

Veles Water Weekly Report

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October 10th 2024

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VelesWater



WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell

CLICK THE LINK BELOW

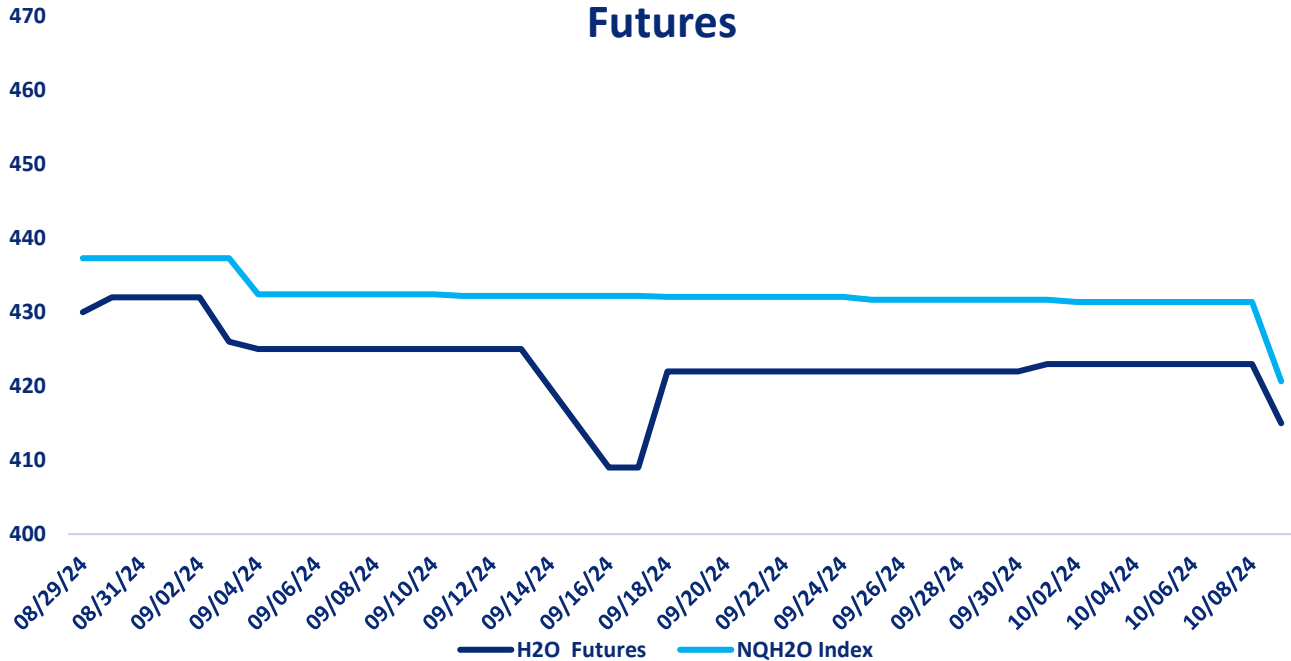
“A 2 minute technical analysis video of H2O futures”

<https://vimeo.com/1018200675?share=copy#t=0>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

1 Month Price Performance NQH2O Index vs H2O Futures



Price Chart Based upon Daily Close

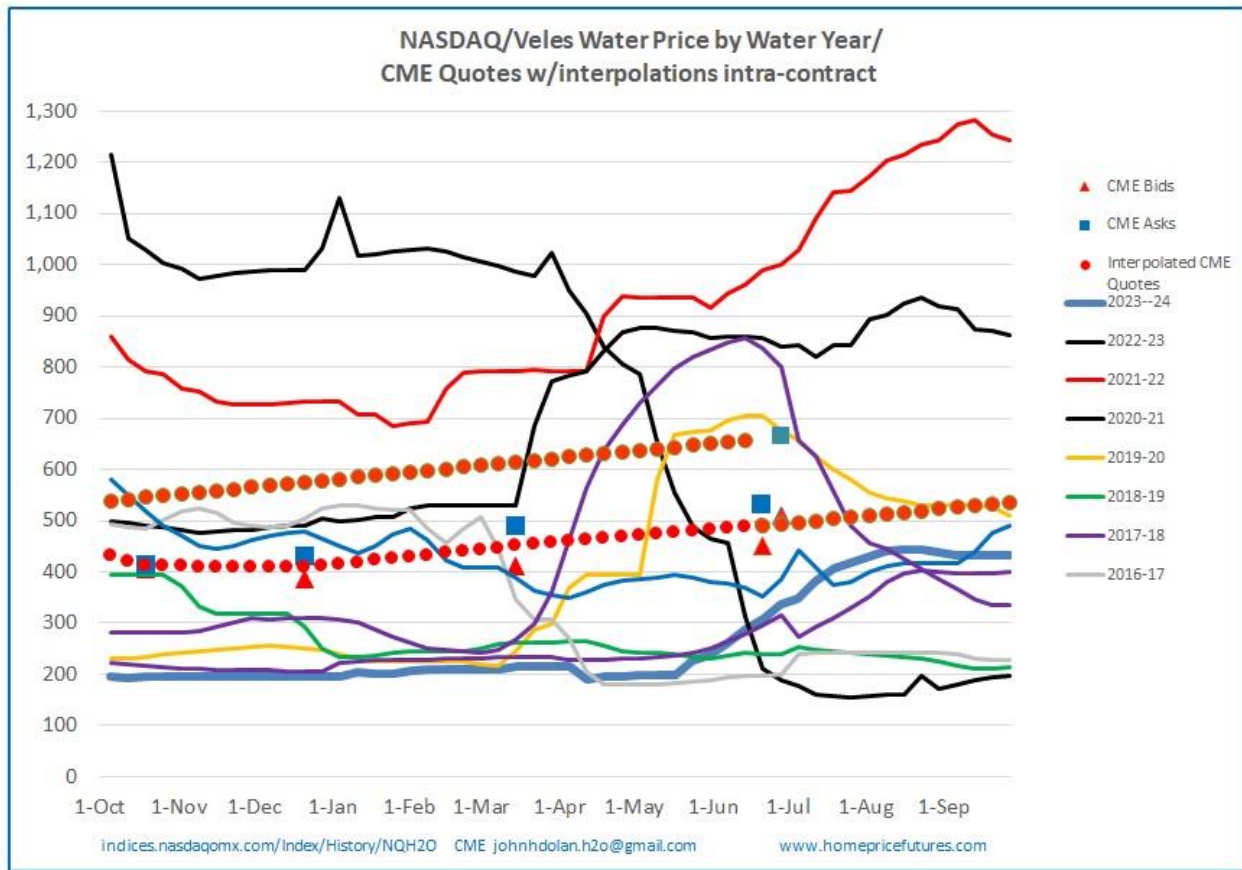
The new NQH2O index level of \$420.65 was published on October 9th down \$10.72 or 2.49% from the previous week. The October contract is considered the front month. The futures prices have closed at a discount of \$8.37 to \$9.69 versus the index over the past week.

Below are the bid offer prices on different expiries being quoted in the market.

Oct 24	407@415
Nov 24	385@425
Dec 24	385@430
Mar 25	410@490
June 25	450@530
June 26	510@665



NQH20 INDEX HISTORY



The graph above shows the CME water contracts for October 2024, November 2024, Dec 2024, March 2025, June 2025 and June 2026 superimposed over historical NASDAQ Veles water indices. The interpolated curves for 2024-25 and 2025-26 (to include June 2026 contract) are shown in red dots.

(John H Dolan, CME Market Maker)



H2O FUTURES TECHNICAL REPORT



Price Action

- **Current Price:** 415
- The price has decreased by 1.89% in this trading session, indicating bearish momentum.

Moving Averages (MA) Analysis

- **MA 5 (5-day Moving Average): 421**
 - The current price is below the MA 5, indicating short-term bearish momentum.
- **MA 10 (10-day Moving Average): 422**
 - The price is also below the MA 10, suggesting continued bearish momentum in the short term.
- **MA 20 (20-day Moving Average): 421**
 - The price is sitting below the MA 20, indicating short-term weakness.
- **MA 30 (30-day Moving Average): 423**
 - The price is below the MA 30, which signals medium-term bearish momentum.
- **MA 100 (100-day Moving Average): 397**
 - The price remains above the MA 100, confirming that the long-term trend is still bullish, despite the recent short-term weakness.



- **MA 120 (120-day Moving Average): 366**
 - The price is well above the MA 120, further confirming the long-term bullish trend.

Support and Resistance

- **Immediate Resistance: 500**
 - This level has been tested several times and remains a key resistance point for a breakout.
- **Immediate Support: 415 (current price level)**
 - The current price may act as support, but if it breaks below this level, the next significant support would be around the MA 100 at 397.

Stochastic Oscillator

- **Stochastic (K%: 66.67, D%: 66.67)**
 - The stochastic indicator shows that the market is moving out of overbought territory, suggesting that the market could face short-term downward pressure or consolidation.

