

Veles Water Weekly Report

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VelesWater



WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell

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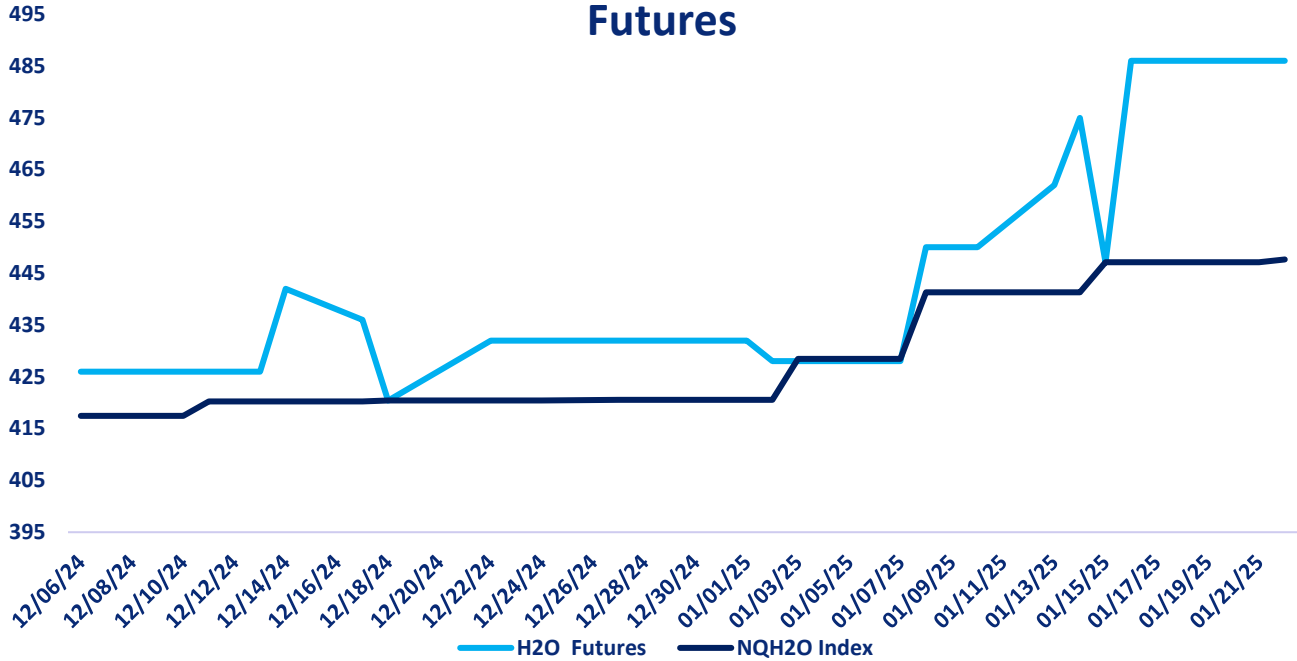
"A 2 minute technical analysis video of H2O futures"

<https://vimeo.com/1049581383?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

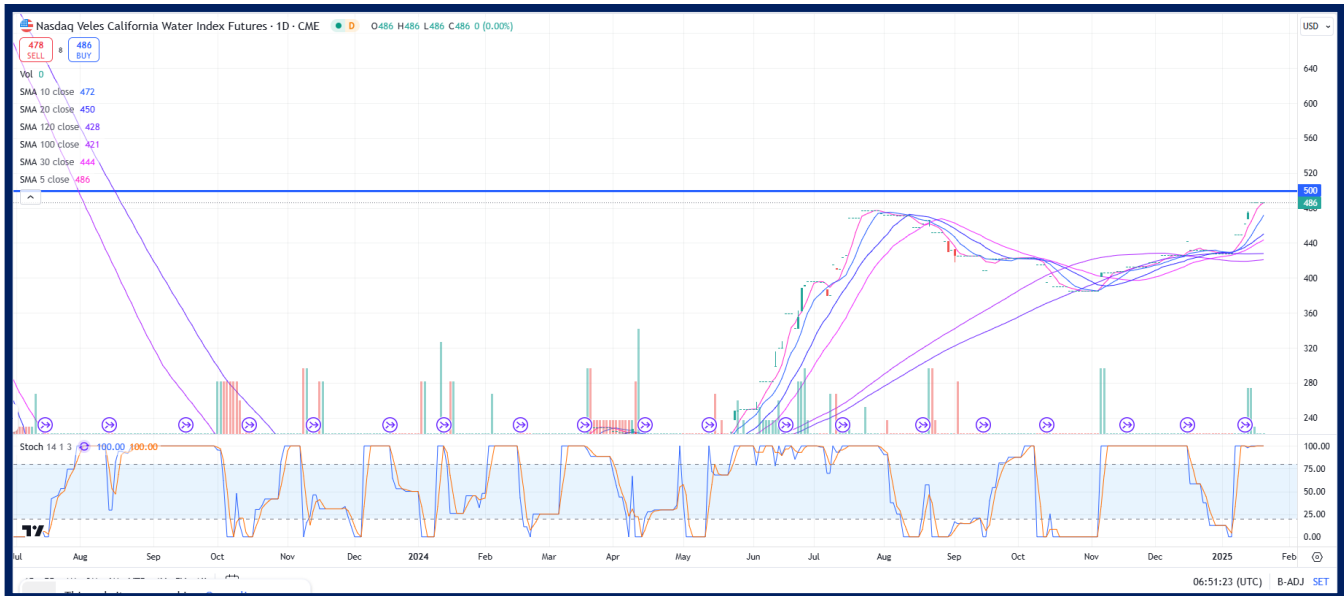
The new NQH2O index level of \$447.65 was published on January 22nd, up \$0.55 or 0.12% from the previous week. The January settled at the new index level and the February contract is considered the front month. The futures prices have closed at a premium of \$38.35 to \$38.90 versus the index over the past week.

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

Feb 25	478@486
Mar 25	492@522
June 25	530@575
June 26	610@685



H2O FUTURES TECHNICAL REPORT



Price Action

- **Current Price: 486**
- The price has remained flat in this trading session, indicating no change in momentum after a recent strong rally.

Moving Averages (MA) Analysis

- **5-day Moving Average (MA 5): 486**
 - The current price is sitting directly on the MA 5, indicating short-term neutrality.
- **10-day Moving Average (MA 10): 472**
 - The price is above the MA 10, suggesting continued short-term bullish momentum.
- **20-day Moving Average (MA 20): 450**
 - The price is well above the MA 20, confirming strong short-term bullish momentum.
- **30-day Moving Average (MA 30): 444**
 - The price is also above the MA 30, indicating medium-term bullish strength.
- **100-day Moving Average (MA 100): 421**
 - The price is significantly above the MA 100, affirming that the long-term trend is firmly bullish.



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- **120-day Moving Average (MA 120): 428**
 - The price is well above the MA 120, reinforcing the strong long-term bullish trend.

Support and Resistance

- **Immediate Resistance: 500**
 - This psychological and technical level remains the next major hurdle for further upside.
- **Immediate Support: 486 (current price level)**
 - If the price moves lower, key support will be around the 20-day MA at 450 and the 30-day MA at 444.

Stochastic Oscillator

- **K%: 100, D%: 100**
 - The stochastic oscillator indicates that the market is in overbought territory, which suggests potential for a short-term pullback or consolidation.

Summary

- The chart shows strong bullish momentum across all timeframes, with the price trading well above all major moving averages.
- The stochastic oscillator warns of overbought conditions, signaling caution for potential short-term corrections.

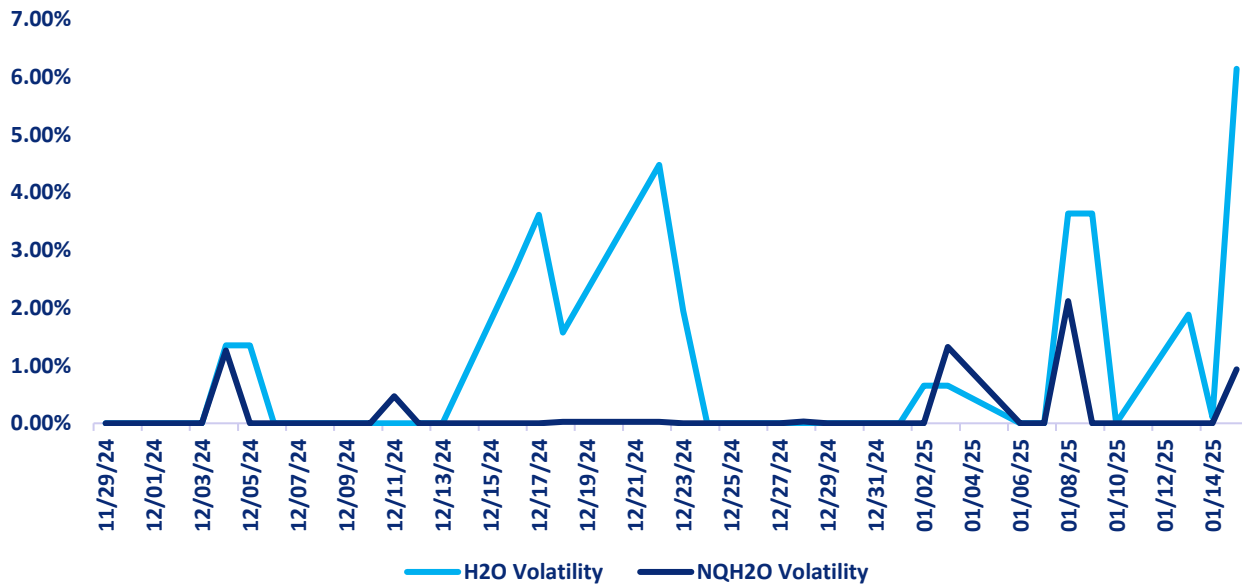
Key Levels to Watch:

- Resistance: 500
- Support: Immediate support at 486, with stronger support at 450 (20-day MA).



