

# Veles Water Weekly Report

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July 14<sup>th</sup> 2022

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**VelesWater**



## WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell

**CLICK THE LINK BELOW**

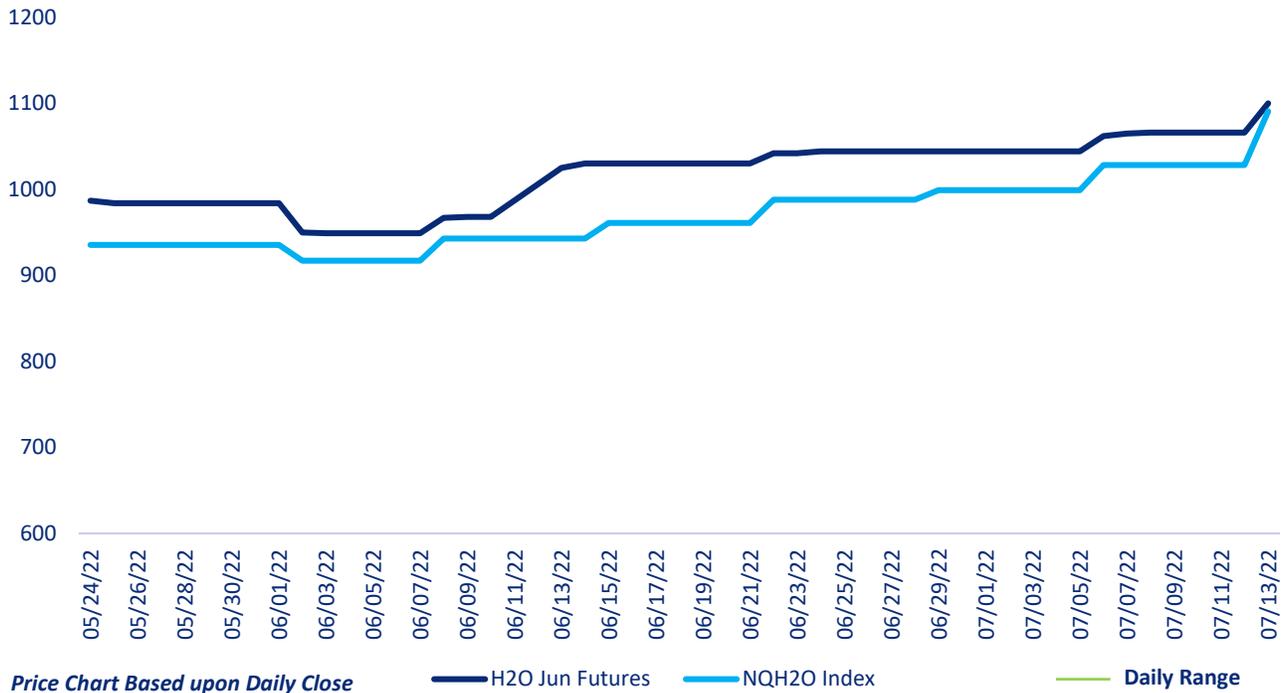
*"A 2 minute technical analysis video of H2O futures"*

<https://vimeo.com/729897566>



## NQH2O INDEX PRICE vs H2O FUTURES PRICE

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



The new NQH2O index level of \$1090.67 was published on the 13<sup>th</sup> of July, up \$62.48 or 6.08%, which sets another new all-time high for sixth week in a row. The July contract has been trading at premium of \$9.33 -\$37.81 over the past week.

NQH2O is up 54.40% Year to Date.

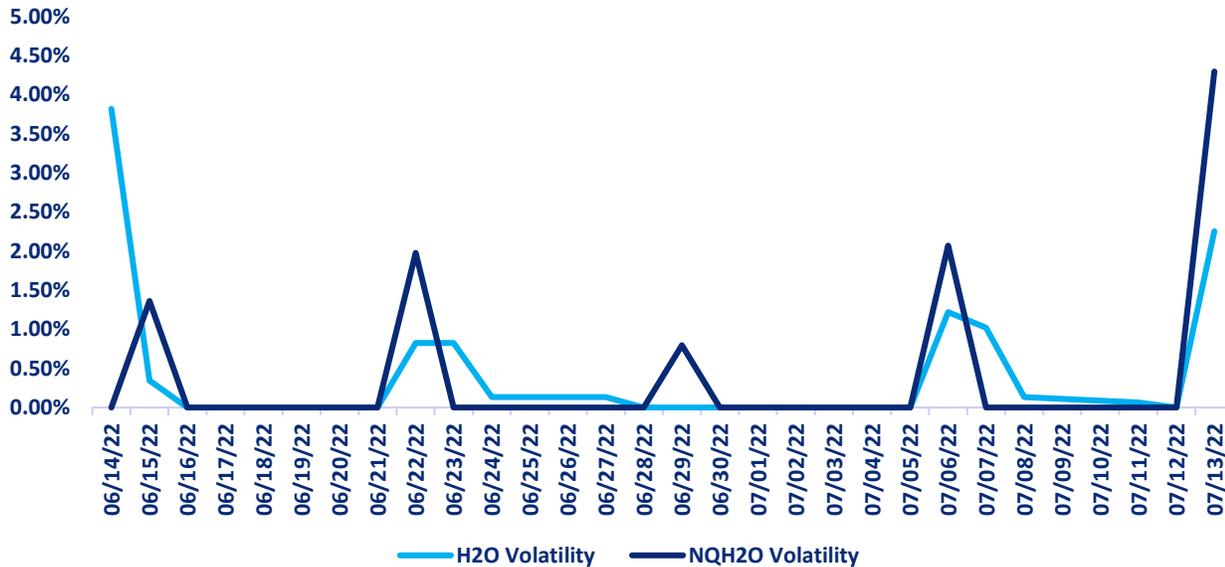
Below are the bid offer prices on different expiries being quoted in the market.

July 22	1100@1140
Aug 22	1080@1160
Dec 22	890@975
Jun 23	1100@1185



## H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

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



#### DAILY VOLATILITY

Over the last week the June daily future volatility high has been 2.26% on July 13<sup>th</sup> and a low of 0.07 % on the 11<sup>th</sup>.

ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	22.72%	6.35%	4.13%	3.150%
H2O FUTURES	N/A	7.98%	3.62%	3.09%

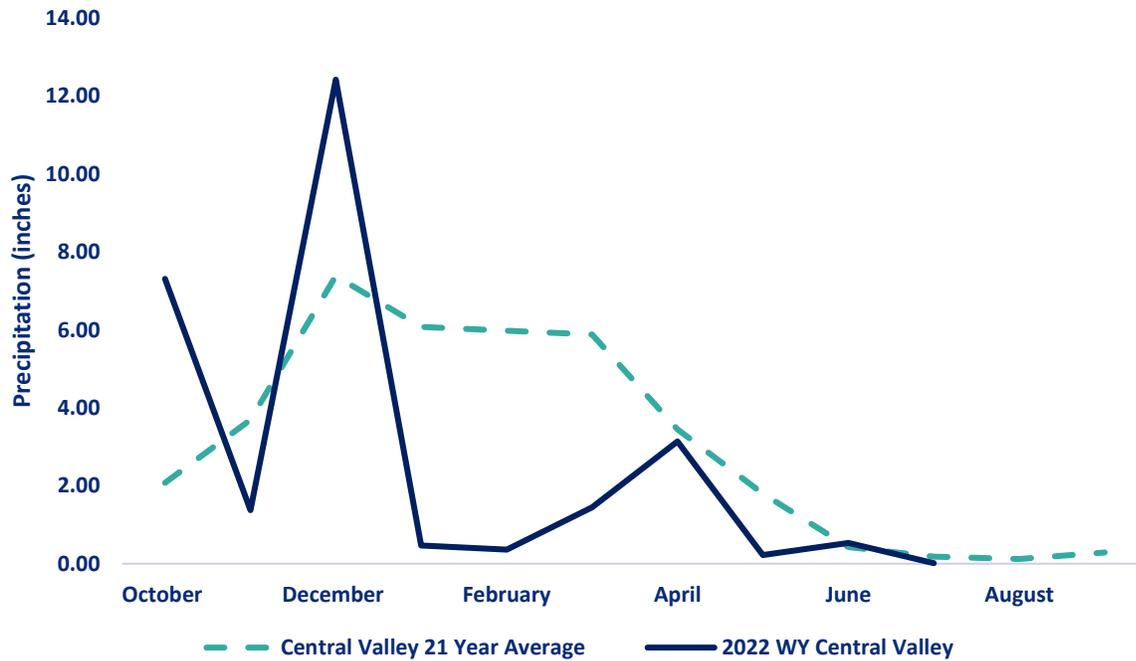
Once again, mixed signals for the week ending on the July 6<sup>th</sup> the two-month futures volatility is at a premium of 1.63% to the index, down 1.54% from the previous week. The one-month futures volatility is at a discount of 0.52% to the index, a reversal 5.03% from last week. The one-week futures volatility is at a discount of 0.06% to the index, down 0.02% from the previous week. We expect futures volatilities to converge to the index volatilities.