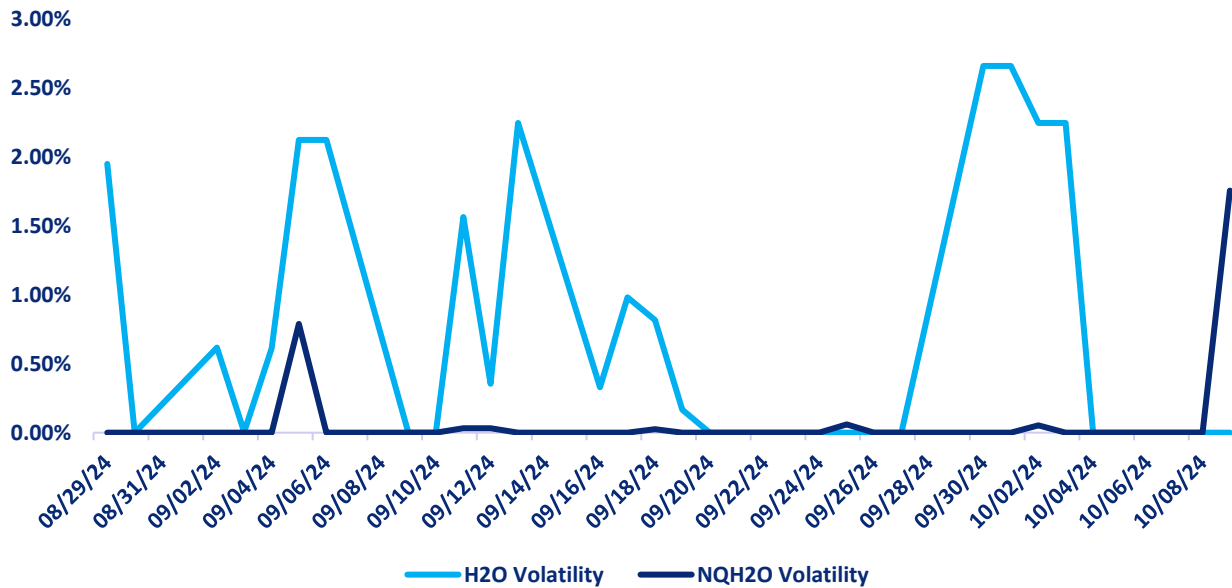
Summary

- The price is currently experiencing short-term bearish momentum, sitting below the MA 5, MA 10, and MA 20, with medium-term weakness indicated by the price also being below the MA 30.
- Despite this, the long-term trend remains positive, as the price is still well above the MA 100 and MA 120.
- The stochastic indicator suggests downward pressure, indicating the potential for further weakness or consolidation.
- Key levels to watch: Immediate support at 415 and resistance at 500. If the price continues to fall, support around the MA 100 at 397 should be closely monitored.



H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



DAILY VOLATILITY

Over the last week the October contract daily future volatility has been 1.74%.

ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	28.50%	3.79%	2.78%	2.41%
H2O FUTURES	N/A	7.20%	5.40%	1.89%

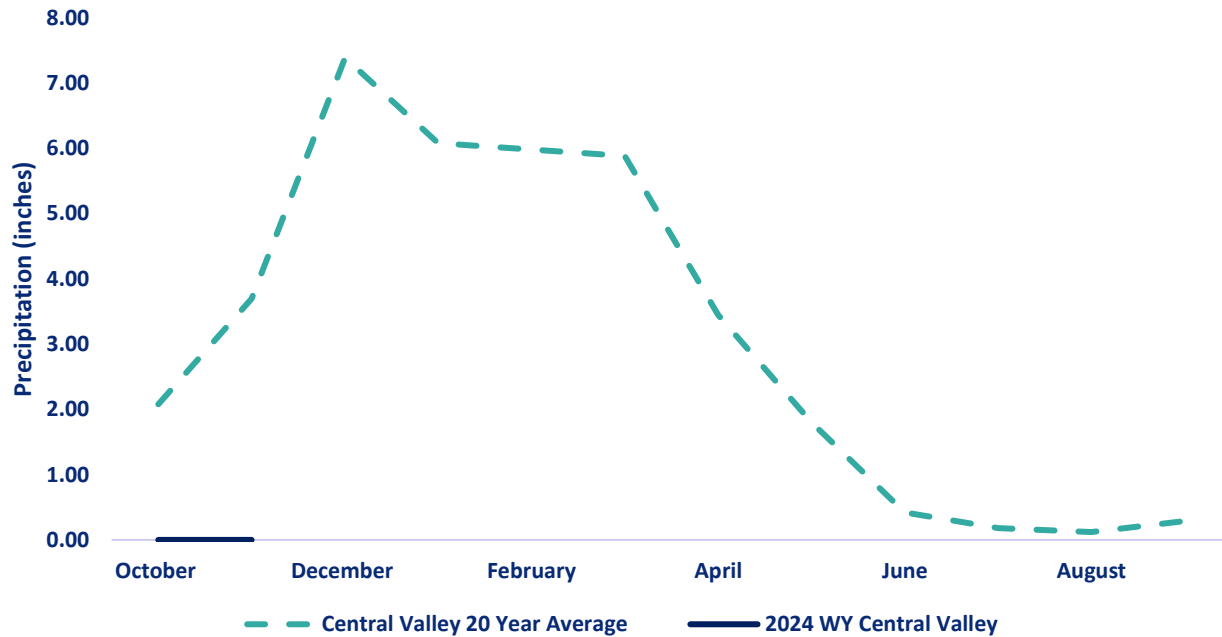
For the week ending on October 9th, the two-month futures volatility is at a premium of 3.41% to the index, up 0.32% from the previous week. The one-month futures volatility is at a premium of 5.83% to the index, down 3.21% The one-week futures volatility is at a discount of 0.52% to the index, volatility.

*Above prices are all **HISTORIC VOLATILITIES**. All readings refer to closing prices as quoted by CME.*



CENTRAL VALLEY PRECIPITATION REPORT

Central Valley Precipitation Index



Central Valley average is calculated using data from 19 weather stations in the Central Valley, California.
Data as of 09/10/2024

STATION	MTD (INCHES)	WEEK ON WEEK CHANGE (INCHES)	% OF 20 YEAR AVERAGE MTD	2025 WYTD VS 2024 WYTD %	2025 WY VS 20 YEAR AVERAGE TO DATE %
SAN JOAQUIN 5 STATION (5SI)	0	0.00	0.00%	0	0
TULARE 6 STATION (6SI)	0	0.00	0.00%	0	0
NORTHERN SIERRA 8 STATION (8SI)	0	0.00	0.00%	0	0
CENTRAL VALLEY AVERAGE	0.00	0.00	0.00%	0	0

RESERVOIR STORAGE

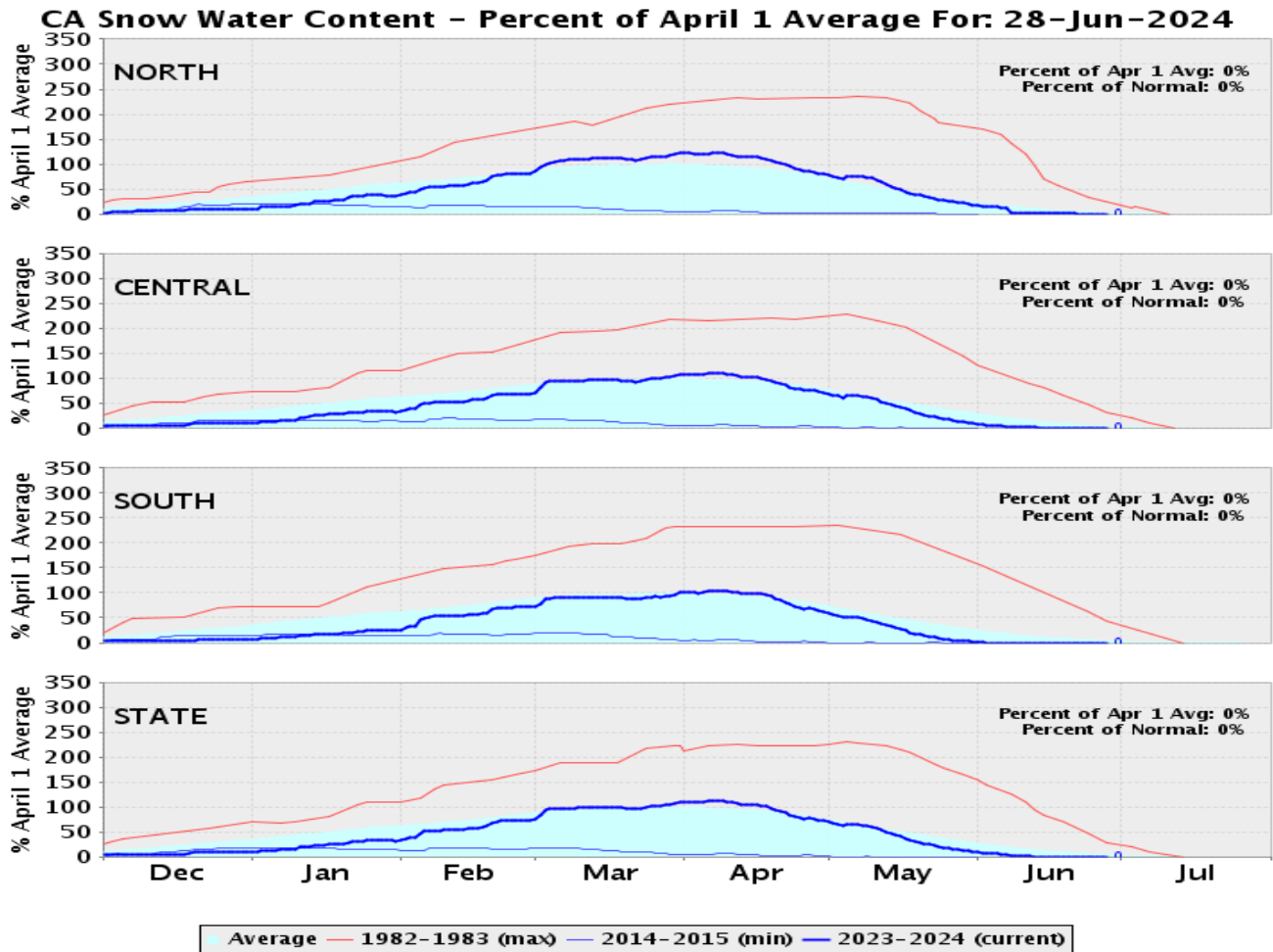
RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	*% HISTORICAL AVERAGE
TRINITY LAKE	1,695,861	70	52	115
SHASTA LAKE	2,727,096	60	72	109
LAKE OROVILLE	1,834,403	52	72	97
SAN LUIS RES	1,048,690	51	80	119

*% Historical Average is based on a daily average that is interpolated from historical monthly averages. The monthly averages are computed using monthly data from water year 1991 to 2020. The monthly averages are updated every 5 years using a sliding 30 year period.

