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Three fastest-warming cities in the U.S. are in the Mountain West

KUNR Public Radio | By Kaleb Roedel

Published July 12, 2022 at 4:29 PM PDT

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People cool off in the Truckee River near downtown Reno, Nev., on June 14, 2022.

Since 1970, summer temperatures in Reno, Nevada, have risen 10.9 degrees, making it the nation's fastest-warming city, according to Climate Central, a nonprofit research group.

Ranked second is Las Vegas, Nevada, which has seen an increase of 5.8 degrees.

Boise, Idaho, follows in third at 5.6 degrees.

Stephanie McAfee, Nevada state climatologist, says a contributing factor to the warming is urban growth. Those three Mountain West cities, she explains, are expanding quickly, turning undeveloped land into new homes and roads.

"A light-colored bit of ground, sand or concrete or something is going to be cooler than a black asphalt roadway," McAfee said. "As we have darker colored materials in the city,

And those materials release the heat at night, causing warmer-than-usual overnight temperatures. In Reno, the nighttime summer temps have jumped from the upper 40s and low 50s to the high 50s and mid-60s, according to McAfee.

This phenomenon is known as the "heat island effect."

As a result, she says, air conditioning is becoming a bigger part of people's budgets. That's at a time when U.S. consumers are dealing with the highest inflation in 40 years.

This story was produced by the Mountain West News Bureau, a collaboration between Wyoming Public Media, Nevada Public Radio, Boise State Public Radio in Idaho, KUNR in Nevada, the O'Connor Center for the Rocky Mountain West in Montana, KUNC in Colorado, KUNM in New Mexico, with support from affiliate stations across the region. Funding for the Mountain West News Bureau is provided in part by the Corporation for Public Broadcasting.

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Kaleb Roedel

Kaleb is an award-winning journalist who joined KUNR as a reporter in November 2021.

Local nonprofits collaborate to create the 'Truckee Meadows Community Progress Report'

Aiming to improve the quality of life in the Truckee Meadows community by understanding current data

Truckee Meadows Tomorrow and United Way of Northern Nevada and the Sierra the Truckee Meadows release community report

By Crystal Garcia

Published: Jul. 13, 2022 at 7:10 PM PDT

RENO, Nev. (KOLO) - Through the collaborative effort of Truckee Meadows Tomorrow and United Way of Northern Nevada and the Sierra, the Truckee Meadows community now has a detailed report of what life is like in Washoe County.

"Data needs to be democratically shared, it needs to be accessible to everyone from your neighbor to the governor," said Erica Mirich, President and CEO of TMT.

It is the Truckee Meadows Community Progress report and it's purpose is to give a better understanding of the quality of life throughout the county.

"You know when we look at quality of life, quality of life is not just health and wellness, its also our natural environment, its also our land use and infrastructure, education, civic engagement, public safety," said Mirich.

By measuring ten focus areas, like detailing Washoe County's community's basic demographics, to identifying key influences relating to physical and mental health, or looking at our community's water usage and air quality. All of those facts and figures are a part of the Community Progress Report, with the goal of getting everyone in the community informed on their local communities strengths and weaknesses.

"Some areas are more challenging than others to face, for example, poverty and housing is one subject that is a current issue, but there's a lot of people working hard to make that better in this community...and that's the goal of our data so we can track how we're doing...we have to know where we're at, to be better equipped for where we can go," said Mirich.

It's been 15 years, since the Truckee Meadows community has had an extensive all-in-one report of this kind. Data is gathered by TMT and UWNNS for the betterment of every person living in the region.

"Think of it like a little spark and now we're gonna nurture that some more, and bring more people to the table...we believe in bringing people together from all different parts of the community and saying 'here are the concerns that are present, here's what we know to be true, and what can we all do collectively to work on that'," said Kelly Stevens, Vice President of Community Impact with UWNNS.

Sisolak launches Climate Series 2022 talking with students about wildfires

By Freixys Casado
Published: Jul. 13, 2022 at 11:54 PM PDT

RENO, Nev. (KOLO) - Governor Steve Sisolak kicked off the Nevada Climate Series 2022 with a visit to a destructive fire site in Reno.

Guided by sixth-grader Tilli Allen, Gov. Sisolak got to tour the Pinehaven Fire burn scar. The 2020 wildfire destroyed and damaged multiple homes.

“It was my first fire that I ever had to evacuate for and it burned down five houses, and it was very traumatizing for a lot of my classmates and me,” said Allen.

Although it was later determined to have been caused by power lines, Allen created the Caughlin Ranch Climate Action Collective to write 150 letters to Congress. She even spoke to the Nevada State Legislature, urging leaders to take action against climate change.

“There are a thousand ways to that,” said the student organizer during her speech. “Planting trees, paving only as much road as we need to, not any more than that.”

“When I heard about the climate club that Tilli and her friends put together, it’s absolutely remarkable,” said Gov. Sisolak. “They noticed certain things like the ski season has gotten shorter because of the climate change, and they see the trash in the ditch and they can’t go in the Truckee River without seeing Mountain Dew cans and the Red Bull cans and that’s a problem.”

After the site visit, the Governor met with more members of the club and heard stories from them about their goals to help educate and protect the environment.

Towards the end of the roundtable, Gov. Sisolak gave each student a certificate for their work. He then talked about his climate series, which is meant to raise awareness about the impact of wildfires.

“We’re going to focus on several areas that relate to climate,” said Gov. Sisolak. “Water quality, the drought that we’re facing, we’re gonna talk about air quality.”

The series includes a preparation and resource guide for those in areas at high risk for wildfire. Topics range from how to harden your home to how to create defensible space.

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Five Things to Know About Drought in the American West

A new climate is re-writing the story of America's drylands.

The largest saline lake in the western hemisphere, the Great Salt Lake dropped to a record low in 2022 as a result of a hot drought that increased evaporation and decreased water flows. Photo © Brett Walton/Circle of Blue

By Brett Walton, Circle of Blue – July 14, 2022

Harsh and unrelenting. But also transformative?

The dry conditions blanketing much of the American West are setting records nearly every week. Lakes Mead and Powell, the country's largest reservoirs by capacity, dropped to new lows this year. The Great Salt Lake did, too. This spring, New Mexico endured its largest ever wildfire. Even with those distinctions, more are likely on the way. The hottest months of the year are still to come.

Shortened time frames are now the norm. Water cuts that were once nearly unthinkable even in the long term in the Colorado River basin are now being implemented in a matter of months, not years or decades. Still, some see opportunity in calamity, a chance to reposition the region for trials to come.

"While the situation is objectively bleak, it is not in my view unsolvable," John Entsminger, the general manager of the Southern Nevada Water Authority, told a Senate panel on June 14. Basin officials are steeling themselves for short, intense negotiations.

It amounts to a season of potentially long-lasting change for some of the country's fastest-growing states and biggest economies.

Here are five things to know about how the drought is re-writing the story of America's drylands.

1) It's a Hot Drought

The drought is not just a failure of precipitation. Rising temperatures due to global warming are also depleting the region's rivers.

The mechanisms are easy to understand. Extreme heat bakes the land surface. Warmer, drier air holds more water. Parched soils then gobble rain and melting snow before the water reaches rivers and reservoirs. A thirsty atmosphere evaporates or sublimates its share. Together, they are a powerful one-two punch.

With increasing temperatures, "we're seeing places that do have drought, the intensification is more rapid," says Roger Pulwarty, a senior scientist in the physical sciences laboratory at the National Oceanic and Atmospheric Administration.

The Colorado River basin illustrates the impacts of a hot drought. According to the Colorado Basin River Forecast Center, precipitation in the watershed above Lake Powell since October was 94 percent of the 30-year average. In other words, just a tick below normal. Snowpack peaked at 83 percent of average. Yet only a fraction of that water made it into Lake Powell. Runoff into the lake this summer is just 56 percent of average. A hot drought is a stealthy thief.

2) Drought Has a Long Reach

When water stops flowing, difficult days are ahead.

Forests become tinder boxes, a spark removed from calamity. Already there have been massive disruptions. U.S. Forest Service staff lost control of a prescribed burn in Santa Fe National Forest in April, resulting in the 341,000-acre Hermits Peak-Calf Canyon fire, the largest wildfire on record in New Mexico.

"Drought, extreme weather, wind conditions and unpredictable weather changes are challenging our ability to use prescribed fire as a tool to combat destructive fires," wrote Randy Moore, the chief of the U.S. Forest Service, in an incident assessment.

Boats crowd a marina in the shrinking Lake Powell. Photo © J. Carl Ganter/Circle of Blue

Hydropower is weakened. With less water in reservoirs, generators crank out fewer megawatt-hours, raising the cost of electricity and increasing the risk of summer blackouts. In California last year, hydropower generation was nearly half the 10-year average. This year, Glen Canyon Dam is operating at just 60 percent of its maximum electrical generating capacity due to the drying of Lake Powell.

There are human health consequences when lakes are depleted. Earlier this month, the Great Salt Lake dropped to its lowest point since record-keeping began in 1847. Receding shores expose more lakebed salts and dust, which become a respiratory hazard during windstorms — and can hasten snowmelt in the mountains.

Ecosystems — and the birds and fish that depend on them — are also under stress. Utah regulators have identified high numbers of toxin-producing algae in the southern reaches of Utah Lake, a water body notorious for summer algae outbreaks. In California, sampling carried out in June by the Environmental Protection Department of the Big Valley Band of Pomo Indians revealed algal toxins in Clear Lake that were higher than state advisory levels. These hazardous outbreaks typically worsen deeper in the summer.

3) Cutbacks Are Inevitable

When supply ebbs and reservoirs are near record lows, authorities have one durable tactic: reduce demand.

In fits and starts, that is happening. California regulators passed an emergency order in June that took small steps to address the supply-demand imbalance. The order prohibits businesses, industries, schools, churches, and other institutions from watering "non-functional" grass with potable water. What's non-functional? Grass that covers median strips and office parks.

Cities and farms that are customers of the two major canals in California — one state and one federal — already had their allocations substantially reduced as a result of below-average reservoirs. With less water, irrigators will fallow more land.

The largest cuts, however, will be in the Colorado River basin. Camille Touton, the commissioner of the Bureau of Reclamation, said in June that the states would have to reduce their draw on the river by two million to four million acre-feet in the next year.

Entsminger of the Southern Nevada Water Authority called the proposed cuts "a degree of demand management previously considered unattainable."

Their plan is due next month.

4) Drought Is Political

The right to use water in the western states is subject to arcane laws, court decrees, and precedents, some of which date to the era of colonial settlement.

Persistently dry conditions and a reckoning with historical inequities are forcing residents and lawmakers to reassess the established way of doing business.

In June, the Nevada Supreme Court upheld a groundwater management plan for Diamond Valley irrigators that abandons long-held principles of state water law, such as the priority system that privileges senior water rights and "use it or lose it" requirements.

Activists in Arizona are gathering signatures to put groundwater regulation on the ballot. Their citizen's initiative would ask voters to approve two Active Management Areas in Cochise and Graham counties, places where big farming operations have dried up shallow wells and caused the ground to fracture, damaging highways.

"Dams Not Trains" billboards dot the highways of California's Central Valley, a plea by the region's biggest farmers for legislators to redirect their spending preferences. At the same time, a budget proposal in the California Legislature would direct $1.5 billion to buy senior water rights from farmers in order to keep more water in rivers.

A relatively recent development is the political muscle of the region's Indian tribes. Acting as dealmakers, tribes have emerged as key players in water supply negotiations, particularly in Arizona, where the Gila River Indian Community has leased water to cities and pledged to conserve 129,000 acre-feet this year to boost water levels in Lake Mead.

5) Drought Is Probably the Wrong Word

To some researchers and advocates, we shouldn't even be calling this a drought.

Drought, they say, implies a temporary condition, a deviation from normal.

But what is happening in the Colorado River basin and other western regions is a shift toward a drier climate.

Even though precipitation in this two-decade period is anomalously and historically low, climate modeling suggests that the region is not going to snap back to the wetter periods of a generation ago.

To describe this new era, they prefer a different term: aridification. Clunky, perhaps. But more accurate.

A collective of respected Colorado River scholars argued in a 2018 paper that language change was necessary and could possibly induce behavioral change on the scale required to meet the challenge.

"A very modest starting point," they wrote, "is to admit words such as drought and normal no longer serve us well, as we are no longer in a waiting game; we are now in a period that demands continued, decisive action on many fronts."

Brett Walton

Brett writes about agriculture, energy, infrastructure, and the politics and economics of water in the United States. He also writes the Federal Water Tap, Circle of Blue's weekly digest of U.S. government water news. He is the winner of two Society of Environmental Journalists reporting awards, one of the top honors in American environmental journalism: first place for explanatory reporting for a series on septic system pollution in the United States(2016) and third place for beat reporting in a small market (2014). He received the Sierra Club's Distinguished Service Award in 2018. Brett lives in Seattle, where he hikes the mountains and bakes pies. Contact Brett Walton

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New Irrigation Scheduler Saves Water

New Irrigation Scheduling Tool Can Save Water, Boost Profits

7/14/2022 | 7:23 AM CDT

Portable field sensors measure atmospheric aridity as part of a new irrigation scheduling algorithm under evaluation by the University of Nebraska-Lincoln. The Supply-Demand Dynamic algorithm combines soil moisture levels, evapotranspiration estimates and plant-physiology models to improve irrigation application decision making. (Photo courtesy of University of Nebraska-Lincoln)

By Dan Crummett, Progressive Farmer Contributor

COYLE, Okla. (DTN) -- Researchers from two Midwest universities are developing and testing an irrigation scheduling algorithm incorporating a three-prong approach to improve water-use efficiency.

"Traditionally, the need to irrigate has been determined by measuring water availability in the soil and estimates of moisture being pulled through the plant by evapotranspiration -- a function of atmospheric aridity, solar radiation and wind," said Trenton Franz, a University of Nebraska-Lincoln (UNL) associate professor of hydrogeophysics, a co-developer of the algorithm, along with Kaiyu Guan and his colleagues at the University of Illinois.

"Because understanding plant-water relations is a prerequisite for sustainable irrigation water use, we also included a 'plant-centric' variable to the algorithm based on plant hydraulics and stomatal response to moisture deficits and atmospheric aridity," Franz continued.

By monitoring corn plants under water stress the last two years, researchers were able to estimate when stomata in the leaves began to limit in-plant moisture movement and intake of CO2 (a vital building block for photosynthesis) at given atmospheric vapor pressure deficits (VPD) to signal the need for irrigation applications. The study showed stomatal water-conservation response had little correlation to soil moisture levels but was dominated by VPD.

"The innovation of the initial study was to apply the relationship between soil moisture, atmospheric aridity and the corn plant's subsequent response," Franz explained. "We found the proposed method provided a large improvement over existing soil moisture-only irrigation metrics, and thus could have significant contributions to sustainable irrigation practices."

The study found the algorithm-guided irrigation scheduling could reduce water use by 24% while maintaining crop yields and increasing profits by 11.2%.

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TESTING CONTINUES

The algorithm, called Supply-Demand Dynamics (SDD), is being tested this year at two locations in Nebraska using data from Nebraska's Eastern Nebraska Research, Extension and Education Center near Mead and West Central Research and Extension Center near North Platte to calibrate the model tested at other sites.

Versions of SDD are also being evaluated as part of the UNLTAPS (University of Nebraska Testing Ag Performance Solutions) at North Platte. There, teams of researchers, growers, students and industry representatives test commercially available technology and data to compete with one another in blind-test research studies at one location to determine the best yields, the most efficient use of inputs, and the most profits.

Daran Rudnick, a UNL associate professor and irrigation management specialist, said statewide experiments with the system in 2021 with ongoing trials this growing season have simulated 20 years of experience. Tests have shown promising results, according to Rudnick.

"We were very pleased to get the algorithm included in TAPS because it helps build grower confidence in the tools we're trying to develop to improve water-use efficiency here in Nebraska, as well as for growers in the U.S. and around the world," Rudnick added. "The TAPS results illustrate head-to-head comparisons against other available scheduling methods to show the algorithm's utility."

In 2021 TAPS results, one version of the SDD algorithm saved irrigation water use in corn by 14.2% but showed a 4.7-bushel-per-acre yield penalty. A more conservative model saved 5.1% applied water, boosted yields by 1.9%, and showed a 4.8% increase in overall profits.

"For years, growers have used 'supply side' moisture sensors and tensiometers to monitor available moisture in the root zone," Franz said. "Also, they've used remote sensors to measure field temperatures, solar radiation levels and windspeed to assess evapotranspiration water demand.

"Using both supply and demand measurements and making decisions based on the two systems can be fairly complicated," he continued. "This algorithm combines both water supply and demand measurements simultaneously, along with plant-centric responses to water stress, in a single simple-to-use tool to better manage irrigation application decisions."

CLIMATE CHALLENGES

Franz said boosting water productivity and irrigation efficiency is of prime importance in Nebraska, where 90% of the state's agricultural water use is attributed to irrigation. The technology can reduce water consumption in crop production, which is vital across the U.S. and the world.

"Achieving greater water efficiency has growing importance in the face of global climate challenges, and if our follow-up testing confirms the easy-to-use algorithm's practical use, the technology could drive improved water efficiency among the 85% of growers who don't currently use soil moisture sensors," Franz said.

Studies show growers not using moisture probes cited the cost and operational disruptions associated with installing and servicing monitors throughout the growing season as major impediments to their acceptance.

"It's the 85% of irrigators who aren't too interested in using soil moisture probes who can really make a big difference," Franz explained. "While good probe management and irrigation scheduling might save 4 inches of water, this algorithm might save 1 to 3 inches but over a wider number of growers who are may be willing to adopt it."

The tool has been licensed to HabiTerre, a North Dakota data-management firm specializing in optimizing land, water and carbon resources for agriculture.

Nick Reinke, HabiTerre CEO, said his company sees potential in working with major irrigation equipment suppliers to include the algorithm in their irrigation software portfolios rather than developing a stand-alone product that would work outside proprietary water-use-efficiency products.

TMWA: Community well prepared for drought

By Ed Pearce

Published: Jul. 14, 2022 at 5:19 PM PDT

RENO, Nev. (KOLO) -The western US is gripped in a sustained drought. Images of nearly empty reservoirs and word of severe cutbacks in water service elsewhere. are common and concerning.

But ow worried should we be? Look around. Things don't seem alarming. Big and deep, Lake Tahoe hides drought well and the Truckee, our main source of water, is still flowing. It may look a little different later this summer, but there's no expectation it will run dry.

And among longtime residents and those who manage our water supply, there's no sign of panic. We live in the desert. Drought is a frequent part of our lives. We've been here before.

"We're always in it," says Andy Gebhardt of the Truckee Meadows Water Authority. "That's"how I would put it. When people come in and say 'how come you're not doing conservation.' We are. We're always doing conservation. We've been doing it for 40 years and we're going to continue to do it."

And so, Gebhardt says, we're well prepared for years like this. Wet or dry, we follow a long-established routine.

A drought amidst the building boom of the 1980's led to scheduled watering days, twice a week at first. "A lot of them were already watering three days a week. So when we went to three days a week in fact water usage went down because people thought 'Oh, I only have two days a week to water, I'd better flood irrigate.'"

Finally, after years of debate and some controversy, in 2014, water meters, which had long been required in new developments, were made mandatory everywhere.

"And what it did is it really helped people understand what they'd been using If you're just paying a flat rate there's no incentive to fix your leaks."

Those habits and routines are by now well established and, Gebhardt says, the reason we can face our droughts with confidence. We can do this.

"The community is already aware that water is a precious commodity. It's a precious resource. We should do what we can to conserve it, to only use what you need. So we feel pretty good about that and if we continue to do that, I feel really comfortable."

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WATER ONLINE

From The Editor | July 15, 2022

Water Utilities vs. Climate Change: A Plan For Securing Our Future

By Kevin Westerling,
@KevinOnWater

A Q&A with Dr. Stephanie A. Smith

Dr. Stephanie A. Smith

The U.N.'s Intergovern-mental Panel on Climate Change (IPCC) is widely considered to be the world's foremost authority on what may be humankind's most existential threat, and this year The Working Group II of the IPCC released its Sixth Assessment Report on the state of the crisis. It reviewed not only the impacts of climate change throughout ecosystems and communities, but also the "capacities and limits of the natural world and human societies to adapt."

It is that ability to adapt — to understand what we in the water industry can do to effect change and protect our future — that drew me to a conversation with Dr. Stephanie A. Smith, an experienced manager, scientist, and entrepreneur whose professional training in microbiology and biochemistry has been the foundation for a career that has spanned academia, contract research, and industry. With the IPCC's report serving as the backdrop, Dr. Smith, who earned her doctorate in microbiology from The Ohio State University and currently serves as product segment manager for Laboratory Sciences at Xylem, speaks to the urgency of the situation, the points of impact to consider, the role of utilities, and why investing in sustainable infrastructure now is the key to ensuring a resilient and equitable supply of clean water for every household moving forward.

The IPCC recently came out with a summary for policymakers, *Climate Change 2022: Impacts, Adaptation and Vulnerability*.[1] What is the significance of the report?

There's a sense of urgency that makes this report so significant — a report, I would argue, that is the most inclusive and unbiased assessment of climate change that is obtainable today. Over 230 scientists from 65 countries reviewed over 14,000 scientific publications for this sixth assessment report (AR6, as it is called). They have concluded that not only have we run out of time to restore the climate to its preindustrial-revolution state, but also the effects will be felt for centuries or millennia, even if all carbon emissions stopped today. The IPCC had actually concluded that in the prior report (AR5) in 2013, but the AR6 report shows some trends happening faster than predicted in 2013. This pace, if not slowed, will have catastrophic effects for a child you probably know today.

Yet, just as significant is the conclusion that if we take decisive action now, there is still time to prevent the existential threats that models predict.

Are utilities proactively addressing climate change in ways that the report endorses? Do you think the threat is being treated with adequate urgency?

First, what does the report endorse? The IPCC identifies "adaptation options" that include water use efficiency, water resource management, and sustainable management of urban water (which includes, for instance, stormwater management).

Utilities quite naturally strive for operational efficiencies that align with these adaptation options. For instance, some have rate structures that incentivize consumers to use less water at certain times of the day or year. This makes it easier for the utility to predict usage and manage the source with less waste and less energy expenditure. Less energy expenditure will further translate to a reduced carbon footprint.

However, you will rarely hear "climate change" cited directly as a motivation. Rather, these programs are a practical, financial, and political necessity. The targets set by utilities thus fall short of the targets required to reach sustainable development goals outlined in the IPCC report.

Utilities are directly or indirectly an extension of governments, and the climate threat is not met with sufficient urgency by the world's governments. Governments simply don't move fast enough. Thus, most utilities are not proactive on climate change adaptation — yet.

What steps need to be taken to understand risk and begin down the path to resiliency?

As illuminating as the IPCC report is, it can be difficult to distill its findings down to a program for an individual utility, because any such program must be rooted in local risks. So where does one begin?

Start with a trade organization and/or regional consortium where you can engage with industry professionals, citizen scientists, and consumers who have the collective power to gather data, assess risk, and educate. Every water professional should belong to one or more of these groups. This is the invaluable layer between policymakers and individual operators — it's where work gets done at the intersection of operations and policy.

Ask organizational leaders to provide more climate change programs. Better yet, become one of those leaders! Participate in generating data-based risk assessments that the entire community can use — most of our trade groups already have risk assessments you can start with.

The credibility of reports from a trade organization can give utilities the backing to approach both government sponsors and customers with recommendations that will conserve water resources and contribute to infrastructure resilience.

Funding is always a key component to infrastructure improvements. How would you counsel the utility or municipality that claims future proofing is too expensive?

First, it's a mistake to view climate change preparation as future proofing. Climate change impacts are already here — weather events, stormwater management, combined sewer overflows (CSOs), dangerously depleted reservoirs, and increased risks of contamination. It's a lot easier to seek funding to solve a problem you have now, rather than a problem in the future, even if that future is highly certain.

Thus, frame climate-related proposals by looking backward, instead of trying to convince sponsors that a problem is looming but not quite here yet. Clarify that these are no longer isolated events, but likely the "new normal." How much are CSOs costing not just your utility but your city, in the most recent events? What would be the return on investment on an upgrade in some component of the system, when weighed against those costs? Look not only at financial, but also human — and therefore political — impacts.

Is it only certain areas at risk — e.g., water scarcity in the U.S. West — or do climate impacts run broader and deeper? Please explain.

One of the challenges of the climate impact message is that most people associate it with big events, like wildfires in the West, hurricanes in the Southeastern U.S., and "superstorms" in the Northeast.

But we are *all* experiencing climate-related effects, and there is a direct link between climate change and some of the most insidious problems faced by water resource and utility managers, such as:

- Harmful algal blooms.
- Erosion and sedimentation.
- Stormwater (and all the problems it brings, like CSOs).

This short list of interrelated issues brings with it a whole host of additional issues. Erosion and sedimentation, for example, facilitate the introduction and transport of contaminants like coliform bacteria and heavy metals from industrial pollution.

Such impacts disproportionately affect the most vulnerable and underrepresented populations. One needs to look no further than the dangerous lead and bacterial exposures of Black families in Flint, MI, from 2014-15 as evidence of what is sometimes termed "environmental injustice."

Thus, in addition to engaging with trade organizations, water resource managers need to understand their communities at home and make sure that the entire population they serve will be considered when decisions are made.

How can cities and utilities plan for climate change without knowing exactly how their region will be affected?

One doesn't need to be very exact. A manager likely already has clues as to how their service will be affected. That's because, as mentioned above, climate change is a now problem, not a future problem.

I would advise utilities look at their top three challenges today, and simply evaluate if those problems are likely to get bigger, smaller, or stay the same as climate change marches on. Did you have a threatening storm event in the last 10 years? Do you think that is more likely or less likely to happen, based on climate models? How will that affect your operation and stakeholders if it happens every five years?

How does climate change impact "upstream" facilities and services you depend upon? This is an often-overlooked part of planning. COVID-19 has given us a bit of primer on this. I don't think any of us foresaw the effects of a compromised supply chain, for instance. Those logistical networks are an example of something that likely will be affected by climate change, too. How will this affect you and your customers?

What is needed to get to the root of the problem?

It cannot be said enough: we must reduce carbon emissions. Please identify every opportunity your utility has to do so. The good news is that virtually every municipality has built-in financial incentives to reduce energy consumption and fix leaks, which are one of the biggest contributors to waste. Less waste will translate into less energy use, which reduces emissions.

A lot of the technology we need is already available. Wind, solar, and other alternative energies are becoming more affordable, and many utilities are using hybrid or electric vehicles. But there is always more that can be done on the technology front, and utility and academic collaborators must not only drive the next generation of solutions, but also figure out how to make solutions affordable and widely accessible.

Regarding regulations, we of course need climate-aware policies and incentives, and it's likely we'll see more unpopular actions like increased rates for water usage. However, I part ways a bit with many other professionals who are promoting new regulations to address climate change.

That's because a lot of the regulations we need are already in place. The real challenge is threefold: lack of enforcement, carte blanche exemptions for powerful companies and industries, and the ever-increasing demand for resources due to massive population growth. Why have more regulations if you can't put any teeth behind them, or even assure that they are consistently applied?

Are there any examples you can point to of who is getting it right?

There is collective action being taken by water professionals in some regions, and I think the entire world will benefit from what is learned and invented in those cases. My favorite example is the "Net Zero Routemap"[2] produced by Water UK. They have laid out a comprehensive, aggressive plan for reaching net-zero carbon emissions by 2030, 20 years ahead of the commitment of the governments of the U.K. The published report is a primer for the types of actions that can be taken. I encourage all water professionals to take a look at it.

The One Water initiative of the US Water Alliance has a Net Zero Plus[3] report that sets targets for 2050, so it is not as aggressive as Water UK's approach. In spite of this, something the US Water Alliance is doing very well is promotion of equitable policies and practices, which is a cornerstone of their approach. Their Imagination Challenge is a great program to get the generation that will deal with the consequences involved in finding technology solutions for climate change. The Imagination Challenge is also an opportunity for water utilities to collaborate and participate!

Finally, I commend some specific regions like Southern California, where water restrictions are being enforced in the face of water scarcity. While such programs and their implementation surely have room for improvement, what I admire is the boldness of the action itself, in the face of enormous political backlash. How these programs play out in cities like San Diego is something that all utilities need to pay attention to.

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USA TODAY

NEWS

Across the US, towns warn of toxic PFAS chemicals in drinking water. Here's what to know.

In June the EPA released health advisories for chemicals PFOS and PFOA, which have been linked to cancer and other ailments, leaving many Americans to wonder if they're in danger.

Kyle Bagenstose
USA TODAY

Published 6:00 a.m. ET July 16, 2022 | **Updated 9:25 a.m. ET July 18, 2022**

The U.S. Environmental Protection Agency in June issued nationwide health advisories for four PFAS chemicals commonly found in drinking water. Short for per- and polyfluoroalkyl substances, the quartet are part of a larger class sometimes referred to as “forever chemicals,” due to their strength and failure to degrade in the environment.

The EPA's new advisories startled many observers because the safety levels for two of the chemicals -- perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) -- are extremely low. Thousands of drinking water utilities across the country likely have PFOA or PFOS in their system above the EPA's new advisories. Studies have linked the chemicals to serious health effects like cancer, low birthweight babies and immune system effects.

In the wake of EPA's action, cities such as Mobile, Alabama, sent notices to their customers confirming the presence of PFAS in drinking water and alarming many residents.

If you're concerned about PFAS in your drinking water, here's what to know:

How dangerous are PFAS?

There are thousands of PFAS chemicals, hundreds of which are used in the U.S. for things like nonstick coatings and waterproofing in products such as kitchenware, clothing, furniture and food packaging.

The chemical industry argues that it has phased out the varieties of PFAS known to be hazardous, such as PFOS and PFOA, and replaced them with safer alternatives. But environmental groups and some scientists say the common characteristics of PFAS make them all dangerous.

More: What are PFAS? A guide to understanding chemicals behind nonstick pans, cancer fears

The potentially toxic effects of most PFAS chemicals have not received robust research. But large studies have found links between PFOA and PFOS and a variety of health effects, including high cholesterol, ulcerative colitis, thyroid disease, testicular cancer, kidney cancer and pregnancy-induced hypertension. Many researchers also worry about reproductive and developmental harms, such as low birth weight and decreased immune response.

Exactly how much PFOA or PFOS it takes to harm someone is unknown. PFAS chemicals do not cause sudden illnesses like a poison would. Instead, they accumulate in the body over time, where scientists say they can begin to impact systems. The EPA says its new advisories are designed to protect even pregnant women, young children, and the elderly over a lifetime of constant exposure.

“This means that these advisory levels are very conservative, or protective, of your health,” the EPA told USA TODAY in an email.

How do I know if I or my family are in danger?

Scientists say there is little anyone can do to assess individual risk. In highly contaminated communities, people have had blood tests to determine how much PFAS they've been exposed to, which can then be compared with national averages. But blood tests are expensive, can be difficult to obtain, and will not definitively tell someone what danger they face, health experts say.

Instead, many scientists assess the potential health impacts of PFAS at a population-level. Most recently, researchers estimated that exposure to some PFAS may have played a role in about 6.5 million deaths in the U.S. from 1999-2018, primarily those caused by cancer and heart disease. Annually, that's about the same mortality rate as COVID-19.

More: Do you know what's in your blood? New EPA docs show widespread risk from common chemicals

But virtually all Americans have some level of PFAS in their bodies, and the blood levels of the most problematic chemicals, PFOS and PFOA, have declined ever since an industrywide phaseout over the past two decades. In one way, that means the EPA advisories for PFOS and PFOA are part of an effort to further drive down a risk that has already been decreasing for many Americans.

How do I know if PFAS is in my drinking water?

At present, there is no national rule to test for PFAS in public drinking water, and many water utilities do not. Some, like Mobile, have tested and notified the public even when PFOA and PFOS are found in small amounts, just above the level that can be detected by advanced equipment.

Other states have tested water utilities across their jurisdiction. A Chicago Tribune investigation published this week reviewed state data that showed PFAS in water utilities across the state, with at least one PFAS chemical detected in water supplies collectively serving 8 million people, about 62% of the state's population.

