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September 15, 2022 – October 12, 2022

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Pollutants from burning structures linger in waterways post-wildfire

by American Geophysical Union

Remains of a house and car after the Carr Fire passed through the western edge of Redding, California, in 2018. Credit: Cecilio Ricardo/ USDA Forest Service

As the frequency of wildfires has increased, so have pollutants in the waters from burned watersheds, say researchers in a review paper that highlights the need for more research in the area.

"Much less studied are the effects of fire burning not only forests and grasslands but also houses, vehicles and other human-made material," said Stephen LeDuc of the U.S. Environmental Protection Agency's Center for Public Health and Environmental Assessment. "There have only been a few studies of pollutants mobilized from these types of fires."

LeDuc is a coauthor of the new paper, published today in Water Resources Research.

The paper looks at the trends in water after wildfires as documented across 184 scientific papers since 1980. Among the trends they identified were that stream flow often increases for a few years following a wildfire, as do sediments and water temperature. Nutrients also often increased, along with toxic metals and some organic chemicals, which sometimes reach 10 to 100 times higher concentrations than pre-fire levels.

Some post-fire chemicals in the water, such as arsenic, can exceed regulatory limits, even in processed drinking water. Elevated levels of the carcinogen benzene in tap water following the burning of houses and vehicles in the town of Paradise, California, are among the reports cited in the review. Researchers also found higher concentrations of metals in the ash from these fires, which could potentially affect runoff.

The review found that little research has been done on the kinds of pollutants that come from urban wildfires. This leaves water managers and planners at a disadvantage when recovering from a fire.

"We point this out as a major gap in the scientific understanding of fire effects," LeDuc said.

"In my view, the main reason for the knowledge gap is the challenge of setting up an urban water quality monitoring program on short notice, like after a fire," said Dennis Hallema, a hydrologist at Desert Research Institute in Las Vegas who was not involved in the study. "There's plenty of interest, but at the end of the day, successful water quality monitoring efforts come out of projects that were approved in time."

The study also looked at the effects of wildfire on the surrounding ecosystem.

"Fire frequency is increasing in places like in the western U.S. due in part to climate change, and there is potential for areas burned by fire to become longer-term stressors to water quality if the previous vegetation is slow to recover or fails altogether," said LeDuc. "[But] burned areas could be targeted for restoration efforts, such as erosion control or plantings." One restoration effort, noted in the paper, was by the Pueblo of Santa Clara after the Las Conchas Fire in 2011.

The authors write that they hope their review will help water quality managers and communities plan for, and recover from, the impacts of wildfires on their water.

More information: M. J. Paul et al, Wildfire Induces Changes in Receiving Waters: A Review With Considerations for Water Quality Management, *Water Resources Research* (2022). DOI: 10.1029/2021WR030699

Journal information: Water Resources Research

Provided by American Geophysical Union

ARTICLE HIGHLIGHT | 14-SEP-2022

Removing turf-grass saves water. But will it increase urban heat?

New study examines impacts of three desert landscaping strategies on urban irrigation and air temperatures

DESERT RESEARCH INSTITUTE

Las Vegas - (Sept. 14, 2022) – As Las Vegas and other Southwestern cities look for ways to reduce water use during a historic drought, the removal of grass lawns and other areas of "nonfunctional turf" has been recommended by the Southern Nevada Water Authority and written into Nevada state law with AB356. But, will this change from turf-grass to other landscaping types result in other unintended climate impacts in urban areas, such as increased air or surface temperatures?

In a new study in the journal *Hydrology,* a team of scientists from DRI, Arizona State University (ASU), and the University of Nevada, Las Vegas (UNLV), examined the irrigation water requirements of three common types of urban landscapes. Then, they compared air temperature, surface temperature, and wind speed around the three sites to learn how differences in landscape types impact their surrounding environment.

The three landscape types analyzed in the study were a "mesic" tree and turf-grass landscape with water-intensive plants; a "xeric" landscape consisting primarily of desert plants on drip irrigation; and an intermediate "oasis" landscape type with a mix of high-and low water use plants. The sites were located around buildings in an experimental study area at ASU in Phoenix.
As expected, the mesic (tree and turf-grass) landscape showed the highest water consumption rate. However, the mesic site also had the lowest surface and air temperatures, both in the daytime and nighttime, thus creating better conditions for outdoor thermal comfort.

The site with xeric (desert) landscaping had the lowest irrigation water requirement but the highest temperatures. Air temperatures in the xeric landscape plot averaged 3^{o}C (5.4^{o}F) higher than in the other two landscape types.

The oasis landscape, with a mix of high- and low-water use plants, provided the best of both worlds – lower irrigation water requirements than the mesic site but more daytime cooling than the xeric landscape.

"The simple take-home message from what we learned was that xeric (desert) landscaping is not the best long-term solution and neither is mesic (tree-turf)," said the study's lead author Rubab Saher, Ph.D., Maki postdoctoral research associate at DRI. "An 'oasis' style landscape, which contains trees like Acacia or ghost gum, and shrubs like dwarf poinciana, requiring light irrigation, are the best solution, because it conserves water but also contributes to cooling through the evapotranspiration of the plants."

The study also examined the role of buildings and open sky to understand the effect of shade on the landscape. They found that shade in the narrow space between buildings created shade of comparable temperature to that under a tree in a mesic landscape and are interested in doing follow-up studies to learn more about the impact of building orientation on maximizing summer shade.

"I became interested in this topic because urban irrigation and water efficient landscaping are really important issues in the Western U.S., but haven't been studied very thoroughly," said Saher. "People have been applying methods for calculating irrigation from agricultural fields, but urban areas are very different landscapes, and the ways that homeowners irrigate are very unpredictable."

The authors hope that their findings are helpful to homeowners, city planners, or anyone trying to help conserve water but prevent warming temperatures in arid urban regions.

"Removing turf grass from the landscape is an excellent approach for saving water, but if we remove all the turf grass, the temperature will go up," Saher said. "For every acre of turf grass removed, we also need to plant native and/or rainfed trees to make arid cities livable in the long run."

More information:

The full study, *Assessing the Microclimate Effects and Irrigation Water Requirements of Mesic, Oasis, and Xeric Landscapes*, is available from Hydrology: https://www.mdpi.com/2306-5338/9/6/104

This study was made possible with funding from the University of Nevada, Las Vegas (UNLV), and DRI's Maki Postdoctoral fellowship. Study authors included Rubab Saher (DRI), Ariane Middel (ASU), Haroon Stephen (UNLV), and Sajjad Ahmad (UNLV).

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About DRI

The Desert Research Institute (DRI) is a recognized world leader in basic and applied environmental research. Committed to scientific excellence and integrity, DRI faculty, students who work alongside them, and staff have developed scientific knowledge and innovative technologies in research projects around the globe. Since 1959, DRI's research has advanced scientific knowledge on topics ranging from humans' impact on the environment to the environment's impact on humans. DRI's impactful science and inspiring solutions support Nevada's diverse economy, provide science-based educational opportunities, and inform policymakers, business leaders, and community members. With campuses in Las Vegas and Reno, DRI serves as the non-profit research arm of the Nevada System of Higher Education. For more information, please visit www.dri.edu.

About ASU

Arizona State University, ranked No. 1 "Most Innovative School" in the nation by U.S. News & World Report for seven years in succession, has forged the model for a New American University by operating on the principles that learning is a personal and lifelong journey for everyone, and that people thrive on experience and discovery that cannot be bound by traditional academic disciplines. Through innovation and a commitment to educational access, ASU has drawn pioneering researchers to its faculty even as it expands opportunities for qualified students.

About UNLV:

UNLV is a doctoral-degree-granting institution of more than 30,000 students and nearly 4,000 faculty and staff that has earned the nation's highest recognition for both research and community engagement from the Carnegie Foundation for the Advancement of Teaching. UNLV offers a broad range of respected academic programs and is committed to recruiting and retaining top students and faculty, educating the region's diverse population and workforce, driving economic activity, and creating an academic health center for Southern Nevada. Learn more at unlv.edu.

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Nevada again looks to deep conservation as the Colorado River's reservoirs dwindle

Daniel Rothberg September 15th, 2022 at 7:00 AM Environment

The Las Vegas Wash passes through the 2,900 acre Clark County Wetland Park on Friday, Aug. 26, 2022. The Las Vegas Wash, the water running through this channel is a crucial part of how Nevada has managed to keep its net Colorado River use below its allocation, despite booming population growth and two decades of persistent drought, woresened by a changing climate. (Jeff Scheid/Nevada Independent via AP)

Editor's note: This story is ***part of a collaboration*** *looking at the 100th anniversary of the Colorado River Compact. We partnered with the* Associated Press, The Colorado Sun, The Albuquerque Journal, The Salt Lake Tribune *and* The Arizona Daily Star *to tell stories from across the Colorado River Basin.*

Only a few miles from the Las Vegas Strip, in the Mojave Desert, is an unlikely scene: A county park with walking trails and thick vegetation that surround a vibrant rush of flowing water.

Known as the Las Vegas Wash, the water running through this channel is a crucial part of how Nevada has managed to keep its net Colorado River use below its allocation, despite booming population growth and two decades of persistent drought, worsened by a changing climate.

Every time a shower or a faucet is turned on in Las Vegas, the water owing down the drain is treated at wastewater plants and recycled. The treated water is discharged into the wash, which ows into Lake Mead, a declining Colorado River reservoir held back by the Hoover Dam. Once there, the water can be used for a second time, e ectively increasing Nevada's overall supply.

"It allows Las Vegas to exist in its present form," said John Hiatt, a conservationist who sits on a coordination committee for the wash. "[Without it], we'd be half our size and really struggling." When the Colorado River Compact was negotiated in the early 1900s, only about 5,000 people lived in Clark County, home to Las Vegas. Few envisioned the massive growth that has turned the desert into a sprawling paved landscape of nearly 2.3 million people — and growing. Today, about 74 percent of all Nevadans live in Clark County, making it the state's economic center.

Visitors to Las Vegas Boat Harbor stand on the dock on Wednesday, Aug. 17, 2022. Unlike other states of the Colorado River Basin, Nevada has one main river user: Las Vegas. (Jeff Scheid/Nevada Independent via AP)

The laws governing the Colorado River give Nevada the smallest cut of water: 1.8 percent, or just 300,000 acre-feet (an acre foot is the amount of water needed to fill an acre to a depth of one foot). The small share has meant Nevada has long had to live on a tight water budget and rely on conservation measures that are only now being considered by other Western states.

Nevada has one main Colorado River user: Las Vegas. It accounts for more than 90 percent of the state's diversions, with additional water going to the Fort Mojave Indian Tribe, whose rights were recognized in a case known as ***Arizona v. California***, and **other water users in Nevada.**

For decades, Las Vegas has relied on wastewater recycling and removing water-guzzling grass to stretch and conserve its small Colorado River share. But even with proactive management, Las Vegas, like other cities, faces challenges and uncertainties when it comes to future growth.

"We still have some room with the water resources we have today," said Assemblyman Howard Watts, a Democrat who has worked on water issues for years, including in the Legislature. "But eventually we're going to reach a point where we're going to go past that limit and that's when we really have to consider what a sustainable path is for Southern Nevada moving forward."

Many of the Southern Nevada Water Authority's **future planning scenarios** are premised on an ability to collaborate with other states to augment Las Vegas's current supply. Yet negotiations over the Colorado River have become increasingly difficult for the seven states that rely on the shrinking river and its reservoirs, including Lake Mead, which has fallen to critically low levels.

Nevada, even though it has a small slice of the Colorado River, has a huge stake in those talks. Las Vegas is reliant on the Colorado River. It's the source of about 90 percent of the city's water supply. The remainder comes from a local groundwater aquifer, which was historically overused.

Any other water in Nevada is far away. For years, Las Vegas had looked to import rural eastern Nevada groundwater hundreds of miles away as a potential supply. But local water managers **shelved the controversial plan** in 2020 amid legal challenges and concerns about environmental impacts. While it still owns ranches in eastern Nevada, the water authority has said its focus is on supplementing its supply through collaborations, **including a recycling project in California.**

How Southern Nevada has managed to grow, thus far, on such a tight supply has everything to do with the Las Vegas Wash, which empties into Lake Mead. Colby Pellegrino, deputy general manager of the Southern Nevada Water Authority, described the natural stream as something of "a silent miracle," helping Nevada operate one of the largest water reuse programs in the nation.

Through the Las Vegas Wash, recycled water flows back to Lake Mead. Each drop of water that is returned allows Nevada to divert an equivalent amount of water, while keeping its overall use within its 300,000 acre-foot allotment. **Last year,** Nevada diverted more than 480,000 acre-feet from Lake Mead, but it returned about half of that water for an overall use below its allotment.

Because nearly all indoor water in Southern Nevada is treated and returned to the wash, it has allowed Las Vegas to focus its conservation efforts on **aggressive turf removal**. This, combined with water recycling, has meant that Nevada has under-used its Colorado River apportionment.

This year, **the state is currently forecast** to use about 240,000 acre-feet of water, or 20 percent less than its 300,000 acre-foot allocation. Nevada, as a result, can easily absorb an **8 percent cut to its water supply next year** without any significant changes to municipal water deliveries.

As for future growth, Pellegrino said "it depends on how we grow."

"The future of our growth has to have the smallest water footprint possible," she added.

Las Vegas is preparing for the realities of a shrinking river by incentivizing and requiring greater degrees of conservation — with a target goal of decreasing per capita water use from about 110 gallons per capita per day to 86 gallons per capita per day by 2035. The water authority's plan includes a transition from evaporative cooling, pool size limits and prohibiting decorative turf.

Construction for a multi-unit housing is underway in south Las Vegas valley on Tuesday, April 26, 2022. Las Vegas is reliant on the Colorado River. It's the source of about 90 percent of the city's water supply. (Jeff Scheid/Nevada Independent via AP)

Still, with only 1.8 percent of the Colorado River, Las Vegas cannot fix the problem on its own. In a recent letter, water authority General Manager John Entsminger **called for swift cuts aimed** at stabilizing the Colorado River's reservoirs while longer-term agreements can be negotiated. The water authority has also pushed other states to consider climate change in long-term planning.

Hiatt, on the Las Vegas Wash Coordination Committee, came to Southern Nevada in the 1970s, when the population of Clark County was about 350,000 people. He said he is concerned about what a future might look like as climate change continues altering the river's flows. If conserved water is only re-dedicated to new growth, he worries "we're going to be in the same position of pushing against our allotment — and our allotment may be significantly lower than it is now."

"It's hard to believe anyone is going to come out with more water," he added.

TMWA expands Forest Stewardship Program on Mt. Rose to protect watershed

Thanks to private funding TMWA is expanding its Forest Ambassador Program for another year. (KOLO)
By Freixys Casado
Published: Sep. 16, 2022 at 10:32 PM PDT

RENO, Nev. (KOLO) - Truckee Meadows Water Authorities (TMWA) Forest Stewardship Program on the Mt. Rose Fan has been extended for another year.

While TMWA's initial partnership was directly with the USFS, the private sector is now supporting the program as well, with retail chain REI joining on.

Over the summer Megan Andrews has been getting to know many of the hikers and bikers, who use the trails around the Mt. rose and Galena area every week.

"They love this forest more than I could ever expected," she said"

Andrews is an ambassador for the program, which was created in partnership with the National Forest Foundation (NFF) to protect water flows, used by TMWA's water treatment plant in Mt. Rose, from heavy-use recreation.

"People are really good about staying to the trails, not going off and creating erosion issues for us," said Andrews.

She starts walking the trails at seven in the morning. So far she has interacted with about 1,500 people and says the biggest issue is trail users not picking up after their pets.

"We recommend that people carry bags with them and be aware that even if you leave the bag out there, it's going to disintegrate and we can have issues with bacteria and parasites from the dog waste," said Andrews.

The $50,000 pilot was for one year but thanks to funding from REI, Andrews could be out there next year.

Friday afternoon, the program hosted a tabling event at the store, located at 2225 Harvard Way in Reno.

"We're also here because this is where people come to gear up to get ready for those trails and so we really wanted to highlight that public-private partnership," said Katlyn Lonergan, Eastern Sierra & Great Basin program coordinator at NFF.

Recreational impacts such as people going off trails and/or leaving trash create sediment and other materials bad for the water, which can then increase treatment costs.

For more information on how to recreate responsibly, head to https://www.recreateresponsibly.org/

In the future Lonergan said the goal is to add more ambassadors and expand the covered area.

Most Read

Project To Protect Bay Area Drinking Water From Wildfires To Begin

The 23,000-acre SFPUC Peninsula Watershed provides roughly one million residents in San Mateo County and San Francisco with clean water.

Bay City News, News Partner

Posted Sun, Sep 18, 2022 at 5:21 pm PTUpdated Sun, Sep 18, 2022 at 10:23 pm PT

An effort to reduce the size of vegetation growth will limit the risk of extreme re around the watershed, the Edgewood County Park and surrounding private property, said Cal Fire. (Shutterstock)

BELMONT, CA — In an effort to protect the drinking water source for one million Bay Area residents from destructive wildfires, crews will soon work to masticate vegetation on Maple Way around watershed lands.

In collaboration with Cal Fire, the San Francisco Public Utilities Commission, who oversees the SFPUC Peninsula Watershed, will hire contractors to mulch vegetation into small pieces. Reducing the size of vegetation growth will limit the risk of extreme fire around the watershed, the Edgewood County Park and surrounding private property, said Cal Fire.

"We are really excited about this project because it is a team effort involving several different agencies working together to do what's best to protect this community. We are ready to get started on this project," said CAL FIRE Vegetation Management Forester, Sarah Collamer, in a statement.

The 23,000-acre watershed is responsible for providing roughly one million residents in San Mateo County and San Francisco with clean drinking water, sourced from three reservoirs.

"An uncontrolled fire here could impact the drinking water for almost one million people and threaten the communities that surround us," stated SFPUC General Manager Dennis Herrera. "We appreciate our partnership with CAL FIRE to help protect these lands from the threat of wildfire."

Cal Fire said residents may be impacted by traffic and noise from the project during work hours as crews begin the project, and it's expected to last a few weeks.

As southern Nevada water levels drop, golf course managers adjust

By Bryan Horwath (contact)

Monday, September 19, 2022 - 2 a.m.

Pat Putnam walked into the Red Rock Country Club on the western edge of the Las Vegas Valley for another round of golf. It's an activity he loves—regardless of the amount of natural grass on the course he's playing that day.

The Phoenix-area resident said he's aware of the "turf reduction" plans that many golf courses in the Southwest have implemented as a massive multiyear drought continues to plague the region, but he said the trend doesn't bother him.

"It's going to keep going the way it's been going," Putnam said. "I really don't think it takes away from the game. For most golfers, I think it's more about the shape that the greens are in."

As Southern Nevada continues to deal with dwindling water resources, turf reduction—the replacement of grass spaces with rocks or other desert landscape layouts—has become a common practice around the Valley.

At Red Rock—which is home to a private course and an accompanying public track—more than 300 million gallons of water are used annually to keep the grass on the courses and around the clubhouse healthy.

In Southern Nevada, operators of the more than 50 golf courses in the region are now allowed to use 6.3 acre-feet of water per acre. Beginning in 2024, that number will be lowered to 4 acre-feet.

At Red Rock, the company responsible for managing its golf courses is Pro Turf International, a local company that this year celebrated 30 years in business.

