

The West is trading water for cash. The water is running out

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When it comes to global warming's one-two punch of inundation and drought, the presence of too much water has had the most impact on U.S. agriculture this year, with farmers across the Midwest swamped by flooding throughout the Mississippi Basin.

But in the Southwest, it's the increasing lack of [water](#) that's threatening the agricultural economy, as well as the welfare of 40 million Americans and part of the food supply for the entire nation.

The 1,450-mile-long Colorado River serves as a source of water for seven states, but climate change and overuse have caused its levels to drop precipitously. From 2000 to 2014, flows declined 19% from the 20th century average, according to American Geophysical Union Water Resources research. By 2100, the [river flow](#) could fall as much as 55%.

The threat to [fresh water](#) is of course global in scope. The World Resources Institute reported this month that access to water for hundreds of millions of people is now at risk due to global warming. Along the Colorado River, climate change is also

taking its toll, responsible for aridification—the progression from cyclical drought to a permanent decrease in water.

With big Western cities clamoring for a share of the river's diminishing supply, desert farmers with valuable claims are making multimillion-dollar deals in a bid to delay the inevitable. It's an echo of the historic manipulation that long ago subdued this waterway, the carver of the Grand Canyon and icon of the American West. But if the river's water keeps falling, more radical measures will be needed to protect what remains.

Since the 19th century, the biggest users of Colorado River water have been farmers, turning millions of acres of unforgiving landscape in California and Arizona into a patchwork of green and brown visible from space. For a century, their water supply has been governed by agreements among the states along the river basin. But the water itself is doled out by state administrators in part under a "first in time, first in right" mechanism that's even older, dating back to the decades following the American Civil War.

When the states came together in the 1920s to sign a compact dividing rights to the river, they were operating from an overly optimistic assessment of how much water was available. Thus behind the eight-ball from the start, increasing water demands in the decades since have created a situation where more water is taken out of the river than flows into it. In March, with the river's main reservoirs now below half of total capacity and the federal government about to step in, the states reached a temporary deal to cut river water use.

But in 2026, a more severe reckoning looms when a long-term deal must be struck. The Colorado River provides drinking water for 1 in 10 Americans, many in cities such as Las Vegas, Los Angeles, Denver and Phoenix. It also waters almost 90% of the nation's winter vegetables, according to

American Rivers, an advocacy group. When the broader compromise is due, it may remake how an entire region grows food and uses water.

"It wasn't like one state used more water than they were supposed to: Each state is using what they're legally entitled to under the compact," said John Berggren, a water policy analyst for Western Resource Advocates. When you combine institutionalized overuse with an accelerating climate crisis, Berggren explained, that's when you get "the problem."

The "first in time" aspect of Colorado River rights began in the late 1800s, and is known as Prior Appropriation. A claimant, having through diversion of the river made beneficial use of the water (by farming or mining, for example), can continue to take the same amount they always have in perpetuity, or convey that "senior right" as a form of property. As faster-growing states like California accumulated more claims, however, slower-growing upriver states feared they'd be shut out.

The 1922 Colorado River Compact was meant to fix this. The agreement meant that some 7.5 million acre-feet of water (equal to an entire acre of land covered in 1 foot of water, or 326,000 gallons) would be allotted every year to both the Upper Basin (Colorado, Wyoming, Utah and New Mexico) and the Lower Basin (Nevada, Arizona and California). Since the river flows from north to south, Upper Basin states are obligated to make sure Lower Basin states get their due.

But the math was wrong, and there was much less water available over the following years than the signatories had predicted.

Since 1989, Lower Basin states have often used much more than their share under the compact. As agriculture and big cities expanded, the deficit was made up by tapping the massive reservoirs of Lake Mead and Lake Powell. The river itself long ago ceased flowing into the Gulf of California, instead petering out in the Mexican desert. As water levels continued to decline and [climate change](#) added to the river's stress, the Lower Basin has engaged in what John Fleck, director of the Water Resources Program at the University of New Mexico, called

"de facto prior appropriation."

"The math is unbelievably simple," said Douglas Kenney, director of the Western Water Policy Program at the University of Colorado Law School. "You just can't use more than comes in."

As Western cities grew, added demands were placed upon the Colorado River. But unlike many of the desert farming communities, urban areas have made great strides in water conservation. Examples include Las Vegas paying residents to rip out their lawns and plans by Los Angeles to recycle 100% of its wastewater by 2035.

But it's not enough to slow the river's demise, given that about 70% of it goes to agriculture. Robert Glennon, a regents professor at the University of Arizona, said there needs to be improved efficiency in how desert farms irrigate their crops, as well as mutually beneficial programs to divert water to urban areas seeking insurance policies against future drought.

Indeed, a brisk trade "water marketing" has sprung up. Municipal water authorities pay hundreds of millions of dollars to holders of senior river rights, or to fund rural conservation efforts, in exchange for water. Glennon said the farmers and their water districts long ago realized that, unless they inked deals with the big cities, the federal government would eventually step in.