Private testing in North Carolina has found PFOA and PFOS in the water sources for dozens of utilities across the state. Officials in Raleigh, Durham and Chapel Hill confirmed the presence of the chemicals above the EPA's new advisories, adding that they are studying the problem, the Raleigh News & Observer reports.

While the EPA is planning on sampling thousands of water authorities across the country for PFAS in the years ahead, there is no official, central database where the public can check every system.

Residents can inquire with their water supplier or state environmental agency about whether testing has been performed on their system. The Environmental Working Group, a national environmental nonprofit that advocates for strict limits on PFAS, maintains a map of all known locations where PFAS have been found in drinking water.

The American Water Works Association, a nonprofit representing water utilities nationwide, told USA TODAY its members “want to make the right decisions to quickly and efficiently reduce potential exposure to PFAS through water and protect their communities.”

But the association said members questioned the “scientific underpinnings” of the new advisories and the timing of their release and worry they create pressure for water utilities to make the “wrong investments.” They also want regulators to do more to find PFAS polluters and halt the contamination of water sources.

Regardless, the group said it is urging transparency among members.

“We encourage our members to speak openly and honestly with their communities about PFAS, discussing both what they know and do not know," said Steve Via, director of federal relations for the association. “Although there’s a great deal of uncertainty out there, the act of having that conversation can be helpful in strengthening public trust.”

What is being done about this?

The EPA's new advisories are not formal regulations. The agency says it plans to announce draft regulations this fall, which, if approved, would then likely take effect in coming years.

Until then, action will continue to vary from community to community and state to state. In some places, such as highly contaminated towns in southeast Pennsylvania, officials adopted “zero tolerance” plans in which they installed carbon filtration systems to remove PFAS entirely from drinking water. But such plans can cost tens of millions of dollars for a typical water utility to implement.

Other cities have adopted a wait and see approach, reluctant to make such investments before seeing what the EPA's regulations might be.

Individuals can install filters in their homes, which can protect an entire house or can go under the kitchen sink to remove most PFAS from ater used to cook and drink Scientists sa PFAS do not readil pass through the skin making showering and bathing safe.

The Environmental Working Group says individuals can also lower their exposure to PFAS by purchasing commercial products that are PFAS-free.

The EPA offers a guide on reducing exposure to PFAS and recommends that those with concerns or questions about PFAS in commercial products contact the Consumer Product Safety Commission. The agency also promotes its own Q&A page around the new health advisories and says it has released the first $1 billion of $5 billion in funding to help water utilities address PFAS contamination.

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reno gazette journal

NEWS

Declines in Lake Tahoe's clarity have been halted; scientists ponder what's next

Amy Alonzo
Reno Gazette Journal

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Declines in Lake Tahoe's overall clarity have largely plateaued, according to recent measurements.

And that's a win, for some Tahoe scientists.

"I'm cautiously optimistic," said Alan Heyvaert, associate research professor at Reno's Desert Research Institute. "The fact that we arrested the decline in clarity – that's amazing that we've done that."

But work to restore the lake's clarity to levels not seen in more than 50 years is moving slowly.

Measurements show two diverging trends: Summer clarity continues to decline at just under 7.5 inches per year, while winter clarity is generally holding steady.

Last year, average clarity in the lake measured just 61 feet, according studies by the University of California, Davis Tahoe Environmental Research Center and the Tahoe Science Advisory Council. The number marks a drastic decrease in clarity from when levels first were measured in 1968, when average clarity was 102.4 feet.

It has Tahoe scientists scratching their heads at what the next steps are to reverse decades of declining clarity.

More development, more runoff

Fine particles and tiny algae are responsible for up to 70 percent of the loss of clarity in Tahoe.

The particles come from a variety of sources including road runoff, atmospheric dust and wildfire smoke deposits.

"They (fine particles) are so small they don't actually sink very fast. They can stay suspended in the water column for a long time, and that's what causes the decline in clarity," according to Joanna Blaszczak, assistant professor at the University of Nevada, Reno.

The decline in Tahoe's clarity dates back to a 1960s building boom in the basin.

In 1960, the first-ever-televised winter Olympics were held at Palisades Tahoe – then known as Squaw Valley – on the north shore of the lake. That same year, developers on the east shore subdivided a parcel in the new town of Incline Village into 1,700 lots. By 1968, more than 3,000 houses had been built in Incline Village.

In 1961, Homewood Ski Area on the west shore was developed. Heavenly Valley, which opened in 1955, expanded its resort into Nevada in 1968.

And for years, Tahoe's wastewater was channeled into the lake.

The mantra during the 1950s and '60s was "dilution is the solution to pollution," according to Heyvaert.

But people started to notice impacts on the lake, and by the mid-1970s, wastewater treatment facilities had been constructed in the basin.

"Without that, we wouldn't even be talking about restoring the lake at this point," Heyvaert said. "That prevented a catastrophe."

As steps were taken to limit wastewater impacts on Tahoe, population continued to grow around the lake.

Between 1960 and 1980, Tahoe's population grew from 10,000 people to 50,000. Now, in addition to a growing year-round Tahoe community, about 15 million people visit the lake annually.The increases in development and population led to more urban pollution and runoff. It became clear by the 1990s that more concerted efforts were needed, Heyvaert said.

A long road to recovery

In 2011, a plan requiring local governments and highway departments to limit clarity-harming pollutants that wash into the lake was implemented. The goal: Restore Tahoe's clarity to 97.4 feet, a level that hasn't been seen since 1970.

But the lake is slow to change, Hayvaert said. It hasn't recovered from a deluge of fine particles that flowed into it during heavy storms and floods in 2017.

That year marked the worst clarity ever recorded at Tahoe. The average annual clarity level in 2017 was 59.7 feet, a 9.5-foot decrease from 2016. Prior to that, the worst clarity was measured in 1997, also a flood year, when visibility was only 64.1 feet.

Fine particles in the streams that feed Tahoe increased four-fold in 2017 and have remained elevated since then, despite less water flowing into Tahoe with drought conditions.

"It's like a battleship instead of speedboat. It doesn't change direction quickly," Heyvaert said of Lake Tahoe.

The elevation in fine particles despite less runoff is counter to what scientists think should be happening, according to University of Nevada, Reno associate professor Sudeep Chandra. With less water flowing into the lake, less particles should be transported into it, leading to some improvements in clarity.

Despite the mystery of why summer clarity is still decreasing, Heyvaert thinks the glass is half full.

"The jury is still out on whether we are on pace to hit the clarity target in 2076, but there is progress in simply having arrested the long-term decline in lake clarity at this point," he said. "Now we have a more difficult job of ultimately restoring the clarity to historic conditions, which means reversing that trend."

Amy Alonzo covers the outdoors, recreation and environment for Nevada and Lake Tahoe. Reach her at aalonzo@gannett.com. Here's how you can support ongoing coverage and local journalism.

NJ NATIONAL JOURNAL

California burning: How wildfires are threatening the West's water

Drought is already imperiling water supply in the West. More wildfires could spoil the water that's still around.

A finger of the Stampede Reservoir near the Ladybug forest project site in Tahoe National Forest

Brian Dabbs
July 20, 2022, 6:22 p.m.

TAHOE NATIONAL FOREST, Calif.—In 1960, the Donner Ridge Fire ripped through roughly 44,000 acres in the Tahoe National Forest.

Sparked inadvertently by a crew building the 80 interstate, the fire scorched the earth north of Truckee, California and all the way to the Nevada border just months after the Winter Olympics at nearby Squaw Valley.

Then the Forest Service—using a program that leverages philanthropic funds (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5280793.pdf)—embarked on a major reforestation project to plant millions of lost trees.

More than 70 years later, large swathes of the area are perilously overstocked with highly flammable, densely packed Jeffrey pines and sagebrush. Local experts say the reforested area has grown out of control, creating an environment where wildfires could sweep through the region and threaten lives, homes, and businesses.

And a local water utility is also sounding the alarm, arguing that a wildfire there, below the towering Sierra peaks that store water in snowpack, poses real risks for water supply and quality. The Truckee Meadows Water Authority is helping to foot the bill for a forest-thinning project called Ladybug (https://www.fs.usda.gov/project/?project=55750) in the reforested area just east of Stampede Reservoir, where the utility stores water.

"This is an example of a forest that's overgrown. There's a lot of underbrush and a lot of dead material that's low that would create fuel for fire," Stefanie Morris, the water-resources manager at TMWA, said on a hot, dry day in late June from the edge of the Ladybug project site.

Forestry crews and machines haven't arrived to cut down the trees to sell it to timber companies or biomass power plants (http://njour.nl/s/718229?unlock=BM387VJXO5SJNPJ3) or otherwise dispose of it. The project isn't expected to be complete until 2025.

"If there were to be a large fire on this downslope that runs into the reservoir and all this underbrush was burned, there would be a lot more sediment and organic material running into the reservoir" after rain returns in the fall and winter, Morris said.

California is battling an epic, decades-long drought, helping to create prime conditions for wildfire. This year is so far the driest in record books that date back to the 19th century, according (https://www.drought.gov/states/california) to the federal National Integrated Drought Information System. Four of the 20 largest fires (https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf) in California history took place last year.

Now, water utilities in the state—and across the Western U.S.—are increasingly offering up money to help implement forest-management projects that aim to mitigate the risk of catastrophic fire.

The fall and winter rains send deluges of sediment and debris through burned forests, which can no longer absorb the material, and into reservoirs like Stampede. That prompts water utilities to foot big filtration, treatment, and debris-removal costs that can be passed on to consumers. And the turbid water, even with extensive treatment, poses potential health risks.

"The chemistry of the water changes, not in a positive way, and they have to deal with that. That does have costs, operational costs, that require more chemicals to be able to use things to filtrate out the [sediment] and end up with a clean product," said Association of California Water Agencies Executive Director Dave Eggerton. "The reality is that's going to be largely cost that would be borne by their ratepayers."

A forest near Stampede Reservoir is less susceptible to fire after forestry crews recently stripped out dead wood and underbrush. BRIAN DABBS

The Truckee Meadows Water Authority, which services the Reno-Sparks area downstream on the Truckee River in neighboring Nevada, is contributing $500,000 for the Ladybug project over the next two years. The National Forest Foundation, a national nonprofit partner to the Forest Service chartered by Congress (https://www.congress.gov/101/statute/STATUTE-104/STATUTE-104-Pg2954.pdf) in 1990, is implementing the project with the help of the Forest Service and other groups.

"It's going to be much cheaper to be proactive about it than to clean it up," Morris said.

Some water experts say the health impacts of consuming heavily treated water are still unclear. In 2014, the King fire (https://www.fire.ca.gov/incidents/2014/9/13/king-fire/) torched 50,000 acres in one day and nearly 100,000 acres total in and around Eldorado National Forest southwest of Lake Tahoe. Andy Fecko, general manager of the Placer County Water Agency, said the utility ponied up $5 million in dredging on the Rubicon River system after the fire.

Still, the utility faced water-quality challenges. Fecko said the water had a foul odor and a "smokey," "earthy" taste to it.

"We don't think this water is detrimental to your health. But there isn't a lot of science on it, either," he said. "As far as we know, we're delivering clean water to people's homes. But there's a lot of uncertainty to that."

Fecko said the post-King fire dredging will have to continue on a long-term cycle.

For those fine materials that infiltrate water supply, treatment strategy involves disinfection with chlorine, chloramine, or other chemicals that can, through complex chemical reactions, create byproducts potentially hazardous to human health.

Since the late 1990s, the Environmental Protection Agency has regulated disinfection byproducts (https://www.epa.gov/dwreginfo/stage-1-and-stage-2-disinfectants-and-disinfection-byproducts-rules), including trihalomethanes and haloacetic acids. Both byproducts have been proven to cause cancer in laboratory tests on animals, meaning they're likely carcinogenic for humans.

A small group of academics have been diving into the wildfire connection to disinfection byproducts over recent months. David Hanigan, a professor at the University of Nevada, Reno, says some evidence shows the amount of disinfection byproducts increased following the 2021 Caldor fire (https://inciweb.nwcg.gov/incident/maps/7801/). And they appear to be sticking around longer than normal, he said.

"As long as the treatment facility stays below the EPA regulated guidelines, then they can still distribute that water. But my concern would be that they actually can't somewhere in the future," Hanigan said.

Hanigan is hoping the National Science Foundation sponsors more grant research on the connection.

"Everybody realizes now that, with wildfires over a million acres that are happening pretty much every year now, that we're going to have to learn more," he said. "There's not all that much information on the effects of drinking-water quality yet."

The EPA, according to spokesperson Tim Carroll, "is currently conducting analyses to further evaluate" the regulations on disinfection byproducts, including potential new rules for unregulated byproducts like chlorate and nitrosamines.

Throughout the West, water utilities are growing more and more active in wildfire prevention and response. The New Mexico state government warned residents (https://www.nmdhsem.org/2022/05/12/state-provides-additional-information-on-precautionary-water-advisories-for-public-water-systems-impacted-by-wildfires/) to not drink local water in the wake of the Hermits Peak/Calf Canyon Fire that's burned nearly 350,000 acres (https://inciweb.nwcg.gov/incident/8069/) since April. The fire is still active northwest of Albuquerque. And fires are vexing utilities in Colorado, which has endured a huge uptick (https://dfpc.colorado.gov/wildfire-information-center/historical-wildfire-information) in acres burned in recent years.

"It's going to be much cheaper to be proactive about it than to clean it up."

STEFANIE MORRIS, WATER RESOURCES MANAGER AT THE TRUCKEE MEADOWS WATER AUTHORITY

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The National Water Resources Association is spearheading a campaign to get more federal wildfire resources to utilities from Washington state to Texas. Christine Arbogast, the former president of the NWRA who still chairs the federal-affairs committee, said the wildfire threat to water supply and quality is growing.

"As we've seen fires become so commonplace and be any time of the calendar year, not just wildfire season, the constant threat to the water supply has risen in the priorities for the western water community," said Arbogast, speaking on the phone from Durango, Colorado, where she, as a water lobbyist representing the Ute Mountain and Southern Ute tribes, met with EPA Regional Administrator Kathleen Becker.

A federal appropriations bill (https://www.congress.gov/117/plaws/publ43/PLAW-117publ43.pdf) signed into law in September last year gave the Forest Service $700 million to recover from recent fires in national forests across the West.

In February, the Forest Service delivered $79 million to the Routt, White River, Arapaho, and Roosevelt national forests in Colorado after that region was hit by major fires in 2020. And just weeks ago, the Forest Service shut down roads in the Arapaho forest to aerially drop mulch (https://www.fs.usda.gov/detail/arp/news-events/?cid=FSEPRD1041951) on 8,000 burned acres to prevent runoff. The utility Northern Water participated in that operation.

Still, Arbogast said the federal government needs to put up much more money for post-fire recovery, along with fire-prevention projects like Ladybug in California.

"The [post-fire] mitigation piece needs work. It's crying out for work," she said. Arbogast also represents the city of Greeley, Colorado, which collaborated

(http://greeleygov.com/government/ceo/news-updates/greeley-works-to-mitigate-watershed-damage-

from-2020-fire-season) with other stakeholders to sanitize the water supply after the 2020 fires.

Meanwhile, the Forest Service included a long stretch of the Colorado front range, from south of Colorado Springs to the Wyoming border, in its first tranche (https://www.fs.usda.gov/sites/default/files/WCS-Initial-Landscape-Investments.pdf) of more than $3 billion in wildfire funding from the bipartisan infrastructure law passed last year. The forest-management projects there target 36,100 acres to the tune of $170 million.

~~On Wednesday~~, President Biden announced $2.3 billion for the Federal Emergency Management Agency to fund infrastructure that's resilient to extreme weather like drought and fire, along with pledges to expedite wind-energy projects that don't emit climate-change-causing greenhouse gasses.

"[Climate change] is literally, not figuratively, a clear and present danger," Biden said at a former coal-plant site in Massachusetts, before referencing the $145 billion price tag (https://www.climate.gov/news-features/blogs/beyond-data/2021-us-billion-dollar-weather-and-climate-disasters-historical) for weather-related damages in the U.S. last year.

"This is an emergency. And I will look at it that way," Biden said. The administration has so far resisted calls from lawmakers and activists to formally declare a climate emergency, a move that could deploy more federal resources to increase clean energy. Biden's remarks came in the wake of the collapse

(https://www.npr.org/2022/07/15/1111675233/manchin-rejects-climate-and-tax-provisions-in-democrats-spending-package)

last week of climate negotiations in a budget-reconciliation bill.

"Our irrigators should be interested in the sustainable amount of water we will have in our watershed long-term," Whittlesey said. "If they're thinking of planting an orchard for, you know, $30,000 an acre … that lasts 40 or 50 years, are they going to have water supply in year 20?"

"It's a really, really crude example. But they should be interested in our long-term ~~viability," he said,~~ sitting on a dead log on a beach at the New Bullards Reservoir just 20 miles away from where he grew up in Grass Valley. His two black Labradors swam in the reservoir with boats anchored in the distance.

After seeing the fallout from the King Fire in Placer County, Whittlesey said the decision to get involved in fire prevention was clear.

"We just looked to them and said, 'Oh my god, we don't want that.' So let's try and fix the prob~~lem before it happens," he said.~~

This is the third story in National Journal's *four-part series (/bp/718310/california-burning/), "California Burning," which (/s/718180/ccan-new-federal-funds-stifle-the-fires/?unlock=P6EN8NL4SX27MMUW) explores (/s/718229/california-burning-inside-the-quest-to-power-homesand-fight-wildfires/) the federal strategy to tackle wildfires ravaging the*

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Huge wildfire, drought package readied for House votes

By **Marc Heller, Jennifer Yachnin** | 07/21/2022 06:23 AM EDT

A hillside charred by the Electra Fire in California. The House next week is voting on a broad package of bills to address drought and wildfires. Spencer Platt/Getty Images

A package of 48 bills related to wildfire, forest management and drought will reach House floor in one giant measure next week as Democrats try to push through their version of how best to tackle the climate crisis on public lands.

The bill, called the "Wildfire Response and Drought Resiliency Act," H.R. 5118 (https://rules.house.gov/sites/democrats.rules.house.gov/files/BILLS-117HR5118RH-RCP117-57.pdf), would boost pay and benefits for wildland firefighters, help the Forest Service fill gaps in fire management staff and promote bigger forest management projects to reduce hazardous fuels — but without the exceptions from long environmental reviews that congressional Republicans say are necessary to make a difference.

The Rules Committee takes up the bill tomorrow, setting the parameters for floor debate and determining which amendments may be considered.

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Provisions in the bill are wide-ranging and touch on issues promoted by both Democrats and Republicans, albeit short of the more aggressive land management approaches Western GOP lawmakers have urged.

Among the bill's highlights are provisions from the "Tim Hart Wildland Firefighter Classification and Pay Parity Act," H.R. 5631 (https://www.congress.gov/117/bills/hr5631/BILLS-117hr5631ih.pdf), sponsored by Rep. Joe Neguse (D-Colo.), that would create a new job classification for wildland firefighters, waive premium pay limitations in certain circumstances and provide hazardous duty pay and seven consecutive days of mental health leave for firefighters.

Those provisions address a wide gap between the pay federal wildfire crews receive and what their counterparts in state agencies such as the California Department of Forestry and Fire Protection see and which the Biden administration has tried to address administratively — to a point (*Greenwire* (https://subscriber.politicopro.com/article/eenews/2022/06/21/wildland-firefighter-raises-arrive-this-summer-white-house-says-00040941), June 21).

The measure would provide $1.6 billion in authorized spending annually on firefighter salaries and expenses at the Forest Service and just shy of $2.4 billion annually for salaries and expenses for forest stewardship and management, beginning in the fiscal year beginning Oct. 1.

Forest management projects — mainly reducing hazardous fuels such as dead trees — are part of the bill, which would authorize $500 million annually for that purpose. The Department of Agriculture would select up to 20 large, landscape-scale restoration projects over five years.

But the bill also spells out that projects must adhere to NEPA reviews, be limited in scope and preserve mature and old-growth forests, as well as those that fall under roadless-area protections.

In addition to the wildfire and forest provisions, the bill would adopt dozens of measures aimed at the 22-year drought that has shrunk major river basins across the western United States, threatening water for agriculture and municipal users alike.

Funding for lakes, water management

Among the measures, the act would authorize up to $500 million to the Interior Department through fiscal 2026 to prevent Lake Powell and Lake Mead from "declining to critical low water elevations."

That amount exceeds the $300 million Interior previously received for voluntary reductions and increased conservation on the Colorado River in the bipartisan infrastructure deal.

Interior took "extraordinary actions" earlier this year to boost water levels at Lake Powell by 1 million acre-feet to ensure continued operations of its hydropower facilities (Greenwire (https://subscriber.politicopro.com/article/eenews/2022/05/03/interior-seeks-to-bolster-lake-powell-to-preserve-hydropower-00029651), May 3)

The package likewise includes legislation from New Mexico's delegation dubbed the "Aquabus" (*E&E Daily* (https://subscriber.politicopro.com/article/eenews/2022/05/19/bipartisan-group-floats-aquabus-to-aid-parched-west-00033622), May 9).

That includes H.R. 7792 (https://www.congress.gov/bill/117th-congress/house-bill/7792), the "Water Data Act," which would create a multi-agency initiative to track and standardize information on streamflows, precipitation, groundwater, soil moisture, snow, evaporation, water quality and water use by various sectors.

It would also establish a "National Water Data Framework" to "harmonize and align policies, programs, protocols, budgets, and funding programs."

"Water is life and communities across New Mexico and the West are facing the effects of a millennial drought and unprecedented wildfires," Rep. Melanie Stansbury (D-N.M.), the bill's sponsor, said in a statement to E&E News. "This package marks a historic moment in water management as we work to adapt to the effects of climate change."

The package likewise includes the Aquabus' H.R. 7793 (https://www.congress.gov/bill/117th-congress/house-bill/7793), the "Rio Grande Water Security Act," which aims to create an integrated water resource management plan for the West's third-largest river. That bill would also address funding for 18 New Mexico Pueblos along the Rio Grande whose water infrastructure is in significant need of upgrades.

The drought package also incorporates H.R. 6238 (https://www.congress.gov/bill/117th-congress/house-bill/6238/), Stansbury's "WaterSMART Access for Tribes Act," which aims to ease the ability of tribal nations to participate in the conservation program by waive or reducing cost-sharing requirements.

"This trio of bills will help Tribal communities unlock critical funding for water conservation and security, improve water management across the Rio Grande Basin, and revolutionize our Water Data systems. This legislation will provide tools to help our communities tackle our biggest water challenges for generations to come and I'm proud to have them included in this package," Stansbury said.

Water recycling bill

Nevada Rep. Susie Lee's (D) newly introduced H.R. 8434 (https://subscriber.politicopro.com/eenews/f/eenews/?id=00000182-1d71-d411-a5a6-bf7da2420000), the "Facilitating Large-Scale Water Recycling and Reuse Projects Act" is also included in the massive drought proposal.

The measure would authorize $700 million to a competitive grant program for water recycling and remove a five-year sunset in the current program to allow for longer-term projects.

"Combating our drought is going to take every tool in our toolbox, and large-scale water recycling is an innovative way to conserve water as we face the worst drought in 12 centuries," Lee said.

A survey published in Nature Climate Change earlier this year showed that the current two-decade drought is the driest period since around the year 800. A subsequent Bureau of Reclamation analysis found the only drier period occurred in the second century (*Greenwire* (https://subscriber.politicopro.com/article/eenews/2022/06/09/u-s-drought-worst-in-a-millennium-and-it-could-get-worse-00038318), June 9).

Schedule: The Rules hearing is Friday, July 22, at 1 p.m. in H-313 Capitol and via webcast (https://rules.house.gov/news/announcement/meeting-announcement-hr-3771-hr-5118-and-hr-6929).

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California burning: How wildfires are threatening the West's water

Drought is already imperiling water supply in the West. More wildfires could spoil the water that's still around.

Brian Dabbs@BRIANDABBS

July 20, 2022, 6:22 p.m.

TAHOE NATIONAL FOREST, Calif.—In 1960, the Donner Ridge Fire ripped through roughly 44,000 acres in the Tahoe National Forest.

Sparked inadvertently by a crew building the 80 interstate, the fire scorched the earth north of Truckee, California and all the way to the Nevada border just months after the Winter Olympics at nearby Squaw Valley.

Then the Forest Service—using a program that leverages philanthropic funds—embarked on a major reforestation project to plant millions of lost trees.

More than 70 years later, large swathes of the area are perilously overstocked with highly flammable, densely packed Jeffrey pines and sagebrush. Local experts say the reforested area has grown out of control, creating an environment where wildfires could sweep through the region and threaten lives, homes, and businesses.

And a local water utility is also sounding the alarm, arguing that a wildfire there, below the towering Sierra peaks that store water in snowpack, poses real risks for water supply and quality. The Truckee Meadows Water Authority is helping to foot the bill for a forest-thinning project called Ladybug in the reforested area just east of Stampede Reservoir, where the utility stores water.

“This is an example of a forest that’s overgrown. There’s a lot of underbrush and a lot of dead material that’s low that would create fuel for fire,” Stefanie Morris, the water-resources manager at TMWA, said on a hot, dry day in late June from the edge of the Ladybug project site.

Forestry crews and machines haven’t arrived to cut down the trees to sell it to timber companies or biomass power plants or otherwise dispose of it. The project isn’t expected to be complete until 2025.

“If there were to be a large fire on this downslope that runs into the reservoir and all this underbrush was burned, there would be a lot more sediment and organic material running into the reservoir” after rain returns in the fall and winter, Morris said.

California is battling an epic, decades-long drought, helping to create prime conditions for wildfire. This year is so far the driest in record books that date back to the 19th century, according to the federal National Integrated Drought Information System. Four of the 20 largest fires in California history took place last year.

Now, water utilities in the state—and across the Western U.S.—are increasingly offering up money to help implement forest-management projects that aim to mitigate the risk of catastrophic fire.

The fall and winter rains send deluges of sediment and debris through burned forests, which can no longer absorb the material, and into reservoirs like Stampede. That prompts water utilities to foot big filtration, treatment, and debris-removal costs that can be passed on to consumers. And the turbid water, even with extensive treatment, poses potential health risks.

“The chemistry of the water changes, not in a positive way, and they have to deal with that. That does have costs, operational costs, that require more chemicals to be able to use things to filtrate out the
[sediment] and end up with a clean product,” said Association of California Water Agencies Executive Director Dave Eggerton. “The reality is that’s going to be largely cost that would be borne by their ratepayers.”

A forest near Stampede Reservoir is less susceptible to fire after forestry crews recently stripped out dead wood and underbrush. BRIAN DABBS

The Truckee Meadows Water Authority, which services the Reno-Sparks area downstream on the Truckee River in neighboring Nevada, is contributing $500,000 for the Ladybug project over the next two years. The National Forest Foundation, a national nonprofit partner to the Forest Service chartered by Congress in 1990, is implementing the project with the help of the Forest Service and other groups.

“It’s going to be much cheaper to be proactive about it than to clean it up,” Morris said.

Some water experts say the health impacts of consuming heavily treated water are still unclear. In 2014, the King fire torched 50,000 acres in one day and nearly 100,000 acres total in and around Eldorado National Forest southwest of Lake Tahoe. Andy Fecko, general manager of the Placer County Water Agency, said the utility ponied up $5 million in dredging on the Rubicon River system after the fire.

Still, the utility faced water-quality challenges. Fecko said the water had a foul odor and a “smokey,” “earthy” taste to it.

“We don’t think this water is detrimental to your health. But there isn’t a lot of science on it, either,” he said. “As far as we know, we’re delivering clean water to people’s homes. But there’s a lot of uncertainty to that.”

Fecko said the post-King fire dredging will have to continue on a long-term cycle.

For those fine materials that infiltrate water supply, treatment strategy involves disinfection with chlorine, chloramine, or other chemicals that can, through complex chemical reactions, create byproducts potentially hazardous to human health.

Since the late 1990s, the Environmental Protection Agency has regulated disinfection byproducts, including trihalomethanes and haloacetic acids. Both byproducts have been proven to cause cancer in laboratory tests on animals, meaning they’re likely carcinogenic for humans.

A small group of academics have been diving into the wildfire connection to disinfection byproducts over recent months. David Hanigan, a professor at the University of Nevada, Reno, says some evidence shows the amount of disinfection byproducts increased following the 2021 Caldor fire. And they appear to be sticking around longer than normal, he said.

“As long as the treatment facility stays below the EPA regulated guidelines, then they can still distribute that water. But my concern would be that they actually can’t somewhere in the future,” Hanigan said.

Hanigan is hoping the National Science Foundation sponsors more grant research on the connection.

“Everybody realizes now that, with wildfires over a million acres that are happening pretty much every year now, that we’re going to have to learn more,” he said. “There’s not all that much information on the effects of drinking-water quality yet.”

The EPA, according to spokesperson Tim Carroll, “is currently conducting analyses to further evaluate" the regulations on disinfection byproducts, including potential new rules for unregulated byproducts like chlorate and nitrosamines.

Throughout the West, water utilities are growing more and more active in wildfire prevention and response. The New Mexico state government warned residents to not drink local water in the wake of the Hermits Peak/Calf Canyon Fire that’s burned nearly 350,000 acres since April. The fire is still active northwest of Albuquerque. And fires are vexing utilities in Colorado, which has endured a huge uptick in acres burned in recent years.

“It’s going to be much cheaper to be proactive about it than to clean it up.”

STEFANIE MORRIS, WATER RESOURCES MANAGER AT THE TRUCKEE MEADOWS WATER AUTHORITY

The National Water Resources Association is spearheading a campaign to get more federal wildfire resources to utilities from Washington state to Texas. Christine Arbogast, the former president of the NWRA who still chairs the federal-affairs committee, said the wildfire threat to water supply and quality is growing.

“As we’ve seen fires become so commonplace and be any time of the calendar year, not just wildfire season, the constant threat to the water supply has risen in the priorities for the western water community,” said Arbogast, speaking on the phone from Durango, Colorado, where she, as a water lobbyist representing the Ute Mountain and Southern Ute tribes, met with EPA Regional Administrator Kathleen Becker.

A federal appropriations bill signed into law in September last year gave the Forest Service $700 million to recover from recent fires in national forests across the West.

In February, the Forest Service delivered $79 million to the Routt, White River, Arapaho, and Roosevelt national forests in Colorado after that region was hit by major fires in 2020. And just weeks ago, the Forest Service shut down roads in the Arapaho forest to aerially drop mulch on 8,000 burned acres to prevent runoff. The utility Northern Water participated in that operation.

Still, Arbogast said the federal government needs to put up much more money for post-fire recovery, along with fire-prevention projects like Ladybug in California.

“The [post-fire] mitigation piece needs work. It’s crying out for work,” she said. Arbogast also represents the city of Greeley, Colorado, which collaborated with other stakeholders to sanitize the water supply after the 2020 fires.

Meanwhile, the Forest Service included a long stretch of the Colorado front range, from south of Colorado Springs to the Wyoming border, in its first tranche of more than $3 billion in wildfire funding from the bipartisan infrastructure law passed last year. The forest-management projects there target 36,100 acres to the tune of $170 million.

On Wednesday, President Biden announced $2.3 billion for the Federal Emergency Management Agency to fund infrastructure that’s resilient to extreme weather like drought and fire, along with pledges to expedite wind-energy projects that don’t emit climate-change-causing greenhouse gasses.

“[Climate change] is literally, not figuratively, a clear and present danger,” Biden said at a former coal-plant site in Massachusetts, before referencing the $145 billion price tag for weather-related damages in the U.S. last year.

“This is an emergency. And I will look at it that way,” Biden said. The administration has so far resisted calls from lawmakers and activists to formally declare a climate emergency, a move that could deploy more federal resources to increase clean energy. Biden’s remarks came in the wake of the collapse last week of climate negotiations in a budget-reconciliation bill.

A view of Donner Lake from the Rainbow Bridge west of Truckee, Calif. BRIAN DABBS

Back in California, the Yuba Water Agency, which controls the water in the New Bullards Bar Reservoir on the edge of the Tahoe National Forest, is helping to pay for forest-management projects as part of the North Yuba Forest Partnership. The North Yuba River landscape in the Tahoe is also among the first recipients of the wildfire infrastructure funding.

