

Veles Water Weekly Report

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VelesWater



WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Robin Bieber

CLICK THE LINK BELOW

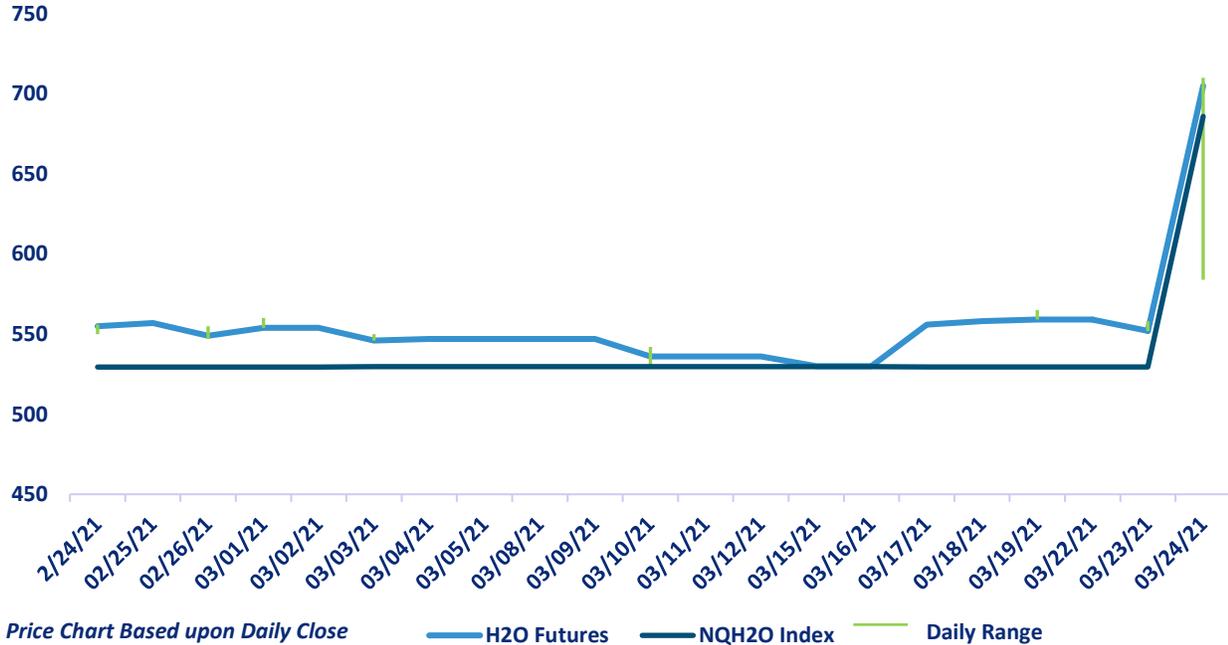
“A 2 minute technical analysis video of H2O futures by Robin Bieber.”

<https://vimeo.com/528718585/cfdabac5e0>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

