will help develop website and a mobile kiosk that will let users check on current San Joaquin River water conditions.

The project is an example of UC Merced's faculty using research to understand some of the complex problems facing the state as well as the hands-on learning opportunities available to students.

Some of the data Harmon’s group will use was developed in the Southern Sierra Critical Zone Observatory, a joint research project between the Sierra Nevada Research Institute, the U.S. Forest Service and the National Science Foundation. The project measures impacts on soil and water quality and quantity from the atmosphere down through the groundwater. Other data comes from U.S. Bureau of Reclamation wells along the river, which will be useful in developing alternatives for balancing the river’s agricultural, wildlife and recreational uses.

Bales said the results of the data analysis will provide scenarios for how water provides critical ecosystem services, both in mountain forests and to downstream users and in-stream uses.

A court-ordered settlement that went into effect in October 2006 ended a 20-year lawsuit in which environmental and fishing groups demanded state and federal agencies return water to the Valley for self-sustaining fish populations and other ecological needs, rather than reserving it all for irrigation districts and other water suppliers.

“The judicial settlement for the San Joaquin didn’t specifically take climate warming into account,” Bales said. “The new grant will provide resources to link the upper and lower San Joaquin watersheds, providing new knowledge that will guide decisions around a sustainable water supply for the future.”

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*UC Merced opened Sept. 5, 2005, as the 10th campus in the University of California system and the first American research university of the 21st century. The campus significantly expands access to the UC system for students throughout the state, with a special mission to increase college-going rates among students in the San Joaquin Valley. It also serves as a major base of advanced research and as a stimulus to economic growth and diversification throughout the region. Situated near Yosemite National Park, the university is expected to grow rapidly, topping out at about 25,000 students within 30 years.*