The Yuba Water Agency, which provides agricultural water to the region around Sacramento, is contributing $8 million to the forestry work in the Yuba watershed. Willie Whittlesey, the general manager, hopes that money will help create healthier forests that retain water and prevent catastrophic fires so the utility continues to serve water to farmers and ranchers for decades.

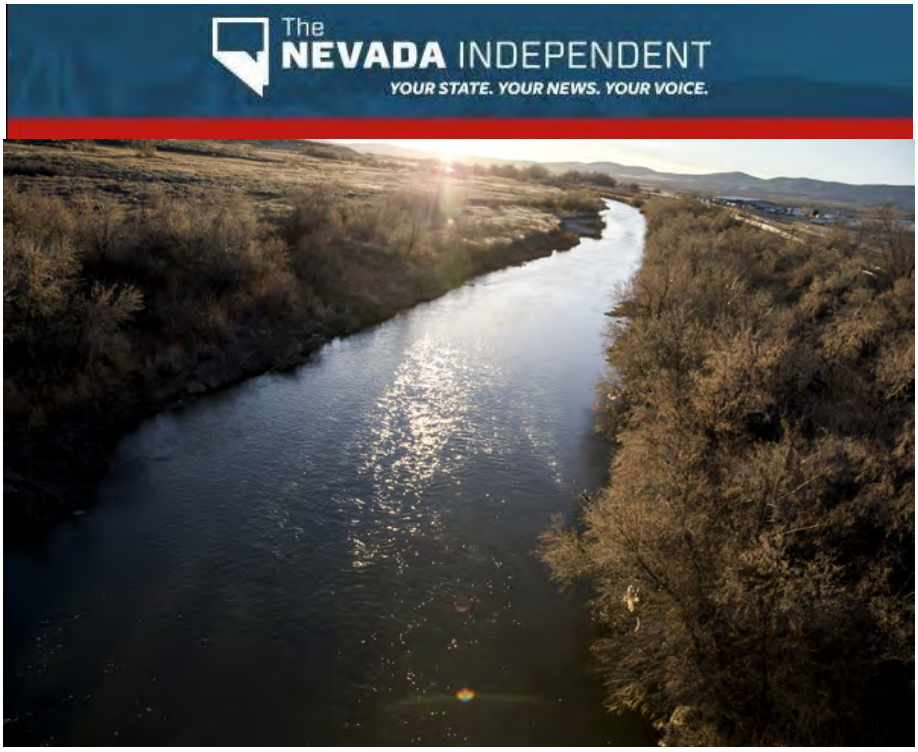
"Our irrigators should be interested in the sustainable amount of water we will have in our watershed long-term," Whittlesey said. "If they're thinking of planting an orchard for, you know, $30,000 an acre ... that lasts 40 or 50 years, are they going to have water supply in year 20?"

"It's a really, really crude example. But they should be interested in our long-term viability," he said, sitting on a dead log on a beach at the New Bullards Reservoir just 20 miles away from where he grew up in Grass Valley. His two black Labradors swam in the reservoir with boats anchored in the distance.

After seeing the fallout from the King Fire in Placer County, Whittlesey said the decision to get involved in fire prevention was clear.

"We just looked to them and said, 'Oh my god, we don't want that.' So let's try and fix the problem before it happens," he said.

This is the third story in National Journal's *four-part series, "California Burning," which explores the federal strategy to tackle wildfires ravaging the Western U.S.*



The Humboldt River flows near Elko on Tuesday, Feb. 6, 2018. (Jeff Scheid/The Nevada Independent)

Indy Environment: Natural Resources acting director on collaboration, drought, smart-from-the-start planning

Good morning, and welcome to the Indy Environment newsletter.

As always, we want to hear from readers. Let us know what you're seeing on the ground and how policies are affecting you. Email me with any tips at daniel@thenvindy.com.

If you received this from a friend, sign-up here to receive it in your inbox.

With hundreds of full-time employees, the Department of Conservation and Natural Resources is one of the state's largest agencies, responsible for a wide array of activities, from overseeing state parks and wildland fire crews to regulating industrial pollution and managing water rights.

Earlier this month, the agency got a new leader. Gov. Steve Sisolak appointed Jim Lawrence, who has worked at the agency since 1998, to serve as the acting director. The move followed the departure of Brad Crowell, who was picked to serve on the U.S Nuclear Regulatory Agency.

The leadership change comes at a time when the state — and the region — face a number of ongoing interconnected environmental issues, including a prolonged drought that has strained water supplies, pressures on public land, increasingly risky wildfire behavior and extreme heat.

Last week, we spoke to Lawrence about his priorities and the challenges confronting an agency that has to balance a number of legislative mandates within limited resources and tight budgets.

In an interview, Lawrence emphasized a need for collaboration, both with outside groups and across state government. He noted, for instance, the intersection between transportation and land management in ensuring that recreation areas are used in ways that minimize impacts.

"Even though transportation isn't within [the agency], when I think about recreation and the movements of people, how do you do that sustainably so we're not enjoying the outdoors but increasing our greenhouse gas emissions? And how do you do that in a way to ensure that you have equal access?," asked Lawrence, who has served on the Tahoe Regional Planning Agency governing board, which often weighs issues related to transportation and recreation.

The federal government manages about 85 percent of all the land within Nevada. Although the U.S. Bureau of Land Management oversees most of that land, several federal agencies are also involved with public land. These agencies include the U.S. Forest Service, the U.S. Fish and Wildlife Service and the Department of Defense, which manages testing ranges. This can make the state's ability to intervene with public land issues somewhat limited.

At the same time, the state's natural resource agency is actively involved in a number of public lands issues through environmental permitting, decisions about water rights and a responsibility to protect habitat for critical species. Over the past several decades, public lands have faced a number of increasing pressures ranging from development for mining and energy, large-scale wildfires and drought — worsened by a changing climate — and a greater recreation footprint.

Elected officials have worked to position the state as a hub for the global energy transition. Nevada is rich in sunlight to power solar panels, untapped geothermal steam to produce a 24/7 energy resource and lithium deposits to fuel the batteries needed in electric cars. But solar arrays, geothermal plants and lithium mines are often placed on public land — often in places that conflict with cultural sites and land set aside for habitat conservation.

Some conservation groups and policymakers have pushed for "smart-from-the-start" planning, a comprehensive effort to direct and incentivize development on lands that previously have been developed, such as brownfields and old mines, or in areas where there are fewer conflicts. Last year, the State Land Use Planning Advisory Council released a letter endorsing this approach.

Lawrence, who has a master's degree in urban and regional planning, said he generally backs that approach. He said he is "sensitive to statewide planning efforts if it steps on the toes of local government and gets in the way of what they need to do." But he said "having a comprehensive look regarding mineral development, transmission lines and how we can best utilize and protect our public lands, given the multiple pressures on it, requires statewide coordination."

That said, he noted that there are rarely easy answers, even with a comprehensive plan in place. At the end of the day, he said "there still has to be uncomfortable discussions."

Lawrence said the state can also play an important role in water planning. The most recent U.S. Drought Monitor map reports that about 75 percent of Nevada is experiencing drought. Although the state regulates water rights, water governance is dispersed in most watersheds and groundwater basins, with many different officials making decisions. **Still, he said the state could work to provide updated data on water availability.**

"You need the best, most-recent scientific data in order to make the best management decisions within the confines of the law," Lawrence said last week. "And I think some of our hydrologic data is about outdated at this point in time. I think that is something that is a high priority as water is going to continue to be more and more of an issue."

Lawrence said he also plans to focus on staffing and retention. Currently, the agency employs about 780 people in permanent positions and an additional 217 people as seasonal employees. But like many agencies, Lawrence said some divisions in the agency have not fully recovered to the staffing levels they had before the Great Recession.

Of all the issues facing the agency and natural resource management, Lawrence identified a structural problem as one of the most pressing: communication and collaboration. Just as ecosystems are intertwined and interconnected, Lawrence argued that so too should be the state's approach to natural resource management, one that considers a wide range of voices.

"It has to be all hands on deck because these are very complicated issues we're working on," he argued. "And those are going to be the most sustaining solutions — when you have everybody working across jurisdictional lines. That is the biggest challenge I think about on a daily basis."

Here's what else I'm watching this week:

In a unanimous vote Tuesday, the Clark County Commission **approved a 600 square-foot size restriction on new pools**, a measure meant to save water and reduce per capita water use. It's one of the latest efforts by the Las Vegas Valley Water District to conserve Colorado River water as water managers across the West look for ways to reduce their use of the river. The quote that stood out to me was this one from the water district's top manager, John Entsminger: **"Nobody questions building codes to survive hurricanes in South Florida. Nobody questions building codes for earthquakes in San Francisco. Water scarcity is our natural disaster in Southern Nevada."** More on the new rules from the *Las Vegas Review-Journal*'s Colton Poore.

- **What will the Colorado River cuts look like and will the federal government take action on its own?** Those are the two big questions facing the Colorado River Basin. *KUNC*'s Luke Runyon looks at what the states — or federal government — might do.
- The *L.A. Times*' Ian James looks at how the Colorado River got to a crisis point —and the **scientists and the water experts who have been raising the alarm for decades.**
- "The Southwest's thirst for the drying river is pushing a challenged aquatic environment further out of whack," writes the *Arizona Republic*'s Brandon Loomis, who is reporting on the **threat that nonnative fish species pose to threatened fish in the Grand Canyon.**

Lithium Americas, the company developing the Thacker Pass mine in Humboldt County, opened a **30,000 square-foot technology facility in Reno Wednesday.** The facility is aimed at helping the company refine its process for turning ore into lithium carbonate, a product used within the batteries needed for electric vehicles. Gov. Steve Sisolak, UNR President Brian Sandoval and a representative from Rep. Mark Amodei's office spoke. A council member of the Fort McDermitt Paiute and Shoshone Tribe, Arlo Crutcher, also attended the event with members of his family.

- Several conservation groups and the Reno Sparks Indian Colony have challenged the federal permit for the mine, arguing that an environmental analysis was rushed and did not fully consider the project's impact on imperiled wildlife and cultural sites. The lawsuit is ongoing. A federal judge is expected to rule on the merits of the case later this year.
- The People of Red Mountain, a coalition of Fort McDermitt Paiute and Shoshone tribal members who are opposed to the mine, held an event on Saturday in Reno highlighting a billboard campaign, as *This is Reno*'s Eric Marks reported. The People of Red Mountain consider the land around Thacker Pass, known as *Peehee Mu'huh*, to be sacred.

This week brought repeated days of extreme heat at home — and abroad.

"A transformer exploded Tuesday at Hoover Dam, one of the nation's largest hydroelectric facilities, producing a thick cloud of black smoke and flames that were quickly extinguished," Ken Ritter and Felicia Fonseca reported for the *AP*. **ICYMI: Here's a video of the explosion.**

Four miners were trapped in Nevada Gold Mines' underground Meikle mine at Goldstrike for six hours on Tuesday, *The Elko Daily Free Press* reported. The company said the incident was due to a "ground fall." Safety crews were able to rescue all Federal officials are completing an

environmental analysis to transfer thousands of acres of land from the Air Force to West Wendover, *The Elko Daily Free Press*' Tim Burmeister writes.

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Excessive Heat Warning Is In Effect

Nevada uses least amount of water from Lake Mead

Southern Nevada uses least amount of water from Lake Mead

By Lauren Martinez
Published: Jul. 22, 2022 at 8:01 AM PDT

LAS VEGAS, Nev. (FOX5) - Striking new images show just how much the drought has affected Lake Mead, spokesperson from Southern Nevada Water Authority breaks down which states use the most and the least.

This week, NASA released new satellite photos of water loss at Lake Mead from July 2000 to July 2022.

Satellite images from NASA show water loss at Lake Mead since 2000

State Climatologist and faculty member from the University of Reno, Steph McAfee, said she looks at Lake Mead elevation data every month, but even the satellite images were striking.

"It's not new news and I was shocked to see that satellite imagery. It's one thing to know something and another thing to see it happen in front of you," McAfee said.

Spokesperson and Outreach Manager for SNWA, Bronson Mack, went in depth into water use data.

"So when we see these images of Lake Mead over time and especially when their compared to Las Vegas growing during that same time period- well it's a bit of a misnomer there," Mack said.

While the Las Vegas valley has grown, we've done so by using less water.

"Since 2002, when this drought started, our community has reduced its consumption of water from Lake Mead by 26% and we did that at the same time that our community increased in population by more than 750,000 people," Mack said.

Currently the Las Vegas valley is the smallest user of water from the lake.
Three states and the country of Mexico uses water from the lake. Mack explained they all get a different allocation, a legal entitlement.

"California, it gets the largest share. 4.4 million acre-feet of water is available to California. Arizona gets about 2.8 million acre-feet. The country of Mexico, 1.5 million and us right here in Southern Nevada we get 300,000 acre-feet," Mack said.

In the the Bureau of Reclamation's water use report, it breaks down the exact numbers each entity consumed in 2021.
California: 4,404,727
Arizona: 2,425,736
Nevada: 242,168
Mexico: 1,455,061
Earlier this year the federal government issued the first Tier of water cuts that do affect Arizona and Nevada.

"Just last year Lake Mead hit that trigger of elevation. As a result of that Southern Nevada had to reduce water that it was allowed to take from Lake Mead. Arizona also had to reduce its amount of water that it was able to take from Lake Mead. But even with that our community had done such a good job conserving that we were well prepared to be able to absorb those cuts without having to make any further, drastic conservation measures at that time," Mack said.

He also explained Arizona and California made an agreement decades ago that has relevance today.

"The California delegation worked out an agreement with Arizona where by they would support funding the Central Arizona Project in return for Arizona taking California's shortages should Lake Mead or the Colorado River ever end up in a shortage condition. Where here we are today and in the 2000's we are in a shortage condition now and as a result of that Arizona is taking California's shortages," Mack said.

Even though the water authority has implemented a progressive water conservation system, Mack said there's still more we need to do.
Starting September 1st, the fall watering system goes is into effect. Residents must change their sprinkler clocks and water on assigned days.
"Only about 60% of our valley complies with the seasonal watering restrictions," Mack said.
To find out your watering day group, visit SWNA.

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The NEVADA INDEPENDENT

Reducing consumptive water use must be our main focus to safeguard Southern Nevada's economic stability

Nat Hodgson July 25th, 2022 at 2:00 AM Opinion SHARE

The bathtub ring at Lake Mead shows how far the reservoir has dropped during nearly two decades of drought. The Southern Nevada Water Authority gets 90 percent of its water from the reservoir. (Daniel Rothberg/The Nevada Independent)

I have lived in Las Vegas and have worked in the development industry for 30 years. Since day one, water has been an important issue. The current volume of Lake Mead compared to years prior is clear evidence there is a serious water issue. Residents, businesses and all those who depend on the Colorado River should be paying close attention to the facts and focusing on conservation policies that will help ensure we utilize our water in the most responsible way possible to preserve our future.

As many concerned citizens understandably fear for what's in store for our future, I believe it to be extremely important we remind the public of the many policies and safeguards that have existed for a very long time. It's disappointing to hear the amount of misguided chatter surrounding water use, or to see fingers pointed at industries and organizations that have long been ahead of the curve and continue t h i t l fi i t t ffi i i i f th t

to champion extremely proficient water efficiency in our unique area of the country.

The home building industry, for example, has answered its calls of responsibility. In addition to the frequent installation of the most water efficient indoor fixtures in the market today, it should be noted that truly wasteful consumptive water use, such as front yard turf lawn installation, has been eliminated from new home building for nearly 20 years. We're proud that we played our role in changing the standard American mindset to match climate conditions in the Mojave Desert.

Our community cannot afford a thirsty front lawn in front of every house – on every block. Instead. Most Nevadans agree that a home can look just as beautiful with thoughtful, drought-tolerant landscaping supported by the Southern Nevada Water Authority. And now, residents who purchase new homes cannot install turf in backyards either. The Southern Nevada Homebuilders Association and its members are proud to do our part to significantly reduce the little consumptive use of Colorado River water used in new residential construction.

In 2022, a study from Applied Analysis sought to show how water use among residential properties in Southern Nevada has evolved over time. The results indicated that newer homes are much more efficient in water use when compared to older properties, which is even more telling when coupled with the fact that homes built in 2019 are larger than older homes. The study showed newly built homes used approximately 38.3 gallons per square foot compared to 75.9 gallons per square foot for older homes – a nearly 50 percent reduction.

Our water authority is leading the nation in their water conservation efforts, and has been for decades. Other states should follow their example. Not enough credit is given to the complex closed-loop system that is responsible for recycling 99 percent of Southern Nevada's indoor water use. Most people would likely be surprised to find out that most of the water used in new homes comes from indoor use, such as showering and preparing food. Other states that depend on the Colorado River would benefit from embracing Nevada's adoption of return-flow credits that allow nearly all indoor water to be captured and reclaimed through the wastewater system, replenished through a water treatment facility and returned to Lake Mead.

New home construction cannot move the needle on water conservation alone. Almost all water used in today's built homes is returned to the lake and is not affecting the lake level. With only 14,000 new single-family homes coming online each year, more should be done, focusing on consumptive use, in the 850,000 plus units across Southern Nevada as well as in commercial and industrial developments.

Even with the actions taken over the past 20 years, there is still more work to do in educating the community. It is clear that consumptive water use is still an area that needs the most improvement, and I urge the public to turn their attention to what is wasted outdoors and lost forever.

Change your irrigation controllers, find and fix leaks where they may exist, encourage your HOAs to remove non-functional turf while you can still take advantage of the rebate, and avoid the flood of wasted water in gutters that I see everywhere, especially in pre-2003 neighborhoods. It is crucial that we all do our part to ensure wastewater associated with the growth of Las Vegas is captured, treated and returned to the Colorado River

Nat Hodgson is CEO of the Southern Nevada Home Builders Association.

SNWA's Infrastructure Investments

Help Secure Access to Water Supply

July 25, 2022 By Nevada Business Mag — Comments

Southern Nevada will face additional reductions to its main water supply in 2023 due to a climate change-fueled megadrought in the Colorado River Basin and declining Lake Mead water levels. The community's 300,000 acre-foot annual allocation will be reduced by 25,000 acre-feet (8 billion gallons) under the next level of federal shortage conditions.

"Last year, we used 242,000 acre-feet, so we're still in good shape thanks to this community's commitment to conservation," said Colby Pellegrino, Deputy General Manager of Resources for the Southern Nevada Water Authority (SNWA). "What's more concerning, though, is the rapid decline of Lake Mead and what that means going forward as shortage conditions may deepen and the federal government may exact additional reductions to protect lake levels."

The SNWA has prepared for shortage conditions by investing in progressive, world-class conservation programs and constructing infrastructure to ensure access to Southern Nevada's water supply.

Chief among these infrastructure investments are a Low Lake Level Pumping Station (L3PS) and a deep-water intake, both of which allow the SNWA to draw water from the lowest depths of Lake Mead, the source of 90 percent of Southern Nevada's water supply. In addition, these projects help safeguard against water-quality issues associated with declining lake elevations.

Working in tandem, Intake No. 3 and the L3PS allow Southern Nevada to access water supplies below Lake Mead's "dead pool" elevation of 895 feet—the point at which no water can pass through Hoover Dam to generate power or meet downstream water demands in California, Arizona, or Mexico.

Put into full operation in April, the large-scale pumps at L3PS can deliver as much as 900 million gallons a day to the SNWA's two water treatment facilities. This allows the agency to continue sustainable management of the community's water resources in conjunction with ongoing and highly successful conservation efforts.

The L3PS's importance took on added signi cance when declining water levels at Lake Mead exposed SNWA's rst intake this past spring. Intake No. 1 was built in the early 1970s at an elevation of 1,050 feet above sea level. As water levels dropped below this elevation, the intake was exposed and its pumping facility was rendered inoperable. Fortunately, water treatment and delivery operations were not impacted because the SNWA was able to draw water through the deep-water third intake and begin L3PS operations.

Combined with the SNWA's long-range water resource planning and ongoing water conservation achievements, critical infrastructure projects such as Intake No. 3 and L3PS enable Southern Nevada to maintain its status as one of the most water-secure communities in the desert southwest.

"While we've constructed the infrastructure needed to access our water supply, we still need to use it very wisely," Pellegrino said. "Conservation is still one of the most important actions each of us can take to protect our water supply and ensure our community thrives."

For water saving tips and information about conservation incentive programs, visit snwa.com.

Filed Under: Sponsored Feature
Tagged With: Southern Nevada Water Authority (SNWA)

EXTREME WEATHER

What Are 'Flash Droughts' and Why Are They So Destructive?

As if we didn't have enough trouble from regular drought, flash droughts are now becoming more common.

By Angely Mercado 7/29/22 3:55PM | Comments (4) | Alerts

Dead plum trees that have been removed from the ground due to the lack of water for irrigation in the drought-affected town of Monson, California in June 2015.

Photo: AFP PHOTO/ MARK RALSTON (Getty Images)

As record-breaking temperatures have pummeled much of the country this summer, another heat-related menace is causing trouble: flash droughts.

Much like a regular drought, a flash drought is caused by low precipitation, but it strikes an area so much faster. Brad Pugh, a meteorologist with the National Weather Service's Climate Prediction Center, said that flash droughts are caused by a combination of little to no rain alongside unusually high temperatures that quickly alter an environment.

"Flash droughts typically occur during the warm season, so from late spring through the summer into the early fall... the major impact is typically related to agriculture and livestock," he told Earther.

According to Larry O'Neill, an Oregon climatologist, the conditions for flash droughts are becoming more frequent in the U.S. "A long or intense heatwave of 7-10 days, coupled with little or no precipitation, is often sufficient to develop flash drought conditions," he said in an email to Earther. "Impacts of flash drought can be sudden and severe."

He explained that, as the climate crisis increases the likelihood of precipitation changes and hotter, longer lasting heatwaves, the U.S. could expect to see more flash droughts in the summers to come. Because these conditions occur during the growing seasons, they threaten the U.S. food supply.

> *"Flash droughts occur so quickly, we often do not know we are in one until we see the adverse hydrological, agricultural, and socioeconomic impacts"*

States across the center of the country like Oklahoma and Kansas are currently experiencing flash drought. The Northeast is also being affected, especially during this especially hot summer. Just two months ago, the state of Massachusetts did not report any drought conditions at all, but as of mid-July 80% of the state experienced moderate to severe drought. Farms in areas such as Andover, Massachusetts, have seen their products, like Christmas trees that would have eventually been sold in the winter, dry up in the hot arid conditions. Parts of New Jersey are also seeing flash drought conditions, and residents have been urged to avoid watering their lawns to ensure that water reserves are saved for necessary uses, NJ Spotlight News reported.

According to Pugh, the long-term effects of this depend on how long the flash drought lasts. “[For] some flash droughts, you get the rapid onset of drought and then a drought can continue for months. On the other hand, you can have this rapid onset of drought followed by a heavy rainfall event or flip towards a wetter pattern,” he said. “It really varies, depending on the weather.”

One of the most destructive flash droughts that Pugh remembers is one that affected both North and South Dakota in July 2017. Just two months before, in May 2017, the region was not showing any signs of drought at all, NOAA reported. Once the summer heat came, the dry conditions sparked more than $2.6 billion worth of agricultural losses.

It’s much harder to prepare for flash droughts, meaning it’s difficult to head off agricultural damages. The long-lasting drought currently affecting water supply in the American West was predicted earlier this year by NOAA. The agency released a report in March outlining how about 60% of the country would experience some form of drought conditions. Officials in California knew that a drought was likely, especially after seeing historically low snowpack was in the state’s Sierra Nevada mountains. Flash droughts are trickier.

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“We lack the monitoring and predictive capabilities to warn of flash drought development. Flash droughts occur so quickly, we often do not know we are in one until we see the adverse hydrological, agricultural, and socioeconomic impacts associated with it,” O’Neil said.

EARTHER » EXTREME WEATHER

Developers destroyed this forgotten wetland in Tahoe. Can scientists save what's left?

Developers destroyed this forgotten wetland in Tahoe. Can scientists save what's left?

Updated: 10:31 AM PDT Jul 30, 2022

, — A nearly 600-acre wetland sits at the southernmost end of Lake Tahoe. It's where Tahoe's two largest tributaries — the Upper Truckee River and Trout Creek — meet and mingle amid tall grasses and willows before flowing into the lake. This wetland might not look like much, but it's critical to the health of Lake Tahoe's environment. The wetland naturally filters pollution and fine sediment, guarding Lake Tahoe's clarity. It also stores carbon, fights climate change and serves as a resilient habitat in times of drought for dozens of fish and wildlife species.

But for more than a century, the Upper Truckee Marsh was considered a wasteland, during a time when marshes across the country were being developed and paved over. When Tahoe was experiencing an enormous development boom in the mid-20th century, the Forest Service had an opportunity to conserve 750 acres of the marsh. But the agency turned down the $75,000 deal, according to Michael J. Mackley's book "Saving Lake Tahoe."

"Forest Service representatives rejected the offer because they saw no reason to acquire a swamp," Mackley wrote. Then, in December 1956, the Tahoe Keys developers purchased the land. They excavated the wetland, dredged the marshes to build a marina and constructed more than 1,500 homes. The Tahoe Keys have been called one of Tahoe's worst environmental disasters because the development destroyed the largest wetland in the Tahoe Basin.

Today, a large-scale effort is underway to restore what's left of the Upper Truckee River Marsh. I visited the site of the largest watershed program in Lake Tahoe's history earlier this summer, where an $11.5 million project to reclaim an abandoned, polluted arm of a marina is wrapping up this year.

Now, all signs of that old marina and its aquatic invasive weed infestation are buried beneath several feet of dirt — apparently an expert-approved method of repairing the mistakes of the past. Thousands of new seedlings are planted: grasses and willows, mostly. Lupins bloom here and there. A beautiful new walking trail provides public access to a sandy beach on Lake Tahoe's shoreline.

Getting to this point of success was anything but straightforward. Stream restoration is a mix of both science and art, as the project's stewards told me. At times, bulldozers were brought in. In other moments, the scientists let Mother Nature take the lead.

"The idea of creating open water, you just don't get that chance in the Sierra," said Scott Carroll, a senior environmental scientist at the California Tahoe Conservancy. The conservancy is the lead agency on this restoration project.

"This wetland — that we reclaimed from basically fields of sage — you just don't get those opportunities," Carroll continued, "because almost all of our wetlands that were destroyed have massive infrastructure on them, like a casino or a highway."

The Upper Truckee Marsh could have disappeared in the same way, easily. After building the Tahoe Keys, developers had plans to continue their expansion across the entire wetland, with a golf course and more condos slated for this fragile piece of water and land. But a lawsuit and ensuing court decision in the late 1980s stopped the golf course, opening up the possibility to finally heal this important wetland decades later.

On a beautiful late June day, I meet Carroll as well as Stuart Roll, watershed program manager at the California Tahoe Conservancy, and Chris Carney, the conservancy's communication's director, on the edge of the Upper Truckee Marsh.

The marsh is right in the middle of South Lake Tahoe, a small city with a population of more than 22,000. We're a few miles from the casinos and not far from the morning rush hour traffic on Highway 50. But I don't feel at all like I'm in the middle of a city.

We're looking out toward a vast wetland full of willows, wildflowers, birds and water. Lake Tahoe is shimmering in the distance. The landscape is lush and vibrant green, almost hitting the peak of summer bloom. The soundscape is quiet and calm. It's hard to believe this land was once slated for building more condominiums and a golf course. The greenery and serenity of it all is a testament to the success of the restoration effort led over recent decades by the California Tahoe Conservancy.

The Washoe Tribe were the original people who lived on this land. But when the Washoe were driven out of their homeland by settlers and miners in the mid-1800s, and when the Tahoe Basin was clear-cut to support the silver mines in Virginia City in the 1860s, the Upper Truckee Marsh was left out to dry.

Ranchers moved in during the late 1800s. Their efforts to divert the water from the meadows so their cattle could graze were the first strikes against the marsh.

Then, in the 1950s and 1960s, when a development boom transformed the Lake Tahoe Basin, the Tahoe Keys developers utterly destroyed what was left of the marsh when they built their lakefront subdivision with private piers and lagoons, multimillion-dollar homes, condos and a marina.

The Tahoe Keys not only dredged the fragile wetland to build their subdivision, drying out ancient creek beds and wreaking havoc on wildlife habitat, they also straightened the Upper Truckee River and diverted the meandering streams into a man-made canal, which looks more like a ditch in some spots, that fed directly to Lake Tahoe. The development also pumped loads of sediment and pollution into the lake's waters.

After the Tahoe Keys neighborhood and marina was built, the 1970s and 1980s were a time when Lake Tahoe was losing its clarity at the rate of a foot a year, according to the conservancy. That trend slowed when massive public and private restoration efforts began to heal the damage done to Lake Tahoe's watershed.

In 1988, after a court halted further plans by the Tahoe Keys to build more condos and a golf course, the California Tahoe Conservancy began to acquire some of the land in the Upper Truckee Marsh.

Twenty years ago, the California Tahoe Conservancy embarked on the first restoration project to heal the Upper Truckee Marsh. At that time, the wetland was buried deep under layers and layers of soil that had been dredged and dumped to build the Tahoe Keys. It took a crew of dump trucks about 8,000 trips to remove all that infill and recover what was left of the wetland.

Now, we can see the success of that labor. Willows are matured. Grasses are growing. Instead of a bunch of condos, endangered species took up residence here.

"We actually have a pretty decent population of an endangered species that lives right across the river, right here," Carroll said. "Willow flycatcher, small songbirds."

That first restoration project reclaimed about a dozen acres of wetland. For context, the entire Upper Truckee River Marsh, or what's left of it, spans about 600 acres. It's a huge project. The conservancy is working alongside many other government agencies on restoration work up and down the Upper Truckee River watershed.

In 2015, when the final environmental impact report published, the conservancy set multiple goals for its second big restoration project, which builds off the success from 20 years ago. This is the same project that I visited in late June. It aimed to reclaim that polluted arm of the Tahoe Keys Marina and restore it back to a functioning, healthy wetland. Another goal: To build new channels in the marsh, helping the Upper Truckee River find its way from the man-made canal back to its ancient creek beds.

"This project has been a basin priority for decades," said California Natural Resources Secretary Wade Crowfoot in April 2020, when the restoration project began. "It also demonstrates how much we've learned during that time about the importance of rivers and their floodplains to the health of the lake and the basin's ecotourism-based economy."

Crews blocked the marina off with steel sheet piles. The conservancy consulted with environmental scientists and aquatic invasive species experts to determine how best to contain the weed infestation in the marina water. The best option? Bury the weeds beneath several feet of soil. Next, the Conservancy planted tens of thousands of willow and grass seedlings.

On my June visit, irrigation lines were pumping water to the new seedlings, helping them get established under the beating sun during another summer of drought. But by the end of this summer, this land will be reconnected with the Upper Truckee River Marsh. In big winters and times of flood, it'll be entirely underwater.

The restored wetland will "improve lake clarity, support dozens of fish and wildlife species and combat climate change by capturing and storing carbon and nutrients that fuel algal blooms in the lake. The wetter marsh will also be more resilient to droughts, extreme events and other impacts of climate change," according to a conservancy statement.

Carroll and the conservancy led me on a circular walk around the soon-to-be-wetland, down to the lake, and up a dirt walking path that was designed to provide public access to a sandy beach in the heart of South Lake Tahoe. Eventually, the conservancy plans to install interpretative panels here, too, to help the public learn more about the history of the land and the Washoe Tribe.(The conservancy is also working with the Washoe Tribe on another restoration project in the basin, at Meeks Bay.)

Then, we headed to another part of the wetland, where the grass was thigh-high and mosquitos reigned supreme. This is where the conservancy was doing the part-science, part-art work of reconnecting the river with its ancient path.

We reached a bend in the river, where huge tree stumps were pushed on their sides, exposing their roots. This was a natural barrier, designed to mimic a riverbank, and encourage the Upper Truckee to flow into the marsh, instead of continuing into the ditch built by the Tahoe Keys developers.

"We're trying to get this thing back to where it wants to be. Luckily we have the infrastructure, right? Mother Nature built all those channels. We just got to get the water back there and then let her make the decision," Carroll said.