Like other courses in the Southwest, it's expected that the courses at Red Rock—the Mountain Course is private and the Arroyo Course public—will continue to undergo turf-reduction projects in the future.

"Water has been a big issue for a long time, but I think it's become an even bigger issue in recent years," said Mickey Brown, CEO of Pro Turf. "Looking at the levels of Lake Mead, if you look at the satellite imagery, you can really see how water levels have gone down. In recent years, you've seen more turf-reduction projects on golf courses in our region."

There's still plenty of grass on turf-reduced courses around the tee boxes, on the fairways and, of course, on the greens, but some other areas on local courses have started to look more rocky than grassy.

When they opened, the two courses at Red Rock featured about 330 acres of grass turf. Today, they have about 120 acres, said Jared Bumpus, Pro Turf's director of maintenance.

Thom Blinkinsop, general manager at Red Rock Country Club, said some golfers complain about a reduction in grass, but the majority don't seem to mind.

"We've actually been reducing turf since about 2002," Blinkinsop said. "We use GPS tracking to see where golf carts drive on our courses. If we see that carts don't drive much in a certain area, and there's turf there, we might end up removing that because that means people aren't hitting their golf ball in that area much."

Blinkinsop said he understands that more turf reduction will need to take place at his courses, and at other local courses, as leaders continue to tackle the region's water shortage problems.

The Southern Nevada Water Authority, a cooperative agency formed in 1991, notes that between 5% and 6% of all water used in the area goes to golf courses. More than 60% is used for residential purposes.

In Southern Nevada, water comes from Lake Mead, the reservoir fed by the Colorado River, which provides water for more than 40 million people in seven U.S. states and Mexico.

Last month, the Department of the Interior announced that Nevada is set to lose 8% of its water allotment from the river next year.

At Lake Mead, the water level has dropped more than 150 feet since the turn of the century. It now measures at about 1,045 feet above sea level, nearly 180 feet below its capacity.

Patrick Watson, a conservation services administrator with the water authority, noted that as of last November, water from the Colorado River is not allowed to be used at new golf courses built in Las Vegas or unincorporated Clark County.

That essentially prohibited any new course construction here.

Part of that is because water isn't free. If courses can get away with spending less on water while they continue to offer courses that golfers want to play on, that's positive for the business side of the operation.

"People who are golfers, I think, understand what we do," Brown said. "People who are not golfers, they wonder why we have to have all these golf courses in the Valley."

Putnam, the golfer, said he's willing to make some sacrifices for the greater good.

"At the end of the day, this is golf, so it's not the most important thing in the world," he said. "Being a good citizen means adapting. I'm sure it's inevitable that turf reduction will continue to take place."

Tags: News, All, Aggregate, Business
Section: Business
This story appeared in Las Vegas Weekly.

Controversial medical waste company fined millions by EPA moves to northern Nevada

by Kim Burrows
Monday, September 19th 2022

Stericycle plant being built in Storey County, east of Sparks in the Reno Tahoe Industrial Center (KRNV)

STOREY COUNTY, Nev. (News 4 & Fox 11) — A company that burns medical waste is coming to northern Nevada and brings with it a lot of controversy.

Stericycle just shut down its incinerators in north Salt Lake summer 2022. The company is rebuilding in the Tahoe Reno Industrial Center, about half-way between Sparks and Fernley. Stericycle is planning to build and operate two incinerators at the facility.

Those incinerators will burn medical waste, such as potentially infectious materials like bandages or PPE as well as trace chemotherapy waste and sharp waste like needles and scalpels. The Nevada Division of Environmental Protection told News 4 no human waste will be incinerated at the Nevada plant. In a statement, Stericycle said "pathological wastes such as surgical specimens would be accepted for treatment at our new Nevada facility."

"We don't have any hospital medical waste incinerators in Nevada so we researched what the requirements were. We talked to the federal EPA," said Nevada Division of Environmental Protection Administrator Greg Lovato.

Stericycle plant being built in Storey County, east of Sparks in the Reno Tahoe Industrial Center (KRNV)

The company had issues in Utah. In 2014 the company agreed to pay a record $2.3 million dollar fine after Utah's Division of Air Quality said Stericycle failed emissions tests for more than a year. The EPA said the plant released pollutants that exacerbates diseases such as asthma and can increase susceptibility of respiratory illnesses such as pneumonia and bronchitis.

Residents were concerned about what was in the black smoke billowing from the incinerator. For more than a decade they've protested and expressed concerns about the plant being so close to residents' homes. The area was mostly rural when the company moved into the building in 1992.Since then, homes have been built closer.

Utah Physicians for a Healthy Environment lead the charge to try to get the company to stop

"For 33 years Stericycle poured out their smokestack their witches brew of many of the most toxic substances known to science," said Dr. Brian Moench said this past July in Utah.

In addition to the large fine, Stericycle was forced to shut down its incinerators this summer. The company chose to move that part of the business to northern Nevada in the Tahoe Reno Industrial Center.

The Nevada Division of Environmental Protection said it doesn't have the discretion to stop the permit, if the company meets the state's requirements. The state said it has met the requirements. The administrator said with the company's past history it will be keeping a close eye on the plant.

"There will be announced inspections, unannounced inspections. We also have continuous emissions monitoring systems that's going to be on there now so they're actually going to have real-time monitoring of what's coming out of the stack," said Lovato.

Lovato said they approved the permit because his office feels the company can operate safely.

"To be fair, I think that the company showed that they operated in compliance, since those incidents in 2013 and so they were able to show a pretty long record of compliance after that," he said.

Storey County's manager, Austin Osborne didn't comment on any concerns but stated they'll rely on the Nevada Division of Environmental Protection and their strict policies.

Stericycle did not give News 4 an interview as requested and instead issued the following statement:

Stericycle is excited to be joining the Storey County and McCarran communities as we construct our hospital, medical, and infectious waste incinerator (HMIWI) facility, at the Tahoe Reno Industry Center (TRIC) in McCarran, Nevada, and prepare to serve a critical public health need.

Our new, technologically advanced facility will provide hospitals and healthcare systems with effective medical waste treatment and disposal – which is an essential service that aids in mitigating the spread of infection – while also supporting the creation of jobs and bolstering the local economy.

We identified Storey County and the TRIC as an ideal location for our Western flagship facility for a number of reasons, including:

- The location enables us to better serve our healthcare customers throughout the Western Region.
- The site is located within an industrial park zoned specifically for heavy industry, increasing our access to the appropriate infrastructure to support our operations as well as access to highways.
- The strong network of local contractors and vibrant businesses that enable us to hire local and strengthen our connection to the community as we build and operate this facility.

The McCarran facility falls under the stricter emissions standards set by the U.S. Environmental Protection Agency for new HMIWIs. In addition, our HMIWI facility will be less impactful to the surrounding environment than other incinerators, such as municipal waste incinerators, which are typically larger in size and throughput. In any given period, the McCarran facility is expected to generate roughly the equivalent emissions of 10 semi-trucks operating for the same length of time. Our new facility is also designed to use minimal water and will use reclaimed rather than potable water where possible. Our services, like all medical waste transportation and treatment operations, are highly regulated by federal, state, and local environmental agencies.

As a global industry leader, Stericycle has helped communities through outbreaks, natural disasters, and other states of emergency, including handling medical waste and supporting critical healthcare needs in the fight against the COVID-19 pandemic. Through safe, sustainable, and responsible products and services, we help healthcare organizations protect the health and well-being of the people and communities they serve.

U.S.News & WORLD REPORT NEWS

Drought in Western US Heats up as a Senate Campaign Issue

The consequences of drought and efforts to funnel billions of dollars toward securing water supplies in the West are becoming larger issues in two of the most consequential races for the U.S. Senate.

By Associated Press

Sept. 20, 2022

FILE - The Colorado River flows through the Grand Canyon on the Hualapai reservation on Aug. 15, 2022, in northwestern Arizona. The consequences of drought and efforts to funnel billions of dollars toward securing water supplies in the West are becoming larger issues in two of the most consequential races for the U.S. Senate. In Nevada and Arizona, cities and farmers are facing cuts as the Colorado River dwindles. (AP Photo/John Locher, File) THE ASSOCIATED PRESS

By GABE STERN, Associated Press/Report for America

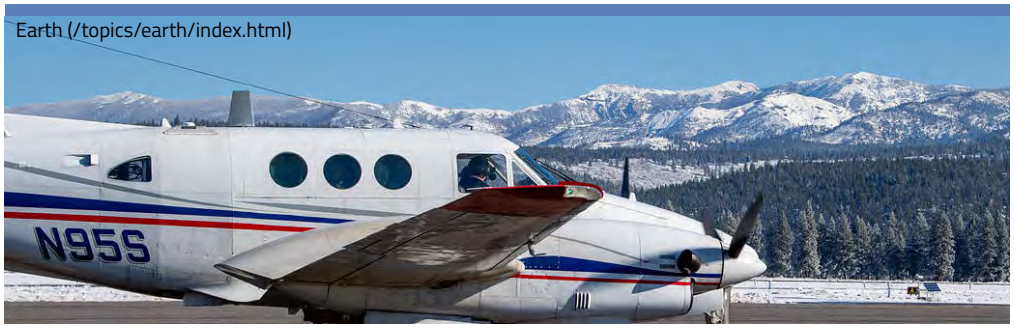
RENO, Nev. (AP) — In a midterm campaign season dominated by inflation, abortion and crime, there's another issue that is becoming more urgent in Western states: drought.

The topic of water historically has played little to no role in campaign ads in much of the region, but funding to fight drought is coming up now in door-knocking campaigns and is on the long list of talking points that advocacy groups are using to rally voters in two states with vulnerable Democratic incumbents and looming water cuts: Nevada and Arizona.

"This issue appeals to the economic anxiety of our voters and our people," said Angel Lazcano, a Las Vegas-based organizer for Somos Votantes, which seeks to mobilize Latino voters across swing states.

Federal officials recently announced that Nevada and Arizona would get far less water in 2023 as the stranglehold on the Colorado River worsens because of drought, climate change and demand. The federal government threatened to impose deeper, broader cuts if the seven states that depend on the waterway can't agree on how to use less.

Earth (/topics/earth/index.html)



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Sep 20, 2022

Eyes on the Snow as Water Supplies Dwindle

As the American West suffers a 22-year-long “megadrought (https://www.drought.gov/research-spotlight-climate-driven-megadrought)” that researchers say is the worst in at least 1,200 years, water managers now have a new level of insight into just how much water will be available for their communities. Water departments in the West are using maps and models originally created by a NASA team to help track water and improve how we manage this precious resource. That team is now a private public-benefit company, Airborne Snow Observatories, Inc. (ASO (https://www.airbornesnowobservatories.com/)), which is using the NASA-developed methods to work with (https://www.usbr.gov/newsroom/#/news-release/3845) the U.S. Bureau of Reclamation (USBR (https://www.usbr.gov/main/about/)) – the largest wholesaler of water in the country – as well as the states of California (https://www.youtube.com/watch?v=P3TqKA4Ebl8&t=29s) and Colorado (https://www.coloradoasoplan.org/landing-page), and water managers internationally.

Chad Blanchard (left) USBR federal water master of the Truckee and Carson Rivers, and David Rizzardo (right) CADWR hydrology manager, in front of an ASO plane.
Credits: CADWR/Kelly M. Grow

NASA Research Fills a Gap

Much of the American West’s water supply depends on the snow that builds up on mountains in the winter. In the spring and summer, as the snow melts, that meltwater is used for everything from washing hands to watering crops. NASA’s Airborne Snow Observatory began as a project from NASA’s Jet Propulsion Laboratory (JPL (https://www.jpl.nasa.gov/missions/airborne-snow-observatory-aso)) and NASA’s Earth Science Division (https://science.nasa.gov/earth-science), when snow scientist and project lead Tom Painter identified how NASA science and remote sensing could help fill an urgent gap for water monitoring.

Ten years ago, communities had limited ability to accurately estimate how much water they’d get from melting snow – or when it would arrive. Now, the ASO team combines measurements from lasers and spectrometers on planes with Earth observations from NASA satellites to produce up-to-date forecasts and maps of the amount of water held in the snowpack – with up to 99% accuracy. This also increases the range of area in which snowpack can be measured, allowing water managers to know earlier the amount of water coming from snowpack throughout the spring and summer and plan with greater confidence. Using a plane also allows more precise measurements of snowpack, with NASA and other GPS (https://www.nasa.gov/directorates/heo/scan/communications/policy/GPS.html) satellite networks telling the scientists exactly where the ASO plane is relative to the topography of the mountains below.

The ASO team uses higher-resolution snow cover data from the joint NASA and U.S. Geological Survey Landsat (https://landsat.gsfc.nasa.gov/) satellite mission to update model snow cover, and the Moderate Resolution Imaging Spectroradiometer (MODIS (https://modis.gsfc.nasa.gov/)) instrument on board NASA’s Terra (http://terra.nasa.gov/) satellite to guide rapid updates to flight planning. This view from above gives the team a better understanding of the area in between each flight, which allows them to update their models in near real-time.

“We actually just did that today,” Painter said over the phone, as he shared updates on his project with NASA. “We looked at the most recent Landsat acquisition, which told us how much of the snowpack had melted away, and where we should update our snow model and likewise actually fly to look for remaining snow. It makes for much greater efficiency of our work.”

NASA’s Terrestrial Hydrology Program, Western Water Applications Office (WWAO (https://wwao.jpl.nasa.gov/)), and the Applied Sciences Program (https://appliedsciences.nasa.gov/our-impact/story/sensing-snow-satellites-and-planes) helped support ASO’s work prior to its spin-off. “NASA was remarkably supportive, helpful, encouraging, and prescient,” Painter added.

(/sites/default/files/thumbnails/image/airborne_snow_observatory_aso_lidar_on_a_plane.png) A view of laser technology, known as lidar, onboard an ASO plane. These lasers allow the planes to scan the snowpack they’re flying over, immediately sending the data back for the ASO team to incorporate in their forecasts.
Credits: CADWR/Kelly M. Grow ()

Changing Tech for a Changing Climate

As the Earth warms from human-caused climate change, precipitation patterns and the timing of the melting snowpack is also changing – impacting the quantity of water available and making supplies harder to manage.

“With today’s warmer and drier climate, older forecasting techniques are struggling to produce accurate results,” said David Rizzardo, manager of the Hydrology Section for the California Department of Water Resources (CADWR). Using the data from these NASA-developed methods for the 2021-2022 winter “allowed us to understand that we had about half the water stored in the Sierra Nevada snowpack than was estimated from older snowpack estimation tools, which are based on historical distributions of the snow that are less relevant today due to climate change.” This more accurate knowledge of how much water is stored in the snowpack and precisely where the snow has accumulated allows water managers like Rizzardo to better respond and plan.

Understanding the amount of water available from snowpack “has a direct impact on everything from watering crops to simple everyday hydration,” Painter said. “If you drink a glass of water in San Francisco, it’s from [California’s] Tuolumne basin – one of the places we are actively monitoring.”

Painter adds that the combination of NASA satellite data with observations from ASO flights also allows for a fast turnaround of information overall. "Now it’s [a case of], ‘here’s the information from yesterday, our lasers touched every inch of snowpack.’ For our partners who are now our customers, that became the enormous game changer.”

(/sites/default/files/thumbnails/image/airborne_snow_observatory_aso_plane_truckee_airport_ca_12-10-21.jpg)
An Airborne Snow Observatories, Inc. plane in Nevada County, California, in December 2021 on its mission to measure nearby mountain snowpack.
Credits: California Department of Water Resources/Kelly M. Grow ()
by Lia Poteet, Earth Applied Sciences (https://appliedsciences.nasa.gov/)

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Editor: Aries Keck

Tags: Aqua Satellite (https://www.nasa.gov/mission_pages/aqua/index.html), Benefits to You (/topics/benefits/index.html), Earth (/topics/earth/index.html), Jet Propulsion Laboratory (/centers/jpl/home/index.html), Landsat (http://www.nasa.gov/mission_pages/landsat/main/index.html), Terra Satellite (http://www.nasa.gov/mission_pages/terra/index.html), Water (/subject/3135/water)

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Mini-documentary to focus on Pure Water Soquel project

Produced by BBC StoryWorks as part of a series of films on water management, the mini-documentary profile the story of Soquel Creek Water District's groundwater replenishment and water recycling project.

Sept. 20, 2022

An upcoming mini-documentary will focus on Soquel Creek Water District's advanced water purification project.

The film was produced for the District by BBC StoryWorks and focuses on the Pure Water

Soquel project. It is part of a human-centric film series presented by the International Water Association called "Beneath the Surface: The Journey of Water." The series includes short films that profile the innovations and innovators advancing water sustainability.

The complete series, which initially launched at the International Water Association Conference in Denmark, includes 16 unique stories from around the world. The Pure Water Soquel film is one of only two in the series from the United States with others from around the world representing Spain, Uganda, Brazil, Scotland, Sweden, Portugal, and more.

Each film has a unique launch date to coincide with worldwide promotion from BBC StoryWorks. Pure Water Soquel's film will be officially released online on Thursday, September 22 – the first of the series to have its international introduction. The Pure Water Soquel film and the entire series can be viewed online for free.

The mini-documentary tells a story of the severe drinking water challenges faced in the California mid-coast region, and how the District, its community, and neighboring partners determined that replenishing groundwater with advanced purified recycled water was the most productive path toward a sustainable water supply.

Filming and production for the Pure Water Soquel footage began in March 2022, and includes interviews with Melanie Mow Schumacher, Pure Water Soquel's Program Director; Cindy Wallis-Lage, Black and Veatch's Executive Director for Sustainability and Resilience; and Bridget Hoover, the Water Quality Protection Program Director for the Monterey Bay National Marine Sanctuary.

"We're pleased to bring this short film to the community that we serve, and others who are interested in how our small District came to the forefront of utilizing advanced purified water," said Tom LaHue, president of the Soquel Creek Water District Board of Directors. "It's our hope that people will gain a further understanding of how important Pure Water Soquel is to a sustainable water future and combating further seawater intrusion."

Water Power Technologies Office

Study Finds Hydropower Provides Reliable Electricity Even During Historic Droughts

SEPTEMBER 20, 2022

To better understand the impacts of drought on the U.S. electric grid, the **Pacific Northwest National Laboratory (PNNL)**, with funding from the U.S. Department of Energy's **Water Power Technologies Office (WPTO)**, conducted a **multi-regional study** of drought's impact on 21st century hydropower generation in the western United States. The report is the most comprehensive look into the effects of drought on hydropower generation in the United States this century.

The analysis reveals that though drought does raise concerns for hydroelectric generation, the overall hydropower fleet sustained 80% of its average generation for the years 2001-2021. Also during this time period, hydropower could still be relied upon to supply flexible power during periods of high energy demand—even during the most severe droughts of the past two decades.

The western United States has always been a region of extreme climate variability, with large fluctuations in rain and snowfall precipitation from year to year. Climate

change, and especially extreme weather events such as droughts and floods, is only increasing those fluctuations. This has enormous implications for the energy grid, sanitation, drinking water, food and agriculture, and more.

In a wet year, hydroelectric power can meet 30% of annual western electricity demand, but that number can drop below 20% when less rain and snowfall lead to lower water levels in rivers and reservoirs.

The PNNL study looked at eight climate sub-regions across 11 western states, including Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. This area, which the U.S. Census Bureau defines as the "West," contributes more than 60% of U.S. hydropower capacity. All data used in the study is publicly available and taken from the **U.S. Energy Information Administration**, the **U.S. Geological Survey National Water Information System**, the **U.S. Drought Monitor**, **the National Centers for Environmental Information of the National Oceanic and Atmospheric Administration**, and **Oak Ridge National Laboratory**.