[Reference: California Water Data Exchange](#)



SNOWPACK WATER CONTENT



REGION	*SNOWPACK WATER EQUIVALENT (INCHES)	WEEK ON WEEK CHANGE (INCHES)	% OF AVERAGE LAST YEAR	% OF 20 YEAR HISTORICAL AVERAGE	% OF HISTORICAL **APRIL 1ST BENCHMARK
NORTHERN SIERRA	0	0	0	0	0
CENTRAL SIERRA	0	0	0	0	0
SOUTHERN SIERRA	0	0	0	0	0
STATEWIDE	0	0	0	0	0

*Snow Water Equivalent, or SWE, is a commonly used measurement used by hydrologists and water managers to gauge the amount of liquid water contained within the snowpack. In other words, it is the amount of water that will be released from the snowpack when it melts. SWE has regional variance.

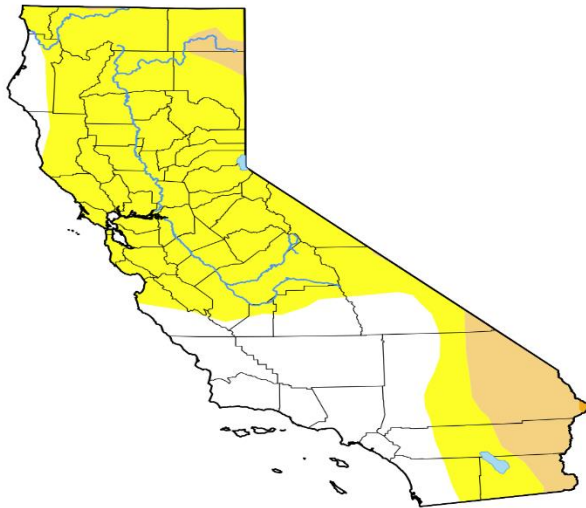
** April 1st is used as the benchmark as it when the snowpack in California is generally deepest. It has been used the benchmark date since 1941 by DWR and can be used to predict spring river flow.



DROUGHT MONITOR

California

[Home](#) / California



Map released: Thurs. October 3, 2024

Data valid: October 1, 2024 at 8 a.m. EDT

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Authors

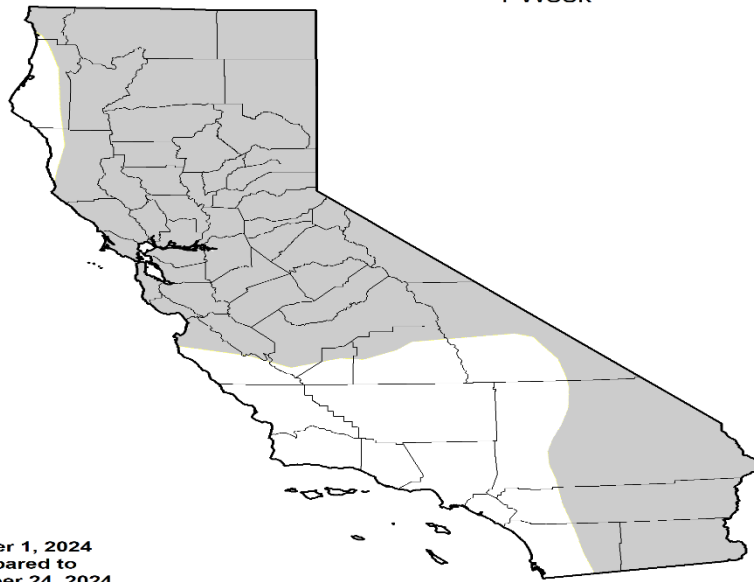
United States and Puerto Rico Author(s):

[Richard Tinker](#), NOAA/NWS/NCEP/CPC

Pacific Islands and Virgin Islands Author(s):

[Denise Gutzmer](#), National Drought Mitigation Center

U.S. Drought Monitor Class Change - California 1 Week



October 1, 2024
compared to
September 24, 2024



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

droughtmonitor.unl.edu

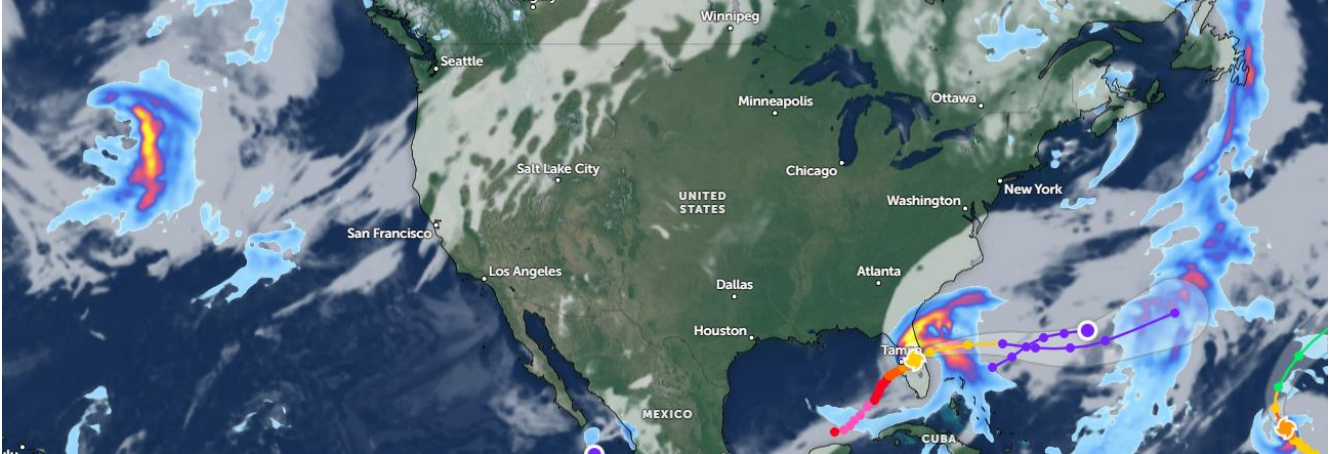
Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	2024-10-01	28.40	71.60	10.67	0.08	0.00	0.00	82
Last Week to Current	2024-09-24	28.59	71.41	10.67	0.08	0.00	0.00	82
3 Months Ago to Current	2024-07-02	94.25	5.75	0.00	0.00	0.00	0.00	6
Start of Calendar Year to Current	2023-12-26	96.65	3.35	0.00	0.00	0.00	0.00	3
Start of Water Year to Current	2024-10-01	28.40	71.60	10.67	0.08	0.00	0.00	82
One Year Ago to Current	2023-10-03	94.01	5.99	0.07	0.00	0.00	0.00	6

The U.S Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map courtesy of NDMC.



CURRENT SATELLITE IMAGERY

The satellite picture shows a Pacific storm moving some light moisture in the northern west coast and interior. But all eyes are on Hurricane Milton over the Florida peninsula wreaking havoc in its path.

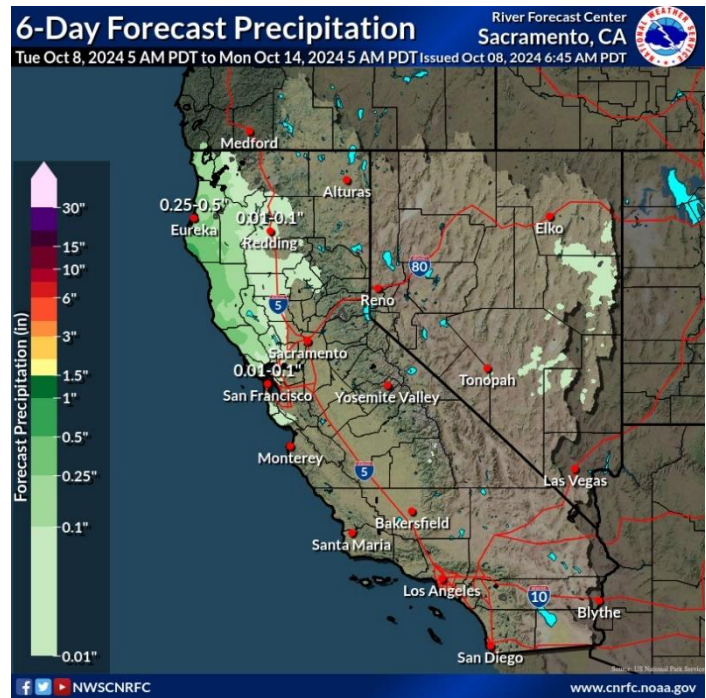


10 Day Outlook

By Fri into Sat, expect an upper low to approach the coast near northern CA and OR. Models exhibit a good deal of uncertainty regarding precipitation timing and location during this time period. The most likely area of precipitation appears to be NW CA, with the potential for precipitation across other portions of northern CA into NV. Many model members show either light precipitation or dry conditions, although a few members are wetter, especially in the CMC ensembles. Our latest forecast reflects the NBM available earlier this morning through around Sat (slower/further west than WPC) and a blend of WPC and NBM later on.

The latest NBM is slower and dry than the previous, which seems in good agreement with the latest guidance. Freezing levels are currently forecast to remain above 10,000 ft with any precipitation.