Essentially, they're forcing the river to flood back into the wetland, just as nature intended. Today, the canal that flushes the Upper Truckee is about four times smaller than it used to be, so when water comes down, it spills over the edges of the canal and into the wetland, where it'll spread out and settle.

"We're trying to put Mother Nature in the position to do whatever it wants," Carroll said. "Luckily, everyone acknowledges that that's best for the environment and the best idea to get this thing restored."

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University of Colorado **Boulder**

CU Boulder Today

Report outlines emerging technologies to improve Colorado water management

Aug. 1, 2022 • By Kelsey Simpkins

A new report from CU Boulder and Colorado State University outlines how a variety of emerging technologies can help water managers, landowners and policymakers improve western water management in the face of severe, ongoing drought.

From blockchain and satellite telemetry to improved sensors and advanced aerial observation platforms, the report finds that many emerging technologies have the capability to enhance the monitoring, management, conservation and allocation of water with great benefit to Colorado and beyond.

The release of “Emerging Technologies to Improve Water Resource Management in Colorado” comes amidst a growing water crisis in the West: the worst drought in 1,200 years and a crackdown from the federal government on annual allocation of water in the Colorado River, from Colorado to California.

Read the report
Emerging Technologies to Improve Water Resource Management in Colorado

“Water touches everyone in the West,” said Kat Demaree, co-author and co-editor of the report and project manager at the Mortenson Center in Global Engineering at CU Boulder. “With drought and increasing desertification, it’s becoming such a pressing issue to better understand how we can manage the water we do have, and better work together as a community.”

The report, which was triggered by legislative passage of HB21-1268 in 2021, allowed experts at the Mortenson Center in Global Engineering at CU Boulder and Colorado Water Center at CSU to conduct extensive stakeholder interviews and surveys across the state, and analyze emerging technologies that could assist in various factors of water management. The report also contains eight case studies from expert co-authors highlighting potential technologies to address the issues, including higher resolution imaging and digital management of water rights.

The final report will be presented to the Water Resources Review Committee at the Colorado Water Congress Summer Conference in Steamboat Springs on Aug. 24, 2022.

Technology for today and tomorrow

The researchers first examined the present landscape of water technology, conducting interviews across the state from September 2021 to February 2022 to find out what could help with real, on-the-ground problems for Colorado stakeholders. The researchers spoke with a range of water managers and experts statewide, including state legislators, Indigenous community leaders and agricultural producers. They discovered technological gaps in monitoring groundwater use, snowpack modeling, streamflow prediction and water rights trading and transactions.

The interviews informed a survey sent to a broader audience across sectors, including mountain and urban residents, conservancy and municipal districts, academic experts, landowners, senators, and more. Those responses were distilled and analyzed to create a concise picture of the current issues and potential emerging technology solutions.

The main challenges facing water stakeholders across the state were not surprising. Drought, wildfire, forest management, population growth and increased water demand are well-known. Many of the solutions detailed in the report, while also not new, provide better, more reliable or more affordable ways to gather data that could improve water management, conservation or allocation practices.

For example, a startup out of Denver conducts advanced aerial observation using microballoons in the stratosphere to achieve low-cost, high-resolution surveying of changes to entire watersheds, and no drone license is required.

In addition, better watershed management dashboards could optimize economic and agricultural decisions in Southern Colorado, and an online water rights and transactions platform could increase transparency and accessibility for water users along the Arkansas River, the report found.

Storing digital water rights through the blockchain may also become an important part of water management, as it could improve the fluidity, transparency and effectiveness of transactions for water users across the state by acting as a digital ledger to store people's water rights. Co-authored by the Colorado Water Trust and Deloitte Consulting LLP, this section of the report discusses the potential opportunities and challenges of creating a digital future for water.

“Using accurate and sophisticated data models to monitor the allocation, use and quality of water systems in the West and across the United States can help transform the country’s conservation and sustainability efforts,” said Rana Sen, managing director, Deloitte Consulting LLP and the sustainability, climate and equity leader in Deloitte’s government and public services practice. “Working closely with CU Boulder, we look forward to building on this important research and deploying several data-driven digital platforms that can help solve the increasingly complex water challenges posed by the climate crisis.”

In April, Deloitte and CU Boulder launched the Climate Innovation Collaboratory to translate cutting-edge climate research and data into meaningful climate solutions for federal, state and local government agencies and communities.

The report also addresses the reasons that these solutions are not already in place. The main barriers to adoption include cost, reliability, durability of equipment and ease of use. Expensive monitoring equipment could be damaged by wind or cold temperatures. Technology that requires training, meantime, may not be accessible to all stakeholders.

“The expansion of the immersive educational programs covered in this report, such as the Master Irrigator and Testing Ag Performance Solutions programs, provide producers with the knowledge to better understand the science behind these advanced technologies, access to incentives to help them adopt these technologies, and the development of a peer network to help them operate these advanced water management systems in a cost effective manner,” said John Tracy, director of the Colorado Water Center.

While water problems in the west are complex and ongoing, the authors are optimistic that stakeholders will be able to use the report to create and apply innovative solutions. They also hope the report helps spur additional funding and research into these areas.

“Water can be framed as sometimes being divisive,” said Demaree. “It can be a point of tension between different communities, but there is so much hope in the conversations we had and so many people wanted to work together on this issue.”

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FOR IMMEDIATE RELEASE

Californians are continuing to boost their water savings through the summer as the drought continues

(Sacramento, Calif. | August 2, 2022) — California is making great strides at saving water this summer during the state's ongoing severe drought, effectively responding to Governor Gavin Newsom's call for voluntary conservation.

California saved nearly 8% more water in June 2022 compared to the same month two years prior in 2020, according to data the State Water Board released today. This level is more than double the statewide savings in May.

Residential, commercial, and industrial water customers, as well as state and local water agencies that provide safe and reliable water service to 40 million Californians, are working together to save water indoors and outdoors, in urban areas and in agricultural operations.

“Californians and the water agencies that serve them are making significant progress, and that should be recognized and applauded as we all find ways to save water and increase conservation. CMUA members are committed to doing their part to get us through the drought,” said Danielle Blacet-Hyden, CMUA deputy executive director.

Governor Newsom has called on Californians to voluntarily reduce their water use by 15%. The Governor met with Blacet-Hyden and other water leaders in Sacramento on July 29 to discuss efforts to reduce water use. After the meeting, the Administration issued an announcement saying that conservation is trending in the right direction and more can be done.

CMUA member water agencies, which collectively provide water to nearly 75% of Californians, already are taking action in a variety of ways to mitigate the drought’s impacts on local communities and the state as a whole. Water conservation and water use efficiency are an important pillar of those efforts. Actions include requiring either mandatory or voluntary water conservation indoors and outdoors, implementing water shortage contingency plans, ramping up public relations campaigns to encourage additional local and regional water conservation, and bolstering turf replacement incentives and a range of other programs that help households and businesses use water more efficiently.

In May 2022, CMUA released its own policy paper outlining a suite of actions that can effectively address water conservation and also ensure the long-term resiliency of California's water supply. Developed with input from CMUA members, Big & Bold: Refocusing California's Water Management Strategy lays out an easy-to-understand path to success that includes:

- Providing significant and sustained funding
- Increasing water supplies
- Implementing effective water conservation
- Accelerating and expanding incentives
- Providing regulatory certainty and encouraging collaboration
- Streamlining permitting/CEQA exemptions

The policy paper also highlights how water service providers across California are using emerging technologies and innovative local and regional programs to effectively manage water supply and demand.

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About CMUA: Representing 75 publicly owned electric utilities and water agencies statewide, CMUA provides Members and Associate Partners with many valuable services and benefits, including legislative and regulatory advocacy; news and regular updates about the energy and water industry; and engagement through annual events, coalitions and member-led decision making. For more information, visit cmua.org.

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by: David Denk
Posted: Aug 2, 2022 / 09:00 PM PDT
Updated: Aug 2, 2022 / 09:00 PM PDT

LAS VEGAS (KLAS)– A water use study conducted by Applied Analysis and commissioned by the Southern Nevada Home Builders Association (SNHBA) revealed that newly built homes used roughly 50 percent less water than older homes in Southern Nevada.

According to the study, newly built homes use around 38 gallons per square foot, as opposed to older homes, which use nearly 76.

The study examined homes built in 1989, 1999, 2009, and 2019, and then data from 2021, the most recent calendar year was collected, ensuring a full year of water use for each decade of homes being examined.

In nearly every metric, from annual water use overall to seasonal water use, homes built in 2019 used far less water than all the previously built homes. This is in spite of average home sizes increasing every decade. For reference, the average square footage of a home built in 1989 was 1,999, whereas, in 2019, it was 2,501, representing a 25 percent increase in size.

“We are proud to continue to support the Southern Nevada Water Authority,” said Nat Hodgson, CEO of the SNHBA in a press release. “As impact fees from new residential construction support conservation e orts, finance turf conversion rebate programs, and fund capital projects that make our overall water system more redundant and reliable.”

According to the Southern Nevada Water Authority, nearly 100 percent of Southern Nevada’s indoor water use is reclaimed through the wastewater system, then replenished through water treatment facilities, and returned to Lake Mead.

The study made no mention of how older homes may reduce water usage.

RN&R
Reno News & Review

GUEST OPINION

Our lakes our trying to teach us something. Are we learning the lesson?

by John L. Smith August 4, 2022

PHOTO/DAVID ROBERT: "The removal of 'decorative' grass throughout Southern Nevada would have been a courageous decision 25 years ago and a forward-thinking one a decade ago. But at least it's finally been made. Northern Nevada should do no less—especially considering its ongoing housing crisis."

Those seeking a dystopian postcard for the effects of long-term megadrought and human-caused climate change will find a dandy at Lake Mead.

With its ever-growing “bathtub ring,” plummeting water line and the obscenely exposed power-generating turbines at Hoover Dam, you won’t often hear it referred to as a “man-made wonder” these days. The lake that overflowed into Hoover Dam’s spillway in 1983 today is at 29 percent of capacity—and dropping.

About 480 driving miles north, shimmering Lake Tahoe fools the casual observer with cool breezes, big pines and idyllic scenery. But it, too, is in crisis. Imperiled by wildland fires increasing in frequency and intensity, a diminishing snowpack and two decades of drought, the sapphire of the Sierra has shrunk enough to close a boat launch and, climate scientists contend, far bigger challenges are ahead.

It’s that way throughout Nevada, the driest state, where ranchers and farmers vie for diminishing resources, Indigenous tribes once again must watch their backs and long-coveted water rights, and corporate titans jockey for control of aquifers from Gerlach to Sandy Valley.

Other battles are brewing. Some are harder to see, but offer their own lesson.

Increased aridification threatens the state’s precious riparian zones. After decades in the field, UNLV life science professor Stanley Smith has studied most of them.

“Riparian zones only take up probably 5 percent of the landscape, but they support more than half the species,” Smith said. “This is the situation where if we start losing our ephemeral water courses, if they just dry up, that s really going to a biodiversity in addition to riparian plants just dying. That would have a bigger impact, I think, on the public than would the open desert being a little drier.”

With much hanging in the balance, some stakeholders are taking reasonable steps. A

from rural counties to thirsty Las Vegas, the Southern Nevada Water Authority s 2021 Water Resource Plan called for reducing individual daily consumption from its current 110 gallons per day to 86 gallons by 2035.

If there’s anything nature and scienti c models are telling us, it’s that continuing to practice the boomtown philosophy of breakneck growth in an arid land ensures calamity.

The removal of "decorative" grass throughout Southern Nevada would have been a courageous decision 25 years ago and a forward-thinking one a decade ago. But at least it s nally been made.

Northern Nevada should do no less—especially considering its ongoing housing crisis.

The issues are complex and oen in conict, but I think we must come to a common conclusion.

Conservation is integral, but it's foolish to continue to think of it simply as a lynchpin for greater development. If there's anything nature and scientific models are telling us, it's that continuing to practice the boomtown philosophy of breakneck growth in an arid land ensures calamity.

The long-term answer may be a kind of next-generation conservation that combines innovative water-saving and fast-tracked desalinization, and substantive changes in interstate water compacts.

In effect, embrace the science—and take a lesson from those very different lakes.

Nevada native John L. Smith is a longtime journalist and the author of Saints, Sinners, and Sovereign Citizens: The Endless Battle Over the West's Public Lands.

Craig Downer

August 10, 2022 at 2:37 pm

Really appreciate your sound counsel, John. This should definitely be heeded. Unlimited growth is insane, especially of the same-old, same-old, unquestioned variety.

Jimmy Boegle

August 10, 2022 at 5:14 pm

A note to would-be commenters who want to deny that climate change is real: Don't bother. The science is beyond clear on this. It's not up for debate. It's proven fact. If you want to talk about cherry-picked data or conspiracy theories, please go elsewhere to do so. Thanks!

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THE FUTURE OF WHAT'S NEXT

Searing Heat Spotlights Western States' Long-Term Water Woes

Arizona, Colorado and Nevada are projected to grow by 30 percent or more by 2060, raising fears that demands for water will outstrip supply. Possible fixes include restricting water use and building new pipelines.

August 05, 2022 • **David Montgomery, Stateline**

The water in Lake Mead has fallen to barely over a fourth of its capacity, threatening the future of water supplies and hydroelectric power to at least 40 million people in seven Western states.
(Luis Sinco/Los Angeles Times/TNS)

Located near the resort community of Wimberly, just 45 miles southwest of Austin, Jacob's Well has earned a near-legendary reputation as one of the most popular swimming holes in the Central Texas Hill Country. Hundreds come to the artesian spring each summer to dip into blue-green waters that flow from an underground cavern system more than 140 feet deep.

But today, the water source that once sustained Native American tribes is facing an uncertain future, a victim of the relentless drought and extreme heat sweeping much of Texas and other states, including California, Colorado, New Mexico and Oklahoma.

On June 29, Hays County authorities who manage the 81-acre recreational site suspended swimming for the foreseeable future out of fear that falling water levels would lead to contamination and endanger swimmers.

"They determined that the water quality was no longer safe," said Katherine Sturdivant, outreach coordinator for the Hays County Parks Department. The spring has stopped flowing only three times, during previous droughts in the 21st century. Sturdivant worries that it could be on the verge of No. 4.

The threats facing Jacob's Well — so-named by mid-19th Century settler William Winter because the natural well conjured up thoughts of "Bible times" — are repeated across much of the West, as record temperatures leave their mark on a broad array of daily life, from failing crops on the farm to burn bans and water restrictions in the cities.

The effects of the drought, which is being compared in Texas to the last severe drought in 2011, has heightened concerns over the long-range availability of water, particularly in burgeoning population centers such as Austin's Travis County and Hays (San Marcos) and Bexar (San Antonio) counties to the south.

Throughout the West, the story is much the same if not worse. The nation's two largest reservoirs — Lake Mead and Lake Powell, the giants of the Colorado River Basin — each have fallen to barely over a fourth of their capacity, threatening the future of water supplies and hydroelectric power to at least 40 million people in seven Western states.

With states such as Arizona, Colorado and Nevada projected to grow by 30%or more by 2060, planners fear that demands for water increasingly will outstrip supply. Some areas are trying to address the shortages by restricting water use, building new pipelines and reservoirs, and upgrading inefficient equipment, among other actions.

"The main conclusion is we're going to have to do more with less," said Benjamin Hatchett, assistant professor of atmospheric science at the Desert Research Institute in Reno, Nevada.

Transition Phase to Warmer and Drier

For California, whose once stratospheric population growth has fallen to a much slower pace, the supply-vs-demand story revolves more around prolonged drought and climate change than the sheer infusion of people. California is grappling with its third drought since the beginning of the 21st century — one that started two years ago — following those of 2012 and 2016.

"We've been telling people we need to stop thinking about drought as an occasional emergency that occurs and then goes away, but recognize that we are in a transition phase to a warmer and drier climate," said Jeanine Jones, interstate resources manager for the California Department of Water Resources. One potential outcome, she said, is the loss of wintertime mountain snowpacks that for centuries have replenished water supplies that support people, agriculture and industry.

"By the end of the century, California will lose most of its mountain snowpack," said Jones. "And even by mid-century, which is not that far away now, we will lose a very substantial chunk of it."

In Texas, anecdotes abound about the devastation and discomfort caused by the unforgiving march of 100-degree-plus days. In Cotulla, the La Salle County seat of 4,000 about 90 miles south of San Antonio on Interstate 35, the forecast this week called for daily temperatures of 101 to 106.

"Everything's just a varying shade of brown," lamented Kevin Coleman, a farmer and rancher who has his own 25-acre spread outside of Cotulla and manages a 5,000 acre ranch farther west for a Houston family. Of the eight stock tanks on the ranch, "three have dried up completely," he said. The grass on his acreage, he said, is "about like eating tissue paper" for his four longhorn steers. "It's pretty hard on them."

Underground aquifers such as the Trinity, which feeds Jacob's Well, and Edwards, which supplies San Antonio, the nation's seventh largest city, all have been hurt by a drop in water tables because of a prolonged absence of the rain needed to replenish groundwater.

The state's existing water supplies, those that can be relied upon in the event of drought, are projected to decline 18% by 2070, primarily because of the depletion of aquifers, according to the 2022 state water plan, although billions of dollars of projects are underway to augment water resources.

"A lot of people have their wells in the Trinity Aquifer," Sturdivant said recently as she stood on a stone ledge overlooking Jacob's Well. "We've got more people than ever living in Hays County, and they all have a little straw in the aquifer system."

The Edwards Aquifer Authority already has imposed the first three of its five stages of water restrictions and is likely to impose stage four by mid-August, which will require cities and other government customers to restrict water usage by up to 40%. For end-users such as homeowners and commercial customers, one of the most likely outcomes would be greater restrictions on outdoor water use.

Virtually all the states grappling with prolonged drought are facing pressure to maintain adequate water supplies. In California, Jennifer Clary of San Francisco-based Clean Water Action said there have been reports that as many as 250 private wells have gone dry in a 30-day period. "As the summer goes on, those numbers can climb even more … because so many people are dependent on ground wells."

Efforts to curtail local water use across the West have included voluntary and non-voluntary restrictions such as forbidding lawn-watering during the hot part of the day — resurrecting tensions between homeowner associations and property owners demanding greater leniency to install non-grass landscaping such as rock gardens to curb rising water bills.

More Pipelines for Water

The ever-present threat of droughts in the region has forced long-range planning to stockpile future water supplies, though the efforts don't ensure complete fulfillment in Sun Belt regions continually luring population growth from other states. After the 2011 drought, one of the worst droughts on record, Texas voters enacted a constitutional amendment in 2013 to implement the State Water Implementation Fund, known as SWIFT, to finance local and regional projects under the State Water Plan.

As of mid-July, the state had committed $9.2 billion in SWIFT funding to support 58 state water projects, but 2.5 million acre-feet of water (an acre-foot equals a surface acre 1-foot deep) will remain unmet by 2070, according to the 2022 Texas State Water Plan. The initiatives, developed at the local and regional level, include a broad range of measures, from building pipelines to upgrading old and inefficient water systems and developing an array of conservation projects.

One of the most ambitious projects is the $2.3 billion initiative to build more than 150 miles of pipeline to bring water from three lakes to the multi-county Dallas-Fort Worth region in North Texas, one of the nation's largest metropolitan regions with nearly 8 million people. Planners expect an additional 350 million gallons of water per day to the region.

Two new reservoirs also are on tap for North Texas, both of which will add hundreds of millions of gallons to the regional supply.

Texas' population is expected to increase 73%, according to the plan. Water planners say the state will need to spend $80 billion to fulfill the state's water needs by 2070 or face the possibility of leaving a quarter of the state's population with less than half their future water needs.

Under the current drought, said Mark Wentzel, a hydrologist with the Texas Water Development Board, the state's major water reservoirs are generally about 73% full, below what would be a normal of about 83% full. "We're feeling the pinch," he said.

But the plight facing Texas lakes is overshadowed by the more publicized crisis facing Lake Mead, formed by Hoover Dam on the Colorado River, which has sunk to its lowest level in nearly 90 years, 27% of capacity.

As of last week, at least 45% of the country was in at least moderate drought, much of it in the West and South, including Texas, and parts of the regions were experiencing severe, extreme or exceptional drought, said Curtis Riganti, climatologist at the National Drought Mitigation Center at the University of Nebraska-Lincoln.

Drought Takes Its Toll

In Oklahoma, what State Climatologist Gary McManus described as "great rainfall" in early June offered promise that the state might be spared. "And then June 11," he said, "it really got hot and stayed hot," resulting in a "flash drought" that has gripped the state in prolonged heat and lack of precipitation.

The 45-day period from June 11 to July 25 has been the driest period in 100 years, he said, surpassing the same period during the infamous Dust Bowl of the 1930s and the droughts of the 1950s.

Drought throughout the affected states has hammered the agriculture industry, leaving many farmers without a crop to harvest, and forcing ranchers unable to feed their herds on parched earth to auction off their livestock. The economic blowback also has imperiled ag-dependent businesses such as farm equipment suppliers and grain dealers.

“For agriculture, the drought is extreme right now,” said Gary Joiner, a spokesperson for the Texas Farm Bureau.

Attendance at livestock auctions has soared as ranchers seek to reduce their herd size much earlier than anticipated, said Joiner.

“They do not have the forage on the ground to feed the animals. They do not have the hay supplies to supplement,” he said. “In some cases, they don’t have the water on their property to maintain those animals.”

Val Stephens of Lamesa, whose family has a 1,500-acre cotton farm in Dawson County, was forced to file an insurance claim after he lost his cotton crop, a standard dilemma facing farmers throughout the northwest Texas Cotton Belt.

“It’s just a tough situation all the way around,” he said.

With their three children grown and out of the house, Stephens, 69, and his wife remain on a farm that has been in the family since his grandparents moved there in the 1920s. Despite the seasonal uncertainties and the ever-present threat of drought, he says he never intends to leave.

“Farmers in West Texas are very, very optimistic,” he said. “We keep after it and hoping the next year will be better, and it generally works out.”

This article was originally published by Stateline, an initiative of The Pew Charitable Trusts. Read the original here.

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PPIC | PUBLIC POLICY INSTITUTE OF CALIFORNIA

BLOG POST · AUGUST 8, 2022

Deja Thomas and Caitlin Peterson

Californians Want the Government to Do More about Drought, Wildfires, and Climate Change

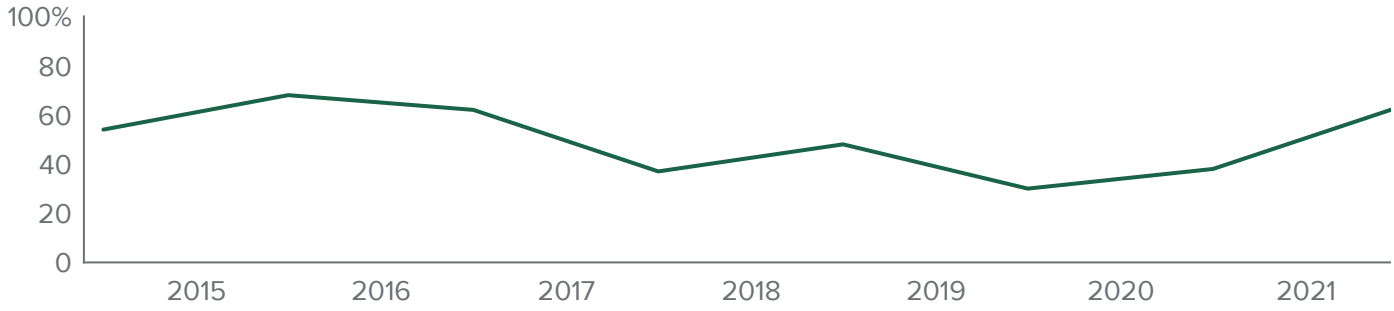
A third year of punishing drought has kept water top of mind for many Californians, according to a new PPIC survey on Californians and the Environment. This marks the third year in a row that Californians named drought and water supply their highest concern among environmental issues. Wildfire and climate change also made the top three. Strong majorities want state and local governments to do more to address drought and climate resilience, and they support ambitious climate action from the state.

Drought remains the dominant environmental issue for Californians

A near-record high 68% of Californians say water supply is a big problem in their part of the state, and solid majorities agree regardless of political affiliation or region. This approaches the level of concern reached near the end of the 2012–16 drought, reflecting another fast-moving and severe drought that has impacted normally water-rich areas of the state the most.

Concern over water supply remains high in 2022

% saying water supply is a big problem



SOURCE: PPIC Statewide Survey: Californians and the Environment, 2014-2022.
NOTES: Percentage of adult respondents who replied "a big problem" to question "Would you say the supply of water is a big problem, somewhat of a problem, or not much of a problem in your part of California?" Grey fields in chart represent periods when California was in drought.
FROM: PPIC Blog, August 2022.
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For three in ten adults, water supply and drought are the most important environmental issue facing the state. Californians are feeling the drought in their day-to-day lives. A rising number of households report their drinking water wells are going dry, and emergency water suppliers are struggling to keep up. Residents of small communities are especially at risk. For urban dwellers, particularly in southern California, new restrictions on outdoor watering have meant tightening water use since June.

The Newsom administration has urged residents statewide to voluntarily curb water use by 15%, and in June 2022 enacted a new emergency regulation that bans watering decorative turf grasses on commercial properties. They also have directed unprecedented funding to drought resilience, including boosting water supplies for the long run.

But many Californians—68%—don't feel that government is doing enough to combat the drought. And while 45% of Californians say that they personally have done a lot to reduce water use recently, a strong majority think that people in their part of the state are not doing enough. While it's true that urban water use didn't decline much this past spring, ramped up conservation efforts since the beginning of summer have started to bring water savings.

Wild re and climate change remain important issues for residents

This year, wildfire is the most important environmental issue for 13% of Californians—similar to 17% last July. Forty-five percent of residents consider it a big problem in their part of the state, with widespread concern across political leanings and demographic groups. The first half of 2022 saw relatively mild wildfire activity compared to last year, but blazes have grown in number and intensity in recent weeks, and the ongoing drought has put many areas at higher risk.

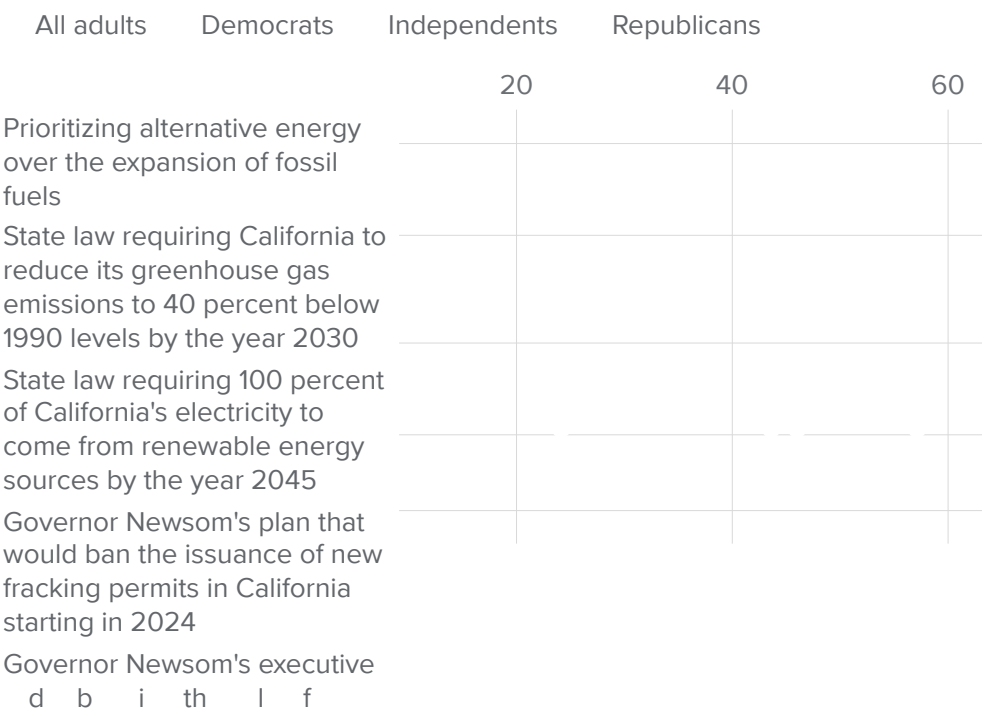
For 11% of Californians, climate change is the most important environmental issue, which is nearly the same as last year's 13%. About seven in ten adults (69%) feel the effects of climate change have already arrived, and 80% view climate change as a very serious or somewhat serious threat to the state and to their individual quality of life. Most Californians still believe that drought (77%) and wildfire (76%) are linked to climate change.

General appetite for climate action continues, but political divides remain

We continue to see broad support for state policies to reduce carbon emissions and address climate change. About seven in ten (72%) support the 2030 target to reduce emissions to 40% below 1990 levels, similar to a year ago. A similar share of adults favors SB 100, the state law requiring 100% of the state's electricity to come from renewable energy sources by the year 2045, and 74% think that developing alternative energy sources such as wind, solar, and hydrogen technology should be a priority. But these measures generally lack bipartisan support.

Majorities support climate change policies, with varied partisan support

% in favor

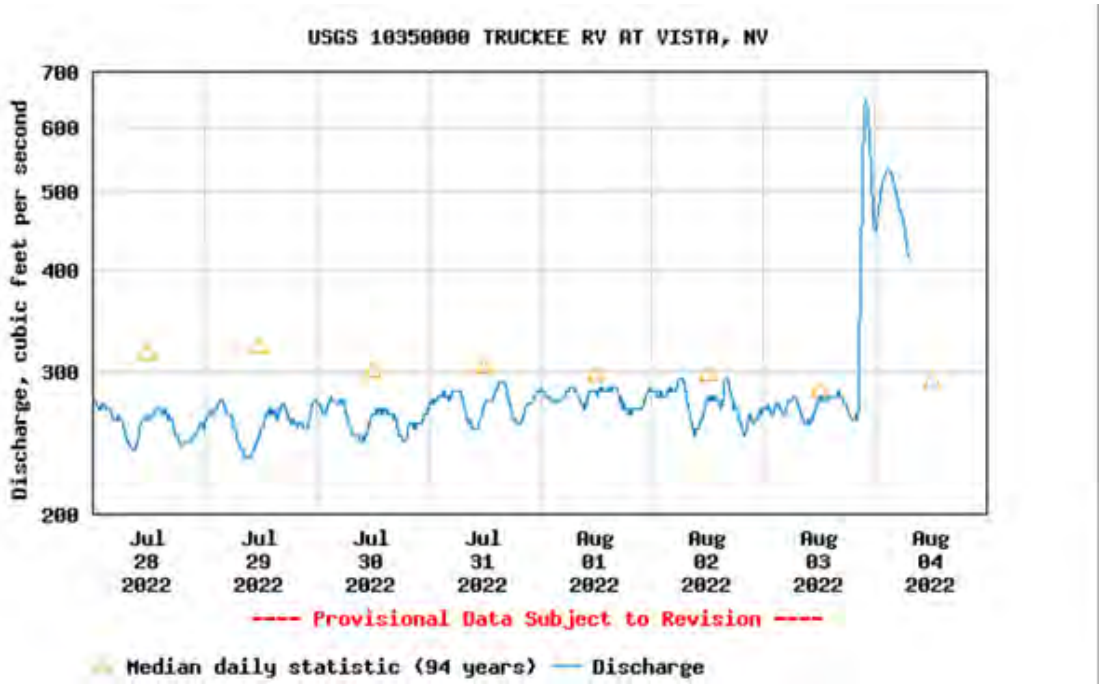


California's challenges are urgent, and the state has shown strong willingness to dedicate its budgetary surplus to environmental goals. The Newsom administration has released plans to accelerate action on climate measures, including budget items for speeding up the environmental review process for clean energy projects and for elevating carbon neutrality into state law. And along with drought resilience and response, the legislature recently adopted a $21 billion climate and energy package that includes funding for wildfire and forest resilience.

Reno closing in on record for wettest August in history

by Madison Macay
Friday, August 12th 2022

Lightning lit up the skies north of Reno. Credit: JK Jeeper



RENO, Nev. (News 4 and Fox 11) — Thunderstorms roared all over Northern Nevada to kick start the month of August. Since August 1 of this year, the Reno-Tahoe International Airport has recorded 1.55 inches of rain, making this the second wettest August in Reno history.

