

Arizona at a crossroads over water and growth

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"Lake Mead: 50% chance of drying up by 2021," screamed headlines around the West in mid-February after the publication of a new study in the prestigious journal *Science*.

Many water managers responded by accusing the Scripps Institution of Oceanography researchers of using overly pessimistic future scenarios and of politicizing climate change. While the water-manager complaints have some basis, there are also five hard truths about the future of water in Arizona and the Southwest that everyone should know.

The first truth is that global warming is here now - the signs around the West are unmistakable. Signs include earlier river runoff, earlier blooming of plants, increased fires, increased tree-killing insect pests, and substantial warming centered over the Southwest, including a record-setting summer in Phoenix last year with 32 days over 110 degrees. And there is every reason to believe that this warming will continue.

The second truth is that many impacts of climate change will be "delivered" through our water supplies. Climate science tells us we should continue to see less snow and more rain, earlier runoff and a more variable climate including more floods and droughts.

The third truth is that both climate theory and climate models indicate that dry areas of the planet will generally get drier and wet areas wetter, not at all good news for the American Southwest, where recent drying agrees with climate theory.

A 2005 study suggested that Arizona may lose 40 percent of its runoff over the next 50 years. Since 2004, five studies have found that Colorado River flow could decline by 5 percent to 50 percent over the next 50 years. That's admittedly a big range deserving additional study and debate as we ponder Lake Mead's future.

But let's not overlook the agreement: No studies have suggested stable or increasing flows.

The fourth truth is that Arizona's continued population growth is putting an enormous stress on the state's water supplies independent of climate change. In the past eight years, the state gained 1.2 million residents, the equivalent of another Tucson. Unless it gets so hot that people stop moving to the state - not that farfetched given that warming will feature geographic losers and winners -- growth will continue to be a major challenge.

The fifth truth is that Arizona is at significant risk of losing a big slice of its Colorado River supplies because of the deal it cut with California in 1968 in return for California's support for federal funding of the Central Arizona Project. In the event of water shortages, the deal calls for Arizona's entire CAP supply to be cut off before California is cut back 1 gallon. CAP water is a significant amount of the total used in the Phoenix area, and it is the only sustainable supply available to Tucson.

Arizona, California and Nevada have been relying for years on unused water from Utah, Wyoming, New Mexico and Colorado to meet their everyday needs. Those extra supplies are destined to go away in the next few decades, either as a result of climate change or because of increased growth in the Upper Basin.

Now, back to those pesky headlines about Lake Mead, which stores CAP water. The reality is that water managers are way too smart to ever let Lake Mead dry up with over 1.5 million people

in Las Vegas dependent on it for 90 percent of their supplies. But a smaller Lake Mead is a distinct possibility, and this poses a real threat to Arizona. Regardless of the actual odds of this occurring by 2021, 1 percent or 50 percent, this is the type of unexpected but entirely plausible event that everyone - elected officials, water managers, citizens - must take seriously.

So, what should we do about this? We need to deal with both the causes and effects of climate change. Neither will be easy.

This means that Arizonans will have to live within their existing renewable-water supplies, and this means a serious public dialogue. Conservation, transfers from agriculture, which uses 75 percent of the water in the state, encouraging flexibility among competing uses, and tightly linking land-use decisions to water availability (which Arizona pioneered) will all be part of the solution.

Arizona is, or soon will be, at a water crossroads due to climate change, growth or both. Lives of people and of states have infrequent but critical transition points; it is time that Arizonians realize one has arrived. I have no doubt that the creativity and industriousness of the state's residents will lead to solutions that the rest of the West will emulate.

Brad Udall is the director of the Western Water Assessment at the University of Colorado, where he studies the Colorado River and climate change. He was born in Tucson and is the son of the late Rep. Morris K. Udall.