

# Veles Water Weekly Report

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**VelesWater**



## WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell

**CLICK THE LINK BELOW**

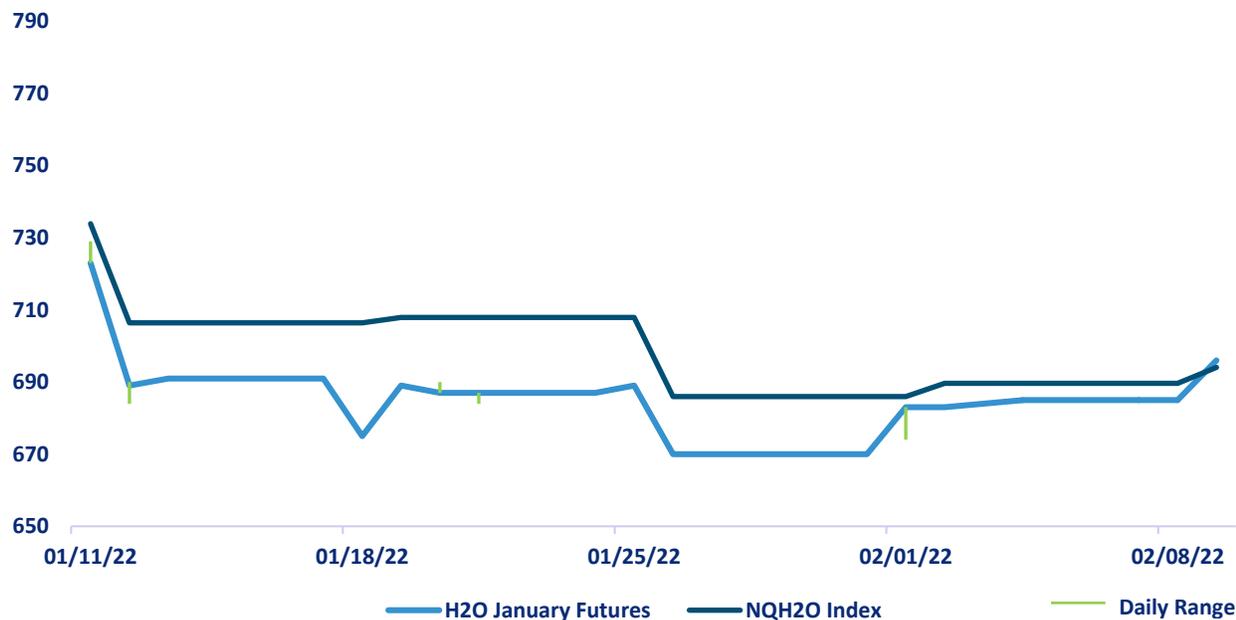
*"A 2 minute technical analysis video of H2O futures"*

<https://vimeo.com/675818250>



## NQH2O INDEX PRICE vs H2O FUTURES PRICE

### 1 Month Price Performance NQH2O Index vs H2O Futures



Price Chart Based upon Daily Close

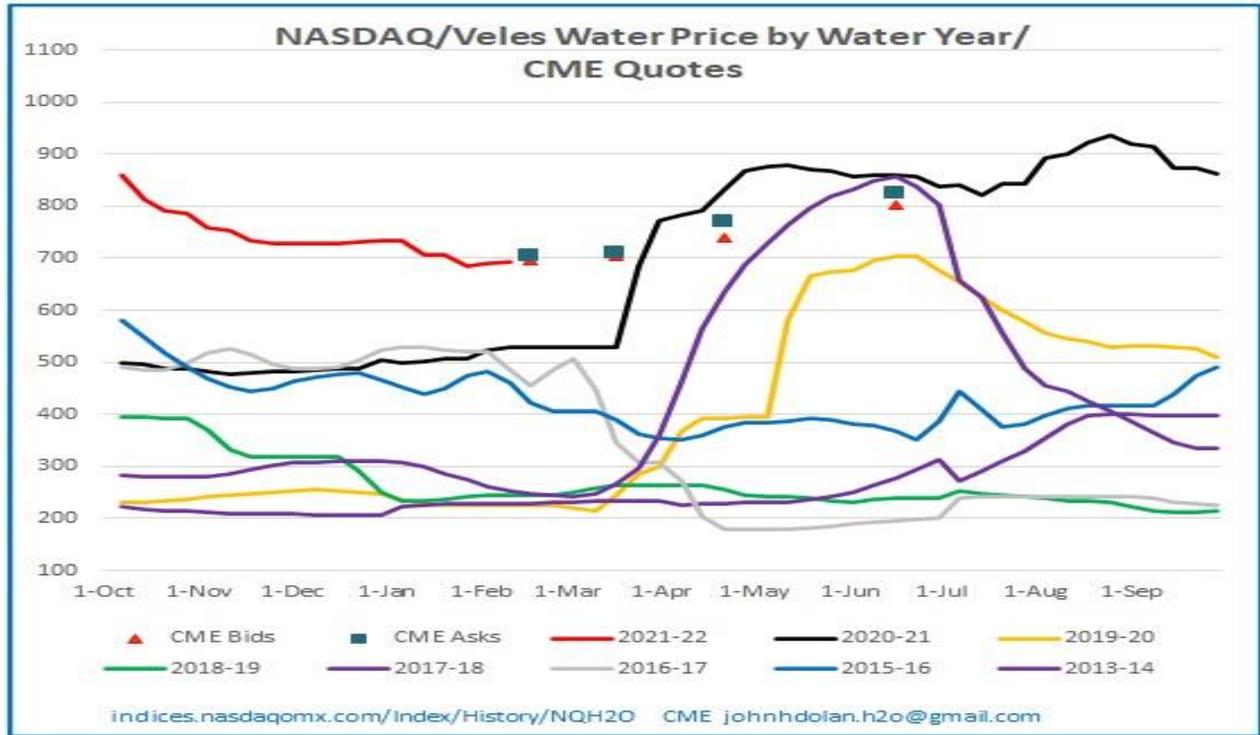
The new NQH2O index level of \$694.08 was published on the 9<sup>th</sup> of February, up \$4.47 or 0.65%. The February Futures have been trading at a discount to the index of \$4.61 and now sit at premium of \$1.92. The reversal from a discount to a premium shows the change in market sentiment indicating prices may move higher.

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

February 22	671@725
March 22	702@712
April 22	737@782
June 22	806@825



NQH2O INDEX HISTORY



The graph above lays out the Nasdaq Veles water index by year, showing 2013- 2022. In very dry years, prices clearly rise through the spring, peaking in May to July (with the exception of 2015) as demand for water from farmers peaks. Prices then taper off heading into the winter on reduced demand, and the possibility of rain/snow. The restricted ability to “carry” water, much like one can do with financial contracts, gives this index the same type of seasonal pattern that one sees on some other commodities.

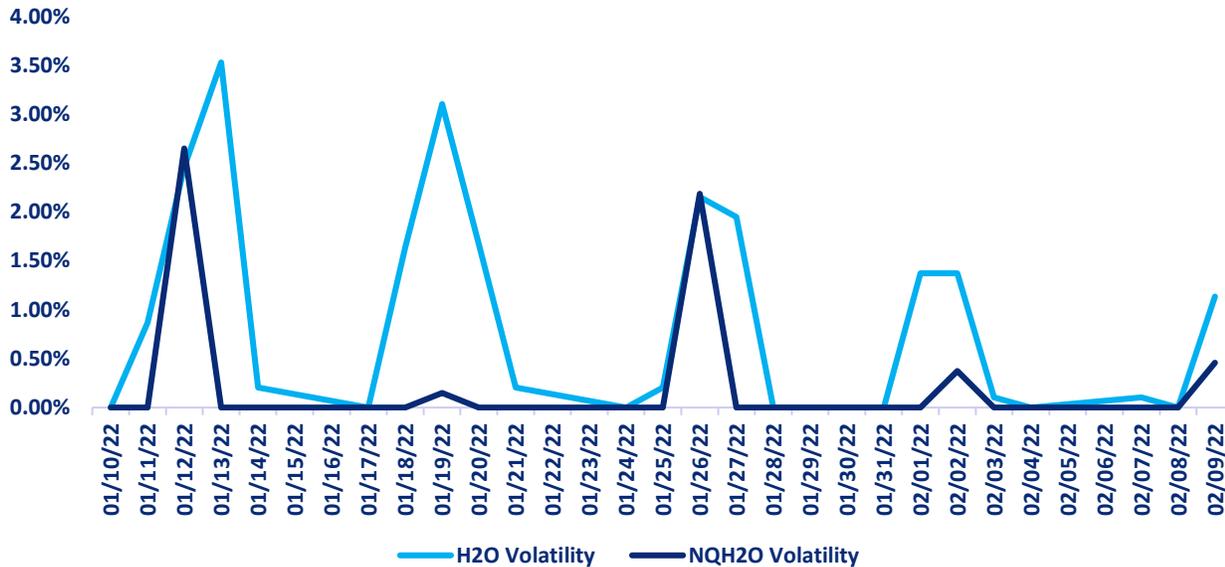
The graph for 2021 is highlighted in red. It shows the same seasonal climb, but at record-high values above each of the last eight years since February. Current bids and offers in the market are still higher than historic prices showing that expectations are that this is an exceptionally dry year and prices may not fall seasonally as much as they have in prior dry years.

**(John H Dolan, CME Market Maker)**



## H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

### Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



#### DAILY VOLATILITY

Over the last week the February daily future volatility high has been 1.14% on February and a low of 0% on the 4<sup>th</sup>.

ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	34.97%	4.47%	3.58%	0.118%
H2O FUTURES	N/A	7.25%	5.01%	1.42%

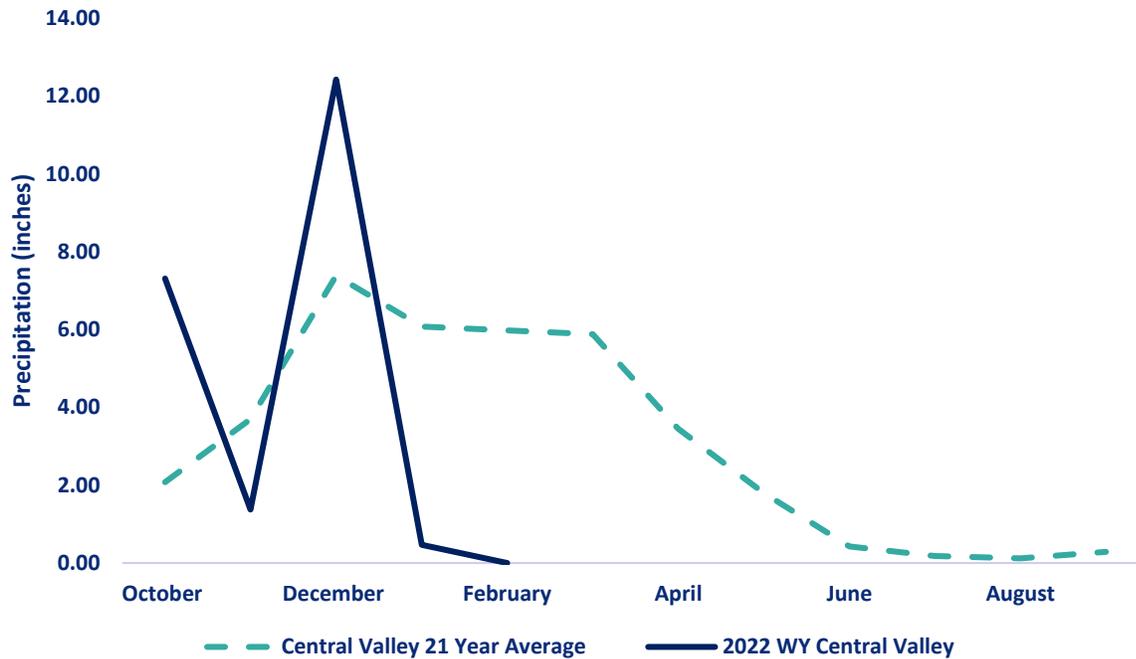
For the week ending on the February 9<sup>th</sup> the two-month futures volatility is at a premium of 2.78% to the index, down 0.02% from the previous week. The one-month futures volatility is at a premium of 1.43% to the index, down 1.45% from last week. The one-week futures volatility is at a premium of 1.30% to the index, a reversal of 1.72% from the previous week. The convergence of the index and futures volatility is showing the index is catching up to where the futures were predicting.