1 Month Price Performance NQH2O Index vs H2O Futures

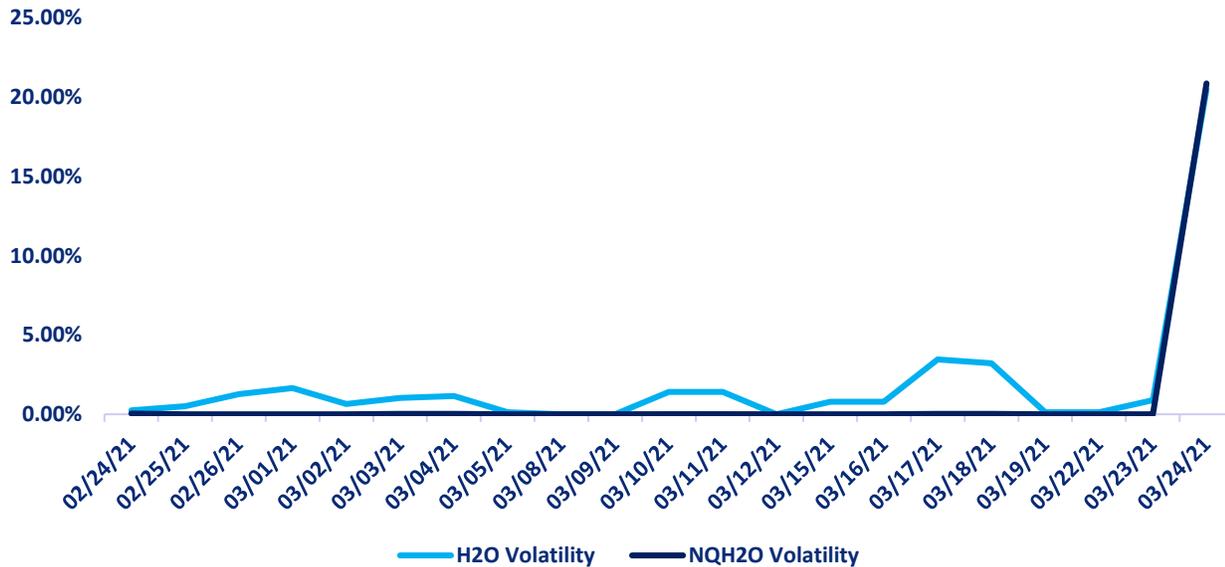


There has been a very large move upwards in both the index and the futures this week. The week starting on the 17th March began with a new index level of \$529.58 down \$0.13 from the previous week. The futures ranged from a low of \$552 on the 23rd, to the high of the week at \$710 reflecting the new index levels on the 24th. The futures closed yesterday at a premium of \$19.11 to the index. On the 24th, the index increased 29.52% to \$685.89. The futures reflected this move by increasing 27.72%, up from \$552 to close at \$705. Notably the index moved further than the futures. The futures premium may be due to short covering and may decrease over the week ahead. If the premium is maintained, it will indicate sentiment is that the price will go higher.



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	53.61%	22.78%	25.85%	25.888%
H2O FUTURES	N/A	29.6%	28.42%	24.99%

The large price move on the 24th has caused a significant increase in the index and futures volatility with an average volatility increase in the region of 20%. In the week beginning the 17th March the two month futures volatility is at a premium of 6.82% to the index. The one-month futures volatility is at a premium of 2.57% to the index. While the one and the two-month volatilities of the futures are higher than the index, this reverses in the one week scenario where the futures volatility is trading at a slight discount to the index at 0.89% due to the 29.52% increase in the index.