That data indicated 2021 to be the second worst year for drought this century, with overall hydropower generation 16% lower than the average since 2001. The 2021 drought most severely impacted hydropower generation in California (48% below average) and Oregon (16% below average). However, the large sizes of western states, and wide range of weather across the West means drought rarely impairs hydroelectric power across all climate sub-regions simultaneously. Consequently, the overall hydropower fleet remains reliable even if certain plants or sub-regions produce less power. Washington and Idaho, for example, only experienced an average drop in hydropower generation of about 12% in 2021, and the entire western hydropower fleet was still able to maintain 84% of its average expected generation.

2001 remains the worst year for western hydropower generation this century, owing to extreme drought in the Pacific Northwest where two-thirds of western hydropower capacity is located. Despite the drought, the hydropower fleet still provided 150 TWh of renewable-generated electricity. This means that, even in its worst year this century, the overall hydropower fleet sustained 80% of its average expected generation.

Multi-year drought does mean that sub-regions of the West, such as particular states or parts of states, can experience a significant decline in hydropower generation. In California, we saw evidence of significant curtailments in monthly output as reservoirs drop each time the region experienced two or more years of drought. Yet even within these regions, local hydropower is still reliable and an important energy source: data shows that hydroelectric power in California continued to ramp up in the evening through summer 2021, supplying essential power to the grid as demand increased and solar generation decreased.

Annual hydropower generation across most sub-regions has a strong correlation with yearly rainfall totals, allowing researchers to further create hydropower generation estimates for years lacking energy generation data. Based on these estimates in combination with rainfall outlooks for the remainder of 2022, the researchers expect U.S. hydropower generation in 2022 to rebound from 2021, despite continual drought across large areas of the West. This rebound is driven by favorable water conditions in the Northwest, which contributes the lion's share of the West's hydropower generation and is no longer considered to be in severe drought.

Unlike western droughts experienced in the 21st century, the drought of 1976–77, which was the most severe drought ever recorded for the West, affected hydropower output from all major generating regions of the West. As a result, a repeat of this historical event would likely cause a greater reduction in overall hydropower generation than seen in the last two decades. These states are part of the Western Interconnection which is made up of 136,000 miles of transmission lines that carry power between states. As a result, even if these drought conditions repeated, overall hydropower generation in the West would still produce about three-quarters of its average annual output.

Learn more about **drought impacts on hydroelectric power generation in the western United States.**

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Mountain West News Bureau

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A plan to share the pain of water scarcity divides farmers in this rural Nevada community

KUNR Public Radio | By Kaleb Roedel

Published September 21, 2022 at 7:53 AM PDT

Kaleb Roedel / Mountain West News Bureau

Marty Plaskett, a hay farmer in Diamond Valley, Nev., stands near one of his irrigation pivots that's watering his alfalfa eld on Sept. 2, 2022.

In central Nevada, on the edges of the small town of Eureka, farm fields unfold for miles between the Sulphur Spring Range and Diamond Mountains.

Green crop circles fill up the remote land. Tractors roam slowly across open fields. Black cattle dot dusty playas.

This is Diamond Valley, a high-desert basin with 26,000 acres of irrigated agriculture – mostly hayfields – that relies heavily on groundwater pumped up to the surface to grow crops.

A slice of that acreage is owned by Marty Plaskett, who's spent his entire life farming this land. On a hot summer morning in early September, Plaskett stood next to an irrigation pivot, a large rotating sprinkler system that was watering his green alfalfa eld.

In a light blue checkered shirt and gray trucker hat, Plaskett smiled beneath his mustache as he described some of the innovations in irrigation.

"This water here is spraying mainly in the crop canopy so it's spraying directly to the ground," said Plaskett, noting how the low-elevation sprinklers reduce his water use –and waste.

For years, Plaskett used elevated sprinklers that sprayed more plants at once. Sometimes colorful rainbows would show up in the mist – a sight he used to enjoy.

"Now, it makes me sick to my stomach," said Plaskett, shaking his head. "Because any water that's leaving by evaporation is going up in the air. It's the worst thing to see water drifting anymore."

To Plaskett, any groundwater being pulled to the surface just to evaporate is wasted. And this valley can't afford to waste any water.

Since the 1960s, state officials had let farmers over-pump the basin-fill aquifer in Diamond Valley, which is mainly recharged by winter storms. Back then, the state appropriated irrigation groundwater rights totaling about 126,000 acre-feet. One acre-foot is the amount of water that fills an acre of land to a dept of 1 foot.

Decades later, however, it was discovered the amount of water available in the valley each year is only 30,000 acre-feet.

As a result, for more than half a century, groundwater levels have dropped by an average of 2 feet every year.

And without water?

"Your land value is zero, you have no livelihood, see you later. So that wasn't an option for us," Plaskett said.

Kaleb Roedel / Mountain West News Bureau

A close-up look at a low-elevation sprinkler watering alfalfa in Diamond Valley, Nev., on Sept. 2, 2022

Few things are more valuable to a farmer in the West than water. When there's not enough to go around, figuring out whose use matters the most often leads to heated arguments.

Faced with the threat of some farmers losing their access to water entirely while others didn't feel the scarcity at all, farmers got together in an attempt to shoulder the burden together.

They were able to do that because in 2015 the state declared Diamond Valley a critical management area – Nevada's only basin with that designation. They had 10 years to put together a groundwater management plan.

If they didn't succeed, the state could turn off at least half of the farmers' wells to ensure the aquifer didn't run completely dry. The oldest rights would be protected; the newer ones were vulnerable. The same legal foundation governs how water is managed across most of the Western U.S.

Jake Tibbitts, who oversees Eureka County's natural resources department, said doing nothing wasn't an option.

"We're taking water out much quicker than it's being replenished by Mother Nature," Tibbitts said. "So, that becomes the big issue here is it's something that we can't continue on that path forever."

So, Tibbitts helped develop a plan that could t the needs of water users in Diamond Valley while addressing the need for cutbacks. The process, he said, wasn't easy. Many meetings ran long into the night and often grew heated. Tensions formed between farmers and ranchers in the valley.

"There are some that are fully senior water rights holders that do not support the plan, and it did drive a wedge in some of those personal relationships," Tibbitts said.

In 2018, after years of negotiations, a groundwater management plan was approved by a majority of the valley's water users, with a mix of senior and junior water rights, and later green-lit by the state.

Tibbitts said many irrigators in Diamond Valley own both junior and senior rights, and 64% of those with the latter signed onto the plan. The new system required *all* irrigators to reduce their use, spreading cuts over a 35-year period. By year 5 of the plan, farmers and ranchers, as a whole, have to reduce their groundwater pumping by 15%. By year 10, they'll have to cut back pumping by 30%.

That's a drastic change from how most water law functions in the West, according to Philip Womble with the Woods Institute for the Environment at Stanford University.

"The prevailing system for allocating water in the western United States is known as prior appropriation," Womble said. "And this is a priority-based system where older, more senior water rights get their entire water allocation before newer, more junior water users get any water.

"(Diamond Valley) is the only place where a groundwater system that is only implementing that priority-based water-rights system has transitioned to a different allocation scheme that shares shortage."

But not everyone is in favor of sharing shortages, especially those farmers with senior rights. They sued to keep the groundwater plan from moving forward. One plaintiff was Sadler Ranch, a cattle operation with some of the oldest water rights in the region.

Kaleb Roedel / Mountain West News Bureau

Levi Shoda, who manages Sadler Ranch in Diamond Valley, Nev., stands on top of a hill overlooking a section of the 4,000-acre property on Sept. 1, 2022.

Ranch manager Levi Shoda said those rights shouldn't be messed with. He's not against a groundwater management system. But he sees the approved plan as a loss – not only in the value of the ranch but also in the way of doing things.

"We see water rights as a private property right," Shoda said. "And when you start taking private property rights and start giving them to — reallocating them to somebody else, I think you're crossing a line."

The farmers with senior rights argued that the groundwater plan went against the basic tenets of western water law. Carson City-based attorney David Rigdon represents Sadler Ranch.

"This basically overturns 155 years of Nevada water law that people have set themselves up economically," Rigdon said. "They've made investments on the basis of this principle of prior appropriation."

But those farmers facing a complete shutdown of their pumping as the aquifer declined said the plan is a reasonable ask for shared sacri ce. Reno-based attorney Debbie Leonard represents Plaskett and other farmers backing the plan, which she called a creative solution to an unsustainable priority-based system.

"It encourages conservation in a way that prior appropriation never would do," Leonard said. "Prior appropriation has the exact opposite – it has no incentive to conserve because then you lose your water rights and nobody wants to do that."

Despite legal challenges from Sadler Ranch and two others, the Nevada Supreme Court **upheld the contested plan in a 4-3 ruling this June.** The ranch's request for a rehearing was denied late this summer. Without any more legal barriers, the new plan is on track to be implemented next irrigation season, starting in the spring of 2023.

"We recognize that our opinion will significantly affect water management in Nevada," wrote Associate Chief Justice James Hardesty in the court's majority decision. "We are of the belief, however, that – given the air nature of this state – it is particularly important that we effectuate the plain meaning of a statute that encourages the sustainable use of water. The GMP [groundwater management plan] here is a community-based solution to the long-term water shortages that befall Diamond Valley."

According to Womble, Diamond Valley is one of many overdrafted groundwater systems in the West. This is why he expects water managers and policymakers elsewhere to look at this unique plan as an example of adapting to shrinking aquifers.

Back on farmer Marty Plaskett's hay operation, he said he knows there's no guarantee that this plan will work, but they had to try something to protect their futures. Even if it means everyone is getting less water.

"It's just the need to have the long-term vision," Plaskett said. "It's not about me, it's about our kids or whoever comes next."

He added that this plan is unique and might not apply in other regions of the west dealing with water issues. In other words, the ripple effects coming from Diamond Valley may be small - at least, for now.

This story is part of ongoing coverage of water in the West, produced by the Mountain West News Bureau, distributed by KUNC, and supported by the Walton Family Foundation.

Tags

Energy and Environment | Drought | water management | water rights | water shortage | Farming | Ranching | western water | water conservation | Mountain West News Bureau

Kaleb Roedel

Kaleb is an award-winning journalist and KUNR's Mountain West News Bureau reporter. His reporting covers issues related to the environment, wildlife and water in Nevada and the region.

See stories by Kaleb Roedel

As rain quiets activity on the Mosquito Fire, water managers in Placer County prepare for years of water quality challenges

This week's rain has been a big help for fire crews, but runoff from that rainfall has already started to carry ash and other debris into the region's water system.

Updated: 4:20 PM PDT Sep 21, 2022

Heather Waldman

Meteorologist

PLACER COUNTY, Calif. — This week's rain has been a welcome sight for those dealing with the impacts of the Mosquito Fire.

The early season moisture has helped to significantly dampen fire activity over the last several days.

| Read More on Mosquito Fire | **Rain showers, cooler temperatures keep fire activity to a minimum**

Estimates and measurements show that anywhere from 1 to 2.5 inches of rain has fallen over the burn region since Sunday morning.

But as that rain runs down the steep canyons and into Placer County's many waterways, ash and debris from the fire's burn area can easily end up in the water supply system.

Andy Fecko, general manager of the Placer County Water Agency, said plans to keep that water supply safe began the night the fire was first reported near Oxbow Reservoir.

"Oxbow Reservoir is the lowest reservoir in that system and it's most impacted by things like sediment, logs and ash that tend to come down after a fire," Fecko said.

While Oxbow itself isn't a primary water storage facility, its tributaries, including the Middle Fork of the American River, provide drinking water to about 250,000 residents from Roseville to Lincoln.

Placer County dealt with similar challenges following the King Fire in 2014, which burned through areas farther north in the watershed.

"The difference with this fire is that instead of just burning one river watershed, the Rubicon, it's actually burning in 3 or 4 that directly come into Oxbow Reservoir," Fecko said.

That will likely increase the amount of sediment that ends up in waterways. To counteract that, PCWA runs water through water treatment facilities, adding extra steps to remove harmful particles before distributing the water to homes and businesses.

On Tuesday evening, water managers received some good news. Initial observations show that the Mosquito Fire likely burned at a lower intensity than the King Fire. That may allow a lot of the soil to stay on hillsides, rather than getting swept away by rain and snowmelt.

Still, water managers are getting ready for years of dealing with the fallout from the fire.

"This is something that we have to plan for long term. And so we sort of hope for the best but plan for the worst because we owe that to our customers," Fecko said.

And for many employees at the Placer County Water Agency, the work ahead is personal.

Fecko himself is a Foresthill resident. He just returned to his own home on Sunday after evacuating almost two weeks ago.

| Video Below | Mosquito Fire evening update

Receding shorelin at Lake Mead. The Basic Water intake structure sits in the background. (Jeff Scheid/Nevada Independent)

Indy Environment: As Lake Mead drops, a privately operated intake runs dry — and a bankruptcy ensues

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.

It was not supposed to happen this year. The Basic Water Company believed its Colorado River intake would operate into 2023. Then Lake Mead began declining at a faster pace than federal modelers had previously forecasted. By July, the company's decades-old intake went dry.

This month, the company, in control of some of the state's oldest Colorado River rights, filed for bankruptcy, citing the drought and an inability to access water from the lake. It is the latest sign of the far-reaching consequences revealed by the unfolding crisis on the Colorado River, which has seen its reservoirs quickly drop due to overuse and aridifcation, driven by climate change.

Most of the water supply for the Las Vegas metro area is diverted from Lake Mead through the Southern Nevada Water Authority's primary intakes, which extend deep into the reservoir. With the construction of the "third straw" and low-lake pumping station, Las Vegas got more security, ensuring it could access water in a worst-case scenario, even when Colorado River users could not.

But a smaller portion of Southern Nevada's water supply had, for many years, taken a different course; it came up through a privately owned World War II-era intake operated by Basic Water.

For decades, the intake, managed by Basic Water and built in the 1940s, had delivered water to Henderson and industrial users operating in the city. Some of that water was used by the city of Henderson to fill Lake Las Vegas, an artificial lake that is at the center of golf courses and luxury homes inside a master-planned community bordering the Lake Mead National Recreation Area.

Now, Henderson officials, the Southern Nevada Water Authority and water users have entered into interim agreements, and they are discussing long-term strategies for the future. Exactly what that future will look like is unclear. For instance, the city is under contract to deliver its water to Lake Las Vegas, but Henderson spokesperson Kathleen Richards said “the failure of Basic Water Co. to deliver water created a force majeure condition, which was contemplated in the agreements.”

A force majeure clause is a contractual provision that frees parties from some liabilities in rare and extraordinary cases, such as natural disasters, pandemics, crimes, wars and acts of God.

In an email last week, Richards added that Henderson is “working in good faith with Lake Las Vegas and our regional partners to find an alternative permanent solution to mitigate the force majeure condition going forward. What that solution encompasses, we don’t know at this time.”

As of now, the effects of the offline Basic intake are mainly economic. Water users tied to the intake are still receiving water. Recent storms helped fill Lake Las Vegas. And the city Is now getting water delivered from the main Southern Nevada water system, though not without a hefty price tag for Basic Water and four companies that are mainly involved with industrial materials, metals and chemicals: Timet, Olin, Borman and Lhoist.

For tapping into the main system, Henderson required a roughly $1 million deposit. The water authority charged about $4.9 million in connection and system fees, according to Basic Water’s bankruptcy filing. At the same time, Basic Water took a financial hit. It was no longer generating the same revenue from delivering water, money that it relied on to operate and pay off bonds.

Instead of getting raw, or untreated, water from Lake Mead, they are getting potable water, meaning it’s treated to drinking-quality standards and a more expensive water source. As the bankruptcy filing noted, “the debtors and the [industrial companies] are paying the city for potable water at a rate that is four to five times higher than the rate for raw water.”

Moreover, the arrangement was only agreed to as an “emergency interim solution.” The parties had aimed to negotiate a more permanent solution over the summer, with a deadline of mid-September. But “a viable permanent solution has not been achieved,” according to a filing in bankruptcy court.

How the situation came to be is a story of how Henderson developed and grew.

What is now Henderson was once the "Basic Townsite," which grew around Basic Magnesium, Inc., a company backed by the Anaconda Copper Company to buoy industrial production during World War II, according to the bankruptcy filing. In the 1940s, the federal government’s Defense Production Corporation helped build an intake, a roughly 16-mile pipeline and power lines to transport water from Lake Mead, the filing said. Eventually that water system would come under the control of Basic Management, Inc. and later a sister company, the Basic Water Company.

The water rights in question equaled about 40,000 acre-feet, or slightly more than 10 percent of Nevada’s 300,000 acre-foot Colorado River allocation (an acre-foot is the amount of water that can fill one acre to a depth of one foot). In the decades to come, the rights for the Basic water would be split among the industrial companies, the city of Henderson and the water authority.

As a result, for years (long before Las Vegas’ primary intakes were built), the Basic Water intake delivered Lake Mead water to Henderson, which currently has rights to about 16,000 acre-feet. Henderson had relied on Basic’s intake for water starting in the 1950s, but increased its supply in 1990, at the same time that Lake Las Vegas was being contemplated and debated.

In fact, Lake Las Vegas played a key role in helping the city obtain those water rights, according to Cody Winterton, division president for Raintree Investment Corporation, which is continuing to develop the community, where large, empty building pads await new homes. “But for Lake Las Vegas,” he said, “Henderson wouldn’t have been able to prove they could put that water density to use. You have to go in with a plan and show ‘here’s what we’re going to do with the water.”

Lake Las Vegas development seen on Friday, Sept.16, 2022. (Jeff Scheid/Nevada Independent)

For the next few years, everything seemingly worked out. Henderson devoted a portion of these rights to Lake Las Vegas, which became Henderson's largest commercial water user (Winterton disputes this, arguing the reported use statistics is an aggregate value unfairly lumping together multiple golf courses and development). Lake Las Vegas, the city said, is allowed to order up to 7,000 acre-feet of raw water annually. Other Basic Water rights went to the city and the companies.

But the system was starting to show cracks by the early 2000s. Just outside of Lake Las Vegas, Lake Mead had begun a precipitous decline. A long-term drought, worsened by warmer temperatures, combined with the continued overuse of the Colorado River to deplete the amount of water stored at Lake Mead.

Starting in the mid-2000s, Basic began looking for ways to augment its intake, which fails when Lake Mead falls below about 1,043 feet above sea level (the reservoir dipped below this "failure elevation" by July). But its options were limited. In 2018, three contractors bidding on a retrofit "expressed reservations about the project because modification of the 80-year old structure would cause damage that might lead to failure of the structure," the bankruptcy filing said.

Instead, Basic began looking to sell its water system — first to the city of Henderson and then to the water authority. By 2021, Basic was again consulting with a construction firm on a possible engineering fix. But conditions on the Colorado River continued to deteriorate this summer, and "given the accelerating pace of the decline, none of the designs could be constructed before the surface level of Lake Mead reached the failure elevation," Basic's bankruptcy filing states. Some time around July 1, the Basic intake stopped operating.

In an email, a spokesperson for Basic Water said "due to [the] system's inability to draw water for the foreseeable future, [Basic Water] has filed for protection under Chapter 11 of the United States Bankruptcy Code to facilitate a process to resolve the water system's long-term future."