Map Ref: Zoom Earth



Reference: National Weather Service / California Nevada RFC / Sacramento CA



WESTERN WEATHER DISCUSSION

Some of the higher elevations in Washington recorded 1.0 to locally 2.5 inches of rain while a few tenths of an inch were measured in other parts of the Northwest from the Cascades to the Pacific Coast, and in portions of northern Idaho and northwestern Montana. However, most of the West was very warm and free from any measurable precipitation. A few areas in Utah saw conditions noticeably deteriorate this past week, but no other degradations took place. Some D0 and D1 areas were actually scaled back in central and northwestern Montana despite the warm and dry week due to a few rounds of heavy precipitation in late August and September, which has continued to have a positive impact on soil moisture, vegetative health, and 1- to 4-month precipitation anomalies. Elsewhere, conditions are unchanged from last week. Low relative humidity, high temperatures, and gusty winds continue to produce periods of extreme fire danger, and supplemental feeding and watering of livestock has been common in eastern Montana. With the Southwest monsoon season ending and the wet season in the West not yet underway, drought tends to progress slowly in the region this time of year.

Reference:

Lindsay Johnson, National Drought Mitigation Center
Richard Tinker, NOAA/NWS/NCEP/CPC



WATER NEWS

CALIFORNIA WATER NEWS

‘Dirty Delta’: California’s largest estuary is in crisis. Is the state discriminating against people who fish there?

More than two dozen fishing rods were braced against the railing of San Francisco’s Pier 7, their lines dangling into the Bay. People chatted on the benches, shouting in Cantonese and leaping up when one of the rods bent or jiggled. One after another, the men and women at the end of the pier reeled in striped bass as long as an arm, and even thicker. But not King Lee, a 72-year-old retired janitor who takes the bus to the pier almost every day. It had been 10 days since he had last caught anything worth eating. “Lucky, lucky, lucky guy,” Lee said, watching an angler reeling in a thrashing fish. “Today, I got nothing. I hope, later, I get one like this.”

To a retiree living in one of the most expensive cities in the world, a good catch from the San Francisco Bay means a meal shared with family and friends — deep fried smelt or steamed striped bass with a cold beer. When the fishing is bad, dinner is rice and vegetables on most days, with maybe a little store-bought meat or fish.

Fishing “is my main job now,” said Lee, who immigrated from Hong Kong more than 40 years ago. “Here, a lot of people do the same thing. Not much money.”

From the Bay Area to Sacramento and Stockton, from Fresno to north of Redding, Californians — particularly low-income immigrants from Asian countries and other people of color — rely on the San Francisco Bay and the rivers that feed it for food. But the vast watershed is in trouble, plagued by low flows, algal blooms, urban and farm runoff and a legacy of mercury contamination that dates back to the Gold Rush.

The U.S. Environmental Protection Agency is now investigating claims that California’s management of the state’s largest estuary has “discriminated on the basis of race, color and national origin” with “its failure to update Bay-Delta water quality standards,” which involve how much water is diverted to cities and farms.

The investigation also includes allegations that the State Water Resources Control Board “has intentionally excluded tribes and Black, Asian and Latino residents from participation in the policymaking process.”

Filed by environmental justice groups and tribes, the discrimination complaint accuses the state water board of allowing the “waterways to descend into ecological crisis, with the resulting environmental burdens falling most heavily on Native tribes and other communities of color.” Water board officials wouldn’t comment on specifics, but said it is giving the EPA “relevant information to demonstrate its compliance with all civil rights laws.”



VELES WATER WEEKLY REPORT

First: Angler Derrick Hines fishes from a pier on the San Joaquin River in Antioch. He fishes there four days a week. Last: Angler Allison Kerlegan fishes near Paradise Point on the Delta, northeast of downtown Stockton. Photos by Loren Elliott for CalMatters
No one tallies how many people rely on Bay-Delta fish to eat, but the region has popular sport fisheries for striped bass, catfish and other fish. About 377,000 anglers from the Bay Area and Delta region are licensed to fish in California, according to California Department of Fish and Wildlife data.

About 90% of people surveyed in low-income communities of color in the Sacramento-San Joaquin Delta region reported that they eat locally caught fish four or more days per week. “This suggests that subsistence fishing plays a central role in (their) lives,” the 2021 report produced for the California Department of Water Resources says.

In addition to the Delta fish declines caused by water diversions, people of color are disproportionately harmed by contamination of the fish they eat.

Poisons have been polluting the Bay-Delta and its fish for generations. Mercury from gold mining nearly 200 years ago contaminates the sediments. Industrial chemicals past and present linger in the waterways. And a confluence of stagnation, warming waters and discharges from farms and cities foster stinking, sometimes toxic algal blooms.

African American, Lao and Vietnamese anglers who fish in the Delta ingest excessive amounts of mercury, much higher than the U.S. EPA recommends, according to a 2010 UC Davis study. Southeast Asians ate the most locally caught fish, followed by African American and Hispanic anglers.

“A whole generation of subsistence fishing families have already been exposed to harmful amounts of mercury and other poisons,” wrote Fraser Shilling, the study’s co-author who now directs the UC Davis’ Road Ecology Center.

Original Article: [Cal Matters by Rachel Becker](#)

Whether pumping cuts come from state or locals, cuts are coming to Tulare County farmers

Water managers in two Tulare County groundwater agencies are scrambling to keep their farmers out of state clutches as much as possible, even knowing the solution will be painful.

“As long as we don’t saddle our landowners with another fee and a report to fill out, that’s our goal,” said attorney Alex Peltzer, who represents Lower Tule River Irrigation District and Pixley groundwater sustainability agencies. “That is our attitude and it is doable. It’s going to be unpopular and tough to do, but it’s possible. We think we can help manage landowners into a soft landing.”

The only way to get there, though, is to significantly reduce pumping – and fast.



VELES WATER WEEKLY REPORT

The state Water Resources Control Board gave the two GSAs 60 days starting Sept. 17 to come up with a plan that proves to them farmers are making strides to stop subsidence, land sinking, and causing damage to drinking water wells from lowering the water table and worsening water quality.

Probation exclusions

The goal is to have farmers in those GSAs excluded from onerous well registration, metering and reporting requirements as well as pumping fees.

Farmers in most of the rest of the region, known as the Tule subbasin, will have to face those state measures after the Water Board placed the subbasin on probation Sept. 17. Under probation, water managers will work with Water Board staff for the next year to develop a cohesive plan to bring the region into sustainability by 2040. If they can't come up with a plan, the Water Board will step in and dictate pumping allotments under an "interim plan."

The board had already excluded the Delano-Earlimart Irrigation District and Kern-Tulare Water District GSAs from the reporting and fees measures as staff had determined those agencies were well on the path to sustainability. Board members weren't totally convinced Lower Tule/Pixley's groundwater plan would address problems in the subbasin but gave them time to make their case.

"We believe we have addressed the deficiencies and have a plan that gets us to sustainability," said Eric Limas, general manager of both Lower Tule and Pixley GSAs, located in the southern portion of Tulare County's flatlands. "It minimizes and mitigates impacts until then."

The process is being closely watched by landowners, managers and drinking water advocates.

One knob to turn

If Lower Tule/Pixley's bids are successful, management will stay at a local level, which leaders say is imperative to maintaining trust built with farmers and community members since 2014, when SGMA was made law.

"Working within the district and its resources is the best scenario for landowners," Limas said. "If the state comes in with an interim plan, we don't have a surface water supply or the ability to implement a fallowing program.

"In my mind, the state has one knob to turn and that is to reduce pumping and reduce it until it works. That's the only tool they have."

That's also the main tool for the GSAs, but with a strategic focus on deep pumping.

"All the data we got from the experts is that deep pumping has the biggest contribution to subsidence," Limas said, who added that the GSAs' subsidence management plan works with landowners to reduce pumping quickly in subsidence "hot spots."

Those growers face disparate impacts from the GSAs' policies and managers will offer land repurposing programs and provisions of surface water where possible.



VELES WATER WEEKLY REPORT

The cumulative effect of multi-year droughts, reduced surface water deliveries and deep aquifer pumping is what managers are dealing with now.

“We went off the rails on subsidence when we were chasing water in 2014 and 2015,” Peltzer said. “Everyone was going deeper with their wells. There’s a consequence to that and it turns out to be subsidence. And you can’t recover from that. Recharge is not going to fix it because it takes too long to get to the lower aquifer.”

Overall, “transitional pumping” allocations (quantities that are more than what’s sustainable) in the GSAs were cut by half, according to letters sent to the Water Board seeking exclusion from reporting and fee requirements.

Farmers are currently allowed 2 acre feet of transitional pumping per acre, per year. That drops to .75 acre feet in 2025; then .5 acre feet in 2030; then .25 acre feet in 2035; and 0 by 2040.

GSA managers have also committed to reconsidering transitional pumping allocations annually, or more frequently, if necessary instead of keeping allocations for five-year blocks.

The cuts have been painful for farmers.

“That’s what I’m hearing about from growers,” Limas said. “Compared to how we were managing pumping, this is drastically different at the landowner level.”

State oversight crucial for residents

But drinking water advocates are leery of GSAs seeking exclusions from state reporting requirements.

“I just don’t agree with Pixley and Lower Tule asking the state board to review their case and speed up the process,” said Tien Tran, senior policy advocate at Community Water Center. “They are contributing to overpumping, subsidence and domestic well impacts.”

Tran pointed to the numerous residents who testified at the Sept. 17 probationary hearing who battle rising rates from their community’s small water systems. The water coming into their homes is often contaminated with nitrates or other constituents.

“That’s one example of where the GSAs need to evaluate demand management so that these drinking water users are not paying the price,” she said.

She also pointed out that the entire Tule subbasin can do a better job of working with residents.

“Overall the subbasin needs to come up with a targeted plan of how to do outreach to domestic well users and pair it with mitigation resources,” she said. “The events that do happen are one-offs, and are not consistent. One community fair a year is not enough. There has to be real effort.”

