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West wrestles with Colorado River “grand bargain” as changing climate depletes water governed by 1922 compact

California’s power to “call” for water threatens Denver: “We would stand to lose half our water supplies for 1.4 million people”



Hyoung Chang, The Denver Post

The Colorado River flows near the Bair Ranch rest area in Glenwood Canyon on Thursday, August 22, 2019. The river's water is divvied up among seven western states under the 1922 Colorado River Compact.

By **BRUCE FINLEY** | bfinley@denverpost.com | The Denver Post
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Rocky Mountain water managers worried about climate-driven depletion across the Colorado River Basin are mulling a “grand bargain” that would overhaul obligations among seven southwestern states for sharing the river’s water.

This reflects rising concerns that dry times could turn disastrous. An enshrined legal right of California and lower-basin states to demand more Colorado River water could imperil half of Denver’s water supply.

The grand bargain concept arose from increasing anxiety in booming Colorado and the other upper-basin states — New Mexico, Utah and Wyoming — about their plight of being legally roped into sending more water downriver, even if dry winters, new population growth and development made that impossible without shutting faucets.

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California, Arizona and Nevada, the lower-basin states that for years have siphoned more than their allotted one-half share of river water, face greater uncertainty and painful weaning from overuse.

Total water is decreasing in the 1,450-mile river, which trickles from high mountain snow northwest of Denver and carves canyons up to a mile deep. Over the last 15 years, amid a climate shift toward aridity, warming has reduced the river's flows by at least 6%, according to research based on federal hydrology and temperature data.

Yet the Colorado River remains the primary water source for an expanding population of 40 million people and 90% of the nation's winter vegetable production — one of the most over-allocated rivers in the world, with water taken out each year exceeding natural flows from rain and snow.

The grand bargain would remove the legal right to “call,” or demand, more water during dry times that was established by the 1922 Colorado River Compact.

Colorado farmers and Front Range cities no longer would face the threat of downriver states legally mandating that more water be left in the river, forcing shut-offs. In return, lower-basin states would be guaranteed a set amount, possibly less than what they're currently using, and gain time to stop their steady draw-down of the Lake Mead reservoir, which remains less than half full even after a wet winter. The upriver Lake Powell reservoir, also less than half full, would serve as storage to help lower states adjust to living on less water.

Divvying up water

Back around the end of World War I, states formed the League of the Southwest to promote development across the arid West, which explorers and early settlers had deemed largely inhospitable. With authorization from Congress, the seven southwestern states negotiated the Colorado River Compact to divvy water, an agreement to share what negotiators estimated to be a total annual flow of 15 million acre-feet equally among upper- and lower-basin states.

The compact says the upper states must leave 75 million acre-feet in the river over each decade (an average of 7.5 million acre-feet a year), based on measurements where the river enters northern Arizona at Lee's Ferry. But it got complicated. Later, in 1944, an international treaty required 1.5 million acre-feet for Mexico. And the river's annual average flow is about 12.5 million acre-feet, not 15 million acre-feet.

Western water managers got by because Colorado and the other upper-basin states collectively have been using about 4.5 million acre-feet a year, well below their 7.5 million acre-feet allotment.

But the upper states chafe more and more at the lower states' power to issue a "call" and, if necessary, force radical curtailments. This has never happened.



Justin Sullivan, Getty Imag

this 2015 photo, a boat is dwarfed by the tall bleached "bathtub ring" on the rocky banks of Lake Powell in Arizona. The Colorado River Basin supplies water to 40 million people in seven western states.

However, as climate warming continues to drive depletion, and as urban expansion and food production possibly require more water from the river, Colorado and the other upper states remain obligated under the 1922 compact if the lower states demand more water.

Federal authorities say they favor gradual steps and the preservation of the compact, but traditionally have deferred to states in managing water in the West.

California officials this week indicated an interest in exploring new ways to address climate warming impacts. But Chris Harris, director of the Colorado River Board of California, told The Denver Post his state is not ready to discuss any specific bargain that would require giving up a legal right to “call” for more water. And John Entsminger, manager of the Southern Nevada Water Authority manager and his state’s chief negotiator, questioned how the bargain would help the lower states.

The serious behind-the-scenes contemplation of this bargain “reflects the current conditions on the river — the extended drought we’ve been through, the speed at which the system has gone down, the reality of a warming climate and what that is going to mean for flows,” said Jim Lochhead, the manager of Denver Water who previously served as Colorado’s director of natural resources and represented the state in river negotiations with other western states.

While Lochhead discussed the bargain in an interview with the Post, he said he hasn’t taken a formal position supporting any specific proposal.