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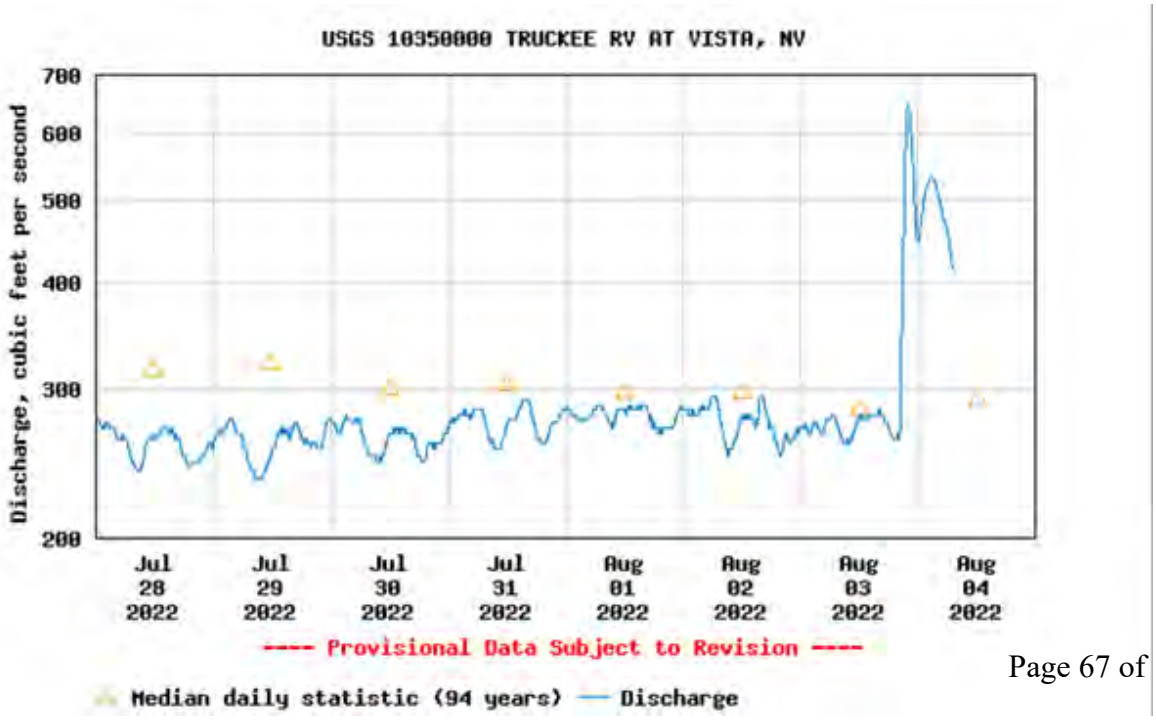
Lightning lit up the skies north of Reno. Credit: JK Jeeper

The record to beat is 1.65 inches of rain at the airport, dating back to 1965. Has this record amount of rain impacted Northern Nevada's drought levels? State climatologist Steph McAfee says, not really.

> ***One good week of summer rain usually doesn't sort of fix a drought, especially in Northern Nevada.***



Truckee River Water Level, 8/4/22

In just one day, the Truckee River rose by about half a foot on August 4th. Thunderstorms and wetting rains persisted through the week, but did not change our drought monitor reading for the week.

The U.S. drought monitor is updated every Thursday. This week's drought monitor shows no improvement from Northern Nevada's D2 Severe Drought rating, despite the downpour we saw last week. Reno has been in the D2 Severe Drought range since March of 2022.

McAfee explains "One thing to think about is, we've had a pretty wet summer, and a lot of our weather stations in the state are still dry for the water year."

The drought monitor is calculated using different types of data that take into account different levels of dryness. Dry vegetation, and how much precipitation has fallen so far in the water year.

The term "water year" is the U.S. Geological Survey (USGS)'s way of reporting surface-water supply in a 12-month period starting on October 1, through September 30th of the following year. Precipitation that falls towards the end of a "typical" calendar year doesn't always impact the flow in streams and rivers until the next spring, so tracking water levels through the "water year" is more accurate for climatologists and hydrologists.

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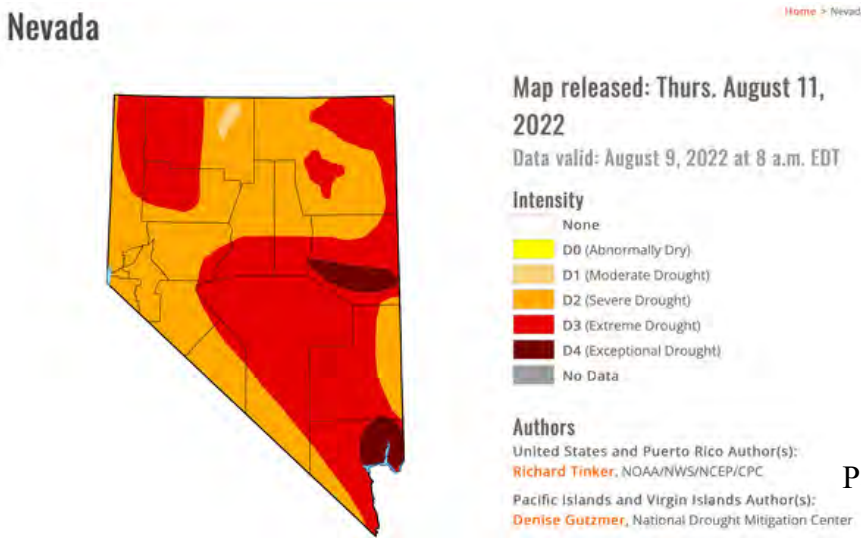
Taking the nearly two inches of rain, what's left in the water year, and the severely dry fuels in Northern Nevada in this week's U.S. Drought Monitor Map means, not much change in our drought levels is projected.

Not according to Dave Simeral, Research Scientist and Author for the U.S. Drought Monitor at the end of August.

> *"I'm not expecting anything in the next several months that are going to make a big impact*



Nevada Drought Monitor 8/11/22

The Regulatory Review
A Publication of the Penn Program on Regulation

Opinion | Business | Aug15,2022

A Tale of Two Cities' Diversifying Economies

Stephen M. Miller and Andrew Woods

Nevada offers a case study of how states can succeed in attracting new employers.

Nevada carries a reputation as a one-horse state, relying mainly on the leisure and hospitality sector. For example, in 2019, accommodation and food services made up 26 percent of Nevada's workforce. For many years, policymakers and analysts have argued that Nevada needed to diversify its economy like its neighbors Arizona and Utah. This notion has proven salient multiple times, such as during the 2008 Great Recession and the COVID-19 pandemic, when Nevada, and especially the Las Vegas metro area, became ground zero for a national economic slump.

Former Governor Brian Sandoval, along with the Nevada legislature, placed economic development decisions within the Governor's Office on Economic Development (GOED) in 2011, bringing that authority into the governor's office for the first time. The key goal of the move was to prioritize and expedite diversification of Nevada's economy, especially around the state's major metro areas of Reno and Las Vegas.

Progress since then has been a tale of two cities.

In the north, Reno attracted the Tesla battery gigafactory into the Tahoe-Reno Industrial Center (TRIC) in 2014, which attracted other firms in the gigafactory's supply chain and related fields. The development of TRIC led to a significant reduction in Reno's reliance on the leisure and hospitality sector for economic activity as demonstrated by its performance during the pandemic and its aftermath.

The unemployment rate in Reno sat at 2.6 percent as of May 2022 and has been quick to recover from its peak unemployment of 18.3 percent in April 2020. Today, the accommodation and food services industry makes up a smaller percentage of the workforce (13 percent) than it did 20 years ago despite Reno adding about 48,650 workers.

In the south, Las Vegas saw hope of similar activity in 2015 from Faraday Future, an electric car company that had planned to build a large assembly plant in Apex industrial park. Unfortunately, not long after beginning work at the Apex site, Faraday Future withdrew in 2017 due to financial shortfalls despite similar tax incentives and abatements as the Tesla gigafactory. Since then, no significant electric vehicle company has moved to the state. The unemployment rate in Las Vegas in May was 5.3 percent, which took a much longer time to come down from a high of 31.2 percent in April 2020. Today, over one in four workers in southern Nevada work in accommodation and food services, which is down from one in three 20 years ago but still much higher than in Reno.

Generally, states can attract firms through tax abatements and other inducements. This competition can be modeled as a simple two-state game, where both states are better off by cooperating and not offering incentives. But the most common outcome, known as a Nash equilibrium, occurs when both states offer incentives out of fear of losing out should the other state "not cooperate" and offer incentives. Each state is trying to improve on the profits they might have gained through the cooperative outcome. But this noncooperation leads to the worst outcome because conflict is costly.

Who benefits from the use of economic development incentives? Economist Timothy J. Bartik developed a simulation model to examine the effects of economic development incentives, such as tax abatements and other inducements, on the incomes of local residents. His study concludes that the incentives produce positive net benefits only under certain conditions, such as in sectors with high job creation. Negative net benefits can occur if, for example, incentives reduce spending for K-12 education.

Policymakers considering tax incentives should note political philosopher John Rawls' "difference principle," which affirms that the extent of inequality should only be to the advantage of the worst-off member of society, in this case, the most vulnerable to the reduction in tax collection.

Returning to Nevada, GOED offers a menu of possible tax abatements for taxes including sales and use tax, modified business tax, personal property tax, and real property tax for recycling abatements. The Nevada legislature implemented performance contracts on its tax abatement deals, which means that the benefitting company only receives the agreed-upon benefits once the company meets certain program benchmarks. For example, when Tesla and Panasonic located their gigafactory in northern Nevada, their performance requirements included $3.5 billion in capital expenditure over 10 years. Moreover, to obtain the maximum value of certain tax credits, the state's incentive package required Tesla to pay a wage of $22 per hour. The total amount of tax breaks granted to Tesla and Panasonic is estimated at $1.25 billion if they use all of them. Today, Panasonic and Tesla combined employ around 7,000 workers at the gigafactory.

Southern Nevada has not been completely left in the dust when it comes to economic diversification. Haas Automation, one of the world's largest machine toolers, announced in 2019 a $327 million, 2.5 million square foot manufacturing facility in southern Nevada that will create 1,400 new jobs within the first five years. In addition to tax incentives and abatements, what stood out about the project was the local authorities' commitment to a dedicated workforce. Together, GOED, Haas Automation, the city, and the local community college built a workforce training center to jumpstart training programs for Haas, specifically around computer-controlled machine operations and ensuring the workers mostly come from Nevada.

This model could be a spring of hope for future economic development agreements

Stephen M. Miller is a professor of economics at the Lee Business School of the University of Nevada, Las Vegas.

Andrew Woods is a director at the Center for Business and Economic Research at the Lee Business School of the University of Nevada, Las Vegas.

Tagged: business regulation, economic development, Economic Diversification, urban development, Workforce

At Tahoe summit, officials praise federal spending bills as 'game changer' for lake conservation

Carly Sauvageau August 16th, 2022 at 6:39 PM Environment

Elected officials at the 26th Annual Lake Tahoe Summit. Photo by David Calvert. Aug. 16, 2022.

Officials gathered Tuesday on the shores of Sand Harbor State Park for the 26th Annual Lake Tahoe Summit described legislation passed since last year's event as a major step forward in the fight to keep the lake blue and confront climate change.

The keynote speaker at the summit, White House National Climate Adviser Gina McCarthy, said she was excited about the expansion of clean energy opportunities and the decrease in emissions discussed in the Inflation Reduction Act that President Joe Biden signed the same day.

The administration's goal, by 2030, is to cut emissions to 40 percent less than 2005 emission levels. The bill supports investments in solar and wind manufacturing within the U.S. and an expanded power grid to support the clean energy systems.

"This is an absolute game changer," McCarthy told summit attendees, who included elected officials from Nevada and California, as well as scientists and community organizers.

White House National Climate Adviser Gina McCarthy. Photo by David Calvert. Aug. 16, 2022.

The act, which also seeks to lower the cost of prescription drugs and imposes a 15 percent minimum tax on corporations that make more than $1 billion in revenue annually, in addition to putting more than $300 billion toward energy and climate reform, was one of several government efforts discussed to improve climate change.

Sen. Jacky Rosen (D-NV), who was hosting the summit this year, talked about her involvement in the **Bipartisan Infrastructure Law** signed into law in November, which will be providing $17 million to the **Tahoe Restoration Act**. That legislation, which dates back to 2000, would have expired in two years if it had not been renewed last year and provides funding for environmental conservation projects such as efforts to stop invasive species from entering the lake, wildfire prevention and reducing stormwater pollution.

Gov. Steve Sisolak also reflected on the effect the Inflation Reduction Act could have on Nevada's water supply.

"With the aggressive climate-forward investments that are being made that are made possible by the IRA, we have the tools to move us forward," Sisolak said in a speech. "This includes $4 billion, and resources to help states like Nevada and California that rely on the Colorado River to integrate permanent water-saving measures across the Southwest."

Lake Tahoe. Photo by David Calvert. Aug. 16, 2022.

Despite sparkling Lake Tahoe in the backdrop of the event, water in the southern part of the state was top of mind for attendees.

Federal water managers **announced on Tuesday morning a plan** to cut water allocations to Nevada, Arizona and Mexico, although Southern Nevada Water Authority General Manager John Entsminger has criticized other Colorado River water users for not doing enough to respond to the drought that has lasted 23 years and forced the cuts.

Later, in an interview with *The Nevada Independent*, Sisolak said that now is the time for collaboration with the states that share the Colorado River water.

"We're going to make sure that it's done fairly — that everybody has a good chance and that's what we're going to continue to do with our fellow states," Sisolak said.

Audience at the 26th Annual Lake Tahoe Summit. Photo by David Calvert. Aug. 16, 2022.

Organizers honored Dr. Charles Goldman with the Lake Tahoe Award for his work in limnology, the study of lakes. Goldman began his work monitoring Lake Tahoe's clarity in the 1950s, becoming known as "the godfather of limnology." Because of his monitoring beginning more than 60 years ago, Lake Tahoe's clarity has been one of the most well-documented and led to the formation of the UC Davis Tahoe Environmental Research Center.

In his acceptance speech, Goldman discussed the dangers of warming lakes, particularly as they contribute to algae blooms and the spread of invasive species. He also expressed his gratitude for the award.

"I'm almost brought to tears," Goldman told *The Nevada Independent* in an interview following the event.

While wildfire smoke didn't shroud the event as it did last year, the threat of catastrophic blazes wasn't far from mind for summit speakers, several of whom thanked fire crews.

Jennifer Eberlein, the Pacific Southwest regional forester for the Forest Service, noted the development of the first sawmill the area has seen for decades. The Washoe Tribe's Washoe Development Corporation is collaborating with Tahoe Forest Products on a sawmill near Carson City to help thin out the dangerous fuel that can lead to wildfires in the Tahoe forests.

Washoe Tribe Chairman Serrell Smokey encouraged the collaborative work to preserve Lake Tahoe.

"I hope that we all continue to work together protecting sacred waters, lands, lakes that have given us life throughout all these years. And we wouldn't be here without our lake," he said.

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- Steve Sisolak – $3,200

Carly Sauvageau

Carly Sauvageau is a freelance journalist based in Reno.

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Commissioner Statement on Sustaining Colorado River Basin System

Commissioner Statement on Sustaining Colorado River Basin System

Tuesday, August 16, 2022

The Bureau of Reclamation released its Colorado River Basin August 2022 24-Month Study (https://www.usbr.gov/lc/region/g4000/24mo/2022/AUG22.pdf), which sets annual operations for Lake Powell and Lake Mead, both of which have reached critically low levels. Below is a statement from Colorado River Commissioner Becky Mitchell:

"The Colorado River Basin is facing unprecedented challenges, and the 40 million people who rely on this critical resource are depending on the Basin states and federal government to develop inclusive, sustainable solutions that protect the system and its infrastructure now and into the future. I am proud to say that the Upper Division States are meeting the moment with our 5 Point Plan (http://www.ucrcommission.com/wp-content/uploads/2022/07/2022-July-18-Letter-to-Reclamation.pdf), and our focus now turns to implementation, including additional conservation efforts to maximize efficiency in all sectors. However, this plan is ineffective without action in the Lower Basin. This will require leadership from the U.S. Department of the Interior through the U.S. Bureau of Reclamation, and bold action across the Basin. Downstream of Lake Mead and Lake Powell, depletions must come into balance with available supply. Colorado stands ready to work with our partners in the Lower Basin, the U.S. Bureau of Reclamation, and the U.S. Secretary of the Interior as they make the difficult decisions that are necessary to sustain the system."

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Feds cut Colorado River water allocations. What does it mean for Nevada?

Sean Golonka August 16th, 2022 Updated at 3:22 PM Environment

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Lake Mead sits behind the Hoover Dam on Friday, April 8, 2022. The reservoir has dropped to record low levels. (Tim Lenard/The Nevada Independent)

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AD AURIS

Facing critically low water levels at two large reservoirs and an extreme drought in the West, federal water managers announced Tuesday that Nevada, Arizona and Mexico will have less water to use in 2023.

Those cuts are not likely to affect water use in Nevada in the short term. But Colorado River users, working under a federally imposed deadline set in June to negotiate unprecedented water reductions, failed to agree on new, additional cuts by Tuesday needed to preserve the stability of the region's water system.

With no agreement in place, federal officials said on Tuesday they were starting the process of figuring out next steps. They emphasized the need for states to bring forward voluntary solutions and did not say whether their next steps would include mandating cuts from each of the states.

In June, Camille Calimlim Touton, who leads the U.S. Bureau of Reclamation — the agency responsible for managing water infrastructure in the West — laid out an **ultimatum for the seven states that depend on Colorado River water**: Come up with major cuts, or the federal government will impose the cuts itself.

Those cuts are necessary to protect water levels at the largest Colorado River reservoirs — Lake Mead and Lake Powell, both of which have hit record-low levels in the past year and have continued to drop amid the **region's "megadrought,"** which began in 2000. Under the Colorado River compact, states, tribes and Mexico are collectively entitled to more water annually than what has actually flowed through the river over the past two decades.

If those reservoirs continue to drop, it could severely hamper the production of hydroelectric power and deliveries of water to residents and farmers in the Southwest.

In June, Touton highlighted "unprecedented" drought and climate conditions in the region, and said those seven states — Nevada, California and Arizona in the lower river basin and Wyoming, Colorado, Utah and New Mexico in the upper basin — must come up with a plan to reduce annual use by 2 million to 4 million acre-feet.

One acre-foot is enough water to fill one acre, about the size of a football field, to a depth of one foot. It is 325,851 gallons of water and weighs about 2.7 million pounds.

Those states did not come to an agreement on new reductions by Tuesday, but the newly announced cuts in water use for Nevada, Arizona and Mexico follow the bureau's release of new projections for water levels at the reservoirs over the next two years.

The bureau forecasts that for the first time, Lake Mead will operate in a Tier 2 shortage condition starting in 2023. Under existing Colorado River agreements, that condition means starting next year, Nevada will have its water allotment cut by 25,000 acre-feet (8 percent). Arizona faces steeper cuts at 592,000 acre-feet (21 percent) of its annual apportionment.

Nevada, for years, has had the legal right to consume 300,000 acre-feet per year, less than 2 percent of all the legal entitlements in the Colorado River system. Last year, the state's consumption was 242,000 acre-feet, and this year the state is on track to use about 240,000 acre-feet, John Entsminger, general manager of the Southern Nevada Water Authority, said in an interview Tuesday.

That puts Nevada's usage below the 275,000 acre-feet the state will have to draw from next year following the cuts.

"At least in the near term, we're in a relatively enviable position," Entsminger said in a press release on Tuesday.

Inaction on greater water use reductions

Since Touton issued the ultimatum roughly two months ago, the seven states have been in negotiations to reduce use, with representatives from each meeting as recently as last week in Denver. But those discussions have not yielded an agreement.

The failure to act triggered a **scathing review from Entsminger**, who in an open letter to the bureau and the U.S. Department of the Interior, criticized the lack of progress made in Colorado River negotiations.

"Sixty-two days ago, Commissioner Touton and I sat side by side in the United States Senate and conveyed to the world that the Colorado River is on the brink of a crisis," he wrote in the letter on Monday. "Through our collective inaction, the federal government, the basin states and every water user on the Colorado River is complicit in allowing this situation to reach this point."

With no plans for additional cuts in place, Gov. Steve Sisolak called for additional action to conserve water use.

"We all need to do more," he said at the Lake Tahoe Summit on Tuesday. "Whatever you're doing, now isn't time to point fingers, now's the time to do a little bit more than we were doing to protect our environment and protect that lake and that water and the Colorado River."

The upper basin states have rolled out a **five-point plan for conserving water**, but a top water policy official in Colorado last week placed the onus of cutting use on the lower basin states, ***KUNC* reported**. That argument has largely been **echoed**

by the entire group of upper basin states.

But Arizona officials, too, have taken issue with the lack of progress. In a statement released Tuesday, the state's top water managers said "Arizona and Nevada put forward an aggressive proposal that would achieve 2 [million acre-feet] of reductions among the Lower Basin and Mexico in 2023 and beyond."

"That proposal was rejected," they said. "It is unacceptable for Arizona to continue to carry a disproportionate burden of reductions for the benefit of others who have not contributed."

On Tuesday, federal officials with the bureau and Department of the Interior did not identify what action they might take to force cuts on Colorado River users, instead saying that Tuesday was the start of a process to push for those changes.

"The risks that we see to the system [are] based on the best available science that we've seen, and those risks have not changed," Touton said. "So today we're starting the process, and more information will follow as far as the actions we'll take in that process."

Entsminger took issue with that lack of action, noting that massive cuts — 2 million acre-feet — are "going to be required to stabilize this river system."

"I was certainly hoping for more specificity in terms of what they would do in the absence of an agreement by the states, but they were pretty vague," Entsminger said.

But Jennifer Pitt, Colorado River program director with the conservation group Audubon, said in an interview Tuesday that she was reassured by the federal government's response, knowing that those officials will step in if the states fail to come up with their own agreement.

"I believe that the states and the federal government all understand the seriousness of the situation," she said. "They have had to make agreements about shortages in the past, but never at this scale. This is completely unprecedented."

Though federal officials did not announce specific action to take greater cuts, such reductions will likely involve all seven Colorado Basin states as well as tribes living in the region and Mexico. They will likely also mean cuts for large agricultural districts in Arizona and California.

With no specific path forward for major reductions, Pitt added that questions remain about how those cuts will leave water levels at the large reservoirs.

“Does it leave them lower than they are today? That would be dangerous. Does it leave them where they are today? That would be we're just in a holding pattern,” she said. “Or are we beginning to move toward a more reliable water supply?”

Despite the lack of agreement between Colorado River users, Entsminger, in his letter, highlighted the steps Southern Nevada has taken to reduce use, primarily through recycling indoor water and aggressive water conservation measures. He noted that the region has reduced its consumptive use of the river by 26 percent, while the population of the Las Vegas Valley grew by more than 750,000 people since 2002.

Entsminger recommended several measures for federal officials to consider for reducing use, including investing in water recycling projects and creating a grass reduction program for all Colorado River users.

On Tuesday, federal officials highlighted recent legislation to help with drought conditions in the region, pointing to $8.3 billion from the federal infrastructure package to address water and drought challenges and $4 billion from the Inflation Reduction Act for water management and conservation efforts in the Colorado River Basin and other drought-stricken areas.

Pitt noted that some of those funds can be used for environmental restoration, and she called attention to several areas of the basin threatened by declining water levels, including the **Salton Sea in California**, where a receding shoreline is exposing local communities to toxic fumes.

“We need to get busy using that funding to begin to adapt as the river’s flows are declining,” she said.

For residents in the Las Vegas Valley, Entsminger said it is crucial for them to follow the water authority’s mandatory watering restrictions. Outdoor water consumption accounts for about 60 percent of Southern Nevada’s overall water use.

He also urged residents to consider removing grass from their homes or businesses to help reduce use.

“It is imperative that our community continues to be aggressive in conservation because now is clearly no time to be resting on our laurels,” he said.

Update: 8/16/22 at 3:22 p.m. *– This story has been updated to include additional comments from Gov. Steve Sisolak and Jennifer Pitt.*

Carly Sauvageau contributed to this story.

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- Steve Sisolak – $3,200
- John Entsminger – $940

Sean Golonka

Las Vegas residents getting ahead of water conservation efforts

by: Madison Kimbro
Posted: Aug 16, 2022 / 11:16 PM PDT
Updated: Aug 16, 2022 / 11:16 PM PDT

SHARE

LAS VEGAS (KLAS)– The Las Vegas Valley Water District (LVVWD) sent out cards in the mail, looking for feedback on new proposals.

Some of the changes include the district's tiered water rate structure. Meaning the more you use, the higher your rate would be.

Also, the potential of cutting golf courses' water allotment by about a third, and restrictions on new fountains and other new ornamental water features.

Pat Kornegay of Spring Valley says water conservation e orts are a top priority for him, along with running an a ordable household, which is why he chose to trade in his front grass lawn for turf.

"I was wasting water trying to get my grass to grow in the front yard because of all the tra ic that goes by," said Kornegay. "I contacted Southern Nevada Water Authority online and found out that I could get a rebate if I was approved.

Kornegay said that since switching to turf there has been a decrease in his water bill.

"I'd say I save $20 to $30 a month just on the front yard so I'm pretty happy with that and I think it's worth doing," he said.

Kornegay's neighbor, Maria Garcia is also conscious of water use.

"We are just trying to save water, you know," said Garcia.
"For me for example at my house, if I don't need the faucet running while I'm washing dishes, I turn the water o ."

Also, to reduce unnecessarily high water use among single-family homes, an excessive-use charge is also being proposed for anyone who uses too much in a month.

Areas like Henderson, North Las Vegas, and Clark County water districts, are working closely with the Southern Nevada Water Authority. Each district would have to vote separately on any changes proposed.

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Pollution from sediment in Lake Tahoe was reduced by 600,000 pounds in 2021, according to joint NV-CA report

For Immediate Release:
Aug. 16, 2022

Media Contacts:
Dimitri Stanich, State Water Resources Control Board
Samantha Thompson, NV Division of Environmental Protection

LAKE TAHOE, NV/CA – Efforts to reduce pollution and restore Lake Tahoe's world-famous water clarity remain on track, despite impacts from climate change and other factors, according to a bi-state report released today by the Nevada Division of Environmental Protection (NDEP) and the Lahontan Regional Water Quality Control Board, part of the California Environmental Protection Agency.

Notably, the bi-state Lake Tahoe Total Maximum Daily Load (TMDL) Program's 10-year Performance Report shows that pollution from fine sediment, which significantly impairs lake clarity, was reduced by nearly 600,000 pounds in 2021, or the mass equivalent of about 206 cars. This is an increase over last year's reduction of 523,000 pounds. Nitrogen and phosphorus, both of which contribute to algae growth, have also been reduced by thousands of pounds per year through the program, thanks to efforts of federal, state, and local agencies, as well as private landowners in the basin. The latest lake clarity level was measured at a depth of 61 feet.

"Our program's efforts have become even more critical as Lake Tahoe faces other water clarity challenges from wildfire, smoke, and climate change," said Mike Plaziak, Lahontan Water Board's Executive Officer. "Going forward, restoring lake clarity will require us to continue our close coordination and implementation of best practices at every level, from how we maintain roads to how we gather data and adapt our strategies to manage climate impacts."

Results from the bi-state report found that the partnership between local governments as well as California and Nevada transportation agencies successfully achieved 10-year goals established to reduce urban stormwater pollution and improve lake clarity.

"I'm proud of the progress made over the past decade to restore and enhance Lake Tahoe's iconic water clarity," said NDEP Administrator, Greg Lovato. "Looking ahead, we will continue to collaborate with the Lahontan Water Board, Tahoe Regional Planning Agency, and Lake Tahoe science and implementation partners to advance science-driven strategies and solutions that create a more vibrant, sustainable, climate-resilient Lake Tahoe."

The Lake Tahoe TMDL Program is a bi-state effort between Nevada and California that was launched in 2011 to restore and enhance Lake Tahoe's water clarity to historic levels by requiring local governments and highway departments on both sides of the lake to implement measures that help prevent clarity-harming pollutants from reaching the lake. These implementation measures aim to help Lake Tahoe meet the *Clarity Challenge* goal of water clarity down to at least 78 feet by the end of 2031. In time, the goal is for people to once again be able to see to depths of 100 feet.

The 2022 Performance Report highlights key accomplishments through 2021, the 10-year anniversary of the TMDL program, and showcases important projects and actions taken by Lake Tahoe partners to significantly reduce clarity-harming pollutants.

Key Findings from the 2022 Performance Report include the following:

- In 2021, annual clarity measured 61 feet. However, because clarity can vary considerably from year to year based on climate, in-lake processes, and other conditions, the long-term trend is considered a more valuable indictor. Over the last 20 years, lake clarity has remained relatively stable, and is no longer declining.
- Researchers found that fine particles and algal chlorophyll are the primary variables affecting Lake Tahoe's clarity. Recent years have presented evolving and new threats to Lake Tahoe as climate change, increasing temperatures, floods, drought, and wildfires impact the lake in ways that are not fully understood.
- Wildfire continues to be a primary threat to restoring water clarity. The report takes a special look at restoration work completed for the Angora Fire, similar to what is anticipated to be accomplished for the Caldor Fire, to minimize water quality impacts, as well as studies launched to determine water quality impacts from smoke, ash and wildfire and the effectiveness of forest health and fuels reduction projects to minimize such impacts.
- Analyses show that efforts to reduce pollutants entering the lake through forestland runoff, erosion of stream beds and banks, and air deposition are on track to achieve 10-year goals.

To learn more about the TMDL Program and accomplishments to improve Lake Tahoe's water clarity, view the Lake Clarity Tracker.

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Lake Mead seen in the distant at the boat launch at Hemenway Harbor on Aug. 17, 2022. (Jeff Scheid/Nevada Independent)

Indy Environment: 'We built a house of cards:' Deal or not, Colorado River states stare down major cuts

Good morning, and welcome to Indy Environment.

First, some personal news. The newsletter is going to an every other week as I start research on a book project about water in the Great Basin. This schedule will also allow me to focus on some in-depth projects and stories.

As always, we want to hear from readers. Let us know what you're seeing on the ground and how policies are affecting you. Email me with any tips at daniel@thenvindy.com.

If you received this from a friend, sign-up here to receive it in your inbox.

By Daniel Rothberg

Major Colorado River cuts must be made, one way or another. The only looming questions are when and on what terms, with negotiators scheduled to resume interstate meetings this week.

The Colorado River remains in an unfolding and worsening crisis. Demand far exceeds supply. Long-term drought, worsened by climate change, has meant less water refilling the river's large reservoirs as water users have continued to overtap them. Lake Mead, outside of Las Vegas, is the grim evidence, where, at 27 percent full, old boats have washed ashore in what can feel like an apocalyptic scene. The math is unavoidable: Without cuts, the reservoir will keep dropping.

For months, federal officials prepared the public to expect an announcement on large-scale cuts to Colorado River use by mid-August. **But that target date came and went last week without any new action being taken or the seven states within the Colorado River basin agreeing to a consensus-based plan for water reductions in 2023.** Or as the Southern Nevada Water Authority's John Entsminger wrote in a letter, "the last sixty-two days [of interstate negotiations] produced exactly nothing in terms of meaningful action to help forestall the looming crisis."

Yes, some cuts went into effect for Nevada, Arizona and Mexico. Yet it's important to note that these cuts were already planned for, accounted for and agreed to in several deals struck over the past 15 years. The cuts are not negligible; Arizona will have its apportionment reduced by 21 percent, and Nevada's apportionment will be trimmed by 8 percent**. Still, the cuts are not nearly enough to stop the rapid decline of reservoirs like Lake Mead and Lake Powell.**

In June, the U.S. Bureau of Reclamation, which manages water systems across the West, gave the states what appeared to be an ultimatum. Agency officials said the seven states must find a unified way to make significant reductions in use by mid-August or risk the federal government stepping in. All states and all sectors were instructed to participate. So it came as a surprise to many when, by mid-August, with no agreement in hand, federal water officials did not announce any unilateral cutbacks. **And now the question is: What's next?**

The reality is that, even with the original deadline passing, there is reason for the states to cut more — and act this year. Without action, Lake Mead will continue to drop, risking a major (and in some places, the only) water supply for users downstream in Arizona, California and Mexico. Only Nevada, with its "third straw," can take water from Lake Mead if the reservoir drops below what is known as "dead pool," a threshold at which water cannot pass through Hoover Dam. If the large-scale cuts are deferred any longer, it means more uncertainty for all water users.