*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 13/07/2022

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	47	62
TULARE 6 STATION (6SI)	0	0.00	0.00	35	58
NORTHERN SIERRA 8 STATION (8SI)	0.04	0.00	34.43	44	79
CENTRAL VALLEY AVERAGE	0.01	0.01	11.48	42	66

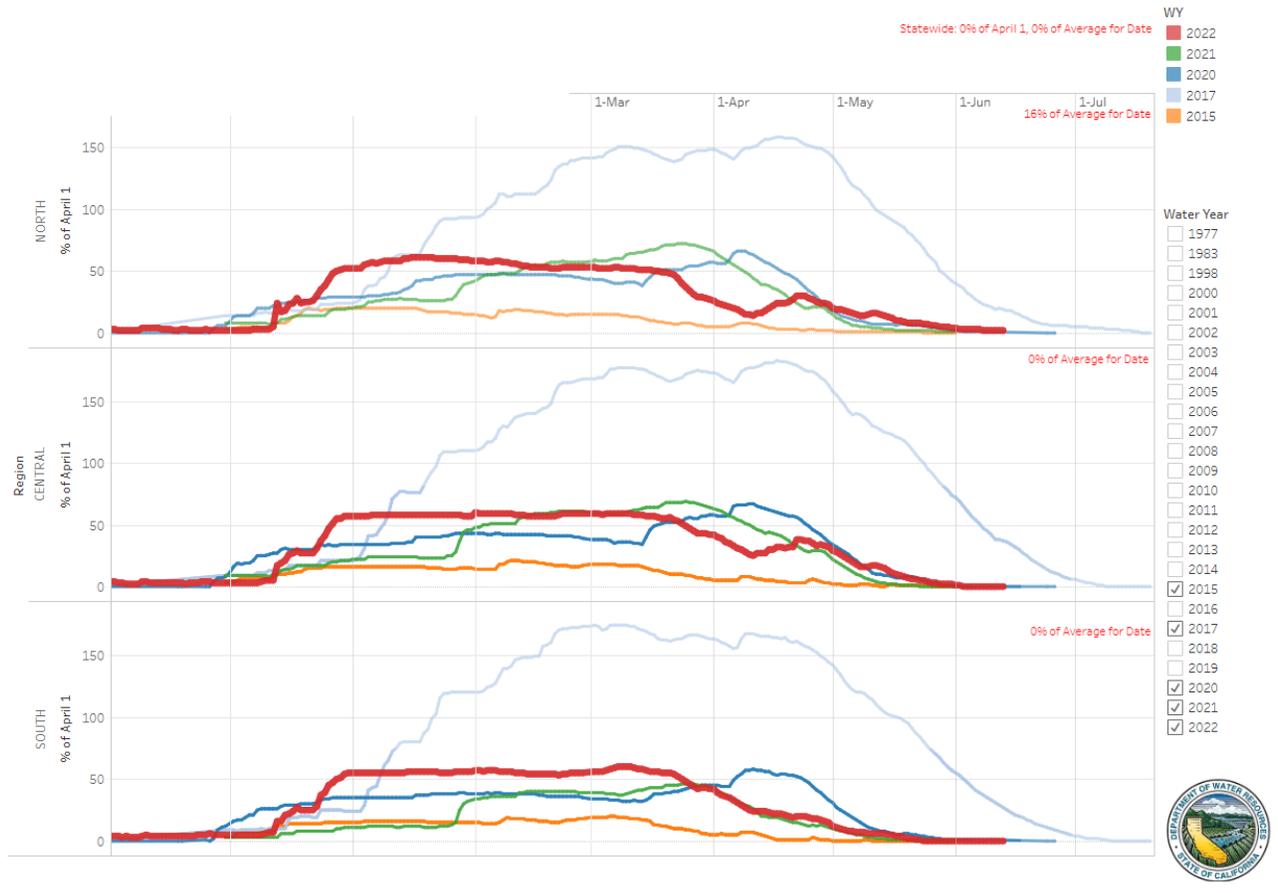
## RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	699,238	29	45	38
SHASTA LAKE	1,742,629	39	36	51
LAKE OROVILLE	1,610,696	46	29	63
SAN LUIS RES	731,934	36	28	71



# 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	0.4	0.00	0	16	2
CENTRAL SIERRA	0	0.00	0	0	0
SOUTHERN SIERRA	0	0.00	0	0	0
STATEWIDE	0.1	0.00	0	0	0

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

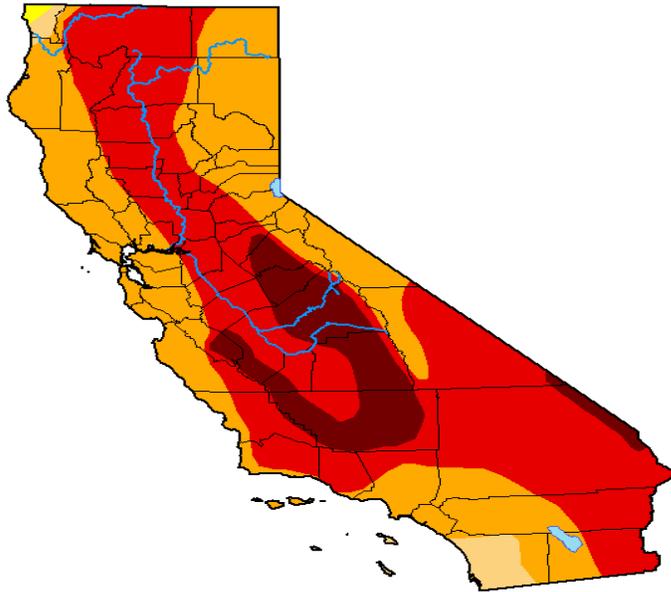
\*\* April 1<sup>st</sup> is used as the benchmark as it when the snowpack in California is generally deepest. It has been used the benchmark date since 1941 by DWR and can be used to predict spring river flow.



# DROUGHT MONITOR

## U.S. Drought Monitor California

**July 5, 2022**  
(Released Thursday, Jul. 7, 2022)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	99.80	97.48	59.81	11.59
<b>Last Week</b> 06-28-2022	0.00	100.00	99.79	97.48	59.81	11.59
<b>3 Months Ago</b> 04-05-2022	0.00	100.00	100.00	93.65	40.67	0.00
<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> 07-06-2021	0.00	100.00	100.00	94.73	85.44	33.32

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:

Brad Pugh  
CPC/NOAA



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

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



July 5, 2022  
compared to  
June 28, 2022



- 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](https://droughtmonitor.unl.edu)

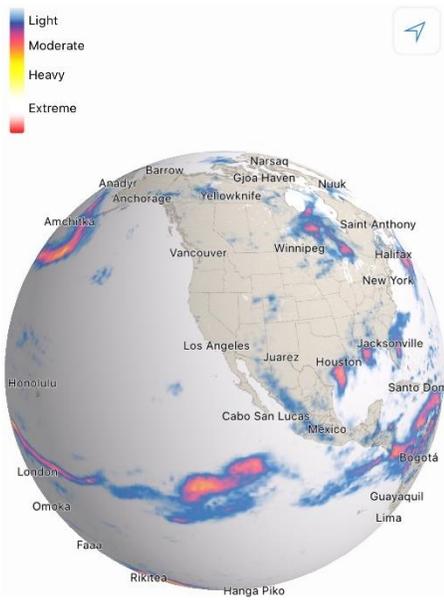
The US Drought Monitor release their statistics with a 1-week lag to this report. Over the past week the has been 0.01% change in D1 Drought conditions..

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.



# VELES WATER WEEKLY REPORT

## CURRENT SATELLITE IMAGERY



Map: Dark Sky

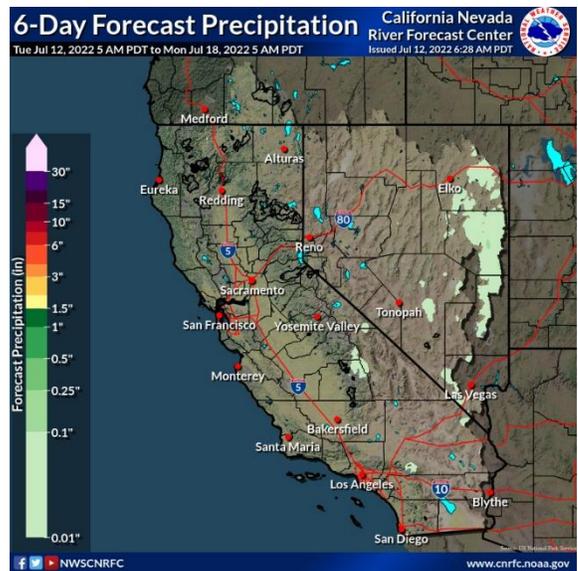
The current satellite picture shows a Pacific storm hitting the coastline just North of the Vancouver area. This may bring some precipitation to the Seattle region but not much further south. There is another system much further west over the Northwestern Pacific which may have much the same effect in about a week.

The Western and Midwestern US appears dry with some light precipitation to the west of the Great Lakes region. There are some scattered clouds with associated precipitation over the Gulf of Mexico and Florida regions. There continues to be Monsoon moisture inflow into the Southern US along the California border and into Arizona with accompanying precipitation. This moisture inflow is bringing precipitation and cloud cover into the Mid-West

and moving Eastwards. We expect this to develop further and strengthen over the next few months.

## 10 Day Outlook

Generally dry conditions today across the region aside from a slight chance of isolated thunderstorms over the eastern Sierra and eastern NV. Mid level moisture is expected to rotate over the area from the Four Corners today along with some instability. High pressure over the Four Corners and much of NV/eastern CA will keep temperatures away from the coast above normal today. Some cooling will occur from west to east on Wednesday as an upper trough approaches, although eastern/southern CA and NV look to remain above normal. An upper low will then move into the Gulf of Alaska



on Thursday as a shortwave approaches northern CA. Not much moisture is associated with this shortwave and little to no precip is expected aside from a stray shower or two along the CA/OR border in the evening. Cooling will pause for Thursday as the upper ridge to the east shifts a bit westward keeping temperatures near to slightly above normal as well as allowing for additional mid level moisture/instability to rotate



## **VELES WATER WEEKLY REPORT**

into s/e NV and se CA. This will return a slight chance of thunderstorms over the area Thursday with similar conditions forecast on Friday. Mid level moisture will continue to rotate into the eastern portion of the region throughout the weekend bringing occasional chances of isolated thunderstorms to eastern NV.

