

Veles Water Weekly Report

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June 24th 2021

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WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Robin Bieber

CLICK THE LINK BELOW

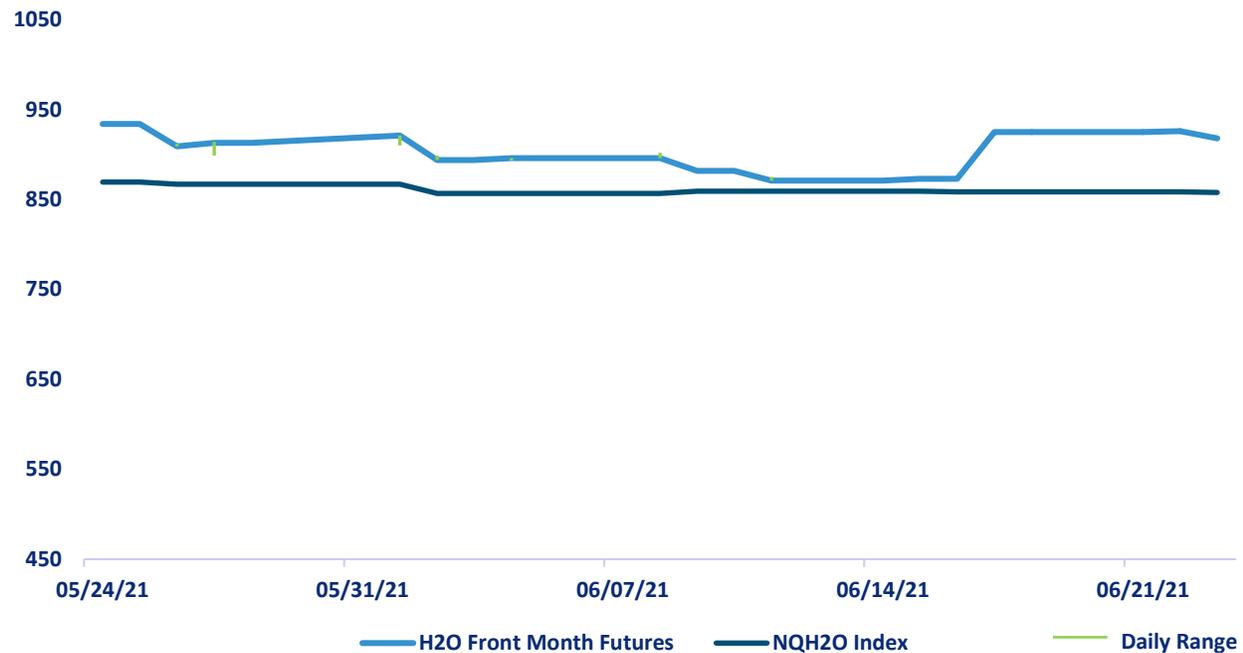
"A 2 minute technical analysis video of H2O futures by Robin Bieber."

<https://vimeo.com/566928571/ed8a5d4105>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

1 Month Price Performance NQH2O Index vs H2O Futures



The July Futures contract is now the front month and started trading around \$925. The futures traded at a premium of \$66.45 - \$67.45 to the index. The new index level published on June 23rd is now \$857.61 which is down \$0.94 or 0.11%. The premium of the futures to the index reduced to \$60.39 to \$918, down around \$7 showing slightly dampened enthusiasm for price expectations, nevertheless expectations are for a further price increase in the index. The futures high of the week was \$926 on June 22nd and the low of the week was \$918 on June 23rd.

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

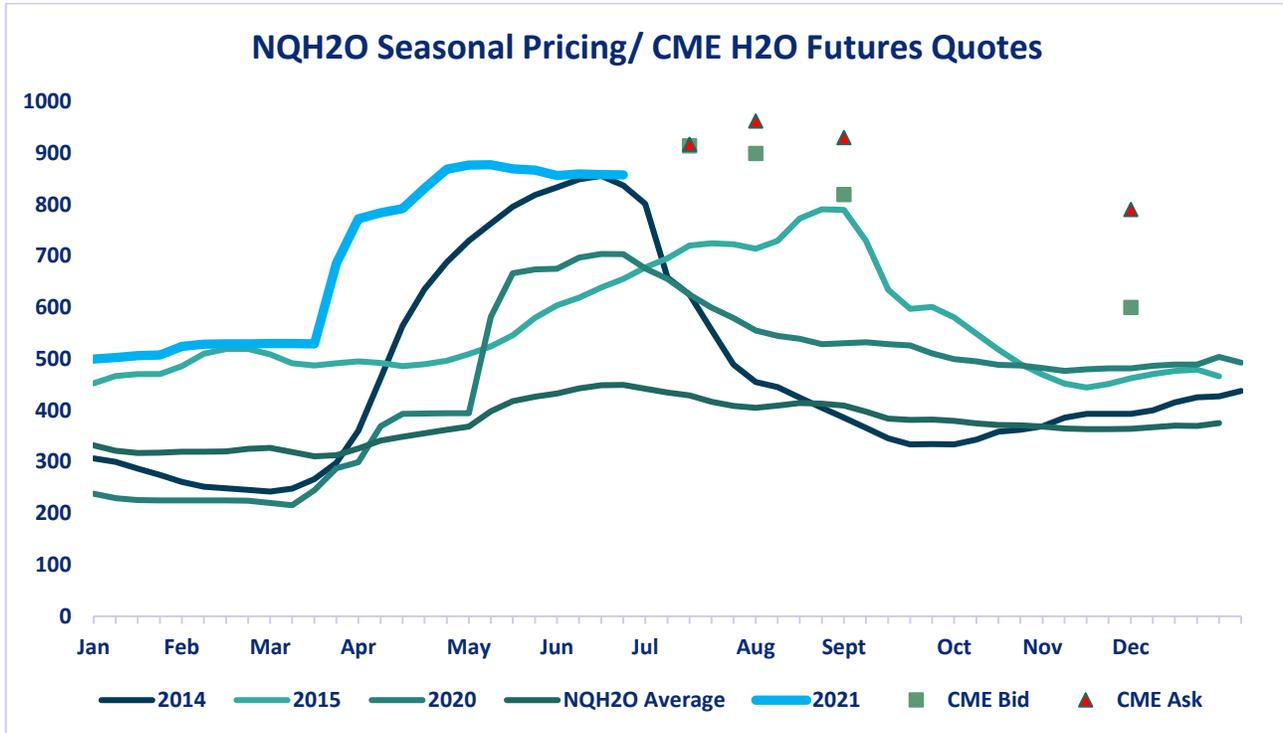
July is 914@917

August is 899@962

September 819@930

December 600@790

The December offer price is still cheaper than the July, August and September bids. The July bid to December offer is still minus \$124. This is indicating a significant implied seasonality in the trading of water, with prices peaking in summer and tapering off in winter.