In an interview, Bill Hasencamp, who manages Colorado River water for the Metropolitan Water District of Southern California, the largest municipal water purveyor in the country, said that the absence of a short-term plan, combined with continued dry years, "is not a good world at all."

"The worst case is we have two really dry years," he said. "And then we have to have cuts that are unplanned [and] unpredictable. We fall into litigation [and] our water supply is uncertain."

Tom Buschatzke, director of the Arizona Department of Water Resources, echoed this sentiment during a press conference last week: "If we don't act in 2023 and Mother Nature does not bail us out — which none of us are counting on because that's a hope, not a plan —**what we might have to do in 2024 is going to even be exponentially greater and more difficult to do."**

Water shortages do not always happen overnight, but they can compound quickly.

The seven states in the Colorado River Basin are set to meet this week. Although all seven states are expected to be at the meeting, the focus is likely to zero in on reaching a deal among the three states that comprise the Lower Colorado River Basin: Arizona, California and Nevada.

The Lower Basin relies on Lake Mead as a storage reservoir. Together, the Lower Basin states (mainly Arizona and California) use more water than the Upper Basin states of Colorado, New Mexico, Utah and Wyoming. **As a result, water users are looking to the Lower Basin states (again, mainly Arizona and California) to bear most of the cuts — and negotiate a deal.**

Entsminger recognized this in his letter, writing that "the bulk of the responsibility to cut use falls upon water users downstream of Hoover Dam, because that is where the bulk of water is used."

This, however, is where talks broke down over the summer. Negotiators in the Lower Basin are working against a backdrop of historical conflicts, legal claims, unanswered questions about the federal government's authority — or what it is willing to do — and shifting realities about what the river looks like as the climate changes. One shortage plan, offered by Arizona and Nevada, was rejected. Ted Cooke, general manager of the Central Arizona Project, suggested last week that California and the federal government "were not comfortable moving forward on that basis."

California, as a whole, has the largest allocation of Colorado River water — yet it has not taken cuts (under current agreements, cuts will likely go into effect for California next year). California has "senior" rights to Colorado River water relative to the Central Arizona Project, a canal that runs through the state. That means, at the most extreme, California does not have to take a cut before the entire 336-mile canal runs dry, an outcome that would trigger a major national crisis.

But California wants a deal to reflect its priority, as was clear in a statement the Colorado River Board of California gave to the Arizona Daily Star, saying the Arizona and Nevada plan "was not respectful or in line with the existing priority system." At the same time, Arizona, which already made significant cuts, has said it will not agree to a plan that puts all of the onus on the state. California bears risk with the system crashing, Arizona officials argue, and must cut back more.

As for the magnitude of the cuts, it's difficult to get a clear answer. The interstate negotiations occur in closed-door sessions, and the proposed cutbacks can fluctuate throughout the talks.

Generally, it comes down to this: How much does Arizona give up? How much does California give up? And that calculus is being considered as negotiators prepare for even tougher talks about how the river should be managed after 2026. No one wants to forgo too much. Then there is the question of compensation. If agricultural users consume most of the water and are going to be asked to bear the brunt of the cuts, how much should agricultural districts be compensated to conserve water? This was another major sticking point in the talks among the states earlier in the summer, with some asking for large amounts of funding.

Or as Entsminger stated in his letter, "the unreasonable expectations of water users, including the prices and drought profiteering proposals, only further divide common goals and interests."

JB Hamby, a board member of the Imperial Irrigation District in Southern California, said it is important that any plan recognizes the senior rights held by California and agricultural districts, in particular. But he said California's Colorado River users are willing to compromise by bringing water or funding to the table. Hamby said he recognizes the risk facing California if a deal is not negotiated, given the fact that the Colorado River is the district's only water supply.

Not meeting the mid-August timeline, he argued, "shouldn't be viewed as a failure," noting that past agreements took multiple years to complete. He added that "there's a lot of moving parts."

But time is running out quickly to put a plan in place by 2023. Water users in the three states, especially Arizona and California, are planning their water orders for the following year. **This is where federal action could come into play.** Although the federal government did not take unilateral action last week, officials did not foreclose a possibility of required cuts in the coming weeks. In fact, the federal government hinted at a few ways it could take action. One option would be to account for evaporation losses from reservoirs, including Lake Mead.

In an Instagram Live this week, U.S. Bureau of Reclamation Commissioner Camille Calimlim Touton **said the federal agency "is ready to act to protect the system with or without our partners."** Touton added that, for now, the agency is still looking for a consensus-based plan.

Pat Mulroy, the former general manager of the Southern Nevada Water Authority, said a real threat of federal action might motivate the states, but the threat has to be more than rhetoric.

"I think the federal government is going to have to rattle their sabers," she said. "And I think the federal government putting an evaporation proposal on the table will start the sabers moving."

As for the Upper Basin, Mulroy noted that the federal role is more limited. But she said "the only thing…I would do to give more credibility to the efforts of the Lower Basin is I would stop the St. George pipeline dead in its tracks," referring to a Utah plan to divert water from Lake Powell.

These talks about short-term cuts are only the start of harder negotiations. Many unanswered questions remain about how the river's century-old framework operates in times of severe shortage and in an environment that is aridifying faster than water users have adapted to it.

Mulroy likened some of the issues embedded in the system to a "house of cards."

"And," she added, "we stacked one bad idea on top of another bad idea."

Workers at Cortez Hills Mine, a gold deposit in Crescent Valley, Nevada
(Nina Riggio/The Nevada Independent)

Last week, *The Nevada Independent* and *High Country News* published the second part of our **investigation into business practices at Nevada Gold Mines.** Our story focused on worker concerns about safety, and it was thoroughly reported over the past few months. In addition to talking with workers, we interviewed Barrick Gold CEO Mark Bristow, who acknowledged that the company's Nevada division had the worst safety record out of all Barrick operations. We are continuing to report on this. If you have a story to share, we have an anonymous tip form.

Whether it's lithium mining or solar fields, in so many ways, the Mountain West has found itself at the epicenter of a global energy transition away from fossil fuels and toward electrification. It is a complicated transition, more tricky than many make it out to be. **But these nuances are not lost on *The L.A. Times*' Sammy Roth, who published an excellent piece this week on a transmission line extending across the sagebrush sea.** A lot of Nevada in this story.

A desert debut: Michael Heizer's *City* in Lincoln County will open to visitors. More from Michael Kimmelman of *The New York Times*, with stunning visuals from Todd Heisler and Noah Throop.

"A rare deep olive and silver minnow found only on a private ranch in Nevada's Fish Lake Valley may qualify as an endangered species by the U.S. Fish and Wildlife Services," *The Las Vegas Review-Journal*'s Jimmy Romo reported earlier this week.

KTNV's Darcy Spears reveals the top water users in the Las Vegas Valley. This quote from Las Vegas Valley Water District spokesperson Bronson Mack puts their exorbitant residential water use into perspective:

> **"The vast majority of those residential highest water users are using more water in a single month than the average household uses in an entire year." Sen. Catherine Cortez Masto (D-NV) held a press conference at the Las Vegas Valley Water District,** asking federal officials to take a more active role in the Colorado River negotiations and disbursement of federal funds, *The Las Vegas Review-Journal*'s Colton Lochhead reports.
>
> **Gov. Steve Sisolak appointed Entsminger, Mulroy and his climate advisor Kristen Averyt to a three-person committee on water.** *The Las Vegas Sun*'s Bryan Horwath has the story.
>
> **Municipal water utilities are looking to more conservation,** *KUNC*'s Alex Hager reports.

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New Pasadena Water and Power Portal Sees Over 10,000 Sign Up for Paperless Billing

Published on Monday, August 22, 2022 | 5:13 am

Pasadena Water and Power is now well into implenting a new Customer Information System (CIS), which has replaced the utility's aging customer billing system and features a modern customer portal that allows customers to access online services and account information.

The new CIS, PWP said, will allow customers to register for services online, enroll in paperless billing, view past usage data and receive notifications when e-statements are available. Customers will also be able to link multiple accounts for ease of account management.

The new system was tested through a 90-day stabilization period that ended the first week of July. PWP said the system's transition from stabilization to steady state is now complete.

In a report for the Municipal Services Committee, which meets on Tuesday at 4 p.m., PWP Interim General Manager Jeffrey Kightlinger said over 34,000 customer have signed up for the new portal, an adoption rate of about 40 percent, and more than 10,000 have enrolled in the paperless billing option.

Over 20,873 customers have also signed up for the AutoPay feature, a 25-percent enrollment rate, the report showed.

Kightlinger said personnel from other City departments, including Public Works, Finance, Information Technology, and contractors such as Accelerated Innovations, lnfoSend, Red Clay Consulting, and TMG Utility Advisory Services Inc., assisted PWP in implementing the new system.

When the new system finished installation in April, Kightlinger said although they were actively encouraging customers to pay online and use the system's new AutoPay features, traditional payment options, such as paying by mail, by telephone, or in person at City Hall, will still be available.

"We strive to provide excellent customer service to all customers," he said. "While we hope many customers will take advantage of our improved online services, we are always happy to assist customers however they are most comfortable."

With the new CIS in place, PWP will now start a new phase in the utility's modernization program – the Advanced Metering Infrastructure (AMI) project – which will involve using a wireless network and advanced electric and water meters that could transmit usage data to both customers accessing the PWP web portal and City staff.

"An AMI Steering Committee has been formed with representation from multiple City departments," Kightlinger said. "The deployment of AMI and CIS will provide much improved customer service and the ability to adopt modern rate structures to align with customer usage."

The City has spent about $22.7 million for the CIS project as of the middle of July. For the AMI project, expenditures of anywhere from $45 million to $65 million are expected, PWP said.

Members of the public can access Tuesday's Municipal Services Committee meeting through http://pasadena.granicus.com/MediaPlayer.php?publish_id=9 [http://pasadena.granicus.com/MediaPlayer.php?publish_id=9] and www.pasadenamedia.org [http://www.pasadenamedia.org/].

Public comments may be submitted through the webpage www.cityofpasadena.net/commissions/public-comment

[http://www.cityofpasadena.net/commissions/public-comment].

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Southern Nevadans hear, follow message about water conservation

Summerlin converting landscapes, roundabouts to desert landscape from water-hungry grass

By Marvin Clemons Las Vegas Review-Journal

August 22, 2022 - 6:28 am

Updated August 22, 2022 - 10:09 am

Southern Nevadans are heeding the most recent call for residents of Colorado River basin communities to take stronger water conservation measures.

Las Vegas Valley residents have been practicing such conservation measures for decades, and more are now taking steps to do the same. No fewer than 62 residential homeowners applied Tuesday to enroll in the Water Smart Landscape program, which removes grass in favor of desert-friendly plants and trees.

“With the recent news of an added shortage reduction we’ve seen an immediate uptick in residential applications for the program,” said Bronson Mack, spokesman for the Las Vegas Valley Water District and Southern Nevada Water Authority. “That’s a very positive response and shows that the residents of Southern Nevada understand the need to conserve, especially in their outdoor water use.”

John Entsminger, general manager of the water authority and Nevada’s top Colorado River negotiator, used sharp words in letters to Interior Department officials last week as he decried the fact that two months of negotiations among water users have failed to come anywhere close to reaching a plan to cut 2 million to 4 million acre-feet of water use for the coming year.

Before the states’ water officials began negotiating, the Bureau of Reclamation warned that failure to reach agreement would result in the federal government mandating water use reductions. The deadline passed without the federal government making any specified cuts, saying only that it wants the states to cooperate.

Blazed the trail

Southern Nevada has been at the forefront of water conservation for decades, and the water authority’s message is for other communities to follow.

“Our community has blazed the trail for urban conservation both nationally and internationally by reducing our consumptive use from the river by 26 percent while adding more than 750,000 people to our valley,” Entsminger said while spelling out 12 recommendations for the federal government to consider implementing

— including that all communities in the basin adopt turf removal programs or increase funding for programs similar to Water Smart.

Phoenix does not have any turf removal program while Los Angeles has offered some turf rebates, Mack said, adding that Aurora, Colorado, recently passed ordinances that prohibit nonfunctional grass in new developments.

In Southern Nevada, 4.5 million square feet of grass have been converted to desert landscape this year, an annual savings of 254 million gallons of water, Mack said.

Nearly 3,400 residential customers have completed conversion projects this year.

73 gallons vs. 18 gallons

Because Nevada receives the smallest allocation of Colorado River water, officials have been preaching conservation for more than two decades.

“The replacement of grass with drip-irrigated trees and shrubs is one of the most effective ways to permanently reduce water use across our community,” Mack said. “When you take out grass, that is a permanent water saving.”

One telling statistic: A square foot of grass in the Mojave Desert takes 73 gallons of water a year to survive. With Water Smart or drip-irrigation, a square foot needs 18 gallons a year.

“Now think about an entire front or back yard,” Mack said. “A single square foot of grass takes a column of water 10 feet high per year to survive.”

Summerlin’s efforts

Mack said Summerlin has been busy all summer converting water-hungry grass to plants and shrubs.

“They have really, really put forth a strong effort and a commitment to removing nonfunctional grass,” he said. “Just about everyday; some of it is roundabouts and some from streetscapes.”

Summerlin’s grass removal program will run at least 12 to 18 months and probably beyond. Officials have worked with the water authorities to identify areas where turf reduction is appropriate, while still ensuring the usefulness of recreational open spaces.

“To date, the removal of nonessential turf and/or the replacement of Fescue grass with Bermuda grass in Summerlin is saving more than 13 million gallons of water annually,” Summerlin spokeswoman Melissa Warren said in an email.

“This is a valley-wide issue of the highest priority, so everyone is eager to do their part to reduce water consumption for the benefit of Southern Nevada,” she wrote.

Contact Marvin Clemons at mclemons@reviewjournal.com. Follow @Marv_in_Vegas on Twitter.

California & Nevada Lake Tahoe Total Maximum Daily Load Program 10-year Performance Report Released

Results from the bi-state report show that local government and California and Nevada transportation agencies have achieved the 10-year goals set to reduce urban stormwater pollution and improve lake water quality. Cristina Tuser

Aug. 23, 2022

The California Environmental Protection Agency reported that pollution and restoration reduction efforts at Lake Tahoe's remain on track, according to a bi-state report released by the Nevada Division of Environmental Protection (NDEP) and the Lahontan Regional Water Quality Control Board.

Results from the bi-state report show that local government and California and Nevada transportation agencies have achieved the 10-year goals set to reduce urban stormwater pollution and improve lake water quality.

According to the bi-state Lake Tahoe Total Maximum Daily Load (TMDL) Program's 10-year Performance Report shows, pollution from fine sediment was reduced by nearly 600,000 pounds in 2021. Last year saw a reduction of 523,000 pounds.

Additionally, nitrogen and phosphorus have also been reduced by thousands of pounds per year through the program, reported the California EPA.

Key Findings from the 2022 Performance Report include:

- Annual clarity measured 61 feet;
  Over the last 20 years lake clarity has remained relatively stable and is no longer declining;
- Researchers found that fine particles and algal chlorophyll are the primary variables affecting Lake Tahoe's clarity;
- Evolving and new threats to Lake Tahoe as climate change occurs includes: increasing temperatures, floods, drought, and wildfires; Wildfire continues to be a primary threat to restoring water clarity; And
- Analyses show that efforts to reduce pollutants entering the lake through forestland runoff, erosion of stream beds and banks, and air deposition are on track to achieve 10-year goals.

The Lake Clarity Tracker can be viewed here.

"Our program's efforts have become even more critical as Lake Tahoe faces other water clarity challenges from wildfire, smoke, and climate change," said Mike Plaziak, Lahontan Water Board's Executive Officer, reported the California EPA. "Going forward, restoring lake clarity will require us to continue our close coordination and implementation of best practices at every level, from how we maintain roads to how we gather data and adapt our strategies to manage climate impacts."

"I'm proud of the progress made over the past decade to restore and enhance Lake Tahoe's iconic water clarity," said NDEP Administrator,

Greg Lovato, reported the California EPA.
"Looking ahead, we will continue to collaborate with the Lahontan Water Board, Tahoe Regional Planning Agency, and Lake Tahoe science and implementation partners to advance science-driven strategies and solutions that create a more vibrant, sustainable, climate-resilient Lake Tahoe."

The Lake Tahoe TMDL Program was launched in 2011 to restore and enhance Lake Tahoe's water clarity and aims to help Lake Tahoe meet the Clarity Challenge goal of water clarity down to at least 78 feet by the end of 2031.

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USA TODAY NEWS

Tribes take a central role in water management as drought and climate change effects worsen

Western water managers bring tribes into the picture as drought and climate change push the region toward deeper shortages.

Debra Utacia Krol Arizona Republic

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PHOENIX — As some Arizona tribes secure water allocations, they and other tribal communities now face a new threat: two decades of drought and worsening effects of climate change that already have altered the landscape across Arizona and the Southwest.

Alongside their non-Native neighbors, Indigenous peoples are struggling with dying crops, decreasing numbers of culturally-important plants like Emory oaks and basketry plants, and uncertain water supplies.

But while tribes hold senior water rights in most areas of the state, they were left out of most of the discussions about Colorado River management until 2018, when they participated in developing the Drought Contingency Plan. That plan supplemented the 2007 river management guidelines that had left tribes largely on the sidelines.

Part of the new push by state and federal entities to bring tribes to the table is likely due to finally accepting who had rights to the river in the first place, said Heather Whiteman Runs Him, an associate professor at the James E. Rogers College of Law at the University of Arizona.

Those rights could include aboriginal, or time immemorial water rights, which are tied to historical water use for irrigation, cultural practices or to sustain other resources like fish or water-dependent plants, or tribal water rights tied to federal law and policies, she said. Without the tribes' water, state and federal water managers faced shortages they almost certainly couldn't solve on their own.

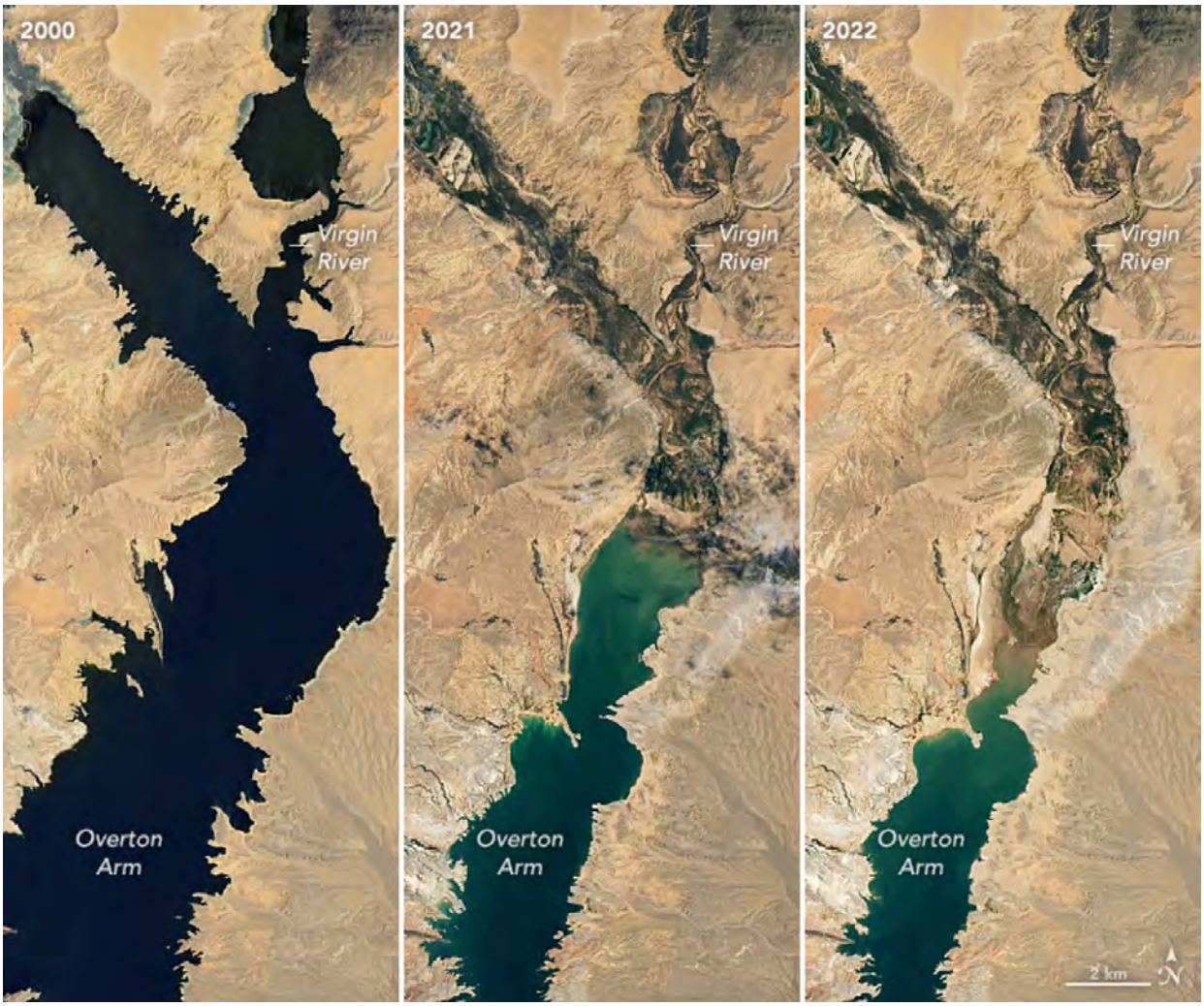
"That tribes' water rights and other such federally reserved rights were going to play a significant part of the picture of managing the Colorado River became clearer to everybody," said Whiteman Runs Him.

"I think the access of tribal nations to legal assistance to bring claims to protect, assert and quantify their rights to water increased over the course of the 1970s with things like the founding of the Native American Rights Fund and other similar organizations, legal aid organizations," she said, "and just the increased number of attorneys who are trained in the principles of federal Indian law to represent the interests of tribes in federal and other forums."

The 2007 guidelines set up a three-tiered shortage protocol that governs river allocations during drought conditions.

The Lower Basin portion of the 2019 drought plan was developed to further ease the risk to water supplies due to the ongoing drought as well as to create flexibility to provide incentives for extra voluntary contributions to store water in the reservoir.

The tribes' willingness to act collectively to deal with decreased river flow took on extra urgency in April 2021, when a Bureau of Reclamation study found that water levels in Lake Mead were expected to drop below 1,075 feet, which triggered a tier 1 shortage and the first round of cuts in Colorado River water delivery to Arizona.



NASA's satellite images show water levels in Lake Mead plummeting over the last 22 years.

NASA EARTH OBSERVATORY

Tribes stepped up to share the burden with the goal of avoiding further reductions to river allocations. In addition to about 674,000 acre-feet that the Gila River Indian Community and Colorado River Indian Tribes have already left or pledged to leave in Lake Mead to bolster its storage, tribes signed an agreement in December to contribute another 180,000 acre-feet to forestall further cuts in water delivery to Arizona.

Joshua Moore, farm manager at Colorado River Indian Tribes Farms, drives through the farm's land in Parker on Dec. 10, 2021.
JOEL ANGEL JUAREZ/THE REPUBLIC

The emerging role tribes play in conserving and managing water in the Southwest shows their influence as senior rights holders and their determination that they won't be left out again or left to talk to each other instead of engaging with other water managers.

Tribes look to conservation

As the drought worsens and water supplies grow ever tighter, tribes are increasingly looking to conservation to preserve their water for farming, homes and economies. Tribes with a long agricultural heritage are particularly concerned with preserving their water supplies.

"Whether we're talking about on-reservation rights or off-reservation rights and in terms of water resources, that can get really sticky in places where basins have been over allocated for well over a century and agricultural practices maybe haven't evolved the way that they could in order to be more conservation oriented," said Whiteman Runs Him.

The Colorado River Indian Tribes' farm produces alfalfa, grains, onions and garlic as well as other crops. Currently, CRIT farms about 12,000 acres.

Joshua Moore, CRIT Farms manager, is an enrolled CRIT tribal member, and he is Hopi and Mojave. Agriculture is in his blood. The Hopis are accomplished dryland farmers, while his Mojave family includes cattle ranchers and farmers.

Members of the Mojave, Chemehuevi, Hopi and Navajo cultures make up the tribe.

"It just kind of astounds me that there are so many families in this valley that have this history of agricultural production," Moore said. "I'm very proud of that. I wanted to give my own children the opportunity to grow up in such a fertile valley and that was one of the reasons we moved back to take the opportunity to work for the tribe as farm manager."

Moore said one of his priorities is protecting the tribes' agricultural future by engaging with other entities and adopting technology to conserve water and continue to farm in a changing climate.

One challenge the farm deals with is an aging water delivery system managed by the Bureau of Indian Affairs. The nearly 80-year-old canals were built for flood irrigation, which is subject to evaporation, seepage and other issues that add up to lost water. So CRIT Farms is turning to more efficient irrigation methods.

"Our newest and most exciting method is the use of micro-drip irrigation," Moore said. Flood-irrigated fields can be converted at relatively low cost to the new system, which was developed in Israel.

"Any way that we can try and save water and to protect our future in agriculture is worth a shot and worth the time," Moore said.

Down the river near Yuma, the Quechan Indian Tribe also sees the need to conserve water to deal with a hotter, drier climate and a shrinking Colorado River.

"We find ourselves in a time of increasing threats to water due to climate change," said Brian Golding, director of economic development for the Quechan Tribe. "The annual rainfall in this area is about 3 inches per year."

Agricultural producers in Yuma are well known for making "very wise use of water," he said, and farmers in the southwestern corner of Arizona, including Native farmers, have been implementing measures to reduce the amount of water to irrigate crops.

"We've been working on a number of different fronts to try to assure that this lifeblood that we enjoy is conserved and handled in a sustainable way." Golding said.

Among other measures, Quechan is replacing aging water pipes and service lines, and installing water meters to better measure water usage.

Other tribes are also engaged in conservation measures. The Gila River Indian Community is banking water in several aquifers, including the MAR-5 Interpretive Trail, a recharge site that also nurtures plants important to Akimel O'odham and Pee Posh Peoples.

Tribes call for equal negotiating status in river management

Even after tribes had finally negotiated on an equal basis to create the Drought Contingency Plan, they still felt left out, relegated to talking among themselves and not to other water managers on a regular basis. They decided to take action and began making their collective voices heard.

The tribes with basin rights formed the Colorado River Basin Tribal Coalition in 2020 to advance a whole-basin approach to river management, and to develop a consensus on advocating for their rights to water, and clean water in particular.

In March 2021, the Inter Tribal Council of Arizona signed a memorandum of understanding with the U.S. Bureau of Reclamation to enable direct engagement on river management. The council said it believes that collaboration with the federal government's principal water manager will ensure the organization's 21 member tribes' efforts to have seats directly at the negotiating table as the new Colorado management guidelines are developed.

Although the agreement won't stop individual tribes from intergovernmental consultation, as the council's executive director Maria Dadgar said, it will keep all parties involved with the process through the new Colorado River Tribal Roundtable, housed at ITCA.

"So much of what is happening now is around the expiration of the 2007 interim guidelines on the management of the Colorado River in 2026," Dadgar said. "There are a lot of negotiations that are going to be taking place."

The Inter Tribal Council has a longstanding relationship with the Bureau of Reclamation, she said, and many federal and state agencies look to the council as a means to meet with tribal leaders.

"The memorandum of understanding is just sort of like our agreement to collaborate on water management issues," Dadgar said. "ITCA has a longstanding relationship with the BOR. And I think in many ways we are looked at as a platform for many federal agencies and state agencies, including Reclamation, to meet with tribal leadership, have that forum with tribal leaders."

"But this is especially historic because we're actually creating something new," she said. That something is the Colorado River Tribal Roundtable, which Dadgar said was a collaborative way to jointly manage Colorado River water.

Bernadine Burnette, president of the Inter Tribal Council, called the agreement "a historic step toward protecting the significant water rights and entitlements of ITCA Member Tribes." Formalizing the relationship between the tribes and Reclamation, she said, would leverage the federal agency's resources in building tribal participation.

Tanya Trujillo, assistant secretary of the Interior for water and science, said the memorandum "is our agreement to collaborate on water management issues."

In November 2021, some 20 tribes linked to the Colorado River wrote Interior Secretary Deb Haaland with a message: Put tribes at the negotiating table for the next long-term river management agreement.

Trujillo welcomed these developments.

"I was really excited about that agreement, and I think it's a great way for us to be doing our work there, particularly in Arizona, with so many tribal issues in so many areas," she said.

Trujillo praised Reclamation staff who helped broker the agreement for being "very committed and adamant that that's exactly the way we need to be doing business and making sure we have an open line of communication with various tribal representatives and leaders in Arizona."

JOEL ANGEL JUAREZ/THE REPUBLIC

> **Any way that we can try and save water and to protect our future in agriculture is worth a shot and worth the time.**
>
> Joshua Moore, CRIT Farms manager

The department is developing more sessions with tribes within the Colorado River basin so Interior officials can "hear directly from tribal leaders on the river issues," she said.

The Interior Department wants progress on Indian water rights settlements and to ensure tribes throughout the Colorado River Basin are included in all discussions and decision-making processes, Trujillo said. Funding from the bipartisan infrastructure law will enable water projects for existing settlements to be completed more quickly than the government otherwise would have been able to.

Several federal agencies are making good on funding tribal water needs. Among other recently-announced projects, the Department of the Interior, the Department of Agriculture and the Indian Health Service announced a total of $229 million in funding for several water and sanitation projects, including a long-delayed tribal water delivery project to serve eastern Navajo Nation homes and communities.

"And it's really an opportunity of a lifetime to be able to be in this position and have that new influx of additional funding that can help us move these important projects along," she said, "not only for Arizona but across the nation, that's really a great place for us to be."

Reliable water supplies mean more than swimming pools and fountains for tribal communities. Water would ensure the future for future generations, Hualapai Chairman Damon Clarke said. Right now, the tribe whose land borders the South Rim of the Grand Canyon, is challenged to build new housing or grow its major revenue source, the tourism venue Grand Canyon West. The tribe is even challenged to fight wildland fires due to the lack of water, he said.

But with water, Clarke said, "We can actually grow, have housing, get our infrastructure to where it needs to be."

Stephen Roe Lewis, governor of the Gila River Indian Community, has become one of the leading voices in advocating for tribal engagement in water management issues. He is the son of the late water attorney Rod Lewis, who was one of the chief architects of the 2004 Gila River water rights settlement, and can take a long view of what tribes have achieved and what work remains.

"If it wasn't for the support of the Gila River Indian Community, the Colorado River Indian Tribes or the Tohono O'odham Nation, the Arizona DCP wouldn't have been successful," he said.

But neither the water nor the tribes' growing influence wasn't handed to them, Lewis said.

"We've had to fight to have a seat at the table."

Follow Debra Krol on Twitter: @debkrol.

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LAS VEGAS SUN

Sisolak appoints committee of water experts to brainstorm conservation ideas

By Bryan Horwath (contact)

Wednesday, Aug. 24, 2022 | 2:21 p.m.

Nevada Gov. Steve Sisolak on Wednesday announced the formation of a committee made up of what he called some of the smartest people in the water conservation realm.

The three-person committee comprises Southern Nevada Water Authority General Manager John Entsminger, former SNWA General Manager Pat Mulroy, and UNLV professor and governor's office climate advisor Kristen Averyt.

"I feel these three people are the most knowledgeable and have the most experience in the state of Nevada when it comes to water consumption," Sisolak said. "We need to do whatever we can to put our brightest minds together to come up with a plan on how to continue on our path of conservation."

