

# Veles Water Weekly Report

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1. **WATERTALK**  
TECHNICAL ANALYSIS BY ROBIN BIEBER
2. **NQH2O INDEX VS H2O FUTURES PRICE PERFORMANCE**
3. **NQH2O INDEX HISTORY**
4. **NQH2O INDEX AND H2O FUTURES VOLATILITY ANALYSIS**
5. **CENTRAL VALLEY PRECIPITATION REPORT**
6. **RESERVOIR STORAGE**
7. **SNOWPACK WATER CONTENT**
8. **CALIFORNIA DROUGHT MONITOR**
9. **CLIMATE FORECAST**
10. **CALIFORNIA WEATHER DISCUSSION**
11. **REGULATORY NEWS**

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June 3<sup>rd</sup> 2021

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## WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Robin Bieber

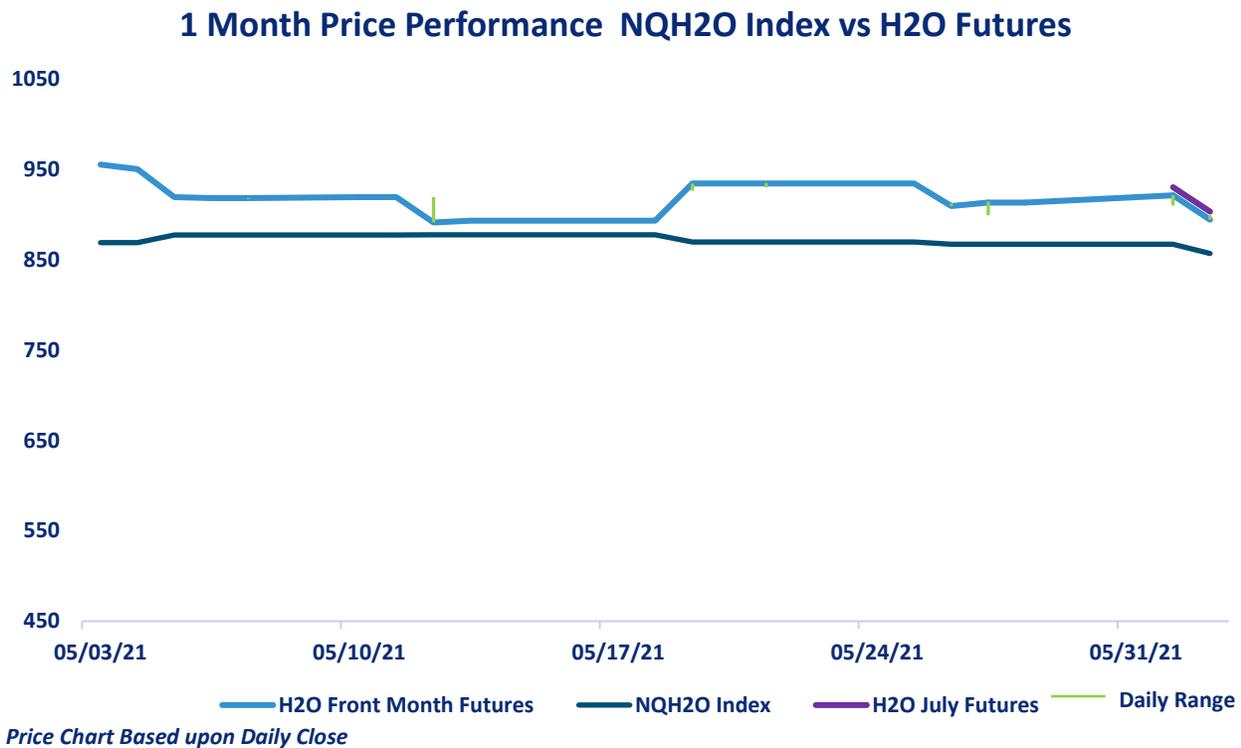
**CLICK THE LINK BELOW**

*“A 2 minute technical analysis video of H2O futures by Robin Bieber.”*

<https://vimeo.com/558418796/3714f6292e>



## NQH2O INDEX PRICE vs H2O FUTURES PRICE



The June 2<sup>nd</sup> new Index level was down \$10.29 or -1.19% to \$856.71. The June H2O Futures have been trading at a premium of \$37.29-\$54 for the week. The H2O futures contract high for the week was \$921 on June 1<sup>st</sup>, however with the new Index level giving up some ground the futures level followed suit a reached its low of the week yesterday at \$894 representing a premium of \$37.29 to the index.

The July H2O Futures contract started trading on the 1<sup>st</sup> June at \$930 and closed yesterday at \$903 representing a premium of \$46.29 to the index.

There are further bid:offer prices on different expiries being quoted in the market.

July 900:935

Sep 680:850

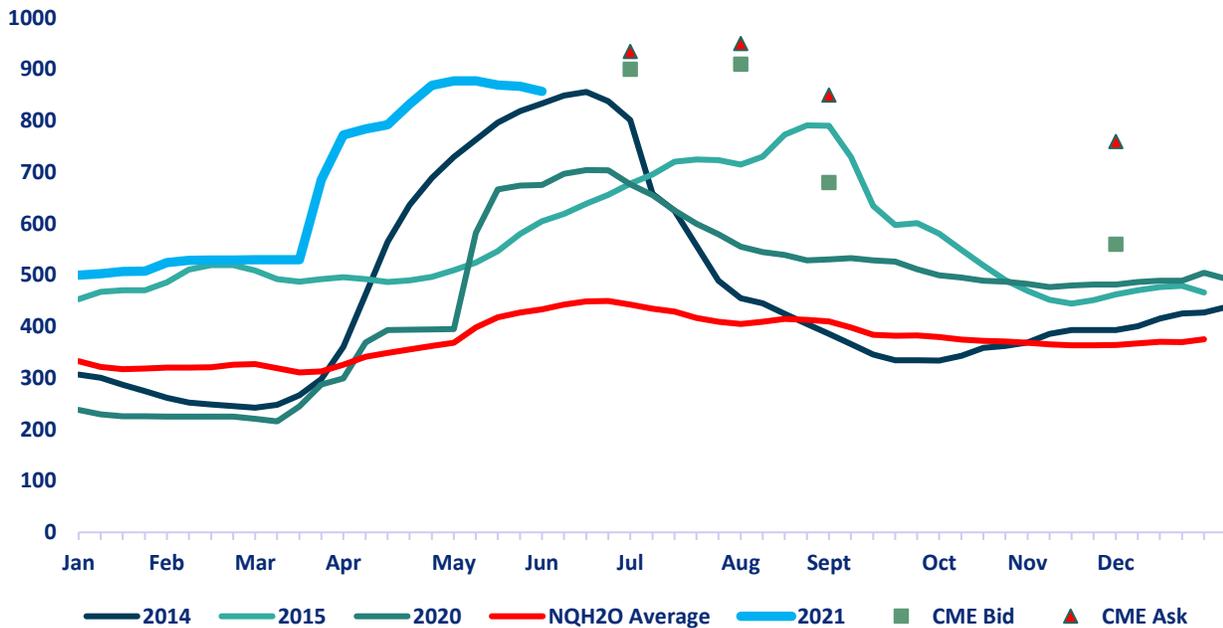
Dec 560:760

This is indicating an implied seasonality in the trading of water, with prices peaking in summer and tapering off in winter.