The graph above lays out the NASDAQ/Veles water index by year, showing 2014, 2015, 2020, 2021 plus an average price of the last eight years. 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 many other commodities.

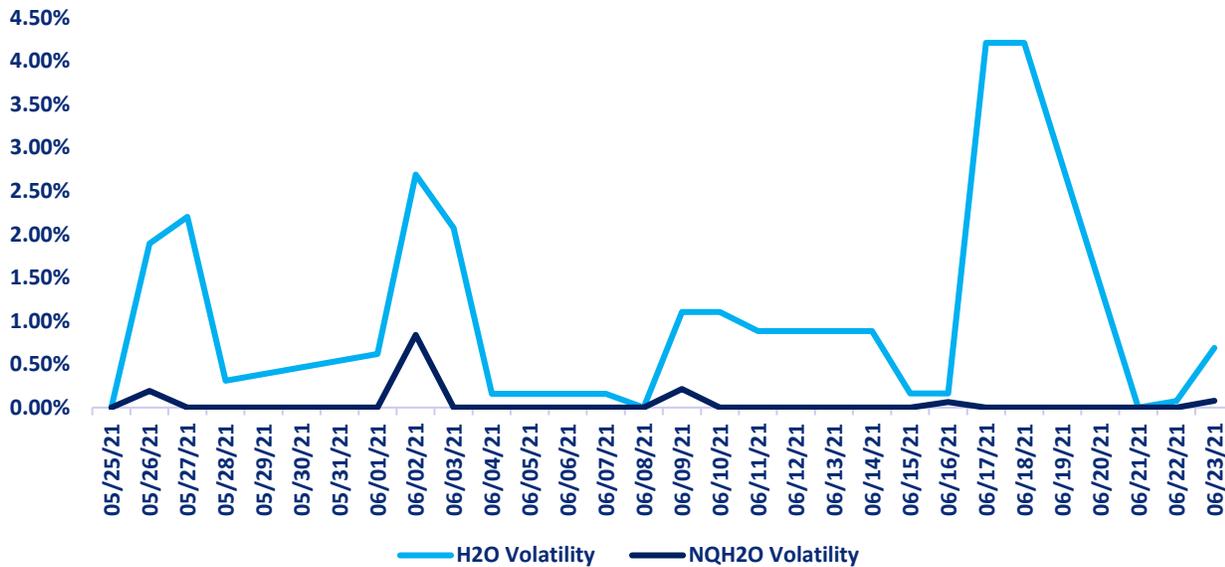
The graph for 2021 is highlighted in light blue. It shows the same seasonal climb, but at record-high values above each of the last eight years since February.

All current bids and offers in the market are 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.

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



Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	34.92%	6.08%	1.28%	0.021%
H2O FUTURES	N/A	12.3%	7.74%	5.63%

For the week ending on the 23rd June the two-month futures volatility is at a premium of 6.23% to the index down 1.20% from the previous week. The one-month futures volatility is at a premium of 6.46% to the index, up 0.55% for the week. The one-week futures volatility is at a premium of 5.61% to the index up 3.17% on the week.

With all the futures volatilities remaining at significant premiums to the index, it is implying that there are market expectations of greater volatility in the index.

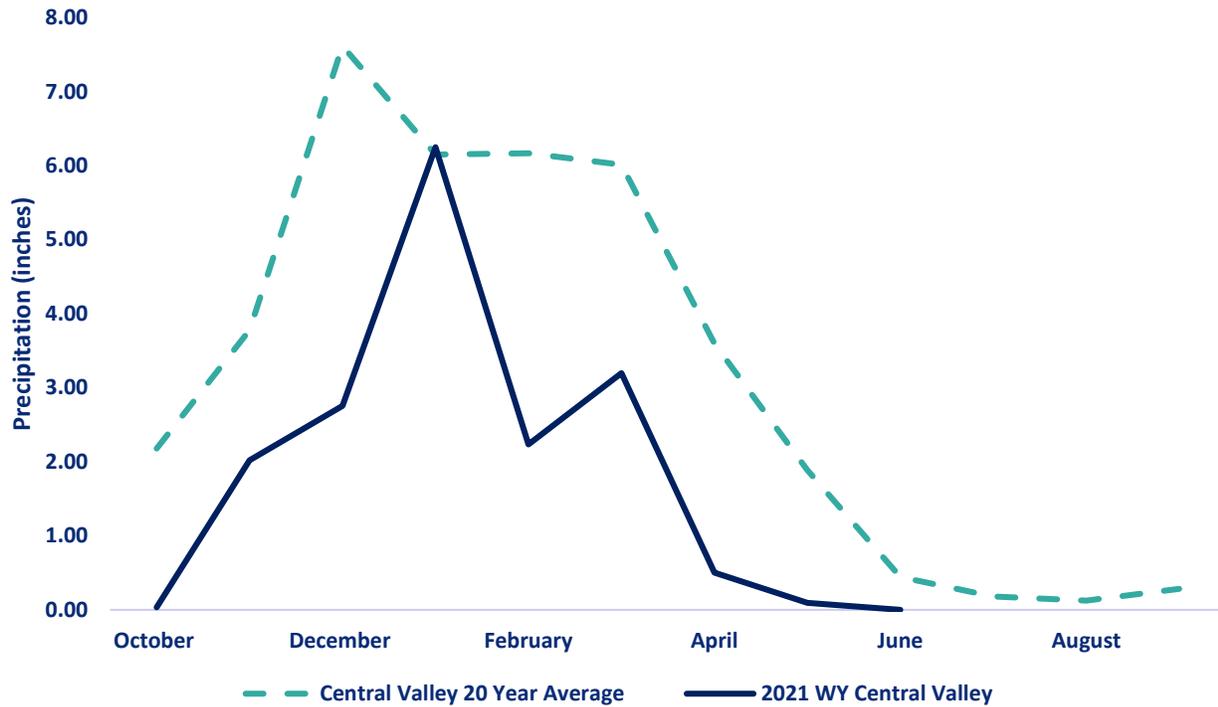
DAILY VOLATILITY

Over the last week the July future volatility high has been 4.21% on June 18th and the low has been 0.08% on June 2nd.