H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



DAILY VOLATILITY

Over the last week the February contract daily future volatility high has been 3.63%.

ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	28.79%	2.73%	2.88%	1.20%
H2O FUTURES	N/A	13.83%	12.34%	8.70%

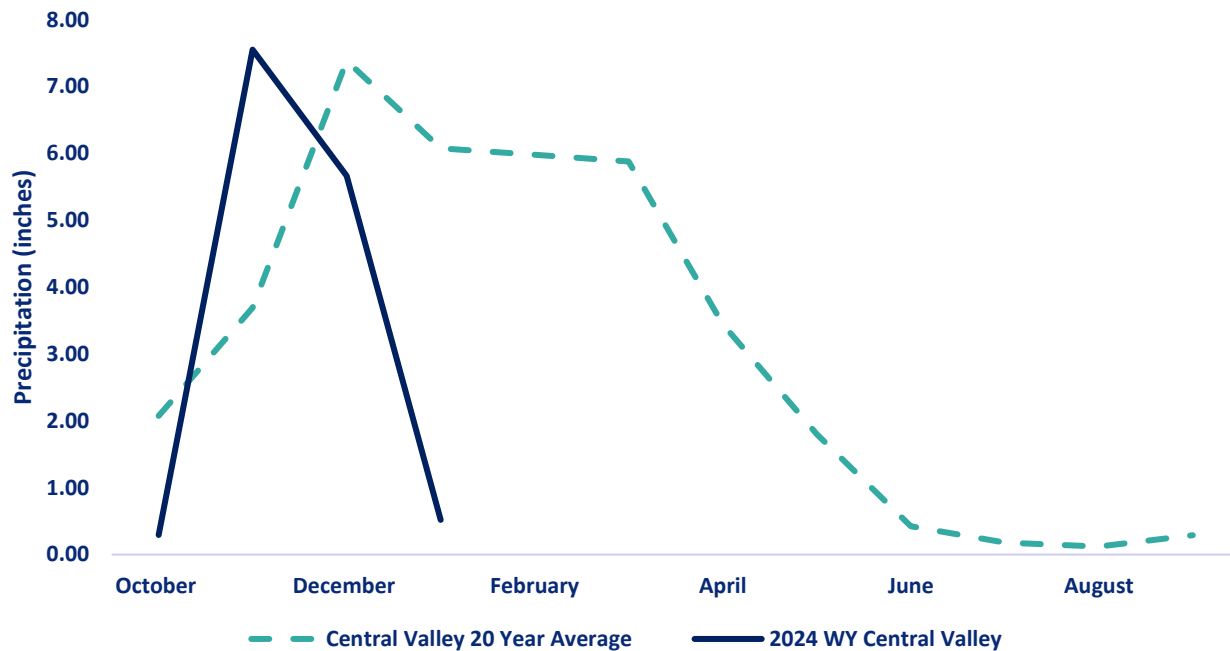
For the week ending on January 22nd, the two-month futures volatility is at a premium of 11.11% to the index, up 2.40% from the previous week. The one-month futures volatility is at a premium of 9.46% to the index, up 0.32%. The one-week futures volatility is at a premium of 7.50% to the index, volatility.

*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 22/01/2025

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)	0.45	0.00	7.20	39	85
TULARE 6 STATION (6SI)	0.05	0.00	1.08	28	64
NORTHERN SIERRA 8 STATION (8SI)	1.06	0.00	14.42	38	93
CENTRAL VALLEY AVERAGE	0.52	0.00	8.56	35	81

RESERVOIR STORAGE

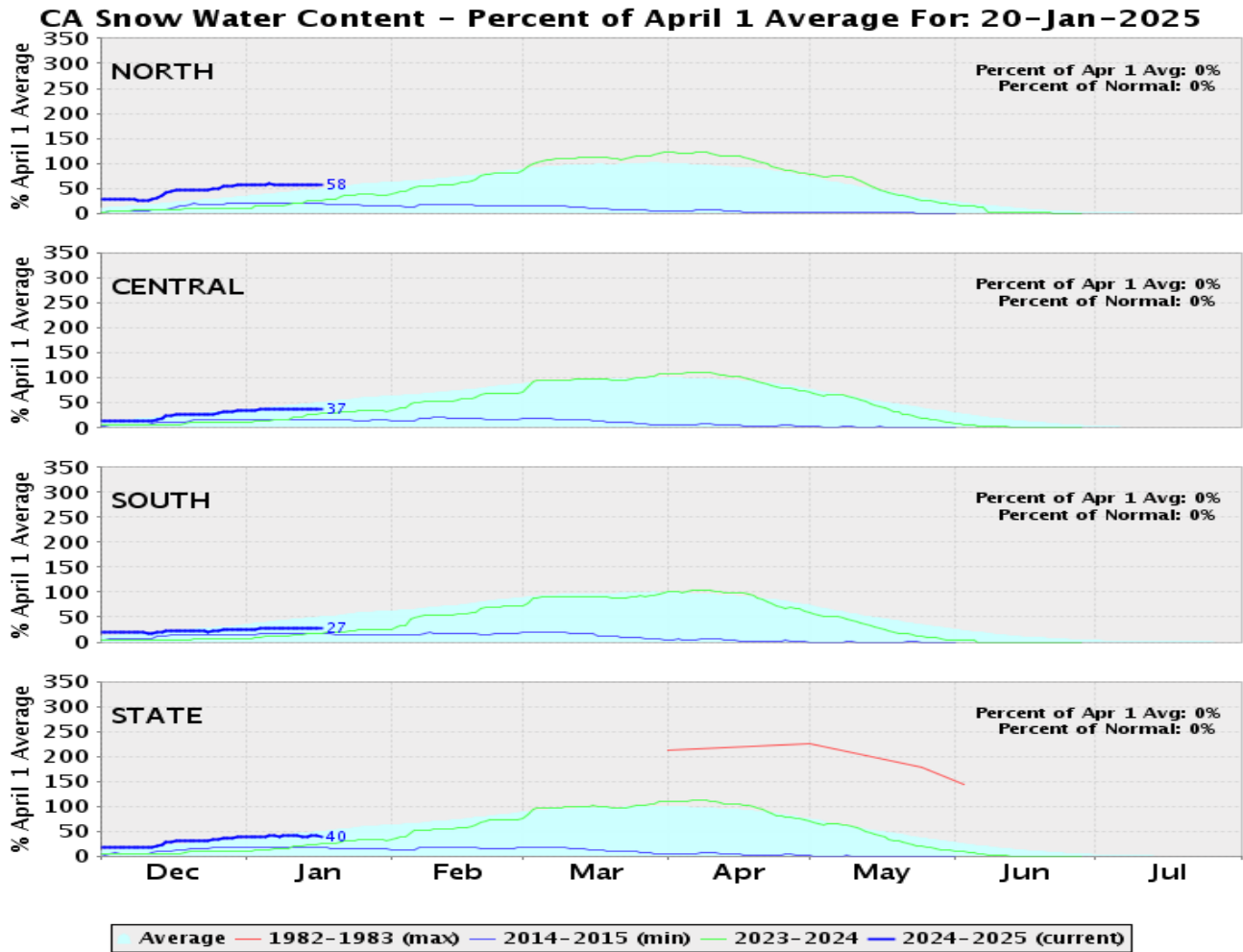
RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	*% HISTORICAL AVERAGE
TRINITY LAKE	1,906,911	78	55	125
SHASTA LAKE	3,483,675	77	71	122
LAKE OROVILLE	2,539,299	72	71	128
SAN LUIS RES	1,508,943	74	59	105

*% 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	15.2	0	38	139	58
CENTRAL SIERRA	10.4	0	39	85	37
SOUTHERN SIERRA	6.5	0	28	64	28
STATEWIDE	10.7	0	37	93	40

*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. January 16, 2025

Data valid: January 14, 2025 at 7 a.m. EST

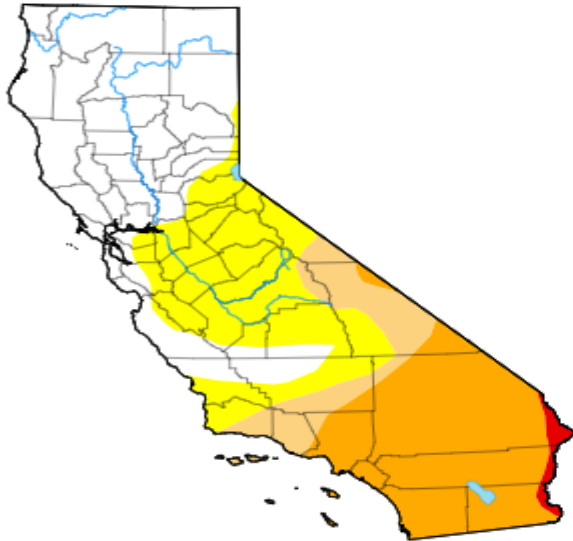
Intensity

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

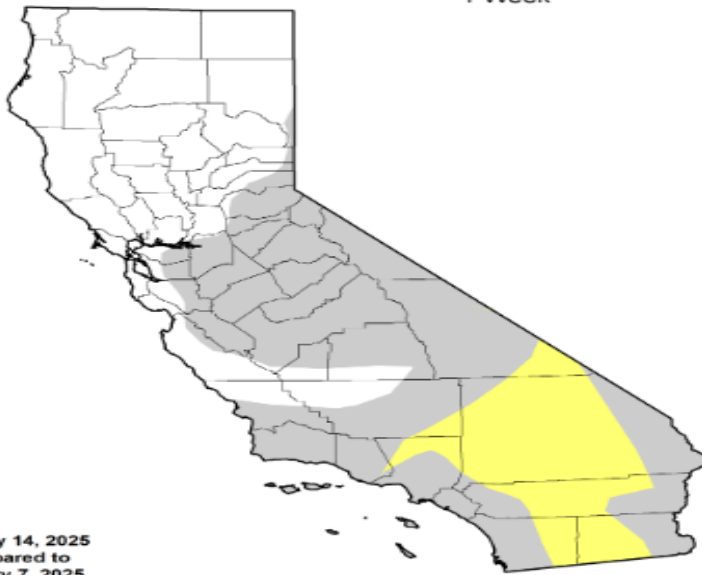
Authors

United States and Puerto Rico Author(s):
[Brad Pugh](#), NOAA/CPC

Pacific Islands and Virgin Islands Author(s):
[Richard Tinker](#), NOAA/NWS/NCEP/CPC