*Above prices are all **HISTORIC VOLATILITIES** and **IMPLIED VOLATILITIES** will be introduced once an options market has been established. 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 02/02/2022

STATION	MTD (INCHES)	WEEK ON WEEK CHANGE (INCHES)	% OF 20 YEAR AVERAGE MTD	2022 WYTD VS 2021 WYTD %	2022 WY VS 20 YEAR AVERAGE TO DATE %
SAN JOAQUIN 5 STATION (5SI)	0	0.00	0.00%	58	94
TULARE 6 STATION (6SI)	0.01	0.01	0.24%	44	86
NORTHERN SIERRA 8 STATION (8SI)	0	0.00	0.00%	52	107
CENTRAL VALLEY TOTAL	0.01	0.00	0.08%	51	96

## RESERVOIR STORAGE

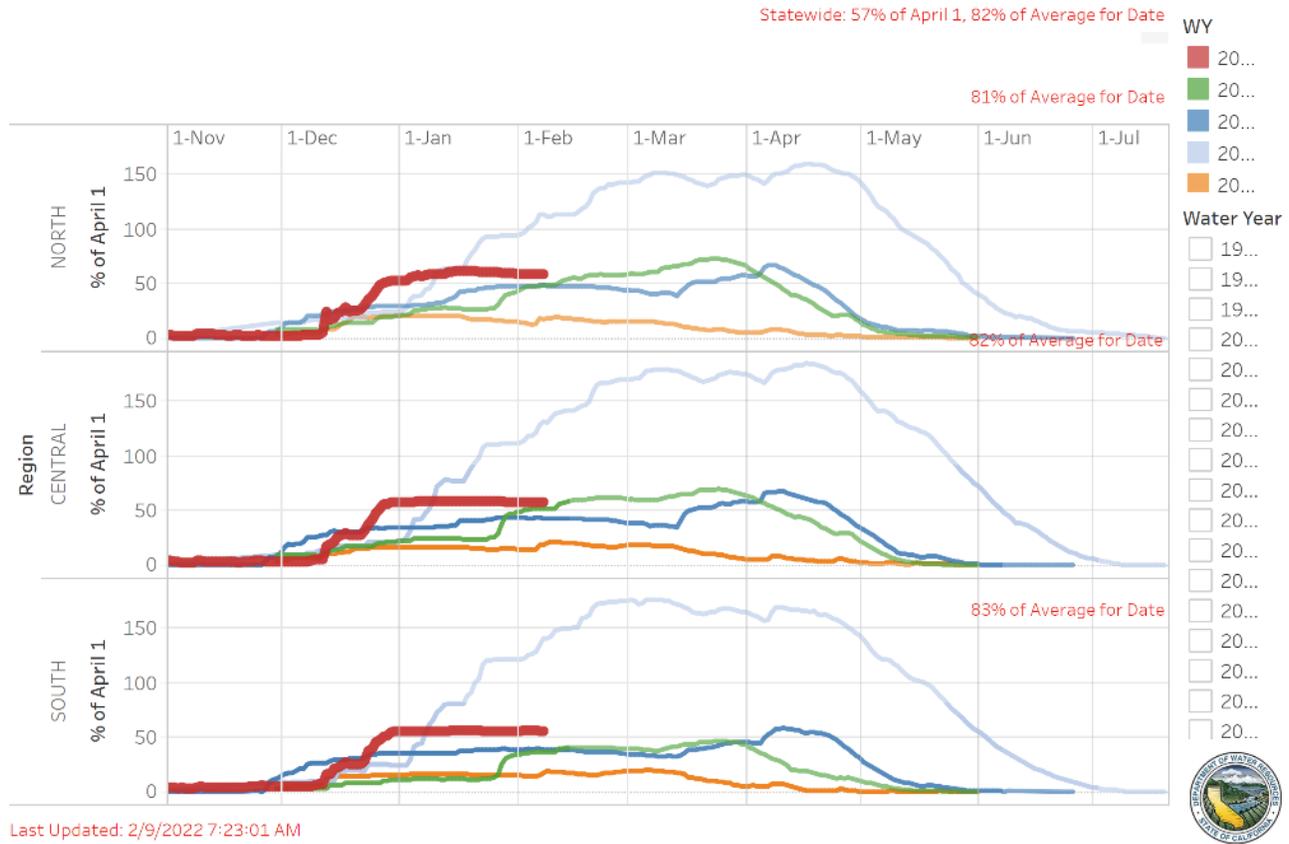
RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	767,313	31	51	48
SHASTA LAKE	1,643,710	36	48	54
LAKE OROVILLE	1,641,080	46	36	78
SAN LUIS RES	915,139	45	54	59

Reference: [California Water Data Exchange](#)



# SNOWPACK WATER CONTENT

## Snow Water Equivalent Dashboard



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	16.7	-0.10%	67	81	58
CENTRAL SIERRA	16.5	-0.20%	73	82	57
SOUTHERN SIERRA	13.9	-0.10%	54	83	55
STATEWIDE	15.8	0.00%	66	82	57

\*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.

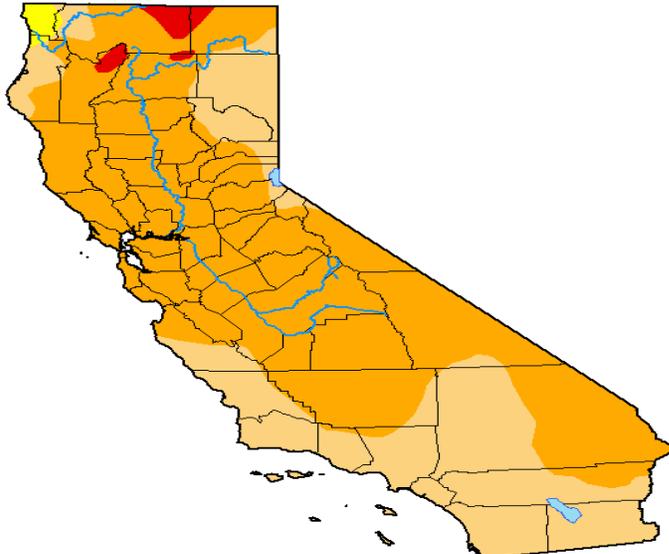
\*\* April 1<sup>st</sup> is used as the benchmark as it when the snowpack in California is generally deepest. It has been used the benchmark date since 1941 by DWR and can be used to predict spring river flow.



# DROUGHT MONITOR

## U.S. Drought Monitor California

**February 1, 2022**  
(Released Thursday, Feb. 3, 2022)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	99.25	66.39	1.39	0.00
<b>Last Week</b> 01-25-2022	0.00	100.00	99.25	66.39	1.39	0.00
<b>3 Months Ago</b> 11-02-2021	0.00	100.00	100.00	93.81	83.33	38.74
<b>Start of Calendar Year</b> 01-04-2022	0.00	100.00	99.30	67.62	16.60	0.84
<b>Start of Water Year</b> 09-28-2021	0.00	100.00	100.00	93.93	87.88	45.66
<b>One Year Ago</b> 02-02-2021	0.00	100.00	85.99	58.44	31.65	3.75

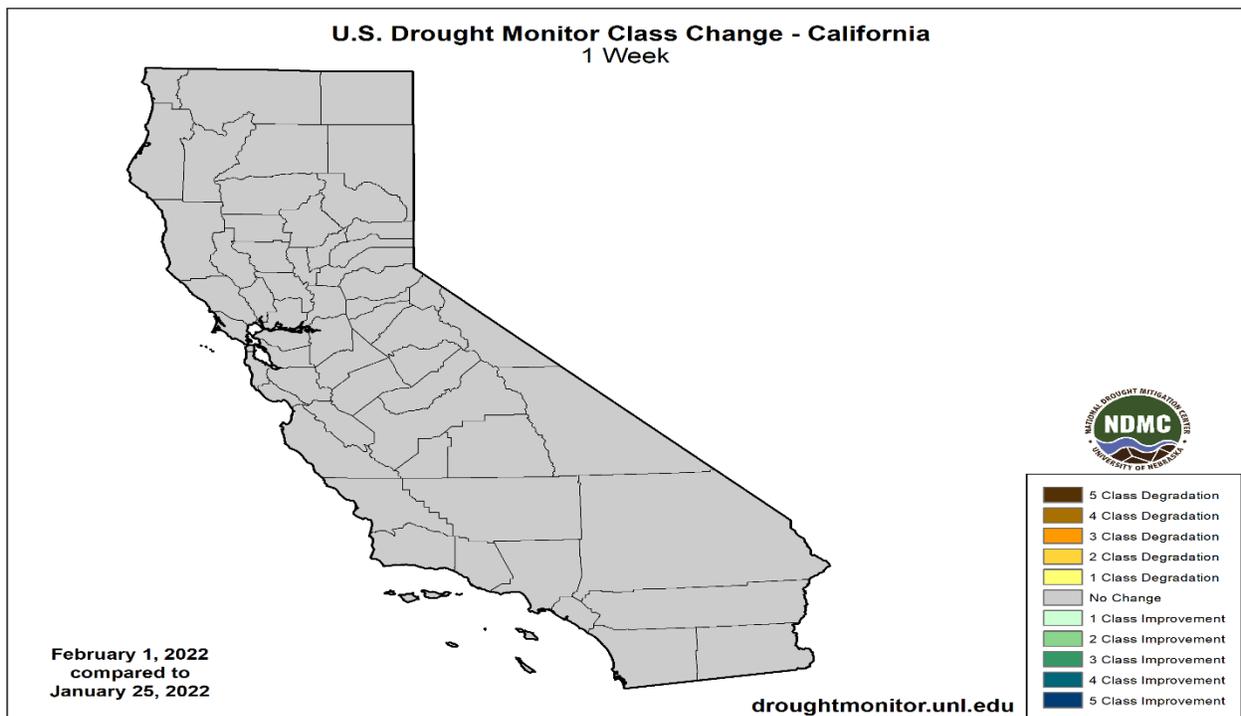
Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

