

Big Ag Is Draining Nevada Dry

The American West is facing a water crisis, compounded by climate change, a history of bad policy, and a refusal to stand up to Big Agribusiness. Despite a wet winter in early 2023 providing a short-term respite, a long-term megadrought persists across the region, as groundwater storage is being depleted after decades of over-withdrawals.¹ Corporate farms remain unfazed by this fact, continuing to drain Nevada's dwindling water supplies to prop up factory farms that, in turn, worsen the climate crisis and associated drought. The West is ground zero for Big Ag's assault on our water and climate future, and states must halt the expansion of these mega-farms and reallocate water for truly beneficial uses.

Bad Policy Threatens Colorado River Supplies

The Colorado River is one of the most regulated rivers in the world, due in no small part to its famous interstate water agreement: the Colorado River Compact.² Established in 1922, the Compact theoretically distributes 16 million acre-feet of water annually to seven states and Mexico. The Upper Basin states of Colorado, New Mexico, Utah, and Wyoming are obligated to deliver 7.5 million acre-feet to the Lower Basin states of Arizona, California, and Nevada, and the Upper Basin can only take its shares from what remains.³

Nevada holds the smallest Colorado River allocation — less than 2 percent — but the state uses far more thanks to a system known as “return flow credits.” This allows Nevada to pull 60 percent above this allotment from Lake Mead in exchange for treating and returning wastewater.⁴

The Colorado River Compact formed during a period of abnormally wet rainfall, resulting in an agreement that allocated 15 million acre-feet annually between the states. Yet in recent decades, only 12 to 13 million acre-feet have flowed through the river each year, further exacerbated by a treaty guaranteeing Mexico 1.5 million acre-feet.⁵ The Compact relies on fixed numbers, leaving little room for declining supplies and potentially leaving Upper Basin states unable to fulfil their obligations to the Lower Basin.⁶ Reservoirs along the Colorado River have reached record lows in the past few years, forcing the U.S. Bureau of Reclamation to begin curbing supplies to Lower Basin states.⁷

Nevada has seen even its small shares of the Colorado River slashed during these shortages. In 2021, the Bureau of Reclamation cut Nevada and Arizona's supplies by 7 and 18 percent, respectively.⁸ Due to Western water law principles of seniority, other Basin states such as California have been spared thus far.⁹ These reductions have proved insufficient, however, forcing the federal government to continue to push for further cuts. Following months of dispute, Lower Basin states came to a tentative agreement in May 2023, promising voluntary reductions of 3 million acre-feet by

2026. Reductions come with a call for the federal government to pay out \$1.2 billion to irrigation districts, cities, and American Indian tribes for their temporary water reduction.¹⁰

This agreement only lasts until 2026 and is insufficient to meet the scale of this crisis. According to experts, the Basin states need to cut four times as much annually for the reservoirs to recover.¹¹ Radical changes are needed in how Nevada approaches water rights and allotments, with a long-term crisis requiring a long-term solution.

Growing Water Scarcity in Nevada

Nevada is the driest state in the country, making its risks under drought and climate change even more dangerous. Las Vegas is one of the hottest U.S. cities, with an average summer temperature of 102 degrees Fahrenheit. Under all emissions scenarios, temperatures will exceed historical records.¹² As drought worsens, lack of winter precipitation and an increase in warm weather will put even more strain on surface water supplies.

Colorado River water flows predominantly to southern Nevada and Las Vegas. The region gets 90 percent of its supply from the river, with around 40 percent destined for indoor use. Statewide, public supply makes up less than 20 percent of water withdrawals,¹³ while irrigation accounts for 70 percent.¹⁴

Alfalfa Production Abuses Nevada's Dwindling Supplies

Crop production is limited in Nevada, with the state primarily growing cattle feed crops like hay and alfalfa.¹⁵ The state harvested 285,000 acres of alfalfa — a notoriously thirsty crop — in 2022, significant for a state that averages just 10 inches of rain annually.¹⁶ Food & Water Watch estimates that alfalfa acreage required around 220 billion gallons of consumptive irrigation water.¹⁷

Consumptive use defines water that is lost through evaporation or transpiration, as opposed to withdrawals that may flow back into the ecosystem through runoff from irrigation.¹⁸ This is more than double Nevada's Colorado River allocation and enough water to meet the indoor water needs of Las Vegas residents for nearly 22 years.¹⁹