## NQH2O INDEX HISTORY

NQH2O Seasonal Pricing/ CME H2O Futures Quotes



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, for planting 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.

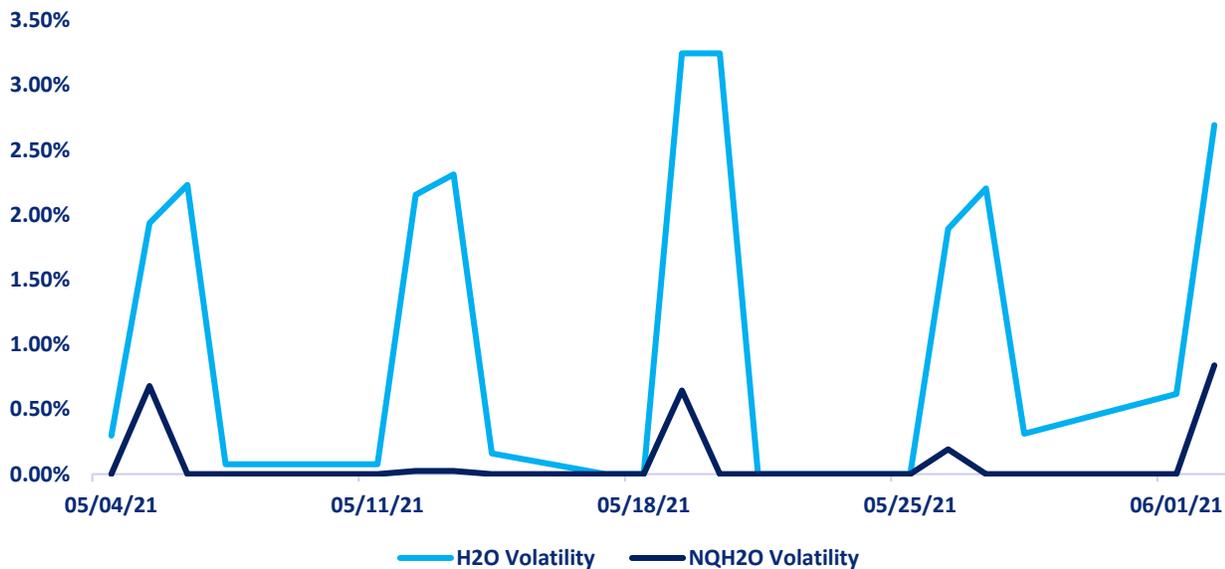
Note the bid and offer prices for July and August are expecting further upside while Septembers straddle the 2015 price curve.

( Ref: John H Dolan, Market Maker CME)



## H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

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



ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	35.02%	11.76%	1.13%	0.92%
H2O FUTURES	N/A	12.90%	7.06%	5.26%

For the week beginning the 27<sup>th</sup> May the two-month futures volatility is at a premium of 1.17% to the index which is a reversal of 5.57% from the previous week. The one-month futures volatility is at a premium of 5.94% to the index, up 0.44% for the week. The one-week futures volatility is at a premium of 4.34% to the index up 0.08% on the week. With futures volatility outstripping index volatilities, it is implying sentiment of some larger moves to come in the market.

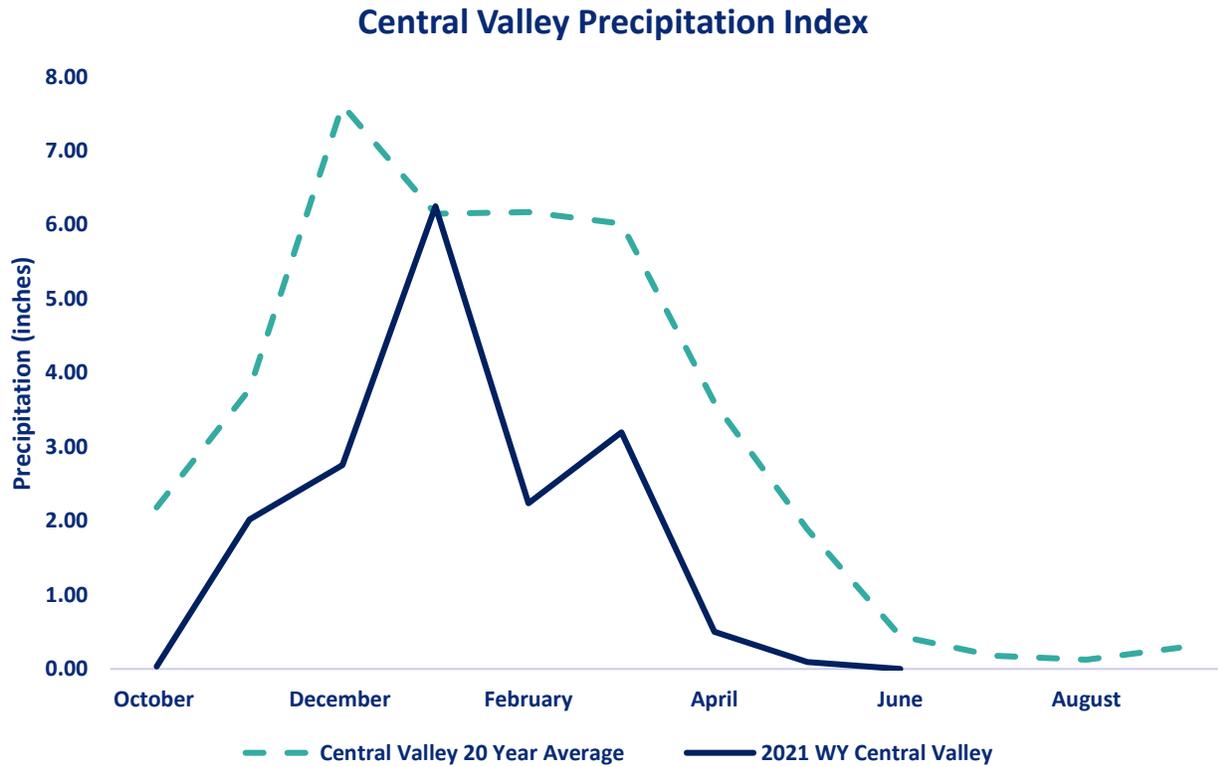
#### DAILY VOLATILITY

Over the last week the June future volatility high has been 2.69% on June 2<sup>nd</sup> and the low has been 0.31% on May 28<sup>th</sup>.