“What we need is some kind of arrangement that gives the lower basin time to manage demands and solve their structural deficit problems” — overuse — “and also provide some assurance, in exchange for that time, to the upper basin that we are not going to be facing a legal crisis in the form of a compact ‘call’ or some type of curtailment,” Lochhead said.

“From a Colorado perspective, my interest would be that Western Slope irrigated agriculture and the economy on the Western Slope be protected, and, obviously, that Front Range municipalities that rely on the Colorado River be protected in our water supplies. ... That would be our starting point,” he said.

“Given the status of the reservoirs. ... the speed at which Powell and Mead have dropped, we don’t have the luxury to take a lot of time and deal around the edges of the problems. We need to think about some bigger, and different, solution to resolve the deficit that is staring us all in the face.”

If dry times forced a “call” for water, “we would stand to lose half our water supplies for 1.4 million people. That’s going to carry a lot of economic and social concerns, not only for Denver,” he said, referring to agriculture in northeastern Colorado and other booming Front Range cities that depend on water diverted through tunnels from the Colorado River.

Colorado's recently updated state water plan contains a goal of "supporting strategies to maximize the use of compact water while actively avoiding a Colorado River Compact deficit."

Colorado Water Conservation Board director Rebecca Mitchell, just named by Gov. Jared Polis to represent the state in western water negotiations, called the grand bargain "an interesting thought exercise" and said Colorado, while focused for now on updating reservoir operational protocols with other states, eventually will look at using all the water it legally can without triggering a call.

"There's no doubt that with climate change, population growth and potentially less precipitation, the future of the Colorado River resource faces challenges," Mitchell said.

Colorado leaders currently are "assessing the feasibility" of cutting water use "as a tool" to make sure Colorado doesn't violate the compact — "to avoid an involuntary curtailment and the associated uncertainty for users of Colorado River water," she said.



Hyoung Chang, The Denver Post

The Colorado River flows near the Grizzly Creek Rest Area in Glenwood Canyon on Thursday, August 22, 2019.

"Less water in the system"

The grand bargain gained traction this summer at a University of Colorado Law School forum, following circulation of a paper by former Colorado River District manager Eric Kuhn and reporter-turned-water-analyst John Fleck of the University of New Mexico that articulated the concept.

They cast the bargain as a crucial recognition that the river on average holds about 2.5 million acre-feet less water than state negotiators put on paper in the 1922 compact.

The grand bargain “is a long-term sustainable solution” to Colorado River Basin problems “providing flexibility and security for water uses in the basin, including recreational and environmental flows, while recognizing that there is less water in the system than what was contemplated when the Law of the River was conceived,” they wrote.

It could take an act of Congress to cement a reworking of the 1922 compact’s obligations and water allotments, which were based on calculations following a series of exceptionally wet winters. The compact has fostered complex collaboration and adjustments so that the federal government hasn’t had to intervene over water in the West. Rather than replace it, grand-bargain proponents say, states can negotiate the bargain as a follow-on agreement, along with re-negotiation starting next year of the 2007 temporary protocols for managing river flows in a way that keeps the same amount of water in the Lake Powell and Lake Mead reservoirs.

At the CU forum, Harris, the Colorado River Board of California director, addressed western water managers and policymakers who’d been considering the bargain. California is “willing to be a good partner,” remains “willing to collaborate” and devoutly believes in water conservation and incentives, Harris said.

But in dry times, Harris made clear, “I have got to be able to rely on Colorado River water.”

Harris in an interview this week said it would be premature to comment on a bargain to remove the legal right for California and other states to “call” for more water in dry times. However, he acknowledged climate warming is reducing water in the river.

“Climate change certainly is bringing a whole new set of challenges to all of us in the context of managing the water supply in the Colorado River Basin and meeting both short-term and long-term demands of all users in the basin,” he said. “That reality, and urgency, I guess, is what all of us have to keep in mind as we sit down and begin discussions on the next set of operational guidelines.”

U.S. Bureau of Reclamation Lower Basin Regional Director Terry Fulp, the federal government’s top official on the river, recently told western water managers that “our risk is too high. ... we cannot handle it” — referring to the climate-change impact that could make it impossible to meet current demands. He reminded them that, regarding last winter’s big snow, “one good year doesn’t break the drought in the Colorado River Basin.” Fulp favored continued reliance on the compact rather than an overhaul of obligations among the southwestern states.

“I am a subscriber to the incremental approach,” he said at CU. “We have proven success with the incremental approach. It has kept us out of court. It has found good solutions. It has kept us all at the table.”

In Las Vegas, Entsminger, the Southern Nevada Water Authority manager, agreed with upper-basin contentions that the lower basin must use less water, within the 7.5 million acre-feet — or 8.25 million acre-feet if the upper basin’s disputed one-half contribution to the water for Mexico under the 1944 treaty is included — that the compact requires the upper states to leave in the river each year.