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



January 14, 2025
 compared to
 January 7, 2025



- 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	2025-01-14	39.11	60.89	35.93	26.95	1.06	0.00	125
Last Week to Current	2025-01-07	39.11	60.89	35.93	10.43	1.06	0.00	108
3 Months Ago to Current	2024-10-15	24.68	75.32	14.05	4.30	0.00	0.00	94
Start of Calendar Year to Current	2024-12-31	40.90	59.10	31.52	5.70	1.06	0.00	97
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	2024-01-16	96.65	3.35	0.00	0.00	0.00	0.00	3

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

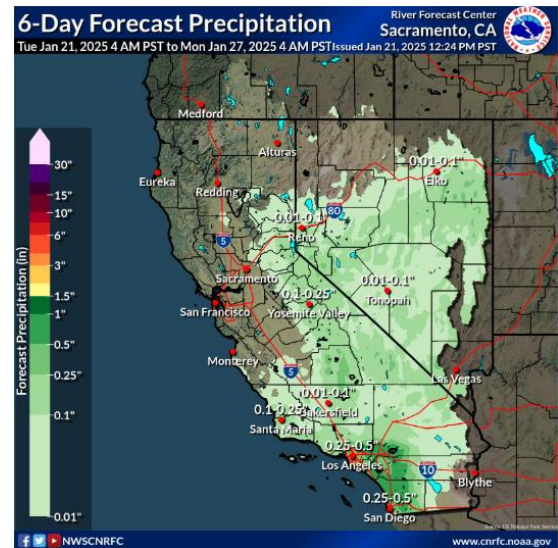
The satellite picture shows 2 Pacific storms, one off the coast of San Francisco which may affect California and further west a larger frontal system mostly heading in a Northeasterly direction which is unlikely to affect California. The southwest is dry but cold air is moving southwards from Canada over most of the Midwest areas. Further south there is a band of cloud and associated precipitation stretching from Northeastern Mexico all the way up to New York and into the Atlantic.



Map Ref: Zoom Earth

10 Day Outlook

By Thursday night a trough will begin to dig into the PacNW expanding across much of the western US as it pushes to the south into Friday. The system will usher in a cooler airmass it strengthens over nrn CA the rest of Friday eventually closing off into an upper low overnight. Models still have about 0.25-0.50" PW of moisture moving in with the low, not much but enough to maybe drop some light showers over the Sierra and eastward into nrn NV. The low will continue to move through central CA and into southern CA the rest of Saturday spreading shower chances into coastal soCal. The low will then shift its direction in the evening heading eastward through srn CA and NV overnight and Sunday morning continuing to produce light showers.



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

**WESTERN WEATHER DISCUSSION**

Severe drought (D2) was expanded to include all of southern California due to the very dry start to the water year to date (WYTD) from October 1, 2024 to January 13, 2025. The D2 coverage coincides with where WYTD precipitation has averaged less than 5 percent of normal. A number of locations, including San Diego, are having their driest start to the water year. The D2 covers Los Angeles and Ventura counties which are being affected by periodic Santa Ana winds drying out vegetation and large wildfires. Following the two wet winters, the large reservoirs throughout California are at or above-normal. Based on 90-day SPI, declining soil moisture, and low snow water equivalent, a 1-category degradation was warranted for parts of Arizona and southwestern Utah. A mix of improvements and degradations were made to Idaho and the depiction is generally consistent with the 2024-2025 WYTD precipitation and snowpack. Eastern Washington and much of Oregon are drought-free, but low snowpack supports moderate drought (D1) along the northern Cascades of Washington. A 1-category improvement was justified for a portion of central Montana, based on 90-day SPEI along with snow water equivalent (SWE) above the 75th percentile. As of January 14, SWE was above-normal (period of record: 1991-2020) across the southern Cascades along with eastern Oregon and southwestern Idaho. SWE varies for the Sierra Nevada Mountains, those numbers are beginning to decrease after a drier-than-normal start to January. SWE remained well below-normal across the Four Corners Region.

Reference:

Lindsay Johnson, National Drought Mitigation Center

Richard Tinker, NOAA/NWS/NCEP/CPC

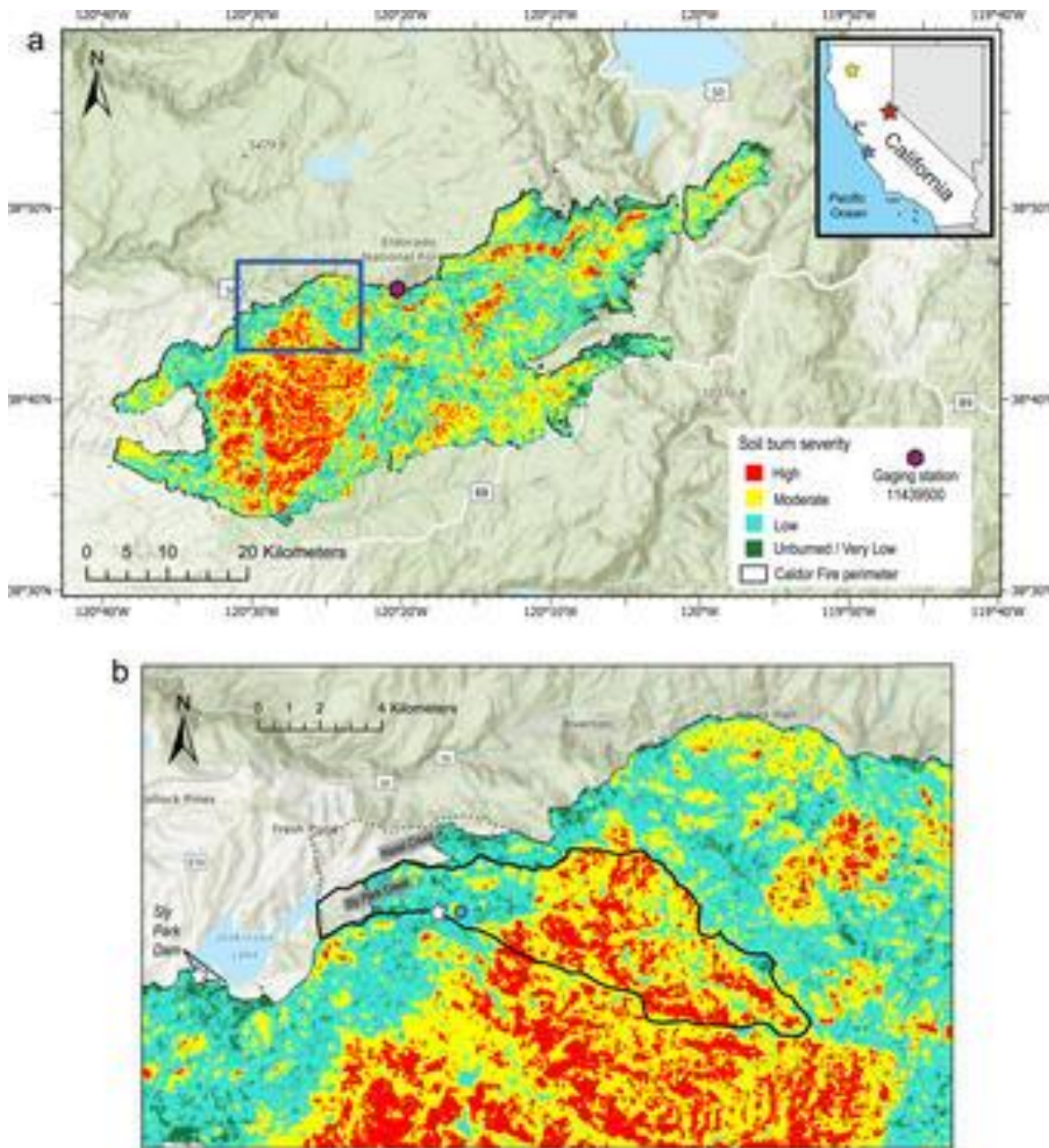


WATER NEWS

CALIFORNIA WATER NEWS

Post-Wildfire Sediment Yield in a Sierra Nevada Watershed

A new study by USGS and the California Geological Survey analyzes post-fire landscape response following the 2021 Caldor Fire, which burned a heavily managed forest setting highly likely to see more large, intense fires in the coming decades.