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

## **WESTERN WEATHER DISCUSSION**

The North American Monsoon remained robust into the beginning of July, resulting in near to above normal precipitation across Arizona and New Mexico. Following the widespread 1-category improvement made the previous week throughout New Mexico, improvements were limited to areas of the heaviest rainfall. Additional improvements may be necessary in subsequent weeks depending on the Monsoon rainfall. Beneficial rainfall (more than 1 inch) continued to result in drought elimination across eastern Montana. Parts of north-central Montana have remained drier since the spring and extreme drought (D3) was expanded which was supported by soil moisture data. Drought coverage and intensity remained steady for the remainder of the West.

Reference:

Brad Pugh, NOAA/CPC

Brad Rippey, U.S. Department of Agriculture



## WATER NEWS

### CALIFORNIA WATER NEWS

#### **Water usage down 36% in Claremont, La Verne and Three Valleys Municipal Water District**

A month after water restrictions were placed on communities in the San Gabriel and Inland valleys, many are meeting required conservation goals.

Customers in the Three Valleys Municipal Water District are using 36% below the maximum amount of water currently allotted, according to the Metropolitan Water District of Southern California. The latest figure, which reflects data for the month of June, surpasses the 20% reduction residents were asked to meet beginning June 1.

“We are trending well right now and customers in those areas are certainly responding to the call,” said Three Valleys General Manager Matthew Litchfield by phone Monday, July 11.

Three Valleys supplies water to 13 agencies, including the cities of Claremont and La Verne, both of which rely heavily on water from the State Water Project.

Due to the worsening drought, the state Department of Water Resources announced a decreased allocation from the State Water Project from 15% to 5% in March. The water project supplies about 30% of the water used in Southern California, including 75% in La Verne.

In April, MWD enacted an emergency order establishing outdoor watering restrictions for about 6 million State Water Project-dependent people in parts of Los Angeles, Ventura and San Bernardino counties.

Three Valleys, which receives water from MWD, adopted emergency restrictions in April for its member agencies.

In May, La Verne and Claremont responded by enacting emergency ordinances of their own, cutting outdoor watering to one day a week and asking residents to slash water usage by 20%.

If the cities fail to meet Three Valley’s guidelines, they face fines of \$2,000 per acre foot of water beyond their respective limitations or a ban on outdoor watering beginning Sept. 1. The restrictions will be in place through June 30, 2023, unless the Three Valleys board lifts the emergency declaration before that date.

Three Valleys also provides water to agencies in Covina, Pomona and the east San Gabriel Valley, and recommended at least a 30% reduction across its entire service area. Claremont’s water is delivered by the Golden State Water Co., while La Verne operates its own distribution system.

“Conservation efforts are headed in a great direction,” wrote Ben Lewis, Foothill General Manager for Golden State Water Co., in an email Friday, July 8.



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“Customers have continuously shown a willingness to support conservation by implementing water-saving practices into their day to day lives.” he continued.

This follows a trend also being seen in La Verne, according to public works director Shawn Igoe.

“We are seeing reductions in water usage as we have seen reductions in our incoming flow from Three Valleys,” Igoe said by email on Thursday, July 7. But he cautioned the city won’t have a full picture until the end of July.

The local snapshot of water usage comes as the state grapples with a historic drought for the third straight year.

New data shows recent progress on saving water statewide. California residents in May saved 3.1% more water than in May 2020, the baseline year against which current data are measured, according to figures released Friday by the State Water Resources Control Board.

Meanwhile, preliminary data from June shows water savings statewide of 7.7% compared to June 2020.

Original Article: [Daily Bulletin by Javier Rojas](#)

## DWR Releases Draft Environmental Impact Report For Future Drought Salinity Barriers

In an effort to better prepare for future drought conditions in the face of climate change, the California Department of Water Resources (DWR) today released a draft Environmental Impact Report (EIR) analyzing potential construction effects of future drought salinity barriers in the Sacramento-San Joaquin Delta.

The draft EIR looks at the impacts of installing a drought salinity barrier if needed along the West False River in the Delta twice within a 10-year timeframe. The barrier, which would remain in place for up to 20 months, would improve long-term planning and provide the State with greater flexibility to respond to future droughts, which are growing more frequent and extreme due to climate change.

The existing drought salinity barrier along the West False River, which was installed in 2021 following Governor Newsom’s executive order, has helped to prevent saltwater contamination of fresh water supplies used by tens of millions of Californians. The barrier also helps preserve critical water supplies in upstream reservoirs for later use by reducing the amount of water that must be released into the Delta to repel salinity during the dry summer months.

The draft EIR does not affect the existing emergency drought salinity barrier along the West False River.

“As California prepares for the possibility of a fourth dry year, these are the types of actions needed to adjust to more frequent, extreme droughts such as the one we are experiencing now,” said Ted Craddock, Deputy Director for the State Water Project. “Climate change is having a direct impact on our water supply, and we need to take a



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proactive approach to prepare for future droughts and protect our State's fresh water supplies."

The release of the draft EIR kicks off a 45-day public comment period from now until August 22, during which time members of the public will have the opportunity to review the proposed project and provide comment. DWR will host a virtual public hearing on the draft EIR on July 27. Details on how to join the meeting will be made available on the project's website prior to the event. Information will also be posted on DWR's social media channels.

The existing emergency drought barrier is scheduled to be removed by November 30, 2022 as conditions allow.

Original Article: [Maven's Notebook/ DWR](#)

### **Desalination: Should California use the ocean to quench its thirst?**

Here we are again: California is enduring another punishing drought, this one only a few years after the last one ended, which was the most severe drought in the state's nearly 500 years of recorded history. Low winter snowpack combined with scorching summer temperatures and the driest winter months in 100 years have severely impacted the state's water supply. Lake Oroville, an important reservoir in Butte County, had sunk to 49% of capacity by July 1. Lake Shasta was at 39% capacity. Those are only two of many depleted reservoirs in the state's water storage system. Every one of California's 58 counties is under a drought emergency proclamation. As analysts know, drought drives California policy. So what has changed since the last drought?

A lot but not enough.

In 2014, the state passed the sweeping Sustainable Groundwater Management Act. Previously, California had no statewide policy either regulating or monitoring groundwater usage. Groundwater provides an estimated 30% of California's water supply, yet no permits were required to drop a new well on private land, and there were no requirements for reporting how much water was withdrawn. Farmers rely on groundwater to grow crops during drought years when surface water is scarce, and without recharge, water tables keep sinking, causing subsidence, reducing supplies to utilize during the next drought, and drying shallower aquifers that support residences. By limiting how new wells get drilled on private land, the law aims to protect California's groundwater from rampant over-pumping and lack of recharge and make sure it's available during drought and non-drought years.

In 2018, Assembly Bill 1668 and Senate Bill 606 required local water suppliers and state agencies to establish long-term efficiency standards and water shortage contingency plans. In 2017, Californian used 90 gallons of water, on average, per day. Aimed at increasing water conservation by reducing and governing local use, this legislation set a standard limit of 55 daily gallons per person, with the amount set to reduce incrementally after January 1, 2025.



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By 2027, fines will be imposed on local water suppliers who fail to meet standards during both drought and non-drought years.

Parts of greater Los Angeles are developing projects to collect rainwater and runoff from neighborhoods and parks and turn it into drinking water. Treating “wastewater” as usable water too precious to waste is wise long-term strategy, especially across the grand scale of large metro areas, and in conjunction with water conservation measures, water recycling, and lawn removal. That’s another excellent development: Los Angeles homeowners can receive financial incentives to convert their thirsty lawns into water-efficient, drought-tolerate landscapes.

Multiplied across thousands of lawns, such measures can save a lot of water for people, rather than grass, to drink.

The thing is, drought may drive policy, but droughts end, and people return to old habits in the gray areas and neglected spaces that policy has yet to change.

Even as some urbanites remove their lawns, many others keep watering theirs. Farmers still raise dairy cows in parched parts of the San Joaquin Valley where there’s scarce water or natural grass. And some of the benchmarks for achieving the Sustainable Groundwater Management Act’s groundwater sustainability goals are set two decades ahead of the law’s 2014 enactment, so its actual implementation leaves room for further over-extraction. During the current drought, private landowners keep drilling new wells and pushing others deeper while it’s still legal, chasing the disappearing water in what some describe as a frenzy. What’s changed since the last drought is the idea that California can go on like this forever.

The old way of doing things must be seen as over. As Gov. Jerry Brown said in 2015: “We’re in a new era. The idea of your nice little green grass getting lots of water every day — that’s going to be a thing of the past.”

In 2022, what’s already changed is the landscape: shifts in rain and snow patterns, and the timing of sensitive temperature changes, threaten the very system the state relies on. The way California’s water supply has worked in the past is no longer working, and it may soon stop working at all.

### How California gets water

California gets part of its water from the massive Colorado River system, which also supplies Colorado, Utah, Wyoming, Nevada, Arizona, New Mexico, and Mexico. That system is failing. This June, the U.S. Department of Interior proposed cutting 2 to 4 million acre-feet from those customers, which is a historic, arguably unbearable, reduction. High level goals have shifted from delivering water to keeping the entire Colorado System from crashing.

The other part of California’s water collection and storage system works by capturing river and other surface water in reservoirs and transporting it to communities and farms. The wetter north has always watered the drier south, but it’s the Sierra Nevada snowpack, running through the state’s middle, that is the system’s keystone. In the



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simplest terms, a lot of California experiences a wet winter and dry summer. Most of the states' snow and rain arrives between November and April. As spring starts to warm, the rains cease and the mountain snow melts, swelling creeks and rivers with freshwater, and recharging wetlands and aquifers. Dams now capture that runoff in reservoirs, which supplies the state through a network of canals. Climate change has changed this system dramatically.