“Whatever the number is, the lower basin needs to live within that amount. Steps need to be taken in the lower basin to make use of the river sustainable,” Entsminger said in an interview with the Post.

He’s well aware of upper basin concerns “about somehow not bearing the full burden of climate change,” he said, but didn’t see how a grand bargain giving up the legal right of a “call” in dry times would benefit lower-basin states.

“In exchange for a guaranteed amount of water? We have a guaranteed amount now,” Entsminger said.



John Moore, Getty Images

Mexican agricultural workers cultivate romaine lettuce on a farm in Holtville, Calif., on Oct. 8, 2013. The Imperial Valley, which is irrigated from water diverted from the Colorado River, is one of the most productive agricultural areas in the United States. (Photo by John Moore/Getty Images)

A diminishing flow

After an ambitious century, this current behind-the-scenes wrangling over climate risk and a possible grand bargain shows how rising temperatures and changing water levels increasingly constrain human use of the Colorado River. The shift toward aridity over the past two decades has muffled optimism of the past that a vast, fragile desert could be transformed through massive federal projects tapping the river, which drains a 246,000-square-mile swath of the West.

Climate scientists have calculated that rising temperatures are reducing water in the river because trees and plants consume more and evaporation intensifies.

A 2017 study led by Colorado researcher Brad Udall, director of the CU-National Oceanic and Atmospheric Administration Western Water Assessment, projected that temperature increases will lead to a 20% decrease in Colorado River water by 2050 and a 35% decrease by the end of the century. There's strong evidence, the study found, for a 30% decrease by 2050 and a 55% decrease by the end of the century.

In California, Harris didn't dispute these projections. "That's part of what all of us are working on now," he said, "trying to get the data we need that can help inform our collaborative decision-making going forward."

Udall said a grand bargain "is worth exploring. It solves this sticky delivery obligation problems," he said. "It can help resolve the climate change issue as flows decline. It provides some certainty we don't have now."

And Anne Castle, the top federal water official in the Obama administration, now a senior fellow at the CU Law School, saw the bargain as good for people and the environment.

"I see the threat of climate change and the reduction of flows in the Colorado River as so significant that removing the risk that the upper basin gets hit for the full amount of the reduction would be a significant benefit over the long-term," Castle said.

"You do not want to make anybody's faucet go dry. And you want to avoid adverse impact on river flows in Colorado. A grand bargain that includes both a cap on development in the upper basin and protection against a lower basin 'call' on the river could help with that," she said.

Rising fears in the upper basin, and a festering sense of unfairness, are driving interest in a grand bargain as climate warming reduces water across the river basin, said Jennifer Gimbel, a former Department of Interior undersecretary and director of the Colorado Water Conservation Board who is serving as a senior water scholar at Colorado State University.

"The fear is that we're never going to see, to get the benefit of, our bargain with the lower basin under the compact. We in the upper basin states, we will want to develop all the water that we feel we are entitled to," Gimbel said.

And climate change will increase those risks and test tolerance, said Reagan Waskom, director of CSU's Colorado Water Institute.

"The upper basin motivation for a deal is a calculation of certainty versus uncertainty. Front Range water providers with post-1922 rights are vulnerable and uncertain what could happen to Colorado River diversions in a prolonged drought," he said. "Western Slope agriculture is fearful that their senior rights may be vulnerable in a crisis that affects the Front Range. Better to negotiate a contingency plan and bargain before a crisis brings in a federal heavy hand. It is a calculation of acceptable level of risk."

As temperatures around the southwestern states broke records again this summer, discussions around the grand bargain concept diverged over perceptions of urgency. Lower basin and federal officials leaned toward gradual “incrementalism” in dealing with river levels year by year and the cooperative management of reservoirs to maximize flexibility. Nobody wants to scuttle the whole compact and revert to legal fights in court.

But overall water levels in the Colorado River Basin are likely to keep going



Bloomberg file photo

The confluence of the Little Colorado River and the Colorado River is seen in Grand Canyon National Park in Arizona on June 25, 2015.

down, possibly faster than anticipated, Denver Water's Lochhead.

“Any kind of big idea, somebody is going to perceive a threat and just oppose it because they think they’re going to get hurt by it. So it is easier to talk about ‘incrementalism,’ particularly from a federal or state perspective,” he said. “But at the end of the day, we’re looking at a river that is potentially going to be changing shape much more rapidly than we thought it ever would. There’s going to have to be some bigger ideas that are put on the table for consideration. There’s going to have to be some honest dialogue, rather than go into a corner and hunker down and try to pretend we don’t have a problem.”

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