Sources/Usage: Public Domain. [View Media Details](#)



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Location map of the study area, showing the 2021 Caldor Fire burn zone.

The research, conducted in the aftermath of the 221,835-acre (89,773-hectare) Caldor Fire, focused on a heavily logged, forested watershed in California's western Sierra Nevada, and provides findings needed to understand and anticipate post-fire sediment risks.

Sediment Increases Threaten Water Resources and Infrastructure

Wildfires leave hillslopes vulnerable to erosion, often leading to increased sediment transport in streams. This sediment surge can fill up water-storage space in reservoirs, damage infrastructure, and disrupt water supplies, particularly in regions where fire activity is intensifying due to climate change. Understanding the extent and timing of sediment delivery is crucial for resource managers assessing risks to ecosystems, water supplies, and downstream infrastructure.

Post-Fire Sediment Monitoring

Over two years following the Caldor Fire, [scientists measured sediment accumulation in a reservoir downstream of the burn area](#). During the first year, sediment delivery was minimal, largely due to reduced rainfall and limited disturbances within the burned watershed. However, the second year saw a sharp increase in sediment deposition, driven by higher rainfall and ground disturbances caused by post-fire logging activities.

Original Article: [USGS](#)

Trump says he will issue executive order to make water available in California

U.S. President Donald Trump said on Tuesday he will issue an executive order to increase the availability of water in California, following disastrous wildfires that recently tore through several Los Angeles neighborhoods.

Original Article: [Reuters by Steve Holland](#)

Kern subbasin's groundwater plan still not up to snuff in state's eyes

Kern water managers' struck out again on their fourth attempt to write an adequate plan to protect the region's groundwater, according to a [report](#) from state Water Resources Control Board staff released Tuesday, which recommends the board put the subbasin on probation at its Feb. 20 hearing in Sacramento.

Probation would bring with it requirements for farmers to meter and register their wells at \$300 each, report all extractions and pay an added \$20 per acre foot pumped to the state. That's on top of fees and assessments they already pay to their water districts and groundwater sustainability agencies.

Specifically, the staff report found Kern's recently [revised plans](#) still don't do enough to protect water quality and domestic wells from going dry; keep land from sinking around



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critical canals and other infrastructure; and stem the chronic lowering of groundwater, among other issues.

“It doesn’t surprise me but it is unfortunate,” said local farmer John Moore. “I think we’ve made great strides as a county. And despite the state’s continued misgivings about Kern, I’m optimistic we will be able to achieve our goal of sustainability by 2040.” That’s the deadline under the Sustainable Groundwater Management Act (SGMA) when overdrafted regions must bring aquifers into balance.

Kern’s water managers had submitted a fourth set of groundwater [plans last month](#), an update from plans submitted in May 2024. The Dec. 2024 revise included a robust \$3 million domestic well program to fix wells that go dry due to overpumping and it raised minimum allowable groundwater levels to no lower than 61 feet below historic lows across the entire subbasin.

That wasn’t good enough, according to the state report.

Water Board staff found that the May 2024 plan would have “...allowed substantial impacts to people who rely on domestic wells for drinking, bathing, food preparation, and cleaning, as well as impacts to critical infrastructure such as canals (e.g., Friant-Kern Canal or California Aqueduct), levees, and the aquifer system itself within the subbasin,” according to the report.

A preliminary review of Kern’s Dec. 2024 revised plans “...indicates that concerns remain,” the report states.

The 2020 Rosedale-Rio Bravo Water Storage District chapter of the Kern subbasin’s first groundwater sustainability plan. The plan has been revised three times since then, most recently in Dec. 2024. Lois Henry / SJV Water

The staff report praises advancements in coordination and other areas by Kern’s water managers but says there are still holes in the area’s water monitoring networks and definitions of what it considers a violation of SGMA.

Regarding subsidence, Water Board staff recommended limiting groundwater pumping near critical infrastructure, which one GSA has already done.

The Westside Water District Authority in western Kern County issued a [full ban on agricultural pumping](#) for 2.5 miles on either side of the California Aqueduct for a 30-mile stretch. It also issued a moratorium on drilling new or replacement wells in that same zone.

The staff report also suggests Kern water managers should develop a plan to “mitigate damage caused by subsidence.” The report doesn’t elaborate on what such mitigation would entail. But costs could be significant. The bill for rebuilding a 10-mile section of the Friant-Kern Canal that had sunk due to overpumping was \$326 million.

One local water manager was disappointed with the state’s quick rejection of the region’s updated plans.



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“It’s unfortunate that the state process has been so compressed that it didn’t provide adequate time for the Kern and state staff to collaborate on local solutions,” wrote Dan Bartel, General Manager of Rosedale-Rio Bravo Water Storage District in a text message. “We see the new plan as extremely protective of beneficial users and a great roadmap to subbasin sustainability, which is no small task.

“I fear that adding another layer of fees may distract from subbasin coordination and interfere with Kern’s ability to fund the \$1.3 billion plan we just adopted.”

Original Article: [SJV Water by Lois Henry](#)

Trump wades into Delta water war

President Donald Trump, within hours of taking office Monday, signed executive orders directing federal agencies to work toward routing more water through the Sacramento-San Joaquin Delta to other parts of California.

Given any water shift puts Northern San Joaquin Valley water supplies in potential jeopardy and the fact 43 percent of the Delta is in San Joaquin County, the executive could order end up having a major ripple effect on regional water supplies and the vitality of the Delta.

The federal government’s skin in the game deciding the fate of the Delta has to do with the fact the federal Central Valley Project in California includes:

*Shasta Dam, the largest reservoir in California that sits below the headwaters of the Sacramento River.

*New Melones Reservoir on the Stanislaus River that not only flows into the Delta but involves 600,000 acre feet of water rights critical to meeting the water needs of the South San Joaquin Irrigation District and Oakdale Irrigation District. It also impacts the cities of Manteca, Lathrop and Tracy water supplies and eventually Ripon.

*The world’s largest off-stream reservoir — San Luis below Pacheco Pass west of Los Banos — that is used to store snow runoff water sent from the Delta until it continues its journey south via the California Aqueduct.

The executive order was dubbed: “Putting People over Fish: Stopping Radical Environmentalism to Provide Water to Southern California.”

It directs “the Secretary of Commerce and Secretary of the Interior, in consultation with the heads of other departments and agencies of the United States as necessary, to immediately restart the work from my first Administration by the National Marine Fisheries Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, and other agencies to route more water from the Sacramento-San Joaquin Delta to other parts of the state for use by the people there who desperately need a reliable water supply.”

While it doesn’t say who those “people” are, it is a reference to the Metropolitan Water District that supplies Los Angeles and 25 other Southern California cities and water districts that are pushing for the Delta Tunnel.



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It also involves large corporate farming operations in the southwestern San Joaquin Valley.

Highlights of the executive order are as follows:

*The recent deadly and historically destructive wildfires in Southern California underscore why the State of California needs a reliable water supply.

In terms of water from the north state, the main reservoirs that store north state water for the LA Basin before it reaches LA reservoirs in the wildfire zone had above average storage.

*Sound vegetation management practices in order to provide water desperately needed in the LA area.

Regarding vegetation involved and for what an executive order could impact, there are federal environmental review processes for prescribed burns that must be cleared that can take months, if not years, to do so. California environmental laws apply to all other lands.

*Trump's plan in his first administration would have allowed enormous amounts of water to flow from the snow melt and rainwater in rivers in Northern California to beneficial use in the Central Valley and Southern California.

One of the main reasons that didn't happen, as Trump notes in his executive order, was for the protection of the Delta smelt and other species of fish. The water diverted for fish does ultimately flow into the Pacific Ocean.

*Within 90 days of the date of this memorandum, the Secretary of Commerce and Secretary of the Interior shall report to the president regarding the progress made in implementing the policies in this memorandum and provide any recommendations regarding future implementation.

Original Article: [Manteca Bulletin by Dennis Wyatt](#)

California seeks construction manager for \$3 billion reservoir project

California is actively [seeking a construction manager](#) to oversee the **development of the long-planned \$3 billion Sites Reservoir in the Sacramento Valley**. This major infrastructure project aims to enhance the state's water storage capacity amidst ongoing drought challenges and wildfires in southern California.

The [Sites Project Authority](#), established in 2010, has been working to bring this vision to life, with \$800 million in funding secured in 2018, [reports Construction Owners Club](#). The project, which has been in the planning stages since the 1950s, will create an off-stream reservoir spanning approximately 6,000 square kilometers with a depth of 90 meters. Once completed, it will be California's eighth-largest artificial lake, capable of storing enough water to supply 7.5 million people for one year.

The selected firm will manage the project using the **construction manager at-risk (CMAR) approach**, which involves overseeing both design and construction phases. This



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method is intended to "optimize project delivery, manage risks, encourage local community collaboration, and provide the best value for project participants," according to the Sites Project Authority.

The project will include the construction of two 90-meter-high main dams, seven saddle dams, and three dikes ranging from 2 to 34 meters in height. Additional infrastructure will feature a concrete spillway, a 400-meter tunnel, and upgrades to 10 kilometers of existing roads.

"This next step in our contracting process marks a critical milestone for Sites Reservoir as it progresses from planning to construction," said Fritz Durst, Chair of the Sites Project Authority Board of Directors. "As one of the largest water infrastructure projects currently under development in California, Sites is a significant opportunity to enhance water reliability for the benefit of our communities, farms, and environment."