Original Article: [SJV Water by Lisa McEwen](#)



S.F. is at war over an environmental case headed to the Supreme Court

As San Francisco prepares to ask the Supreme Court to ease federal restrictions on sewage pollution into the ocean and the bay, the case has divided the city's all-Democratic leadership, and put the city in the unusual position of siding with oil companies and business groups and against the state and federal governments.

The Board of Supervisors will take up a resolution Tuesday urging city officials to settle the case and avoid a ruling that could harm offshore water quality nationwide.

San Francisco is siding with "the nation's biggest polluters" in a lawsuit that "has the potential to seriously destabilize Clean Water Act protections at a time when environmental protections are already under serious threat," said the resolution by Supervisors Myrna Melgar and Aaron Peskin.

The "biggest polluters" was a reference to the city's industry allies in the case, including the National Mining Association, the American Petroleum Institute, the National Association of Manufacturers and the U.S. Chamber of Commerce. They argued in a court filing that the Environmental Protection Agency pollution standards that San Francisco is challenging could undermine more than 330,000 offshore water discharge permits.

The supervisors' vote comes only eight days before the scheduled Supreme Court hearing. Over the opposition of the EPA and major environmental groups such as the Sierra Club and the Natural Resources Defense Council, the city contends it is responsible only for the pollutants its sewage-treatment plants discharge into offshore waters, and not for the quality of the waters themselves.

Melgar, whose district includes the Oceanside Water Pollution Control Plant, said Monday she has support from a majority of the supervisors, including the board's Land Use and Transportation Committee, which approved the resolution Monday. One supervisor she doesn't have is Matt Dorsey, who denounced the proposal at a news conference.

The resolution "seeks to actively undermine our City's litigation position, and to betray the legal interests of San Franciscans themselves," Dorsey said. He quoted City Attorney David Chiu's statement Friday that a ruling in the EPA's favor could lead to "high utility rates that would drive many into poverty."

Peskin, a candidate for mayor, fired back, saying San Francisco's lawsuit "will not save the city a dime. If anything, the mayor, the city attorney and the PUC's climate denialism will actually cost the city more in red tape and delays, while collaborating with the Trump-appointed Supreme Court to erode our environmental law."

Chiu's spokesperson, Jen Kwart, said Monday that city officials will proceed with the case even if a majority of the supervisors disagree.



“We wish we were not at this point, and it is regrettably a last resort,” Kwart said in a statement. She said San Francisco “remains eager to cooperate with EPA” and tried unsuccessfully to settle the case through mediation in 2021 before going ahead with its suit.

But Melgar, lead author of the resolution, said she had been discussing a potential settlement of the case for months with Chiu and the city’s Public Utilities Commission, and was told only recently that the case would not be settled. Melgar said she feared the court “will do for the Clean Water Act what this same Supreme Court has done for abortion rights and clean air.”

The court agreed in May to hear San Francisco’s appeal of a ruling that found the city was failing to adequately protect swimmers and bathers from discharges of sewage. The ruling, due by next June, will determine whether local governments can be penalized for pollution near their shores, or whether — as they contend — the law requires them only to limit contaminants to levels set in advance, like specific discharges per million parts of water.

San Francisco is appealing an EPA order, first proposed under President Barack Obama and issued in 2019 under President Donald Trump, that found the city was failing to prevent dangerous pollution by bacteria and other contaminants that flowed through its Oceanside Water Pollution Control Plant.

Original Article: [San Fransico Chronicle by Bob Egelko](#)

Jacobs secures 10-year contract for California water facility

Engineering firm Jacobs (NYSE:J) has announced securing a decade-long contract to operate and maintain a new advanced water purification facility for the Soquel Creek Water District (SqCWD) in Santa Cruz County, California. This facility is a key component of the SqCWD's Pure Water Soquel program, aimed at replenishing the Santa Cruz Mid-County Groundwater Basin and preventing seawater intrusion.

The contract, which extends Jacobs' involvement with the project since 2020, involves the use of their Digital OneWater solutions to optimize the plant's performance. These solutions employ predictive analytics, machine learning, and operational cybersecurity to improve efficiency and mitigate risk. The facility itself utilizes a three-step treatment process, including ultrafiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide, to treat municipal secondary effluent. This process not only provides sustainable drinking water but also aims to reduce ocean discharge by up to 25%.

Jacobs' Vice President Greg Fischer highlighted the importance of such water reuse programs in the face of climate change-induced water security threats. The company's advanced digital twin of the facility will also simulate operational scenarios to minimize energy and chemical use.



VELES WATER WEEKLY REPORT

SqCWD General Manager Melanie Mow Schumacher expressed confidence in Jacobs' role in the operational phase of the facility, which had its ribbon cutting this fall. She emphasized the significance of the Pure Water Soquel program for local and regional water supply challenges.

Jacobs, with a team of approximately 45,000, offers end-to-end services across various sectors, including water. The company is involved in several critical infrastructure projects in California, such as the Pure Water Project for Las Virgenes-Triunfo, the Alliance for Renewable Clean Hydrogen Energy Systems, and the Port of San Francisco Waterfront Resilience Program, among others.

In other recent news, Jacobs Solutions has been making significant strides in its operations. The company has secured a five-year contract with Lincoln-Sewer Management District 1 Wastewater Authority in California, focusing on enhancing wastewater services for over 74,000 residents. Concurrently, Jacobs has finalized a strategic corporate restructuring involving a spin-off and merger with Amentum Holdings, receiving a cash payment of approximately \$0.9 billion.

The company has also been chosen to modernize three Long Island Rail Road stations, a project valued at \$227.5 million. In addition, Jacobs has seen several leadership changes, including the appointment of Michael Collins from Bain & Company to its Board of Directors, with CEO Bob Pragada taking on the additional role of Chair of the Board.

In response to these developments, RBC Capital has upgraded Jacobs Engineering (NYSE:J)'s stock target. Lastly, Jacobs Solutions reported an 11% year-over-year increase in adjusted earnings per share and a 6% rise in consolidated backlog, indicating a strategic move towards a higher-value, higher-margin portfolio. These are the latest developments in Jacobs Solutions' ongoing operations.

Original Article: [Investing.com](https://www.investing.com)



US WATER NEWS

Expert says Helene was ‘most extreme erosion event’ locally

Hurricane Helene has reshaped the Gulf Coast. The United States Geological Survey said erosion is to blame.

Kara Doran is a scientist at the USGS in St. Petersburg. She said sand dunes are essential in preventing beach erosion and are a crucial component in protecting communities from high storm surges.

“Areas with nice, high, wide sand dunes are protected from a lot of the effects of the storm,” Doran said. “Because as those water levels rise and the large waves come in they’re gonna impact the dune first and the dune can absorb a lot of that wave energy.” They provide protection and allow for beach renourishment to occur at a faster rate. Doran said without human intervention, it would take Mother Nature years or even a decade to return beaches to their natural states.

“Communities don’t want to wait that long for that process to take place,” she said. “So working with human intervention and engineering can bring that sand back to the beach (and) can rebuild the dunes.”

Dunes are also the first line of defense in protecting infrastructure from high water levels.

When they are substantially eroded, inland structures are exposed to storm surge and waves. On barrier islands, the absence of dunes has the potential to increase storm surge, according to a USGS study.

Helene’s storm surge brought the highest water levels ever recorded in Clearwater and St. Pete, Doran said. It exposed flood water to many communities that had never seen it before.

Regardless, Doran said Helene is making some areas rethink how to manage its coastlines.

“I think in my time at the USGS, it’s definitely the most extreme erosion event that we have seen locally for sure,” Doran said.

In the future Doran said she hopes to see more engineering with nature-based solutions. “Instead of building seawalls and putting rocks on the beach, there are more natural solutions such as building vegetated dunes,” she said.

While the total impacts of Helene have not been confirmed, the hurricane moved a large amount of sand from the beach.

“When a beach is overwashed, sand can be pushed and deposited inland, causing significant changes to coastal landscapes and blocking roadways. Overwash can reduce the height of protective sand dunes, alter beach profiles, and leave areas behind the dunes more vulnerable to future storms,” a press release from USGS said.

Original Article: [WMNF/ Florida Public Radio by Lia Marsee](#)



Correlation analysis of groundwater and hydrologic data, Kaloko-Honokōhau National Historical Park, Hawai'i

Designated in 1978, Kaloko-Honokōhau National Historical Park is located on the west coast of the Island of Hawai'i. The Kaloko-Honokōhau National Historical Park encompasses about 1,200 acres of coastal land and nearshore ecosystems, which include wetlands, anchialine pools (landlocked bodies of brackish water with hydrologic connections to the ocean), fishponds, a fishtrap, and coral reefs. These nearshore ecosystems are dependent on groundwater discharge with a freshwater component and provide habitat for threatened and endangered, endemic species, such as the orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*) and the Hawaiian coot ('Alae ke'oke'o, *Fulica alai*). The populations of these native species, however, are threatened because of habitat loss related to urban development and environmental changes. Kaloko-Honokōhau National Historical Park is within the Keauhou aquifer system and the North Kona District, which experienced a 52 percent resident-population increase between 2000 and 2020 and a 41 percent visitor increase between 2008 and 2019. To support the current water demand associated with this growing population, groundwater is the primary source of freshwater used in the North Kona District, with about 15 million gallons of groundwater withdrawn from the Keauhou aquifer system per day since 2009. With anticipated development, future (2015–35) groundwater withdrawal from the Keauhou aquifer system is projected to be about 55 percent greater than recent (2012–14) withdrawal. Because Kaloko-Honokōhau National Historical Park is located within a coastal aquifer, natural and human-induced changes can affect the quality and quantity of groundwater, which can threaten groundwater-dependent ecosystems.