In many parts of the state, irrigation water for alfalfa is pulled from groundwater or reservoirs.²⁰ Northern Nevada, particularly Humboldt County, is one of the worst offenders when it comes to irrigation water use;²¹ Humboldt County alone is estimated to use more irrigation water than Nevada's entire Colorado River allocation.²² Contrary to necessary trends, this water abuse is on the rise — Nevada's irrigation water use increased 34 percent from 2007 to 2017.²³

Mega-Dairies Threaten Nevada's Water Security

Cattle ranching is Nevada's largest agricultural sector, supported by its alfalfa production.²⁴ This is a vicious cycle — as drought worsens, less pasture is available for grazing, in turn requiring more alfalfa acreage to feed cattle, and thereby reducing water availability even more.²⁵ Nevada's alfalfa is also exported to mega-dairy^a operations out of state and abroad, further depleting Nevada's water to prop up these harmful industries.²⁶

Although there are more dairies in northern Nevada, the largest dairies are in southern Nevada, where reliance on the Colorado River is highest.²⁷ Despite the crisis unfolding on the river, according to industry groups, Nevada is ideal for a growing dairy industry because it has “ample water” supplies and “agriculture-friendly regulation.”²⁸ As cities across the state struggle with water shortages, Food & Water Watch estimates that Nevada’s mega-dairies require more than 900 million gallons of water annually to hydrate and wash dairy cows — enough to meet 22,600 households’ annual indoor water needs.²⁹

As its average herd size increases, Nevada is also eyeing increased exports of milk products. Dairy Farmers of America built an entire facility dedicated to exporting dry milk abroad, and mega-dairies are following closely. Operations supplying this export facility have expanded herds or relocated to Nevada to accommodate the build-out, despite local concerns about water contamination and waste products. There is little evidence that this has boosted the local economy either.³⁰

Conclusion

As agricultural water use is on the rise, Las Vegas and southern Nevada officials are scrambling to figure out how best to reduce water use. The state has led on proposals such as banning decorative grasses and targeting large properties with extensive landscaping. However, none of this comes close to touching the scale of the problem. Capping swimming pool sizes will save an estimated 10 acre-feet per year,³¹ while just washing and hydrating the dairy cows on Nevada’s factory farms requires around 8 acre-feet every single day.³² One way to curb drought is to strip alfalfa of its protected beneficial use status, thereby removing much of its water allocations.³³ The math simply does not add up — the Colorado River will not be saved by smaller pools or fewer lawns, but by a bold restructuring of agricultural production in the arid West.

a In this piece, mega-dairies refer to operations with 500 or more cows, as this corresponds with data categories in the 2017 U.S. Department of Agriculture Census of Agriculture, which does not provide information on confinement and waste management.

Endnotes

- 1 National Oceanic and Atmospheric Administration (NOAA). National Integrated Drought Information System. “Special Edition Drought Status Update for the Western United States.” January 24, 2023; Griffin, Melissa et al. “Drought monitor spells good news for California, but ‘not out of the woods’ on megadrought.” *ABC News*. March 2, 2023.
- 2 Robison, Jason et al. “Challenge and response in the Colorado River Basin.” *Water Policy*. Vol. 16, Iss. 12. March 2014 at 12 to 13.
- 3 *Ibid.* at 16 to 17.
- 4 Lochhead, Colton. “How Nevada uses more than its tiny share of the Colorado River each year.” *Las Vegas Review Journal*. Updated April 5, 2023; Southern Nevada Water Authority. “Where your water comes from.” Available at <https://www.snwa.com/water-resources/current-water-supply/index.html>.
- 5 Robison et al. (2014) at 23; Gardner, Jeff. “Deception and science in the Colorado River.” *Desert Times*. January 1, 2020; Fleck, John and Anne Castle. “Green light for adaptive policies on the Colorado River.” *Water*. Vol. 14, Iss. 2. 2022 at 2; Flavelle, Christopher. “As the Colorado River shrinks, Washington prepares to spread the pain.” *New York Times*. Updated January 31, 2023.
- 6 Sakas, Michael Elizabeth. “If the Colorado River keeps drying up, a century-old agreement to share the water could be threatened. No one is sure what happens next.” *Colorado Public Radio*. November 19, 2021.
- 7 U.S. Bureau of Reclamation. “Operation Plan for Colorado River Reservoirs.” August 21, 2021 at 1 to 2.
- 8 Sabo, John. “Are Markets a Wet Dream for US Western Water?” *Forbes*. February 10, 2022.