Sites Reservoir will provide an **additional 1.5 million acre-feet of storage capacity**, substantially improving California's water flexibility, reliability, and resiliency. As an **off-stream reservoir**, it will capture and store a **portion of stormwater from the Sacramento River**—after all other water rights and regulatory requirements are met—and release water to California communities, farms, businesses, and wildlife during drier years.

Firms meeting the qualification criteria are invited to **submit their statements of qualifications by March 10**, [highlights Sites](#). A shortlist of qualified respondents will then be requested to submit detailed proposals and sit for interviews. The awarded firm will undertake a Phase 1 pre-construction services scope in the fall of 2025, with construction anticipated to begin in 2026 and completion expected by 2032.

Original Article: [Smart Water Magazine](#)



US WATER NEWS

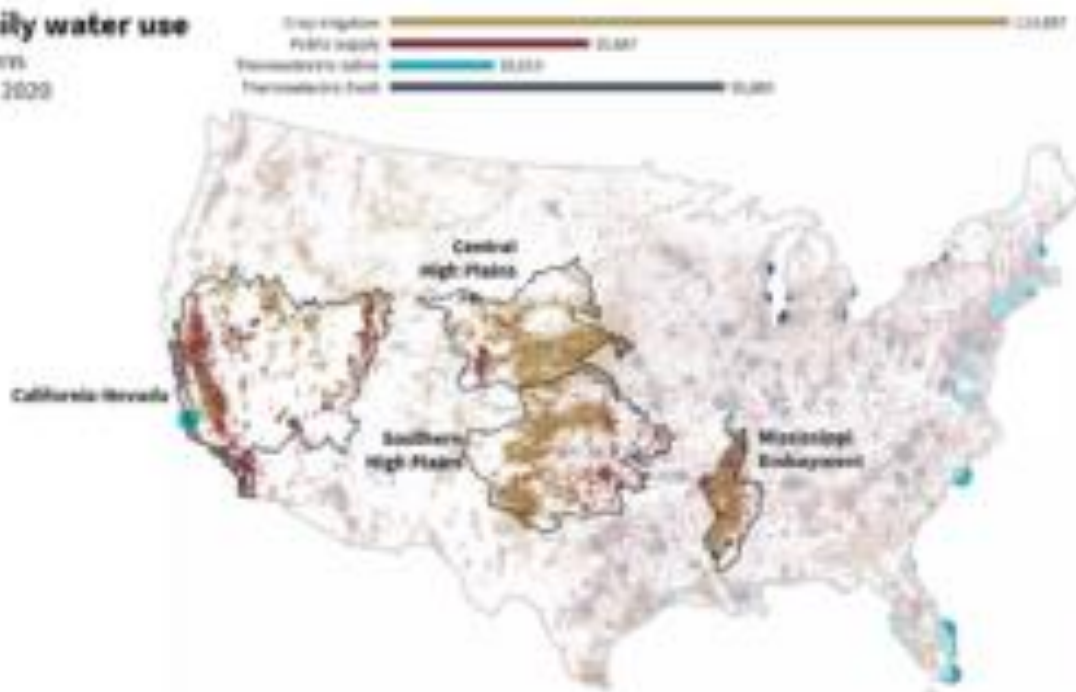
Close to 30 million Americans face limited water supplies, government report finds

Nearly 30 million people are living in areas of the US with limited water supplies as the country faces growing concerns over both water availability and quality, according to a [new assessment](#) by government scientists.

The US Geological Survey (USGS), which is part of the Department of the Interior, issued what it said was a first-of-its-kind report last week, with USGS Director David Applegate [warning](#) of “increasing challenges to this vital resource.” The Jan. 16 report, based on data from 2010 to 2020, examines not only water supplies but also demand patterns and water quality. The report showed that most of the country had supplies that exceeded demand during the period examined, but worrisome trends were noted. “Water availability is an issue everywhere in our country and beyond,” Lori Sprague, USGS national program manager for the water availability assessment, said in a webinar presenting the report. “It raises the question – do we have enough water to sustain our nation’s economy, ecosystems and drinking water supplies?”

Average daily water use

Millions of gallons used per day in 2020



Among the key findings from the new analysis was that people who are considered “socially vulnerable” have a higher risk of experiencing limited water supplies. Overall, about 27 million people lived in areas where the USGS found a “high degree of local water stress.” And a higher proportion of the people living in those areas were



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considered socially vulnerable compared with those living in areas of more local water availability, the USGS said.

The report also added to evidence of [widespread pollution](#) in waterways across the US Midwest and High Plains regions where worrisome levels of nitrogen and phosphorus concentrations – tied in large part to large animal agriculture operations – can pose a threat to human health.

The USGS said that “substantial areas” of aquifers that provide about one-third of public water supplies have elevated concentrations of contaminants such as arsenic, manganese, radionuclides, and nitrate and that low-income and minority-dominated communities and people with domestic wells as their drinking water source experience increased exposure to this type of drinking water contamination.

Several regions were drawing on supplies that had percentages of concentrations of contaminants that exceed human health benchmarks for safety, the USGS reported.

And the USGS report reinforced concerns about climate change, saying that the “steady rise in global temperature as a result of human activity is causing changes in Earth’s water cycle.”

“The amount of water stored within and moving between vapor, liquid, and frozen components of the water cycle is shifting, with substantial consequences for water availability,” the USGS said.

Newly inaugurated President Donald Trump has expressed skepticism about climate change and already has started rolling back measures aimed at reducing the harmful impacts of the warming planet.

Climate changes that impact water availability include warmer and shorter winter seasons, extreme heat, drought, wind storms, reduced snow cover. The USGS noted that climate change impacts water quality as well, with threats to quality posed by rising water temperatures, flooding, and saltwater intrusion in coastal areas. In some places the balance between supply and demand is adequate but stream flow is altered in ways that are harmful to the local ecological community, the USGS said.

The agency cited three fish species that are “of conservation concern” and said that a large percentage of their habitat has been affected by water supply and use imbalances. One species, the Arkansas River shiner, had more than 50% of its habitat range in severe supply and use imbalance, for example.

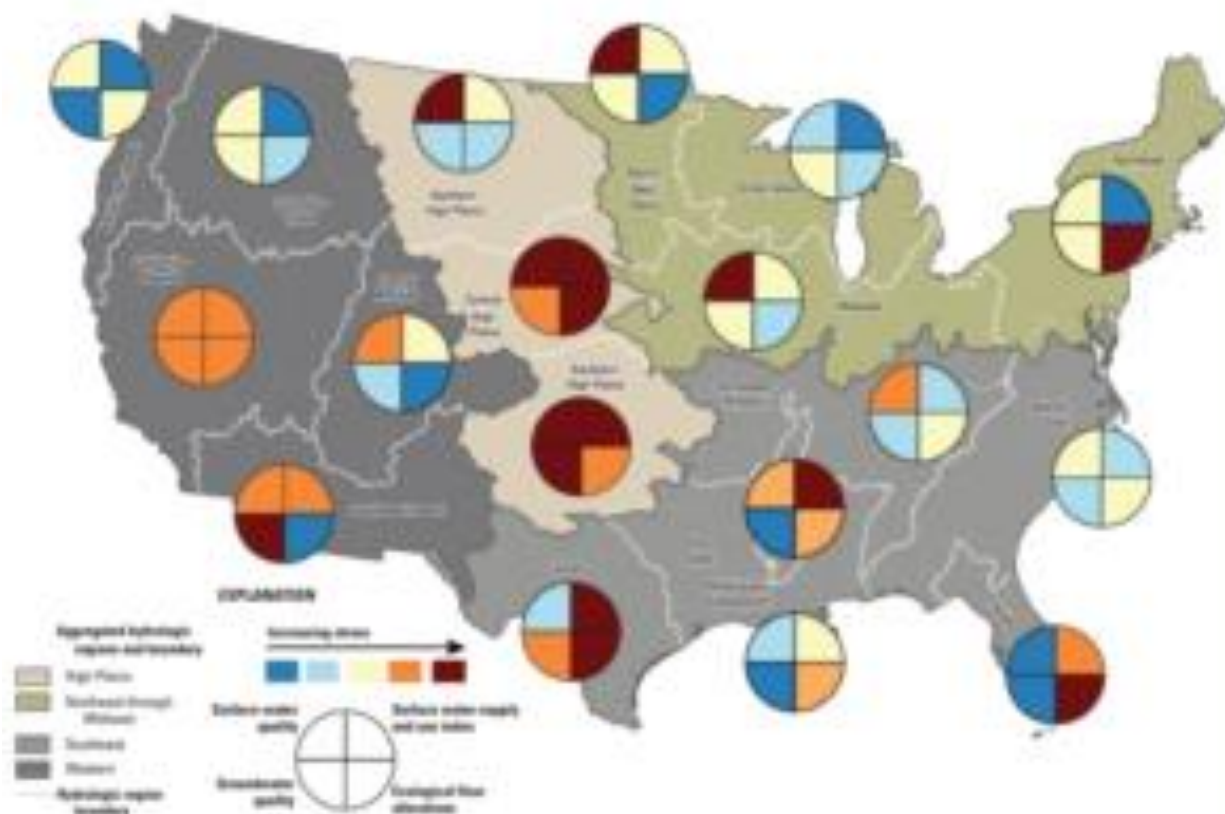


Figure 16. Assessment of relative stress on water availability in four different categories for each hydrologic region in the conterminous United States. Categories include the water stress as supply-demand imbalance (surface water supply and use index, Dale and others, 2020), surface-water quality from model estimates of total nitrogen and total phosphorus, groundwater quality from models of nitrate and arsenic (Lambert and others, 2011; Rasmussen and others, 2012), and percentage of river miles in each region with ecological flow alterations, adapted from Carlisle (2016).