Less rain fell in 2021 than in previous years. In fact, that was the second driest California winter on record. Snowpack was also lighter. Less snow means less water to fill reservoirs. The temperature also impacted supply.

Warmer temperatures in April and May melted snow at a faster rate in vital Sierra Nevada watersheds, including the Sacramento, American, and Feather rivers, and runoff evaporated more quickly.

Now here we are.

If the climate has changed enough that the terrestrial system California relies on no longer provides enough water, then logic dictates that the state must look beyond its borders, be it at other imported water, or to desalinating the ocean that it abuts.

Fixing the state's long-term water shortages has to involve reducing water use, creating efficiencies, and recycling. But it cannot depend entirely on those measures. Here's why: The drought started in 2020, an emergency was declared in July 2021, and Californians have only reduced their water usage by 2%. The goal is 15%. In fact, this April, water use has actually increased by upwards of 26% in certain parts of southern California! A recent Pacific Institute study concluded that a combination of improved efficiencies and current technologies could reduce California's urban water use by 48%, so why hasn't that happened? Change happens so slowly, and it seems we've run out of time. Solutions that address the supply must explore ways to expand it, and desalination seems like one obvious drought-proof solution. A severe drought is certainly a constructive time to weigh the pros and cons of desalination once again.

The state of desalination in California

The idea is an old one: California is perched beside a huge body of water, so why not take the salt out of the ocean and drink it? Framed that way, desalination seems like a no-brainer: If the land won't produce enough freshwater, then the ocean can make up the difference. Of course, it's not that simple.

To be clear, California already has 11 operating desalination plants of varying sizes and around 10 more pending approval.

The Claude Bud Lewis Carlsbad Desalination Plant in Carlsbad is the largest desal plant in the country. It went online in 2015 and cost approximately \$1 billion dollars. In Santa Barbara, the smaller Charles E. Meyer Desalination Plant renders three million gallons of drinking water each day, sating 30 % of the city's demand. There is a contentious proposal for a large plant on the Monterey Peninsula, but the Sand City Coastal Desalination Plant has been processing brackish water in Monterey County since 2010.



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The Southern California Edison facility produces about 200,000 gallons a day on Catalina Island. But the physical process of desalinating sea water is not only complicated, it's complicated ecologically and politically, and that makes it contentious. This May, the California Coastal Commission unanimously rejected the proposed \$1.4 billion dollar Huntington Beach Desalination Plant for environmental reasons. Set on a low-lying coastal site, the Commission was concerned that the facility's location exposed it to rising sea levels, and that its process for converting 50 million gallons of drinking water per day would harm marine life in 100 billion gallons of seawater each year. The plant's aim was to reduce Orange Country's dependence on imported water. Gov. Newsom supported the plant, calling desal "more tools in the tool kit," but critics argued that the water the plant would produce would be too expensive for low-income consumers and never produce enough water to significantly move the county toward greater water independence.

Original Article: [Capitol Weekly by Aaron Gilbreath](#)

### **The Thompsons Creek projects have been granted Jobs for Nature funding to help improve water quality**

The Thompsons Creek projects, part of the wider Manuherekia catchment programme in Central Otago, have been awarded Jobs for Nature funding to help improve water quality and restore freshwater habitats.

It is planned to create roughly eight full-time equivalent positions over the course of three years.

"The Thompsons Creek projects are based around community engagement, working with landowners, fencing and riparian planting, and protection of threatened, native freshwater fish," Environment Minister David Parker said.

"What is learnt here can inform efforts across the wider Manuherekia catchment programme."

Ministers David Parker and Damien O'Connor chose the Manuherekia catchment as an Exemplar project for the At-Risk Catchment Programme. Jobs for Nature will provide \$2.9 million to the Thompsons Creek project.

"This approach brings together a range of stakeholders including farmers, community groups and iwi, to stop the degradation of the Manuherekia catchment and undo past damage," David Parker said.

"The Manuherekia rises between the St Bathans and Hawkdun ranges in the stunning landscape that has inspired artists such as painter Sir Grahame Sydney and poet Brian Turner," David Parker said.



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Anna Gillespie, co-chair of the Manuherekia Exemplar Project Governance Group, appreciated the willingness and support of farmers, agencies, iwi, and specialists to collaborate to get this project up and operating in a catchment with the intricacies of the Manuherekia.

“It’s the beginning of a journey which should see some very exciting initiatives for the catchment and community.”

The Thompsons Creek project manager, Nicola McGrouther, stated that work on the wetland will entail removing willows, building a meandering walkway for the river, and replacing with (locally obtained) native plants, including over 50,000 tussock (*Prei/carex secta*).

Original Article: [TDP el media](#)

## Californians are using less water. But drought conservation still misses Newsom’s target

Californians are starting to save water, but not enough to meet Gov. Gavin Newsom’s call for conservation in the face of one of the worst droughts in recorded history. Urban water use fell 3.1% in May compared to the 2020 baseline set by the governor, according to figures released Friday by the State Water Resources Control Board. While that’s well short of the 15% call issued by Newsom last July, it does show that Californians are beginning to heed the governor’s call for reduced consumption. Water use actually rose in March and April, according to water board data. Not only did consumption drop in May, preliminary results for June show that water usage fell by nearly 8% compared with two years ago. As conservation figures lagged, Newsom has hinted at taking stricter action, including the possibility of ordering mandated cuts in water usage. His predecessor Jerry Brown ordered a 25% cut in urban use in 2015, as the last drought reached its zenith, and two months ago Newsom met with a group of urban water-agency managers and warned of a crackdown if the conservation numbers didn’t improve. He also had lawmakers appropriate tens of millions of dollars for a revved-up publicity campaign to encourage conservation. Get unlimited digital access Subscribe now for just \$2 for 2 months. “It appears the governor’s message is being heard by Californians,” the state water board said Friday. Aside from pleading with Californians to save, the state has taken several steps to cut consumption. In June the state water board ordered the city of San Francisco, among others, to stop pulling water from the Tuolumne River, one of its most important supply sources. All told, more than 200 water systems were affected by the water rights “curtailments,” which took effect this week. Some municipal water agencies are taking steps of their own. The Metropolitan Water District of Southern California ordered about one-third of its 19 million customers to limit outdoor watering to one day a week, an unprecedented move by the giant agency. There’s little question of the severity of the drought. The largest reservoir in California,



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Shasta Lake, is half as full as it should be this time of year. Lake Oroville, the second largest, is 37% below average for early July.

Original Article: [The Sacramento Bee by Dale Kasler](#)

### **Property owners and officials find ways around century-old laws as the West runs out of water**

With a megadrought draining water reserves in the West, states are looking for alternatives to handle water rights, many of which were set more than 100 years ago when water supplies were far more abundant.

Back then, just posting a sign next to a water diversion was enough to be considered a right, one which could still be honored now. But the climate crisis is now straining those rights. There just isn't enough water in California to satisfy what's been allotted on paper.

For years, debate has raged in California about the best way to fix the water rights system for life in the modern era. Many of the senior water rights held in the state were set before 1914 when the permit system was established and when mining was big business.

"It's an old water system that many perceive isn't set up to deal with current climatic and hydraulic conditions," Nathan Metcalf, a water rights attorney for California law firm Hanson Bridgett, told CNN. "It's just not really set up to deal with climate change and the changing needs for water both from an environmental standpoint, and then there's also the rub between agriculture and municipal."

Recognizing the dour effect of climate change on the state's hydrology, Democrats in California's Senate have proposed using \$7.5 billion in state and federal funds to "build a climate-resilient water system."

Of those funds, \$1.5 billion would be used to buy land with senior water rights from holders willing to sell them voluntarily in prioritized waters. The Democrats argue "fundamental changes" to the state's water system are "needed to realign demand, supply, and the flexibility of the system."

The proposal, which has yet to work its way through the legislature, would look to "retire water use incrementally from multiple water uses in a basin and across wide geographies" which would help provide clean drinking water while also improving fish habitats and wildlife refuge conditions.

"The problem with trying to regulate the senior water rights is that it's a property interest, so you always run the risk of a takings claim by taking that property," Metcalf said.

A takings claim could be brought by property owners against the government if it seizes private property for public use. Owners could also make a takings claim if regulations go too far in restricting their use of the land.



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But Metcalf said there could be situations where it's mutually beneficial for a property owner to cede his or her water rights.

"If it's economically advantageous for both the farmer and the state to purchase those water rights to put to another use, I think that's a possibility," Metcalf said. "I could also see certain agricultural sectors being opposed to that because you never know when or how you're going to use that water right in the future."

Metcalf said the government could simply buy senior water rights, which might be an easier option than trying to regulate those rights, which often leads to years of litigation.

A novel approach

In Northern California, the State Water Board is trying something it has never tried before: a voluntary water sharing agreement for water rights holders in the Upper Russian River watershed in Mendocino and Sonoma Counties.

For months, rights holders met once a week to come up with an agreement in anticipation of another supply shortage. It's an effort to avoid curtailments spurred by the severe drought conditions last year, which led to water demand outstripping supply.

"Conditions deteriorated so quickly, there weren't really alternative options. We had to move forward with the curtailment process. We developed an emergency regulation," said Sam Boland-Brien, a supervising engineer with the State Water Board. "That resulted in all kinds of surface water users ... in the upper part of this watershed having to stop diversions."

In fact, water levels got so low, "there was this really concrete risk that Lake Mendocino up near Ukiah was going to run empty," Boland-Brien said, adding the storms rolling through in October last year kept the lake from running dry before the end of winter.

