



AAAS PACIFIC DIVISION

Can the Southwest Manage Its Thirst?

LAS VEGAS – Concerned about ebbing water levels at nearby Lake Mead and the future of the Colorado River that fills it, southern Nevada’s water management agency aims to curb water use in greater Las Vegas by 20%. Even if successful, however, this conservation plan alone will fall short of meeting the area’s water needs in 2035, according to research presented at the 94th annual meeting of the AAAS Pacific Division.

The population of the Las Vegas Valley has nearly tripled in two decades, although this growth has slowed recently. Of the seven states that draw their water from the Colorado River, five, including Nevada, are among the country’s fastest growing states.

Several researchers at the meeting presented computer modeling studies aimed at helping resource managers in the arid West, where population growth and climate change are putting increasing pressure on the region’s water supply. “We are taking outputs from global climate models and hydrological models and bridging the gap between science and what the decision-maker community needs,” said Sajjad Ahmad of the University of Nevada, Las Vegas.

The conference, held 16 to 19 June, drew hundreds of scientists, students, professionals and the public to the University of Nevada, Las Vegas. Over 75 students, including some from as far away as Nigeria, presented their work in oral and poster sessions. The Pacific Division is the oldest of

the four AAAS regional divisions, which bring together scientists and nonscientific communities to discuss issues with immediate local impacts.

Even if the Southern Nevada Water Authority meets its 20% conservation target by 2035, in that time the demand for water will still grow to the point where there will be essentially no surplus available in case of drought or other spikes in water use, Ahmad reported. Combining conservation with a slowdown in population growth could provide a healthier surplus, as long as Las Vegas’ population does not exceed 2.6 million. (Currently at 2 million, the city’s population is on course to reach 3.2 million by 2035.)

Finding an alternative water source may be equally controversial. State and federal agencies have approved the building of a pipeline that would supply Las Vegas with groundwater pumped from northern Nevada. This plan has been hotly contested by a variety of groups, however, and is currently being challenged in Nevada state court.

Alternatively, Nevada could build a desalination plant near the coast of California or Mexico. Authorities could then arrange a “paper trade” that would exchange desalinated seawater for an additional share of Lake Mead’s water. On a unit-cost basis alone, the desalination option is cheaper compared to pipeline plan, Ahmad reported, but it would use twice as much energy and its carbon footprint would be 48% higher.

Lifeline in the desert. The Colorado River supplies virtually all of southern Nevada’s water.

Another study presented in the symposium offered a new approach to forecasting the Colorado River’s spring-summer “streamflow,” or the volume of water flowing past a fixed point in the river. This approach should be useful to managers who must decide how much water to release for agricultural use or to conserve behind dams, especially as climate change is expected to bring about more frequent and extreme floods and droughts.

Ajay Kalra of the Desert Research Institute in Las Vegas has identified several regions of the Pacific Ocean where changes in sea surface temperature appear to be statistically linked to the Colorado River’s streamflow. The changes in these regions can account for about 90% of the observed variation in the river’s streamflow over the last century, with 1 to 4 months lead-time. The method is useful because it provides quantitative estimates instead of probabilities. And, because it eschews complex physical climate models for a statistical, data-driven modeling approach, it is relatively “simple and parsimonious,” Kalra said. —Kathy Wren

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New Dues Rates Approved for 2014

The AAAS Board of Directors has approved a dues increase for 2014. The new rates are effective for membership terms beginning after 31 December 2013. As listed below, they do not include postage or taxes for international members, which is additional. For more information, contact the AAAS Membership Office at 202-326-6417, or www.aaas.org/membership.

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Science **341** (6144), 362.
DOI: 10.1126/science.341.6144.362

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Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. The title *Science* is a registered trademark of AAAS.

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