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



Central Valley Precipitation Index



Central Valley average is calculated using data from 19 weather stations in the Central Valley, California.
Data as of 06/23/2021

STATION	MTD (INCHES)	WEEK ON WEEK CHANGE (INCHES)	% OF 20 YEAR AVERAGE MTD	2021 WYTD VS 2020 WYTD %	2021 WY VS 20 YEAR AVERAGE TO DATE %
SAN JOAQUIN 5 STATION (5SI)	0.01	0.01	2.98%	63	47
TULARE 6 STATION (6SI)	0	0.00	0.00%	67	35
NORTHERN SIERRA 8 STATION (8SI)	0.05	0	6.19%	63	46
CENTRAL VALLEY TOTAL	0.06	0.01	3.06%	64	42.67

RESERVOIR STORAGE

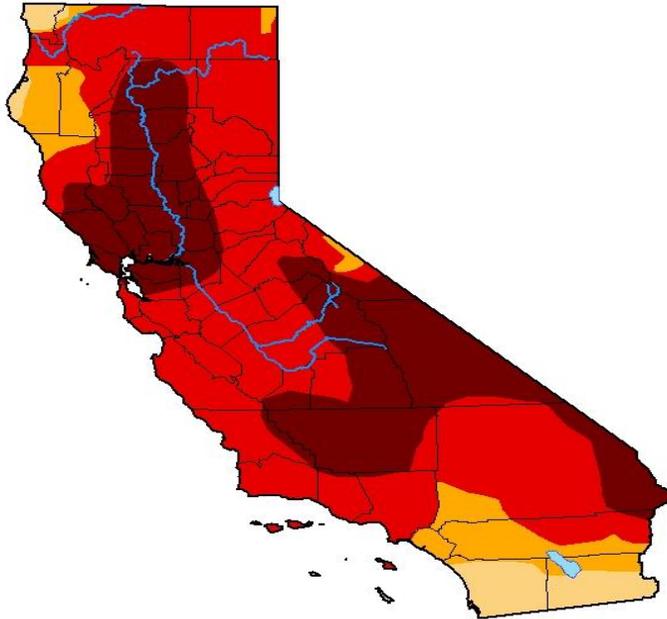
RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,194,001	49	73	57
SHASTA LAKE	1,831,757	40	72	49
LAKE OROVILLE	1,209,192	34	64	41
SAN LUIS RES	738,165	36	56	53



DROUGHT MONITOR

U.S. Drought Monitor California

June 15, 2021
(Released Thursday, Jun. 17, 2021)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	94.75	85.44	33.32
Last Week 06-08-2021	0.00	100.00	100.00	94.75	85.20	33.32
3 Months Ago 03-16-2021	0.78	99.22	90.62	58.59	29.54	3.75
Start of Calendar Year 12-29-2020	0.00	100.00	95.17	74.34	33.75	1.19
Start of Water Year 09-29-2020	15.35	84.65	67.65	35.62	12.74	0.00
One Year Ago 06-16-2020	41.79	58.21	46.74	20.84	2.45	0.00

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>

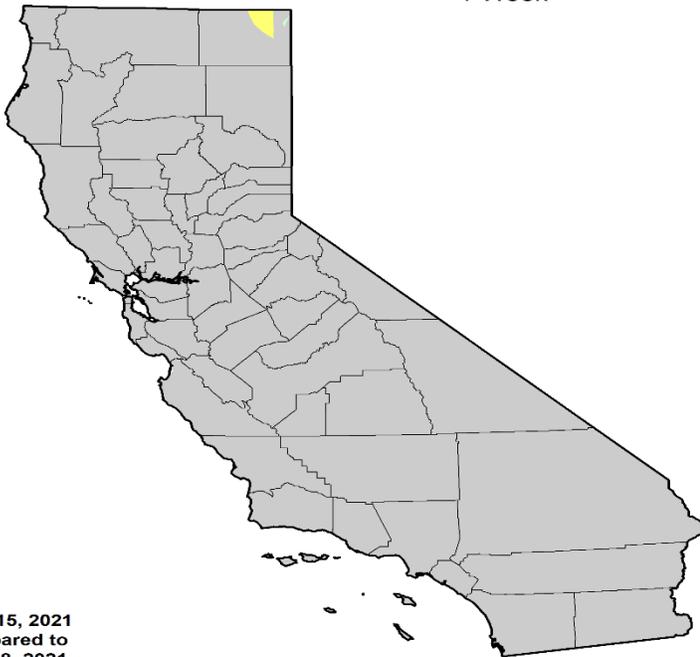
Author:

Curtis Riganti
National Drought Mitigation Center



droughtmonitor.unl.edu

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



June 15, 2021
compared to
June 8, 2021



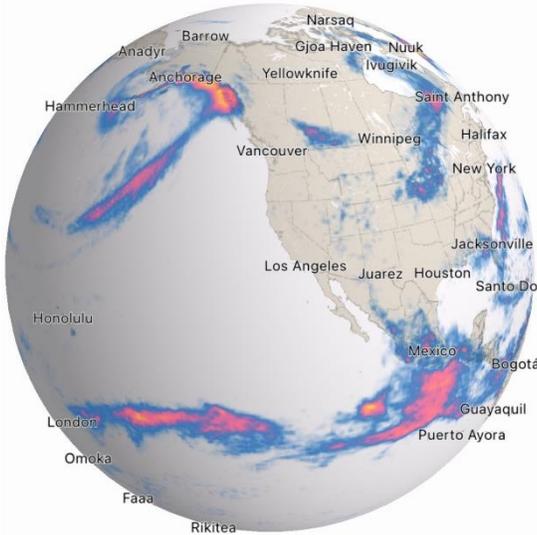
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

droughtmonitor.unl.edu



CURRENT SATELLITE IMAGERY

California has seen small pockets of precipitation around Fresno (0.01 inches). The



satellite outlook appears very dry with slight possibility of southern end of a frontal system reaching Northern CA delivering light precipitation. There has been some moisture inflow from the South into the Southern Arizona region and this remains the only real potential hope of precipitation in the SW US over the next few months. Some Monsoon activity would be most welcome.