The highest “interannual variability” in precipitation during the 2010–2020 period was noted in the California–Nevada, Texas, Southern High Plains, and the Southwest Desert hydrologic regions. And groundwater levels were found to be low in comparison to historical averages in key aquifers relied on by millions of people from California to the northern Atlantic coast.

The High Plains aquifers continued to show declines, which the USGS noted are part of a “long history of groundwater depletion in the region.” As well, a map of increasing stress on surface water supplies shows particularly dire conditions in the Central and Southern High Plains, and Texas.

Farmers irrigating crops remained the chief users of US water supplies, accounting for over 110 million gallons used per day, on average, in 2020, the USGS said.

The USGS has been estimating water use for decades, but hopes that its new modeling approaches will give it a more comprehensive understanding of water use across the US, officials said.

Original Article: [The New Lede by Carey Gillam](#)



Biden administration awards \$40 million toward Colorado River District's attempt to purchase Shoshone water rights

In the final days of President Joe Biden's presidency, the Colorado River District locked down the [\\$40 million award from the Bureau of Reclamation](#) it needed to purchase the Shoshone Water Rights from Xcel Energy.

The river district [struck a deal](#) with Xcel in December 2023, agreeing to a \$98.5 million price tag to acquire the water rights tied to the hydroelectric power plant in Glenwood Canyon. Acquiring the rights — which are among the Colorado River's oldest and largest non-consumptive rights — will ensure that the river's historic in-stream flows continue in perpetuity, regardless of the plant's future.

After raising \$56.9 million from [the state legislature](#), its board and the various Western Slope municipalities and utilities it serves, in November the Colorado River District submitted for \$40 million in federal dollars from the Inflation Reduction Act.

Securing the federal funding brings it within reach of the purchase price, something numerous elected officials from the Western Slope celebrated on Friday.

"Permanent protection of the Shoshone water rights is a multi-generational investment in our farms and ranches, and our thriving rural economies," Sen. Marc Catlin (R-Montrose) stated in a news release. "Today's announcement builds upon decades of work by our predecessors to protect the river as we have known it for more than a century."

Gov. Jared Polis stated that the federal support "is a huge step towards ensuring that the river will continue flowing to Western Colorado farmers, ranchers, communities and businesses."

The announcement came just days before President-elect Donald Trump takes office, bringing with him uncertainty surrounding future climate-related funding.

The senior water right tied to the Shoshone Power Plant in Glenwood Canyon dates back to 1905 and allows the power plant to divert 1,250 cubic feet per second of water. A secondary, junior right was established in 1929 for 158 cubic feet per second of water.

For many years, the Colorado River District has spearheaded the effort — alongside the state of Colorado and a coalition of West Slope governments and water users — to acquire the rights. While the agreement will allow Xcel to continue operating the power plant as long as it wants, the district has said that its purchase will add a layer of protection should the plant have permanent or temporary closures.

This need has been exacerbated in recent years due to the risks and uncertainties around the plant's age, location and susceptibility to natural hazards including wildfires and mudslides.

Today, all water used by the plant to generate electricity flows back into the Colorado River, which leaves a slight question mark about the water should the plant ever shutter.



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Under the current agreements, this water flow continues thanks to an agreement called the Shoshone Outage Protocol. However, the river district expressed that it only offers limited protection to the senior right and none to the junior right in its federal grant application.

Proponents of the acquisition say that maintaining in-stream flow — regardless of what happens with the plant — will protect the various agriculture, recreation and ecosystem needs along the 250 miles of the Colorado River from Glenwood Canyon to the state border.

There have been some concerns raised by Front Range end users of the Colorado River water rights, including Northern Water, about the district's acquisition. Northern Water's top concern is ensuring that the "actual historic flows" are protected, according to a September letter from the provider to Hickenlooper.

While the district submitted its flow assessment with the application for the Inflation Reduction Act funding, historic use will be determined by the Colorado Water Court — the final stop for the Colorado River District in acquiring these rights. It is working to complete all necessary steps by Dec. 31, 2027.

The Inflation Reduction Act allocated \$4 billion toward drought mitigation efforts. The allocation for Shoshone was part of the \$388.3 million [awarded to Colorado River Projects by the Bureau of Reclamation this week](#). This included nearly \$95 million for [15 other Western Slope water projects](#) including upgrades in the Orchard Mesa Irrigation District for the 15-mile reach, aquatic habitat improvements in the headwaters, drought resiliency projects and more.

With the award, all the projects will now move on to the next phase of executing a funding agreement and completing necessary reviews.

Original Article: [Vail Daily by Ali Longwell](#)

East Texas lawmaker's bill aims to boost water conservation efforts

A bill authored by State Rep. Cody Harris (R-Palestine) would create a fund aimed at improving water across the state.

The legislation, [HB 1400](#), would create a groundwater science, research, and innovation fund administered by the Texas Water Development Board. Money would be given to projects designed to improve understanding of local groundwater conditions, increase water conservation efforts, and protect groundwater quality, among other items.

The money for the fund would come from state revenue and donations. How much each groundwater conservation district would receive from a grant is unclear, as Harris says the bill is still being negotiated.

"Water is one of the most critical issues that we face as a state," Harris said. "The purpose of this bill is to allocate the resources necessary for the Water Development



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Board to have an updated and real-time, real-world study to determine exactly where we're at throughout our different aquifers across the state."

A companion bill, [SB 718](#), has been filed in the Texas Senate.

"The whole state is out of water," Texas Agriculture Commissioner Sid Miller said in an [interview with CBS Texas](#) last year. "We lose a lot of water because of old, inadequate infrastructure."

"What we have to be on guard for here in East Texas is the rest of the state wanting our water," Rep. Harris added. "And before we make any sorts of deals selling that water, and that would be up to the people here in these local communities, we need to make sure we understand exactly how much water we have for the future."

Original Article: [KLTV by Michael Richardson](#)



GLOBAL WATER NEWS

In MENA, make every drop of water count

In the Middle East and North Africa region, water is truly life.

[For centuries, the region was renowned for its innovation in conserving water and delivering it to people.](#) Think of the waterwheels of Hama in Syria, early irrigation dams in Yemen, and the medieval fountains and urban wells of Fez and Marrakesh in Morocco. Such achievements were technological marvels, far ahead of their time.

Fast forward to the present, and the picture changes dramatically. The region is facing a slowly creeping water emergency, with some populations already acutely at risk. [The Middle East and North Africa, or MENA, has the world's lowest average annual water availability per person,](#) equal to 480 cubic meters in 2023, less than 10 percent the global average, and below the international definition of water scarcity. And as water from rivers and lakes has become increasingly scarce, farmers and others are putting an unsustainable burden on groundwater, accelerating the crisis. Almost a quarter of those in the region now live in areas with high or extremely high stress on groundwater.

This scarcity will only worsen in the coming years. We'll see this as the demand for water grows due to population and economic growth and increased urbanization as well as with the greater impacts of climate change, which particularly affect water resources, including through evaporation and demand for cooling.

[The good news is that many countries in MENA are already moving ahead to conserve this most precious resource, and others are starting to follow.](#) There are now bountiful opportunities that can pave the way for a more water-secure future for the entire region. The successful approaches of some countries give a clear indication of the path forward.

First, we must get back to MENA's roots as a technological leader and invest in innovation. The region should embrace new digital technologies that help enhance water management, connect citizens to improved water services, and accelerate economic growth. On the supply side, desalination and re-use of treated wastewater are emerging as key approaches to boost supply. MENA now accounts for more than 53 percent of the global desalination capacity. While the cost of these technologies has come down significantly through innovation, we need further innovation to ensure that the relatively high cost of desalinated water doesn't burden the poor and the poorest countries. In parallel, it will be essential for the region to dramatically improve its water use efficiency and to reduce losses.

The region also needs to urgently **prioritize climate-smart practices** for water management. This includes increasing capacity to gather accurate climate and hydrological data, which can allow systems to adapt to changes in precipitation patterns and the greater frequency of droughts and floods. This information can help to inform



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decision-making about how to allocate water resources and prepare for such emergencies.

Countries can also steer water policy to **boost job-creating sectors**. These include climate-smart, water-efficient agriculture for exports and emerging approaches to the energy-water nexus, such as pumped storage hydropower and the use of renewable energy in water services. Prioritizing these sectors can help accelerate positive change in water management while generating much-needed jobs and building skills.

For many countries, this shift is going to require a **wide-ranging reform of the water sector**. Much of the region's infrastructure is creaky, as are the institutions that support it. Some water distribution systems in the region see losses of up to 50 percent, making loss reduction the first order of business for these countries. The region also has some of the lowest service fees for water in the world, and at 2 percent, the highest proportion of gross domestic product spent on public water subsidies. Countries will need to transition to more sustainable pricing that discourages waste while protecting the poor and vulnerable. At the same time, incentives and innovation are needed to increase private sector participation in reviving and rebuilding infrastructure, including through guarantees.

Finally, **strengthened cooperation on water resources across borders** could lead to immense benefits across the region. More than 60 percent of MENA's water resources are shared between two or more countries, presenting a significant opportunity for collaboration and partnership to better manage these vital resources. A good first step is discussion and knowledge-sharing—of which there is a rich history in the region.

This is why we are heartened to see countries coming together this week for the first regional Water Forum in Kuwait, co-organized by the Arab Fund for Economic and Social Development and the World Bank. [This forum offers an excellent opportunity to address the region's big-picture water challenges, including through strategic development finance and public-private partnerships.](#) It also reflects the deepening of our institutions' strategic partnership, with the recognition that collaboration is essential to tackle this challenge and that delivering impact at scale requires mobilizing all stakeholders.