Sisolak made the announcement after a tour of a low-lake-level water pumping station at Lake Mead, about 30 miles from downtown Las Vegas.

Amid a relentless drought in the Southwest, leaders in Nevada and other states have worked to raise awareness about the region's finite water resources.

The Colorado River, which feeds Lake Mead, provides water to more than 40 million people in seven U.S. states and Mexico.

Last week, the U.S. Department of the Interior announced that Nevada will lose 8% of its water allotment from the river next year.

During Sisolak's tour of the pumping station — completed in early 2020 at a cost of $522 million — he lauded regional water authorities for their planning and work to help conserve water.

But other states need to do more to help with the effort, he said.

The water level in Lake Mead has fallen more than 150 feet since the turn of the century. It is now about 1,045 feet above sea level, some 176 feet lower than its capacity.

"Southern Nevada has been ahead of the curve when it comes to water for decades," Sisolak said. "Water levels have been going down quicker than we expected, but we've taken remarkable forward-thinking steps, and we're not going to stop here. We desperately need the rest of the states that rely on Colorado River to do what we're doing. We also need the federal government to act with the same urgency that we've had."

Solutions like Lake Mead's newest water pumping station will help Southern Nevada in the near term, Sisolak said.

In April, another pumping station became inoperable because of the low water levels.

The addition of the new station, which can pull water from deeper in the lake, will protect Southern Nevada water users even if the water level reaches dead pool territory, about 895 feet above sea level.

At dead pool levels, Hoover Dam would no longer be able to release water downstream to California, Arizona and Mexico.

“If we hit dead pool, which I think we will not hit, we can continue to take water out of the lake and provide water for everybody in the (Las Vegas) Valley,” Sisolak said. “Obviously, if we get to the dead pool point, nobody else would be taking water out of the lake, so that water would last a lot longer. We need to continue to conserve and have best practices, but we’ll be OK.”

Nevada Assembly Bill 356, which prohibits the watering of decorative, nonfunctional grass, was signed into law by Sisolak earlier this year. The law applies to areas served by the Water Authority and requires affected properties to replace grassy areas.

Sisolak and regional water experts have long touted Southern Nevada’s recycling of water used indoors, which eventually ends up back in Lake Mead. It’s water for other uses — landscaping, pools and golf courses — that is lost to the system forever.

About 60% of the water used in Southern Nevada is for residential purposes, according to the authority.

Though the Las Vegas tourist corridor welcomes tens of millions of visitors each year, about 5% of water is used by resorts along the Strip. In all, Las Vegas has over 150,000 hotel rooms.

“The resort properties are conservation-oriented; they do a great job,” Sisolak said. “Is there more than they can do in terms of maximizing their use of water? I think there’s always more we can all do.”

While Las Vegas is one of the fastest-growing metro areas in the country, Sisolak said it’s not time to start to think of limiting that growth.

Southern Nevada actually uses less water than it did 20 years ago.

Sisolak said, however, that economic development officials would be best suited to recruit out-of-state companies that don’t use a lot of water for their operations.

Averyt said the new committee will develop “different ideas and best practices” for water conservation within the seven-state Colorado River Basin region.

“I challenge anyone to come to Lake Mead, look at what’s happening here, and say, ‘Oh, gee, we don’t have a problem here.’ This is truly the manifestation of climate change,” she said.

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Scene in Vegas
Entertainment: Miranda Lambert kicks off her first Las Vegas residency

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CLIMATE IN CRISIS

Coming soon to the Las Vegas Strip: Drought rules barring fountains, rivers and lakes

Proposed water cuts could also affect golf courses in southern Nevada, where home swimming pools are already subject to new restrictions.

Aug. 25, 2022, 4:41 PM PDT

By Deon J. Hampton

Water cuts proposed for southern Nevada to cope with drought could change the face of the world-famous Las Vegas Strip, where thousands of visitors amble by gentle rivers fronting hotel-casinos and watch colorful water shows at night.

A series of measures envisioned for metro Las Vegas to reduce water consumption would bar new resort hotels from including water features in their designs, like the popular Fountains of Bellagio at the Italian-themed Bellagio hotel.

One of the three proposals outlined by the Las Vegas Valley Water District would slap owners of single-family homes, starting next year, with a $9 fee for every 1,000 gallons they use over the seasonal water limit. Under another proposal, water budgets for golf courses would shrink by a third in 2024.

The proposals will be voted on by the water district board when the public comment period is over.

One rule already set to take effect Sept. 1 will limit residential swimming pools to a maximum size of 600 square feet. And down the road, water officials could further restrict outdoor water use as part of an ongoing preemptive effort.

The proposed restrictions follow the U.S. Bureau of Reclamation's recent announcement that Nevada would have to cut its water consumption from the Colorado River by 8% next year, as Western states grapple with reducing its reliance on the once-mighty river amid a historic drought.

Nevada, which uses the smallest amount of water among the seven states that draw from the river, said it will reduce its annual allocation of 300,000 acre-feet by 25,000 acre-feet next year. An acre-foot of water can supply two families of four for a year. Nevada used 242,000 acre-feet last year.

“It was something that we’ve known was coming,” said Bronson Mack, spokesperson for the Southern Nevada Water Authority. “We have been preparing for it,” he said, adding if more cuts are made, it will come from outdoor water use.

The other states are Arizona, California, Colorado, New Mexico, Utah and Wyoming, which have to come up with a plan to save an additional 2 million to 4 million acre-feet of water from the river.

The Bureau of Water Reclamation gave the states until last week to devise a plan, but they failed to reach an agreement, opening the door for the federal government to step in and force cuts. The bureau has not yet taken that step.

“In order to avoid a catastrophic collapse of the Colorado River System and a future of uncertainty and conflict, water use in the Basin must be reduced,” Tanya Trujillo, an assistant secretary in the Interior Department, said in a statement last week.

Drought has threatened the water levels of the Colorado River, which serves roughly 40 million people in the West and supports $1.4 trillion in annual economic activity, including agriculture and other commerce.

The river also feeds into Lake Powell and Lake Mead, the largest reservoirs in the country. Water levels in Nevada’s Lake Mead hit historic lows in June.

The proposals are part of a long history of Nevada staying on top of urban water use, said Bart Miller, director of the Healthy Rivers Program at Western Resource Advocates in Colorado. The nonprofit conducts water use analysis across the Western U.S.

"Las Vegas has been at the forefront of urban conservation for quite a few years,” Miller said.
“The river as a whole is entering a crisis and it’s clear we are using more water than the Colorado River can provide.”

Southern Nevada’s water use declined 26% between 2002 and 2021 despite 750,000 new residents and nearly 40 million annual visitors, according to the water district.

Tick Segerblom, program director for Las Vegas Water Defenders, which works to improve water conservation and increase sustainability, called the proposals “good but symbolic.” He said water officials should increase the cost of water in addition to charging fees for excessive use.

“The reality is, we have to raise the price of water and also make it more progressive,” Segerblom said. He suggested the fee for excessive water use should be $100 for every 1,000 gallons used over the seasonal limit, instead of $9, with the extra money going toward water-saving measures.

In 2003, the Southern Nevada Water Authority banned front-yard lawns, and this year any grass, including in backyards, was prohibited.

If outdoor water features at new hotels are banned, it won't necessarily have a negative effect on tourism, said David G. Schwartz, gaming historian and professor at the University of Nevada Las Vegas.

“Right now, there aren’t many new hotels being planned, so even if a ban was enacted, it may not have a large, immediate impact,” he said. “I don’t think the Bellagio is going anywhere.”

Golf courses in southern Nevada, currently limited to 6.3 acre-feet of water per irrigated acre annually, would be reduced to 4 acre-feet under the water district's proposal.

By 2026, decorative grass in streetscapes, medians, parking lots, traffic circles and other areas will have to be removed under state law. It would save about 9.5 billion gallons of water annually, officials said.

“For the city to continue to thrive, these are necessary policies,” said Sean McKenna, executive director of the division of hydrologic sciences at the Desert Research Institute in Nevada, which researches global climate change, water quality and availability, air quality and the sustainability of desert lands.

“It’s a reality that southern Nevada is facing," he said. "It’s not news to anyone that Nevada is a desert and we rely on the river and this is a part of the country where people want to move.”

Deon J. Hampton is a national reporter for NBC News.

PROPUBLICA

Environment

As Colorado River Dries, the U.S. Teeters on the Brink of Larger Water Crisis

The megadrought gripping the western states is only part of the problem. Alternative sources of water are also imperiled, and the nation's food along with it.

A dry agricultural irrigation canal near Stratford, California, in October 2021. "It's impossible to keep growing the food that we grow in California," researcher Jay Famiglietti told ProPublica. George Rose/Getty Images

by Abrahm Lustgarten
Aug. 25, 5 a.m. EDT

ProPublica is a nonprofit newsroom that investigates abuses of power. Sign up to receive our biggest stories as soon as they're published.

The western United States is, famously, in the grips of its worst megadrought in a millennium. The Colorado River, which supplies water to more than 40 million Americans and supports food production for the rest of the country, is in imminent peril. The levels in the nation's largest freshwater reservoir, Lake Mead, behind the Hoover Dam and a fulcrum of the Colorado River basin, have dropped to around 25% of capacity. The Bureau of Reclamation, which governs lakes Mead and Powell and water distribution for the southern end of the river, has issued an ultimatum: The seven states that draw from the Colorado must find ways to cut their consumption — by as much as 40% — or the federal government will do it for them. Last week those states failed to agree on new conservation measures by deadline. Meanwhile, next door, California, which draws from the Colorado, faces its own additional crises, with snowpack and water levels in both its reservoirs and aquifers all experiencing a steady, historic and climate-driven decline. It's a national emergency, but not a surprise, as scientists and leaders have been warning for a generation that warming plus overuse of water in a fast-growing West would lead those states to run out.

I recently sat down with Jay Famiglietti, the executive director of the Global Institute for Water Security at the University of Saskatchewan, to talk about what comes next and what the public still doesn't understand about water scarcity in the United States. Before moving to Canada, Famiglietti was a lead researcher at NASA's water science program at the Jet Propulsion Laboratory in Pasadena, California, and a member of the faculty at the University of California, Irvine. He pioneered the use of the Gravity Recovery and Climate Experiment satellites to peer into the earth's mass and measure changes in its underground water supplies. The Colorado River crisis is urgent, Famiglietti said, but the hidden, underground water crisis is even worse. We talked about what U.S. leaders either won't acknowledge or don't understand and about how bad things are about to get.

Our conversation has been edited for length and clarity.

Let's start with the Colorado River because it's in the news. The federal government has put some extraordinary numbers out there, suggesting water users cut between 2 and 4 million acre-feet of water usage starting this year —roughly 40% of the entire river's recent flow. How could that possibly happen?

It's going to be really hard. We're looking at drastically reduced food production and the migration of agriculture to other parts of the country and real limits on growth, especially in desert cities like Phoenix. My fear is that groundwater will, as usual, be left out of the discussion —groundwater is mostly unprotected, and it's going to be a real shit show.

Remind us how that happens. States and farmers cut back on the Colorado River, and California and Arizona just start pumping all the water out of their aquifers?

Yeah. This started with the drought contingency plan [the 2018 legal agreement among the states on the Colorado River]. Arizona had to cut nearly 20% of its Colorado River water. To placate the farmers, the deal was that they would have free access to the groundwater. In fact, something like $20 million was allocated to help them dig more wells. So, it was just a direct transfer from surface water to groundwater. Right away, you could see that the groundwater depletion was accelerating. With this latest round, I'm afraid we're just going to see more of that.

Some of that groundwater actually gets used to grow feed for cattle in the Middle East or China, right? There's Saudi-owned agriculture firms planting alfalfa, which uses more water than just about anything, and it's not for American food supply. Do I have that right?

There's been other buyers from other countries coming in, buying up that land, land grabbing and grabbing the water rights. That's happening in Arizona.

What about in California? Groundwater depletion has caused the earth to sink in on itself. Parts of the Central Valley are 28 feet lower today than they were a century ago.

California passed the Sustainable Groundwater Management Act in 2014, which mandated an extraordinarily long time horizon: two years to form the Groundwater Sustainability Agencies and then five years for each GSA to come up with its sustainability plan. So that's now: 2022. And then 20 years to come into sustainability. My fear is that the slow implementation will allow for too much groundwater depletion to happen. It's sort of the same old, same old.

But could it work?

I don't think we're talking about sustainability. I think we're talking about managed depletion. Because it's impossible to keep growing the food that we grow in California. It's agriculture that uses most of the groundwater. The math just isn't there to have sustainable groundwater management. If you think of sustainability as input equals output — don't withdraw more than is being replenished on an annual basis — that's impossible in most of California.

Will we run out of water? Are we talking about 10 years or 100 years?

Yes. We are on target to. Parts of the Central Valley have already run out of water. Before SGMA, there were places in the southern part of the valley where I would say within 40 to 50 years we would run out or the water is so saline or so deep that it's just too expensive to extract. SGMA may slow that down — or it may not. I don't think the outlook is really good. Our own research is showing that groundwater depletion there has accelerated in the last three years.

Then what happens? What does California or Arizona look like after that?

It looks pretty dry. Even among water users, there's an element that doesn't understand that this is going to be the end for a lot of farming. Farmers are trying to be really efficient but also magically want the supply of water to be sustained.

We focus on the big cities like Phoenix and Las Vegas, but it's farms that use 80% of water. They grow crops that provide huge amounts of the winter fruits and vegetables and nuts for the entire country. Is there any way that farming in California and Arizona can continue even remotely close to how it is today?

I don't think so. It has to drastically change. We'll need wholesale conversion to efficient irrigation and different pricing structures so that water is better valued. We'll need different crops that are bred to be more drought tolerant and more saline-water tolerant. And we'll probably have a lot less production.

What does that mean for the country's food supply?

This is the big question. I don't want to be flippant, but people don't understand the food-water nexus. Do we try to bring more water to the southern high plains, to Arizona, to California, because if the food system's optimized, maybe that's the cheapest thing to do? Or does agriculture move to where the water is? Does it migrate north and east? It's not just food production. What about the workers? Transportation? If we were to move all of our agriculture to northern California, into Idaho, into North Dakota over the next decade, that's a major upheaval for millions and millions of people who work in the ag industry.

It's really interconnected, isn't it? The nation essentially expanded West beginning in the 19th century in order to build a food system that could support East Coast growth. The Homestead Act, the expansion of the railroads, was partially to put a system in place to bring stock back to the meat houses in Chicago and to expand farming to supply the urban growth in the East.

I don't think a lot of people really realize that, right? When I go to the grocery store in Saskatoon, my berries are coming from Watsonville, California. The lettuce is coming from Salinas, California.

Farmers in the West are fiercely independent. So, in California, Arizona, do they lose the ability to choose what to plant?

Right now, there's freedom to plant whatever you want. But when we look out a few decades, if the water cannot be managed sustainably, I don't actually know. At some point we will need discussions and interventions about what are the needs of the country? What kind of food? What do we need for our food security?

Let's discuss California. Its governor, Gavin Newsom, has advanced a lot of progressive climate policies, but he replaced the water board leader, who pushed for groundwater management across the state, and last month the agency's long-serving climate change manager resigned in protest of the state's lax water conservation efforts. What does it mean if a liberal, climate-active governor can't make the hard decisions? What does that say about the bigger picture?

There has been a drop o
administration. Water has taken a step lower in priority.

Is that a sign that these problems are intractable?

No. It's a sign that it's just not as high a priority. There are tough decisions to be made in California, and some of them won't be popular. You can see the di
like Brown, who was sort of end-of-career and just like, "Screw it, man, I'm just going to do this because it needs to be done," and someone like Newsom, who clearly has aspirations for higher o
problem, but we could make it a lot more manageable for decades and decades and decades. (Newsom's on
other state to adapt to climate change. On Aug.
recycling, storage and conservation measures.)

Water wars. It's an idea that gets batted around a whole bunch. Once, negotiating water use more than a century ago, California and Arizona amassed armed state guard troops on opposite banks of the Colorado River. Is this hyperbole or reality for the future?

Well, it's already happening. Florida and Georgia were in court as was Tennessee. There's the dispute between Texas and New Mexico. Even within California they're still arguing environment versus agriculture, farmers versus fish, north versus south. Sadly, we're at a point in our history where people are not afraid to express their extreme points of view in ways that are violent. That's the trajectory that we're on. When you put those things together, especially in the southern half or the southwestern United States, I think it's more of a tinderbox than it ever has been.

That's hopeful.

You're not going to get any hope out of me. The best you're going to get out of me is we can manage our way through. I don't think we're going to really slow global change. We have to do what we're doing because we're talking about the future. But a certain number of degrees warming and a certain amount of sea level rise is already locked in, and all that's happening in our lifetimes. The best you're going to hear from me is that we need to do the best we can now to slow down the rates of warming that directly impacts the availability of water. We're talking about the future of humanity. I think people don't realize that we're making those decisions now by our water policies and by our climate change policy.

When people think about water, they think of it as a Western problem, but there's water shortages across the High Plains and into the South, too.

I don't think most people understand that scarcity in many places is getting more pronounced. Nationally, let's look at the positives: It's a big country, and within its boundaries, we have enough water to be water secure and to be food secure and to do it in an environmentally sustainable way. A lot of countries don't have that. That's a positive, though we still have the same problems that everyone else has with increasing flooding and drought. What I really think we need is more attention to a national water policy and more attention to the food, water and energy nexus. Because those are things that are going to define how well we do as a country.

What would a national water policy look like?

It recognizes where people live, and it recognizes where we have water, and then it decides how we want to deal with that. Maybe it's more like a national water/food policy. Moving water over long distances is not really feasible right now — it's incredibly expensive. Does the government want to subsidize that? These are the kind of things that need to be discussed, because we're on a collision course with reality — and the reality is those places where we grow food, where a lot of people live, are running out of water, and there are other parts of the country that have a lot of water. So that's a national-level discussion that has to happen, because when you think about it, the food problem is a national problem. It's not a California problem. It's not a Southern, High Plains, Ogallala, Texas Panhandle problem. It's a national problem. It needs a national solution.

Is this a climate czar? A new agency?

Something like that. We're failing right now. We're failing to have any vision for how that would happen. In Canada, we're talking about a Canadian water agency and a national water policy. That could be something that we need in the United States — a national water agency to deal with these problems.

In the Inflation Reduction Act we finally have some legislation that will help cut emissions. There's plenty of other talk about infrastructure and adaptation — seawalls and strengthening housing and building codes and all of those sorts of things. Where would you rank the priority of a national water policy?

It's an absolute top priority. I like to say that water's next, right after carbon. Water is the messenger that's delivering the bad news about climate change to your city, to your front door.

We don't usually mix concern over drought with concern over contamination, but there was a recent study about the presence of "forever" chemicals in rainfall and salt washing off the roads in Washington, D.C., and contaminating drinking water. Can these remain separate challenges in a hotter future?

It doesn't get discussed much, but we're seeing more and more the links between water quality and climate change. We've got water treatment facilities and sewers close to coasts. During drought, discharge of contaminants is less diluted. The water quality community and the water climate communities don't really overlap. We've done a terrible job as stewards where water is concerned.

Globally, what do you want Americans to think about when they read this?

The United States is kind of a snapshot of what's happening in the rest of the world. There's no place we can run to. Things are happening really, really fast and in a very large scale. We as a society, as a country or as a global society are not responding with the urgency, with the pace and the scale that's required. I am specifically talking about rapid changes that are happening with freshwater availability that most people don't know about. The problems are often larger than one country. A lot of it is transboundary. And we're just not moving fast enough.

News flash.

Around the world the water levels have just continued to drop. In the Middle East or India. In fact, they're getting faster. It's actually a steeper slope.

So, the Colorado River is the least of our worries.

Globally? It's not even as bad as the others. Arizona doesn't really show up as much compared to some of these places.

Filed under —
Environment

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Impact of record-breaking precipitation in Nevada

By Karlie Drew
Published: Aug. 30, 2022 at 6:21 AM PDT|Updated: 4 hours ago
RENO, Nev. (KOLO) - We're wrapping up the wettest August on record in Reno, but it's still been a dry year. We did see a lot of precipitation lot few weeks ago. It seems like the rain could have made a difference when it comes to our water supply, but it hasn't been enough to lessen our drought.

A Senior Hydrologist from the National Weather Service in Reno tells us this rain was not widespread.

The Truckee Meadows Water Authority shared that we are in the third year of a drought. August's rain didn't help with our reservoirs or groundwater. TMWA shared that the record-breaking amount of precipitation really only helped with gardens and landscapes.

With triple digits in the forecast, it's a good reminder to keep up with water conservation efforts.

Tim Bardsley with NWA shared:

"Most of our area is still labeled as the U.S. Drought Monitor considered severe drought and I don't expect these recent rains has had any impact on this designation, so in our area, it's always a good idea to be conscientious of our water," Bardsley said.

Bill Hauck with TMWA mentioned how much more water customers use in the summer as opposed to the winter.

"TMWA has always advocated wise water use year-round actually, but particularly in the summer months when our customer demand can be four times what the winter time demand is due to outdoor irrigation alone, we really focus on saving water in the summer time- that's the biggest bang for the buck," Hauck said.

The water authority mentioned our region has done a great job this summer with its water conservation efforts.

It is important to keep up with those specific watering days for your lawns and minimize water use daily. Be mindful of how often you run your dishwasher and even keeping track of how long you shower can make a difference.

For more information on weather updates, click here.

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NevadaToday

Red Clover Valley in eastern Plumas County, California, is a restored meadow that was studied by the researchers. Photo by C.C. Reed.

Meadow restoration efforts yield long-term climate change mitigation benefits

New study shows restored meadows capture and store large amounts of carbon

Restoration efforts in montane meadows designed to increase late-season water flows, improve water quality, diminish flood events and provide valuable habitat have been ongoing for decades in the Sierra Nevada. It has been known that, generally, healthy meadows also soak up and hold carbon in the soil, becoming natural "sinks" for carbon, and decreasing harmful atmospheric carbon dioxide. However, how much carbon restored meadows can sequester and for how long they can consistently do so has been unclear, until now.

Research & Innovation (https://www.unr.edu/nevada-today/news/research-innovation) | **August 29, 2022**

Claudene Wharton (https://www.unr.edu/nevada-today/about/authors/claudene-wharton)

A new study (https://esajournals.onlinelibrary.wiley.com/doi/abs/10.1002/eap.2677) recently published in the scientific journal Ecological Applications and led by researchers in the College of Agriculture, Biotechnology & Natural Resources at the University of Nevada, Reno, has demonstrated that restored Sierra Nevada meadows continue to successfully sequester carbon for more than 20 years, and at rates that exceed international climate change mitigation goals by up to 10 times. The researchers studied six meadows in the northern Sierra Nevada that were restored at different times over the past 22 years to measure changes in carbon and nitrogen in the soil following restoration. They also compared the amounts of carbon and nitrogen in the restored meadows to the amounts of carbon and nitrogen in unrestored meadows, to ensure changes weren't due to other factors.

"Carbon stocks and fluxes in montane meadows are large, which can create a lot of noise in the data from year to year," explained Postdoctoral Scholar and lead author of the study Cody Reed, who conducts research as part of the College's Department of Natural Resources & Environmental Science and **Experiment Station (https://naes.unr.edu/default.aspx)** unit. "The benefit of this study design is that it allowed us to integrate the annual variation and measure long-term trends in carbon sequestration."

Soil carbon sequestration is an important component of global carbon capture and storage strategies designed to counter rising global emissions. And, while meadows in the Sierra Nevada range cover less than 2% of the land surface area, past research shows they may contain 12%–31% of total soil carbon stocks. Restoration efforts that replenish lost soil carbon can help combat climate change while improving ecosystem function.

In addition, the authors of the study suggest soil carbon gained as a result of meadow restoration is likely more stable than carbon stored in trees, as trees are vulnerable to wildfire, drought and disease. The nitrogen that accumulates in soil also means less nitrogen polluting rivers downstream and more productive vegetation in the meadow.

"Our research shows meadow restoration can play a lasting role in carbon and nitrogen storage," said Associate Professor Ben Sullivan, co-author of the study who served as Reed's doctoral advisor and who is also director of the University's Soil Ecology Lab. "Meadow restoration improves ecosystem functions. The benefits start quickly after restoration and appear to continue for decades."

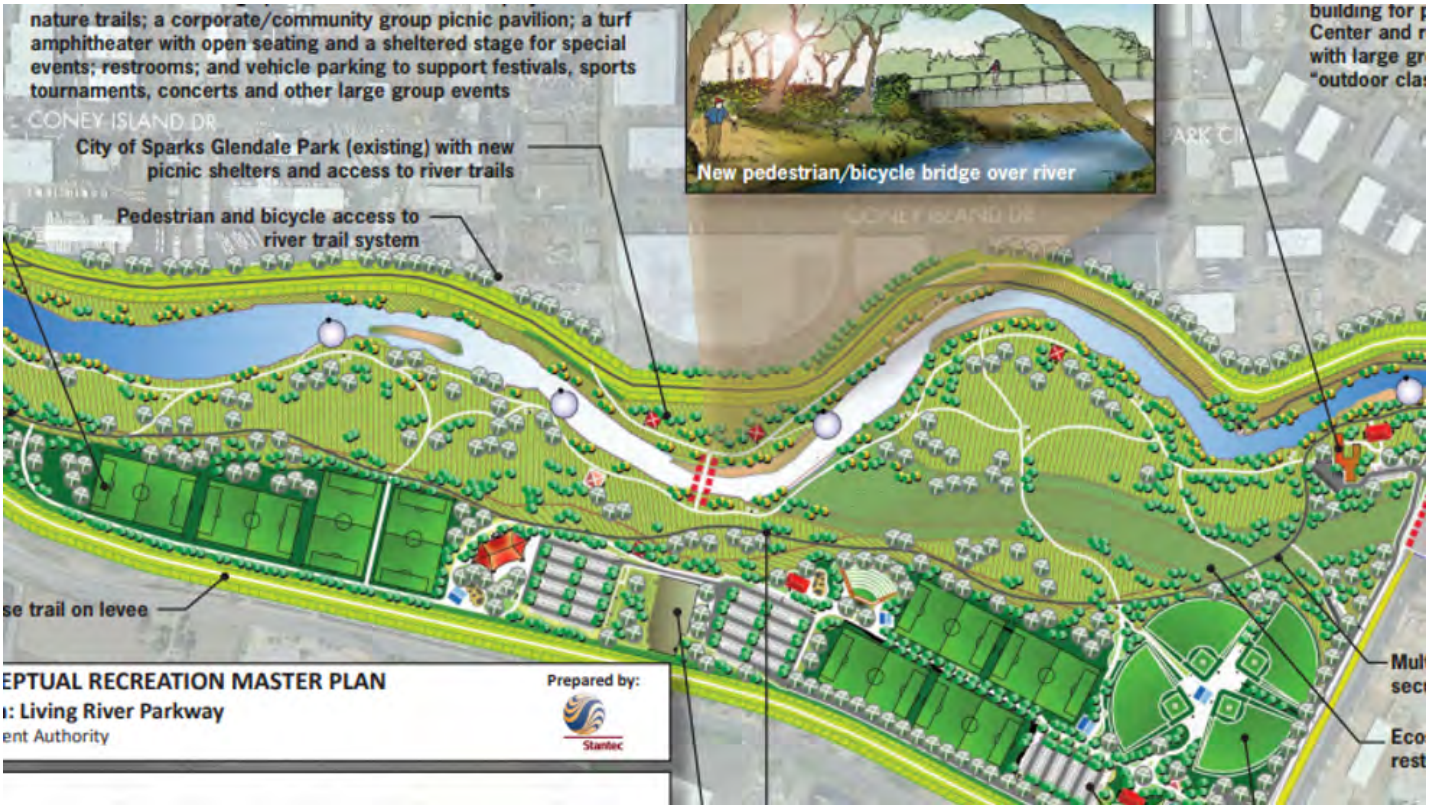
Sullivan explains that restoration of degraded meadows helps increase plant growth and root biomass, and results in increased storage of nitrogen and carbon in the soil. Increased soil carbon and nitrogen improves soil fertility, plant productivity and forage quality, while keeping nutrients on site that might otherwise pollute water supplies and contribute to harmful global emissions into the atmosphere.

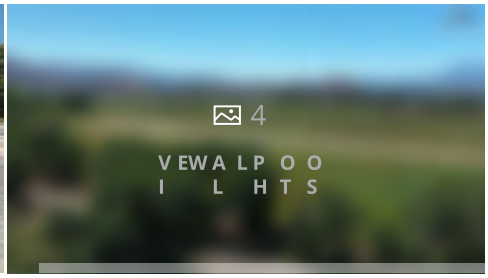
The study's authors, comprised of scientists from Nevada and California, including the University of California Merced, as well as the University of Nevada, Reno, state that carbon gains in restored meadows may exceed international climate change mitigation goals up to ten-fold, partly because degraded meadows may be losing substantial carbon. Reed and Sullivan note that healthy meadows may sequester carbon at even greater rates than restored ones, highlighting the need to maintain healthy meadow functions before they degrade and require restoration.

Funding for this study was provided by the California Department of Fish and Wildlife and the U.S. Department of Agriculture.

Momentum building again for large regional athletic park along Truckee River

by Ben Margiott
Monday, August 29th 2022





Momentum building again for large regional athletic park along Truckee River

Reno, Nev. (News 4 & Fox 11) - Momentum is building once again to create a large regional athletic park just south of the Truckee River between Rock and McCarran Boulevards.

The conceptual plan for the co-called Living River Parkway, last updated in late 2019, shows at least eight flat fields, four baseball/softball diamonds, an amphitheater, trail systems and more.

KRNV

Most of the land in the area is owned by the Truckee River Flood Management Authority, which purchased many of the lots years ago when Reno councilwoman Naomi Duerr was leading the flood project.

Duerr is pushing to jumpstart the long-stalled effort, pointing to a number of factors that she believes make it more feasible today.

"We have land that's already bought, we have some funding available, let's take this to the next level," Duerr said.

The effort would be spearheaded by the Truckee River Flood Management Authority, since the project would involve creating a levee and floodproofing a key portion of the river.

Momentum building again for large regional athletic park along Truckee River

Duerr said the project falls exactly within the goals of the flood authority, which she believes should seek to get multiple uses out of our floodplains.

"You're dealing with a water issue, in this case flooding. And then you're getting huge community benefits so (it's) double bang for your buck."

> *If all we ever did was buy land and think about flooding, that's just a very single-purpose use. To me, that's not the way government works most efficiently or effectively.*

Of course, the area is in a floodplain — Duerr said the area has a 1% chance of flooding in a given year. Such a flood would take the park out of commission temporarily, but Duerr said those floods are typically in winter or early spring — the offseason for most outdoor sports.

Momentum building again for large regional athletic park along Truckee River

The flood authority recently approved spending money to pay for a feasibility study to research the possible roadblocks and cost. The Reno city council is also including plans for the regional park in its 20-year master plan for parks, recreation and open space.

If it comes to fruition, it would help solve a shortage of athletic fields in the Reno-Sparks area. Richard Jay with the Great Basin Youth Soccer League said the area is about 46 flat fields short. (Flat fields can be used for soccer, football, lacrosse and more).

> *We are in severe, severe, severe (need). I can't even emphasize how severe a need we're in.*

Jay said the flat field shortage has been exacerbated by losing some space at the Moana Fields because of pool construction and losing the O'Brien Middle School fields during new school construction.

He said complex at this scale would help attract large tournaments that bring thousands of out-of-state residents to stay in hotels and support the local economy.

Large concrete lots used to be home to industrial warehouses on the area just south of the Truckee River.

Compared to large-scale development projects, this regional park would be less of an undertaking, Duerr said, because the land is already acquired and won't require much infrastructure.

"At the end of the day, what are we really talking about? Demolition of some pads, bringing in am irrigation system hopefully with reclaimed water and building some fields."

Duerr said she's optimistic the project could be completed in the 5-10 year timeframe, though it could happen sooner if everything falls into place perfectly.

Email reporter Ben Margiott at bjmargiott@sbgtv.com. Follow @BenMargiott on Twitter and Ben Margiott KRNV on Facebook.

