

New in Science: What Will it Take to Stabilize the Colorado River?

Kevin Wheeler

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The Colorado River is in trouble—Lakes Powell and Mead, the two major reservoirs fed by the river, reached record lows this year nearing 25% capacity. An ongoing megadrought, impacts from climate change and systematic overuse have created a deep management crisis. Although there is growing public acknowledgement that cuts in consumptive use are inevitable and policy changes are needed, renegotiation of the rules governing this critical shared river are fraught with complexity and impeded by competing priorities between states.

In a [new policy forum commentary in the journal *Science*](#) ([Free Access Link](#)) researchers from the Center for Colorado River Studies describe the political history leading up to the current management crisis and present results from innovative research to offer perspective on what is needed to stabilize or reverse the decline of reservoir storage. Using adaptations to the Colorado River Simulation System, the researchers quantify the magnitude of consumptive use cuts necessary to balance the system, maintain power generation and secure water supplies if the current drought persists.

The new commentary identifies combinations of Upper Basin consumptive use limitations and Lower Basin reductions necessary to stabilize reservoir storage levels. If Upper Basin water use remains at current levels or increases (i.e., 4.0 to 4.5 million acre-feet per year), then water use in the Lower Basin must be reduced immediately by 2.0 to 3.0 million acre-feet per year to

even maintain the combined Powell and Mead storage at their current depleted levels. Not achieving these critical objectives will lead to further decline of system storage, and these commitments must be sustained, the authors said.

There are many possible ways to reduce use, said the authors. A continuation of the current 23-year-long drought will require difficult management decisions in any event. Implementing, or even accelerating, the policy changes necessary to stabilize the Colorado River system requires well-grounded insight to project the impacts of those policies on the system. The reservoirs can be stabilized under specific runoff conditions, but a critical change needed is triggering reductions in use based on the combined storage of Lake Mead and Lake Powell, said Kevin Wheeler, lead author on the commentary.

The research shows that current policies can't stabilize the Colorado River if the drought continues, however there are various consumptive use strategies that could—if these strategies are applied swiftly. Although the proposed limits and reductions in consumptive use being considered may seem like a political impossibility at present, they will become inevitable if hydrologic conditions persist, said Wheeler.