- 9 Ronayne, Kathleen and Suman Naishadham. "California releases its own plan for Colorado River cuts." *Associated Press*. January 31, 2023.
- 10 Flavelle, Christopher. "A breakthrough deal to keep the Colorado River from going dry, for now." *New York Times*. Updated May 25, 2023.
- 11 Jones, Benji. "Why the new Colorado River agreement is a big deal — even if you don't live out West." *Vox*. May 23, 2023.
- 12 Runkle, Jennifer and Kenneth E. Kunkel. "State Climate Summaries 2022: Nevada." NOAA. Available at <https://statesummaries.ncics.org/chapter/nv>. 2022.
- 13 Southern Nevada Water Authority; Foresta, Tony S. "How does Nevada use its scarce water resources?" Guinn Center. September 5, 2018.
- 14 Foresta (2018).
- 15 U.S. Department of Agriculture (USDA). "2022 State Agricultural Overview: Nevada." April 5, 2023.
- 16 *Ibid.*; Runkle and Kunkel (2022).
- 17 See Methodology in Food & Water Watch (FWW). "Big Ag Is Draining the Colorado River Dry." August 2023.
- 18 Berrade, Abdel F. and Denis Reich. "Alfalfa irrigation water management." In Pearson, Calvin H. et al. (Eds). (2011). *Intermountain Grass and Legume Forage Production Manual*. Colorado State University at 2; Dieter, C.A. et al. U.S. Geological Survey. "Estimated use of water in the United States in 2015." Circular 1441. 2018 at glossary and 59 to 61.
- 19 FWW analysis of Stern, Charles V. et al. Congressional Research Service. "Management of the Colorado River: Water Allocations, Drought, and the Federal Role." R45546. Updated May 23, 2023 at 8; U.S. Census Bureau. "QuickFacts Las Vegas city, Nevada." Accessed May 2023; CA S.B. 1157 § 679 (2022).
- 20 Roedel, Kaleb. "A plan to share the pain of water scarcity divides farmers in this rural Nevada community." *Inside Climate News*. September 25, 2022; Wharton, Claudene. University of Nevada, Reno. "Drought, heat challenging the West's forage producers." *Nevada Today*. September 1, 2021; Schultz, Brad. "An Overview of Agricultural Production and Agricultural Water Use in Humboldt County, Nevada, and the Risk From Withdrawing Irrigation Water." University of Nevada Cooperative Extension. 2017.
- 21 Foresta (2018); Schultz (2017).
- 22 Schultz (2017); Stern et al. (2023) at 8.
- 23 Mpanga, Isaac K. and Omololu John Idowu. "A decade of irrigation water use trends in Southwest USA: The role of irrigation technology, best management practices, and outreach education programs." *Agricultural Water Management*. Vol. 243. August 7, 2020 at 3.
- 24 Nevada Department of Agriculture. "Agriculture in Nevada." Available at https://agri.nv.gov/Administration/Administration/Agriculture_in_Nevada.
- 25 Wharton (2021).
- 26 Nevada Department of Agriculture; Rumberg, Scot. "Nevada — We grow things here!" USDA, National Agricultural Statistics Service (NASS). December 12, 2019.
- 27 Nevada Department of Agriculture; Southern Nevada Water Authority.
- 28 Terry, Lynne. "While small dairy farms shut down, this mega-dairy is shipping milk to China." *Civil Eats*. November 27, 2018.
- 29 See Methodology in FWW. "Big Ag Is Draining the Colorado River Dry." August 2023.
- 30 Terry (2018).
- 31 Gentry, Dana. "Colorado River crisis requires confronting sacred cow." *Nevada Current*. July 21, 2022; Partlow, Joshua. "Nevada considers capping water use for homes in Vegas." *Washington Post*. March 14, 2023.
- 32 FWW analysis of USDA NASS. 2017 Census of Agriculture. Available at <https://www.nass.usda.gov/Publications/AgCensus/2017/index.php>. Accessed April 2023; Mekonnen, Mesfin M. and Arjen Y. Hoekstra. University of Twente. "A global assessment of the water footprint of farm animals." *Ecosystems*. Vol. 15. 2012 at 406 and 408.
- 33 Wicks, Noah. "Colorado River water officials prepare to negotiate post-2026 guidelines." *Agri-Pulse*. June 14, 2023.