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Heat Advisory Is In Effect

Impact of record-breaking precipitation in Nevada

By Karlie Drew
Published: Aug. 30, 2022 at 6:21 AM PDT | Updated: 8 hours ago

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JFLECK AT INKSTAIN (HTTPS://WWW.INKSTAIN.NET/)

A few thoughts from John Fleck, a writer of journalism and other things, living in New Mexico

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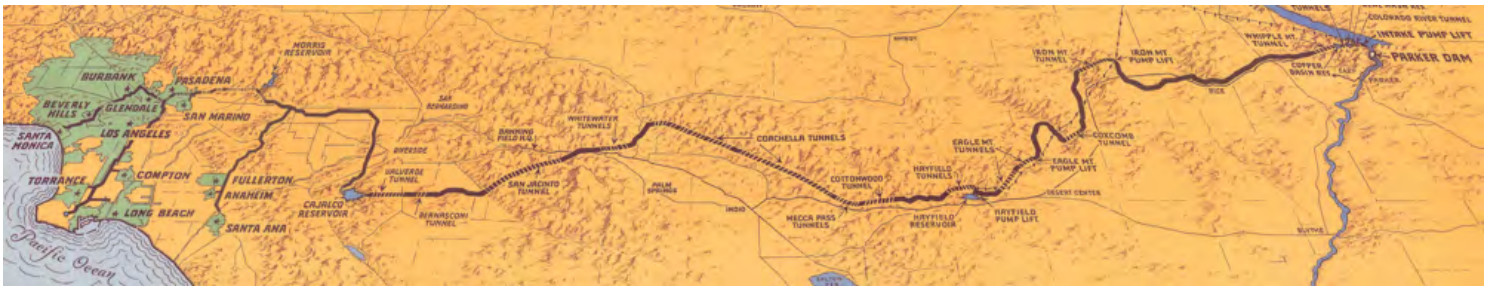
- The Colorado River (https://www.inkstain.net/colorado_river/)



(https://www.inkstain.net/)

Next Steps on the Colorado River

Posted by jfleck (https://www.inkstain.net/author/jfleck/) on 31 August 2022, 3:50 pm (https://www.inkstain.net/2022/08/next-steps-on-the-colorado-river/)

If we have learned anything from the current crisis on the Colorado River, it is that we *have* to know what we'll do *next* if the current thing we're doing isn't enough.

That's a bloggy shorthand for a deep argument that Eric Kuhn, Jack Schmidt, and I made in comments we submitted this week (https://www.inkstain.net/fleck/wp-content/uploads/2022-08-28-JS-EK-JF-pre-scoping.pdf) in response to the U.S. Department of Interior's request for input (https://www.federalregister.gov/documents/2022/06/24/2022-13502/request-for-input-on-development-of-post-2026-colorado-river-reservoir-operational-strategies-for) on the development of new river operating guidelines.

As we begin discussing what replaces the soon-to-expire Colorado River operating guidelines, we argue that there are important lessons to be learned from a careful examination of the way the current guidelines have failed us.

THE FAILURE OF THE 2007 GUIDELINES AND DROUGHT CONTINGENCY PLAN(S)

In its Final Environmental Impact Statement in support of the 2007 Interim Guidelines, Interior identified the purpose and need of these Guidelines as an effort to provide "predictability" – "a greater degree of certainty to United States' Colorado River water users and managers …, thereby allowing water users … to know when, and by how much, water deliveries will be reduced in drought and other low reservoir conditions."

"Predictability"? "Certainty"? Crisis of 2022 says "nope".

We're trying to use language here – "purpose and need", the National Environmental Policy Act terms of art – that burrows into the heads of the hard-working feds who will be reading it (we wave – *you know who you are*).

The failure, which Eric, Jack, and I talked about here (https://www.inkstain.net/fleck/2022/08/how-we-got-into-this-mess-on-the-colorado-river/) in an argument developed while we were working on these comments, was a set of operating rules keyed on reservoir elevations in a way that managed to hold them steady, but never refilled them. That left us vulnerable to the crash that we're now seeing.

OUR IMMODEST SUGGESTION

New operating rules must be keyed to the actual flows of the river, not simply the levels of the reservoirs: "[S]tream flow should be used as a component in triggering different operating regimes, not solely reservoir elevation levels." This was the great failing of the '07 guidelines. We need to fix it.

In some sense this seems obvious, because hydrology is now imposing this constraint on us – "long-term average consumptive uses and losses will not exceed the average natural water supply provided by the watershed".

> We recognize that there are multiple devils in the details of this recommendation including the duration of years during which balance is sought and the mechanisms by which reductions in use must be implemented to maintain a balance. Nevertheless, there is no alternative to balancing the system. We estimate that the natural supply for the period 2000-2022, including inflows within Grand Canyon, has been 12.8 maf/yr, and there is no alternative but to at least reduce basinwide water use to that value. Should watershed runoff decline even further, then basin-wide use must be further reduced.

And if or when it gets wetter again?

> [I]f relatively wetter periods return, consumptive uses must remain low to recover reservoir storage.

And all of this must be done in a way that recognizes who's been left out of past discussions like this:

> We are fully cognizant of the conflict between full development of currently unused or unquantified Tribal water rights and the need to reduce overall water uses in the Basin. We believe, however, that an appropriate balance of water supplies and uses cannot ignore the unquestioned right of Tribal nations to the water necessary to fulfill the purposes of their reservations.

And this (we wave again – *you know who you are*):

> We recognize that these goals are broad, extending beyond what some in the basin are advocating – a narrow reconsideration of reservoir operations. We are sympathetic to the burden that the breadth of analysis we are advocating will place on the dedicated and hard-working staff at Reclamation and the Department of the Interior during the next years. But anything less than an expansive view of the task at hand will fall far short of what is needed at this moment in history.

There's lots more in the way of specifics. We encourage those interested in river management to give it a look (https://www.inkstain.net/fleck/wp-content/uploads/2022-08-28-JS-EK-JF-pre-scoping.pdf).

Filed under Colorado River (https://www.inkstain.net/category/colorado-river/), water (https://www.inkstain.net/category/water/) | 15 Comments (https://www.inkstain.net/2022/08/next-steps-on-the-colorado-river/#comments) | Permalink (https://www.inkstain.net/2022/08/next-steps-on-the-colorado-river/)

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News Crime Weather Traffic Election 2022

3 Weather Alerts In Effect

Can every Southern Nevadan save 24 gallons a day? Water leaders set 2035 goal

The Southern Nevada Water Authority hopes that every person in the Las Vegas Valley can save 24 gallons a day.

By Jaclyn Schultz
Published: Sep. 1, 2022 at 1:38 AM PDT

LAS VEGAS, Nev. (FOX5) - The Southern Nevada Water Authority hopes that every person in the Las Vegas Valley can save 24 gallons a day.

According to the SNWA, the average Southern Nevadan uses 110 gallons a day. There are hopes to drop that usage to 86 gallons by 2035.

"Keep in mind, that doesn't mean that Uncle Joe has to cut his water use all by himself, by 30 gallons per day. We're talking about across the community on aggregate, how much water the community uses, divided by the number of people that are served by that water, divided by 365," said Bronson Mack with the SNWA. "When we talk about everyone doing their part, we're not just talking about residents. We're also talking about businesses. And we're also talking about HOAs. And we're also talking about anybody that uses water in this community. We all need to be doing our part," he said.

What are easy ways to start saving water, and not wasting it?

Removing non-functional grass. "Removing that grass from our community will actually save about roughly eight to 10% of our total water supply," Mack said. The SNWA has a program to give $3 for every square foot, to help replace grass with drip irrigated trees and plants. Grass Removal Program

Sticking to the watering schedule. You can find out the schedule and what days you are allowed to water here: watering schedule

Convert septic systems. The SNWA also has a program to help convert your system, to help water get recycled into the municipal water supply. 14,000 homes utilize septic systems in the Valley.

Replacing and retro-fitting evaporative cooling air conditioning units. The SNWA is working to replace many of these units inside schools, buildings, facilities, high-rises, casinos and resorts with more water-efficient options.

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Latest News

City of Reno names new Revitalization Manager

Post Date: 09/01/2022 2:40 p.m.

The City of Reno is pleased to announce Bryan McArdle as the new Revitalization Manager. McArdle started his new position with the City of Reno on September 1, 2022.

“Bryan’s efforts will play a critical role in helping The Biggest Little City continue to grow and thrive,” City Manager Doug Thornley said. “Bryan has a strong background in revitalization and economic development, and he will be an outstanding addition to the team.”

The Revitalization Manager oversees economic development, redevelopment and revitalization programs, projects, services and activities for the City of Reno. The position also assists new businesses, developers, residents and other public or private entities in the investment or expansion of operations within the City. McArdle will also develop and implement strategies for the revitalization of deteriorated properties within the City and manage the City’s property program.

McArdle previously served as the Vice President of Entrepreneurial Development at the Economic Development Authority of Western Nevada (EDAWN). For the past decade, he has been focused on growing the Northern Nevada economy by supporting the launch and growth of startup and technology companies through various programs and events such as Startup Weekend, Reno Mini Maker Faire, Startup Row and the Summit Venture Mentoring Service.

In 2019, he turned his focus toward developing the venture capital ecosystem throughout Nevada, which led to the creation of the Reno Seed Fund and the inaugural Reno Venture Conference.

McArdle holds a degree in Environmental Science and an MBA from the University of Nevada, Reno. He is currently Vice President of the University of Nevada Alumni Association and serves on the State of Nevada’s CDBG Advisory Board. He previously served as the Vice President of both the Riverwalk and Midtown Districts.

“I am passionate about the growth and reputation of Reno, downtown specifically, and Nevada as a whole,” McArdle said. “I look forward to bringing that passion and my own experience as a small business owner and entrepreneur to my new role.”

Return to full list >>

We're Online. How can we help?

Skip to Main Content

Nevada Governor Steve Sisolak

State of Nevada

Executive Department

A Proclamation by the Governor

WHEREAS, *Environmental Justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies; and*

WHEREAS, *President Clinton issued Executive Order 12898, directing federal agencies, to the greatest extent practicable, to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income population; and*

WHEREAS, *that Federal Executive Order affirmed every American's right to breathe freely, drink clean water, and live on uncontaminated land. Today, as America marks 20 years of action, we renew our commitment to environmental justice for all; and*

WHEREAS, *during the 2019 session of the Nevada Legislature, Governor Sisolak supported and signed bills creating programs to increase access to solar energy and to help transition from diesel to electric school buses; and*

WHEREAS, *in 2022 Governor Sisolak created the first extreme heat leadership and environmental justice team to create a statewide strategy to deal with extreme heat and ensure equitable solutions to the impacts of climate change; and*

WHEREAS, *the State of Nevada strives to strengthen and expand our governmental partnerships, particularly focused on the proactive efforts of state, tribal, and local governments to advance environmental justice;*

NOW, THEREFORE, I, STEVE SISOLAK, GOVERNOR OF THE STATE OF NEVADA, do hereby proclaim August 29, 2022, as

ENVIRONMENTAL JUSTICE DAY IN NEVADA

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City, this 28th day of August, 2022

By the Governor: Governor

Barbara K. Cegavske

Secretary of State

By Deputy

HEALTH

DRI study reveals 'plumbing poverty' more likely in Native American Homes

By ThisIsReno | September 8, 2022

Native American households are less likely to have complete indoor plumbing than other households in Nevada according to new data published by researchers at Desert Research Institute.

In a study conducted by DRI and the Guinn Center for Policy Priorities researchers found that in 20 more than 20,000 Native American people in Nevada faced "plumbing poverty," or a lack of comple indoor plumbing, which includes hot and cold piped water, a flush toilet and a bathtub or shower.

Overall, 0.67% of Native American households in Nevada lacked complete indoor plumbing versus for the general U.S. population, researchers found.

Plumbing poverty also increased with the number of family members living under the same roof.

"Native American communities in the Western U.S., including Nevada, are particularly vulnerable t water security challenges because of factors including population growth, climate change, drought a water rights," DRI officials said. "In rural areas, aging or absent water infrastructure creates additio challenges."

In addition to data on household plumbing characteristics gathered from the U.S. Census from 1990 2019, researchers used water quality data from the Environmental Protection Agency.

From 2005 to 2020 the number of Safe Drinking Water Act violations affecting Tribal communities also increased. "The most common health-based violations included presence of volatile organic compounds (VOCs), presence of coliform bacteria, and presence of inorganic chemicals," researchers said.

Such challenges are visible in tribal communities such as the Yerington Paiute Tribe where the groundwater supplying a number of homes was contaminated with uranium, arsenic and other toxins. Contamination from the nearby Anaconda Copper Mine was suspected, and Atlantic Richfield Co., which owned the mine, provided bottled water to households while investigations were underway.

The tribal members affected by the contamination had no access to municipal water systems.

The full study, "Water security in native American communities of Nevada" is online at https://www.sciencedirect.com/science/article/abs/pii/S1462901122002179?dgcid=author.

Source: DRI

PUREWATER SOUTHERN CALIFORNIA

Sept. 9, 2022

Pure Water Southern California to Bring New Source of Water to the Region

We have a new name! The Regional Recycled Water Program is now Pure Water Southern California. Our goal is still the same: use purified, recycled water to create a major new source of water for Southern California.

"As this project gets closer to becoming a reality, it is time to give it a name that truly characterizes it and the critical role it will play for our people and communities," Metropolitan Water District of Southern California General Manager Adel Hagekhalil said in a press release.

Pure Water Southern California, a partnership between Metropolitan and the Los Angeles County Sanitation Districts, could lead to development of one of the largest advanced water purification facilities in the world that will take cleaned wastewater and purify it to produce a new, drought-proof source of high-quality water for the region.

Climate Crisis Meets Recycled Water: A New Push for Sustainable Resources

Pure Water Southern California was recently featured in a Los Angeles Times article highlighting the state's push toward recycled water amid climate change.

"Our goal is really to turn the largest discharge of treated wastewater in Southern California into an engine for groundwater replenishment," said Brad Coffey, Metropolitan's Water Resource Management manager. "That's in an attempt to interrupt, break the snowpack-dependent water cycle of much of California and much of the West … that's threatened by climate change."

We offer virtual and in-person tours. We look forward to having you join us.

Metropolitan's Community Relations Team Manager Rupam Soni gives a tour of the Pure Water Southern California Demonstration Plant.

Environmental Review Process Begins in the Fall

This fall marks the start of the environmental review process for Pure Water Southern California. During the first phase of review, community members are encouraged to provide input and share concerns. To learn how to become more involved, visit mwdh2o.com/purewater or sign up for email updates for the latest news.

LAS VEGAS SUN

Campaign aims to dispel common myths about water use in Las Vegas

Southern Nevada Water Authority: 'We are doing less with more, so conservation is critical'

By Ray Brewer (contact)

Monday, Sept. 12, 2022 | 2 a.m.

As soon as the U.S. Department of the Interior last month announced that Nevada would lose 8% of its water allotment from the Colorado River next year amid the continuing drought, officials with the Southern Nevada Water Authority started fielding questions from concerned residents.

And with those questions came some inaccurate finger-pointing about the water situation — namely that California is using our water; same with casinos on the resort corridor.

The authority last week, in an ongoing video series to bring educational awareness for conservation, addressed those concerns. It's one of about 12 videos it has done in recent years, stressing that the water supply here — especially with continued conservation — is secure.

Host Jon Castagnino opens the three-minute video posted on Twitter and other social media channels with screen grabs of complaints. They are: "Stop the building. Stop the golf course. Stop the resorts; we don't have the water."

The spot proceeds to dispel those claims, starting with the notion that California is stealing Nevada's water supply. Castagnino explains that Lake Mead is less than 30% full from 20 years of overdrawing the Colorado River during the drought, but stresses that California — like Nevada — is using what's legally allocated.

He stresses, "we are doing less with more, so conservation is critical."

Bronson Mack, the public information officer for the Southern Nevada Water Authority, said much thought goes into the messaging of the videos to "dispel myths." The authority also has a monthly Water Smarts Podcast featuring conservation leaders.

Mack said the videos are helpful to educate the community so residents are more prepared to conserve water and have a higher awareness. Ultimately, he said, that translates into behavior — such as changing the watering schedule for sprinklers to align with SNWA guidelines.

The effect of Nevada's reductions will be mitigated because Southern Nevada is a leader in conservation and doesn't use its full annual allocation from Lake Mead.

"Residents feel they are doing a lot in the world of conservation," Mack said. "It's important for us to let residents understand they aren't the only ones contributing to our success. It's every sector of our community."

One myth addressed in the most recent video addresses the usage by casinos, including a picture of the Bellagio outdoor fountain attraction — one of the notable, and free, things to do in town.

And the good news is that no water from the Colorado River is used. Rather, it comes from a private well owned by the resort.

The video also addresses questions about the valley's new home construction, where an average of 11,000 homes a year have been built since 2018. The video explains how water used indoors that goes down a drain is recycled and doesn't count against the allotment.

But, the video notes, 60% of the allocated water used in Southern Nevada goes toward outdoor water, and new homes aren't allowed to have grass.

Castagnino says the water authority has "no jurisdiction with construction, but we do know the facts."

The videos have also become a landing spot for residents to make comments — and for the water authority to continue with its work dispelling myths. In the Twitter post of the most recent video explaining how indoor water is recycled, one social media user asked, "So I can still take my 30 min showers?"

The water authority, in keeping with its educational theme, responded, "that seems excessive, but who are we to judge? And thanks to nearly all water used indoors in Southern Nevada being recaptured, treated and returned to the Colorado River for credit, we don't have to. Your 30-min showers have little to no impact on our water supply."

Mack said the authority is preparing a television campaign, "Let's Get Real," that will explain some of what's happening with the low water levels at Lake Mead and stress conservation. For instance, residents on Sept. 1 should have adjusted their watering clock to the fall schedule, in which through Oct. 31, residences are assigned three weekly watering days.

For some in Southern Nevada, conserving water has become second nature. But others need a friendly reminder, and ultimately, that's why the videos and other messaging have become so vital to the water authority, Mack said.

"It's not a big ask of the community," he said of the quarterly task of changing the water clocks. "But it does require everybody to stop for a moment."

LAS VEGAS SUN

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LOCAL NEWS

Henderson water company files bankruptcy as Lake Mead 'straw' runs dry

by: Greg Haas
Posted: Sep 12, 2022 / 06:38 PM PDT
Updated: Sep 13, 2022 / 07:03 AM PDT

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LAS VEGAS (KLAS) — The company that was the sole water supplier for the City of Henderson for decades has filed for bankruptcy protection, a victim of a 23-year drought that created a problem too expensive to fix.

Although Henderson no longer relies exclusively on the Basic Water Company (BWC), industries that built the city out of the desert to meet World War II demands still do. And their water bills threaten to break the bank.

When Lake Mead dropped to "Failure Elevation" — 1,043 feet in July — Basic Water Company's 40-inch-diameter pipe stopped sucking in water at Saddle Island. The pipelines are commonly referred to as "straws." The lake dropped as low as 1,040 feet, but it has since risen to 1,043 feet. Forecast models show it dropping under 1,040 feet again by April of 2023.

Water that's coming to the Las Vegas valley now is coming from the "third straw," which draws water at an elevation of 860 feet. Lake levels are expressed as an elevation above sea level.

States missed water-savings target, Touton says ›

In a 27-page declaration filed with the U.S. Bankruptcy Court on Saturday, Stephanie Zimmerman, President and Chief Financial O icer for BWC laid out the reasons for the bankruptcy. She essentially wrote the water history of the city.

Starting in 2007 and escalating in 2015 as the pending emergency grew, BWC explored ways to re-engineer the Saddle Island "straw." Design work was even completed at one point, but by then Lake Mead's level was dropping so fast that the fix would only buy a few years.

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The top of Intake No. 1 is visible above the surface of Lake Mead in this photo from Monday, April 25. As the lake level continues to drop, another intake pipe that sends water to Henderson has stopped functioning. (Courtesy, Southern Nevada Water Authority)

The water agreement that still exists survived separately from the Colorado River Compact, preserved by Congressional action in 1966.

But now, with the lake level headed lower according to water forecasts, BWC has become a customer instead of a provider. It is contracted to provide water for Kerr-McGee Chemical, Pioneer Americas LLC, Chemical Lime Company of Arizona and Titanium Metals Corp.

But it can't a ord to buy potable water from Henderson to provide water for these four industries because the cost is "four to five times higher than the rate for raw water" from the lake, according to the document.

I-Team: Lake Las Vegas currently not getting lled

With its responsibility for bond payments looming, BWC filed for bankruptcy protection. It still owes about $7.5 million on bonds that will mature in 2032.

The document also notes other payments BWC has made to hook into the delivery system that everyone else is using:

- City of Henderson: $1,006,506.46 deposit, based on 2021 water use
- Southern Nevada Water Authority (SNWA): $4,515,079 connection charge
- SNWA "System Development Charge" of $386,019

In the meantime, BWC continues to work toward a "viable permanent solution" with the City of Henderson and SNWA.

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BUSINESS

It's 'very conceivable' the region has a surpassed

By Bob Conrad | **Published:** September 12, 2022 | **Last Updated on**

Traffic heads into, and out of, the Veterans Parkway roundabout in south Reno. Image: Bob Conrad / THIS IS

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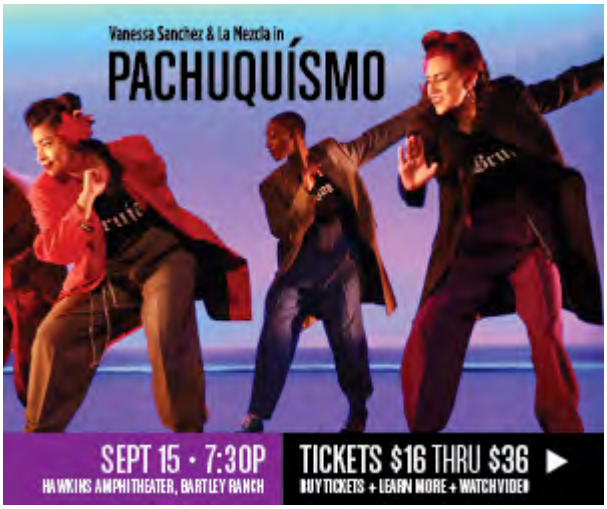

The Reno-Sparks area continues to grow.

Brian Bonnenfant with the University of Nevada Center for Regional Studies today presented the Community Homeless Advisory Board an update on housing, growth and jobs data for Washoe County.

He said “we probably have reached the 500,000 population milestone.”

The July 2021 population estimate from the U.S. Census Bureau shows Washoe County at 493,392. Bonnenfant said the Census Bureau does not provide county-level population projections, but Neva State Demographer does.

“It’s very conceivable we have added 7,000 persons over the last year,” Bonnenfant said. “The data’ out. When the data is out we’ll know.”

The Reno area grew by 65,000 people in the last decade, which is below the prior decade which saw area’s population grow by 85,000 people.

people are moving to Reno are Las Vegas, Seattle and Honolulu.

Home sales dropping

Home sales in 2022 are dropping from last year.

"We are probably looking at about a 22% dip in home sales in 2022," he said. "Expect that in 2023 – a little pullback from developers."

But about 2,500 new multifamily units will continue to be built in the area for the next couple years due to low vacancy rates – below 3%, Bonnenfant added. Many of those units will be apartments.

Bonnenfant said growth in south Reno is close to "full absorption. That's it for the south. In the next couple of decades, the south is done."

Growth for the next 20 years will be in the North Valleys and Spanish Springs areas.

"That's where the room for growth is," he said.

- City Council approves 542 new affordable housing units, agrees to waive some business fees
- New residential development, Ascente sells for $17M (sponsored)
- Regenesis Reno shares housing policy choices (opinion)
- Massive south Reno developments creating havoc between horses and humans
- Census report shows large undercoun of Latino population
- Westlook Resort Living opens (sponsored)

Bob Conrad Publisher & Editor

Bob Conrad is publisher, editor and co-founder of This Is Reno. He has served in communications positions for various state agencies and earned a doctorate in educational leadership from the University of Nevada, Reno in 2011. In addition to managing This Is Reno, he holds a part-time appointment for the Mineral County University of Nevada Extension office.

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What the Western drought reveals about hydropower

By **Jason Plautz** | 09/13/2022 06:55 AM EDT

Low water levels left a "bathtub ring" visible last month on the banks of Lake Mead near the Hoover Dam. Justin Sullivan/Getty Images

The relentless Western drought that is threatening water supplies in the country's largest reservoirs is exposing a reality that could portend a significant shift in electricity: Hydropower is not the reliable backbone it once was.

Utilities and states are preparing for a world with less available water and turning more to wind and solar, demand response, energy storage and improved grid connections. That planning has helped Western states keep the lights on this summer even in severe drought conditions.

Take California, which experienced record demand during a heat wave last week but did not have to impose any rolling blackouts. That's despite the fact that hydropower — which on average makes up about 15 percent of the state's power generation mix under normal conditions — has dipped by as much as half this summer.

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"Obviously, water and energy are very much intertwined," said Newsha Ajami, the director of urban water policy for Stanford University's Water in the West initiative. "The interesting part here is that losing reliability in one is impacting reliability of the other. It's hotter, it's drier and people are using a lot more electricity as we rely on hydropower as one of our baseline power generators, but lake levels are lower."

During the heat wave, officials timed releases from hydropower projects, which accounted for as much as 10 percent of the electricity for the state at some times of day, according to data from the California Independent System Operator. Elsewhere across the West, planners are accounting for growing demand while factoring in reductions in hydropower.

According to the 2018 National Climate Assessment, Southwestern hydropower and thermal power plant generation are "decreasing as a result of drought and rising temperatures." A February study (https://www.mdpi.com/2073-4441/14/5/721) in the journal *Water* using World Wildlife Fund data found that by 2050, 61 percent of global hydropower dams will be at very high or extreme risk of droughts and/or floods.

California's Department of Water Resources has worked to maximize hydropower in the evening, when demand is high and solar production trails off, according to spokesperson Ryan Endean. The department averaged 747 megawatts of production during those peak hours between Monday and Thursday of last week, with a peak of 911 MW on Tuesday. On a typical day, generation is between 250 and 300 MW.

"DWR is doing everything it can to produce as much hydropower as possible during peak demand hours given low reservoir levels as a result of our ongoing severe drought," Endean said in an email. He added that DWR's production in future emergencies "will be dependent on hydrology conditions at that time," as low reservoir levels "limit our ability to ramp up generation."

The decadeslong drought gripping the Southwest has been estimated by scientists to be the worst in at least 1,200 years, forcing unprecedented decisions along the Colorado River in states like Arizona and Nevada.

The Interior Department has warned that the Colorado River's Lake Mead and Lake Powell will face "critically low reservoir conditions" in the coming years, with Lake Powell projected to be just 32 feet above the minimum level to maintain hydropower operations at the Glen Canyon Dam. The federal government has also imposed limited cuts in the allocations to downriver states to maintain hydropower production there and at the Hoover Dam in Nevada (*Greenwire* (https://subscriber.politicopro.com/article/eenews/2022/08/16/arizona-nevada-to-take-brunt-of-water-cuts-next-year-00052174), Aug. 16).

The Western Area Power Association — the Department of Energy's power marketing administration that distributes hydropower 15 Western states — reported in August that its projects had produced only 65.7 percent of average in October to July of fiscal 2022. The snowpack that supports future inflow into reservoirs remains "negligible," WAPA found, while precipitation is at 97 percent of average.

Potential worst-case scenarios have been highlighted by heat waves across the globe.

In China, reduced flows on the Yangtze River had economywide ripples throughout August. The industrial province of Sichuan, which gets about 80 percent of its electricity from hydropower, issued the highest level of emergency order last month, cutting electricity distribution to industrial buildings and forcing factories to temporarily shut down or reduce operations (*Energywire* (https://subscriber.politicopro.com/article/eenews/2022/08/22/power-crunch-in-sichuan-adds-to-industrys-woes-in-china-00052998), Aug. 22).

In Europe, where high temperatures led to the region's worst drought in 500 years, countries like Italy, Spain and Portugal saw hydropower reserves drop by half, according to a report (https://edo.jrc.ec.europa.eu/documents/news/GDO-EDODroughtNews202208_Europe.pdf) from the European Commission's Joint Research Centre. Nuclear power plant operators in France had to cut generation because there was not sufficient water to cool plants.

Those drastic effects are unlikely to play out in the U.S. in the near future, in part due to a more diverse grid.

Sean Turner, a water resources modeler at the Pacific Northwest National Laboratory in Washington state, said that with drought conditions varying across the West, an interconnected grid means there's less dependence on dams and reservoirs working as promised.

"When people think of a drought in the West, it's not usually the whole West," Turner said. "The loss of one or two projects is possible, but that doesn't mean it's lights out for ordinary people."

In fact, Turner said that even with the reduced production and low levels at Lake Powell and Lake Mead, the hydropower network has worked the way it should this summer. Dams can ramp up and down as needed and have by and large maintained the balance of supply and demand on the regional grid. Even in a more extreme regional drought, Turner said, utilities should be prepared with other resources to fill the gap.

But warning signs are flashing that the once-reliable backbone — even a diminished one — may not be there forever. Last year, low water levels forced California to make the unprecedented decision to shut down the Edward Hyatt power plant at California's Lake Oroville. Stanford's Ajami said that marked a milestone.

"Generation would go down, but shutting down the power plant is something that I don't think at any of these hydro plants we had experienced before," she said. "It's coming at us now."

What's on tap?

The diversity of the grid has helped the California ISO avoid blackouts in the current crunch.

Last Tuesday, the operator reported demand at more than 52,000 megawatts, setting a record. The state sent multiple requests to customers to cut their electricity use and issued its highest warning level, signaling that it could ask utilities to institute rolling blackouts, but ultimately did not need to.

According to the Bonneville Power Administration (https://transmission.bpa.gov/Business/Operations/Paths/default.aspx), the federal power marketing agency's transmission lines to California were largely full during the heat wave, carrying electricity that included hydropower from the northwest's more robust reservoirs.

Hydropower acts as a valuable resource because of its ability to ramp up quickly in times of needs. DWR's move in California to deploy hydropower in the evening is an example of hydropower's use in a crisis. Without it, utilities would have to rely on replacement resources like batteries or fossil fuel plants, a contingency Western states are already preparing for.

In a controversial move, California Gov. Gavin Newsom (D) this summer gave DWR the authority to maintain certain natural gas plants as backup power.

The future looks troubling. The U.S. Bureau of Reclamation predicted in August that there is a 30 percent chance Lake Powell on the border of Utah and Arizona — currently about a quarter full — could drop below operational levels by 2024 and a 10 percent chance that could happen next year. That would imperil Arizona's Glen Canyon Dam, which produces about 5 billion kilowatt-hours of energy per year.

In a regular update to its short-term energy outlook released last week, the Energy Information Administration revised its expectations for future hydropower production nationally downward. In the second quarter of this year, EIA reported that the Southwest produced just over 2 billion kilowatt-hours of hydropower, down from 2.7 billion a decade earlier. That's a decline of nearly 30 percent.

"As more information has come in and the months have progressed, we've had to revise our projects and now we're expecting less production," said Lindsay Aramayo, an industry economist at EIA specializing in hydropower. Still, she said, while "things are delicate, I think we'll be okay."

In order to restore some balance to the historically overallocated Colorado River, the federal government declared a "Tier 2a" shortage for the lower basin states of Arizona, California and Nevada. Under a 2019 agreement signed by Colorado River states, that means Arizona must forgo nearly 21 percent of its annual allocation from the river and Nevada will forfeit about 8 percent of its annual allocation (*Greenwire* (https://subscriber.politicopro.com/article/eenews/2022/08/16/arizona-nevada-to-take-brunt-of-water-cuts-next-year-00052174), Aug. 16).

Those measures are designed to ensure that water stays in Lake Powell and Lake Mead, but reduced output from those reservoirs would also mean less hydropower production from their dams. That could create conflict with states' other water management objectives like flood control, protecting aquatic life and agriculture, said North Carolina State University College of Natural Resources assistant professor Jordan Kern.

"There will be pressure to keep water in the reservoir to be able stay above the dead pool threshold, and that could make downstream users of water unhappy," Kern said in an email. "I'm not a lawyer, of course. But a worsening drought seems more likely to spark conflict."

Reporter Hannah Northey contributed.

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