Priscilla Howell, director of Henderson's utilities agency, said the intake going offline has had no direct impact on the city's ability to provide water to its customers because it is "redundant" and can easily tap into the water authority's main system. Yet she said everyone is exploring how to "most effectively connect to another raw water source to give the valley some options."

“There’s a lot of people doing a lot of thinking on that right now,” Howell said.

In the past, water from the Basic intake at Lake Mead was delivered to Henderson — with a portion of that water then redelivered to the artificial lake at Lake Las Vegas. Once there, the untreated water was used to irrigate golf courses and other landscaping. At this point, the city has not put any additional water in the lake, Howell said, though it entered into two temporary deals with Lake Las Vegas for limited landscaping and a golf clubhouse's HVAC system.

As for the lake’s future, “there's a lot of variables that go into answering that,” Howell said.

In an interview last week, Winterton said “it would be a breach of contract if Henderson diverted that water and took it away from us and tried to do something else with it.” But that has not been on the negotiating table. Instead, he described ongoing “professional discussions” with the city and water authority about ways Lake Las Vegas could reduce its water consumption.

Winterton noted that Lake Las Vegas captured significant amounts of stormwater during recent storms, something he touted as a benefit because it meant Las Vegas could leave more water in Lake Mead. Like other large water users, Winterton said Lake Las Vegas is looking at how to lower its consumption and comply with the water authority’s conservation regulations.

Whether it makes sense to have the artificial lake, Winterton said that’s besides the point now. The community, he argued, was built in the 1980s — with support from all levels of government.

“When it comes right down to it, this is a commitment that was made by everybody,” Winterton said. “It’s really unfair in 2022 to say ‘well, we don’t like the lake anymore, so maybe there’s a better use of water.’ I don’t know if that’s the right way to analyze the situation.”

A miner walks inside the South Portal at Yucca Mountain on Saturday, July 14, 2018. (Jeff Scheid/The Nevada Independent)

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Feds will spend billions to boost drought-stricken Colorado River system

KUNC | By Alex Hager

Published September 23, 2022 at 6:16 PM MDT

Ted Wood / The Water Desk

The Colorado River flows through fields of crops in Southern California. New water conservation plans from the Bureau of Reclamation could use money from the Inflation Reduction act to pay farmers and ranchers to temporarily pause some water use, an effort to boost levels in the nation's largest reservoirs.

As climate change tightens its grip on the Colorado River basin, the states that use its water are struggling to agree on terms that will reduce their demand. Now, the federal government is stepping in with a plan to use billions of dollars to incentivize

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The U.S. Bureau of Reclamation announced new measures in response to the ongoing dry conditions, unveiling plans to use a chunk of the $4 billion it received as part of the recently-passed Inflation Reduction Act. That money will be used for what the agency refers to as “short-term conservation,” to remove water-intensive grass in cities and suburbs, and to upgrade aging canals.

A detailed breakdown of that spending has not yet been released. Multiple sources close to the situation told KUNC that the bulk of Reclamation’s $4 billion will go to projects in the Colorado River basin, with the majority going to “system conservation.” That could include buying water from the agriculture sector to boost water levels in the nation’s largest reservoirs.

That funding will likely be doled out as part of a voluntary program in which farmers and ranchers can make a pitch to the federal government, offering to pause growing in exchange for payments of $300 to $400 per acre-foot of water, sources told KUNC. Those payments are expected to be temporary, mainly focused in the river’s Lower Basin states, and may someday give way to more permanent, higher-value federal payments in exchange for water.

“Hopefully it could help us stave off the worst and deal with some of the processes that we need to deal with in order to ensure the infrastructure functions and those sorts of emergency measures,” said Elizabeth Koebele, associate professor of political science at the University of Nevada, Reno. “But one thing that's really important about this is it's not really a long term measure, and the money's not there to do this in perpetuity.”

Reclamation previously tested system conservation efforts in a pilot program that ran from 2014 to 2019, but has not implemented similar water buybacks at large scale since. Earlier this year, states in the river’s Upper Basin urged the federal government to revive system conservation work.

“I personally have a hard time believing that we're going to see a massive change in reservoir levels as a result of system conservation by itself,” Koebele said. “This might be sort of a program that helps states establish their own programs for longer term system conservation. That said, we're in such a dire situation that almost anything in the short term can help.”

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Alex Hager / KUNC

Water from the Colorado River is used to irrigate crops near Yuma, Arizona. Agriculture uses about 80% of the Colorado River's water, and that sector is under mounting pressure to reduce its demand.

Kimery Wiltshire, president of Confluence West, a group of water leaders around the region, said she was struck by the words "seek" and "encourage" that Reclamation used in regards to water conservation, adding that voluntary measures would not do much, especially if payouts to growers are relatively low.

By comparison, a group of farmers near Yuma, Arizona recently proposed a water conservation plan in which they would be paid about $1500 per acre-foot of water saved, according to Axios.

"Unfortunately, I don't think that what they're proposing is going to get us to where we so desperately need to go, very quickly," Wiltshire said. "Frankly, what Interior really can't do a whole heck of a lot about is getting to the underlying causes. We don't have the demand management that we need. We're consuming too much water. We need to go to significantly less thirsty crops than what we're growing right now."

These new federal actions come after states failed to meet an important water conservation deadline this summer. In June, Reclamation asked the seven states that use water from the Colorado River to conserve an unprecedented quantity, 2 to 4 million acre-feet, or the federal government would step in and implement its own conservation measures. Two months later, after finger-pointing between the states, they had no plan in time for the deadline.

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“I am committed to bringing every resource to bear to help manage the drought crisis and provide a sustainable water system for families, businesses and our vast and fragile ecosystems,” said Interior Secretary Deb Haaland in a press release.

Federal agencies shared early details of the plan at an invitation-only gathering of water policy leaders in Santa Fe, New Mexico this week.

Another portion of Reclamation’s IRA money will go to longer-term, “durable” projects, generally improvements to the region’s water infrastructure aimed at boosting efficiency. That could include re-lining canals to prevent water from seeping into the ground, and the removal of ornamental and non-functional turf grass that only serves an aesthetic purpose. The agency also said funds could be given to ecosystem restoration and crop water efficiency projects.

Environment

Responding to federal pressure, Upper Colorado River states seek to revive conservation program

Luke Runyon, July 20, 2022

States in the Upper Colorado River Basin are not ready to commit to federal water conservation targets, but are seeking to revive a conservation program first launched in 2014.

While the Southwest’s growing population has prompted cities to tout their own water-saving programs, the vast majority of water use in the region comes from farms and ranches. Agriculture uses about 80% of the Colorado River’s water, and that sector is under mounting pressure to reduce its demand.

Reclamation also hinted at more reductions to water released from the basin’s reservoirs in 2023. The agency has already announced relatively small, mandatory cuts to some water users in the lower Colorado River basin as part of measures previously laid out in 2019 and 2007 agreements. This latest announcement suggested the agency may alter those agreements, saying it could “adjust triggering elevations and/or increase reduction volumes” that were already spelled out.

KUNC
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The announcement also included a note that Reclamation will speed up its studies of bypass tubes at the Glen Canyon dam, which holds back the waters of Lake Powell, the nation's second largest reservoir. Environmental groups recently raised alarm that as levels in Lake Powell continue to drop, the reservoir's water may soon be unable to pass through rarely-used pipes in the dam at a sufficient rate, jeopardizing the flow of water to millions of people who depend on it in Nevada, Arizona, and California.

The Bureau of Reclamation, a subdivision of the Department of the Interior, is the federal agency tasked with managing water in the Western U.S. While it also manages water infrastructure outside of the Colorado River basin, much of its energy and spending has been focused on the Colorado over the past year. That river supplies roughly 40 million people from Wyoming into Mexico, and is currently strained by a supply-demand imbalance made worse by a 23-year megadrought that is driven by climate change.

This story is part of ongoing coverage of the Colorado River, produced by KUNC, and supported by the Walton Family Foundation.

Tags Environment | Water Conservation | Colorado River Basin | Bureau of Reclamation | Department of the Interior | Agriculture | Topic: Western Water Coverage

Alex Hager

Alex is KUNC's reporter covering the Colorado River Basin. He spent two years at Aspen Public Radio, mainly reporting on the resort economy, the environment and the COVID-19 pandemic. Before that, he covered the world's largest sockeye salmon fishery for KDLG in Dillingham, Alaska.

See stories by Alex Hager

How do smart water meters help drive revenue?

By **Hangzhou Laison** - Sep 23, 2022

Nowadays, there is a growing discussion in the newspapers and media about smart water meters. But each person has a different understanding of the smart water meter and how it helps to improve the operational performance of water companies.

Image Credit: Hangzhou Laison

LAISON is a company focused on smart water metering and has projects in more than 30 countries with multiple prepaid water meter projects. Based on those experiences we'd like to share our views on how smart water meters help increase revenue and reduce the Non Revenue water.

Smart water meters: challenges in Africa

Many water companies in Africa are facing two challenges. The first is high Non-Revenue water (NRW) rates, typically between 40% to 60%, the main reason is the bad infrastructure and management issues, and the 2nd problem is the defaulting users not paying their bills on time, for example, if the bill payment rate is around 70%, which means that around 3 years of debt will be similar to one year of revenue. Like WUC, the Botswana National Water Company has a debt of around $1.4 billion by the end of 2021.

Because of insufficient funds and poor operational cash flow, the water distribution pipeline infrastructure constructed at the end of the last century is still in service, which means that the leakage becomes a serious challenge with no effective solutions.

Because some water companies still use flat rates for the end users, the metering levels are still very low, making the DMA system not applicable.

Since there is no strict relationship between bills and water consumption, the waste of water happens everywhere, if water companies use NRW as part of the management cost, end users will keep complaining about the lack of continuous water supply, bad water quality, and unreasonable high bills. That's why water companies are trying to use smart water meters, and the idea of pay-as-you-go to improve customers satisfaction.

Smart water meter technology

The concept of smart water meters has existed for more than twenty years and there have been many failed smart water meter projects, especially in Africa. Due to the installation environment with high humidity, and lack of maintenance or after-sales service, many pilot projects ended with bad impressions, such as in Nigeria or Lusaka, Zambia.

With the development of the Ultrasonic metering technology, NBIoT or LoRaWAN communication, and the emergency of digital payment platforms like M-PESA, MTN etc., smart metering solutions are no longer just hardware devices, of course not equal to prepaid water meters. It's a digital operation solution that helps water companies to transfer all operations like meter reading, bill dispatching, and online payment methods. It is not limited to billing, such as dispute or complaint dealing, analysis and maintenance of the water pipes leakage, etc. but is part of the smart metering system.

With further development, the system platform should include two main functions, one is an IoT platform that helps collect all the data of IoT devices like smart prepaid meters, and fire hydrants and provides the data to the billing system, and the other platform is a DMA system which could also get the metering data through Standard API of IoT platform.

Whether these two systems can be integrated together or separately operate, the target of the systems is to solve the problem of high NRW and improve the bill collection rate.

When smart prepaid meters were installed, people began to look for leaks in their houses, and also began to consume less water, which enable water companies to extend their service hours. As a result of the improved cash flow, water companies had more capacity to maintain the infrastructure.

Many water companies may also recognise the benefits of the smart metering systems, but the cost of smart meters is confusing to many people, and how to get the fund to start the first project also needs to be concerned.

Because of the wide application of IoT devices, the cost of communication modules like LoRa or NB-IoT is coming down very fast, and with the increase in smart meter market volume, leading manufacturers like LAISON can realise that scale effects and significantly decrease the development and production cost. On the other hand, shortening the supply chain and reducing the risk of exchange rate fluctuations, also help to reduce the average cost of smart water meters significantly.

Benefits

When the smart metering system starts running, it contributes revenue in several parts, such as the history debt collection, especially from commercial and industrial users, improves the bill payment rates, and also increasing the operational efficiency to reduce the average cost of serving customers.

Water Utilities, TDE in Togo and ZINWA in Zimbabwe, have to look for PPPs or installment payments, to pay for their investments with water revenue. If the average cost of a smart meter and system is $2 to $4 per month, more than 90% of water companies should be able to afford it and get into a positive feedback circle.

The best evidence comes from a pilot project where outputs include real operational data from a specific company for analysis.

For more information contact LAISON at laisontech@gmail.com

This article was written by Mr. Raymond Zheng, Managing Director of LAISON

Hangzhou Laison

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Mountain Democrat

PLACERVILLE, CALIFORNIA

News

South Lake Tahoe leaders support plastic water bottle ban

By Tahoe Daily Tribune

Laney Griffo

SOUTH LAKE TAHOE — The South Lake Tahoe City Council on Tuesday evening approved the first reading of an ordinance that would ban the sale of plastic water bottles.

The new regulations would prohibit distribution of single-use water bottles of less than 1 gallon at city facilities, permitted temporary activities and special events. They would also prohibit sale of single-use plastic water bottles of less than 1 gallon within city limits.

The new rules would go into effect April 22, 2023 (Earth Day), giving businesses time to sell the stock they currently have.

The public turned out en masse to give council feedback, both pro and con. Councilmember Cristi Creegan said this was the most public engagement she's seen since being on the council.

Representatives from the League to Save Lake Tahoe said over the past eight years of cleanups, they've collected 29,513 plastic bottle caps and 21,139 water bottles.

"We are not against this ordinance. If we never have to ship another bail of plastic water bottles, we would be happy," said John Tillman, vice president of South Tahoe Refuse. He went on to say there are worse plastics he wished the city would focus on, such as trash bags.

There were concerns raised regarding safety.

"The CDC states water bottles are the safest, most reliable source of water in an emergency," said Brian Hernandez of the American Beverage Association.

While the ordinance does have exemptions for emergencies, another commenter pointed out businesses likely wouldn't be able to get bottled water in time.

Mayor Devin Middlebrook suggested businesses have a storage of water bottles.

Concerns were also raised about people switching to sugary beverages if water wasn't available.

Creegan said while she shares those concerns, "this is an opportunity to change people's behavior."

Middlebrook noted the ordinance doesn't ban the sale of water, it just bans single-use bottles but businesses could still sell water in paper or aluminum containers.

Councilmember Tamara Wallace supported the ordinance but wanted to give businesses and the community more time. She also said she'd like the city to look into ways to financially support businesses to put the infrastructure in place.

The ordinance was approved unanimously and will be brought back during the next meeting for final approval.

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Tags: A1

Harmful algae detected in Tahoe Keys; Signs posted reflect various threat levels

News FOLLOW NEWS | Sep 24, 2022

Submitted to the Sun

Tahoe Keys algae warning.
Provided

SOUTH LAKE TAHOE, Calif. — The presence of harmful algal blooms in the Tahoe Keys Lagoon has been detected and officials are asking people to stay out of the water within a specific area.

The Lahontan Regional Water Quality Control Board on Friday announced that tests confirmed the presence of harmful algae and have posted signs in certain areas to coincide with potential health risks present.

Lahontan said it regularly monitors the lagoon at multiple locations and these multiple advisories exist due to the varying levels of toxin detections. The latest results from the HAB sampling indicate the highest levels have been detected at the corner of Venice and Alpine Drive, resulting in a danger advisory.

Anyone visiting the area is encouraged to follow the below guidance until further notice.

Caution:

— You can swim in this water, but stay away from algae and scum.

— Do not let pets and other animals go into or drink the water or eat scum on the shore.

— Keep children away from algae in the water and on the shore.

— Do not drink the water or use it for cooking.

— For fish caught here, throw away guts and clean fillets with tap water or bottled water before cooking.

— Do not eat shellfish from this water.

Warning:

— No swimming.

— Do not let pets and other animals go into or drink the water or eat scum on the shore.

— Stay away from scum, and cloudy or discolored water.

— Do not eat shellfish from this water.

— Do not use this water for drinking or cooking. Boiling or filtering will not make the water safe.

— For fish caught here, throw away guts and clean fillets with tap water or bottled water before cooking.

Danger:

— Stay out of the water until further notice, including watercraft.

— Do not let pets and other animals drink or go into the water or go near the scum.

— Stay away from scum, and cloudy or discolored water.

— Do not eat fish or shellfish from this water.

— Do not use this water for drinking or cooking. Boiling or filtering will not make the water safe.

According to a news release, cyanobacteria, a group of organisms that form HABs, can produce potent toxins that can affect human and pet health. Health risks are associated with HABs, based on cyanobacteria levels as they produce dermatoxins, and levels of exposure that can cause skin inflammation, gastrointestinal distress, headaches, agitation and weakness or abnormal breathing if HAB material is swallowed while swimming. Dogs and children are most susceptible to exposure because of their smaller body size, increased potential to swallow water while swimming and tendency to stay in the water longer. If you suspect exposure, wash your children and dog immediately, and potentially seek medical attention.

The HAB in the lagoon appears to be suspended on the water's surface. Bloom conditions can change rapidly, as the winds move or concentrate the bloom into different areas. In some areas, the HAB may concentrate and form a film or scum on the water surface. The color of the water may also appear discolored as bright or dark green and brown.

The Tahoe Keys Property Owners Association has posted signs to notify recreational users of the HAB. The Water Board will continue to provide regular updates to inform the community when additional postings occur and/or previous postings are removed from the California HAB Reports Web Map.

The Water Board recommends that people practice healthy water habits while enjoying the outdoors this summer at your local lake, river or stream:

— Heed all instructions on posted advisories if present

— Avoid algae and scum in the water and on the shore

— Keep an eye on children and pets

— If you think a harmful algal bloom or toxic algal mats are present, do not let pets and other animals go into or drink the water or eat scum/algal mats on the shore

— Don't drink the water or use it for cooking

— Wash yourself, your family and your pets with clean water after water play

— If you catch fish, throw away guts and clean fillets with tap water or bottled water before cooking

— Avoid eating shellfish if you think a harmful algal bloom is present

Get medical treatment immediately if you think that you, your pet or livestock has gotten sick after going in the water. Be sure to alert the medical professional to the possible contact with cyanobacteria. Also, make sure to contact the local county public health department.