The Arab Fund is leveraging its deep, hands-on experience that extends over half a century, and its financial capacity to address water scarcity in the region. It provided over \$8.1 billion to finance 149 water-related projects. These projects have benefited millions of people and helped Arab countries develop more than 3,800 kilometers of wastewater networks. These networks treat 6 million cubic meters of wastewater daily, crucial for enhancing food security and protecting people and the environment from diseases.

The World Bank is actively committed to helping countries in the region lay the groundwork for a more water-resilient future. In Morocco, a rural water supply project supported by the World Bank has connected more than 1.1 million people to a potable



water supply. In Egypt, an innovative approach to rural sanitation has ensured that thousands of households have had a voice in project planning and implementation. And in Jordan, a sector-wide effort is helping to systematically reduce losses and provide sufficient water to the population in one of the most water-stressed places in the world. We are convinced that such efforts will work. And [we are convinced that by working together, we can ensure that water is conserved and used wisely for sustainable development and the prosperity of future generations—in this region where every drop counts.](#)

Original Article: [World Bank Blog](#)

How credit markets are evolving in climate and nature finance

Carbon markets have been a useful instrument for mobilizing financial resources for climate and nature projects.

In recent years, the concept of “creditization” has expanded to include other areas, such as water, biodiversity, soil health and more recently, plastic. This trend can be broadly traced back to two main dynamics.

The first is the recognition of more private sector investments in sustainability – within and beyond value chains – given the vast financing gap to meet the goals of environmental conventions.

The second is an increasing convergence of the global sustainability agenda with a better understanding of payment for ecosystem services, which could benefit the environmental and social outcomes of these markets.

The failure to bridge the finance gap

The Paris Agreement, adopted in 2015 and the Kunming-Montreal Global Biodiversity Framework, adopted in 2022, set clear targets and ambitions for the climate and nature agendas.

Since then, attention has shifted primarily to implementation, focusing on how to finance the objectives laid out in the two plans.

The 29th Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC COP29), held in Baku, Azerbaijan and the 16th Conference of the Parties to the Convention on Biological Diversity (COP16) in Cali, Colombia, were both positioned as finance and implementation COPs.

There were high expectations for government commitments to mobilize resources, particularly for developing and less-developed economies which are the most impacted by climate change and generally the most biodiverse.

However, both failed to deliver important results: COP29 ended with a modest commitment to resource mobilization and COP16 was forced to re-convene for a second round in early 2025 to conclude its discussions, which ended without any agreement.



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This is not the first time global commitments on sustainability have fallen short. In 2009, under the Copenhagen Accord, countries committed to mobilize \$100 billion per year in climate finance for developing countries by 2020. That target was only met [two years later](#).

Similarly, the Aichi Targets set by the CBD COP in 2010, were also largely [missed](#), with financial resources for developing and emerging countries flowing [seven times less than needed](#).

Towards a convergence of climate and nature

Despite these sub-optimal results in mobilizing public capital, the global momentum on climate and nature finance has not slowed. On the contrary, it continues to grow, focusing more on the private sector. This has led to the multiplication of efforts and initiatives, voluntary and regulated, around carbon, water and nature credit markets.

This movement is also part of a broader shift toward recognizing the [true value of nature](#). Environmental assets are fundamental to our economy and society. Without them and the services and contributions they provide – including water cycles, climate regulation and food systems provisioning – our existence would simply not be possible. Human activities have heavily depleted these assets and services in the past decades. However, the economy has begun transitioning toward business models that better value these global commons.

Acting on nature and climate is now understood as a way to strengthen businesses and their value chain in the face of a changing planet. The risks and costs of inaction far outweigh those of action, as environmentally-related risks have been highlighted for years as the biggest long-term risks in the [Global Risk Report](#).

As a result, a new generation of financial instruments has been emerging. Carbon markets have seen continuous growth in the past two decades regarding the volume of credits traded and emissions covered by the numerous schemes, which have expanded [from 7% to 24%](#) of global emissions.

Water markets have existed for decades, focusing on water quality and quantities. Biodiversity credits have captured increasing attention from businesses and investors, promising to offer a vehicle to invest in nature and the communities that protect it.

Looking at the future of sustainability credits

This development is positive news for the environment, as private capital will be crucial in bridging the current sustainability financing gap. However, voluntary initiatives alone won't be sufficient. The global carbon market is estimated at more than \$1 trillion but the voluntary market covers [less than \\$1 billion](#).

Similarly, while compliance and regulated nature finance investments flow in the billions – such as water trading market and biodiversity offsets – investments in voluntary instruments such as nature credits remain limited to only a few million dollars.



Voluntary action will, therefore, need to be supported by policy regulations and incentives to thrive. Public-private cooperation will be key in defining which regulations benefit the market and its stakeholders, from project developers and Indigenous People and local communities to buyers and investors.

This is already happening in some frontrunners countries, such as [Australia](#), which is setting up a Nature Repair Market; [India with its Green Credit Programme](#) and the [European Union](#), where the new commission will be actively exploring the role of nature markets to mobilize investments for the Nature Restoration Law.

The lessons learned from these experiences will be invaluable in ensuring positive outcomes from these markets.

Moreover, projects underpinning these credits are increasingly focusing on landscape, ecosystem, or habitat-level approaches, blending the metrics of success of these outcomes-based instruments.

For example, nature-based carbon credit projects include carbon and biodiversity metrics, while other nature credits use a range of ecosystem health indicators – see for instance the [Cusuco National Park](#) project by rePLANET, which stacks carbon and biodiversity.

This holistic approach benefits the integrity of the projects, avoiding, for example, the proliferation of mono-plantation projects common in the carbon market. It also benefits the buyer side, which faces increasingly complex procurement, disclosure and reporting requirements.

Additionally, a holistic approach could strengthen the business case for investing in these projects by merging the varying types and levels of materiality that water, carbon and biodiversity have for different sectors and businesses.

Breaking silos will, therefore, have positive benefits across the spectrum. Multi-stakeholder dialogues and public-private partnerships are needed to create an enabling environment to ensure positive benefits for people and nature.

Original Article: [WEF](#)

HCL Group and UpLink Announce Winners of ‘Tackling Water Pollution Challenge’ Under the Aquapreneur Innovation Initiative

[HCL Group](#), a leading global conglomerate, and UpLink, the World Economic Forum’s early-stage innovation initiative, have announced the winners of the ‘[Tackling Water Pollution Challenge](#),’ the third in a series of five challenges under the five-year, CHF 15 million Aquapreneur Innovation Initiative launched by HCL Group. The announcement marks a significant step in the ongoing mission to address global water challenges through groundbreaking innovation and entrepreneurship.

After evaluating over 270 submissions from around 60 nations, 10 Aquapreneurs from 9 countries were chosen for their innovative solutions in the freshwater sector. This year’s



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winners, termed 'UpLink Top Innovators and Aquapreneurs', reflect a diverse set of expertise demonstrating the transformative potential of innovation in tackling water pollution worldwide. The winners will share financial award from a pool of CHF 1.75 million, enabling them to scale their initiatives and amplify their impact. In addition to funding, the winners will also gain access to exclusive resources, mentorship, and global networks provided by HCL Group and UpLink.

The Tackling Water Pollution Challenge was dedicated to addressing freshwater issues worldwide, with special focus on combating water pollution. Solutions presented by winners included cutting-edge advancements in filtration systems, wastewater treatment, industrial water reuse, and water quality monitoring technologies.

Highlighting the role of Aquapreneur Innovation Initiative in combating challenges related to freshwater, Roshni Nadar Malhotra, Chairperson of HCL Group, said: "Water scarcity and pollution are existential threats to humanity and biodiversity. The Aquapreneur Innovation Initiative launched a couple of years ago aims to discover and support the most innovative start-ups and scale-ups tackling the world's most pressing water issues. The 20 pioneering start-ups, winners of the previous two years, have collectively gone on to achieve immense success. In 2024 alone, they helped save over 12 billion litres of water, equivalent to Switzerland's entire water footprint each year. They also treated 3 billion litres of wastewater. The Grant provided by HCL enabled them to expand to new markets, deploy pilot projects, increase customer count, and scale-up production and operations. These 20 start-ups have raised US\$70 million in funding since joining the Initiative. So, congratulations to all ten of this year's winners. I'm already looking forward to returning to Davos next year to share their successes!"

Added Olivier Schwab, Managing Director of the World Economic Forum, "As water challenges grow more urgent, HCL Group and UpLink's continued commitment underscores the need for collaborative innovation to safeguard freshwater ecosystems. The initiative is not just driving immediate solutions, investment and multistakeholder partnerships —it is paving the way for a sustainable future where clean, accessible water is a reality for all. By supporting bold, scalable solutions, we are making a critical contribution to addressing one of the most significant global challenges of our time. The collaboration between HCL Group and UpLink continues to set a global benchmark for how innovation can drive large-scale, lasting change."

Water pollution is a global challenge, with about 80% of the world's untreated wastewater being released into rivers, lakes, and oceans. This leads to 485,000 premature deaths every year worldwide and costs the global economy \$260 billion annually. The challenge of water pollution intensifies as countries industrialize, with chemical contamination of freshwater sources being prominent across industrial economies. This includes the rise of microplastics and PFAS (Per- and polyfluorinated



alkyl substances), also known as the Forever Chemicals in water supplies, risking public health.