Author:

Curtis Riganti  
National Drought Mitigation Center

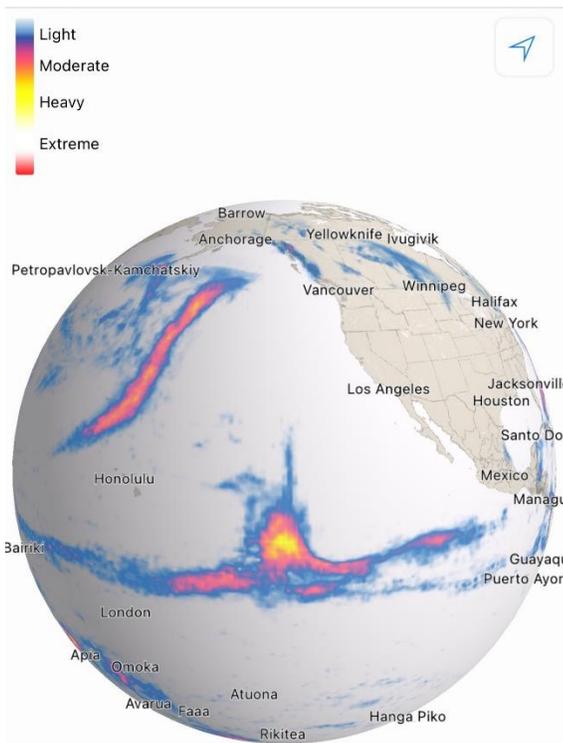


The US Drought Monitor release their statistics with a 1-week lag to this report. Over the past week there has been 0% change in all classifications of drought. Still important to note that 0% of California is classed as being in Exceptional (D4) drought conditions and 100% of California is in some form of drought.

*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



Map Reference: Dark Sky

The current satellite picture shows the problem affecting California with a large clear sky area over the Western US, with the Californian region being the near epicenter. The large clear area represents a high-pressure system which is preventing the frontal systems from the North being able to reach the South and it is also dissipating the moisture systems further South to the east of Honolulu which could bring in warmer atmospheric rivers.

As can be seen both the frontal systems and the warmer systems are formed but are held back back by the effects of the descending air of the high-pressure system.

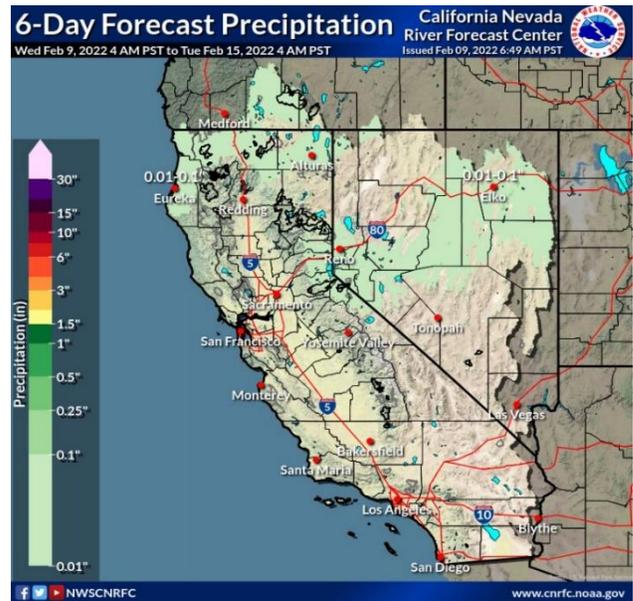
There is no Monsoonal effect at this time of the year as the current weather systems dominate.

Our models are still showing that there is still the possibility for some precipitation over the next 2 months but while these are still probable the likelihood is slowly decreasing.

## 10 Day Outlook

High pressure over the region for a dry weekend. A trough approaches the Pac NW late Sunday/early Monday then digs into the region during the day Monday into Tuesday. This could bring a little precipitation to the northern portion of the region (mainly near ORCA border and Nrn NV). The 00Z Ec deterministic is a bit quicker and farther south than the GFS. The forecast leans farther north and slower with a blend of WPC and GFS during the day Monday and WPC only for Monday night. Precipitation amounts generally a tenth of an inch or less (locally up to a quarter of an inch). Max temperatures around 10 to 20 degrees above normal for the weekend then cooling to near to around 10 degrees above normal on Monday and near to 10 degrees below normal for Tuesday.

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





### WESTERN WEATHER DISCUSSION

Weather across the West region was mostly dry this week. A small area of precipitation along the Idaho/Montana border improved conditions enough for a small reduction in abnormal dryness there. Exceptional drought was introduced in and around Roswell, New Mexico this week, due to significant short-term precipitation deficits and warm and windy conditions that have resulted in the loss of topsoil. After a very dry January, high elevation snowpack in parts of the West has begun to drift away from the above-normal values from the start of the new year.

Reference:

Curtis Riganti, National Drought Mitigation Center  
Richard Tinker, NOAA/NWS/NCEP/CPC



## WATER NEWS

### CALIFORNIA WATER NEWS

#### **TID lands \$20 million grant to see if placing solar panels atop canals makes sense**

The Turlock Irrigation District plans to use a \$20 million state grant to demonstrate solar panels atop canals.

TID would be the first water agency in the nation to try such a thing if its board votes Tuesday to accept the money.

The panels would feed electricity into transmission lines already along the canals, helping TID boost the renewable sources for its 103,000 or so power customers. The devices also would shade the water, possibly reducing evaporation losses for farmers.

The pilot project [grew out of a study](#) last year at the Merced and Santa Cruz campuses of the University of California. Researchers said installing canal panels throughout the Central Valley could get the state halfway to its goal for climate-safe power.

TID plans to test the idea on two small canal segments. One is on the Main Canal about five miles east of Hickman. The other is along the Ceres Main Canal and Upper Lateral 3, about three miles west of Keyes.

Details were not available Friday on the power capacity of the panels or the timeline for installing and evaluating them. The effort will involve UC researchers and Solar AquaGrid LLC, a Berkeley-based company that has promoted the idea.

“The project will serve as a proof-of-concept to pilot, research and study the solar-over-canal design and scalability using district land and electric grid access,” said a TID staff report in advance of Tuesday’s meeting.

The panels would be suspended over the canals in a way that does not interfere with operation and maintenance of the water system. The project includes batteries or another means of storing daytime power from the sun for use later.

The \$20 million comes from the California Department of Water Resources, which chose TID for the pilot project. Gov. Gavin Newsom made it a specific line item in the 2021-22 budget because of the high interest in the research findings.

Original Article: [The Modesto Bee by John Holland](#)

#### **California Department of Water Resources Takes Next Steps Towards Groundwater Sustainability - Groundwater Accounts for Almost 60 Percent of the State's Total Annual Water Supply in Drought Years**

California has reached a major milestone in its implementation of the landmark Sustainable Groundwater Management Act (SGMA). The California Department of Water Resources (DWR) has completed the official assessments for the first-



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ever groundwater sustainability plans developed by local agencies and submitted in 2020 to set and achieve sustainability goals over a 20-year period. This milestone is the result of a lot of hard work by local agencies, backed by state investments to support local SGMA decision-making and implementation efforts. The department has completed assessments for 20 groundwater basins, containing a total of 42 plans, including critically overdrafted basins that provide water supply for millions of Californians, agriculture and the environment.

“Bringing our groundwater basins into sustainability will provide the state with long-term drought resiliency, but it is not going to be easy,” said DWR Director Karla Nemeth. “These initial plans are the first step in a 20-year effort to solve decades-long challenges. With the added complexities of climate change upon us, now is the time for locals and the State to come together and lead with courage to tackle these challenges head-on.” Groundwater accounts for 40 percent of the state's total annual water supply in normal years and almost 60 percent in drought years. For decades, however, more water has been pumped out of groundwater basins than has been replenished, which has led to declining groundwater levels in nearly 100 basins across the state.

The enactment of SGMA set forth a statewide regulatory framework for improving the management of critical groundwater resources. Importantly, SGMA recognizes that each basin is unique and provides tools and authorities for local groundwater sustainability agencies (GSAs) to manage their basins in cooperation with their community members. Despite the 20-year timeline to reach sustainability, SGMA requires near-term actions by GSAs, including conducting ongoing monitoring, collecting data, updating plans, and carrying out projects and actions to assure sustainable groundwater conditions for future generations.

The basins that have received approved plans are expected to continue moving forward with their local planning and implementation efforts. DWR expects to see specific sections of these plans updated during the first five-year plan update due in 2025.

The basins that have received incomplete determinations have 180 days from the release date of the assessments to correct the deficiencies in their plans, including key issues related to impacts on drinking water, land subsidence and interconnected surface water and groundwater. During this 180-day period, DWR staff is offering meetings with the agencies in these basins to provide clarification on the deficiencies identified in the written assessment. Additionally, DWR provides ongoing facilitation support services to help GSAs and local water management groups foster discussions among diverse water management interests and jurisdictions. Failure to resolve the deficiencies within 180 days will initiate consultation with the State Water Resources Control Board for possible State intervention. The Water Board's role in implementation of SGMA is to step in temporarily to manage groundwater resources in groundwater basins where local agencies are not on track to sustainable management within the required 20-year timeline. In keeping with the principle of effective local control that underpins the Act,



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the Board's involvement would continue only until local agencies are on track to sustainably manage groundwater resources themselves. The Board would provide direction to agencies on deficiencies in their basin plans that must be addressed to end state management.

This SGMA milestone represents the first phase in a process of ongoing work, including the submittal of another round of GSPs that were due by January 31, 2022. DWR received all of the plans that were required to be submitted in 2022 - 63 basins containing 65 plans - and will begin reviewing these plans, as well as continue to review annual reports and assess updated plans every five years to determine if the GSAs are on track to meet their basin's sustainability goals.

A significant amount of work has gone into the development of the plans submitted by local agencies in 2020 and the evaluation of the plans by DWR. The department is communicating these decisions with the local managers in these basins and recognizing the local leadership and investment to manage groundwater more sustainably. The State will continue to provide available resources (facilitation, data and tools, and grant funding) to support ongoing local efforts to improve plans and work towards sustainability.

From the onset of SGMA, the state has made tremendous investments to ensure local agencies have the tools they need to be successful, including providing grants to local agencies for planning and project implementation, facilitation support, and technical support services.