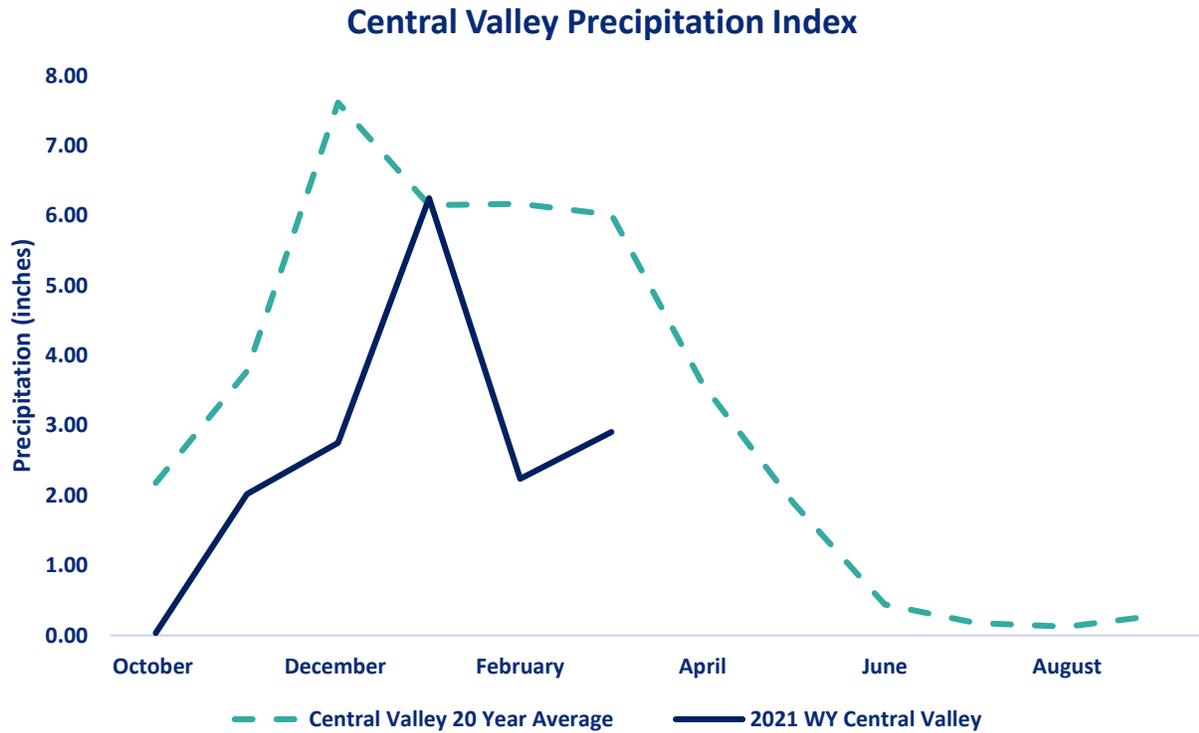
DAILY VOLATILITY

The daily volatility high for futures for the week was 20.48% on the 24th March with a low of 0.13% on the 19th March. Earlier in the week there were small intraday movements.

*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 accurate as of 03/24/2021

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)	2.68	0.59	45	52	52
TULARE 6 STATION (6SI)	1.74	0.40	43	47	41
NORTHERN SIERRA 8 STATION (8SI)	4.3	1.65	53	55	54
CENTRAL VALLEY TOTAL	8.72	2.64	47	51	49

RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,284,679	52	82	68
SHASTA LAKE	2,364,835	52	78	66
LAKE OROVILLE	1,405,833	40	64	53
SAN LUIS RES	1,134,130	56	71	63