The US Drought Monitor release their statistics with a 1-week lag to this report. Drought conditions have remained largely unchanged since the previous week as can be seen from the change

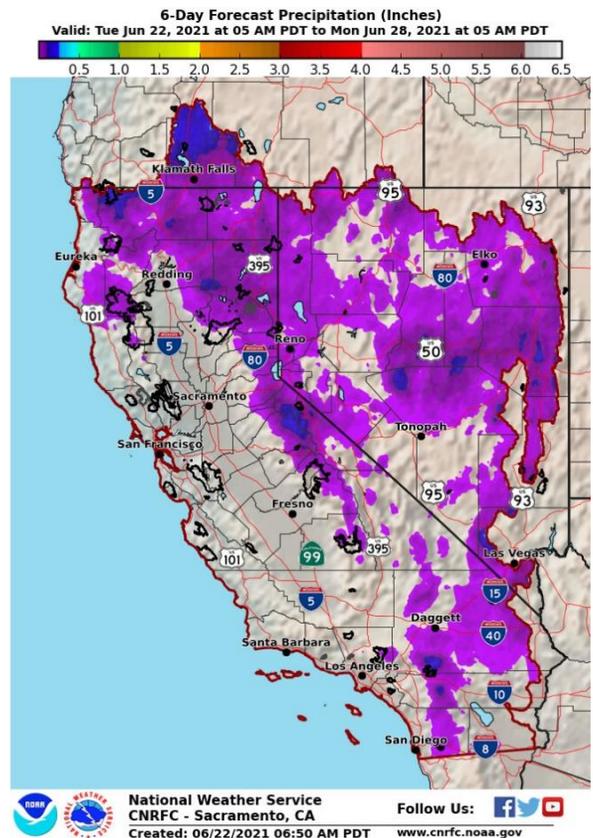
map. Conditions remain severe in California with 85.44% of the state in extreme drought.

Ref. Dark Sky

10 Day Outlook

Upper low off the CA coast is expected to sit and spin through the work week, helping to keep temps closer to seasonal normal. Some moisture may also creep up from the south, allowing for afternoon showers and thunderstorm development. This is most likely to occur over higher terrain of the Sierra, along with far northern CA and NV, peaking Wed/Thurs and winding down by the end of the work week.

Over the weekend, expect temperatures to rise again as the upper low dissipates and a transitory ridge builds over the west. Dry conditions with temperatures well above normal are expected into Monday.



National Weather Service
 CNRFC - Sacramento, CA
 Created: 06/22/2021 06:50 AM PDT

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CALIFORNIA WEATHER DISCUSSION

Last week saw clear skies and triple digit temperatures in some regions of California. Thankfully the high ridge of pressure causing these high temperatures appears to be dissipating making room for cooler temps and possibly some precipitation in the Sierras and Northern CA.

Run off from the Sierra this year has been under a microscope and seems to align with data collected in 2014 and 2015, two years of great significance to those who remember the last drought California faced. Whilst many saw this coming it is still a worrying sign for the summer ahead.

Farmers in the Central Valley are really feeling the effects of the drought, with very little groundwater to rely upon they have looked to the spot market for some relief, however the Bureau of Reclamation have halted some transfer in the region. Farmers have been left with the choice of either fallowing lands and retiring crops or purchasing water on the spot, both options are going to affect them economically.

On Tuesday the state issued warnings to 4,300 users whom are pumping water from the Sacramento- San Joaquin Delta. The warnings indicated that those who are pumping may be exceeding supply and could be issued with a fine. This move by the state is one of the first issued since 2015 to restrict water used.

The capacity in Lake Oroville, the state's second largest reservoir, is expected to drop so low that its hydroelectric power plant will have to cease operations for the first time in its history. The underground plant which pumps water through the system will stop producing electricity placing even more strain on California's already strained system. Lake Oroville currently sits at 34% capacity due to poor precipitation during the winter months which has led to well below average run off.

On a lighter note this coming week temperatures are meant to cool and return to near average for this time of year. Light precipitation has also been forecast for this week and whilst it is unlikely to make any difference to drought conditions it will bring a welcome rest for some.



REGULATORY NEWS

Central Coast Water Authority Files Legal Action Against Santa Barbara County Regarding Management of the State Water Project

The Central Coast Water Authority (CCWA) and its eight member cities and water districts has filed a significant and unprecedented lawsuit in Santa Barbara Superior Court against the County of Santa Barbara regarding management of the State Water Project.

CCWA manages, operates and finances the portion of the State Water Project in Santa Barbara County. Its members, all of whom sit on CCWA's governing board, are: the cities of Santa Barbara, Santa Maria, Buellton, and Guadalupe; and water districts including Montecito, Carpinteria, Goleta and Santa Ynez (which contracts a portion of its State Water Project supply to the City of Solvang).

CCWA and its member cities and water districts have the authority and responsibility to provide a reliable and adequate supply of clean and safe water to their customers. For decades, CCWA's members have made every significant decision regarding State Water. The reason is simple: they contract for the supply and pay 100% of the costs.

The lawsuit was necessary because the County Board of Supervisors has now infringed on the rights CCWA and its members have as independent agencies, and inserted themselves into decisions about how to manage State Water supplies (when the County does not deliver State Water and has no financial responsibility for it). The County incorrectly believes that it is better suited to take water management decisions out of the hands of the 44 elected officials who govern these eight cities and water districts and who act on behalf of their ratepayers.

As set forth in the lawsuit, the County's actions are unlawful and will deprive the cities and water districts of their ability to manage their State Water supplies without interference from the County. The County's actions frustrate the cities' and water districts' water supply and water management planning efforts and will result in increased costs of water service to the ratepayers.

Original Article: [The Santa Barbara Independent](#)

**Analysis: The West is drying out. Things will get ugly**

Later this year, the US government will almost certainly declare the first-ever water shortage along the Colorado River. Maps show more than a quarter of the US is in “exceptional drought,” underscoring the scope of a decades-long dry-out.

Stories are popping up across the West of possible rationing, coming restrictions and looming standoffs between farmers and the government over the most precious natural resource.

Restrictions. States like Arizona and Nevada are almost guaranteed to have their water allotment from the Colorado River cut back, which through a complicated drought contingency tier system agreed to by states in 2019 will affect farmers first. But the warning signs are there for urban areas and surrounding states to conserve and evolve. Standoff. To the north, there’s a sharp disagreement in Oregon between farmers cut off from water to irrigate their potatoes and federal officials trying to save an endangered species of fish.

