

How California Water Supply Could Survive Warming, Growth

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In a new report, the UC Davis authors of the most sophisticated analysis of California's water management system say the system should be able to adapt to a warmer climate and a larger population, albeit at a significant cost.

For its latest evaluation, the UC Davis team led by engineering professors Jay Lund and Richard Howitt employed its computer model, CALVIN (for California Value Integrated Network). The model analyzes state water supply and delivery systems, and projects impacts of changes in the systems, such as a prolonged drought, levee breaks in the Sacramento-San Joaquin Delta or the removal of Hetch Hetchy Reservoir. It is the only statewide model of all major water system components.

This time, the team used CALVIN to evaluate climate-change scenarios with varying precipitation, snowmelt timing and water demands by agricultural and urban users.

"This is the first statewide climate change analysis for water supply that examines both the effects of climate warming and population growth, since these effects are likely to happen together," said Lund. "We often think of complex systems as being fragile. However, if California's water supply system is well managed, it can accommodate unusually severe climate and population changes, albeit with some significant costs."

The researchers found that population growth alone (to 92 million by

2100) would increase statewide supply system costs about \$60 per year per household by 2100. Adding the predicted impact of climate change would raise that cost to \$140.

The report suggests that water system managers could adapt to these major changes by changing reservoir and groundwater operations, water allocations (including water markets), water-use efficiency and wastewater reuse. If those strategies were employed, the state would not need major new surface-water reservoirs for water supply.

The paper, "Climate Warming and Water Management Adaptation for California," was published online on June 10, 2006, by the journal *Climatic Change*.

Source: UC Davis

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