DWR's Sustainable Groundwater Management (SGM) Grant Program provides essential funding to assist local GSAs to develop and implement sustainable groundwater planning and projects. Approximately \$150 million in planning grants has been awarded to date through three rounds of solicitations. The Implementation Grant Program was designed to fund projects and programs that will assist local agencies as they implement groundwater sustainability plans. DWR awarded \$26 million in Proposition 68 funding during the spring 2021 as part of its first round of the Implementation Grant Program. The 2021-22 state budget included \$300 million over the next several years for grants to support local planning and implementation of groundwater sustainability plans across groundwater basins. This funding will help local agencies address known data gaps, plan and implement projects, and address deficiencies in sustainability plans.

In addition to funding, DWR has provided educational toolkits for the public, guidance documents and outreach and engagement toolkits for GSAs, and facilitation and written translation services to support GSA engagement with local interested parties including non-English speaking communities. On an ongoing basis, DWR shares groundwater educational videos in various languages, press releases, webinars, and educational materials about SGMA, GSP development and GSP evaluations.

DWR has a long history of collecting groundwater data and making it publicly available. Since the onset of SGMA, and ongoing drought conditions in California, DWR's data



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collection and technical assistance efforts have ramped up quickly. DWR staff has installed 15 stream gauges and 33 new monitoring wells in basins throughout the state to help GSAs fill data gaps in their plans. In response to drought conditions in 2021, DWR enhanced the MyDryWaterSupply (now MyDryWell) webpage where local governments, GSAs and individuals can report dry wells. In November 2021, DWR released California's Groundwater (B-118) Update 2020 and its complementary CalGW Live website and dashboard tools – a powerful new interactive, easy-to-use tool that allows people to customize dashboards conveying the latest information about wells, groundwater levels, and subsidence. The C2VSimFG model, Groundwater Conditions Update Report and Maps have been updated, and the Statewide Subsidence dataset has been updated through the 2021 water year with quarterly data releases beginning in 2022. In 2021, DWR launched the first statewide Airborne Electromagnetic (AEM) surveys, initiating this three-year program and providing extensive outreach to the public and tribes. The 2021-2022 state budget includes \$18 million for enhanced groundwater monitoring, a groundwater accounting tool and data standards, and enhanced surveys to better manage drinking water, groundwater recharge, and groundwater-dependent ecosystems.

Original Article: [The Sierra Sun Times](#)

### **Kicking Off 2022 with Significant Implications for Agriculture and SGMA: GSP Assessments, Submittals and Alternative Five-Year Updates**

January 2022 was a busy month for the Sustainable Groundwater Management Act (SGMA). The California Department of Water Resources (DWR) issued remaining assessments for groundwater sustainability plans (GSPs) for critically overdrafted basins, except for GSPs covering the Madera Subbasin. GSPs for high- and medium-priority subbasins that are not critically overdrafted were due to DWR by Jan. 31, 2022. DWR published 15 of these GSPs to the SGMA Portal and is now accepting public comment. Additionally, the first five-year updates for GSP alternatives were submitted by Jan. 1, 2022, and are now open for public comment.

On Jan. 13, 2022, DWR approved two additional GSPs in the Las Posas Valley and Indian Wells Valley basins. Both GSPs were approved with recommended corrective actions the groundwater sustainability agencies (GSAs) will need to address in their five-year update in January 2025. These approvals increase the total number of approved plans to eight. These approvals come about a month after DWR sent letters to GSAs across the remaining Central Valley subbasins warning GSAs that “staff have identified several deficiencies which will preclude [DWR's] approval.” DWR recommended the GSAs review assessments for other subbasins in the San Joaquin Valley and prepare to address deficiencies similar in theme.

On Jan. 22, 2022, DWR released assessments for the Westside Subbasin, Delta-Mendota Subbasin, Cuyama Valley Basin and Paso Robles Subbasin, and about a week later (Jan.



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28) for the Eastern San Joaquin Subbasin, Merced Subbasin, Chowchilla Subbasin, Kings Subbasin, Kaweah Subbasin, Tulare Lake Subbasin, Tule Subbasin and Kern County Subbasin.

Original Article: [JD Supra by Brownstein Hyatt Farber Schreck](#)

### **Dry January wipes out surplus snowpack**

PHILLIPS STATION — A survey of the Sierra Nevada snowpack last week found the state's frozen water supply to be 92% of average.

About one month ago statewide snowpack was averaged at 160% following the heft of December storms. A dry January saw much of that boost melt away.

At Phillips Station, about 3 miles west of Echo Summit, Department of Water Resources staff's Feb. 1 manual survey recorded 48.5 inches of snow depth and a snow water equivalent of 19 inches, which is 109% of average for that location. Jan. 3 measurements showed the snowpack was 202% of average at Phillips Station.

"We are definitely still in a drought. A completely dry January shows how quickly surpluses can disappear," said DWR Director Karla Nemeth.

"The variability of California weather proves that nothing is guaranteed and further emphasizes the need to conserve and continue preparing for a possible third dry year."

With little to no accumulation of snow during January, snowpack levels are closer to average Feb. 1 conditions, meaning that a return of winter storms in the Sierra Nevada is needed during February and March to remain at or above normal levels, according to DWR officials.

The Southern Sierra snowpack is not faring as well as the Northern Sierra. Water supply forecasts for the south San Joaquin Valley are below average due to a lack of rain and snow.

"These dry January conditions demonstrate the importance of continuing to improve our forecasting abilities and why these snow surveys are essential," said Sean de Guzman, manager of DWR's Snow Surveys and Water Supply Forecasting Unit.

"While we always hope for a generous snowpack, DWR's ongoing investments in forecasting techniques will help the state better prepare for both drought and flood conditions."

In light of last year's poor runoff DWR has increased its efforts to improve climate and runoff forecasting by strengthening its collaboration with partner agencies and academia and by investing in proven technologies to improve data collection and hydrologic modeling.

One example is DWR's investment in remote snowpack measurements by partnering with Airborne Snow Observatories. Data from ASO has proven to be the most accurate assessment of snowpack conditions that, when coupled with newer, sophisticated runoff models, will improve runoff forecast accuracy, according to DWR officials.

Original Article: [Village Life](#)



### **California desperately needs rain. What are the chances of a 'miracle' in March?**

The start of the wet season was promising in California, with a record-breaking atmospheric river in October and an onslaught of storms in December, but the weather forecast has remained persistently dry since the start of the year — with no hope for rain in the immediate future.

The lack of rain during what is usually the wettest time of the year is problematic in a drought-plagued state that needs to replenish its water supply and dampen a wildfire-prone landscape. The last hope that remains for winter is a surge of precipitation in late February and in March. What are the chances of that even happening?

Long-term weather models look 16 days ahead, and Mike Anderson, the state climatologist for the California Department of Water Resources, wrote in an email that there's no rain in the forecast for anywhere in the state in the next six days, and the models that look farther out only show "a small chance for a change in conditions around February 20."

"There is great uncertainty at that lead time, though," Anderson said. "National Weather Service Climate Prediction Center's 30-day outlook now suggests below average precipitation conditions being expected."

The forecast is especially grim in the greater San Francisco Bay Area.

"I'll say it [in] one sentence: There's no rain in the forecast," said David King, a forecaster with the National Weather Service. "Definitely in the short term, none of the models are showing any shot of precipitation, and even when you look at long-term models, any signature is weak and gives you no confidence. We're getting some systems coming through that have some clouds, but they're all high clouds and it's all high clouds that aren't going to produce any rain."

California's last hope to reach normal precipitation for the season is a so-called "Miracle March" — that is, a mega-storm or a series of wet systems in March that would make up for the water deficit caused by an abnormally dry January and February.

Anderson doesn't put much stake in a Miracle March this year. "Outlooks do not suggest a Miracle March as a potential outcome at this time," he wrote. "Forecasts at that lead time have little skill, but the water year has followed the outlooks of drier than average conditions for Jan/Feb/Mar so far."

That said, Anderson gave examples of two previous water years that show March can go either way — wet or dry. He noted that the water year from 2013 to 2014 started with a dry February, combined with a dry January. It was part of a 14-month period of record dryness when total precipitation "was less than water year 1924's low mark for water year precipitation," he wrote.

Original Article: [SF Gate by Amy Graff](#)



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### **‘Dangerously hot conditions’ prompt rare February heat alert in Los Angeles**

We may be in the heart of winter, but that isn’t stopping the atmosphere from cooking up some extreme heat for parts of the West Coast. Multiple National Weather Service offices in California have opted to issue excessive heat watches ahead of climbing temperatures beginning Wednesday, an unusual measure that may be a first of its kind for February.

The Weather Service warns of “dangerously hot conditions with temperatures up to 90 degrees possible,” noting that visitors from other states unaccustomed to the toasty weather may be at a greater risk for heat-related illnesses. The Super Bowl is Sunday at SoFi Stadium in Inglewood, Calif., with the Cincinnati Bengals facing the Los Angeles Rams.

Excessive-heat watches are issued when “extremely dangerous” heat appears likely within one to three days, according to the Weather Service. Sixteen million people reside within the alert areas.

Southern California is no stranger to hot weather — Los Angeles averages five days annually that hit 90 degrees or higher — but such temperatures are particularly unusual at this time of year. In fact, the city has recorded only seven 90-degree days during the winter months of December, January or February since 1948. That last time it happened was Jan. 31, 2003, when the high was 91 degrees.

The excessive-heat watch covers coastal Orange, Riverside and San Bernardino counties, as well as the interior valleys. The San Gabriel and San Fernando valleys are included in the watch, as is downtown Los Angeles. Burbank, Anaheim, Santa Ana and Newport Beach are all within the watch area.

It’s the first time since at least 2006, when software began tabulating weather alert issuance, that an excessive-heat watch has been hoisted during February in Southern California. In fact, all other excessive-heat watches issued by the Weather Service office in Los Angeles have fallen between May and October; for the San Diego office, between April and October.

The setup isn’t exactly a classic one for extreme heat in Southern California, but it does meet the requirements for warming offshore flow. Multiple areas of high pressure are banked to the north, one in southern British Columbia and the other over Saskatchewan and Manitoba. That, coupled with weak low pressure draped across the southern United States, will funnel air westward over the Sierra Nevada.

Original Article: [The Washington Post by Mathew Cappucci and Jacob Feuerstein](#)

### **Experts Urge Overhaul Of California’s ‘Antiquated’ Water Laws**

As California enters its third year of drought, pressure is mounting for lawmakers to update the state’s antiquated water laws. On Thursday, a coalition of legal experts and retired state officials released a report with a list of suggested reforms, which they say



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would make California's water politics more equitable and sustainable as climate change gets worse.

If implemented — a major if — many of the reforms would provide a check on the state's massive agricultural industry, which sucks up some 80% of all the water used in California.

The reports' authors explained their recommendations during a webinar hosted by the Planning and Conservation League (PCL), a conservation organization. "We are in a time of crisis," Jennifer Harder, a professor of law and legal practice at McGeorge University, who coauthored the report, said to stakeholders and others in the audience. "I hope you can think creatively and be brave."

PCL originally convened the experts for what Jonas Minton, PCL's water policy adviser, described as an "academic exercise." But "then the skies dried up," he explained, and the state's water crisis became even more urgent. California has been hit by record storms and snowfall in the past few months, but it had almost no precipitation in January, and two-thirds of the state remains in severe drought.