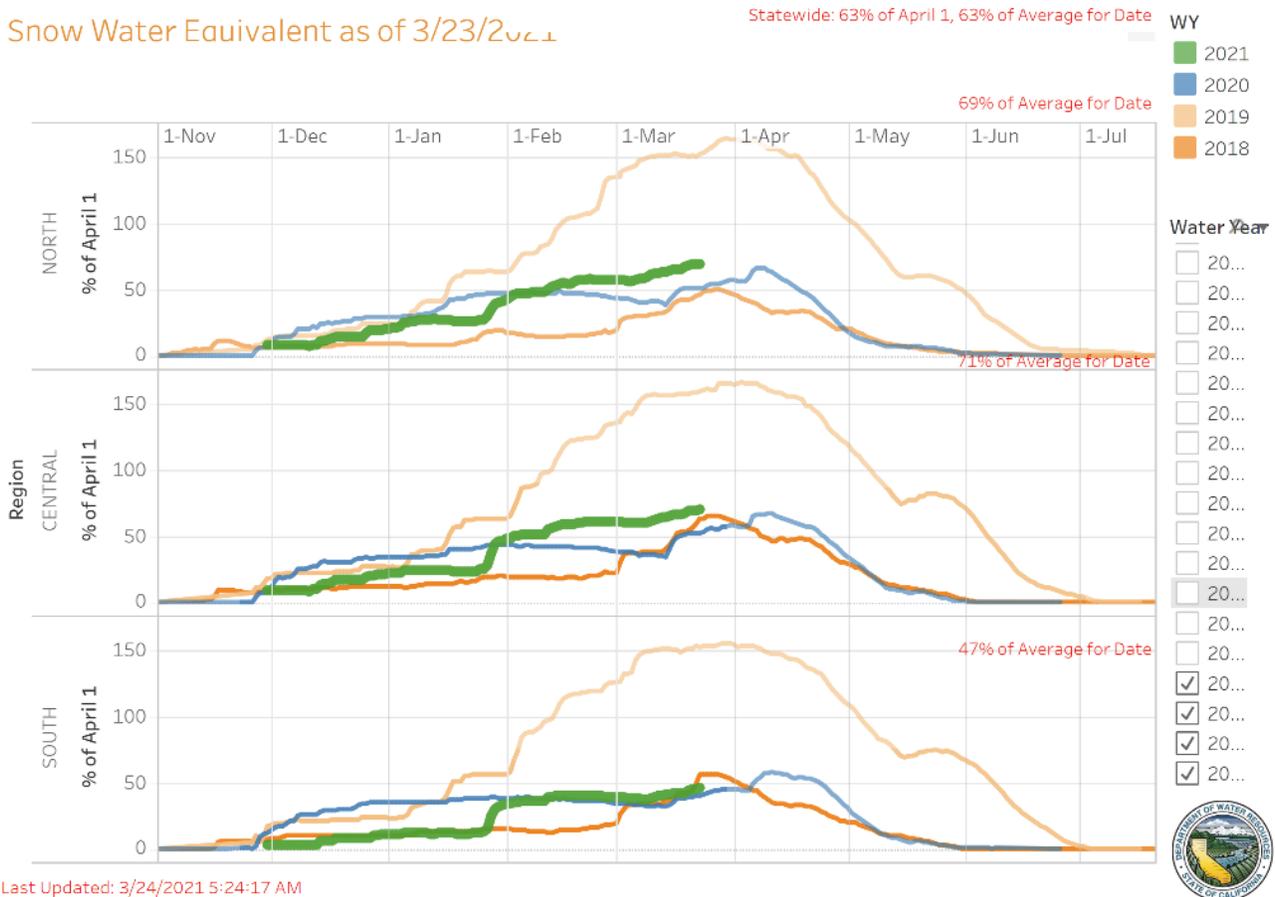


SNOWPACK WATER CONTENT

Snow Water Equivalent Dashboard

Snow Water Equivalent as of 3/23/2021

Statewide: 63% of April 1, 63% of Average for Date



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	20.1	8.65	51	72	72
CENTRAL SIERRA	20.3	5.18	52	69	68
SOUTHERN SIERRA	10.7	9.35	40	47	46
STATEWIDE	17.8	7.23	49	63	63

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

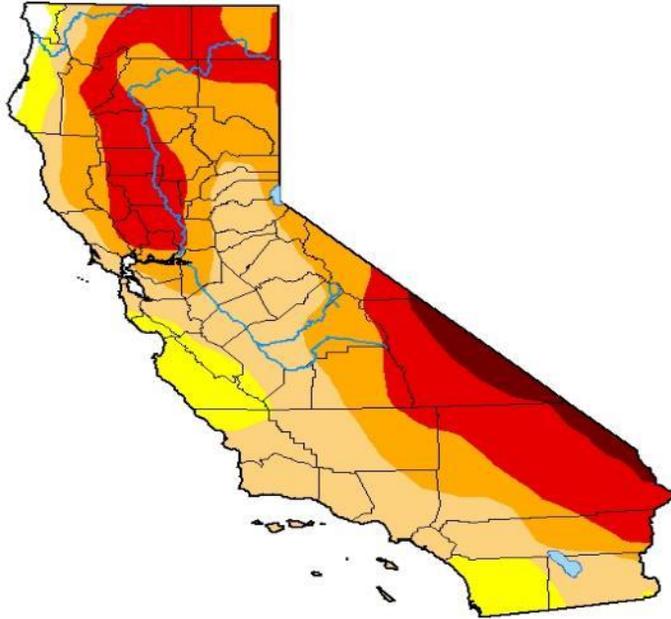
** April 1st is used as the benchmark as it when the snow pack in California is generally deepest. It has been used the benchmark date since 1941 by DWR and can be used to predict spring river flow.