To report a bloom, do one of the following:

— Fill out the Bloom Report form on the HABs Portal

— Email: CyanoHAB.reports@waterboards.ca.gov

— Call the HABs hotline: 1-844-729-6466 (toll free)

— Contact your County Public Health Office

sourcewater COLLABORATIVE

New Forest Service Research Report Quantifies the Role of Forested Lands in Providing Drinking Water

USDA FOREST SERVICE

Posted on September 26, 2022

The USDA Forest Service has published a new research report entitled, “Quantifying the Role of National Forest System and Other Forested Lands in Providing Surface Drinking Water Supply for the Conterminous United States.” The new report highlights the importance of private forest conservation to a clean and stable water supply and can aid water resource and forest managers in developing integrated watershed management plans at a time when climate change, population growth, and land development threaten water supplies. This study provides a systematic accounting of NFS and other forested lands for surface drinking water supply and aims to help land managers better determine where wildfire risk reduction, watershed management, and restoration work can make the most difference to water supply – work that also supports the Wildfire Strategy and programs supported by the Bipartisan Infrastructure Law and the Inflation Reduction Act. For more information and to read the report, visit the Forest Service website at https://www.fs.usda.gov/treesearch/pubs/64978

ASDWA Source Water Website

EPA Source Water Protection (SWP) Website

EPA SWP Funding and FITS Tool

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PPIC | PUBLIC POLICY INSTITUTE OF CALIFORNIA

BLOG POST · SEPTEMBER 26, 2022

The Environmental Benefits of the Water Storage Investment Program

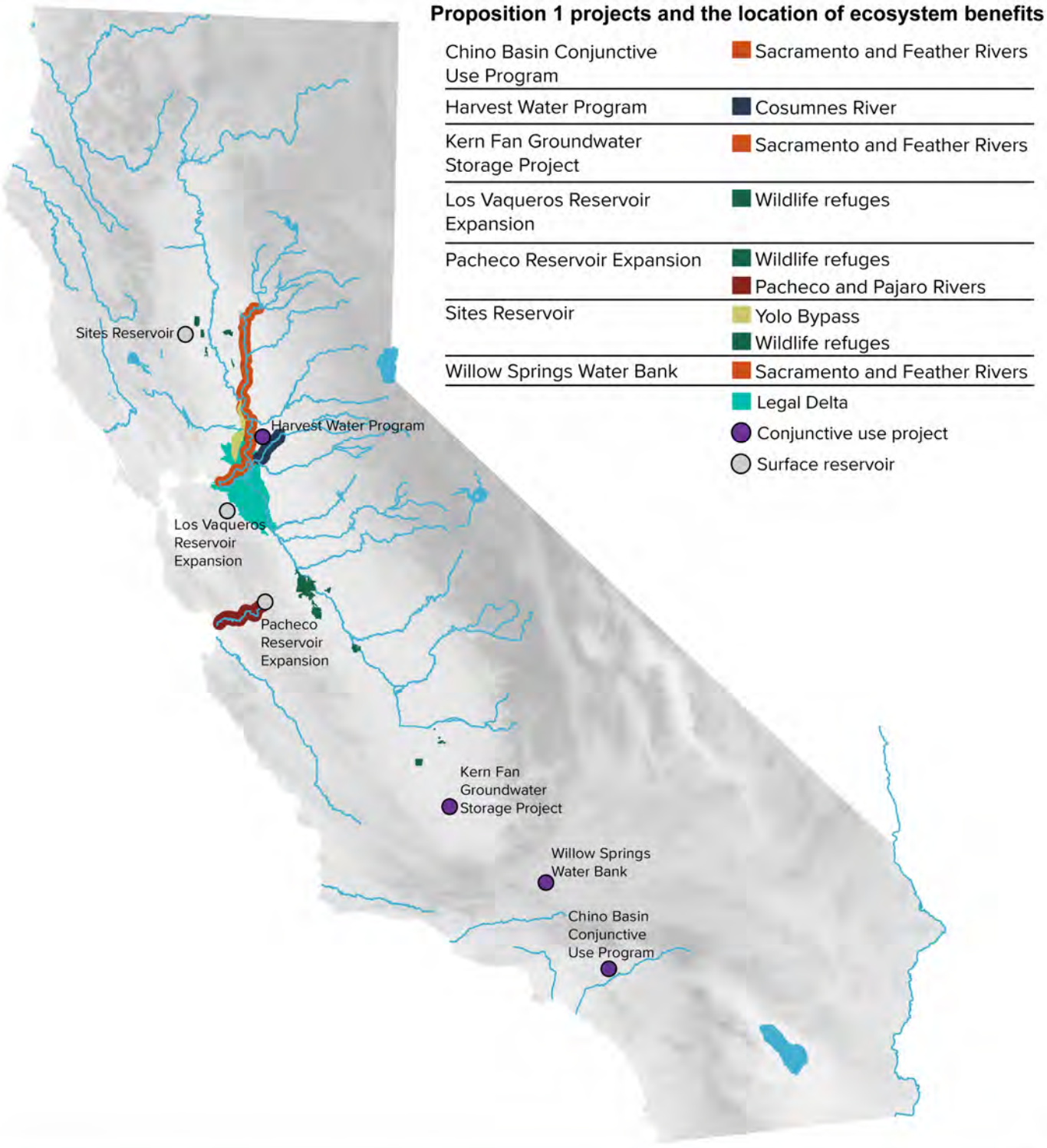
Gokce Sencan and Jeffrey Mount

In August, the Newsom administration announced its Water Supply Strategy. Storing water in wet years is central to this strategy, principally to cope with increasing drought intensity and the resulting water scarcity that will impact supplies for cities and farms.

As part of our recent study, *Storing Water for the Environment*, we investigated current efforts to expand storage under the Water Storage Investment Program (WSIP)—a key component of a water bond passed by voters in 2014 (Proposition 1). WSIP put forth significant funding for storage—$2.7 billion—and it uses a novel approach. It requires that this funding go only to the public benefit portion of new storage, including new water for the environment.

Seven WSIP projects are slated to receive support. The amount of funding for each project was determined based on the value of its public benefits, which were calculated as part of a complex and often contentious process. Ecosystem benefits had to make up at least half the public benefits, and projects had to improve conditions in the Sacramento–San Joaquin Delta watershed.

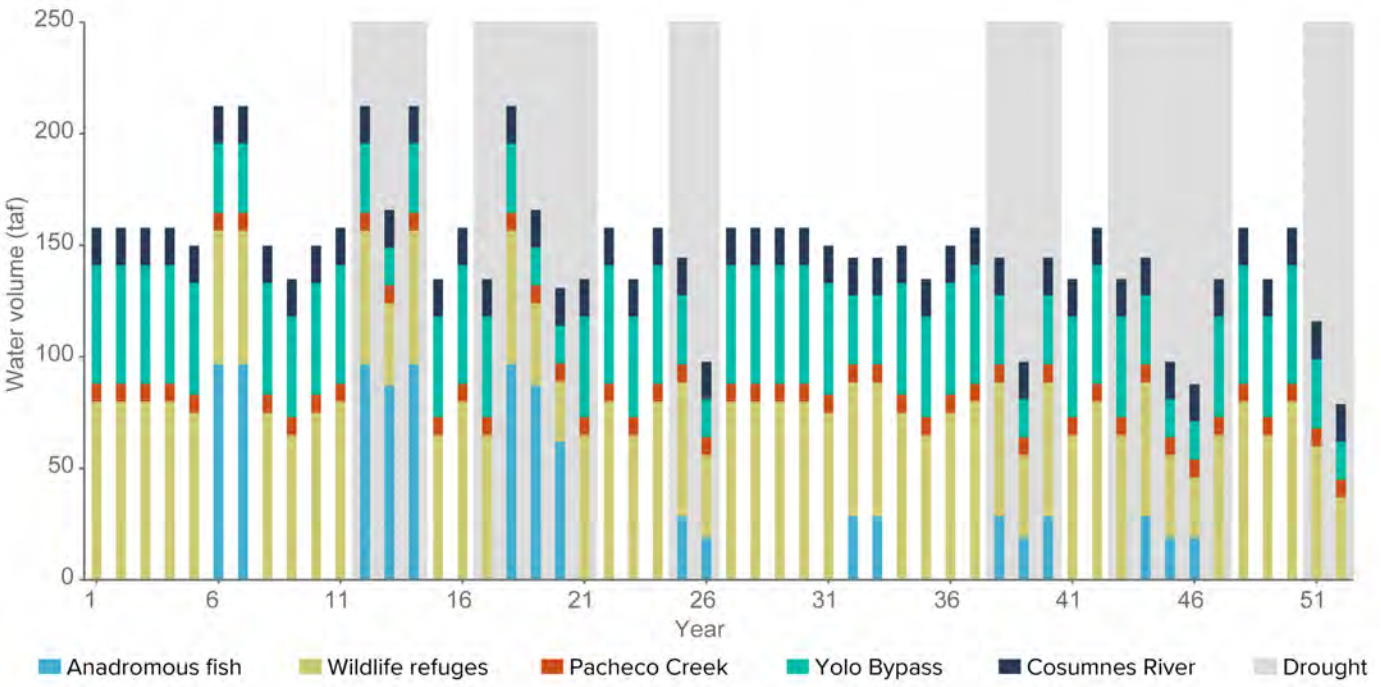
Locations of WSIP-eligible projects and their environmental benefits



SOURCE: Data compiled in Technical Appendix C to the report *Storing Water for the Environment*.
NOTES: Figure depicts the location of each WSIP project along with the approximate area of monetized benefits. Some projects also had additional benefits for which estimates of monetary value were not provided.
FROM: PPIC Blog, September 2022.

The seven projects provide, among other things, water supplies for wildlife refuges and increased flows for salmon and steelhead habitat. Our analysis of available public data shows that the cumulative environmental water provided by these projects could exceed 200,000 acre-feet per year in an early drought year, or run as low as 79,000 acre-feet per year in successive drought years.

Combined environmental water flows from WSIP projects by ecosystem purpose or location



SOURCE: WSIP applications and personal communication with the project managers.
NOTES: Anadromous fish includes Feather River pulse flows provided by Chino Basin, Kern Fan, and Willow Springs projects. Wildlife refuges include the water provided for refuges by Los Vaqueros, Pacheco, and Sites reservoirs. Pacheco Creek includes the flows from the Pacheco Reservoir. Yolo Bypass flows come from the Sites Reservoir. Cosumnes River flows come from the Harvest Water Program. For additional notes on methods and assumptions see Technical Appendix C to the report *Storing Water for the Environment*.
FROM: PPIC Blog, September 2022.

In our *Storing Water for the Environment* report, we recommend diversifying the portfolio of water storage options for the environment to help manage an uncertain future. To our knowledge, the WSIP is the first attempt to incentivize new storage for the environment with public funds. WSIP faced several informational and administrative challenges. If this approach is used again in future bonds or legislation, it should:

- **Improve accounting for environmental water**. The estimated volume of flows in the figure above is unlikely to be realized. The three south-of-Delta conjunctive use projects depend heavily on exchanges of groundwater with State Water Project (SWP) contractors whose allocations are routinely cut during drought, making limited SWP water available (for example, during 2014, 2021, and 2022, no water would have been available for exchanges). Additionally, off-channel surface reservoirs—such as Sites, Pacheco, and Los

Vaqueros—rely heavily on wet years to fill. The frequency of wet years—and how wet they are—will play a major role in the volume of water these projects can provide to the environment.

- **Simplify the calculation of ecosystem benefits.** Quantifying and monetizing ecosystem benefits was deemed necessary to meet the bond's requirements. But the complexity of the process made this difficult (and contentious). Project proponents could use different approaches that would yield vastly different benefits and monetary values. Simplifying and systematizing this process—perhaps by engaging an independent auditor for all valuations—would help.
- **Be less prescriptive and more adaptive.** The projects that sought WSIP funding were encouraged to be adaptive and multi-benefit. However, the benefit quantification and monetization process proved challenging, pushing projects to be highly prescriptive, with narrow requirements for timing, location, and volumes of water to be used for the environment. To adapt to changing conditions and make the most efficient use of environmental water, flexibility and regional coordination are needed.
- **Steer future projects to prioritize ecosystem bene ts.** WSIP took a "bottom up" approach that relied upon proponents of water supply projects to advance proposals showing how their projects could help the environment. As a result, the environmental benefits—particularly the new ecosystem water—were diffuse and distributed over a large geographic area. Concentrating projects in a specific watershed and on critical ecosystem functions could produce more environmental benefits.

WSIP takes a novel approach to incentivizing the development of new storage while funding public benefits, such as new water for the environment. Our report offers suggestions for how to improve it—especially if future efforts seek to make the environment a priority, rather than an ancillary benefit funded by public dollars. Given the pace of warming and increasing drought intensity, California should look closely at all options for storage, including storing water for the environment.

TOPICS

climate change | Freshwater Ecosystems | Water Supply | Water, Land & Air

Truckee River included in EPA's statewide fish advisory

News [FOLLOW NEWS] | Sep 27, 2022

Staff Report

A rainbow trout, like those found in the Truckee River.
Courtesy photo by Mike Wier |

TRUCKEE, Calif. – The Truckee River is included in a state agency's fish advisory the offers safe eating advice for fish caught in rivers, streams and creeks throughout the state.

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment last week issued a new statewide fish advisory. With the issuance of the advisory, OEHHA now offers fish consumption advice covering every water body in California.

The new advisory is based on the levels of mercury and polychlorinated biphenyls found in fish collected from more than 700 sites, including popular rivers frequented by anglers all over California, including the Owens, Truckee and East Walker rivers in Eastern California; the Klamath, Smith, McCloud and Eel rivers in Northern California; and the Los Angeles, Santa Ana and Kern rivers in Southern California; the Merced River in Central California.

This is the first time that safe-eating guidelines have been provided for these rivers. The advisory is intended to be a guide for eating fish caught in these rivers, along with other rivers, streams and creeks that are not covered by a specific advisory.

OEHHA has previously issued general advisories for coastal areas, lakes and reservoirs, and fish that migrate between inland water bodies and the Pacific Ocean.

"The advisory represents an important milestone. It completes our suite of statewide advisories, ensuring people fishing anywhere in California can consult safe-eating guidance," said OEHHA Director Dr. Lauren Zeise.

"Many fish are excellent sources of protein and have nutrients that may reduce the risk of heart disease. However, like fish all over the world, California fish also have detectable levels of contaminants," Zeise said. "By following the guidelines in our latest advisory, people who enjoy fishing along California's rivers, creeks and streams can safely eat fish low in chemical contaminants and enjoy the well-known health benefits of fish consumption."

When consuming fish from California rivers, streams and creeks without site-specific advice, the guidelines are as follows:

- Women ages 18 – 49 and children ages 1 – 17 should not eat black bass species, catfish species, Common Carp, Goldfish, Sacramento Pikeminnow or Sacramento Sucker. They may safely eat a maximum of two total servings per week of Red Shiner; or one total serving per week of Brown Trout, bullhead species, Rainbow Trout or sunfish species.
- Women ages 50 and older and men ages 18 and older may safely eat a maximum of five total servings per week of Red Shiner; or three total servings per week of bullhead species or Rainbow Trout; or two total servings per week of Brown Trout or sunfish species; or one total serving per week of black bass species, catfish species, Common Carp, Goldfish, Sacramento Pikeminnow or Sacramento Sucker.

One serving is an eight-ounce fish fillet, measured prior to cooking, which is roughly the size and thickness of your hand. Children should eat smaller servings. For small fish species, such as Red Shiner, several individual fish may make up a single serving.

In addition to statewide advisories, OEHHA continually develops fish advisories for specific water bodies across the state. OEHHA currently offers more than 100 site-specific advisories for lakes, reservoirs, rivers, bays and coastal areas across California. Locations are prioritized based on high contaminant levels or to alert people where it is safe to fish for consumption.

Mercury is released into the environment from mining and burning coal. It accumulates in fish in the form of methylmercury, which can damage the brain and nervous system, especially in developing children and fetuses. Because of this, OEHHA provides a separate set of recommendations specifically for children up to age 17 and women of childbearing age (18 – 49 years).

PCBs are a group of industrial chemicals. At high levels of exposure, they can cause health problems, including cancer. Although they were banned in the United States in the late 1970s, PCBs persist in the environment from spills, leaks or improper disposal. PCBs accumulate in the skin, fat and some internal organs of fish. To reduce exposure from PCB-contaminated fish, OEHHA recommends eating only the skinless fillet (meat) portion of the fish.

OEHHA's fish advisory recommendations are based on the levels of contaminants, such as mercury, that persist in the environment and accumulate in fish. They are independent of any advisories to limit fish intake due to freshwater or estuarine harmful algal blooms (HABs). Before fishing, check the California HABs Portal to see if there are recommended HAB advisories and always practice healthy water habits.

Eating fish in amounts slightly greater than the advisory's recommendations is not likely to cause health problems if it is done occasionally, such as eating fish caught during an annual vacation.

A poster with the safe-eating advice for fish caught in California rivers, streams and creeks without site-specific advice is available on OEHHA's website in English and additional languages.

OEHHA's mission is to protect and enhance the health of Californians and the environment through scientific evaluations that inform, support, and guide regulatory and other actions in the state.

US Forest Service signs onto plan for better forest management

The group is aiming for a 10-year plan, but says additional work after that may be needed

A scorched pickup truck rests on California Highway 96 in Klamath National Forest, Calif., as the McKinney Fire burns nearby, Saturday, July 30, 2022. A new partnership between five agencies is hoping to reduce the severity of fires like this in the future (AP Photo/Noah Berger)

By Kevin Sheridan

Published: Sep. 28, 2022 at 4:19 PM PDT

RENO, Nev. (KOLO) - The United States Forest Service has signed a memorandum of understanding with four entities documenting their focus on forest management in the Middle Truckee River Watershed.

The watershed includes around 315,000 acres of land, more than 200,000 of which is managed by the U.S. Forest Service.

They hope to develop a 10-year vegetation management plan, improve and restore forest health and resilience, reduce the risk of high severity wildfires, protect communities from the impacts of wildfires, protect and secure water supplies and infrastructure, and identify and augment resources gaps to achieve implementation at an increased pace and scale.

The Middle Truckee River Watershed Forest Partnership includes the National Forest Foundation, The Nature Conservancy, Truckee Meadows Water Authority, Truckee River Watershed Council and the United States Forest Service – Tahoe National Forest.

“The history of fire suppression in the region has resulted in increased forest density and less fire frequency. These conditions lead to greater risk of high-severity wildfires and threaten recreation and communities surrounded by the Tahoe National Forest,” said Jonathan Cook-Fisher, District Ranger for the Tahoe National Forest, Truckee Ranger District.

Collaborative management is already underway throughout the watershed, including nearly 10,000 acres of projects aimed at better managing forests.

Projects the group hopes will improve forest resilience include thinning smaller trees, prescribed burning, meadow restoration, clearing underbrush, and more.

While the group is aiming for a 10-year plan, they say additional work will be needed after the 10 year period, though they did not specify what.

SNC to pilot wildfire resilience landscape investment strategy

Sep 29, 2022 | SNC UPDATES

Sierra Nevada Conservancy Executive Officer Angela Avery speaks about our new Sierra Nevada Landscape Investment Strategy at the Sierra Nevada meeting of the Wildfire and Forest Resilience Task Force.

Getting to scale.

For more than a decade, the Sierra Nevada Conservancy (SNC) has been investing in projects and partners that support the environmental, economic, and social well-being of its service area. With forest health as the foundation, the Watershed Improvement Program (WIP) weaves together four priorities: restoring healthy ecosystems, improving community resilience, promoting sustainable recreation and tourism, and conserving natural and working lands.

As SNC Executive Officer Angela Avery explained at the Sierra Nevada meeting of the Governor's Wildfire and Forest Resilience Task Force, "We started the WIP as a holistic approach to forest health and forest resilience. But what we started doing with this program is investing in individual projects across the landscape—really good projects, really important projects. But individual projects across the landscape."

And yet, even as SNC has worked with state and federal partners to invest in science-based efforts to restore resilience, the pace and scale of Sierra Nevada and California Cascade forest health and wildfire crises have outpaced our collective efforts.

With historic amounts of state and federal funding flowing toward wildfire-resilience work in recent years, we're hopeful that is about to change.

These investments are guided by the California Wildfire and Forest Resilience Action Plan and a Shared Stewardship Agreement between California and the U.S. Forest Service, each with a goal of treating 1 million acres per year in California by 2025. Containing 27 million acres, half of the state's forests, and watersheds that provide water to more than 75% of Californians, the Sierra Nevada and California Cascade region is critical in achieving these goals and safeguarding the California way of life.

Sierra Nevada Landscape Investment Strategy

The Sierra Nevada Landscape Investment Strategy details the approach the SNC has developed to meet shared state and federal goals in our region. Much of this strategy involves doing more of what we know works—providing WIP implementation grants, capacity-building support, and technical assistance to our local partners.