About a million Californians already lack access to safe drinking water, and farmers are facing severe water cutbacks.

Minton stressed that he and his colleagues had no say in the report's findings.

The report focused largely on three thorny areas of California's water management, which the authors argued are long overdue for reform.

First, they urged the state to sufficiently fund its Water Resources Control Board, which manages water deliveries to two-thirds of California residents and large swaths of the state's farmland. Harder said the board also needed to diversify its leadership by adding a member who specializes in water quality and environmental justice.

She suggested the board fine-tune its approach on groundwater sustainability. Many rural Californians get their water from domestic wells. Those wells are disproportionately depleted, due to the overpumping of groundwater by farmers, and sometimes contaminated by runoff of fertilizer and other chemicals from those farms. The state's Latino communities have been particularly affected.

"Many failing domestic wells are in economically disadvantaged communities," said Harder, "and they have been subjected to explicit and implicit racism [when it comes to] the delivery of water."

Second, the report suggests that California overhaul a series of Byzantine water laws that weren't designed to grapple with climate change. For instance, California's Water Board currently uses historical data on different river systems to decide how much water it should distribute to users who are not senior water rights holders. But as climate change gets worse and water volume in the rivers becomes less predictable, those data are becoming irrelevant. "One of the things we know is absolutely true is that [this] is no longer defensible given climate change," said report coauthor Clifford Lee, a former state deputy attorney general. "There simply will be less water in the future."



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Lee also urged policymakers to untangle California's water rights system, which involves a patchwork of different classifications that he says has caused "considerable confusion." And in a move that could affect California's farmers, the report also suggests the state amend its water code to determine whether the claims of some senior water rights holders are legitimate. "I would like to say this recommendation brings California into the 21st century," he said. "But it really just brings California into the 20th century."

Finally, the report recommended that policymakers address what Harder described as the state's "extinction crisis." California is home to more than 125 native fish species, and at least 18 of them are "highly vulnerable to extinction," with many others in decline. One of the reforms Harder suggested was a shift in how California's dam owners consider the health of river ecosystems before distributing water to users. Currently, dam owners are required to release water from reservoirs to ensure that fish have deep enough water to swim in. But last year almost all of California's Chinook salmon died in their streams when the water ran low and temperatures hovered above 100°F. In light of that catastrophe, Harder says, the state should consider requiring that dam owners also maintain a safe water temperature for fish before diverting water to other users.

After presenting their recommendations at the PCL webinar, Harder and Lee gave the floor to Dennis O'Connor, the chief consultant to the California Senate Committee on Natural Resources and Water. O'Connor made it clear that the proposals face tough odds in the state legislature.

"Virtually all of these recommendations will require legislative action," he told the audience. He then proceeded to explain why that legislation would be politically onerous and difficult to pass.

He also noted that there's no use in overhauling California's water laws unless those reforms are properly funded. "This is really important," O'Connor said. "If we pass a law but don't fund its implementation or enforcement, it's as if we never passed it in the first place."

Original Article: [Successful Farming by Chuck Abbott](#)

## **Catching Even Insiders 'Off Guard', Pg&E Decides To Return The Potter Valley Project, Which Diverts Water From The Eel River, To Full Operational Status**

The future of the Potter Valley Project which diverts water from the Eel River to the Russian River is more uncertain than ever, with a regional coalition declaring it will not file for the license application and PG&E unexpectedly taking steps to operate the project under an annual license until the next development.

PG&E, which owns and operates the project, announced in 2019 that it would not renew its license and was no longer trying to sell it. The coalition, which agreed to prioritize fish passage and water supply, was the only entity to express an interest in taking over the



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license. But on Monday, the group sent a letter to the Federal Energy Regulatory Commission (FERC), explaining that it will not file an application by the deadline in mid-April, when the current license expires.

The decision has been widely anticipated, since the coalition, consisting of Humboldt County, California Trout, the Round Valley Indian Tribes, the Mendocino County Inland Water and Power Commission, and Sonoma County Water Agency (known collectively as the Notice of Intent, or NOI parties), has been unable to gather the estimated \$12-18 million needed to conduct the studies required by various regulatory agencies.

The project has been what PG&E spokesman Paul Moreno calls “non-economic” for years, which is why the company decided to bow out of the ongoing operational and maintenance costs. The water diverted from the Eel River is far more valuable to Russian River water users than the power generated by the project. But that flow, which can get as high as 270 cubic feet per second, has been severely curtailed since a transformer in the Potter Valley powerhouse went offline in July. PG&E estimated that repairing the transformer bank would cost between five and ten million dollars, and could take up to two years.

Then, in a surprising turn of events, on Wednesday, PG&E’s director of strategic agreements told the NOI parties that PG&E had “concluded it is beneficial to PG&E’s electric generation customers to proceed with the work necessary to return the powerhouse to full operational status.” Moreno said in an interview that the company expects to be able to recoup the costs of the repair, which are still unknown, within five years, during which time the company plans to continue operating under annual licenses from FERC. PG&E is not currently under orders to decommission the project, which Moreno described as “kind of a relicensing process in reverse.”

That process has not historically been straightforward. Janet Pauli, of the Potter Valley Irrigation District and chair of the Mendocino County Inland Water and Power Commission, said that even if the relicensing process “had gone perfectly, there probably would have been things that needed to be changed. It’s really unlikely the license would have been renewed in time.” During the previous relicensing process, which lasted from 1972-2006, PG&E operated under annual licenses for eleven years. “And that’s when everything was really simple,” Pauli added.

Congressman Jared Huffman, who formed an ad hoc committee devoted to developing recommendations for the future of the Potter Valley Project, said while the decision to repair the transformer “caught me off guard,” he doesn’t think it will have any bearing on what he sees as an inevitable decommissioning process. With no one else taking over the license, PG&E remains responsible for the costs associated with the project. Huffman suspects the company “did a cold-blooded business calculation” by assuming it would be cheaper to continue making power during “the X number of years it takes to decommission.” He added that while he thinks the decision “is, in the short term, a sigh of relief for Russian River water interests,” even a fully functioning project is not a long-



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term solution to water woes — and the diversion will be minimal in the two years or so it takes to custom-engineer the broken equipment and install it.

But Alicia Hamann, the Executive Director of Friends of the Eel River, is alert to the possibility that PG&E may seek to recover the costs of replacing the infrastructure “on the backs of ratepayers.” She added that Friends of the Eel is urging FERC to fast-track the decommissioning process, saying “it’s our last and best chance to protect wild salmon and steelhead in California. And removing the two dams at the headwaters is really the most important move we can make to protect the fisheries.”

In a letter to FERC this week, Scott Greacen, the Friends of the Eel’s Conservation Director, wrote that “Water supply is not an issue over which FERC has jurisdiction;” but, if the dams are seismically unsound, “an unsafe Potter Valley Project is an unreliable Russian River water supply.” He went on to detail the peril of the Eel River fisheries, and lament the lack of publicly available information about dam safety.

Original Article: [KYM KEMP by Sarah Reith](#)

### **‘One Of The Worst Januarys Ever’ – Santa Clara Valley Water Officials Sound Alarm After Dry Start To 2022**

An unusually dry start to the New Year has Santa Clara Valley Water District officials increasingly concerned about the upcoming summer if there’s not more significant rainfall.

“We had one of the worst Januarys ever. And in February, no rain either,” Water District Director Gary Kremen told KPIX 5.

Kremen said the South Bay did not receive sufficient rainfall to erase the deficit created by years of drought. Without more rain, the water district may consider more restrictions and tougher penalties for customers who don’t conserve.

“Depending on how the rest of the month or so looks, I could imagine the board using more of the stick, more restrictions,” Kremen said.

The district director also described conservation efforts as lackluster and disappointing. Conservation peaked in November with customer using 20% less water. But they immediately reversed themselves in December, increasing overall water usage by 3%.

“I am deeply concerned about the water level of what’s going on around here. I’m one of the people at my house, when I remodeled my house, I put in all drip water systems,” said Dan Hingle, a Los Gatos resident.

The water district’s 10 reservoirs are collectively 26.4% full. Valley Water’s situation is being made worse by a decade-long retrofit of Anderson Reservoir.

“We had that big rain for a while there. And that was good, like we were going to have a good year. And then it just died,” water customer Danny Thurro told KPIX 5.

Original Article: [CBS SF Bay Area](#)



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### **As West Continues to Confront Devastating Drought, California Attorney General Urges EPA to Expand Clean Water Act Protections for Nation's Waterways**

On Monday, California Attorney General Rob Bonta, leading a multistate coalition along with New York Attorney General Letitia James, urged the Biden Administration to repeal a Trump-era rule drastically curtailing protections under the Clean Water Act. Under the 2020 rule, more than half of all wetlands and at least 18% of all streams across the United States were left without federal protections. Western states like California were even harder hit, with 35% of all streams deprived of federal protections as a result of the 2020 rule. In the comments, the coalition supports the Biden Administration's proposed regulation to restore the 1980s definition of "waters of the United States" and urges the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Army Corps) to take swift action to develop a more expansive definition that is consistent with science and the law, addresses the impacts of climate change, and serves environmental justice communities.

"After a bone-dry January, California appears unlikely to escape yet another devastating drought," said Attorney General Bonta. "These conditions are only going to worsen as the impacts of climate change grow increasingly severe. For the West, that means more and more waterways that do not flow year-round. The EPA and Army Corps' definition of 'waters of the United States' must reflect that reality. I urge the Biden Administration to move swiftly to expand protected waters under the Clean Water Act and to take into account environmental justice and climate change impacts in doing so."

"Although the California Water Boards have broad authority to protect waters under state law, the definition of waters of the United States is essential to effective implementation of California's water quality program," said E. Joaquin Esquivel, Chair of the State Water Resources Control Board. "Our state experienced significant and costly disruptions to our regulatory programs because of the 2020 rule and restoring the earlier definition of WOTUS will ensure that these programs have the stability they need to help the state confront drought and climate change impacts."

The definition of "waters of the United States" under the Clean Water Act is critical to maintaining a strong federal foundation for water pollution controls that preserve the integrity of our waters. While the Clean Water Act has resulted in dramatic improvements to water quality in the United States, its overriding objective has not yet been achieved. Many of the Nation's waters remain polluted.

The 2020 rule made the Clean Water Act's goals further out of reach, threatening entire watersheds, including 4.8 million miles of streams and 16.3 million acres of non-floodplain wetlands. In May 2020, a coalition led by California and New York filed a lawsuit challenging the unlawful rule. In the comments, the coalition supports the Biden Administration's proposal to undo the 2020 rule and urges the Biden Administration to adopt a more protective definition of "waters of the United States" that takes into



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account environmental justice and climate change and is consistent with science and the law.