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



## CENTRAL VALLEY PRECIPITATION REPORT



Central Valley average is calculated using data from 19 weather stations in the Central Valley, California.  
Data as of 06/02/2021

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)	0.00	0.00	0.00%	64	48
TULARE 6 STATION (6SI)	0.00	0.00	0.00%	67	35
NORTHERN SIERRA 8 STATION (8SI)	0.00	0.00	0.00%	63	47
CENTRAL VALLEY TOTAL	0.00	0.00	0.00%	65	43.33

## RESERVOIR STORAGE

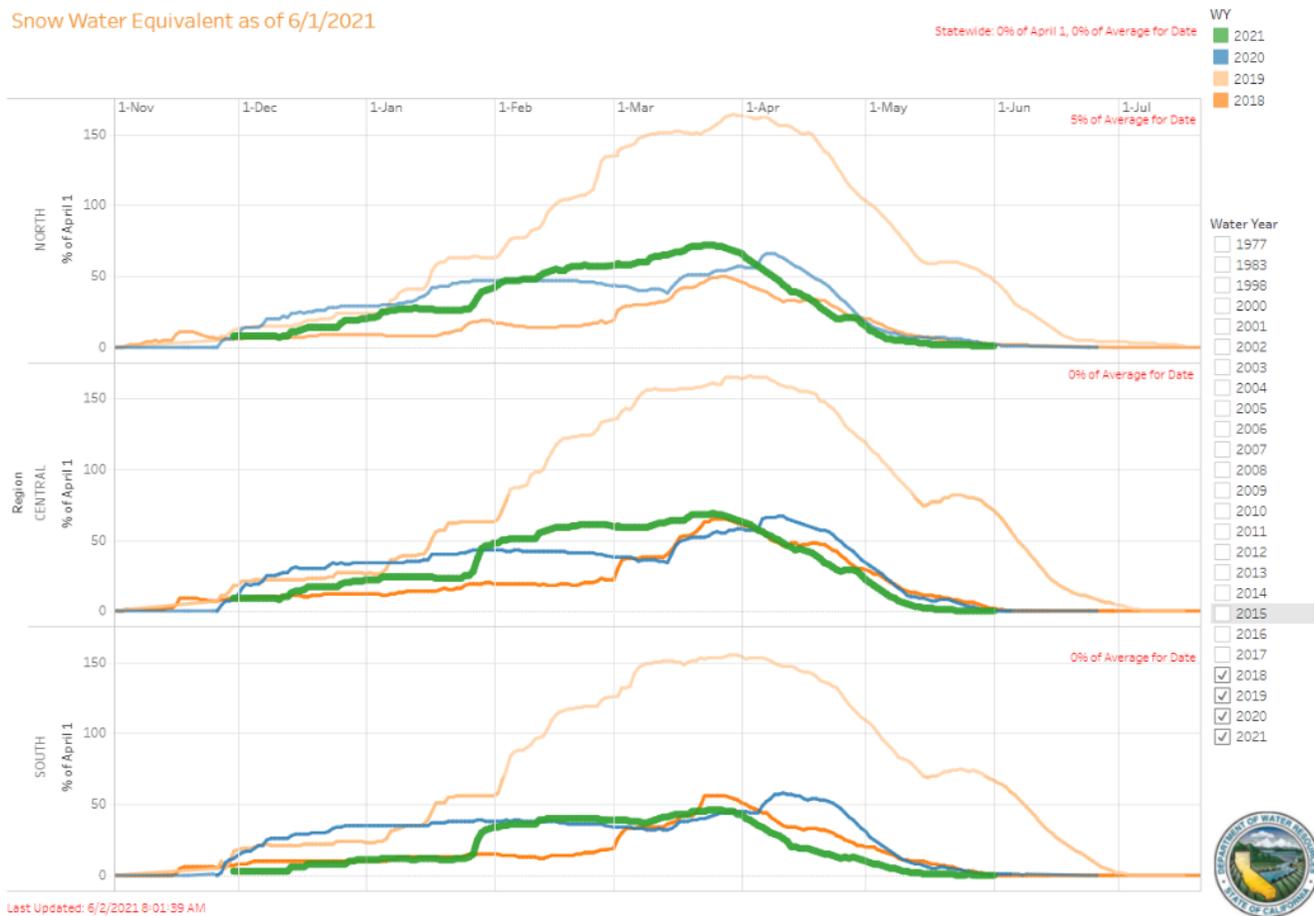
RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,259,784	51	76	60
SHASTA LAKE	1,976,296	43	78	51
LAKE OROVILLE	1,341,550	38	69	45
SAN LUIS RES	885,570	43	64	55



# SNOWPACK WATER CONTENT

## Snow Water Equivalent Dashboard

Snow Water Equivalent as of 6/1/2021



REGION	*SNOWPACK WATER EQUIVALENT (INCHES)	WEEK ON WEEK CHANGE %	% OF AVERAGE LAST YEAR	% OF 20 YEAR HISTORICAL AVERAGE	% OF HISTORICAL **APRIL 1ST BENCHMARK
NORTHERN SIERRA	0.2	-50.00%	9	5	1
CENTRAL SIERRA	0	0.00%	0	0	0
SOUTHERN SIERRA	0	-100.00%	0	0	0
STATEWIDE	0.1	-50.00%	3	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 snow pack 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.



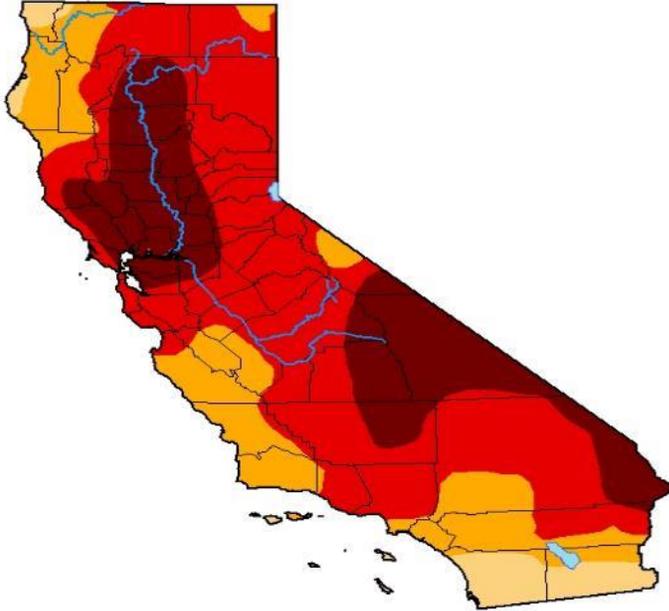
# DROUGHT MONITOR

## U.S. Drought Monitor California

**May 25, 2021**

(Released Thursday, May 27, 2021)

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	100.00	94.61	74.46	26.04
<b>Last Week</b> 05-18-2021	0.00	100.00	100.00	94.31	73.33	15.91
<b>3 Months Ago</b> 02-23-2021	0.70	99.30	84.88	56.98	29.54	3.75
<b>Start of Calendar Year</b> 12-29-2020	0.00	100.00	95.17	74.34	33.75	1.19
<b>Start of Water Year</b> 09-29-2020	15.35	84.65	67.65	35.62	12.74	0.00
<b>One Year Ago</b> 05-26-2020	41.80	58.20	46.67	20.84	2.97	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>