Coming too close to running out of water was the catalyst to find a better way to share water, he said.

The State Water Board said more than half of the total eligible water rights holders have signed up for the program, including municipalities along the river which hold the oldest rights in the watershed dating back to the late 1800s as well as local water districts and some larger institutional wineries.

The more rights holders involved, the better. By enrolling in the program, rights holders committed to a water use reduction of up to 20% to 30% for senior holders. Due to the oppressive drought, cities are also enforcing water conservation. Those water savings are incorporated into what can be shared with other rights holders in the community as well, Boland-Brien noted.

All the agreements create a pool of water available for more junior rights holders who would have otherwise had their water curtailed. Participants can also do further transfers or exchanges among each other, creating an added level of flexibility.

Original Article: [CNN by Stephanie Elam](#)



## US WATER NEWS

### **Texas river flows approach record lows, but Hill Country outfitters still afloat**

A Texas river expert says river flows across the state this summer are headed into the record books for being among the lowest ever, especially if rain does not fall soon. Still, businesses that rely on the Guadalupe and Comal Rivers have managed to float past serious financial trouble so far.

Greg Waller, a senior coordination hydrologist with the National Weather Service in Fort Worth, said the only rivers in Texas flowing where they should be are in East Texas, where rainfall has been fairly normal. Those include the Neches, Sabine, and Trinity Rivers.

"It's not a hyperbole to say this could be a top five event. This could be a top three event when we are all said and done looking at the statistics at how hot and dry it is," he said. Waller said meteorologists are now beginning to compare this drought to the most recent Texas droughts of 1980 and 2011, but he said the state is not quite there yet. It will likely take tropical activity from the Gulf of Mexico to bring drought relief, but he said that could bring different weather dangers like flooding. He added it's possible we may have to wait for the first cold fronts of the fall to see rain.

Many rivers in the Hill Country have zero flow in some spots or are bone dry. Waller said the Nueces River near Corpus Christi is also in really bad shape. The Frio River at Concan last week had a nearly zero flow level.

One of the most visited rivers in Texas, the Guadalupe, was flowing around 127 cubic feet per second in New Braunfels this past weekend. Ideal tubing conditions are considered to be 250 to 350 CFS.

The chief operating officer for Rockin' R River Rides, Shane Wolf, said no outfitters who rent tubes, kayaks, rafts, and canoes have shut down during the drought, but tubers can expect a very slow float down the river. Rockin' R locations include one at Gruene on the Guadalupe, where the river runs a little deeper, and on the Comal River.

"No one has closed up. There are some other outfitters up on River Road that do not have the deeper sections of river...more rock shelves. So it's been definitely slower on the weekdays up there," he said

He said outfitters are glad to see the summer visitors they have been seeing especially after something else dried up business for a while, not the weather, but the pandemic. Local officials said the rivers saw large crowds of water recreationists during the Fourth of July weekend and overall peg summer visitation at pre-pandemic levels even with the drought.

Mallory Hines, vice president of the New Braunfels Chamber of Commerce and Convention and Visitors Bureau, said outfitters are survivors.



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"I mean our hope is some rain, obviously... but I will say our tourism community, these outfitters, these businesses, they've weathered mother nature time and time again. The beauty of being in this growing, but small town is that everybody works together to support each other," she said.

Hines said in 2019 the hospitality industry in the area generated more than \$913 million for the local economy with the rivers being a huge economic driver for local businesses.

Original Article: [Texas Public Radio by Brain Kirkpatrick](#)

### **NY makes \$255 million available for water, sewer projects**

Governor Kathy Hochul announced the availability of \$255 million in state grants for critical water infrastructure projects that will protect public health and the environment through the State's Water Infrastructure Improvement, Intermunicipal Grant, and State Septic System Replacement programs.

This announcement marks the latest action by Governor Hochul to upgrade New York's water and sewer systems, reduce water pollution, and safeguard vital drinking water supplies from emerging contaminants and toxic chemicals.

This infusion of public funds will continue to help make water infrastructure investments more affordable for local governments and create jobs in the manufacturing, engineering, construction, plant operations, and related industry sectors. The announcement was made in Suffolk County where \$20 million from the State's Septic Replacement Program will help address more than 2,000 substandard or failing septic systems and cesspools that cause significant water quality impairments.

"New York will continue to prioritize resources for projects that provide reliable, clean water for communities across the state while creating good-paying jobs and spurring economic development," Hochul said.

Water Infrastructure Grants Prioritize Projects that Address Emerging Contaminants, Critical Wastewater Projects

The announcement includes \$225 million in grants for municipalities to bolster New York's actions to protect drinking water supplies. To date, more than \$400 million in state water grants has been awarded to projects that address emerging contaminants.

The State's goal is to provide grants to all communities that need help in their efforts to tackle emerging contaminants in their drinking water. As part of the ongoing statewide effort to confront PFAS pollution and help communities that are on the frontlines of PFAS contamination, this round of funding continues to prioritize grant awards for drinking water projects that address emerging contaminants. Critical wastewater projects are also eligible for grants.

The Environmental Facilities Corporation administers the WIIA and IMG programs working closely with the Departments of Health and Environmental Conservation. The State has awarded more than \$1.76 billion in water infrastructure grants through EFC



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since 2015, including \$638 million announced by Governor Hochul in April. To date, EFC has awarded 834 WIIA and IMG grants to 488 communities.

Local units of government are eligible to apply for funding for:

- WIIA grant awards that will fund up to 25 percent of an eligible wastewater project's total cost, up to \$25 million.
- WIIA grant awards that will fund 60 percent of net eligible project costs for projects that address emerging contaminants above the State determined Maximum Contaminant Level (MCL), with no cap on the total award.
- WIIA grant awards for all other drinking water projects will be awarded up to 60 percent of net project costs up to a maximum of \$5 million.
- IMG awards that will fund up to 40 percent of an eligible wastewater or drinking water project for communities that share services, up to \$30 million.

Grant applications and required supporting documentation must be submitted through EFC's website by 5 p.m. on Sept. 9.

Septic System Replacement Program Investments Target Water Quality and Protection of Public Health

An additional \$30 million is now available through the State Septic System Replacement Program to support home and small business owners in the targeted replacement of aging and sub-standard septic systems and removal of cesspools in communities statewide.

The Septic Replacement Program improves water quality by encouraging and incentivizing homeowners' replacement of cesspools and failing or inadequate septic systems around a waterbody known to be impaired by septic system discharges.

DEC and DOH identified priority geographic areas where property owners are eligible to participate based on the presence of a sole-source aquifer used for drinking water, known water quality impairment linked to failing septic systems, and/or the ability for septic system upgrades to mitigate water quality impairments.

EFC will be providing detailed information about how to access the funding to counties with identified priority geographic areas. DEC and DOH will re-evaluate priority geographic areas in future rounds of funding.

New York State will provide funds to counties to reimburse eligible property owners for a portion of the cost of replacing cesspools and septic systems and installing more environmentally effective systems. Eligible property owners can be reimbursed 50 percent of eligible costs up to \$10,000.

Counties may also set graduated incentive reimbursement rates for septic system projects to maximize program participation and pollution reduction goals. A list of eligible counties and priority geographic areas within those counties is available on EFC's website.



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Editor's Note: Orleans isn't eligible but parts of Genesee are eligible at Tonawanda Creek, Bowen Brook and Bigelow Creek as well as their tributaries.

Original Article: [Orleans Hub/ Gov. Kathy Hochul's Office.](#)

### **“A New Zone of Uncertainty”: What West Virginia v. EPA Means for Water and Environment**

In a 6-3 decision last week, the Supreme Court restricted the Environmental Protection Agency's ability to curb climate pollution from power plants.

It was not the wrecking ball to climate policy that some predicted. The decision leaves intact the EPA's authority to regulate greenhouse gas emissions, and even allows it to regulate power plants on a case-by-case basis.

The greater significance of the case, rather, may be the new inroad it creates for challenges to environment and water protections.

At the heart of the decision in West Virginia v. EPA lies the “major questions” doctrine: the legal argument that federal agencies may not rule on matters of “great economic and political significance” without direct approval from Congress. The majority opinion, authored by Chief Justice John Roberts, argued that the EPA cannot enforce the Clean Power Plan, an Obama-era draft rule, which would have required states to reduce emissions from electricity generation.

To make expansive changes to the nation's electric grid, Roberts wrote, the EPA “must point to ‘clear congressional authorization’ for the power it claims.”

“I think it's safe to read this case as opening the door to future challenges to a whole host of regulations,” said Kirti Datla, of the environmental law nonprofit Earthjustice. “It's a signal from the Supreme Court that if federal agencies are going to try things that look new, or look big, that they should be on notice. The Court's going to look really closely at that, and they may intervene.”

There is a broad consensus among legal scholars that the court did not offer a clear standard of when the doctrine should be invoked. As a result, the decision will likely make federal agencies tread cautiously when taking ambitious action, four scholars told Circle of Blue.

“It creates a new zone of uncertainty: it makes it more difficult to predict how the courts will come out on a variety of issues,” said Columbia Law School professor Michael Gerrard. “I do see this empowerment of the major questions doctrine is part of a broader pattern to inhibit federal regulatory action.”

Dena Adler, research scholar at New York University's Institute for Policy Integrity, called the standard for the major questions doctrine “mushy.”

“Opponents of regulation will continue to attempt to argue that other regulatory policies now qualify as major questions, and push for that exception to swallow the rule,” Adler said.