To improve understanding of recent groundwater conditions, the U.S. Geological Survey, in cooperation with the National Park Service, undertook this study to document correlations between hydrologic time-series datasets from sites in and near Kaloko-Honokōhau National Historical Park using the nonparametric (distribution-free) Kendall's tau statistical test.

For the statistical analyses, dependent variables representing the groundwater system include groundwater level, the groundwater-level difference between pairs of sites, and specific conductance, and independent variables include datasets of sea level, rainfall, and groundwater withdrawal. About 34 percent of the 140 non-time-lagged Kendall's tau statistical tests evaluated in this report are statistically significant ($p\text{-value} \leq 0.050$) with generally weak ($0.1 \leq \text{tau} \leq 0.2$) to moderate ($0.2 \leq \text{tau} \leq 0.3$) correlations. Groundwater levels measured at monitoring sites have the strongest correlation with the multivariate El Niño–Southern Oscillation index and withdrawal from production wells at the nearby Kohanaiki Private Club Community. Specific conductance is not



consistently and significantly correlated with the independent hydrologic variables investigated in this report.

Because the relations between hydrologic variables are commonly not instantaneous, a second set of correlations was evaluated after applying a range of time lags to the independent variable datasets. Relative to the non-time-lagged case (the set of correlations that did not use time-lagged independent variables), some of the time-lagged independent variables improved correlations with some of the dependent variables. For a particular independent variable, similar time lags were expected between the independent variable and dependent variable at all four monitoring sites. However, different time lags among the four sites sometimes produced the strongest correlations.

This study identified several correlations that are statistically significant and hydrologically plausible, but the correlations could indicate that multiple concurrent factors are controlling the observed groundwater-system response, which might be better addressed using multivariate analyses. This study only investigates bivariate correlations, which may not explain all the variance in the data. The correlations analyzed in this report are limited by the quantity of available hydrologic data in the area near Kaloko-Honokōhau National Historical Park and are based on 14 years of time-series data, which were aggregated to a relatively coarse monthly temporal resolution that represents the minimum resolution common to all datasets.

Original Article: [USGS by Brytne K. Okuhata, Delwyn S. Oki](#)

Biden sets 10-year deadline for US cities to replace lead pipes nationwide

A decade after the Flint, Michigan, water crisis raised alarms about the continuing dangers of lead in tap water, President Joe Biden on Tuesday set a 10-year deadline for cities across the nation to replace their lead pipes, finalizing an aggressive approach aimed at ensuring that drinking water is safe for all Americans.

Biden announced the final Environmental Protection Agency rule during a visit to the swing state of Wisconsin in the final month of a tight presidential campaign. The announcement highlights an issue — safe drinking water — that Kamala Harris has prioritized as vice president and during her presidential campaign. The new rule supplants a looser standard set by former President Donald Trump’s administration that did not include a universal requirement to replace lead pipes.

“Folks, what is a government for if it cannot protect the public health?” Biden asked a crowd of union members at a cavernous Department of Public Works warehouse in Milwaukee. The city has the fifth-highest number of lead pipes in the nation, according to the EPA.

Decades after the dangers of lead pipes were clear, more than 9 million lead pipes remain in use, a fact Biden called shameful.



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“We’re finally addressing an issue that should’ve been addressed a long time ago in this country,” he said. “We are showing up as a partner to get it done.”

EPA Administrator Michael Regan said Milwaukee is one of many cities across the country taking steps to remove lead pipes from their drinking water. Officials are using money from the federal infrastructure law to accelerate lead-pipe replacement work and meet a goal to remove all lead pipes within 10 years, down from an initial 60-year timeframe.

“Everyone wants this lead out,” Regan told reporters. “The science has been clear for decades — there is no safe level of lead in our drinking water.”

The new EPA rule is the strongest overhaul of lead-in-water standards in roughly three decades. Lead, a heavy metal used in pipes, paints, ammunition and many other products, is a neurotoxin that can cause a range of disorders from behavioral problems to brain damage. Lead lowers IQ scores in children, stunts their development and increases blood pressure in adults.

The EPA estimates the stricter standard will prevent up to 900,000 infants from having low birth weight and avoid up to 1,500 premature deaths a year from heart disease.

Cities across the U.S. will have a 10-year deadline to replace lead pipes. AP correspondent Donna Warder reports.

The new regulation is stricter than one proposed last fall and requires water systems to ensure that lead concentrations do not exceed an “action level” of 10 parts per billion, down from 15 parts per billion under the current standard. If high lead levels are found, water systems must inform the public about ways to protect their health, including the use of water filters, and take action to reduce lead exposure while concurrently working to replace all lead pipes.

Lead pipes often impact low-income urban areas the most. They are most commonly found in older, industrial parts of the country, including major cities such as Chicago, Cleveland, New York, Detroit and Milwaukee. The rule also revises the way lead amounts are measured, which could significantly expand the number of cities and water systems that are found to have excessive levels of lead, the EPA said.

To help communities comply, the agency is making available an additional \$2.6 billion for drinking water infrastructure through the bipartisan infrastructure law. The agency also is awarding \$35 million in competitive grants for programs to reduce lead in drinking water.

The 10-year timeframe won’t start for three years, giving water utilities time to prepare. A limited number of cities with large volumes of lead pipes may be given a longer timeframe to meet the new standard.

Lead pipes can corrode and contaminate drinking water; removing them sharply reduces the chance of a crisis. In Flint, a change in the source of the city’s drinking water source more than a decade ago made it more corrosive, spiking lead levels in tap water. Flint



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was the highest-profile example among numerous cities that have struggled with stubbornly high levels of lead, including Newark, New Jersey, Benton Harbor, Michigan, and Washington, D.C.

The original lead and copper rule for drinking water was enacted by the EPA more than 30 years ago. The rules have significantly reduced lead in tap water but have included loopholes that allowed cities to take little action when lead levels rose too high.

“EPA’s action today is a leap forward in protecting the health of tens of millions of Americans from this scourge,” said Erik Olson, a health and food expert at the nonprofit Natural Resources Defense Council.

Actually getting the lead pipes out of the ground will be an enormous challenge, however. The infrastructure law approved in 2021 provided \$15 billion to help cities replace their lead pipes, but the total cost will be several times higher. The requirement also comes as the Biden administration proposes strict new drinking water standards for harmful “forever chemicals” called PFAS, or per- and polyfluoroalkyl substances. These standards will cost billions of dollars.

The American Water Works Association, which represents water utilities, said it supports EPA’s goals but warned that removal of lead pipes “poses cost challenges.” Ultimately, most of the costs will fall to consumers through higher water bills, said AWWA CEO David LaFrance.

Fifteen Republican attorneys general, led by Kris Kobach of Kansas, have criticized the EPA rule as “unworkable, underfunded and unnecessary.” The GOP officials said they are concerned that homeowners in some places might have to pay to replace pipe sections under their property – a requirement Kobach said Congress did not authorize. Federal grants worth billions of dollars will help communities replace their pipes, the EPA said, but cost decisions ultimately are up to local utilities.

Regan said the benefits of the rule far outweigh the costs. “We believe we’ve done it in a very strategic way — a legally sound way — supported by the science,” he said.

Another hurdle is finding the lead pipes. Initial pipe inventories are due this month, and many cities have said they don’t know what substances their pipes are made of. Without knowing their location, it is hard to efficiently replace them, according to Eric Schwartz, co-founder of BlueConduit, a company formed in response to the Flint crisis that helps cities find their lead pipes.

Avenel Joseph, interim executive vice president of the Robert Wood Johnson Foundation, called access to safe, affordable water a basic human right.

“For generations, lead exposure has silently robbed millions of children — especially those living in communities of color — of this right,” she said. “With this regulation in place, our country finally says: no more.”

Original Article: [AP News by Mathew Daly and Michael Phillis](#)



American Water shares rated Underperform on growth concerns

On Monday, Jefferies initiated coverage on shares of American Water (NYSE: NYSE:AWK) with a rating of Underperform and set a price target of \$124.00. The firm expressed concerns over the company's earnings per share (EPS) growth and balance sheet pressures.

Jefferies pointed out several challenges facing American Water, including difficulties in offsetting approximately \$80 million in interest income post-2026, hurdles in continuing its acquisition-driven growth strategy, and increasing regulatory uncertainties.

The firm's analysis suggests that American Water's stock is currently valued at a premium of over 45% compared to its electric utility peers, a valuation Jefferies finds hard to justify given the company's growth and financial headwinds. The mention of a "lack of data center thematic" refers to the absence of a growth catalyst that data center expansion has provided to some other utility companies.

Jefferies highlighted the potential impact of a recent regulatory setback in Pennsylvania as an additional risk factor for the company. This setback could signal rising regulatory challenges that may affect future performance. The firm's underperform rating indicates an expectation that American Water's stock will lag behind the broader market or its industry peers.

The stock price target of \$124.00 suggests a total shareholder return (TSR) that is negative by approximately 12%, based on the stock's recent performance. This target reflects the firm's assessment of the risks and headwinds that could potentially depress the stock's value.

Jefferies' coverage initiation on American Water comes as the utility sector faces a changing landscape, with companies navigating through various financial and regulatory environments.

Original Article: [Investing.com by Natashya Angelica](#)

Bennet, Hickenlooper, House members back funding bid for Shoshone water rights

The effort to obtain federal funding to help the Western Slope close the deal on acquiring significant Colorado River water rights has gained support from the state's two U.S. senators and some of its members of the U.S. House of Representatives.

U.S. Sens. Michael Bennet and John Hickenlooper and U.S. Reps. Joe Neguse, Jason Crow, Brittany Pettersen and Diana DeGette, all Democrats, have written to the federal Bureau of Reclamation in support of an application for funding to purchase water rights associated with the Shoshone hydroelectric power plant in Glenwood Canyon.