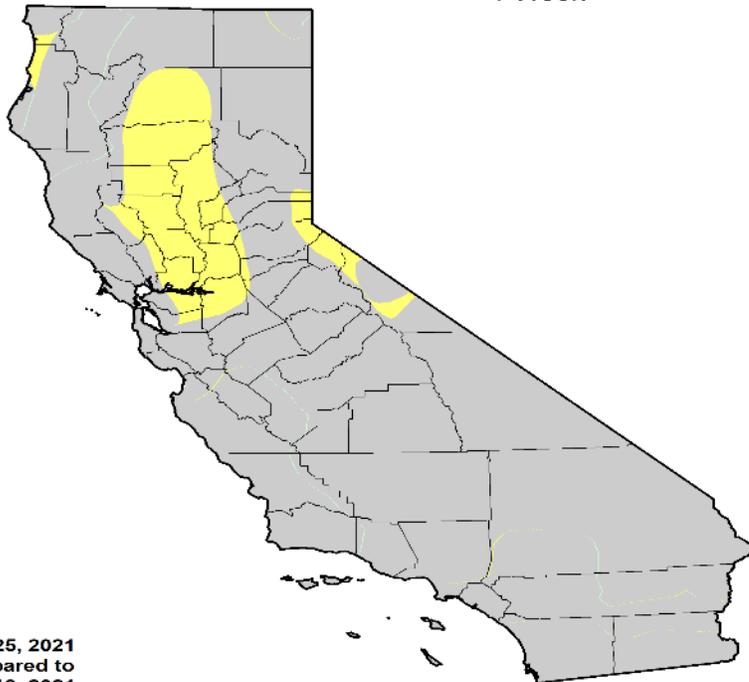
Author:

Adam Hartman  
NOAA/NWS/NCEP/CPC



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

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



May 25, 2021  
compared to  
May 18, 2021



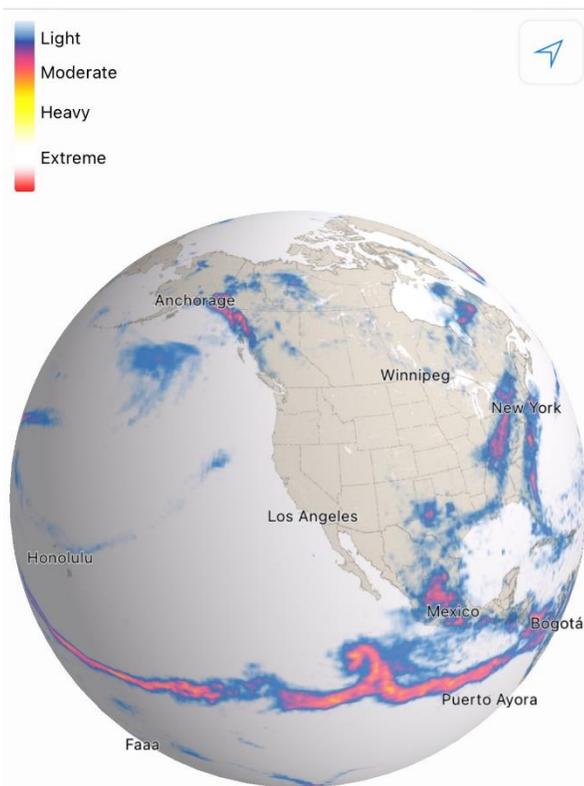
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

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

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



## CURRENT SATELLITE IMAGERY



California has seen no precipitation over the past week. The beginning of the week has seen well above average temperatures for this time of year sparking wildfire warnings. Some communities could even see triple digit temperatures in Fahrenheit.

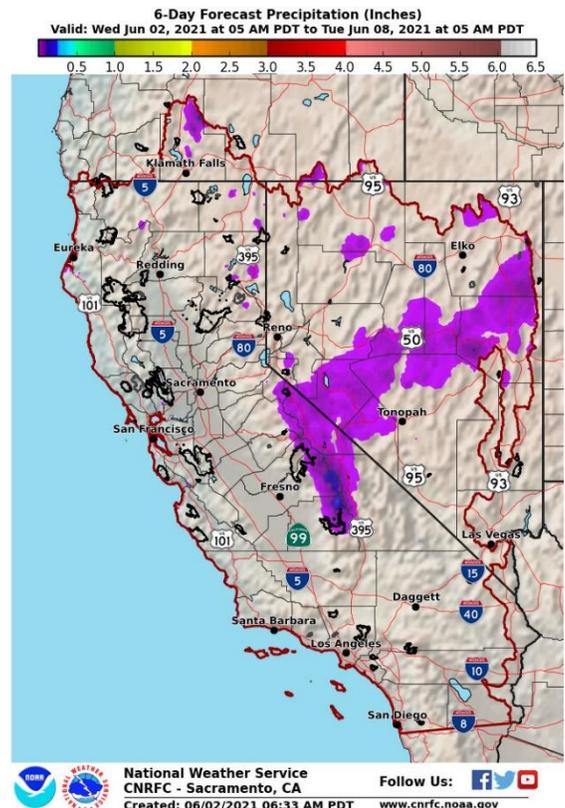
The US Drought Monitor release their statistics with a 1-week lag to this report. Exceptional drought “D4” levels have increased by over 10% since last week. Parts of Northern CA have seen a class 1 degradation in drought conditions.

Ref. Dark Sky

### 1-10 Day Outlook

For the beginning of the week expect ridging to provide mainly dry conditions and well-above-average temps for the region today, although a few showers are possible near the southern Sierra crest.

For the second half of the week, expect ridging to push to the east while a trough edges toward the region and forms a cut-off low offshore. This should lead to temperatures gradually cooling later this week into early next week with a few showers for the Sierra into portions of NV through Saturday.





## CALIFORNIA WEATHER DISCUSSION

June 1<sup>st</sup> marks the start of the meteorological summer. California's snowpack sits at 0% of the April 1<sup>st</sup> benchmark. On the back of an historically dry winter this is not unusual, however it has set alarm bells ringing as the State's major reservoirs are at worryingly low levels. The Sierra snowpack is one of California's most important water sources and accounts for around 30% of the States freshwater supply.

Whilst the snowpack levels are concerning, the most alarming metric is the poor runoff levels. Due to arid drought conditions and poor soil moisture the snowmelt is being absorbed by the surrounding landscape rather than flowing into the rivers and reservoirs. The Chief of California's Snow Surveys, Sean de Guzman has stated that he would have expected to see more runoff to date. This could be attributed to the previous years fire damage to vegetation.

On May 26<sup>th</sup> the Bureau of Reclamation stated that Agricultural users of the Central Valley project would not receive any of their requested water allocations. Urban users are only to receive 25% of their water allocations. In northern California farmers received more bad news and federal regulators shut off irrigation water to farmers in the Klamath Region for the first time the projects 114 year lifespan.