All Americans are entitled to clean water for drinking, recreation, and countless other uses that sustain our life and economic activities, but many of the most vulnerable and already overburdened communities continue to lack access to this fundamental resource. In the comments, the coalition specifically addresses the need for the Biden Administration to adopt a new definition of “waters of the United States” that strives to eliminate these inequities. In addition, as water quality and quantity continue to change as a result of more frequent, severe, and unpredictable weather events, the coalition argues that it is essential that the new definition be based on a consideration of the consequences of climate change.

Attorneys General Bonta and James are joined by the attorneys general of Connecticut, Illinois, the District of Columbia, Maine, Maryland, Massachusetts, Michigan, New Mexico, North Carolina, Oregon, Vermont, Washington, and Wisconsin as well as the California State Water Resources Control Board and the City of New York in filing the letter.

Original Article: [The Sierra Sun Times by CA DOJ](#)



## US WATER NEWS

### **Stantec selected by Southern Nevada Water Authority to help deliver critical Stage II Reliability Upgrades Project**

The Southern Nevada Water Authority (SNWA) has selected Stantec, a global leader in sustainable design and engineering, to help deliver the US\$125 million Stage II Reliability Upgrades Project to support long-term sustainable and resilient water access for the Las Vegas Valley.

“We’re incredibly excited to support SNWA on this critical water reliability project,” said Margaret Regan, Stantec’s project manager, based in Las Vegas. “Drought impacts have only increased the need for a reliable and sustainable water source. We look forward to helping the Las Vegas Valley have a safe and sustainable water delivery system for decades to come.”

The water supply of many major urban areas in the United States is at risk due to aging infrastructure, water scarcity, a lack of resiliency to extreme weather events, and insufficient system capacity. In August of 2021, federal officials issued Lake Mead’s first-ever water shortage declaration. Two decades of drought have significantly reduced Lake Mead’s water level, increasing the need to build systems that support sustainable, resilient, and redundant water distribution and meet the Las Vegas region’s current and future needs.

#### Project at a glance

The Hacienda Pumping Station is one of the Valley’s water supply conduits, meeting about 35% of the area’s water demand, equivalent to 180 million gallons per day (MGD). In service since 1980, the pumping station requires system upgrades and replacements to protect against aging, provide reliability, and prevent water loss.

Stantec’s role on the Stage II Reliability Upgrades Project will include the design of the new Flamingo Pumping Station and the design of approximately two miles of interconnecting pipeline from the station to the Pittman Lateral, which conveys water to the central Las Vegas Valley.

Delivering the new 90 MGD Flamingo Pumping Station will serve two primary functions: to provide backup to the existing Hacienda Pumping Station (which has served the area for decades) in the event it is out of service and to supplement the capacity of Hacienda during periods of very high demand. Future projects will include rehabilitating portions of the Pittman Lateral and localized improvements to enhance the water system’s reliability along this central corridor.

#### Addressing long-term, regional needs

The project is part of SNWA’s Major Construction and Capital Plan (MCCP) to help identify and deliver additional water resources, major system repairs and replacements,



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and water quality enhancements across the Las Vegas Valley. The 2020 MCCP includes 22 projects totaling an estimated US\$3.17 billion.

Stantec's preliminary design for the Stage II Reliability Upgrades Project is expected to be complete in February of 2022.

The Stage II Reliability Upgrades Project is one of several conveyance projects Stantec is helping to deliver in support of increasing resiliency and capacity, while keeping a keen eye on environmental impacts. In Vancouver, Stantec is leading the design, construction, and commissioning of the Coquitlam No. 4 Pipeline to provide additional transmission capacity to meet the increasing demand for water. Similarly, in Illinois, the Alternative Water Supply Program will generate sustainable water quantity through a guaranteed fair and equitable water cost using a new Lake Michigan water source for the City of Joliet. The firm is also spearheading professional engineering and support services for the Tampa Bay Water Southern Hillsborough County Supply Expansion Pipelines to reliably provide clean, safe water to the Tampa Bay region now and for future generations.

Original Article: [Yahoo Finance](#)

### **The Water Tap on the Utah Legislature: Bills, bills everywhere and not a drop to drink**

In Utah's 2022 legislative session and the West's 22nd year of "Millennial Drought," the state Senate is verily flooded with bills about water.

Responding to the newly in-vogue theme of conservation, House Bill 95 and House Bill 121 both take aim at Utah's overabundance of turf grass, the removal of which has been shown to be one of the most effective ways for desert communities to conserve water and a topic that has been a recurring theme in this series. Senate Bill 73 looks to save water by setting limits on flow rates and modifying residential and plumbing fixture codes. (Installing more water-wise appliances was the second-most effective way that communities reduced water use, a 2020 study found). And House Bill 242 calls for the state to get a handle on how much water it is currently using by improving its (woefully outdated) secondary water metering system, while House Bill 115 points to a need to lose less water through infrastructure leaks.

Addressing water resources in the wild, House Bill 118 calls for increased collection and publication of survey data on important wetland habitats, such as those that surround and sustain the shrinking Great Salt Lake ecosystem. House Bill 131 seeks to establish and fund a state Watershed Restoration Initiative that would "manage, restore, and improve" watershed ecosystems for health, biological diversity, water quality and yield. And House Bill 37 amends the state water policy to include recharge of (directing more water into) underground aquifers that have been depleted from excessive well pumping.



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On quality and access, House Bill 64 proposes moving \$1.5 million from the General Fund to the Department of Environmental Quality in the name of protecting drinking water. House Bill 168 modifies rulemaking authority and "preferences of water rights" (who gets water first) during state water shortage emergencies. And Senate Bill 31 appears to want to give the state engineer more control over when and where water rights holders can divert water from a source.

There are more bills that reference state water management via text buried deeper than the title.

Some of this text makes it seem like the state may have turned over a new leaf regarding its oft-criticized-as-extravagant approach to water use, compared to other states in the southwest. HB37, for example, recognizes that "Utah is one of the most arid states in the nation and as such, there is, and will continue to be, a need to ensure Utah's finite water resources are used beneficially."

The Washington County Water Conservancy District sees the increased interest in water as progress. In an interview this week, Karry Rathje, the WCWCD's Communications Director, brought up the local "Water Summit" event the district held in November, which drew a large crowd, likely in response to the state's announcement two weeks prior that Washington County would likely run out of water in the next ten years.

Original Article: [The Spectrum by Joan Meiners](#)

### **Legislation introduced to help regulate rural groundwater supply**

Most of Arizona's groundwater remains unregulated, which is putting the livelihood of many rural communities at risk.

However, new legislation is looking to change that.

House Bill 2661, which is co-sponsored by Arizona House Representatives Regina Cobb and Leo Biasiucci, would allow city and county leadership the opportunity to manage their groundwater for basins at-risk of losing their water supply.

If passed, it would be the first significant groundwater legislation in the state in more than four decades.

This comes during a Tier One water shortage on the Colorado River, meaning millions of gallons of water will not flow through Central Arizona Project canals.

With less water flowing here, many may depend on more groundwater.

This can lead to more problems according to Haley Paul of the National Audubon Society. "There's no new magical source of water that's coming in. It's a matter of working with what they have and protecting it," Paul says. "Given the ongoing effects of climate change and groundwater pumping, plus things like California regulating its groundwater and agricultural interests coming over to Arizona because there's no regulations, the problem has gotten worse recently."

As of now, only five areas in Arizona have groundwater regulations: Phoenix, Tucson, Prescott, along with Pinal and Santa Cruz counties.



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Representative Cobb hopes that changes after this year.

"Rural Arizona is the land of the free. We wanted it to be without regulation. We wanted that freedom to do whatever we wanted to do. Suddenly everybody realized this is an unregulated area. The need for groundwater regulation has been needed in rural Arizona since 1980," Cobb stated.

Original Article: [ABC 15 by Jorge Torres](#)

### **Nevada, Utah set to battle over the West's most precious resource**

A battle is brewing on the border of the nation's two driest states over the West's most precious resource.

Utah water officials have long eyed pumping groundwater into the burgeoning community of Cedar City, but a coalition of ranchers, environmentalists, tribes and rural politicians is pushing back, arguing the project will have wide-reaching consequences, including some in eastern Nevada.

"I think this ranks as one of the most irresponsible water projects in recent history," said Kyle Roerink, executive director of the Great Basin Water Network.

But the Central Iron County Water Conservancy District, which serves Cedar City and the surrounding area, said the project is important to not just fuel growth in the city of about 35,000 people. It will ensure water can be delivered to people who already live there.

Cedar City, about 170 miles northeast of Las Vegas, gets its water from an aquifer in Cedar Valley. The city and its surrounding area uses about 28,000 acre-feet per year from an underground system that is only capable of producing about 21,000 acre-feet.

One acre-foot — equal to about 325,000 gallons — is roughly what two Las Vegas Valley homes use over the course of 16 months.

Last year, Utah adopted a groundwater management plan last year that will roll back water rights and reduce the amount of water that can be pumped out of Cedar Valley.

Because of this, municipalities in the area stand to lose about 75 percent of their water rights, Central Iron County Water Conservancy District General Manager Paul Monroe said.

Roerink, however, said that users in Cedar Valley are only being asked to live within the limits of the aquifer and that the water-right rollback ends in 2080, not instantly.

To preserve water rights in Cedar City and pave the way for more growth, the water district wants to pump about 15,000 acre-feet of water it has rights to from nearby Pine Valley, a proposal that is under federal review.

The district also has rights to another 11,000 acre-feet from Wah Wah Valley and applications for rights to another 10,000 acre-feet in Hamlin Valley, but those basins are not included in the federal environmental review, Roerink said.

Original Article: [Las Vegas Review Journal](#)



### Nebraska Digs Out Canal Plan in Compact

Kent Miller, a water district manager in western Nebraska, felt a little vindicated last month when Nebraska Gov. Pete Ricketts introduced a plan to explore a nearly 100-year-old clause in a water compact with Colorado to dig out an old canal project near Julesburg to protect Nebraska's water rights.

Miller, general manager of the Twin Platte Natural Resources District out of North Platte, Nebraska, said he's been urging Nebraska leaders for the last 25 years to invoke the clause in the South Platte River Compact.

"My concern is, with the development along the front range and limited access to future water for folks on the front range, that we're going to start potentially seeing a dried-up South Platte River at the Nebraska border in the very near future," Miller said, acknowledging he's had that view for a quarter-century. "And my observation is, this year, we are getting lower amounts of water. Have I studied that? No, but I'm also very aware of all of the people moving into the front range, and people take water."

On the opposite side of the state line, Joe Frank, manager of the Lower South Platte Water Conservancy District, told his district committee when he initially heard about the plan that "the water world was rocked" by Ricketts' proposals.

The Perkins County Canal project goes back to drought in the 1890s when desperate western Nebraska farm families started digging out a canal from the South Platte River in Colorado with plans to irrigate their thirsty crops. The canal needed to go about 65 miles, but the project was scrapped in 1895 after about 16 miles were dug out, according to a historical article on the project in the North Platte Telegraph. In 1923, though, Nebraska leaders made sure to insert a clause in their water compact with Colorado to keep open the option for a canal.