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Hesitancy on the part of federal agencies could be damaging for U.S. water issues, many of which cut across state boundaries. James Eklund, an environmental lawyer and architect of the Colorado Water Plan, said that ambitious action by the Bureau of Reclamation has been central to averting the worst water shortages in the American West. States have a strategic interest in maintaining unsustainable water yields. It takes an ultimatum, like the one the Bureau issued last month, to bring states to the negotiating table.

“States aren’t acting. This is a problem that requires at least federal participation, if not federal leadership,” Eklund said. “[West Virginia] really gets to the ability of the federal government to credibly tell the states... ‘We need you states to come up with a plan’.

He added: “If the major questions doctrine is applied to such a unilateral action, there is a pretty real threat that the federal government would be prohibited from acting.”

Advocates are not holding their breath for nimble action by Congress. America’s political landscape is more polarized than ever. Basic science on climate and environment is seen as political. As a result, agencies are hemmed in by dated statutes that were penned for the climate of last century.

Eklund sees the West Virginia decision as a step in the wrong direction. “This is a time when we need greater agility from our government, not less,” Eklund said.

Original Article: [Circle of Blue by Laura Gersony](#)

### **Louisiana does little to regulate surface water use, audit finds**

The lack of a statewide management plan in Louisiana is a chief reason why so little is done to monitor how industry uses surface water from its navigable waterbodies and state-owned lakes, according to a new audit report. The Louisiana Legislative Auditor says a water management plan is needed to protect the state’s resources and determine what businesses and other customers can use.

Surface water uses include hydraulic fracturing, yet there is no requirement for drilling companies to monitor the amount of surface water they use. The Department of Natural Resources has made cooperative endeavor agreements (CEAs) voluntary for surface water users, but the agency does not have the staff or resources to effectively monitor whether companies are sticking to the agreed upon limits.

The audit notes that state law places a cap on the market value of its surface water — 15 cents per 1,000 gallons — which doesn’t allow for fluctuations based on supply or demand. It also limits revenue for the state’s Aquatic Plant Control Fund, which is used to contain invasive species such as salvinia. As a result, officials don’t have the resources to stay ahead of the spread that chokes off waterways.

Payments to the Aquatic Plant Control Fund from surface water cooperative endeavor agreements accounted for just 11% of contributions over the past two years, according to the audit. The review also found 10% of CEAs contained errors. For example, one



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application for a CEA called for a customer to use 302 million gallons of water from the Red River. The signed version of the agreement allowed 302 billion gallons to be used.

Leaders with the Department of Natural Resources agreed with an auditor's suggestion that the review process for CEAs be improved. The audit also recommended the department beef up its compliance efforts. In response, Natural Resources said it doesn't have the power to make surface water usage limits mandatory and that it would seek more funding from the Legislature to better monitor the program.

Another recommendation in the audit report calls for state lawmakers to consider making surface water regulation, whether through CEAs or use permits, mandatory.

Original Article: [Louisiana Illuminator by Greg Larose](#)

### **Western Growers praises new Arizona water legislation**

Arizona Gov. Doug Ducey signed legislation in July that will invest \$1.2 billion over three years to fund projects that will bring additional water to the state to secure Arizona's water future, according to a news release.

The funds will improve existing water infrastructure and implement effective conservation tools. The projects will help ensure that Arizona families, businesses and agriculture continue to have adequate long-term water supplies, Western Growers said in a statement.

The group collaborated with stakeholders, legislators and the governor's office to ensure current water resource allocations are protected for existing agricultural uses, and that agriculture will be represented during the selection process for future projects.

"[Senate Bill 1740] represents the most significant water legislation since the state implemented groundwater protections in 1980," Western Growers said, noting that the bill appropriates more than \$1 billion to the Water Infrastructure Finance Authority and expands it with new responsibilities to provide loans and grants to water providers and entities for the purposes of importing water into Arizona, conservation, efficiency and reuse, and new technologies.

Original Article: [The Packer by Tom Karst](#)

### **City of Phoenix commits to leave more Colorado River water in Lake Mead**

In an effort to keep water levels in Lake Mead from declining at a drastic rate, the City of Phoenix announced that it will leave an additional 14,000 acre-feet of Colorado River water in the lake this year.

Mayor Kate Gallego and members of the Phoenix City Council approved the move on July 1 as part of the 500+ Plan, an organized effort among various entities to stop the lake's decline by conserving 500,000 acre-feet a year.

"In this time of extreme drought, it is not easy to convince governments to leave water behind," Gallego said in a press release. "However, I believe we are all acutely focused



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on what it will take to help Arizona communities thrive for the long term. In Phoenix, that means we make reasonable sacrifices now, to ensure we can continue to welcome people who want to live here, as well as the businesses that want to set up shop here.”

The City of Phoenix made its first contribution to the 500+ Plan in January, and with the July 1 action, it will have contributed a total of 30,000 acre-feet.

By leaving water in Lake Mead, the City of Phoenix will receive about \$7.8 million in funding from the Central Arizona Water Conservation District, the press release stated. The funds will be placed in the city’s Water Revenue Fund to help purchase water from other sources and fund conservation programs.

The Gila River Indian Community, the City of Tucson, the City of Phoenix and other communities across the region, and the state, have agreed to be part of the solution by making their own contributions.

The 500+ plan aims to add 500,000 acre-feet of additional water to Lake Mead both this year and in 2023 by supporting and funding actions to conserve water across the Lower Colorado River Basin, according to the Gila River Indian Community.

An acre-foot is the amount of water necessary to flood one acre of land to a depth of one foot, the City of Phoenix stated. That equals about 326,000 gallons, or enough water for three single-family homes in the Phoenix metro area.

Gallego thanked Gila River Indian Community Gov. Stephen Roe Lewis for his leadership in bringing stakeholders together.

In December 2021, Lewis signed two agreements with the United States Bureau of Reclamation stating that the Gila River Indian Community would conserve over 129,000 acre-feet of its Colorado River water entitlement in 2022 to keep Lake Mead from falling to critically low levels.

“It is also true that cities and Indian communities cannot solve this issue on our own,” Gallego said in a written statement. “We need to see proportional action across sectors – particularly agriculture, which uses 70% of available Colorado River water.”

Water users in Phoenix consume 30% less water per capita than they did 30 years ago, according to the City of Phoenix, even as the city has experienced massive population growth over the same period.

“We need that conservation trend to continue,” Gallego said. “But as the drought stretches on, we are constantly looking for ways to be even better stewards of our most precious resource.”

Original Article: [Coyote Gulch/ Arizona Mirror by Shondiin Silversmith](#)



### **\$48 Million Water Reclamation Facility Expansion to Return 1.75 Million Gallons Daily to Natural Water Cycle**

EPCOR USA Inc. (EPCOR USA) has completed a \$48 million expansion of the Luke 303 Regional Water Reclamation Facility (Luke 303) in one of the fastest-growing areas of Maricopa County and the Greater Phoenix metropolitan area.

The facility treats effluent to the highest state standards and can now return up to 1.75 million gallons daily to Arizona's natural water cycle. Designed to expand in phases with the surrounding area, Luke 303 will ultimately recharge up to 8 million gallons into the ground every day – enough water to support approximately 24,000 single-family homes annually.

“One of the most important responsibilities we have is to maintain the infrastructure necessary to ensure long-term system reliability for our communities,” said EPCOR USA President Joe Gysel. “But this is about more than modern infrastructure – it's deliberate and thoughtful water management in the desert and how vibrant communities and growth can be achieved while still protecting our water.”

This is the latest expansion of the wastewater and water reclamation infrastructure underpinning 4,400 acres of growth along the Loop 303 corridor near Luke Air Force Base. The 30-month project increased the 40-acre site's water recycling capabilities to meet the long-term wastewater needs of surrounding residential areas and commercial businesses such as Microsoft, Rauch, Ball Canning and Nestle.

“My family has called the West Valley home for generations,” said Maricopa County Supervisor Clint Hickman. “One thing has remained constant: the importance of protecting and preserving our water. Arizona has been – and continues to be – a leader in this arena, and the expansion of the Luke 303 Water Reclamation Facility comes at a time when the importance of water has perhaps never been so top of mind for Arizonans.”

The expansion included construction of a 6.6-mile sewer line to serve major commercial tenants in the area, roughly 2.5 miles of which is along the west side of Luke Air Force Base. Using Sequencing Batch Reactor (SBR) technology, micro-organisms are activated in the process of cleaning and treating the water. The enclosed facility was carefully designed to comply with Luke Air Force Base flight safety requirements.

“The West Valley is expanding in smart ways, but that growth, economic development and quality of life does not come without a very strategic and long-range approach to water and wastewater infrastructure,” noted Sintra Hoffman, President and CEO at WESTMARC, a coalition of municipalities, businesses and education providers in the West Valley. “Luke 303 is an important element of where we are today and where we are growing economically in the future.”

Environmental stewardship is a core value of EPCOR, and future expansions of Luke 303 will help EPCOR continue to focus on its goal of recycling more than 90 percent of the



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wastewater it collects. Since 2012, EPCOR has reclaimed more than 18.2 billion gallons of water through re-use or re-charge.

Original Article: [Global News Wire by Epcor Media Team](#)

### **Lower Colorado River farmers fear economic calamity from water cuts**

Farmers along the Lower Colorado River in Southern Arizona and Southern California are bracing for severe reductions next year in their river water supplies — cuts they say could lead to widespread crop production cutbacks, major economic dislocation and, possibly, food shortages.

“Mass fallowing” is a prime concern among representatives of several big irrigation districts along the river. The concern is growing as farm, city, state and federal officials seek to negotiate a compromise solution to carry out cuts in water use across the entire Colorado River Basin that were ordered last month by the U.S. Bureau of Reclamation.