But it also includes something new, a Landscape Grant Pilot Program.

Made possible by increased state and federal funding and cooperation, the Landscape Grants will give land managers a new tool that seeks to meet the wildfire crisis where it is occurring—at the landscape level.

The Sierra Nevada Landscape Investment Strategy will help make progress towards Wildfire and Forest Resilience Action Plan goals in the Sierra-Cascade region while complementing SNC's existing grant programs under the WIP.

Landscape Grant Pilot Program

The Landscape Grant Pilot Program will seek to align funding from multiple entities to provide one or two large landscape grants that support strategic portfolios of projects across large landscapes over a 5- to 10-year timeframe. In so doing, it seeks to test whether this approach can reduce administrative time and costs for funders and implementing partners alike and how brand-new datasets and decision-support tools developed by the Wildfire and Forest Resilience Task Force, can help land managers meet shared goals.

The program remains under development with $10 million dollars committed by CAL FIRE and active conversations ongoing with additional funders.

Natural Resources Secretary Wade Crowfoot responded favorably to the Landscape Grant Pilot Program at the Task Force Meeting, noting the potential for it to greatly simplify administrative burdens for local leaders.

"We have an exceedingly complex funding landscape and we can't expect communities or local leaders to navigate those complexities to get things done on the scale we need to," said Secretary Crowfoot. "So, I appreciate what Angie and the Sierra Nevada Conservancy are trying to do to take that up, to figure out how we can really bundle different pots of money in ways that can really be productive."

The SNC and California Wildfire and Forest Resilience Task Force partners will tailor landscape grants to align priorities across partners. The Task Force Regional Kit, Landscape Assessment, Resilience Framework, and funder priorities are in the process of being developed.

Getting to scale

Landscape grants, unlike other components of SNC's WIP, focus exclusively on working at scale. To be eligible for the Landscape Grant Pilot Program, a partnership must demonstrate that it, and the proposed portfolio of projects, create multiple benefits across a large landscape. These landscapes should be clearly defined based on ecological considerations, and the project portfolio designed to achieve real and meaningful change within 5 to 10 years. While there is no strict minimum size, landscapes are generally expected to be a least 40,000 acres (the size of the smallest Hydrologic Unit Code 10 watersheds).

Partnership organizations must also be ready to work at this scale, demonstrating clearly defined governance, prioritization, and decision-making processes. The partnership should also be able to show broad-based interest group and tribal involvement and contain multiple entities capable of leading complex environmental reviews.

Testing new tools & approaches

Working at scale will present an ideal opportunity to test new data and landscape prioritization products created by the Wildfire and Forest Resilience Task Force. Local partnerships will lead the identification, development, and implementation of landscape-level priorities and project portfolios, and Landscape Grants will be an opportunity for partnerships to test drive new analytical tools and ground-truth datasets.

Aligning funding into a large award like landscape grant will also allow both funders and restoration partnerships to test whether, where funding goals align, it's possible to reduce administrative, grant-seeking, and grant-making costs. On the back end, this pilot program will test whether funders can standardize disparate reporting requirements and improve our ability to coordinate and track the effectiveness of collective investments.

The Sierra-Cascade can't wait

The pace of change in the Sierra Nevada and California Cascade region over the past decade has been dramatic, and at times heartbreaking. Vast landscapes have been transformed by unprecedented tree mortality and wildfire events driven by unnaturally dense forest conditions, drought, and climate change. While the challenges are many, the rapid and widespread restoration of forestlands to more resilient conditions promises hope that generations to come may yet benefit from the riches, and experience the wonder, of the Sierra Nevada and California's Cascades. Our Landscape Grant Pilot Program is intended to be a part of that solution.

More SNC Updates

← SNC announces $23 million forest and fire restoration grant program

SPONSORED

Public-private collaboration seeks to lower wildfire risk

By ThisIsReno | **Published:** September 29, 2022 | **Last Updated on** S

Focus includes 315,000 acres of land within the Middle Truckee River Watershed

The United States Forest Service signed a memorandum of understanding with four entities, formin public-private partnership to document their commitment to increase the pace and scale of forest management in the Middle Truckee River Watershed.

Located in California's northern Sierra Nevada mountains, the Middle Truckee River Watershed includes approximately 315,000 acres of land, of which 260,825 acres is managed by the U.S. Fores Service in the Tahoe National Forest. The watershed spans three California counties, one Nevada county, and encompasses important forest and meadow ecosystems, the Truckee River, recreationa resources, communities and water supply reservoirs.

The Middle Truckee River Watershed Forest Partnership includes the National Forest Foundation, Nature Conservancy, Truckee Meadows Water Authority, Truckee River Watershed Council and the United States Forest Service – Tahoe National Forest.

"The history of fire suppression in the region has resulted in increased forest density and less fire frequency. These conditions lead to greater risk of high-severity wildfires and threaten recreation and communities surrounded by the Tahoe National Forest," said Jonathan Cook- Fishe District Ranger for the Tahoe National Forest, Truckee Ranger District.

Rachel Hutchinson District Ranger for the Tahoe National Forest, Sierraville District noted, "This memorandum of understanding provides for more collaboration with stakeholders, and we look forward to increasing levels of coordination within this partnership."

"We have been working on ecologically-based modeling efforts to identify priority areas for forest restoration," stated Lisa Wallace, Truckee River Watershed Council Executive Director. "Increasing pace and scale of forest management work is critically important for protecting our community from wildfires and improving ecosystem health."

The goals of the group are to develop a 10-year vegetation management plan; improve and restore forest health and resilience; reduce the risk of high severity wildfire; protect communities from wildfire impacts; protect and secure water supplies and infrastructure; and identify and augment resources gaps to achieve implementation at an increased pace and scale.

“Northern Nevada relies on the forested headwaters of the Truckee River for a high- quality water supply,” said John Enloe, Director of Natural Resources at Truckee Meadows Water Authority. “It’s essential that we collaborate with our upstream partners to protect our watershed, increase the region’s resilience to wildfires and mitigate potential water quality impacts that can result from wildfires.”

Collaborative forest management work is already underway throughout the watershed, including the Ladybug Project, a 2,500 acre project near Stampede Reservoir, and 7,000 acres of corridor work along Hwy-89 near Alpine Meadows Resort. Matt Millar, National Forest Foundation Sierra Nevada Program Senior Manager, stated, “This is an example of the public-private partnerships that are advancing fuels reduction projects throughout the West and helping the National Forest Foundation implement our mission to bring people together t restore and enhance our National Forests.”

Projects to improve forest resilience include thinning smaller trees, prescribed burning, meadow restoration, clearing underbrush, and more. Although the group is completing a 10-year vegetation management plan, it is expected that additional work will be needed beyond the decade-long period

“The Nature Conservancy has been working to advance healthy forest management in the Middle Truckee River for years,” said Mickey Hazelwood, Conservation Director for The Nature Conservan Nevada. “Our science demonstrates there is a high likelihood of intense wildfire in the area absent t important work this public private partnership intends to tackle.”

About the Truckee Meadows Water Authority

Truckee Meadows Water Authority (www.tmwa.com) is a not-for-profit, community-owned wate utility dedicated to providing reliable service and high-quality drinking water for more than 440, residents and businesses throughout the region.

Smell emitting from Swan Lake described as ‘death’

By Terri Russell
Published: Sep. 29, 2022 at 4:11 PM PDT

RENO, Nev. (KOLO) - On the south end of Swan Lake where we did our interviews there was no odor detected.
But one resident describes it like this.
“Death,” says Tammy Holt-Still a Lemmon Valley resident.
Indeed on the north end of Swan Lake, the flood waters of 2017 have greatly receded.

In their place dry and cracked ground followed by red algae some dry some still floating in the water. At first, it smells like rotting fish. But as the wind changes it does smell like an open toilet that’s never been flushed.

A look on the Lemmon Valley Community Page, the pungent odor has not gone unnoticed. Some describe it as a septic tank, poop, and rotten eggs.

Holt-Still says all of those descriptions fit because the water is coming from two sewer plants, one from the city of Reno, the other from Washoe County.

“The Washoe County Sewer Plant discharges C affluent. The Stead Sewer Plant discharges A affluent,” says Holt-Still. “Both are harmful to the touch. But when you mix the two you still have pollution,” she says.

A check with Washoe County; they say they’ve only received two complaints about the smell on their 311 line. There are efforts they say to locate the source.

Washoe County Health District says they received no calls about the smell. But if asked to do so the district will send investigators to Swan Lake to see if there is an environmental hazard.

Calls to the city of Reno went unanswered

County Commissioner Jeanne Herman says she’s traveled throughout the area and depending upon the wind speed and direction determines who gets the worst of the smell out here in Lemmon Valley.

She’s calling for a serious inquiry.
“It needs an explanation,” says Herman. “The people deserve it.”
It’s not known if the city or county can do anything about the smell. But if the fumes are dangerous? That’s another story. We’ll keep you updated.

In a statement to KOLO 8 News Now, the City of Reno says: “Reno Direct has not received any correspondence regarding odors coming from Swan Lake.”

Drought.gov
National Integrated Drought Information System

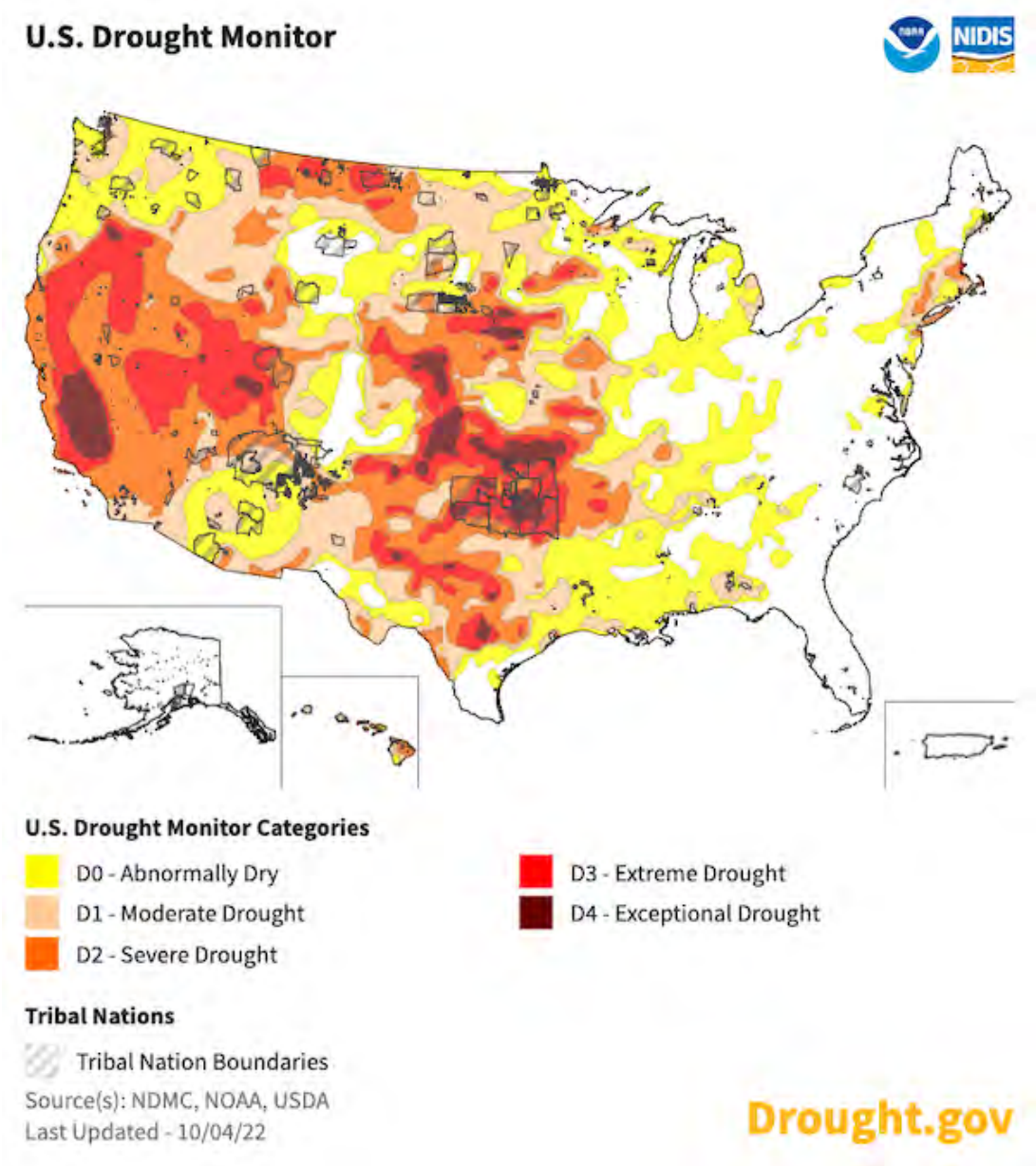
NEWS & EVENTS

Drought.gov Launches New Map Feature for Tribal Nations

October 3, 2022 | NOAA/NIDIS

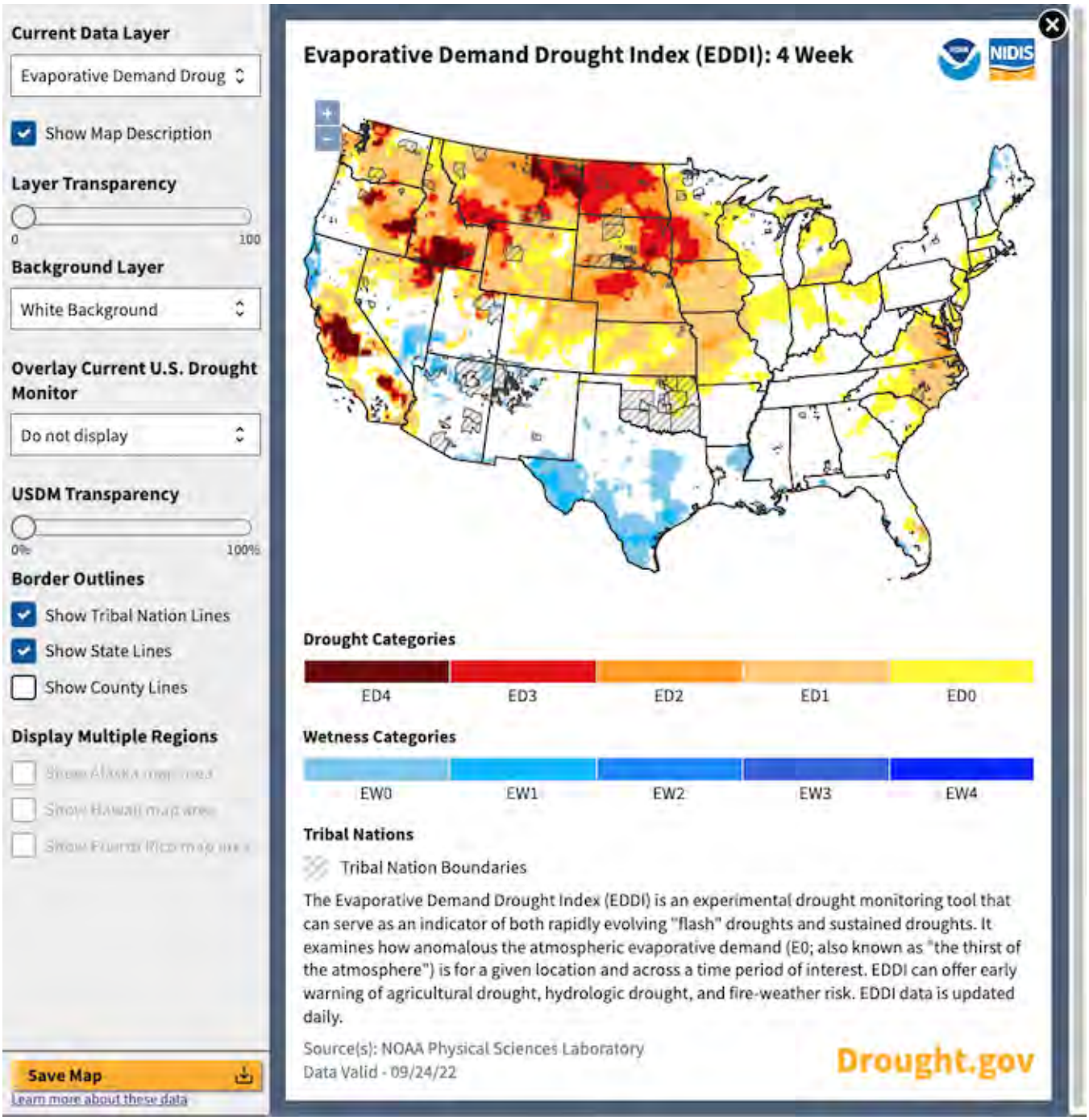
While drought is a normal part of climate, it presents many challenges, especially as we face rising temperatures and increasing instances where water supply is no longer meeting demand. Tribal Nations contend with barriers and drought data gaps, such as the lack of monitoring on tribal lands, but nonetheless, have long shown their resilience to drought and have communicated the need for tools and resources to help manage it.

In response to these needs expressed by tribal partners, NOAA's National Integrated Drought Information System (NIDIS) is pleased to announce a new map customization feature for Tribal Nations. Developed in collaboration with NOAA's National Centers for Environmental Information (NCEI), this feature allows users to display reservation boundaries on any map on Drought.gov.



Users can display boundaries for the more than 300 reservations across the U.S. from the U.S. Census Bureau, overlaying reservation boundaries on any of the maps available on Drought.gov. By clicking the download icon in the top left corner of any interactive map on the website, any national map can become a local map, showing key drought and climate indicators—such as precipitation, evaporative demand, and soil moisture—for tribal lands across the United States. This provides a valuable tool for both drought monitoring and communications.

Other customization options include the ability to zoom in or out, display state or county lines, adjust the transparency of map layers, hide or display the map description, change the basemap, display any map layer alongside the current U.S. Drought Monitor, and download a high-quality PNG file of a customized map.



NIDIS and NCEI launched the new Tribal Nation Boundary map feature in direct response to the *NIDIS Tribal Drought Engagement Strategy (https://www.drought.gov/about/tribal-engagement)*, which NIDIS developed in close consultation with 22 tribal natural resource managers across the Missouri River Basin and Midwest. The Strategy aims to integrate indigenous perspectives into NIDIS's work, and by doing so, NIDIS hopes to foster a culturally appropriate engagement practice and work with Tribal Nations as equal partners in preparing for and responding to drought.

One key challenge identified by tribal partners is limited reservation-specific monitoring and forecasting data, as well as the absence of tribal boundaries on drought maps and communications. It is vital that the boundaries of these sovereign nations are represented on drought maps and other communication materials, as would be the case for other nations. The new Tribal Nation Boundary map feature is a step toward addressing this need.

Going forward, NIDIS intends to hold listening sessions with tribal partners to learn how the U.S. Drought Portal, Drought.gov, can serve Tribal Nations better. Learn more (https://www.drought.gov/about/tribal-engagement) about the *NIDIS Tribal Drought Engagement Strategy,* or visit our Tribal Nations page (https://www.drought.gov/tribal) for drought monitoring, planning, and impact information.

Have questions or feedback on this new feature? We'd love to hear from you! Reach out to the U.S. Drought Portal team at drought.portal@noaa.gov (mailto:drought.portal@noaa.gov).