The 2025 Tackling Water Pollution Challenge Winners

Aquagga, United States of America, focuses on innovative PFAS destruction using its Hydrothermal Alkaline Treatment (HALT) technology for environmental remediation and wastewater treatment.

Digital Paani, India, focuses on enhancing operational excellence in water treatment, addressing water scarcity and pollution through scalable solutions in under-resourced areas.

Fluidion, France, advances water intelligence with innovative sampling solutions that monitor pollution and water quality across urban, natural, and industrial environments. FREDsense, Canada, provides in-field lab-based water quality testing solutions, empowering utilities and environmental consultants with real-time, accurate data for effective water management.

Fungi Life, Colombia, uses fungal biotechnology to create sustainable ingredients, aiming for net-zero emissions by revalorizing agro-industrial waste for environmental sustainability.

Mimbly, Sweden, optimizes water resources in the laundry industry through innovative recycling and filtration solutions, promoting sustainability with advanced water-saving technologies.

Oxyle, Switzerland, offers an economical, sustainable solution to PFAS contamination by completely eliminating PFAS from water, empowering industrial and environmental remediation companies to tackle contamination effectively.

SENTRY, Canada, is a biological activity and water quality monitoring platform that uses unique bio-electrode sensor technology for real-time microbial performance monitoring in wastewater treatment systems.

Syrinx, Australia, offers innovative water treatment solutions with its nature-based 'Wetland-in-a-Box'[®] (EnPhytoBox), addressing water pollution and boosting climate resilience, especially in agriculture.

WASE, United Kingdom, treats industrial wastewater onsite, helping customers comply with regulations, maximize bioenergy generation, and decarbonize thermal energy demands through sustainable, economically viable solutions.

In addition to the financial awards, the winners will have the opportunity to participate in events and projects led by the World Economic Forum and its partners. These opportunities will provide invaluable support to scale their ventures, ensuring sustainable and impactful solutions for water challenges.

Since its inception, the Aquapreneur Innovation Initiative has made notable progress in addressing global freshwater challenges. This funding has enabled winners to innovate, scale production, and expand into new markets. The initiative has also driven progress



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in water conservation, wastewater treatment, greenhouse gas emission reductions, and job creation. To date, top innovators have cumulatively raised over \$70 million in funding to scale their innovations.

HCL Group and UpLink's ongoing collaboration underscores their shared commitment to sustainability and innovation, paving the way for a future where freshwater resources are managed responsibly and effectively.

Original Article: [Yahoo Finance/ Business Wire](#)

Groundwater threatened by droughts and heavy rainfalls

Extreme climate events endanger groundwater quality and stability, when rain water evades natural purification processes in the soil. This was demonstrated in long-term groundwater analyses using new analytical methods, as described in a recent study in "Nature Communications". As billions of people rely on sufficient and clean groundwater for drinking, understanding the impacts of climate extremes on future water security is crucial.

Groundwater-containing rock formations, termed aquifers, are commonly recharged through precipitation seeping through the soil. During this passage, substances taken up at the surface are removed from the water via sorption to soil minerals or they are metabolized by soil microorganisms. This natural filtering process results in highly purified groundwater resources. However, rainfall can sometimes quickly flow into deeper soil layers thereby evading purification and transporting large amounts of dissolved substances from the surface and upper soil layers into groundwater aquifers. This is particularly true following extreme rainfall and after drought periods. Extended droughts induce large cracks in the soil and they also reduce the uptake of rain water in upper soils. Under such conditions, water flows more directly into the groundwater, or alternatively runs off into rivers, lakes and oceans. The groundwater is then not sufficiently replenished, but also contaminated with unwanted and potentially harmful substances from the surface and upper soil layers. These may include, e. g., organic matter, herbicides and pesticides, microbial products like antibiotics, as well as any other pollutants.

In a novel experimental approach Simon A. Schroeter, Gerd Gleixner and Susan Trumbore from Max Planck Institute for Biogeochemistry performed long-term groundwater analyses in Germany, together with a large research team from Friedrich Schiller University Jena. They used detection of dissolved organic matter as a proxy for water contaminants and confirmed fundamental changes in groundwater stability. "Our results suggest that climate change-induced extreme weather events are already altering groundwater quality and its recharge dynamics," says postdoctoral researcher Simon Schroeter.

Newly developed untargeted approach



The research team studied groundwater and the corresponding hydroclimatic conditions in three geologically distinct research sites in Germany between 2014 and 2021. They analyzed water quality by tracking thousands of individual molecular entities on their passage from soil into groundwater. In contrast to standard methods, i.e. targeting the bulk concentration of dissolved organic carbon, their newly developed untargeted approach allowed them to detect any changes in the amount and chemical composition of organic molecules.

During up to 8 years of analysis, the scientists found consistent long-term trends: Increasing amounts of surface-derived organic substances accumulating in groundwater, as well as decreasing groundwater levels. In addition, they were able to clearly correlate such increased groundwater contamination with extreme weather events, in particular with the drought in 2018. Their results suggest that the new method is significantly more sensitive to detect changes in groundwater quality than the commonly employed carbon measurement. It could therefore serve as a future early indicator of groundwater quality deterioration. While the method relies on organic molecules as indicators of water contamination, the actual contaminants may include any pollutants washed out from the surface. Genomic analyses of microorganisms in the groundwater can then provide information about possible degradation pathways.

Need for sustainable water management

As climate change continues to intensify, scientists call for increased attention to groundwater management and mitigation strategies towards impacts of hydroclimatic extremes. The decline in the soil's natural water purification processes amplifies the stress our society already faces due to diminishing groundwater levels. Recent investigations warn that the climate-induced decrease in groundwater quality may exceed that of anthropogenic pollution. Gerd Gleixner, head of the research group, adds, "Our method will help to identify risks for groundwater quality in aquifers that are thought to be clean and safe to use for the future. Our research results underscore the urgent need for sustainable water management practices to protect this vital resource."

The study is part of the Collaborative Research Center AquaDiva of the University of Jena, led by Kirsten Küsel, Susan Trumbore and Kai Totsche, an interdisciplinary initiative focusing on understanding the interactions between surface and subsurface ecosystems and their response to environmental changes. By integrating expertise from biogeochemistry, hydrogeology and microbiology, AquaDiva aims to uncover the complex processes that govern groundwater ecosystems and their resilience to climate change.

Original Article: [Universität Jena by Eberhard Fritz](#)



Engineers develop revolutionary system that transforms seawater into next-gen energy source — here's what you need to know

Two engineers from Hamad Bin Khalifa University in Qatar have developed a modular desalination system that can also provide electricity, hydrogen, and cool air for refrigeration, Tech Xplore [reported](#).

By removing salt from seawater or brackish groundwater sources, [desalination](#) can help provide clean water for [drinking](#), cooking, and washing where it's a scarce resource. Saudi Arabia, with a population of around 35 million people, gets around 50% of its drinking water from desalination projects, according to a United Nations [report](#).

In arid desert areas, groundwater sources are more readily available than seawater, and the process could help bolster agricultural development in those regions. Groundwater is also better suited for freshwater production because of its temperature stability, lower salinity, and less fouling potential, the study [explained](#).

Although the process is energy-intensive and usually taps into [dirty fuels](#) for power, this newly proposed system would use [sustainable solar](#), reducing the planet-warming pollution released into the atmosphere.

The modular system starts with a [bifacial solar array](#) that covers about 116,000 square feet, with the daily potential of creating 1.5 megawatts of electricity. According to [Tech Xplore](#), about 100 kilowatts of that energy will power the integrated system's electrical needs, while the rest will be used to precool groundwater and run water pumps.

The next phase uses a vapor compressor module, where the saline water is cooled to create freshwater ice crystals that can be separated from the mix easily. Blowing air over that ice can provide air conditioning as part of the process. When it melts, it can be used for drinking or crop irrigation, the report [continued](#), with 52.8 cubic meters of water created daily.

The last segment of the system uses a proton exchange membrane [electrolyzer](#) to deionize a remaining portion of the water, which produces hydrogen gas. This can be collected and used to [power a fuel cell](#) that will help the system run overnight.

Some of the water generated could support local [agrivoltaic projects](#), which are dual-purpose agriculture and photovoltaic zones, making better use of the solar array's ground space and increasing food security for local inhabitants.

This sustainable, integrated system could revitalize desert areas and help residents combat the [droughts and heat waves](#) that are increasingly common in our changing climate.

This development could be a turning point for people who live there, especially if it is paired with crops that have been [engineered](#) to be more resistant to [extreme weather](#).

Original Article: [The Cool Down by Jon Turi](#)



New groundwater trading platform for south-west Victoria

A new online trade room has opened on the Southern Rural Water Exchange, making it easier and more transparent for people in south-west Victoria to access groundwater. The groundwater trade room has been developed by not-for-profit water broker Water Partners in partnership with Southern Rural Water and is now open to licensed groundwater customers in south-west Victoria for temporary or permanent trade. It helps existing groundwater licence holders to buy and sell in the following Groundwater Management Areas or Water Supply Protection Areas:

- South West Limestone Groundwater Management Area.
- Portland Groundwater Management Area.
- Condah Water Supply Protection Area.
- Newlingrook Groundwater Management Area.
- Paaratte Groundwater Management Area.
- Warrion Water Supply Protection Area.
- Colongulac Groundwater Management Area.
- Glenormiston Groundwater Management Area.

These areas have capped groundwater entitlement volumes to protect the resource. Trade is the main way users gain access to groundwater and the new trade room makes it easier for buyers and sellers in these areas to apply for trade. The trade room will be expanded to more groundwater customers in the future. Original Article: [Daily News Australia by McPherson Media Group](#)

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