The Colorado River District has an agreement with Xcel Energy to buy the water rights for \$99 million. They include rights dating back to 1902 and 1929, and totaling more than



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1,400 cubic feet per second. Due to their seniority the rights help ensure flows of water to western Colorado that benefit downstream water users, recreational uses and the environment. The river district hopes to acquire the rights to ensure that such flows continue should the aging plant someday shut down. Otherwise the flows could be diverted upstream by junior water rights holders, including Front Range water entities. “The Shoshone Water Rights’ senior status ‘pulls’ water to Glenwood Canyon, which ensures that water continues to flow and benefits the downstream environment. Preserving the Colorado River’s historical flow regime as intended by the Shoshone Permanency Project will benefit the Colorado River ecosystem every year, and especially in dry years,” the six members of Congress said in their letter to Reclamation Commissioner Camille Calimlim Touton.

The river district has committed \$20 million for the purchase, and the state legislature and Colorado Water Conservation board have committed to provide \$20 million in state funding. Local governments, water entities and other partners also have pledged money, meaning the river district has almost \$56 million promised to date.

Zane Kessler, the district’s director of government relations, said he expects the river district will request \$40 million in Reclamation funding. He said if it gets that money, he thinks the district is confident it can cover any remaining gap through continued local and regional fundraising efforts.

It plans to pursue Upper Colorado River Basin Environmental Drought Mitigation program funding. A current opportunity is open for applications through Nov. 22 for funding that supports public entities and tribes working on projects that provide environmental benefits or restore ecosystems and habitats impacted by drought. The funding is made possible as a result of \$4 billion that was included in the Inflation Reduction Act to address issues caused by drought.

The federal lawmakers said in their letter that the more than \$15 million committed by local governments and water users “reflects the local recognition of the Shoshone Water Rights’ importance to the health of western Colorado’s environment and local economies.”

Western Colorado counties including Mesa County have committed funds to the river district effort and pressed Bennet and Hickenlooper to get behind it. Last week 16 state lawmakers, including some from the Front Range, wrote to the senators to ask them to advocate for federal funding for it.

The river district plans to seek a change in the water rights so they include an alternate beneficial use for instream flow purposes. That would preserve the flows should there be a temporary or permanent shutdown of the power plant. The Northern Colorado Water Conservancy District says those rights should be based on the historical actual diversions of water used by the plant, and not the full water rights associated with the



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plant. The river district says its goal is to protect only the historical flows associated with the rights.

The federal lawmakers said in their letter, “Data collection and analysis of Shoshone Water Rights’ historic use is not yet completed, and ongoing — a key step for understanding the historic flow regime on the Colorado River.”

They wrote that the proposed decree associated with the instream flows is still under technical review by the state and a formal review will be conducted by the Colorado Water Conservation Board and in state water court in coming months.

“Ongoing modeling will also help quantify the environmental benefits of the Shoshone Water Rights flows,” the lawmakers said.

One potential benefit, they noted, is to critical habitat of four fish species in the Colorado River in what’s known as the 15-Mile Reach near Palisade. The fish are listed for protection by the Endangered Species Act.

Andy Mueller, general manager of the river district, said in a statement released Monday, “We are thankful to both our Senators and our congressional representatives from across the state of Colorado who recognize the vital importance of protecting Shoshone water rights and are willing to stand with us to preserve the historic flows of the Colorado River. Their support highlights the broad-reaching commitment to safeguarding water that brings significant benefit to the Colorado River during its driest times and will help to ensure multi-generational water security for millions of Coloradans.”

U.S. Rep. Lauren Boebert, a Republican who currently represents western Colorado’s 3rd Congressional District but is running for election for an eastern Colorado seat in Congress, didn’t sign the letter to Touton. A Boebert spokesperson couldn’t immediately be reached for comment Monday.

When her office was asked by the Sentinel in August if Boebert expected to support the request for Bureau of Reclamation funding for the water rights purchase, her chief of staff, Jeff Small, said that she “has put out statements in the past supporting the Shoshone power plant water rights.”

When Xcel and the river district last December announced the purchase agreement for the water rights, Boebert said on Facebook that the deal was a “major win for the 3rd District and the many rural communities who depend on reliable and affordable access to water! A big congrats and thank you to the Colorado River District on acquiring the Shoshone water rights, I stand ready to help and advocate in any way I can to complete this purchase.”

Neither Boebert nor any other Republican members of Congress voted for the Inflation Reduction Act, which provided the funding source now being pursued by the river district.

Original Article: [The Daily Sentinel by Dennis Webb](#)



Why don't we just fix the Colorado River crisis by piping in water from the East?

The Colorado River is a lifeline for about 40 million people across the Southwest. It supplies major cities like Los Angeles, Phoenix, and Denver and a multibillion-dollar agriculture industry that puts food on tables across the nation. But it doesn't have enough water to meet current demands.

Policymakers are struggling to rein in demand on the river, which has been shrinking at the hands of climate change. The region needs to fix that gap between supply and demand, and there's no obvious way to do it quickly.

But one tantalizingly simple solution keeps coming up. The West doesn't have enough water, but the East has it in abundance. So, why don't we just fix the Colorado River crisis by piping in water from the East?

The answer is complicated, but experts say it boils down to this: It doesn't make sense to build a giant East-to-West water pipeline anytime soon for three reasons — politics, engineering, and money.

Political headwinds

If the West's leaders wanted to take some water from the East, who would they even ask? Right now, there's no national water agency that could oversee that kind of deal.

"I would argue that there aren't many entities with the authority across the country to do this," said Beaux Jones, president and CEO of The Water Institute in New Orleans. "I don't know that the regulatory framework currently exists."

Water is often managed using a messy patchwork of different government agencies and laws. The Colorado River is managed through a fragile web of agreements between cities, states, farm districts, native tribes and the federal government. Even though they're all pulling from the same water supply, there's no central Colorado River government agency.

A similarly complex system applies to many watersheds in the East. Even if a single city or state in the Western U.S. seriously wanted to build a pipeline from the East, it's not even clear who they'd meet with to ask for water from a different area. And there's no single federal agency that could sign off on such a deal and make sure it doesn't harm people or the environment.

Delegates from states that use the Colorado River met in Las Vegas to discuss the future of a water supply for 40 million people. Talks centered on the need for collaboration, but policymakers remain stuck in a standoff as they figure out where to make necessary cutbacks.

Any serious effort to pull new water in from the East to the Southwest would likely touch some part of the Mississippi River basin. It's a sprawling network of smaller rivers that covers 31 different states, from Montana to Pennsylvania.



It's a busy river with a lot of uses. And while its shortages aren't as severe as dry times in the West, the Mississippi River basin goes through its own droughts. So even if, someday, the governments of the East and West set up a formal way to negotiate a water transfer, the cities, farms, boaters and wildlife advocates to the east might not be willing to share.

"The very nature of there being sufficient availability of water in the Mississippi River Basin to, in a large scale way, export that water," Jones said. "I think there are many people on the ground within the Mississippi River basin that would fundamentally disagree with that."

Engineering limits

There are countless examples of large pipelines and canals moving liquids around the U.S. at this very moment. The longest existing today is the Colonial Pipeline, which carries gasoline from Houston to northern New Jersey through 5,500 miles of pipe.

So if we have the engineering capacity to do that, could we build similar infrastructure for water? In theory, yes. But it would have to be much larger than existing pipes for oil and gas.

"It takes so much more water to supply a city than it takes gasoline," said John Fleck, a water policy professor at the University of New Mexico. "So the size of the pipe or the canal has to be a lot bigger, has to be much wider, has to cover a lot more ground."

Because that pipeline or canal would be so big, it is more likely to ruffle some feathers along the way. Fleck suggested that landowners in its path, including local governments, could push back on a giant new piece of infrastructure running through their properties and mire any pipeline project in regulatory red tape.

Original Article: [KUNC by Alex Hager](#)

La Niña could turn Arizona's hot, dry summer into a warm, dry winter.

What to know

After one of its hottest and driest summers, Arizona could remain abnormally warm and dry this winter as La Niña conditions develop, a cycle that can trigger irregular weather patterns across the world.

La Niña tends to produce drier weather in Arizona and the Southwest during the winter, a critical time to replenish water resources. Drier vegetation can also worsen the risk of wildfires.

Even if this La Niña is a weaker event, it could still have serious implications for the region.

"We're always in a drought, and a La Niña event on the horizon doesn't spell any relief," said Michael Crimmins, a climatologist at the University of Arizona. "It most likely spells some continued deterioration or sliding towards short-term drought."



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The monsoon in Phoenix was the seventh driest on record, and a La Niña winter could continue drying out the landscape.

Despite last year's El Niño, events that tend to produce above-average precipitation in the Southwest, the region has still leaned drier than normal in the last five years according to Crimmins. The Southwest needs as much water as possible amid almost 25 years of drought conditions.

"It's going to have a big factor to play in our upcoming climate," said Randy Cerveny, a professor of geographical sciences at Arizona State University. "Expect a lot more wildfires in the Southwest."

Here's what to know about La Niña and how it could impact the weather and conditions in Arizona:

Will this be a La Niña year?

The National Weather Service has issued a La Niña watch, with a 71% chance La Niña conditions will develop by October or November. If it does emerge, climatologists predict La Niña would continue through January to March.

"We are favoring La Niña conditions to come in," said Jon Gottschalck, chief of the operational prediction branch at the National Oceanic and Atmospheric Administration.

"Typically in the Southwest, with La Niña as you go into the fall or winter, temperatures generally are warmer than normal," he said. "There's a pretty strong signal during La Niña events of below normal precipitation in the southwest and southern plains."

La Niña triggers below-normal oceanic temperatures in the Pacific, which can cause irregular weather patterns across the U.S. and the world. A La Niña event could add more stress to the already heat and drought-stricken Southwest, especially after a dry monsoon.