Helpful Links

By Location | Tribal Nations (https://www.drought.gov/tribal)

NIDIS Tribal Drought Engagement Strategy (/documents/nidis-tribal-drought-engagement-strategy-2021-2025)

Data & Maps | Current Conditions (/current-conditions)

National Oceanic and Atmospheric Administration (NOAA)

National Centers for Environmental Information (NCEI)

NevadaToday

NWII Director Krishna Pagilla; University of Nevada, Reno President Brian Sandoval; and College of Engineering Dean Erick Jones at the NWII 5-Year Anniversary event Sept. 27 on the University campus.

Nevada Water Innovation Institute celebrates five years

University-led partnership works on COVID-19 wastewater surveillance, advanced purified water technologies and other water resiliency and sustainability research

Research & Innovation (https://www.unr.edu/nevada-today/news/research-innovation) | **October 03, 2022**

Chris Moran

Local and regional water management leaders gathered Sept. 27 to celebrate the five-year anniversary of the Nevada Water Innovation Institute (NWII), a University-led partnership that collaborates with regional agency partners on issues in the water sector.

Elected representatives attending the event include Sparks Mayor Ed Lawson, Sparks council members Kristopher Dahir and Charlene Bybee, Reno Vice Mayor Devon Reese and Washoe County Commissioner Alexis Hill. University President Brian Sandoval, College of Engineering Dean Erick Jones and other University leadership also were on hand to celebrate the anniversary.

Directed by Civil & Environmental Engineering Department Chair Krishna Pagilla, the NWII made regional and national news during the COVID-19 pandemic for its work on wastewater monitoring to determine the presence of COVID-19 in the community. Other projects include collaborations with such agencies as the cities of Reno and Sparks, Washoe County, the Truckee Meadows Water Authority (TMWA), the Western Regional Water Commission and the Nevada Division of Transportation focused around water reclamation technologies, stormwater control technologies, research on water reuse and more.

"This institute has become a national leader and invaluable partner in water planning innovation in our region," Dahir, a TMWA board member, said. "The Institute has worked with TMWA on several important regional projects including advanced purified water, disinfection byproducts analysis and indirect potable reuse pilot studies and related community outreach.

"These projects help improve TMWA's drought resiliency and water resource sustainability for current and future Truckee Meadows residents," Dahir continued.

In addition to partnering with governments on water research and product development, NWII has a goal to educate and prepare the next generation of water professionals.

"I think one of the best gifts this institute, and particularly Dr. Krishna (Pagilla), has given to our community is the opportunity for amazing, young, brilliant minds to do helpful things: to research the projects that face this community and will affect us in the future," John Martini, Sparks assistant city manager, said. "The thing that I love that Krishna has done: these students are involved with all of us at the local level. They have boots on the ground, they come to our council meetings, some are sitting in the board of directors meetings."

More than 50 students, researchers and staff have participated in NWII projects and activities, according to NWII information. The Institute also has garnered more than $4 million in water research and development funding from its founders, as well as more than $2 million in external funding from the National Science Foundation, U.S. Department of Defense, Bureau of Reclamation and USDA.

The NWII's work dovetails with the College of Engineering's commitment to equitable community infrastructure.

"The Institute has made a dramatic impact on our region since its inception five years ago," Erick Jones, dean of the College of Engineering, said. "That is a credit to Dr. Pagilla, his team and the Institute partners that have worked so diligently to manage one of our most precious resources —water. We can't wait to see what is in store in the next five years."

Research & Innovation (https://www.unr.edu/nevada-today/news/research-innovation) | October 03, 2022

Chris Moran

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RESEARCH

Wildfires pose growing threat to drinking water systems

10/3/2022 | 0

By Jay Landers

In many areas across the United States, wildfires pose a growing threat to drinking water infrastructure, a complex issue that is only just beginning to be understood. Risks associated with wildfire include the physical destruction of infrastructure components as well as the contamination of drinking water supplies with known pollutants and other potentially harmful compounds.

As more communities experience the trauma of wildfire, they often must cope with the follow-on threat of contamination in their drinking water, a threat that can be hard to pinpoint and eradicate.

Added danger

Previous fire suppression policies have led to overgrowth in many forests on federal, state, and private lands. As a result, when fires occur, they tend to be larger and more intense, making them harder to combat, says Erica Fischer, Ph.D., P.E., M.ASCE, an assistant professor of civil and construction engineering at Oregon State University. Fischer's research interests include finding ways to improve the resilience of structural systems affected by natural and human-made hazards.

"It's just impossible to put out all these fires (now)," Fischer says. Climate change only exacerbates the problem, she says.

Adding to the danger is the increasing number of people moving into areas that fire experts refer to as the "wildland-urban interface." In such areas, homes and other structures are near or intermingled with wildlands or vegetation that can burn during a wildfire. When a wildfire intrudes on these communities, the homes and other structures serve as additional fuel sources, resulting in intense conflagrations.

When wildfires destroy residential service lines, the resulting leaks can contribute to depressurization of the drinking water distribution system and enable contaminants to enter. (Courtesy of Erica Fischer)

"Wildfires typically move quickly through a vegetative landscape," Fischer says. However, when wildfires engulf homes or other structures, they often burn for hours, she notes. "You have a fire occurring in one spot for a substantial period of time."

Contamination sources

This type of stationary fire caused by a burning home spells trouble for service lines, the small pipes that extend from a house's water meter to the house itself. This is because thermal degradation of plastic pipes leaches contaminants into the drinking water distribution system to which the house is connected.

"That's the first way we see contamination" of a drinking water system during a wildfire, Fischer says.

Plastic components within drinking water distribution systems can thermally degrade during a wildfire, potentially releasing contaminants into the systems. (Courtesy of Erica Fischer)

Testing at Oregon State and other research laboratories has confirmed that thermal degradation of plastic pipe materials releases volatile organic compounds, some of which are thought to have negative short-term and long-term effects on human health.

However, water distribution systems — those wide-ranging networks of pipes that carry potable water from central treatment plants to consumers — also commonly include plastic valves, gaskets, and other products. These can also experience thermal degradation as a result of wildfires, Fischer says. “There are a lot of other components of the water distribution system that are being heated directly and are being exposed to a fire,” Fischer says.

Another major source of contamination can occur when a distribution system becomes depressurized when massive volumes of water are used for firefighting purposes. Service lines damaged by fire can contribute to this depressurization problem when they leak water into the foundations of destroyed homes.

“It’s death by a thousand cuts,” explains Brad P. Wham, Ph.D., EIT, M.ASCE, an assistant research professor and co-director of the Center for Infrastructure, Energy, and Space Testing at the University of Colorado Boulder. Wham’s research interests include the evaluation, analysis, and design of hazard-resilient lifeline systems and multiscale soil-structure interaction of buried infrastructure.

The entire Sagamore neighborhood in Superior, Colorado, was destroyed during the Marshall Fire in late December 2021. This photo shows water discharging from an open pipe into the foundation of a burned property. (Courtesy of Brad P. Wham)

Once depressurization occurs, “contamination in buildings, the air, or broken pipes can be sucked into the distribution system ” adds Andrew Whelton Ph D a
can be sucked into the distribution system, adds Andrew Whelton, Ph.D., a professor of civil, environmental, and ecological engineering and the director of the Healthy Plumbing Consortium and Center for Plumbing Safety at Purdue University.

This contamination can include particulate matter, organic vapors, and debris, all of which mix with the water in the distribution system.

“That allows chemicals such as volatile organic compounds and semi-volatile organic compounds to find their way into the water,” Whelton explains.

In turn, the VOCs may be absorbed into plastic pipes within the distribution system and “come out very, very slowly,” Whelton says. Although similar in nature to VOCs, SVOCs are heavier and, therefore, less likely to evaporate into the air or diffuse into plastic, he says.

At the same time, pressure loss in water storage tanks can cause their vent pipes to "suck in smoke" that then contaminates the epoxy plastic lining of the tank, Whelton says. (In such cases, the lining may need to be removed and replaced, he notes.)

More research needed

Postfire sampling of distribution systems that have been damaged by wildfire has revealed the presence of VOCs at alarming levels, Fischer says. The concentrations of these compounds can be in excess of the allowable short- and long-term exposure limits for drinking water, she says.

Following the Tubbs Fire in October 2017, the city of Santa Rosa, California, "found a diversity of different VOCs and SVOCs present" in samples taken from its water distribution system, Whelton says.

Since then, some municipalities have tested for and found such compounds — sometimes at potentially dangerous levels — as part of their postfire sampling, while others have not checked for their presence. The absence of a uniform approach to testing reveals the dearth of current knowledge regarding which contaminants may be present in a drinking water system following a wildfire, Whelton says.

"We have a list of VOCs that keep showing up in drinking water distribution systems that have been affected by fire," Whelton says. "As for the SVOCs, because many utilities and state agencies haven't been doing the necessary testing, we don't really know" if those compounds can be expected to be found in fire-damaged distribution systems, he says. For this reason, "it's even more critical" that SVOCs be tested for following a fire, he says.

On Sept. 15, the National Academies released a 228-page report titled *The Chemistry of Fires at the Wildland-Urban Interface*. Among its many recommendations for additional study in this area, the report called for research "to further characterize potential chemical contamination to water resources (both surface waters and distribution systems) from WUI fires, and to better understand the formation pathways."

Assessing the damage

Once a distribution system has been damaged by wildfire, a water utility faces the daunting task of having to determine the degree of the damage and the extent to which water in the system is contaminated. Fischer recommends following the steps outlined in a 2021 document from the U.S. Environmental Protection Agency titled *Addressing Contamination of Drinking Water Distribution Systems from Volatile Organic Compounds (VOCs) after Wildfires*.

As outlined in the document, a utility needs to flush its distribution system, let that water sit in the system for a minimum of 72 hours, and then conduct sampling and testing of it in accordance with appropriate EPA standards, Fischer says. “They need to do this at locations of damaged homes, destroyed homes, standing homes, and at their critical facilities.”

During this process, utilities must “cast a wide net,” Whelton says. “You then narrow down where your areas of concern are. Then you hunt down all of the contamination and remove it.” Removal could take the form of additional flushing of the system and range up to the replacement of heavily contaminated pipes or other features.

This process is neither quick nor easy, Whelton warns.

“Testing can go on for weeks or up to a year to find and remove contamination. It est g ca go o o ee s o up to a yea to d a d e o e co ta at o t depends upon the size of your system and the extent of the depressurization and contamination,” Whelton says.

During this process, the utility should warn the population within the affected area not to use the water, Whelton says. And importantly, utilities “should not be issuing boil water advisories when you have fire (residue) in your distribution system, as there’s a high probability that it is chemically contaminated.” This is because if contaminated water is boiled, it can increase the population’s exposure to the contamination through inhalation as well as via dermal exposure and ingestion.

Prepare and protect

When wildfires occur, “water utilities are some of the most important members of a community,” Fischer says. Therefore, the more that water utilities can do in advance to prepare for such events, the better off they and their communities are likely to fare.

To this end, water utilities should work with their local firefighters in advance of wildfires to determine which areas are potentially the most vulnerable and would most need to have water pressure maintained in fires, Fischer says. Other considerations to be addressed include whether staff can operate a water treatment plant if the power goes out or what is to be done in the event that storage tanks appear as though they are going to run out of water.

“Do they have the ability to pull raw water into the system?” Fischer says. “Are they willing to make that decision? If so, how do they flush and treat the water in the system afterwards to get the water back to a potable state?” Mutual-aid agreements and interconnections with neighboring water agencies also can help address such situations, Fischer notes.

As for what steps water utilities can take to protect their infrastructure from wildfires, Wham suggests hardening valve boxes, meter pits, and other components located on the surface. “Using high-temperature-compliant materials at ground level, achieving adequate burial depth elsewhere, and collecting data through distributed sensing are ways of better protecting these assets in a fire,” he says.

Installing backflow prevention devices would also help prevent contamination from entering the distribution system in the event of depressurization, Wham notes.

Ideally, the devices would be installed on the portion of a service line owned by the utility, he says, as they typically need to be tested periodically to ensure proper function.

Backflow prevention devices typically cost $1,000-$3,000 apiece, Whelton says. “It is not cheap when you start talking about systemwide backflow protection,” he notes. However, the protection from contamination that they afford to distribution systems makes the expense worthwhile. “There need to be unique financial models that incorporate the purchase and continued maintenance of backflow prevention devices by the utility through the rate structures,” Whelton says.

More broadly, water utilities “should think outside the box” when developing their emergency response plans to try to account for as many outcomes as possible, Wham says. This is because “sometimes the inconceivable does happen,” he notes.

For example, a resilient water system should have a backup power source that is not dependent on the electrical grid or natural gas distribution because these services can be damaged or turned off in the event of a wildfire. A localized backup system, such as diesel-fueled generators, however, could potentially be kept in operation during a wildfire, helping a utility maintain pressure and keep water flowing within its distribution system.

Simply recognizing the threat that wildfire poses to water infrastructure would be a critical step in the right direction for many water utilities, Whelton says. As things stand, the majority of water systems across the United States are not acting to protect themselves from wildfires, he says. “Many of them are not aware of the lessons that have been learned so far. Many of them also don’t think they’ll ever have to worry about a wildfire.”

AUTHOR

Jay Landers

CALIFORNIA DROUGHT DESERT WATER AGENCY REBATE GRASS REMOVAL REBATE KMIR

By: Kamari Esquerra

“We’re in a hot climate, we’re in a desert. Our goal is for people to make landscaping choices that reflect that and target sustainability,” said Ashley Metzger, Director of Public Affairs and Water Planning at Desert Water Agency

California’s three-year drought continues with no sign of relief.

Desert Water Agency is increasing its grass removal rebate budget by $2 million, allowing more customers to apply for the incentive and helping residents conserve water.

“This program to replace grass with a more water-friendly landscape had a budget of $1.65 million dollars for the fiscal year, and today the DWA board of director increased that amount to $3.65 million total for the fiscal year,” said Metzger.

The program started the current fiscal year on July 1 and already almost 78% of the budget is committed. The increase – unanimously approved on Tuesday morning – more than doubles the program’s budget.

“With this budget augmentation, we not only have enough to approve everything in the queue, but we have another roughly $1.3 million dollars,” said Metzger.

The rebate program applies to resident, HOA, government agency, and business customers. For an average front or back yard, the $ 3 a square foot incentive provides about $4,500 in funding to replace water thirsty grass with water-efficient plants, artificial turf, or desert landscaping.

“Grass is a very water-intensive plant,” said Metzger. “Many months of the year require multiple waters for very long times.”

An incentive that will not only help residents conserve water, but also time and money.

“There’s less maintenance. Their water bill will be lower. And a lot of the plant choices are so much more dynamic,” said Metzger.

DWA says replacing grass with drought tolerant plants or artificial turf is the best way to conserve water as more than 70% of water usage in the Coachella Valley takes place outdoors.

“The goal of this program is to save water today and well into the future,” said Metzger.

The NEVADA INDEPENDENT
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Indy Environment: 'We haven't failed yet:' With a new water year, Colorado River remains in crisis

Good morning from Tonopah, 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.

Nearly four months have passed since federal officials issued an ultimatum to Colorado River managers: Come to a consensus on large-scale water cuts, or we will take unilateral action.

A deadline of mid-August came and went. Now, approaching mid-October, there is still no deal on the table to stabilize the Colorado River's shrinking reservoirs, which includes Lake Mead, sitting at about 28 percent of capacity. Without large-scale cuts, forecasters have warned that the reservoir is at risk of falling to levels that threaten water deliveries and hydropower production.

To be sure, Colorado River negotiators are continuing to meet, including at a water symposium in Santa Fe last month. And some proactive proposals are being floated. Just yesterday, California offered a plan to cut about 9 percent of its total use, as *CalMatters*' Rachel Becker reported. And *KUNC*'s Luke Runyon reported last week that the federal government is calling on states to account for water lost to evaporation, which would require cuts. But they are giving the states a runway — until the end of 2024, a long way from the August deadline that was contemplated this summer.

Downstream of Lake Mead, California and Arizona constitute most of the water consumed. Yet as the University of New Mexico's John Fleck explained in a recent blog post, the two states, and the federal government, are "boxed in" for a variety of complicated and interwoven policy reasons, despite the reality that, as he puts it, "absent a big snowpack, I don't see how this ends well."

On Saturday, which happened to be the start of the new water year, we spoke with four Nevada water experts about what it means for the state and how Nevada is positioned moving forward. The panel was part of *IndyFest*, the annual conference hosted by *The Nevada Independent* (the audio of the conversation is posted on our website).

"The seven states had a really, really bad summer," John Entsminger, general manager of the Southern Nevada Water Authority, conceded. "We publicly embarrassed ourselves and came up with absolutely nothing in the face of a very clear call to action from the federal government."

Still, Entsminger defended the current system, whereby the seven states and other water users agree to negotiated cuts through a collaborative process.

"Before we toss out what has in fact been an extremely successful negotiation process that has produced numerous wins over the last 20 years, I think we need to be careful," Entsminger said. "We haven't failed yet."

Why it is so hard to cut back — to the scale necessary — is a function of the complexity and interdependency of all the users and sectors that tap into the Colorado River, noted Elizabeth Koebele, an associate professor at UNR, where she studies water policy and governance.

Koebele argued that the "diversity of actors and the diversity of uses is one of the things that makes managing the Colorado River so challenging." At the same time, Colorado River water managers are having to respond to a crisis unfolding on two timelines. The most pressing one is the immediate shortage facing Lake Mead, yet water officials are also anticipating contentious negotiations over how to manage a shrinking river, in the long-term, with the river's operating rules set to expire in 2026.

“That’s a really hard position to be in,” Koebele said. “It’s hard to think long-term and think about sustainability, if we’re having trouble managing even these immediate crises.”

The Colorado River is overallocated, meaning there are more rights to use water than there is water to go around. At the same time, the amount of water that is in the system is shrinking as the region becomes increasingly arid, a trend worsened by climate change.
“There’s no choice” about whether the cuts need to be made, Entsminger said, because “the math is pretty simple.”

It’s all just happening faster than anyone ever expected.

"The problem that the states are facing is the change is happening faster than anyone expected it to happen," Pat Mulroy, former general manager of the water authority, said at *IndyFest*. “I mean, it wasn't supposed to happen until way out there into the future. Here it is.”

Nevada is entitled to a sliver of water from the Colorado River, about 1.8 percent of all the legal rights. At the same time, Southern Nevada is dependent on the Colorado River —it accounts for about 90 percent of the water consumed in the Las Vegas metro area.

But compared to Arizona and California, Nevada faces more security with its Colorado River supply. Seeing Lake Mead fall, the water authority built a third, low-level intake that can pull water from the reservoir even in a worst-case scenario, a point when water hits
“dead pool” and can no longer pass Hoover Dam.

Southern Nevada has also stretched out its small Colorado River apportionment by implementing aggressive conservation measures, doubling down on enforcement and recycling nearly all its indoor water.

Over the past year, the water authority has turned its attention to deepening conservation efforts through removing non-functional turf, retrofitting evaporative coolers and limiting pool sizes. Earlier this week, The *Las Vegas Review-Journal*’s Colton Lochhead reported on the Las Vegas Valley Water District’s approval of a new rate structure penalizing the area’s biggest residential users.

When the Legislature met in 2021, it passed a bill to ban ornamental turf in Las Vegas by 2026, a move forecast to conserve about 10 percent of the state’s allotment. Assemblyman Howard Watts (D-Las Vegas) sponsored the legislation, and on Saturday, said that he is working with the water authority on addressing water in septic tanks, which cannot be recycled.