When CNN’s Lucy Kafanov reported from the Klamath Basin last week, she did her live shot from the parched bottom of a lake that should be feet deep.

The farmers set up shop in a tent outside the canal headgate and were all but threatening to break in and open the gates themselves, like they did 20 years ago.

The most visible and striking effect of the heat and drought is at Lake Mead, which is at its lowest levels since it was filled during construction of the Hoover Dam in the 1930s. Less snowpack and more evaporation from hot temperatures have taken their toll over the course of decades to the point where its dropped more than 140 feet since 2000 and sits at not much more than a third of its capacity.

Now for an aside on the Hoover Dam, government spending and climate change.

The dam: Talk about an infrastructure project! President Joe Biden came to office promising a New Deal-level investment in infrastructure. That’ll be pared back by three quarters if he’s to get any Republican help passing it,

Government spending: The latest bipartisan proposal includes \$5 billion to help address the Western water shortage, although larger pots of money are meant to improve water and power infrastructure; the dam, with less water behind it, is producing less energy.

Climate change: But while lawmakers are happy to find a way to spend money on infrastructure as long as they don’t raise taxes, there’s zero agreement with Republicans to do anything directly about climate change, which is helping this drought along.



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Democrats may try to go it alone and pass a much larger infrastructure bill that seeks to address climate change, but it's not clear they'll have the votes.

Original Article: [News Nation USA by Liam Cole](#)

California Department of Water Resources Reports Drought + Heat = Increased Impacts

June 20, 2021 - As we approach the official start to summer, California and much of the Southwest are experiencing a heatwave that will set new temperature records in some areas. Warm temperatures are affecting drought impacts. Runoff this year in key mountain watersheds remains on a par with that of 2014 and 2015, the two warmest and driest years of California's last drought, despite this year's statewide April 1 snowpack being at 59% of average as compared to 25% of average in 2014 and 5% of average in 2015. The decrease in runoff efficiency (the runoff that occurs in response to a given quantity of precipitation) is a troubling, yet expected, outcome of a warming climate.

Outcomes of this shift in conditions were seen earlier in the spring when forecasted Sierra Nevada and Cascades runoff failed to materialize, triggering the May 10 expansion of the Governor's drought emergency proclamation to cover Central Valley watersheds in response to needs for water rights administration actions to preserve reservoir storage. Estimated statewide reservoir storage at the end of May was 67% of average. Changing hydroclimate conditions have implications beyond decreased water supplies. New runoff forecasting technologies must be developed to replace old methods that relied on simple linear regression techniques based on historical data that is no longer reflective of present conditions. Increased wildfire risk is occurring, as demonstrated by the number of records set in recent years for damage costs and number of acres burned. Wildfire damage to water infrastructure is increasing, with catastrophic damage occurring at municipal distribution systems such as those in Santa Rosa and Paradise. In recent years, wildfires have forced precautionary evacuations of personnel at the U.S. Bureau of Reclamation's Keswick Powerplant and DWR's Hyatt Powerplant.

Water Year 2020 was California's 13th driest based on statewide precipitation and 5th driest based on statewide runoff. It is likely that the present water year will end up being drier, possibly coming in at second driest for runoff (behind 1977) for some parts of the state. Present very dry and warm conditions increase the risk of a dry 2022



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because of moisture deficit in the hydrologic system, including depleted soil moisture. Above-average precipitation would be needed to achieve average runoff.

The Colorado River Basin, an important water source for Southern California, has also been experiencing prolonged warm and dry conditions, resulting in storage in both Lake Mead and Lake Powell having fallen to about 35% of capacity with a first-ever Lower Basin shortage forecasted for 2022. Although California's allocation of Colorado River water would not be cut based on the projected Lake Mead elevation, the shortage declaration is a warning of future water supply risk to an historically highly reliable source.

Although we're just approaching the first official day of summer, we should be planning ahead for responding to impacts of continued dry conditions in the coming winter.

Original Article: [Sierra Sun Times](#)

Bureau blocks water transfer to help save SJ Valley farmers

Farmers on the western edge of the parched San Joaquin Valley have little or no ground water resources this year.

The South San Joaquin Irrigation District and Oakdale Irrigation District have legal rights to 200,000 acre feet of water sitting behind New Melones Reservoir beyond this year's needs of the farms and urban customers they serve.

The two districts want to help the farmers who will face a difficult choice: Let tens of thousands of acres of productive orchards die and leave cropland fallow or else accelerate groundwater pumping to exacerbate dropping aquifers the State of California has identified as a pressing issue.

They are even willing to transfer 100,000 acre feet of water at \$400 per acre foot rate — significantly lower than the spot market demands — as the drought deepens.

At the same time Gov. Gavin Newsom has issued an executive order to reduce roadblocks whenever possible to facilitate water transfers to help California weather the drought.

The Bureau of Reclamation didn't get the message.

And while the Bureau is a federal agency and is not under the governor's jurisdiction they did sign an agreement in 1988 with the two local agencies that created a 200,000 acre-foot water conservation account they can carry over under certain conditions each year in addition to the historic rights they have to the first 600,000 acre feet of water from the Stanislaus River watershed.



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The Bureau so far has declined to approve the water transfer.

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

New bill would make it easier to transfer water throughout California

Growers are dealing with severe cutbacks in the surface water deliveries they normally receive from reservoirs.

The lack of steady irrigation has already impacted spring cropping decisions made by farmers. "It looks like processing tomato acreage is going to be down," says FID Board President Ryan Jacobsen. "I would expect to see melons down, especially cantaloupes. I also expect to see during the fall time garlic, onions, those types of crops to be also down."

Many growers on the west side of the Valley receive their water from San Luis Reservoir. A bill introduced by Republican Congressman David Valadao would allow more water to be moved south from the Sacramento-San Joaquin Delta while keeping protections in place for fish such as the delta smelt and salmon. "It gives us the flexibility to move water through the delta," he said. "Those biological opinions are in place and we want to protect those and codify those into law." The legislation is called the NEED Water Bill, which stands for Necessary to Ensure Expedious Delivery.

The bill is not a permanent fix but is designed to temporarily expedite water transfers and reduce regulatory burdens.

Original Article: [ABC 30 by Dale Yurong](#)

California Environmental Law & Policy Update - June 2021 #3

The agency that controls water allotments in the agriculture-rich Sacramento-San Joaquin Delta region told those with water rights that many of them would not get an allotment this year, reflecting the worsening drought conditions in the Golden State.