Ricketts proposes to spend \$500 million to build the canal project. Making his case, he pointed to the Colorado Water Plan, which includes 282 various water projects, estimated at about \$10 billion, to manage water resources in Colorado. At least some of those proposed projects would divert water from the South Platte River. Ricketts pointed to the need for Nebraska to protect its water supplies.

"Colorado's plans to siphon off water from the South Platte River would decrease agricultural water supplies and raise pumping costs for our residents," Ricketts said.

While it's more than 300 miles from Julesburg, Colorado, to Lincoln, Nebraska, Ricketts said the Colorado projects "would jeopardize the municipal water supplies for Lincoln, Omaha and other Platte River communities."

He added, "Constructing the canal is the primary means for Nebraska to exercise our legal rights to water flows from the South Platte River."

A bill in Nebraska's Legislature, LB 1015, is set for a committee hearing Feb. 9 to discuss funding and need for the Perkins County Canal. Two weeks ago, the Nebraska Association of Natural Resource Districts, representing 23 different water districts, voted



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unanimously to support the bill that would authorize the project. Ricketts proposes to use \$400 million from cash reserves, along with another \$100 million for pandemic relief under the American Rescue Plan.

"That's just an estimate of what it's going to cost," Miller said. "It's probably going to cost more than that."

Original Article: [Progressive Farmer by Chris Clayton](#)

### **The Colorado River Basin's water forecast looked good in January. Now everything has changed.**

The past 30 days have at least temporarily erased hopes of above-average spring runoff in the Colorado River Basin, according to the February report from the National Oceanic and Atmospheric Administration's Colorado Basin River Forecast Center.

"Very little precipitation during the last three weeks of January, especially across southern Utah and southwest Colorado," Cody Moser, a hydrologist with the NOAA forecast center, said Monday during a web briefing to review the agency's latest monthly water-supply report.

The National Resources Conservation Service maintains snow telemetry (SNOTEL) sites across the Colorado River Basin, which automatically report snow depth and quality. Beginning in December, NOAA produces regular reports based on the SNOTEL data, detailing how that snow might translate into streamflow come spring.

Spring runoff is critical to irrigated agriculture, domestic water supplies, and the recreation industry in Colorado and across the West. More than 36 million people rely on the Colorado River for drinking water; farmers and ranchers use water from the river to irrigate more than 3 million acres of farmland. Water managers have also been closely monitoring Glen Canyon Dam at Lake Powell, which delivers hydroelectric power to more than 3 million customers. If the Utah reservoir falls below the 3,525-foot elevation level, it threatens the dam's ability to generate electricity.

Moser said that during the last three weeks of January many of the SNOTEL stations across the Colorado Basin, which includes the Colorado River and all the rivers and streams that feed into the Colorado, recorded either record- or near-record low precipitation. "The wet weather that we saw come in the second week of December—that lasted the first week of January," Moser said. "The second week of January we had high pressure settle over the region that brought very dry weather."

The February NOAA forecast predicts inflows at Lake Powell from April through July to be about 78% of average, based on 30 years of data from 1991 to 2020. The January NOAA prediction called for 98% of average inflows at Lake Powell during the same April to July period. Inflows at Powell have only landed above average four of the past 22 years.

Original Article: [The Colorado Sun by Chris Outcalt](#)



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### How businesses are investing in Colorado's water future

Miners and ranchers may have put Colorado's economy on the map, but industries such as aerospace, finance and outdoor recreation are diversifying the economic portfolio of the business-friendly state.

From small businesses to Fortune 500 companies, it's clear that companies of all shapes and sizes want to operate, expand and invest in the Centennial State. The high quality of life is no secret, and it remains a top reason why Colorado has had one of the fastest growing populations over the past decade. However, with growth comes added stress on its infrastructure. And one area where this is most apparent is the state's blue infrastructure: water.

Unpredictable water supply puts Colorado economy at risk

Businesses are starting to take note of the state's water resources and the challenges facing western states. Climate change, drought, wildfires and population growth are stressing its water systems as never before. Record-low water levels made national headlines this year, leading to the first federally declared water shortage in the Colorado River Basin. In addition, outdated water policies have led to inefficient use of our resources and politically charged debates over who has control of water, often pitting Western Slope against Front Range.

Just how valuable is the Colorado River to the state? A [2014 study from Arizona State University](#) measured the river's economic impact and found that if Colorado River water was no longer available to residents, businesses, industry and agriculture for just one year, nearly 60 percent of Colorado's gross state product — \$189 billion — would be lost. More than 2 million jobs would also be gone, with the hardest-hit private sectors being healthcare and social services; professional, scientific and technical services; finance and insurance; retail trade; and real estate and rental.

Businesses need water to operate, whether to make a beverage, manufacture computer parts, irrigate a baseball field or lead a fly-fishing expedition. An unpredictable water supply puts operations — and the state's economic growth — at risk, so how can they improve water security to ensure continued success?

Opportunity for business community to lead the way

"Our water challenges are urgent, and they are solvable," said Todd Reeve, CEO of [Bonneville Environmental Foundation](#) (BEF) and the founder of its [Business for Water Stewardship](#) (BWS) program, which works specifically with the business community to transform how it values, uses and manages water. "The key is collaboration among all water users. After all, when there isn't enough water to go around, everyone loses. We need all hands on deck, and businesses are stepping up and doing their part."

Business for Water Stewardship helps companies large and small move beyond just reducing their water footprint by advancing collective action that accelerates real, measurable and lasting solutions for water, nature and business. "Right now, companies



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have the opportunity to be transformational leaders in water stewardship," said Reeve. "The private sector can leverage its innovation and critical thinking to develop strategies for large-scale, system-wide changes that will address our complex water challenges."

### Bold commitments drive transformative change

Tech giant [Intel](#) has led the way on sustainable water management for more than two decades, through internal conservation projects and efficient water management systems. In 2017, Intel expanded its water stewardship commitments by announcing a goal to restore 100 percent of its global freshwater use by 2025. And in 2020, Intel announced a more ambitious commitment to achieve net-positive water by 2030, aiming to become the first technology company to return and restore more freshwater than it uses, and one of the few companies addressing this challenge at a global scale.

The Colorado River and the Rio Grande River basins are critical for Intel, as they are the main watersheds that supply water for manufacturing sites downstream in Arizona and New Mexico.

"A reliable water supply is essential for semiconductor manufacturing and our communities," said Fawn Bergen, corporate sustainability manager at Intel. "The Colorado River, the Rio Grande River and their tributaries provide water to millions of people, supporting farming, ranching, rural communities, recreation, and habitat for a healthy and resilient ecosystem. This is why our company has made — and continues to make — significant investments in our watersheds and our own operations to support water resources and use water efficiently. We have a responsibility to maintain and positively impact this resource."

### Well-known brands leverage their influence to raise awareness

As one of the world's largest B Corps, [Danone North America](#), based in Broomfield, is underscoring its promise to use business as a force for good, leveraging its brand recognition to highlight the challenges in the Colorado River basin and engage people in water conservation. Danone North America's plant-based brand Silk has long been a leader, supporting projects that restore flows across many Colorado rivers.

"It's important to us to be a good steward," said Deanna Bratter, head of sustainable development at Danone. "Our frame of action at Danone is 'One Planet. One Health,' and Colorado embraces this thinking with its deep respect of the natural world and the interconnectivity with its people."

The Colorado Rockies hosted the annual All-Star Game this year, and [Major League Baseball \(MLB\)](#) used the national stage to demonstrate its commitment to protecting the Colorado River. In partnership with BEF, the [Green Sports Alliance](#) and [Colorado Water Trust](#), MLB and the Colorado Rockies are restoring 30 million gallons of water to the Colorado River, the equivalent to the estimated water footprint of the Rockies and Coors Field for the 2021 season, making it the first "net zero water" MLB venue in the league's history.



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"MLB is committed to reducing our league's water footprint and restoring watersheds that our sport thrives on," said Paul Hanlon, senior director of ballpark operations and sustainability for MLB. "We are excited to work with BEF and the Green Sports Alliance to support and incentivize water conservation across all 30 of our clubs and their communities."

Proactive, hyper-local strategy yields environment and economic returns

In Montrose, David Dragoo, executive chairman for Mayfly Outdoors, a Certified B Corporation that manufactures fly fishing equipment, works from his office on the banks of the Uncompahgre River. He's a passionate advocate for rivers, and for the past few years he's been leading efforts to revitalize this previously underappreciated waterfront and turn it into a combination of residential, commercial and recreational spaces. "We've taken a hyper-local strategy to conservation," said Dragoo. "We want to try and help what's in our backyard first, do it really well, and expand from there."

Dragoo purchased 164 acres of land along the Uncompahgre River and set up a new headquarters for his company. Mayfly then donated a portion of the property back to the community for open space and new trail expansions. The economic development project has attracted other businesses from the outdoor industry and has brought in millions of dollars in grant money, which has funded the river's partial restoration and the development of a trail along the waterfront.

"For businesses in the outdoor recreation industry, our streams, rivers and mountains are our infrastructure," said Dragoo. "Colorado is a hub for the industry because the state values public lands. If you want to operate in Colorado, you have an obligation to protect public lands and uphold these values."

Original Article: [Green Biz by Vanessa Vaughn](#)

## GLOBAL WATER NEWS

### **Decadal fall in groundwater levels in 30% monitoring wells: Jal Shakti Ministry**

Analysis of water level data across India indicates that nearly 30 per cent of the groundwater monitoring wells have registered a decline in groundwater level whereas 70 per cent wells have registered rise in groundwater levels between 2011 and 2020 but there is no study for reasons concerning it, the Union government told the Rajya Sabha. "In order to assess the long-term fluctuation in groundwater levels, the water level data collected by Central Ground Water Board (CGWB) during November 2021 have been compared with the decadal mean of November (2011-2020). Analysis of groundwater



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level data indicates that nearly 30 per cent of the wells monitored have registered a decline while 70 per cent wells have registered a rise,” Minister of State for Jal Shakti, Bishweswar Tudu, on Monday said in a written reply in the Upper House.

The CGWB periodically monitors the groundwater levels throughout the country on a regional scale through a network of monitoring wells.

“The CGWB has not conducted any specific study on the reasons and consequential effects of decrease in groundwater level, however, groundwater levels in various parts of the country appear to decline mainly because of continuous withdrawal due to reasons such as increased demand for freshwater for various uses, vagaries of rainfall, increased population, industrialisation and urbanisation etc.,” Tudu added.

Though water is a state subject, Union government has taken a number of important measures for conservation, management of ground water, including effective implementation of rainwater harvesting in the country, he said.

Original Article: [The Shillong Times](#)

## Mountain glaciers may have less ice than estimated, straining freshwater supply

Glaciers in the Andes shouldn't be free of snow so early this time of year, but some are now bare.

Warm conditions in January, including a scorching heat wave with temperatures exceeding 100 degrees Fahrenheit in [some locations](#), melted almost all snow cover on some of Chile's [Olivares Glaciers](#) and [Volcan Overo](#) in Argentina. With around eight weeks left in the melt season, the exposed glacial ice could disappear faster now without a blanket of snow.