*"In California, USGS 7-day average stream flows across the coastal ranges around and north of the Bay Area, and extending eastward into the Sacramento River Basin, are rapidly declining having dropped below the 2nd percentile at many locations in the coastal ranges, and below the 10th percentile eastward into the northern Central Valley. CPC soil moisture ranks below the 1st percentile (corroborated by NASA SPoRT 0-200 cm soil moisture percentiles), NASA GRACE indicates severely depleted groundwater, and vegetation indices (VegDRI and VHI) indicate severe vegetation stress. Reports of reduced pasture forage, livestock requiring supplemental feed and/or being sold off are increasing. Additionally, stock ponds are running dry and farmers have been forced to haul water in several locations. There are also reports of increased well drilling in the Sacramento River Valley and groundwater levels have fallen so low near the Sacramento and San Joaquin River deltas that there is an increased risk of salt water intrusion. Given the worsening conditions, D4 (exceptional drought) was*



## VELES WATER WEEKLY REPORT

*expanded eastward into the Sacramento River Basin from the coastal ranges in and around the Bay Area. Farther east, D3 (extreme drought) was expanded into the Lake Tahoe area, as rapid snowmelt has nearly eliminated remaining snowpack, resulting in declining stream flows in that region, which have fallen to below the 10th percentile at several stations. In northeastern California, D2 (severe drought) was expanded into the lower Klamath Watershed, as USGS 7-day average stream flows have fallen below the 10th percentile and groundwater remains severely depleted (D3 to D4 equivalent, per NASA GRACE). Furthermore, the Yurok Tribe Fisheries Department reported diseased juvenile fish during an annual assessment and project a catastrophic fish kill along the Klamath River.”*

Source: [US Drought Monitor by Adam Hartman and Ahira Sanchez-Lugo](#)

## REGULATORY NEWS

### **As California’s Drought Worsens, the Biden Administration Cuts Water Supplies and Farmers Struggle to Compensate**

The impacts of California’s deepening drought hit home for Central Valley farmers earlier this week, when federal officials announced they didn’t have enough water to supply many of their agricultural customers. Urban users south of San Francisco in Santa Clara County saw their normal water deliveries cut in half.

California ships water to cities and farms through a combination of state and federal programs that oversee a complex network of hundreds of miles of dams, reservoirs and aqueducts throughout the state.

Farmers in the state’s richest agricultural valley have long relied on water from the U.S. Bureau of Reclamation’s massive Central Valley Project (CVP) for irrigation, especially in the drier southern reaches of the valley. The CVP stretches some 400 miles from the Trinity Dam, about 125 miles south of the Oregon border, to Bakersfield in the southern San Joaquin Valley. The bureau manages 9 million acre-feet of water—imagine roughly 9 million football fields covered with a foot of water—most of which is used to irrigate about a third of the state’s farmland.

Bureau of Reclamation officials determine water allocations based on estimates of how much is available for deliveries, which in turn depends on current reservoir levels, as well as precipitation and the Sierra Nevada snowpack that replenishes rivers with meltwater. Snowpack accounts for nearly a third of the state’s water supply.

Original Article: [Inside Climate News by Liza Gross](#)

**First-ever Colorado River water shortage is now almost certain, new projections show**

Thousands of people will have celebrated Memorial Day this weekend on the water of Lake Mead, just 24 miles east of Las Vegas on the border of Arizona and Nevada.

What they may not realize is that the oasis they're enjoying in the desert is entering uncharted territory, with significant ramifications for millions across the Southwest in the years to come.

On Tuesday, the water level in Lake Mead -- the largest US reservoir, and fed by the Colorado River -- fell below the elevation of 1,075 feet. It has hit that mark only a handful of times since the Hoover Dam was finished in the 1930s, but it always recovered shortly after. It may not this time, at least not any time soon.

The US Bureau of Reclamation (USBR) forecasts the lake's levels to continue to decline, without any sign of recovery through at least the end of 2022. If the next major study in August from the USBR projects water levels in the lake will be below 1,075 feet on January 1, it would trigger the first-ever shortage declaration on the Colorado River, meaning some communities would begin to see their water deliveries cut significantly next year.

Lake Mead and nearby Lake Powell -- the two largest reservoirs on the Colorado River - - have drained at an alarming rate. Lake Mead has fallen more than 139 feet since January of 2000.

Lake Mead is currently 16 feet below where it was this time last year and the reservoir is only 37% full, while Lake Powell is down 35 feet from last year and sits at just 34% of the lake's total capacity.

Original Article: [CNN by Pedram Javaheria and Drew Kann](#)

**President of California Farm Bureau speaks on water allocation cuts**

Federal regulators with the Bureau of Reclamation have issued new numbers on the Central Valley Water Project, cutting agricultural water allocations to zero.

The president of the California Farm Bureau, who is a citrus and olive farmer in Butte County, says this cut in allocations will have a negative impact on farmers in the Northstate and we could possibly lose thousands of acres of crop production.

Allocations were cut back to 5% and two months ago that was put on hold. Now as of Wednesday that 5% has officially been cut down to zero. The bureau of reclamation says the water year in the Sacramento-San Joaquin river basin is the driest since 1977.



## VELES WATER WEEKLY REPORT

They say there was a reduction of 685,000 acre-feet in the projected natural flow to the Sacramento, Feather, Yuba, and American Rivers in the month of April. The president of the California Farm Bureau says the key is in prepping for dry years like this one.

Jamie Johansson President, California Farm Bureau “It’s the final frustrating blow because zero is the ultimate when you get a zero water allocation for use. We saw the decree starting in February when we saw 25% allocation in the month ago when we saw 5% allocation so it’s a devastating blow in particularly in the north state I farm in Butte County and we know the north states dependency on agriculture and the inability to use that water will result in lots of tens of thousands of jobs lost across in California because we simply saw that in 14, 15 and 16.”

Original Article: [KRCRTV by Cassandra Gutierrez](#)

### **Extremely dry conditions prompt restrictions for some water right holders on the Russian River**

With drought conditions resulting in low flows in the Russian River and historically low water storage levels at Lake Mendocino, the State Water Resources Control Board today notified 930 junior water rights holders in the Upper Russian River basin that there is not enough water in the system and that diversions must be reduced immediately to safeguard the community’s drinking water availability later this year and next year. “Unless we immediately reduce diversions, there is a real risk of Lake Mendocino emptying by the end of this year,” warned Erik Ekdahl, deputy director for the State Water Board’s Division of Water Rights. “We need to implement the water rights system to protect supplies in case of another dry winter, which could transform the Russian River into a series of disconnected pools and restrict the availability of drinking water in the area.” The state is responding aggressively to unprecedented dry conditions throughout the state, including the Russian River watershed. As of April 30, Lake Mendocino was at 43% of water supply capacity and Lake Sonoma was at 62% of water supply capacity, the lowest on record for this date. Rainfall in Santa Rosa and Ukiah in 2021 is less than 40 percent of long-term averages. This follows a dry year in 2020, which was then the third driest on record. In April, Mendocino and Sonoma were the first counties Governor Gavin Newsom declared a regional drought emergency for, which now encompasses 41 counties. Today’s letters from the State Water Board tell water users in the Russian River watershed to reduce diversions before more regulatory



## VELES WATER WEEKLY REPORT

curtailments authorized under the emergency proclamation occur to protect drinking water availability later this year and next year