From a water quality standpoint, septic systems have also increased nitrates in groundwater. Watts said he wants to prevent the issue from worsening and help customers replace septic tanks.

“That helps bring us closer to having a circular water system in the Las Vegas Valley,” he said.

As for booming growth in the Las Vegas Valley, Watts and other panelists emphasized that what is most important is how Southern Nevada grows. There are multiple projections for population growth — high demand and low demand scenarios — as well as projects based on how aggressively water is conserved.

Entsminger said lowering the per capita water footprint remains a priority for his agency, and it’s why he called for removing decorative water-guzzling grass. With deep conservation, he said “you can continue to have diversification of your economy and reasonable population growth.”

“The day you decide you're done with conservation, you don't want to do any more hard things, that's when you really have to start talking about what you can continue to support,” he said.

Since state lawmakers passed the non-functional turf ban last year, other cities, from Denver to Santa Fe to San Diego, have adopted or are looking at similar rules for lawns. Watts said he sees Nevada playing an important leadership role “in showing that, for example, when we’re removing non-functional turf, it's not going to be the end of the world— it's already happening.”

“It’s underway, and it is a path that other communities can take,” he said.

A sprinkler waters ornamental grass in Summerlin on Monday, June 1, 2021. (Jeff Scheid/The Nevada Independent)

When it comes to conservation, Mulroy said "there's no other choice" on the table right now. She said that conservation, in the past, prepared Nevada for shortage cuts implemented last year.

"By bringing the community along gradually and allowing the adjustments to happen over time, by the time you get to the point where you have to cut back because the river conditions dictate it, you're already there," she said. "That was the philosophy all along, and I think it has worked well. And with what the [water] authority is doing now, they are doing the absolute right thing."

What was clear from the discussion is that the next few years on the Colorado River are going to be filled with tough decisions and complicated tradeoffs. While cuts are the only option today, Mulroy, for instance, said that "we can't conserve ourselves out of this" in the long-term and that there is a need for augmentation, including the possibility of bringing more desalination online.

There also remain structural questions about how to operate a river on the frontlines of a climate that is becoming increasingly hot and arid in the Southwest. Koebele said it is important that any new rules are adaptable and developed in an inclusive way. To an extent, Colorado River users have long planned for variability, understanding that there would be high and low flow years.

"That is kind of in hyperdrive," she said. "We need to be thinking of even more adaptability."

But exactly what flows should we be planning for in a future where scientists and experts have warned there could be substantially less water? Colorado River users still have different answers.

As recently as last year, Entsminger publicly suggested the states plan for 11 million acre-feet, about 60 percent of the 18.5 million acre-feet in legal entitlements that exist to use the Colorado River (an acre-foot is the amount of water that can fill one acre to a depth of one foot).

"At the time, it was taken with a sort of, 'Oh, my goodness, he actually said that,'" he noted.

Yet among the states and other Colorado River users, Entsminger said the discussion on what kind of river to plan for is "advancing rapidly."

"I think there's general consensus among the states that we need to be planning for a future with at least a low of 11 million acre-feet," Entsmigner said. "What is lacking is the general consensus on what everyone's willing to contribute to adjust to that new reality."

A semi-truck travels on State Route 159 near the Red Rock on Monday, June 7, 2021. (Jeff Scheid/The Nevada Independent)

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than 400 homes near the Red Rock Canyon National Conservation Area, The *Las Vegas Review-Journal*'s Ricardo Torres-Cortez reports. Here are a few important pieces of context worth noting:

- This is part of Las Vegas developer Jim Rhodes' long effort to build homes near the conservation area on private property he owns and operates as a gypsum mine.
- The property is currently zoned for rural, low-density housing. For decades, Rhodes has attempted to increase that density and build thousands of homes in the area. Each time, Rhodes has met fierce opposition. This map, approved by the county, would conform to the current zoning for the area and is similar to an approval by the commission last year.
- Importantly, the map is conditional. As the *Review-Journal* story notes, the developer "still has to clear obstacles." Those include sewer service (septic tanks likely cannot be used for the reasons explained in the first section of the newsletter). The developer will also have to obtain permission from the Bureau of Land Management to build a paved access road on surrounding federal public land, managed for the public. In addition, it will have to stop mining as construction starts. It's worth asking how that will occur and what reclamation requirements will have to be met in order to continue moving forward.
- Commissioner Justin Jones, who represents the area and ran on protecting Red Rock, issued a statement on Wednesday explaining why he voted in favor of the tentative map.
- Additionally, Rhodes' company is in the midst of a complex bankruptcy proceeding, and its creditors have helped fund a lawsuit against Clark County. More background here.

Mine fatality in Washoe County: The Mine Safety and Health Administration reported a fatality at a construction sand and gravel operation in Washoe County last week. It is the third mining fatality in Nevada this year. The *Elko Daily Free Press* has more information on the incident.

Water, development and the race for Carson City supervisors: Reporter Kelsey Penrose published an excellent piece in the *Indy* this week looking at how questions of water and growth are playing into local elections.

Coyote Springs is 'ready to build' again: The *Las Vegas Review-Journal*'s Eli Segall reports on where things stand with efforts to build out Coyote Springs, a proposed master-planned community about 60 miles outside of Las Vegas. Water in Coyote Springs Valley (and in the surrounding groundwater basins) remains a major issue, as I reported on in 2020.

- The issues at play are continuing to be litigated, with the Nevada Supreme Court next in line to weigh in on water management in the area. Earlier this week, the Supreme Court granted a stay to preserve the status quo while the case is pending.

Department of Interior law enforcement to wear body cams, the agency announced.

On Monday, the Supreme Court heard an important case involving the scope of the Clean Water Act. How *E&E News*' Pamela King and Hannah Northey described the hearing: "The Supreme Court on Monday appeared reluctant to wrest wetlands

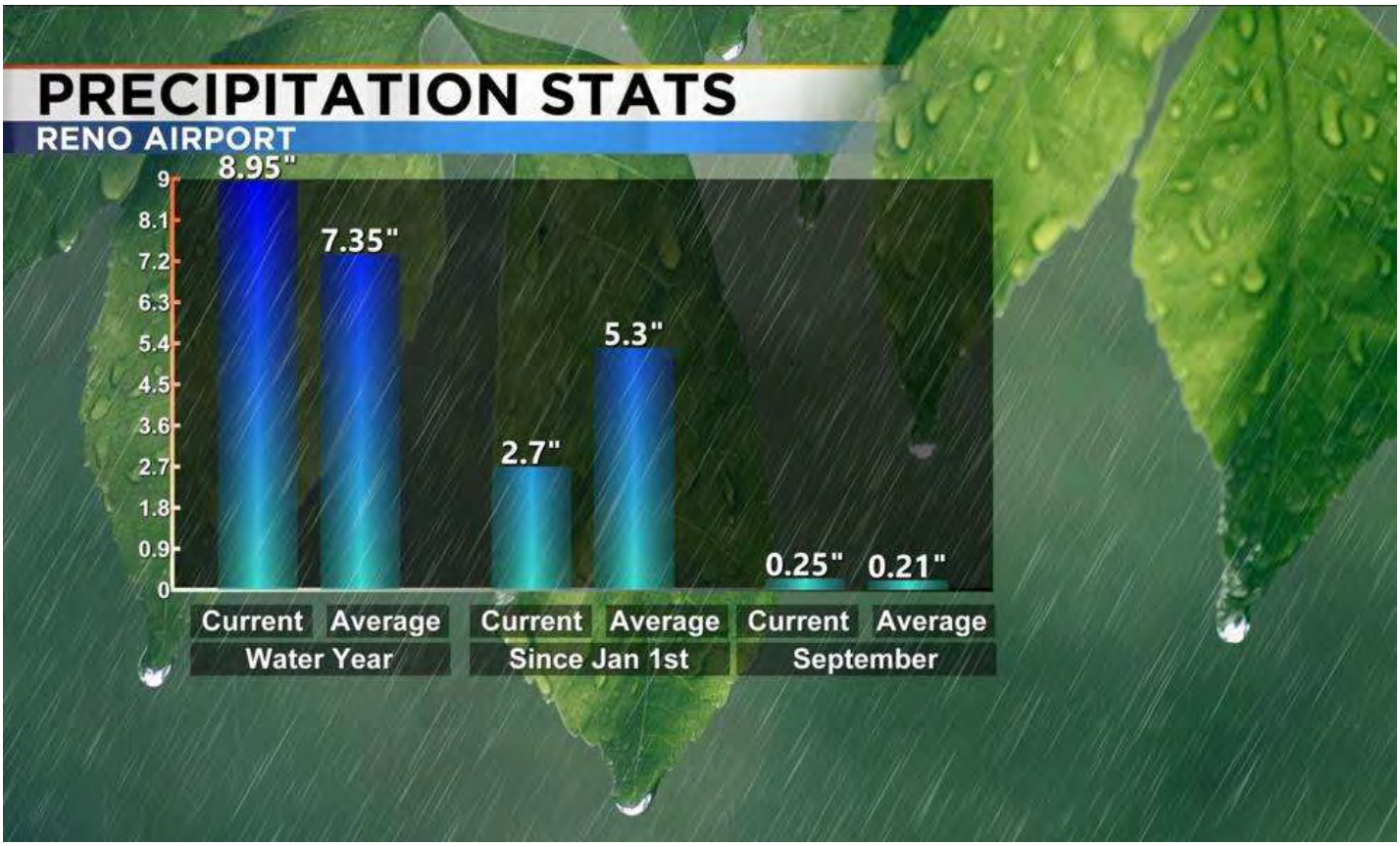
An effort aimed at reducing wildfire risk in the Truckee watershed, via the *Sierra Sun*.

https://www.2news.com/news/above-average-water-year/article_96a12b7e-4508-11ed-8aa6-838e74ab7387.html

FEATURED

Above Average Water Year

Angela Schilling
Oct 5, 2022



Northern Nevada and California are both still in a drought and could use some more rain and snow. On the plus side, Reno came out a head of the game in terms of our water year with nearly nine inches of liquid precipitation falling at the airport, which is 1.60 inches above normal or 122 percent of normal.

By looking at this number alone, the data would suggest it was a great year for our water supply. While this is better than being behind, it does not show the whole story.

Timing is everything, and our water supply is greatly tied to our snow pack. Unfortunately, we received no measurable snow or rain during the month of January, which is usually our wettest month in Reno.

According to the National Weather Service, eighty eight percent of our water year fell during the months of October, December, and August. Both the precipitation in October and December helped our cause, but the rain in August quickly evaporated in the heat.

With that being said, both August and October turned out to be the wettest on record.

“Rain in the summertime is nice, it’s usually more spotty and may help with smoky conditions and fire conditions locally, but it’s not great for our water supply,” said hydrologist Tim Bardsley.

It was also the fourth wettest December on record at the Reno Airport. An atmospheric river moved through the region last October giving us a ton of precipitation. Tim Bardsley from the National Weather Service, says the mountain snow in December and precipitation that fell in October, did help our snow pack.

“So that really moistens the soil and helped with our snow pack in the winter, it really helped with run off conditions,” said Bardsley.

Bardsley says if we don’t get any good precipitation over the next few weeks Tahoe will likely fall below it’s natural rim. This would have happened last October too, but an atmospheric river moved through helping our cause. Even though Reno saw more precipitation than normal this past water year, there is still a lot of catching up to do, especially during the winter season.

Reno did see the second highest amount of days exceeding an inch of precipitation, only following the 2016-2017 water year.

Angela Schilling
Meteorologist

American Water Works Association

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AWWA ARTICLES

WaterSmart Innovations conference attendees focus on efficiency in changing climate

October 5, 2022

Press Releases

More than 700 people are gathered in the water-challenged city of Las Vegas this week to share new ideas and cutting-edge technologies that promote more efficient urban water use during the 2022 WaterSmart Innovations Conference and Exposition.

The conference, in its 14th year, brings together leading experts in water conservation and efficiency from both water systems and the many entities that use treated water. The exposition hall at the South Point Hotel, Casino and Spa featured exhibitors from irrigation companies, faucet manufacturers, utilities, researchers and many other organizations.

Speaking before the opening general session crowd, American Water Works Association (AWWA) CEO David LaFrance thanked Southern Nevada Water Authority (SNWA) General Manager John Entsminger for his organization's vision in creating WaterSmart Innovations 14 years ago. AWWA, the largest organization of water professionals in the world, is assuming operations of the conference for the first time in 2022. LaFrance said AWWA is committed to continuing the success and honoring the legacy of the event.

In a keynote address examining the drought impacting the Colorado River basin, Bret Birdsong, a professor from the Boyd School of Law at the University of Nevada-Las Vegas, pointed out that the Colorado River Compact was created 100 years ago, during a period when water was more abundant. “If there’s one thing to remember about the Colorado River, [it’s that] we are facing a structural de
of the basin than the river supplies.”

Natasha Rankin, CEO of the Irrigation Association, presented the Outstanding Industry Partnership Award to Inland Empire Utilities Agency for its Residential Small Site Controller Upgrade Program and the Outstanding Public Engagement Award to Sonoma-Marin Saving Water Partnership for its Water Smart Landscape Design Template Project.

Doug Bennett, water conservation manager for SNWA and one of the historic creators of WaterSmart Innovations, said the conference is like no other in the sector. “What’s most exciting is the peer-to-peer engagement,” he said. “It’s a community and culture of water efficiency.”

# # #

Established in 1881, the American Water Works Association is the largest nonprofit, scientific and educational association dedicated to managing and treating water, the world’s most important resource. With approximately 50,000 members, AWWA provides solutions to improve public health, protect the environment, strengthen the economy and enhance our quality of life.

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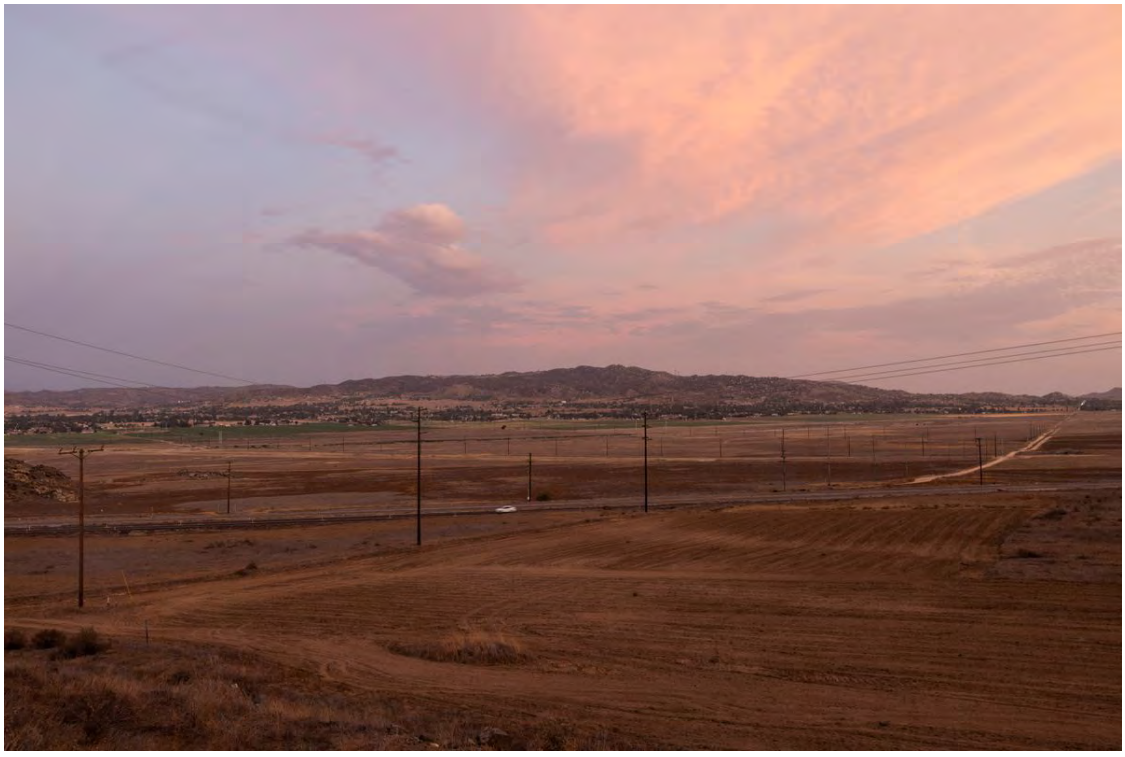
3 minute read · October 13, 2022 2:43 PM PDT · Last Updated a day ago

Amid historic drought, California approves $140 mln desalination plant

By Daniel Trotta



A view shows dry landscape near the Lake Perris reservoir, which is part of the terminus of the California State Water Project, near Riverside, California, U.S. July 25, 2022. REUTERS/Aude Guerrucci

Oct 13 (Reuters) - California regulators unanimously approved a $140 million desalination plant on Thursday, offering a guideline for how the state can convert ocean water into drinking water amid the worst drought in 1,200 years.

Just five months ago, the same Coastal Commission had unanimously rejected a much larger and privately owned plant, citing environmental concerns. But the South Coast Water District's proposed Doheny Ocean Desalination Project, at one-tenth the size, won approval by the same 11-0 vote.

The plant, expected to produce 5 million gallons of drinking water per day, enough for some 40,000 people, will serve a small water utility in Orange County, just south of Los Angeles.

It sets precedent as the first desalination that the Coastal Commission has approved since more strict regulations were adopted in 2019.

With environmental protection a concern, experts say smaller can be better.

"It's more nimble. The future is going to be all about modular solutions," said Newsha Ajami, a researcher at Berkeley Lab's Earth & Environmental Sciences Area.

Instead of relying on water pumped from hundreds of miles (km) away, through the State Water Project or the Colorado River, the South Coast Water District would now have its own water supply.

"We're watching what's happening at the Colorado River, and it's not good," said Rick Shintaku, general manager of the South Coast Water District, referring to the extreme drought that may force cutbacks of 15% to 30% for Californians and other Colorado River users. "Desalination could be part of that solution for water reliability for a broad region."

The project still requires other state permits but the Coastal Commission was seen as the most significant regulatory hurdle.

The proposed site is 25 miles (40 km) down the coast from where the Coastal Commission rejected a larger proposal by Poseidon Water, the infrastructure arm of Canada's Brookfield Asset Management (BAMa.TO).

Environmental groups that led the protests against the Poseidon plant were largely silent this time. Opponents including several Sierra Club activists spoke against the Doheny project at Thursday's hearing, concerned about the impact on marine life and the amount of energy required to pump ocean water through the plant's reverse osmosis filters.

The Coastal Commission staff found that the proposal minimized the harmful impacts and recommended approval.

Poseidon's plant would have sucked in massive amounts of water from above the ocean floor, killing sea life, according to Coastal Commission assessments. The Doheny plant will use a sub-surface intake that creates a barely perceptible current.

At Doheny, the brine that results from desalination will be mingled with the discharge of a neighboring wastewater treatment plant, mitigating the harmful effects of having two diffusers pumping effluent into the sea.

Tom Luster, a senior environmental scientist on the Coastal Commission staff, said the state is studying locations where similar plants might be feasible.

"This could be replicated at a number of places up and down the coast," Luster said. "It's a fairly small-scale facility, but it provides for the local needs and it frees up water for other communities."

Reporting by Daniel Trotta; editing by Donna Bryson, Raju Gopalakrishnan and Diane Craft