Original Article: [AZ Central by Hayleigh Evans](#)



GLOBAL WATER NEWS

MIT's new desalination system runs with the rhythms of the sun

MIT engineers have developed an innovative desalination system that operates in sync with the sun's cycles.

This solar-powered system efficiently extracts salt from water, adjusting its desalination process to align with the fluctuations in solar energy. As sunlight intensifies throughout the day, the system accelerates its desalination capabilities, seamlessly adapting to sudden changes in sunlight, such as cloud cover or clear skies.

The video player is currently playing an ad. You can skip the ad in 5 sec with a mouse or keyboard

Thanks to its ability to respond promptly to subtle shifts in sunlight, this system maximizes the use of solar energy, generating substantial quantities of clean water despite varying sunlight levels. Unlike other solar-driven desalination technologies, the MIT system eliminates the need for additional batteries for energy storage or supplementary power sources from the grid.

The engineers rigorously tested a cutting-edge community-scale prototype on groundwater wells in New Mexico over six months. Despite unpredictable weather conditions and varying water types, the system impressively harnessed over 94 percent of the electrical energy generated from its solar panels. This enabled it to consistently produce up to 5,000 liters of water per day, even in the face of significant fluctuations in weather and available sunlight.

“Conventional desalination technologies require steady power and need battery storage to smooth out a variable power source like solar. By continually varying power consumption in sync with the sun, our technology directly and efficiently uses solar power to make water,” says Amos Winter, the Germeshausen Professor of Mechanical Engineering and director of the K. Lisa Yang Global Engineering and Research (GEAR) Center at MIT. “Being able to make drinking water with renewables, without requiring battery storage, is a massive grand challenge. And we’ve done it.”

The researchers have developed the revolutionary system designed to desalinate brackish groundwater, a vast but often overlooked source of water. With fresh water reserves under increasing strain in many parts of the world, the team sees brackish groundwater as a promising solution for providing clean drinking water. Their innovative, renewable, and battery-free system has the potential to deliver affordable drinking water, especially in inland communities with limited access to seawater and grid power.

“The majority of the population actually lives far enough from the coast that seawater desalination could never reach them. They consequently rely heavily on groundwater, especially in remote, low-income regions. And unfortunately, this groundwater is



becoming more and more saline due to climate change,” says Jonathan Bessette, MIT PhD student in mechanical engineering. “This technology could bring sustainable, affordable clean water to underreached places around the world.”

The innovative system represents a significant advancement from the previous design, showcasing a remarkable approach to desalinating water through “flexible batch electro dialysis.” This method, along with reverse osmosis, is a primary technique for desalinating brackish groundwater. Unlike reverse osmosis, which relies on steady power levels, the team’s focus on electro dialysis has led to the development of a more adaptable, “time-variant” system that can effectively harness renewable solar power.

Original Article: [Tech Explorist by Ashwini Sakharkar](#)

New funding to explore community connections to water policies and responses to climate change

A new project to empower those who lack voice in climate action and to provide alternative ways to share risk perception has been awarded £190,000 in funding.

A grant from Official Development Assistance (ODA) Challenge-Oriented Research Grant 2024 from the British Academy will support researchers from the University of Aberdeen in combining musical and hydrology knowledge to provide creative outputs on socio-economic, cultural, and emotional connections to water.

Led by Professor Suk-Jun Kim in Music along with Dr Christina Ballico (Music) and Dr David Haro Monteagudo (Geoscience), the project titled "Futures of Listening: Water Knowledge from Two Cities" will focus on vulnerable local communities in Jakarta and Istanbul which face prolonged water-related risks due to climate crisis and ineffective or maladaptive water policies.

It will bring together experts in hydrology and water security, sound studies and technology, participatory and experimental filmmaking, urban government and asset-based community building, and urban design practice.

They will examine gaps between existing policies and the communities' perceived risks and experienced impact and to explore ways in which their local knowledge and socio-economic, cultural, and emotional connection to water can be brought to policy design and implementation.

Professor Kim said: “Our work will build upon a project entitled Futures of Listening which was a sound studies and art and research initiative centred around the question of what is going to happen to the ways in which we listen in a couple of decades. This included a ‘listening to climate change’ element which we were keen to expand upon.

“We will use creative practices to encourage those who lack in power and voice in climate action to share risk perception, local knowledge and experience.



“These will be captured in sound, on film and in other mediums with a shared theme of our responses to water. We will then use this to explore gaps between existing water related policies and local water knowledge.”

The project is an international collaboration between the University of Aberdeen, Jakarta-based art collective Forum Lenteng, and Urban.Koop, a collective network of independent urban design practitioners in Istanbul.

It will be mapped to the UN Global Goals for Sustainable Development with a focus on SDG 13: Take urgent action to combat climate change and its impacts; SDG 6: Ensure availability and sustainable management of water and sanitation for all; and SDG 17: Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.

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Original Article: [AGCC by University of Aberdeen](#)

UN Warns World's Water Cycle Becoming Ever More Erratic

Increasingly intense floods and droughts are a "distress signal" of what is to come as climate change makes the planet's water cycle ever more unpredictable, the United Nations warned Monday.

Last year the world's rivers were their driest for more than 30 years, glaciers suffered their largest loss of ice mass in half a century and there was also a "significant" number of floods, the UN's World Meteorological Organization said in a report.

"Water is the canary in the coalmine of climate change," WMO Secretary-General Celeste Saulo said in a statement accompanying the State of Global Water Resources report.

"We receive distress signals in the form of increasingly extreme rainfall, floods and droughts which wreak a heavy toll on lives, ecosystems and economies," she said.

Saulo said the heating up of the Earth's atmosphere had made the water cycle "more erratic and unpredictable.

Last year was the hottest on record, with high temperatures and widespread dry conditions producing prolonged droughts.

There were also many floods around the world.



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These extreme events were influenced in part by naturally-occurring climate conditions including the La Nina and El Nino weather phenomena -- but also and increasingly by human-induced climate change.

"A warmer atmosphere holds more moisture, which is conducive to heavy rainfall. More rapid evaporation and drying of soils worsen drought conditions," Saulo said.

Water is either too abundant or insufficient, plunging many countries into increasingly difficult situations.

Last year, Africa was the most heavily impacted continent in terms of human casualties. In Libya, two dams collapsed due to a major flood in September 2023, claiming more than 11,000 lives and affecting 22 percent of the population, according to the WMO.

Floods also hit the Greater Horn of Africa, the Democratic Republic of Congo, Rwanda, Mozambique and Malawi.

Currently, 3.6 billion people have insufficient access to fresh water at least once a month per year, according to the UN. That figure is expected to rise to more than five billion by 2050.

For the past three years, more than 50 percent of river catchments have been drier than usual.

Meanwhile the inflow to reservoirs has been below normal in many parts of the world over the past half decade.

Rising temperatures also mean glaciers have melted at unprecedented rates, losing more than 600 billion tonnes of water, the worst in 50 years of observations, according to preliminary data for September 2022 to August 2023.

Original Article: [Barrons by Agnes Pedrero](#)

Unlocking aquifer sustainability through irrigator-driven groundwater conservation

Aquifer depletion due to intensive irrigation threatens global economies, food security and ecosystems. This Perspective examines the hydrological, social and economic complexities of managing groundwater resources, focusing on the Sheridan 6 Local Enhanced Management Area in the US High Plains aquifer. Here irrigator-led conservation efforts reduced groundwater use by 25% and slowed aquifer depletion by 65% while maintaining farmers' incomes. This success resulted from a hybrid integration of bottom-up rule development with top-down enforcement, providing flexible multi-year water allocations and aligning management with local conditions. From this, we identify transferable governance tenets for sustainable groundwater management in similar regions.

Original Article: [Orduña Alegría, M.E., Zipper, S., Shin, H.C. et al. Unlocking aquifer sustainability through irrigator-driven groundwater conservation. Nat Sustain \(2024\). <https://doi.org/10.1038/s41893-024-01437-0>](#)



ADB Approves Support to Deliver Irrigation Water in Nepal

The Asian Development Bank (ADB) has approved a \$125 million financing package to provide long-term sustainable solutions to increase year-round access to irrigation water in rural communities in Rautahat and Sarlahi districts in Madhesh Province, Nepal.

The financing package comprises a \$110 million concessional loan and a \$15 million grant from the Asian Development Fund, which provides grants to ADB's poorest and most vulnerable developing member countries.

"Farmers' willingness to pay for the true cost of groundwater irrigation services is essential for ensuring sustainable resources and asset management," said ADB Water Resources Specialist Marie L'Hostis. "This ADB support will introduce a new approach using high-level technology and prepaid smartcards that will allow farmers to benefit from reliable and flexible access to irrigation water at their fields, enabling them to produce crops that meet market demands and increase their incomes."

The Mechanized Irrigation Innovation Project will construct a network of deep tube wells equipped with pump houses, prepaid smart card system, and a dedicated electricity distribution network. The project will construct approximately 900 kilometers of underground pressure pipe distribution networks to bring irrigation water from pump houses to farms.

The project will help farmers in the project districts improve their capacity to shift to climate-resilient agricultural practices. This includes the introduction of high-value and high-yielding crops to diversify crop production, adopt more efficient irrigation practices such as micro-irrigation, and strengthening farmers' value chain and marketing linkages. ADB will establish facilities that will offer smallholder and marginalized farmers subsidized farm machinery.

ADB will provide an additional \$750,000 grant financed from its Technical Assistance Special Fund to establish and build staff capacity of the public-private partnership unit in the Department of Water Resources and Irrigation, while providing advice on groundwater management contracts.

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 69 members—49 from the region.

Original Article: [Asian Development Bank](#)



Note the attachment is not an inducement to trade and Veles Water does not give advice on investments.