Original Article: [CA State Water Board Press Release](#)

### **Extremely dry conditions prompt restrictions for some water right holders on the Scott River**

– With drought causing critically low flows and threatening the survival of coho salmon, an endangered species under both the California and Federal Endangered Species Acts, the State Water Resources Control Board today sent notices of water unavailability to 102 water right holders in the Scott River basin in Siskiyou County, urging them to stop diverting amid worsening hydrologic conditions. The Scott River is an important Klamath River tributary for spawning and rearing Coho salmon and serves as critical habitat for Chinook salmon and Steelhead trout. For a second consecutive year, dry conditions are endangering coho fry, or baby coho emerging from gravel, and juvenile coho that rely on robust seasonal flows to reach a suitable summer rearing habitat. Temporarily halting diversions also will leave more water instream and improve habitat and migratory conditions in the Scott River for salmon and steelhead - both currently protected as candidates under the state and federal endangered species acts - and prevent current conditions from driving the endangered coho to extinction. On May 10, Governor Gavin Newsom expanded a drought proclamation to 41 of 58 counties in the state, including Siskiyou County. With historic drought conditions advancing rapidly - compounded by the impacts still being felt from the 2012–16 drought - the state is moving urgently to address acute water supply shortfalls while comprehensively building water resilience as the conditions persist. “This two-year dry stretch in the Scott River will likely be the worst in recorded history,” said Alexander Sweat, a water resource control engineer with the State Water Board’s Division of Water Rights. “The 2020 water year was the sixth driest in 80 years, and 2021 is expected to be the fourth. We sent out similar letters last June, asking right holders to stop taking water, but because the watershed is now facing a triple threat of low snowpack, parched soils and climate change, the notices are going out a few weeks earlier this year.”

Original Article: [CA State Water Board Press Release](#)

### **Investment in Delta tunnel, Sites Reservoir will ensure water supply**

California just recorded its’ third driest winter in history, so it’s no surprise that State Water Project deliveries have been cut to just 5% of contracted amounts.



## VELES WATER WEEKLY REPORT

This is bad news for regional water agencies that collectively depend on the State Water Project for a fourth of their water supply.

But these agencies have seen the climate change writing on the wall for a long time. In fact, Southern California has been in an extended drought for the last 20 years. Because of this, 11 San Bernardino Valley water agencies have identified close to \$650 million worth of local stormwater capture, storage and recycling projects they plan to build over the next 50 years to lessen their dependence on State Water Project imports.

In reality, most local agencies need to plan for drought in Northern California, Southern California or both. In order to diversify their water supply portfolio and increase long-term reliability, the San Bernardino Valley Municipal Water District is investing in projects designed to improve the State Water Project's ability to capture, store and deliver both Sierra snowmelt and stormwater runoff from unpredictable rainfall events which are predicted to increase as the climate continues to change.

Original Article: [Visalia Times Delta by Heather Dyer](#)

### **Feds slash CVP allocations as drought worsens**

As hydrologic conditions in the West continue to rapidly deteriorate, the U.S. Bureau of Reclamation on May 26 announced it will not deliver agricultural water through the Central Valley Project in California this summer because of water supplies that tighten by the day.

The agency formally zeroed out an early 5% allocation for ag water supplies north and south of the Sacramento-San Joaquin River Delta, and slashed municipal and industrial water from 55% to 25% of normal supplies.

The move was prompted by a 685,000 acre-foot reduction in projected natural flows to the Sacramento, Feather, Yuba, and American rivers between the April 1 and May 1 forecasts, according to the bureau.

The cutbacks are a disappointment -- but not a surprise -- to growers who rely on federal water, many of whom have been planning major cutbacks in plantings this season based on the probability they would get no surface supplies.

"Reclamation's inability to make water available for irrigation and ability to make only a small amount of water available for domestic use in the second year of drought is one more reminder that the state's water supply infrastructure is inadequate," Westlands Water District manager Tom Birmingham told the Sacramento Bee. "The Central Valley Project was originally designed and constructed to supply water through even extended droughts."



## VELES WATER WEEKLY REPORT

Allocation amounts are based on an estimate of water available for delivery to CVP water users and reflects current reservoir storages, precipitation, and snowpack in the Central Valley and Sierra Nevada, Reclamation officials explained. Shasta Lake, the centerpiece of the CVP, was at just 45% of capacity and 52% of average as of May 26, according to the California Department of Water Resources.

Original Article: [Western Farm Press by Tim Hearden](#)

### **Valley communities face sharp 35% cut in water supplies from Feds**

Two months after suspending water deliveries to farmers in the Central Valley, Federal water managers announced Wednesday that their water allocation would be conclusively reduced to zero percent of their contracted amount.

They also cut water allocations for municipal and industrial water contractors north and south-of-the-Delta by 35 percent – from 55 to 25 percent – of the contractor’s historic use.

Local municipalities affected by the cut include Fresno and Tulare counties, along with the cities of Tracy, Coalinga, and Avenal.

In February, the Bureau of Reclamation initially set water allocations for agricultural water contractors both north and south of the Sacramento-San Joaquin Delta at 5 percent of their contracted amount.

By the end of March, the agency announced that water deliveries via the Central Valley Project to the westside of the San Joaquin Valley – including the sizable Westlands Water District – would be suspended, citing flatlining precipitation in the winter.

Original Article: [The SJV Sun by Alex Tavlin](#)

### **California water: Mandatory restrictions coming to Santa Clara County as feds cut water supply**

In the latest and possibly most severe evidence yet of California’s worsening drought, the federal government on Wednesday announced it will cut water deliveries to urban areas it serves by more than half — and to zero for many farmers across the Central Valley.

The move will result in mandatory water restrictions across Santa Clara County, said Rick Callender, CEO of the Santa Clara Valley Water District, which provides water to 2 million people.



## VELES WATER WEEKLY REPORT

“We are truly in an emergency situation,” Callender said. “We’re going to be seeking everything we can do to address this emergency. The public should expect tighter restrictions.”

The district, based in San Jose, was relying on water from the federal Central Valley Project to make up about 25% of its supply this year. Santa Clara County is in a particularly difficult situation following two very dry winters, because its largest reservoir, Anderson, near Morgan Hill, is drained entirely for earthquake repairs to its dam that were mandated by federal regulators last year.

The district has been asking residents across the South Bay for a 25% voluntary reduction in their water use. With the drop in federal water, the district will need to rely much more heavily on recycled water, groundwater and purchased water from other agencies and farm districts around California. Conservation will play a critical role.

Original Article: [East Bay Times by Paul Rogers](#)

### **IDWR sends curtailment notices to 129 water users**

On May 26, The Idaho Department of Water Resources sent a curtailment notice to about 129 water users representing approximately 136 groundwater rights in the Magic Valley and Eastern Idaho.

The Upper Snake River Basin experienced a very dry winter with a below-normal snowpack. The Army Corps of Engineers-Bureau of Reclamation forecast predicted a 2.1 million acre-foot runoff volume in the Snake River from May through July, which is approximately 74 percent of normal.