The California State Water Resources Control Board sent notices to approximately 4,300 water users in the delta urging them to cease diverting water to preserve the dwindling supply as California grapples in the aftermath of two consecutive dry winters.

"Due to severe drought in the West, the water supply in many parts of California, including the delta watershed, is not enough to meet demands," said Erik Ekdahl, deputy director of the Division of Water Rights. "We are asking people to reduce their water use, and we recognize this can create hardships. However, it's imperative that we



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manage the water we still have carefully as we prepare for months, perhaps even years, of drought conditions.”

The water board also said about 2,300 senior rights holders may also see severe restrictions as the summer progresses.

California’s drought has been worse than many water managers predicted, largely because the snowpack in the Sierra melted so quickly and replenished parched soils rather than filling the state’s system of reservoirs.

Original Article: [Courthouse News by Mathew Renda](#)

As Drought Intensifies, State Warns Users To Stop Pumping Water From Major Rivers

In a sign of worsening drought, the state on Tuesday warned about 4,300 users to stop diverting water from the Sacramento-San Joaquin Delta watershed, stretching from Fresno to the Oregon border.

The notifications, which indicate that demand from farmers and cities is exceeding supply, are the widest-ranging move by state regulators since 2015 to restrict the use of water rights in a major watershed. The Delta watershed’s supply is “insufficient” and “not lawfully available” for users with claims to the water dating after 1914, and those who keep pumping could face a cease and desist order and fines of up to \$1,000 a day, according to the notices from the State Water Resources Control Board.

But so far compliance is considered voluntary and there are major barriers to enforcement, according to Erik Ekdahl, deputy director of the water board’s division of water rights.

The notices follow similar warnings sent in the last several weeks to 102 water rights holders in the smaller Scott River basin in Siskiyou County, and 930 in the upper Russian River basin. On Tuesday, state regulators adopted emergency regulations that could restrict diversions for 2,400 water right holders in the Upper and Lower Russian River as early as July 5.

The notifications come as extreme drought envelopes 85% of the state, and water levels in major reservoirs have dropped far below historic averages. Starved of snowmelt and taxed by high temperatures, water supplies have fallen about 800,000 acre-feet short of projections — an amount that could supply more than 1 million households for a year.

“It’s probably the worst drought in about 45 years in much of Northern California and the Central Valley,” said Ekdahl. “In other parts of the state, like the Russian River, it’s probably the worst drought since the (1930s) Dust Bowl.”

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



How record-low water supplies on Colorado River could impact irrigators

The U.S. Bureau of Reclamation this month announced Lake Mead, a key reservoir on the Colorado River, has dipped to a record low, jeopardizing water supplies for irrigators, mainly in Arizona.

Lake Powell and Lake Mead, man-made lakes along the Colorado River that store water supplying 40 million people and vast expanses of farmland, have shrunk to historic lows, prompting the federal government's first-ever shortage declaration.

"It's very concerning," said Patti Aaron, U.S. Bureau of Reclamation spokeswoman.

If Lake Mead, America's largest reservoir, falls below 1,075 feet, it triggers an official Level 1 shortage declaration. June 9, Lake Mead fell to 1,071.56 feet — its lowest level since the lake was filled in the 1930s, which will trigger cuts to water supplies.

Officials will likely issue the declaration this August, and cuts will begin January 2022.

With farmers across the West panicking, officials say it's important for irrigators to understand whose water will get cut and whose won't.

Based on previous case law and agreements, some states and regions have larger allocations and more senior water rights than others. In the Lower Basin, farmers in Nevada don't need to worry at all; those in California don't need to worry yet; but growers in Arizona should expect major cuts next year.

Samantha Thompson, spokeswoman for the Nevada Division of Water Resources, said Nevada's share of the Colorado River is used exclusively for municipal, or city, purposes, and any water shortages "will not have an impact on non-municipal irrigators in Nevada."

In California, according to Jeanine Jones, California Department of Water Resources' interstate resources manager, the Level 1 shortage declaration will not reduce California water deliveries. Even if Lake Mead falls to 1,025 feet, California will still receive its annual 4.4 million acre-feet.

If Lake Mead's elevation ever drops to a point that triggers a shortage declaration in California, the Metropolitan Water District of Southern California, with junior rights, would experience cuts first, said Jones.

Original Article: [Capital Press by Sierra Dawn McClain](#)



WATER NEWS

Irrigation districts agree to send water from New Melones south to drought-stricken farmers

As much as 100,000 acre-feet of water — enough to meet the annual demand of more than 40,000 Tuolumne County residents for at least five years — that’s currently stored in New Melones Reservoir could soon be sent south to aid drought-stricken farmers under an agreement between the Oakdale and South San Joaquin irrigation districts.

On Wednesday, the districts announced their respective boards had approved the proposal that would benefit agricultural contractors on the west side of the San Joaquin Valley who’ve been cut off from their typical annual water supplies through the federal Central Valley Project due to the drought conditions.

The districts have senior water rights on the Stanislaus River that entitle them to the first 600,000 acre-feet each year that flows into the reservoir, which is the fourth largest in California at a total capacity of 2.4 million acre-feet.

General managers of the districts said they had already secured this year’s water supply for their own customers and set some aside in case drought continues into next year to provide the water from the reservoir, which was about 54% full at nearly 1.3 million acre-feet as of Wednesday.

“The water is there because we’ve planned for droughts and implemented measures to make sure that it would be there when we need it,” Steve Knell, general manager of OID, said. “The emergency that exists demands extraordinary actions to mitigate the impacts of the drought emergency, and we are pleased to be in a position to help farmers on the west side of the Valley.”

Specifically benefitting from the transfer would be agencies that are members of the San Luis and Delta Mendota Water Authority, which would pay \$400 per acre-foot, or up to \$40 million.

Original Article: [Union Democrat by Alex Maclean](#)

California can learn much from Israel on how to conserve water, manage drought better

Having grown up in Israel, I smile wryly whenever I drive across the Sacramento River and think of California’s alleged “water shortage.” Israel’s only river, the Jordan River, is a small stream that flows at a rate of 565 cubic foot per second. The Sacramento River,



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in contrast, pours 489,000 cubic feet of water into the Bay every second, nearly 1,000 times the amount of water for half as many people. There are dozens of other large rivers in Northern California alone.