The bureau wants the seven river basin states to cut 2 million to 4 million acre-feet of water use next year. That amounts to up to nearly 30% of their total annual take from the river. The bureau says the cuts are needed to prevent Lakes Mead and Powell from falling so low they won’t be able to generate power or might even reach “dead pool,” where little or no water could be removed from them.

Farmers along the Lower Colorado will take a hefty slice of the cuts because they use the largest single share of river water in the Lower Basin, many experts say. In fact, the Imperial Irrigation District in Southern California west of Yuma owns the single largest share of river water rights in the entire basin.

Overall, the Lower Basin states of Arizona, California and Nevada are expected to take the largest share of cuts because they use more than twice as much water annually as the Upper Basin states of Utah, New Mexico, Colorado and Wyoming. A top Colorado water official, Rebecca Mitchell, said last week she believes the Lower Basin should take most of the cuts.

“You can’t get to cuts of that magnitude without significant cuts to agriculture. You just can’t,” said Kathryn Sorensen, a researcher for Arizona State University’s Kyl Center for Water Policy. “Who exactly that is, where exactly that is, I don’t know.”

“I understand that the growers have their contracts in for next year, for purchasers, for labor. These are businesses. They’re doing what they need to do to keep their businesses going. If there are significant cuts and a large portion goes to agriculture, I think you are looking at pretty significant fallowing. I don’t know how you get around that,” said Sorensen, adding, “I hope I’m wrong.”

Less food available?

With reductions scheduled to be finalized next month and to take effect in 2023, several farm leaders said in interviews that avoiding large-scale removal of farmland from production will be difficult to impossible to avoid.



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“I’ve been told there are as many as 150 different crops grown in Yuma, depending on what the demand is for the crops. We can grow anything in the Yuma Valley, damn near anything. We grow year round — whatever needs to be grown for the rest of the country,” said Tom Davis, general manager of the Yuma County Water Users Association.

These farmers have long been national leaders in their production of food crops, with the Yuma area renowned for supplying at least 90% of the U.S.’s entire winter lettuce supply.

Farmers in the Imperial Valley, just west of the California-Arizona border, grow up to 200 crops, according to various reports and to agricultural leaders there.

If the reservoirs go dry, there will be a food shortage, and if officials must cut off water deliveries to avoid that, “there will be less food available, or if it is available, it will be more expensive,” said Davis, whose association represents farmers growing on about 45,000 acres in the Yuma area that are served by river water.

“Just think of a farm being the Abbott baby formula manufacturing plant,” Davis said. “You cut that back, you end up with a shortage somewhere unless you end up growing it somewhere else. You can’t grow all of what we grow here somewhere else, although you can grow some of it.”

But if the farmers do sustain heavy water use cuts, alfalfa growing — not winter vegetables — will take the biggest hit, said University of Arizona agricultural economist George Frisvold and University of New Mexico water researcher John Fleck.

Far more acres of alfalfa and other forage crops to feed cattle are grown along the Lower Colorado than vegetables. Cutting vegetable crops will be the last resort, Frisvold said. And if alfalfa growing is slashed, a lot of the cuts will be felt in reduced exports, not in shortages in cheese and other dairy products in the U.S., Frisvold said.

Original Article: [Tucson.com by Tony Davis](https://www.tucson.com/story/news/local/2017/05/17/yuma-water-users-association/1028117001/)

## Great Salt Lake in Utah hit a record low water level for second time in less than a year

Kayaker Brian Footen is using a 360 degree camera to capture a devastating sight: the diminishing size of Utah's Great Salt Lake.

Footen, who works for a company called Earthviews that creates maps of aquatic and terrestrial environments, noticed how much conditions have worsened.

"So 30 years ago, we would not have been over there along the side of the mountain, and there would have been a shoreline, actually, not a lake bed," Footen told CBS News' John Blackstone.

Three decades ago, the Great Salt Lake covered about 3,000 square miles. Now, at its lowest level ever recorded, it covers less than a thousand. The decline has led to air quality issues in the midst of historic drought conditions.



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"All the minerals from the mountains, all the heavy metals from the mountains have been coming into this lake for thousands of years, and if the lake bottom is completely dry, then the wind picks up and creates dust storms that carry those heavy metals into the air and spread them around to urban areas like Salt Lake City," Footen said.

To calculate how severe those dust storms could be, scientists from the University of Utah biked across miles of land that was once underwater.

"The dust that comes off the lake is very visual," said Dr. Kevin Perry, a professor from the University of Utah. "You can see this wall of dust and it reduces the visibility. And people are very concerned about what might be in the dust that they're breathing."

To measure what might be in the dust, Perry uses an instrument that mimics a dust storm.

"What that does is, it creates a swirling wind inside this chamber that stimulates wind speeds of up to about 50 miles per hour," Perry said.

What Perry discovered has raised serious health concerns for millions who live in the Salt Lake City region.

"I was looking at heavy metals and unfortunately we found very high concentrations of arsenic in the soil," he said. "And arsenic is concerning for a variety of reasons. It can lead to lung cancer, skin cancer, bladder cancer, cardiovascular disease and diabetes."

Preventing arsenic-contaminated dust storms requires getting more water into the Great Salt Lake. But that's no easy feat when Utah is in a megadrought, with more than 20 years of below average precipitation.

Joel Ferry runs a farm along the Bear River. For five generations, his family has been using water from the river to grow food and raise cattle.

"We have water rights to take that water," Ferry said. "And so what we try to do is we say, 'Let's reduce the amount of water that we're taking out of the Bear by doing irrigation efficiency practices.'"

Efficiency is necessary since Ferry's water allocation was cut by 30% last year. So he installed drip irrigation for some of his crops. Meanwhile, other fields have been carefully leveled to make better use of flood irrigation.

Ferry's commitment to saving water had led him to a new career. He said he was asked by Gov. Spencer Cox to serve as the executive director of the Department of Natural Resources. In his role, Ferry will be tasked with convincing farmers, industry and city dwellers in Utah to understand the importance of water conservation.

Original Article: [CBS News](#)

**Governor Announces \$30 Million In State Funding To Provide Long-Term Water Supply To Eastern New Mexico**



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Gov. Michelle Lujan Grisham Friday announced state funding for the Eastern New Mexico Water Supply Project, a pipeline that will deliver water from the Ute Reservoir to the more than 70,000 residents of Clovis, Elida, Portales and Texico.

The \$30 million state investment, paired with local and federal funding, will provide a long-term water source for the community.

“No one values our precious water resources more than New Mexicans – it’s part of who we are,” Gov. Lujan Grisham said. “Without this pipeline, the aquifer the community relies on will be depleted within 10 to 15 years. This collaborative effort serves as a shining example of what sustainable water management looks like and ensures a reliable source of water for Clovis for generations to come.”

The project is expected to be completed in 2029.

“On behalf of the Eastern New Mexico Water Utility Authority and the citizens of our member communities, I am grateful for this funding. This will take us far in the construction of this critically important project,” Clovis Mayor Michael Morris said. “We appreciate everyone involved who has made funding available, including Governor Michelle Lujan Grisham, state legislators, representatives of our member communities, the Biden Administration, and our New Mexico Congressional delegation.”

“I’m proud of the work we have done with the ENMWUA and multiple community leaders for over a decade to advance the Eastern New Mexico Rural Water System pipeline to where we are today,” Sen. Martin Heinrich said. “Thanks to historic funding from the Infrastructure Law, we are cutting the construction timeline in half so that this incredible community effort can provide cities in eastern New Mexico and Cannon Air Force Base with a dependable, reliable water supply for generations to come,”

“As our climate becomes hotter and drier, this investment in water infrastructure in eastern New Mexico is absolutely critical,” Sen. Ben Ray Luján said. “I am proud to have helped secure the \$163 million in federal funds that, paired with this major \$30 million investment from the state, will ensure reliable access to water in the region for generations. I look forward to continued collaboration with the Governor and all our state and local partners to ensure all New Mexican communities have the resources they need to thrive.”

“Last year, I led the effort in the House to fund rural water programs, ultimately helping to secure over \$177 million for the Eastern NM Water Supply Project,” Rep. Leger Fernández said. “This funding is essential for our communities, businesses, and families to have access to clean water. I will continue to advocate for our beloved Eastern New Mexico communities, whether through funding water, health care, or economic development projects, addressing substance abuse, or making sure ranchers receive the compensation they deserve after toxic chemical exposure from Cannon.”

This effort will serve as a model for statewide water conservation efforts. Many communities currently rely on groundwater as a primary water source, but increasingly



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arid conditions are rapidly depleting aquifers. Utilizing surface water, which is recharged more quickly, will ensure that aquifers are preserved.

The project in Clovis is even more critical, as parts of the Ogallala Aquifer are now contaminated by PFAS caused by Department of Defense operations at Cannon Air Force Base.

Original Article: [Los Alamos Daily Post](#)

## GLOBAL WATER NEWS

### **Karnataka asked to increase Almatti dam water discharge**

The state government has urged Karnataka to monitor and increase water discharge from Almatti dam to avert floods in Sangli, Satara and Kolhapur districts in Western Maharashtra.

Incessant rain in Sangli, Satara and Kolhapur has led to rise in water levels in Krishna river basin and Koyna catchment areas. With the India Meteorological Department (IMD) predicting heavy rains this week, the state has requested its neighbouring Karnataka to ensure higher water discharge from Almatti dam.

The state water resources team is coordinating with Karnataka for better flood management. A source in the Water Resources Department said, “Water discharge from Almatti has gone up from 450 cusecs to one lakh cusecs within 24 hours.”

If heavy rain continues for the next two weeks, as indicated by the IMD, water discharge from Almatti dam will have to be increased beyond two lakh cusecs.