“We have been here before. It varies from year to year. Some years we have enough snowpack to satisfy all these users,” said Idaho Dept. of Water Resources Southern Region Manager Corey Skinner. “There is not a curtailment imposed every year. It just varies from year to year depending on the conditions.”

The curtailment notice affects groundwater users whose water rights have a priority date junior to May 30, 1989, and water shutoffs will begin on June 3, 2021, according to the curtailment notice.

Original Article: [KMVT by Steve Kirch](#)



## WATER NEWS

### **Amid Historic Drought, a New Water War in the West**

Through the marshlands along the Oregon-California border, the federal government a century ago carved a whole new landscape, draining lakes and channeling rivers to build a farming economy that now supplies alfalfa for dairy cows and potatoes for Frito-Lay chips.

The drawdowns needed to cover the croplands and the impacts on local fish nearing extinction have long been a point of conflict at the Klamath Project, but this year's historic drought has heightened the stakes, with salmon dying en masse and Oregon's largest lake draining below critical thresholds for managing fish survival. Hoping to limit the carnage, federal officials have shut the gates that feed the project's sprawling irrigation system, telling farmers the water that has flowed every year since 1907 will not be available.

Some farmers, furious about water rights and fearing financial ruin, are already organizing a resistance. "Tell Pharaoh let our water feed the Earth," said a sign erected near the nearly dry irrigation canal that would usually be flowing with water from Upper Klamath Lake in southern Oregon.

The brewing battle over the century-old Klamath Project is an early window into the water shortfalls that are likely to spread across the West as a widespread drought, associated with a warming climate, parches watersheds throughout the region.

Original Article: [\*New York Times\* by Mike Baker](#)

### **Nearly 60 million Americans don't drink their tap water, research suggests – here's why that's a public health problem**

Imagine seeing a news report about lead contamination in drinking water in a community that looks like yours. It might make you think twice about whether to drink your tap water or serve it to your kids – especially if you also have experienced tap water problems in the past.

In a new study, my colleagues Anisha Patel, Francesca Weaks and I estimate that approximately 61.4 million people in the U.S. did not drink their tap water as of 2017-2018. Our research, which was released in preprint format on April 8, 2021, and has not yet been peer reviewed, found that this number has grown sharply in the past several years.



## VELES WATER WEEKLY REPORT

Other research has shown that about 2 million Americans don't have access to clean water. Taking that into account, our findings suggest that about 59 million people have tap water access from either their municipality or private wells or cisterns, but don't drink it. While some may have contaminated water, others may be avoiding water that's actually safe.

Original Article: [\*The Conversation by Asher Rosinger\*](#)

### **The Next Great California Water War Is Starting Underground, In The Mojave Desert**

Can California regions regulate groundwater without destroying their businesses and communities?

That's the question being posed as regions and localities implement the Sustainable Groundwater Management Act (SGMA), the historic 2014 state law that brought regulation to California's diminishing groundwater supplies.

Groundwater is the water buried in aquifers, the underground spaces between rocks, soils, and sand. Layers of aquifers are called groundwater basins. California has hundreds of them, and we could not live without them. Eighty-five percent of Californians depend on groundwater, which constitutes roughly 40 percent of California's water supply (and 46 percent in times of drought).

SGMA was designed to protect the most overdrawn groundwater basins, often in rural regions, by requiring plans to balance the amounts of water being pumped from, and recharged into, aquifers by 2040. Complying with the law—and achieving sustainability—is expected to dramatically change the California landscape over the next. Two decades from now, state residents and businesses will have to use considerably less groundwater, agricultural land will have to go out of production, and local ecosystems will have to be restored.

SGMA tried to cushion disruptions from its changes by giving local agencies new power and broad discretion to form and elect a new species of local government—called Groundwater Sustainability Agencies, or groundwater authorities for short. The idea was to encourage democratic collaboration in the making of groundwater sustainability plans—thus avoiding the fights that have long plagued water policy in California. These groundwater authorities, having been created by local communities themselves, would be more inclined to listen to all stakeholders and to develop plans that would minimize local pain.

But the Indian Wells Valley Groundwater Authority—covering 11,000 square miles in the western Mojave, including parts of Kern, Inyo, and San Bernardino counties, which sit



## VELES WATER WEEKLY REPORT

above a very large pool of groundwater—has disdained conciliation with an alarming ferocity. Last year, it approved a groundwater plan so politically incendiary that it might have shocked Thomas Hobbes, the philosopher who saw human life as a war of all against all.

Original Article: [ZoCaLo Public Square by Joe Mathews](#)

### **Urban water districts consider mandatory conservation as drought deepens**

Urban water agencies are planning to impose mandatory conservation orders after federal water managers slashed deliveries this week amid a rapidly deepening drought. The Bureau of Reclamation cut water deliveries from the Central Valley Project by about half. That has prompted the Santa Clara Valley Water District, which serves 2 million residents in the Silicon Valley region, to consider a potential conservation order at its board meeting next month. And the Contra Costa Water District, which serves 500,000 residents in the East Bay, is now planning to vote on one in July.

"This is basically an emergency situation for us, and we're going to take all the actions necessary to ensure we can provide enough water," said Santa Clara Valley spokesperson Matt Keller.

Reclamation reduced urban and industrial customers from 55 percent to 25 percent of their maximum contracted deliveries and cut agricultural customers from 5 percent to zero. It's the first time the agency has cut expected water deliveries for urban customers north of the Sacramento-San Joaquin Delta following a regular initial allocation announcement in February.

Original Article: [Politico by Debra Kahn](#)

### **San Mateo County state leaders highlight our dwindling water resources and growing wildfire risks**

Two San Mateo County state leaders called attention to the county's drying conditions, one focusing on the region's dwindling water supply and the other highlighting growing wildfire risks.

"As California residents we are no strangers to wildfire but the explosive nature and devastation we have seen in the last four to five years has been absolutely astonishing to say the least," Assembly Speaker pro Tem Kevin Mullin, D-South San Francisco, said. Mullin held a virtual panel on wildfire preparedness Wednesday evening, joined by Jonathan Cox, deputy fire chief with Cal Fire who oversees San Mateo County; Dena Gunning, community risk and resilience specialist with Central County Fire; Dan Belville,



## VELES WATER WEEKLY REPORT

director of the county's Office of Emergency Services; and Jeff Norris, district coordinator of the OES.

Original Article: [\*The San Mateo Daily Journal\*](#)

### **'Big risk': California farmers hit by drought change planting plans**

Joe Del Bosque is leaving a third of his 2,000-acre farm near Firebaugh, California, unseeded this year due to extreme drought. Yet, he hopes to access enough water to produce a marketable melon crop.

Farmers across California say they expect to receive little water from state and federal agencies that regulate the state's reservoirs and canals, leading many to leave fields barren, plant more drought-tolerant crops or seek new income sources all-together.

"We're taking a big risk in planting crops and hoping the water gets here in time," said Del Bosque, 72.

Agriculture is an important part of California's economy and the state is a top producer of vegetables, berries, nuts and dairy products. The last major drought from 2012 to 2017 reduced irrigation supplies to farmers, forced strict household conservation measures and stoked deadly wildfires.