There is no shortage of water here, only a shortage of good water management.

In part, our water is too cheap: Israelis pay three times as much for water than Californians and, as a result, consume 30% less water per capita than Californians do. They treat water as a precious resource. Israel recycles 90% of its wastewater. California recycles 13%.

Original Article: [The Sacramento Bee by Ron E Hassner](#)

Lake Mead: The devastating impact of a 22-year drought on America's largest reservoir as water levels fall to record low

Nature has a way of telling its story in a more powerful way than any words.

The watermark around Lake Mead is a graphic illustration of just how much has changed in America's largest reservoir.

Huge white bands, as high as 10 double decker buses, mark its craggy sides.

The 50-metre ring line shows where the water level was and how far it has fallen.

The reservoir is at just 35% capacity, the historic Hoover Dam it powers is producing 25% less output, and scorching summer temperatures are nudging the mercury to record levels.

But don't call this a crisis to those managing water and power in Nevada.

It's a concern, yes, but apparently not a catastrophe in the making. Talk of Hoover Dam being rendered obsolete within eight years is dismissed as folly.

However, things are changing in America's West as a two-decade mega-drought and environmental change are compounded by temperatures which are extreme even for this part of the world.

It was 43 Celsius (111 Fahrenheit) in Las Vegas at the weekend.

As a result the authorities are on the verge of declaring a historic water shortage in the Colorado Basin.

That means the water supply will be reduced in Nevada, California and Arizona. Because Arizona has more farmland it is likely to take a cut of up to 18%.

Twenty five million people rely on Lake Mead for water, eight million take power from the Hoover Dam.

Original Article: [ITV News USA by Emma Murphy](#)



VELES WATER WEEKLY REPORT

A California reservoir is expected to fall so low that a hydro-power plant will shut down for first time

Water in a key California reservoir is expected to fall so low this summer that its hydroelectric power plant will be forced to shut down for the first time, officials said Thursday, straining the state's already-taxed electric grid.

An unrelenting drought and record heat, both worsened by the changing climate, have pushed the water supply at Northern California's Lake Oroville to deplete rapidly. As a result of the "alarming levels," officials will likely be forced to close the Edward Hyatt Power Plant for the first time since it opened in 1967, California Energy Commission spokesperson Lindsay Buckley told CNN.

The water in Lake Oroville — the state's second largest reservoir — is pumped through underground facilities to generate electricity, which can power up to 800,000 homes when operating at full capacity

Californians asked to cut back power usage during extreme heat conditions

While the water level in the reservoir is currently hovering around 700 feet above sea level, if it continues to fall at the currently projected rate to 640 feet there will not be enough water to continue operating the Hyatt plant in two to three months, coinciding with the typical peak of the summer heat and wildfire season.

"If lake levels fall below those elevations later this summer, DWR will, for the first time, cease generation at the Hyatt power plant due to lack of sufficient water to turn the plant's electrical generation turbines," said Liza Whitmore, Public Information Officer of DWR's Oroville Field Division.

The announcement came as California Gov. Gavin Newsom declared a statewide heat wave emergency Thursday, with record setting temperatures and increased electricity use adding pressure to the grid.

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"Amid a major heat wave that is stressing energy grids in states across the western United States, Governor Gavin Newsom today signed an emergency proclamation to free up additional energy capacity," Newsom's office said in a press release.

The governor's declaration, citing "extreme peril" to the safety residents due to the heat wave, suspends permitting requirements to allow the immediate use of back-up power generators to help alleviate stress on the state's energy grid.

Original Article: [CNN by Alexandra Meeks](#)



Stanford Scientists Offer a New Way to Identify ‘Sweet Spots’ for California Groundwater Managed Aquifer Recharge

Rapidly worsening drought and a mandate to bring aquifer withdrawals and deposits into balance by 2040 have ignited interest in replenishing California groundwater through managed aquifer recharge. Stanford scientists demonstrate a new way to assess sites for this type of project using soil measurements and a geophysical system towed by an all-terrain vehicle. Much of California’s \$50 billion agricultural industry depends on groundwater. We typically see only what this water makes possible above the soil: almond and pistachio groves, citrus orchards, rows of lettuce and grapevines and cattle herds in a valley that supplies a quarter of the nation’s food even when surface water is scarce. Amid a rapidly worsening drought and a California mandate to bring aquifer withdrawals and deposits into balance by 2040, there’s now growing urgency to better understand the hidden structures of groundwater basins.

One possible solution to balancing the aquifer water budget involves strategically flooding a field, orchard or dedicated recharge pond and letting the water seep down through sandy channels. In research published earlier this month in *Vadose Zone Journal*, Knight and postdoctoral scholar Meredith Goebel demonstrate a new way to assess sites for this type of managed aquifer recharge using soil measurements and a geophysical system towed by an all-terrain vehicle.

The geophysical system relies on a process similar to medical imaging of the body and involves probing the subsurface down to a depth of 200 feet with a magnetic field. This produces a measure of electrical resistivity, which tends to be higher in sands and gravels than in clays that can block water from reaching aquifers. Next, the same swath of land is surveyed using a method known as cone penetrometer testing, in which technicians push a sensor-laden steel cone 70 feet or so into the ground in several places around the site to determine sediment types.

Armed with both datasets, Knight and Goebel show how to mathematically transform the resistivity measurements into sediment type, effectively providing the keys to unlock a 3D map of what lies beneath potential recharge sites. “This provides a way for water managers to assess land before they commit to the expense of acquiring it and putting in place a recharge operation,” said Knight, the George L. Harrington Professor in Stanford’s School of Earth, Energy & Environmental Sciences (Stanford Earth).

Original Article: [Sierra Sun Times by Josie Garthwaite](#)



VELES WATER WEEKLY REPORT

Forests cut down to stop wildfires in California

Crews armed with chainsaws are cutting down trees and thinning out California's forests in the hope of avoiding a regular repeat of last year's devastating wildfires, which killed more than 30 people. Gavin Newsom, the state governor, who has committed more than half a billion dollars to the project this year alone, hopes that workers will be clearing a million acres of woodland a year by 2025.

He is determined to avoid another wildfire season like the one last year, when almost 10,000 wildfires burnt more than four million acres of land. Thousands of buildings were destroyed causing \$12 billion worth of damage.