Meanwhile, with the water level in Krishna river rising to 13.6 feet, and Koyna catchment receiving heavy rains, the state administration has sent alerts and those living along the river banks are being relocated to safer destinations.

In 2019, Kolhapur, Sangli, and Satara faced one of the worst floods. At that time, the state had to seek the Centre’s intervention to get the Karnataka government to agree to higher water discharge from Almatti dam.

Original Article: [Express News Service/ The Indian Express](#)

### **State should tap seawater to meet drinking water needs: Minister**

Water Resources Minister Roshy Augustine has said that the State must actively pursue seawater desalination systems to overcome the gradual depletion of conventional water sources.

“While groundwater and other sources have been drying up, Kerala has been incurring large costs in setting up and maintaining water treatment plants. Under such



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circumstances, we must prepare ourselves to utilise seawater, especially along the coastal belt. The government is in favour of holding preliminary talks to take the proposal forward,” he said.

He was replying to a question raised by A.N. Shamseer [Communist Party of India (Marxist)] in the Assembly on Tuesday. Pointing out that the State exchequer has been bearing considerable burden by way of water supply projects such as the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Mr. Shamseer urged the government to replicate the efforts made by Lakshadweep and West Asian countries in implementing water desalination projects.

Mr. Augustine said the Kerala Water Authority (KWA) awaited payment of arrears amounting to ₹1,131 crore from government departments, local self-government institutions, domestic and other consumers.

The State-run water utility will organise adalats to resolve complaints and enable consumers to clear their dues. Many people have refused to pay bills claiming that they had been issued bill for water more than they used. Leakages have led to many such situations, Mr. Augustine pointed out.

Leader of the Opposition V.D. Satheesan criticised the State government for burdening local bodies by making them bear 15% share in the implementation of the Jal Jeevan Mission projects. In reply, the Minister said the government could consider taking over the share from cash-strapped local bodies.

Original Article: [The Hindu](#)

## NSW city goes a week without drinkable water after floods cause contamination

Water in Dubbo and surrounding towns has been undrinkable for nearly a week as local authorities work to “climate-proof” against the future contamination of catchments.

After the Little River swelled during the deluge of rain, animal faeces and carcasses were flushed into the catchment.

Dubbo, a city of more than 43,000 people in the central west of New South Wales, was one of a number of regions that have confronted a jeopardised water supply over the past few years due to fires, storms, floods and drought.

The mayor of Dubbo regional council, Mathew Dickerson, said it showed there was a need to make water supplies more resilient to climate change.

“As we get to those extremes with drought and flood or rain, I think we will see more resilience need to be built into water treatment plants across the state, because this is relative to our life going forward,” he said.

“So we’ve got to work out going forward how many times it’s going to happen again, and how we can get that water treatment process to a level that it can be more resilient.”



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The council issued a boil-water alert last Wednesday after flooding caused the water supply quality to exceed safe drinking levels. Dickerson said they hoped to finish draining the turbid water from the three main reservoirs on Thursday.

Jordan Morrow, a childcare worker at Playmates Cottage childcare centre, said the council had been delivering bottled water to the centre every morning since the alert was put in place. “Thankfully, we don’t have to boil water for 52 children a day,” he said. Dubbo residents told the Guardian that bottled water had become hard to get in supermarkets as people stocked up.

Prof Stuart Khan, a water expert at the University of New South Wales, said climate change posed an increasing challenge to reliable drinking water supply across the country.

In Bermagui, on the NSW south coast, the Black Summer bushfires put the quality of their water supply beyond safe drinking levels. In response to this, a new water filtration plant is being built to make the system more resilient.

In June 2021, after severe storms hit Victoria, Yarra Valley Water issued a warning for some areas to not drink the tap water even if it was boiled.

For the towns that almost ran out of water during the drought in 2019, Khan said a number of councils tapped into groundwater as an emergency solution.

Dubbo has been expanding the number of bores to make the region more drought and flood resilient, but Dickerson said this backup source couldn’t be used during the current crisis due to low water supply.

According to Khan, coastal cities were better at adapting to water supply issues as they have a number of sources to draw from, whereas regional and rural areas often only have one supply.

Original Article: [The Guardian by Jordyn Beazley](#)

### **NT project to get \$300m in free water**

A 3500-hectare fruit and vegetable project in the Northern Territory could get more than \$300 million in water for free while its promised economic benefits have been overstated, a report has found.

Fortune Agribusiness says its Singleton Horticulture Project, about 1000 kilometres south of Darwin, will support more than 100 permanent jobs and more than 1300 seasonal positions through an annual operating expenditure of about \$110 million.

But the Central Land Council says a report it commissioned from a water economics professor at the University of South Australia found the project is dependent on large public subsidies while significant ecological, cultural and social costs have not been properly considered.

The report says the project is likely to generate between 26 and 36 full-time jobs for Territorians and puts the annual economic benefits at between \$13 million and \$28 million.



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It also estimates the value of the groundwater being provided under the NT government's 30-year extraction licence at between \$70 million and more than \$300 million.

Central Land Council chief executive Les Turner says the report raises serious questions about the project's social, cultural and environmental costs.

"Not only has the project failed the economic benefits test, it has also neglected to account for the damage it would do to Aboriginal communities and country," Mr Turner said.

"We are talking about emptying Sydney Harbour twice, about giving away water worth hundreds of millions of dollars."

In February, the native title holders for the Singleton site said they would ask the Supreme Court to set aside the water licence for the project.

They planned to show that the government had failed to consider Aboriginal cultural values and other important matters, describing the approval to take 40 gegalitres of water every year for three decades as "unconscionable".

The licence had been granted in November after an earlier version was set aside and included additional conditions, including a requirement for a detailed assessment of the water resources on Singleton Station and a cultural values impact assessment.

In a statement, Fortune Agribusiness said it had only received the academic analysis on Tuesday, through the media.

The company said it would respond to all claims as soon as it had the opportunity to review the report.

When its new licence was approved, Fortune described the revised conditions as comprehensive and stringent and said it was committed to meeting all the requirements.

"We recognise the importance of water security and sound environmental management to all Territorians and indeed for the project itself," chairman Peter Wood said in November.

"From the outset, Fortune Agribusiness has been committed to engaging and working closely with the traditional owners and the Central Land Council and will be continuing to do so throughout the life of the project."

"We believe in working together collaboratively and meaningfully to build a world-class food production precinct."

The Singleton project plans to grow a range of annual and perennial crops including melons, grapes, mandarins, onions and avocados.

Original Article: [Northern Beaches Review by Tim Dornin](#)

## 1.2-billion-year-old groundwater discovered deep in a mine in South Africa

Groundwater is a target of investigations for:

- Geologic storage of carbon or nuclear waste.



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- New reservoirs of rapidly depleting resources of helium.

Deep hydrological conditions where groundwater is preserved over millions of years have been discovered using Noble gas-derived residence times. Now, scientists have now discovered 1.2 billion-year-old deep groundwater deep in gold- and uranium-producing mine in Moab Khotsong, South Africa.

They discovered the groundwater 2.9 km below the Earth's surface in Moab Khotsong. This discovery sheds light on how life is sustained below the Earth's surface and how it may thrive on other planets.

Oliver Warr, a research associate in the Department of Earth Sciences at the University of Toronto, said, "For the first time, we have insight into how energy stored deep in the Earth's subsurface can be released and distributed more broadly through its crust over time. Think of it as a Pandora's Box of helium-and-hydrogen-producing power, one that we can learn how to harness for the benefit of the deep biosphere on a global scale."

Barbara Sherwood Lollar, professor in the Department of Earth Sciences at the University of Toronto and corresponding author, said, "Ten years ago, we discovered billion-year-old groundwater from below the Canadian Shield – this was just the beginning, it seems. Now, 2.9 km below the Earth's surface in Moab Khotsong, we have found that the extreme outposts of the world's water cycle are more widespread than once thought."

Uranium and other radioactive elements hold new information about the groundwater's role as a power generator for chemolithotrophic, or rock-eating, groups of cohabitating microorganisms previously discovered in the Earth's deep subsurface. The alpha, beta, and gamma radiation produced when elements like uranium, thorium, and potassium decay in the subsurface has ripple effects and causes what is known as radiogenic reactions in the nearby rocks and fluids.

This newly discovered groundwater was found to have large amounts of radiogenic helium, neon, argon, and xenon, and an unprecedented discovery of an isotope of krypton – a never-before-seen tracer of this powerful reaction history. In a process known as radiolysis, the radiation also splits apart water molecules, creating significant amounts of hydrogen vital as an energy source for deep-earth microbial communities that cannot use sunlight for photosynthesis.

While the extremely low porosity of crystalline basement rocks in which these waters are found means the groundwaters are largely isolated and rarely mix, accounting for their 1.2-billion-year age, diffusion can still occur.

Original Article: [Tech Explorist by Amit Malewar](#)

## China Development Bank ups loan support for water conservancy

China Development Bank has enhanced its financial support for the construction of water conservancy facilities since the beginning of this year.



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A total of 53.4 billion yuan (about 8 billion U.S. dollars) worth of loans were issued for water conservancy construction in the first half of the year, maintaining stable growth, according to the bank.

Since May, the bank has accelerated the issuance of loans for water conservancy, as 26.4 billion yuan of loans were channeled into the area from May to June, accounting for nearly half of the total water conservancy-related loan issuance in the first six months. As water conservancy projects are usually related to public welfare, with large investment volumes and long construction periods, the bank has set up special loans and offered supportive measures in terms of the size, term, and interest rate of these loans.

Last month, China's central bank urged financial institutions to cooperate with water resource authorities and enterprises, and expand effective investment in the construction of water conservancy infrastructure to bolster economic growth.

Original Article: [Big News Network](#)

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