No government is going to let some of its biggest cities go dry over antiquated claims to water, according to Glennon, author of *Unquenchable: America's Water Crisis and What To Do About It*. "If you don't take advantage of doing deals with the cities for a modest amount of money, what you're going to see is new legislation that crimps your rights, insists on greater conservation without paying for it," he said.

For a price, cities can divert Colorado River water intended for crops via aqueduct to kitchen taps in Santa Monica and La Jolla. The water marketing model has been so successful that agricultural land use in the region is projected to decrease as conversion to urban use accelerates, according to a 2012 Bureau of Reclamation study.

One of the biggest water marketing deals was in 2003. The Quantification Settlement Agreement will soon send 200,000 acre-feet of water westward annually at a "melded supply rate" of \$474 per acre-foot, for an approximate annual price of \$94 million. The water originates from the rural Imperial Irrigation District (IID) in southeastern California and ends up with the San Diego County Water Authority. The IID also has a deal with the Metropolitan Water District (MWD), which serves Los Angeles and Orange counties, sending them 105,000 acre-feet a year at \$111 per acre-foot.

The Palo Verde Irrigation District (PVID), a roughly 131,000-acre area next to where the river forms California's border with Arizona, is locked into a 35-year deal with the MWD, which paid \$6.2 million last year. Under the agreement, the MWD can demand that the rural district leave 28% of its land fallow to free up 115,000 acre-feet of water for some of Southern California's largest cities and approximately 20 million people.

Not counting upfront payments, the MWD paid the farmers of the Palo Verde district about \$164 million between 2005 and 2018. Deven Upadhyay, assistant general manager and chief operations officer of the MWD, said water marketing deals provide California's southern cities with latitude to deal with changing climate conditions.

"We'll continue to pursue flexible arraignments that allow us in wet years to store water, in drier years to do exchanges with other agencies," he said.

With that kind of money at stake, even tiny water districts are getting involved. The Bard Water District, near the Mexican border, is only about 7,000 acres. But it's already on its second, two-year pilot program in which it agrees to leave 2,000 acres fallow in exchange for money from the MWD. It made \$950,000 for farmers and water district improvements during its first pilot in 2016-2017.

But there is another price to be paid for these arrangements, said Ron Derma, general manager of the Bard district. Damage to residents and businesses who aren't parties to the deals, and who depend on the farming economy, is getting worse. Leave too much land untilled, Derma warned, and

the commercial infrastructure that supports agricultural communities could be permanently hobbled.

"You got people that depend on irrigation, you got people that spray (pesticides), tractor sales—all the things that are connected to farming," he said.

But Bart Fisher, a board member of the Palo Verde Irrigation District and owner of an 11,000-acre farm a few miles from the river, said water marketing programs are beneficial to the community. Fisher, whose MWD records show has collected at least \$30 million under the following agreement (not including any upfront payments), acknowledged that the deal has some "unanticipated, negative effects." But he added that keeping land fallow also requires work, and that the influx of money fuels the local economy.

"There are elements of the economy that get a big bump when fallow payments come in," Fisher said. "I get phone calls from the local John Deere dealer wondering when will there be a newer fallow program so they can sell new equipment."

The local water districts and their member farmers have come to rely on all that city money. The MWD has slowly become the largest owner of land in the Palo Verde district, with 22,000 acres and the water rights that come with them. The PVID eventually sued, accusing the MWD of "thinly veiled attempts" to turn local lands into "water farms," according to court documents. The University of Arizona's Glennon said the 2017 lawsuit, which has since been dropped, sprang from fear among the farmers that their cash payments would dry up.

"The gravy train would come to an end," Glennon said.

The MWD is quick to note that as part of the water marketing deals, it has made an effort to support rural towns, including paying \$6 million for "community improvement" to the Palo Verde district, which is centered on the town of Blythe.

The town of almost 20,000 people is named for Thomas Blythe, who in 1877 became one of the first to establish rights to Colorado River water. The

municipality, hard up against the Colorado River's western bank, is surrounded on three sides by cropland. The farmers here are at the top of the list when it comes to claims on river water. Blythe's 1877 claim yielded upwards of about 450,000 acre-feet a year as long as the Lower Basin still received 7.5 million acre-feet.

But Blythe itself is hurting. Census data estimate the median household income has decreased from about \$48,000 in 2012 to less than \$40,000 in 2017. Robert Conway, the general manager of Jordan/Central Implement Co., said the town has gone downhill since the fallowing program began.

"There's not a lot of trickle-down economics in Blythe, that's for sure," he said.

For rural communities further down the list of water rights, the growing shortage of Colorado River water has become an existential threat. Arizona's Pinal County, an agricultural community wedged between Phoenix and Tucson, ranks near the bottom when it comes to claims. Here, farms lay fallow not for money, but simply because there's not enough water.

Paul Orme, general counsel to four Pinal County irrigation districts, said planned reductions in water allotments may force local farmers to leave as much as 40% of their land unfarmed.

"The irrigation districts are going to have to tell their farmers at some point that instead of delivering you 'x' amount of water, we can deliver you 'y,'" Orme said. "It will be up to the farmers to determine if they can make that work."

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