Original Article: [\*Reuters by Norma Galeana and Christopher Walljasper\*](#)

### **Lake Powell near historic lows**

The water in the man-made Lake Powell reservoir near Western Navajo is approaching historic low levels following 20 years of drought in the Colorado River Basin.

Water levels at Lake Powell, the second-largest reservoir in the country, fell to 3,559.95 feet above sea level on Monday, down from an average of 3,604.09 at this time (May 26) last year, according to the Lake Powell Water Database.

Lake Powell is at 34.2% of full pool (24,322,000 acre-feet) and 140.8 feet below full pool (3,700) as of Wednesday morning.

The primary factors influencing Lake Powell – as well as Lake Mead, the largest reservoir in the country – are inflows into Lake Powell, according to the Bureau of Reclamation.

Upper Basin hydrology accounts for about 92% of the total streamflow in the basin. Inflow into Lake Powell is also affected by Upper Basin water use and the operation of reservoirs above Lake Powell.

Reclamation last month released 24-month projections forecasting that less Colorado River water will cascade down from the Rockies through Lake Powell and Lake Mead, and into the deserts of the Southwest and the Gulf of California.

Original Article: [\*Navajo Times by Krista Allen\*](#)

**Arizona's current historic drought may be 'baseline for the future'**

Arizona and other western states just lived through the driest year in more than a century, with no drought relief in sight in the near future, experts told a House panel this past week.

The period from last April to this March was the driest in the past 126 years for Arizona and other western states, witnesses said. It caps a two-decade stretch that was the driest in more than 100 years that records have been kept – and one of the driest in the past 1,200 years based on paleohydrology evidence, one official said.

“We have never seen drought at the scale and intensity that we see right now, and it is possible that this may be the baseline for the future,” Elizabeth Klein, a senior counselor to the secretary of Interior, said in her testimony at the May 25 panel.

More than half of Arizona is currently experiencing "exceptional" drought conditions, the most severe level of drought, according to the National Integrated Drought Information System. The Arizona Department of Water Resources said most of the state got less than 25% of the average precipitation for April.

Original Article: [\*Phoenix Business Journal by Alyssa Marks\*](#)

**Despite drought, Santa Barbara County water supplies adequate for short term**

Having received just 48% of normal rainfall for the water year, which began Sept. 1 and will end Aug. 31, Santa Barbara County may be experiencing a bit of déjà vu, having been placed in the “severe drought” category again by the U.S. Drought Monitor.

But despite a winter that brought less than half the normal rainfall, the county's water supply is generally in good shape, and able to provide enough for drinking, firefighting and irrigation in the short term, city and county officials said.

“The last 10 years are actually the driest 10-year period we have records of, except for the wetter years of 2017 and '19,” said Matt Young, the County Public Works Department's Water Agency manager. “You might question whether we even came out of the drought.”

Although portions of some basins have recovered, that doesn't mean the county's aquifers are full or even that all the levels are rising.

Levels are down in the Santa Ynez River Valley, San Antonio Creek Valley and South Coast groundwater basins, Young said.

“The Cuyama Groundwater Basin is certainly overdrafted,” he said. “It tends not to recover even in wet periods.”



## VELES WATER WEEKLY REPORT

But Young said overall, the county's water supplies are adequate for residents' needs.

"Most of our basins aren't at a place yet where we see significant supply problems," he said. "To date, only one purveyor has declared a first stage of drought, and that's Solvang." he said.

Original Article: [Lompoc Record by Mike Hodgson](#)

### **California faces another drought as lake beds turn to dust**

The state is facing yet another hot, dry summer ahead, and the governor has declared a drought emergency in 41 of the state's 58 counties. More than 37 million Californians reside in these drought areas, according to the US drought monitor.

"This is without precedent," Newsom said at a news conference announcing the first two declarations in April, speaking from the bed of Lake Mendocino that had been reduced to arid, cracked clay. Not long ago, he would have been standing under 40ft of water. "Often times we overstate the word historic, but this is indeed an historic moment."

Many of the state's reservoirs are at extremely low capacity and levels are expected to drop further in the coming months. Already, the state's 154 major reservoirs are collectively at 71% of where they typically are on average. Federal climate analysts with the National Integrated Drought Information System called the outlook for California's reservoir levels recovery "grim" in their most recent report.

Original Article: [The Guardian by Gabrielle Canon](#)

### **Hoover Dam, symbol of the modern West, faces a new test with an epic water shortage**

Hoover Dam towers more than 700 feet above Black Canyon on the Arizona-Nevada state line, holding back the waters of the Colorado River. On top of the dam, where visitors peer down the graceful white arc of its face, one of its art deco-style towers is adorned with a work of art that memorializes the purposes of the dam.

In five relief sculptures by Oskar Hansen, muscular men are shown gripping a boat's wheel, harvesting an armful of wheat, standing beside cascading water and lifting a heavy weight overhead. With the concrete figures are words that encapsulate why the dam was built, as laid out in a 1928 law: FLOOD CONTROL, NAVIGATION, IRRIGATION, WATER STORAGE and POWER.



## VELES WATER WEEKLY REPORT

Eighty-six years after its completion in 1935, the infrastructure at Hoover Dam continues doing what it was designed to do: holding water and sending it coursing through intake tunnels, spinning turbines and generating electricity. But the rules for managing the river and dividing up its water — which were laid down nearly a century ago starting with the 1922 Colorado River Compact and which have repeatedly been tweaked — are now facing the greatest strains since the dam was built.

The effects of years of severe drought and temperatures pushed higher by climate change are strikingly visible along Lake Mead's retreating shorelines near Las Vegas, where the growing "bathtub ring" of whitish minerals coats the rocky desert slopes.

Since 2000, the water level in the reservoir, which is the largest in the country, has dropped about 140 feet. Lake Mead is now just 37% full, headed for a first-ever official shortage and sinking toward its lowest levels since it was filled.

Original Article: [AZ Central by Ian James](#)

### **California Farmers Leave Fields Fallow as Drought Grows More Dire in West**

The drought has become a mainstay in California. The Drought Monitor released Thursday shows exceptional drought growing, including Kern County, one of the top ranked counties for ag production in the nation.

Northern California reservoirs contain only half the water they normally do in late spring.

Both the State Water Project and the federal Central Valley Project have announced they intend to deliver only 5% of requested supplies this year.

As California farmers rely on Mother Nature and ground water this year, one farmer says it won't be enough to even grow a crop, with some farmers choosing to not plant at all. Some producers are even pulling out trees.

"There are land areas out here that are going to get one acre foot of water from the ground. That's what they're allocated," says Tyler Ribeiro, a dairy farmer in Tulare, California. "Good luck growing cactus on one acre foot. You're not going to be able to feed with that you can't grow trees out there. And we align with a lot of these tree guys in a sense of we feed their byproduct, I need those all almond hulls, I need those orange peels. I need a lot of those things. That's how we stay efficient [as a day farmer]."

Original Article: [Dairy Herd by Tyne Morgan](#)



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