“We're seeing snow-free glaciers at unusual times, and that means midsummer in the Andes,” said Mauri Pelto, a glaciologist at Nichols College. “Those are all related to just high temperatures.”

As global temperatures rise, mountain glaciers around the world are sweating. This could affect nearly [1.9 billion people](#) living in and downstream of mountainous areas who depend on melting ice and snow for drinking, agriculture and hydroelectric power. In the tropical Andes, for instance, glaciers provide almost one-third of the water that millions of people in major cities use during the dry season.

A [study published](#) Monday in the journal Nature Geoscience shows the decline could be more calamitous than previously thought. Earth's mountain glaciers may have less ice than previously estimated, meaning they could be tapped dry sooner than expected, especially as climate change hastens their melt.

[\*The climate future has arrived in South America\*](#)

The researchers also found the potential sea level rise contribution from the glaciers would decrease by about 20 percent from 13 to 10 inches. But since mountain glaciers



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contribute around only one-third of global sea level rise, this has only a modest impact on future projections.

“This study is not good news because we have less freshwater for people if we have less ice,” said Romain Millan, the lead author of the study and a postdoctoral candidate at the Institute of Environmental Geosciences in France. “For sea level rise, it does not change anything to the big picture” because “Greenland and Antarctica are the major drivers of sea level rise.”

Original Article: [The Washington Post by Kasha Patel and Ellen Francis](#)

### **300-km pipeline between Tamil Nadu and Andhra Pradesh remains a non-starter**

An ambitious project to install a 300-km pipeline between Andhra Pradesh's Kandaleru reservoir and Chennai's Poondi reservoir remains a dream, as the State government has not allocated funding for the project.

According to Water Resources Department (WRD) sources, as per the agreement signed on April 18, 1983 between the government of Andhra Pradesh and Tamil Nadu, to ensure drinking water supply to Chennai city, Andhra must deliver 12 tmcft (Thousand Million Cubic Feet) of Krishna river water in a couple of spells (July and January) to Tamil Nadu every year.

At present, the State has been receiving the water through open canals. But due to illegal tapping, evaporation and transmission loss, Chennai city gets only 40-60 per cent of its quota. In a bid to stop water loss, WRD proposed a 300-km pipeline connecting Andhra Pradesh's Kandaleru reservoir with Poondi reservoir near Chennai. But the project is yet to get Tamil Nadu government's concurrence.

A senior official in WRD told The New Indian Express that the total project cost was Rs 15,500 crore when they submitted the proposal to the State government in 2019. Following that, studies were initiated to lay the pipeline between the two States, but work stopped completely after that.

Nevertheless, the present government is keen to take up the plan. "Once the government provides administrative approval for the project, we (WRD) will make a detailed project report as early as possible. When the pipeline is laid, we will be able to avoid at least 30 per cent water loss and control illegal tapping," he added.

Another senior official said though the expected project cost was Rs 15,500 crore, they have no idea about the present cost. Moreover, the State government hasn't yet decided on going ahead with project because of the high cost.

He worried that in the recent past, Chennai reservoirs did not get even 4 tmcft of water (out of 12 tmcft) through the canal owing to illegal tapping and evaporation loss. "If the pipeline is laid between the two reservoirs, a water crisis can be avoided during summers in the city," the official added.

Original Article: [The New Indian Express by S Guruvanmikanathan](#)



### **Australian and Californian water laws - can we learn from one another?**

In most jurisdictions, water rights are the backbone of the framework that regulates the use and development of water resources. The role of water rights is especially important in areas of water scarcity. Australia and California are already experiencing the economic and ecological impacts of increased aridity and drought, with 90 per cent of California experiencing 'extreme drought' in 2021 and Australia having the distinction of the driest inhabited continent and the most variable rainfall.

In this article, we describe the legal systems of Australia and California, and the impact their different approaches might have on litigation in the future.

Despite both Australia and California being similar in that they are being affected by increasing aridity, each has approached water rights using a different legal framework. One of the key differences is the existence of water plans in Australia, which are a feature of our legal framework that limit allocations to levels proportionate to available water and account for the effects of climate change. California lacks this element of the regulatory framework, raising the question of whether California is appropriately prepared to face the challenges of climate change.

We also predict increased litigation over Australian water resources, in light of the Californian experience.

#### **Water law background**

Over time, the common law in both Australia and the United States has developed to manage the impact of human activities and development on the hydrological cycle. The first feature of water management under the common law is an understanding that water is a vital resource that cannot be 'owned' in a traditional sense and should be available to all. The second feature is private rights of access to water.

#### **Riparian rights**

The riparian doctrine developed in England and was then adopted around the common law world, including in Australia. Riparian rights provide an incidental right of owning land to access and use the water that touches that land. This means a riparian water right cannot travel and is tied to the owner of the relevant land. This system of riparian rights was not necessarily well suited to Australia, nor the arid western US. Justice Windeyer of the High Court of Australia noted the foreignness of our inherited laws in *Gartner v Kidman* (1961-62) 108 CLR 12, saying "the conditions of settlement, of climate and of geography in which this body of customary law developed are very different from those prevailing in many parts of Australia".

#### **Prior appropriation rights**

In California the riparian doctrine has developed alongside another common law water right unique to the US, namely, prior appropriation rights. The right to access water applies a 'first in time, first in right' ranking system, with the right to access water based



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on the quantity and use of the initial take. This means when less water is available, junior right holders are expected to give up their water right so senior water users can continue business as usual. This is subject to some limitations - for example, on the condition that the public trust is not violated through adverse impacts to lakes and rivers, and that any use must be both 'reasonable' and 'beneficial'.

### **Water law reforms**

The key water law reform in Australia occurred under the National Water Initiative. The National Water Initiative is a federal and state government blueprint that was agreed to by the Council of Australian Governments in 2004 with two key pillars - water markets and water resource planning. Together these features seek to provide for increased water use efficiency and environmental sustainability.

Water plans seek to ensure the allocation of water rights is consistent with available water. They provide environmental regulation by specifying requirements for water trading and catchment management strategies. The Murray-Darling Basin Plan is an example of a water plan, albeit on a grand scale, with the catchment being the entire Murray-Darling Basin. Basin states are then responsible for preparing water plans for catchments within the Murray-Darling Basin. The combined effect of these various instruments is to manage water resources in a sustainable way.

Water markets operate in conjunction with these instruments to incentivise water's highest and best use. In 2019-20, water market turnover in Australia was A\$7 billion, driven by record entitlement and allocation prices due to low water availability and high demand.

California's approach to water management law is very different. Its State Water Resources Control Board has been managing appropriation rights since 1914 and still broadly follows the common law prior appropriation model. California has a system to trade water rights, but the state's annual turnover from water trading is just a fraction of Australia's water market turnover, at US\$295 million, with no central trading forum. Like Australian rivers, Californian rivers experience over-extraction and over-allocation. Among 27 major rivers in California, 16 had allocation levels greater than 100 per cent of natural supplies.

### **Climate change**

Climate change is a multiplier of existing social, economic and environmental challenges, so any existing challenges in managing water in arid jurisdictions like Australia and California are likely to be magnified as regions grow hotter, drier and experience increasingly severe droughts. Australia has already experienced an increase in heat extremes and droughts. Similarly, in California temperatures and extreme high temperatures are virtually certain to continue to increase under all emissions scenarios. The Australian legal framework based on water plans places us in a superior position to continue to reform and tackle over-extraction and sustainability issues. California may do well to borrow from this aspect of the Australian system. The catchment for



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California's water resources does not follow that state's borders. Therefore, there is a strong case for federal intervention under a water plan, like the Basin Plan, to manage the interstate and international catchments that incorporate California.

Original Article: [Queensland Country Life by Joseph Monaghan and Christopher Watt](#)

### **Australia's coolest year in a decade still warmer than average, Bureau of Meteorology reports**

Australia's mean temperature last year was 0.56C warmer than the long-term average despite 2021 being the country's coolest year in a decade.

It was a year of contrasting weather and climate conditions, the Bureau of Meteorology said in its annual climate statement, with long-running heatwaves in northern Australia and widespread flooding in eastern states, in part due to a La Niña event.

In the west, severe tropical cyclone Seroja was the southernmost tropical cyclone to make landfall since the 1950s.

Averaged across the continent, last year was Australia's 19th warmest year on record. Mean annual maximum and minimum temperatures were above average for most of northern Australia, Tasmania, and parts of the west coast, but temperatures were cooler than average for parts of inland New South Wales and central Australia.

"Although 2021 was Australia's coolest year since 2012, temperatures were still much warmer than the historical average," said climatologist Jonathon Pollock. "In fact, of all the years on record prior to the year 2000, only five were warmer than 2021."

The Intergovernmental Panel on Climate Change last year reported that Australian land areas were on average 1.4C hotter than early last century, and warming was unequivocally due to human influence.

The country had its wettest November on record in 2021 and across the year experienced its highest rainfall levels since 2016. Nationally averaged rainfall was 9% above the 1961–1990 average, with 509.7mm. For much of Australia the amount of rainfall was above average compared to all years since 1900.

Original Article: [The Guardian by Lisa Cox](#)

### **EXCLUSIVE-EQT readies \$3.4 bln sale of French water services firm Saur – sources**

European buyout firm EQT EQTAB.ST is working with advisers to prepare the sale of French water management firm Saur in a deal that could value France's third-biggest water firm at about 3 billion euros (\$3.43 billion), sources told Reuters.

EQT has hired Rothschild to sound out prospective bidders for its 70% stake in Saur ahead of an auction process that is expected to kick off later this year, one of the sources said, speaking on condition of anonymity.



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The Stockholm-listed investment firm, led by Christian Sinding, is looking to cash out for about 3 billion euros after it bought Saur in 2018 and will target a wide range of financial investors, the sources said.

The company, which is also backed by BNP Paribas BNPP.PA, has already drawn interest from Munich-based Reimann Investors - a family office that operates on behalf of Germany's billionaire Reimann family, one of the sources said.

Cash-rich infrastructure investors are expected to come forward for Saur which serves roughly 7,000 local authorities in France under long-term contracts that appeal to financial investors as they generate a stable cash flow.

EQT and Reimann Investors were not available for comment while Rothschild declined to comment.

The move comes as French waste and water management giants Veolia VIE.PA and Suez SEVI.PA are in the process of finalising a tie-up that would create a national champion.

For infrastructure funds water management is a lucrative industry, with EU countries spending an estimated 100 billion euros per year on water supply and sanitation, according to the Organisation for Economic Cooperation and Development (OECD).

Under EQT's ownership Saur has scaled up its business overseas with acquisitions in Portugal and the Netherlands.

The company is also present in Saudi Arabia, Britain and Poland as well as in Spain where its local subsidiary Gestagua could be used as a possible platform to access South American markets, its Chief Executive Patrick Blethon told Spanish media on Feb. 7.

Original Article: [Nasdaq by Andres Gonzalez and Pamela Barbaglia/ Reuters](#)



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