Original Article: [The Times by Alistair Dawber](#)

Las Vegas weighs tying growth to conservation amid drought

Record-breaking heat and historic drought in the West are doing little to discourage cities from planning to welcome millions of new residents in the decades ahead. From Phoenix to Boise, officials are preparing for a future both with more people and less water, seeking to balance growth and conservation. Development is constrained by the fact that 46% of the 11-state western region is federal land, managed by agencies like the U.S. Forest Service and Bureau of Land Management that are tasked with maintaining it for future generations. That's led officials in states like Nevada and Utah to lobby the federal government to approve land transfers to allow developers to build homes and businesses on what had been public land. Supporters in the two states have won over environmentalists in the past with provisions that allocate proceeds to conservation projects, preserve other federal lands and prevent road construction, logging or energy exploration. A small group of opponents is arguing that routinely approving these kinds of "swaps" to facilitate growth isn't sustainable, particularly in areas that rely on a shrinking water supply.

For the seven states that depend on the Colorado River — Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming — a regional drought is so severe that less water is flowing to Lake Mead and Lake Powell, the two manmade reservoirs where river water is stored. If the level of Lake Mead keeps dropping through the summer as projected, the federal government will likely issue its first-ever official shortage declaration, which will prompt cuts in the share of water Arizona and Nevada receive.

Original Article: [Nevada Appeal by Sam Metz](#)



Dam break or dry lawns? Quake risk forces Silicon Valley to cut water use amid drought

California is known for its history of natural disasters, and in the Silicon Valley, two potential calamities — drought and earthquake risk — are converging to dry up water supplies in the hub of the state’s tech economy.

In a meeting on Wednesday, board members of the Santa Clara Valley Water District voted unanimously to declare a water shortage emergency — in part because a key county reservoir had to be drained to reduce earthquake risks highlighted by federal regulators.

County officials warned last year that the draining of Anderson Reservoir would put the region in a perilous position but were forced to drain the lake anyway, since the reservoir and dam sit atop the Calaveras fault, which could trigger a high-magnitude earthquake. To preserve supplies, the district is calling for a mandatory 33% reduction in water use compared to 2013 and is planning to rely almost entirely on groundwater, said Tony Estremera, the valley water district’s board chair. But if too much groundwater is tapped, the ground is likely to sink, he said, challenging the structural integrity of roads, bridges and buildings

“That’s really not acceptable in a place where we have some of the largest companies in the world,” said Estremera, referring to tech giants Apple and Google, which have campuses in Silicon Valley.

To prevent land from subsiding, the water district wants local governments to implement restrictions, including reducing lawn watering to three days a week, banning the filling of swimming pools and ending the use of potable water for washing buildings. That will hurt some homeowners and businesses, but David Gurrola, a landscaper in East Palo Alto, says it could help his. He expects some clients will begin pulling out turf and replacing it with cactuses, succulents, bark and gravel, and adding high-efficiency drip irrigation systems.

“That’s what they did during the last drought,” said the owner of E&D Landscaping, referring to the dry years between 2012 and 2016. “No reason to give up on your yard or garden.”

Original Article: [The LA Times by Susanne Rust](#)



VELES WATER WEEKLY REPORT

If Lake Powell's Water Levels Keep Falling, A Multi-State Reservoir Release May Be Needed

Lake Powell's water level is the lowest it's been in decades, and the latest 24-month projections from the Arizona and Utah reservoir show that it's likely to drop even further — below a critical threshold of 3,525 feet by next year. A 20-year megadrought and a hotter climate has contributed to shrinking water supplies in the Colorado River. If Lake Powell's levels continue to dwindle, it could set off litigation between the seven states and the 40 million people that all rely on the Colorado River.

"This is really new territory for us," said Amy Ostdiek, deputy section chief of the federal, interstate and water information section of the Colorado Water Conservation Board.

Lake Powell is the second-largest artificial reservoir by volume in the United States. It sits on the border of Utah and Arizona and is filled with Colorado River water. It was created as a storage bucket to help states in the upper Colorado River Basin — Colorado, New Mexico, Utah and Wyoming — meet their downstream water delivery obligations to the lower basin, including Mexico, Arizona, California and Nevada under a 100-year-old water-sharing agreement.

Lake Powell is where that water is released. When those levels are in good shape, Ostdiek said it keeps the lower-division states from suing the upper-division states. If Lake Powell's levels drop below 3,525 feet, it would make it more challenging for Colorado and the other upper-basin states to meet their compact obligations.

"It could potentially lead to seven-state litigation, which we've never seen before on [the] Colorado River," Ostdiek said. "Which would create a lot of uncertainty. It would probably be a very long, drawn out process."

Original Article: [CPR News by Michael Elizabeth Sakas](#)

Water shortages: Why some Californians are running out in 2021 and others aren't

In Los Angeles, people have been hearing about the dangers of drought for decades. But in this land of infinity pools and backyard putting greens — better suited for rattlesnakes and scrub — water never seems to run out.

Yet little Redwood Valley in Mendocino County, which gets a bountiful 38 inches of rain in an average year and sits near the headwaters of the Russian River, has been devastated by this year's drought. Each resident has been told to use no more than 55 gallons per day — enough to fill a bathtub and flush a toilet six times.



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And in San Jose, where less than half of its usual rain has fallen this year, people have been asked to cut water use by 15% — a target that could become mandatory if locals fail to comply.

When it comes to the impact of drought, location is key. Rain and snow vary greatly across California's myriad microclimates, leaving some towns, mostly in the north, accustomed to yearly refills of their rivers, reservoirs and aquifers. Others farther south have fewer natural supplies of their own, and in parts of the Central Valley, the drought never really left.

But drought resilience is manufactured, too. Decades of planning and extraordinary engineering and technology keep the water flowing to arid places.

"There is, of course, no single Northern California or Southern California when it comes to water," said Peter Gleick, founder of the Pacific Institute, a global water think tank.

"Water is a very local phenomenon. And every region and every water district has a different mix of water supply options and water demands

During the last drought, in 2015, Californians were ordered to cut their water use by an average of 25% statewide. This time, there is no statewide emergency, no universal mandate and no standardized water waste rules.

Instead, residents are facing a patchwork of restrictions. Bracing for a crisis, towns relying on the hard-hit Russian River have imposed stringent mandates on residents and coastal communities may have to truck in water to make it through the year. At the same time, most of California's urban hubs are prepared to weather the summer with only voluntary cuts and limited restrictions that in many cases are holdovers from previous droughts.

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

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