DROUGHT MONITOR

U.S. Drought Monitor California

March 16, 2021
(Released Thursday, Mar. 18, 2021)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.78	99.22	90.62	58.59	29.54	3.75
Last Week 03-09-2021	0.75	99.25	90.89	58.59	29.54	3.75
3 Months Ago 12-15-2020	0.00	100.00	95.17	74.35	33.75	1.19
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 03-17-2020	24.64	75.36	47.59	1.26	0.00	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:

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CPC/NOAA



droughtmonitor.unl.edu

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



March 16, 2021
compared to
March 9, 2021



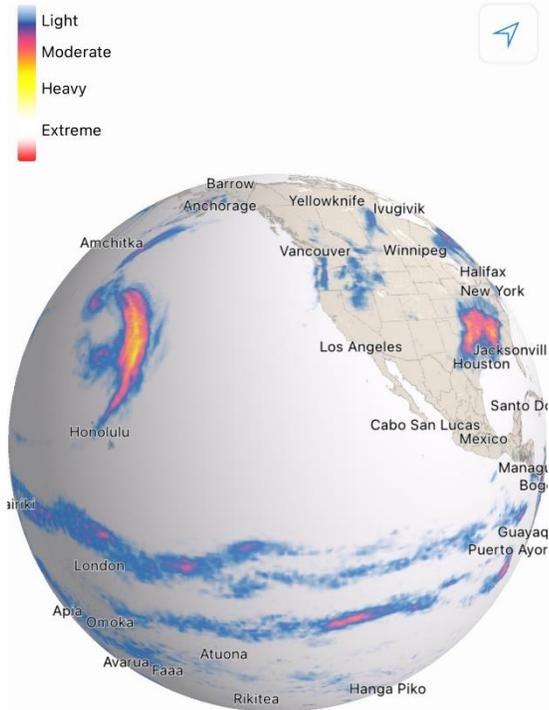
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

droughtmonitor.unl.edu

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



Last week we discussed the ‘Pineapple Express’ weather front moving into the region however we have only seen between 0-1.5 inches of precipitation in the region. There has been no “March Miracle” that the region was hoping for to alleviate the dry conditions.

The US Drought Monitor release their statistics with a 1-week lag to this report. The weather front we saw last week have made no difference to the drought levels in the region.

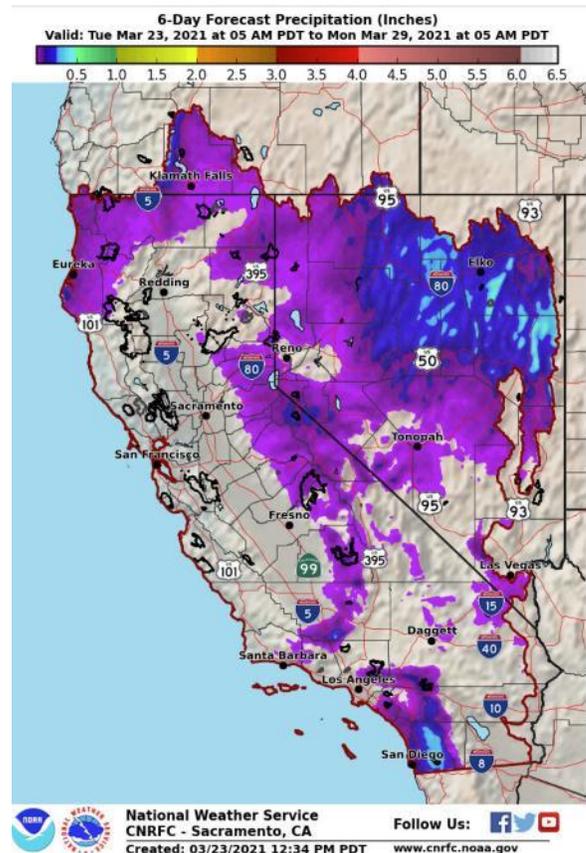
See “Climate Forecast” for a 1-10 day outlook and full weather discussion.

Ref. Dark Sky

CLIMATE FORECAST

1-10 Day Outlook

With a strong upper ridge off the west coast the associated cold front has swept from northwest to southeast across the region and has just about cleared the region. There is a large weather system north of Hawaii which may reach California in the next week, but our modelling shows it might move slightly northwards and at best will bring some precipitation to the Northern regions.



National Weather Service
CNRFC - Sacramento, CA
Created: 03/23/2021 12:34 PM PDT

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CALIFORNIA WEATHER DISCUSSION

The rainy season is nearly over, there's been no "March miracle" and the possibility of parched lawns and fallowed farm fields is growing.

State and federal officials issued remarkably bleak warnings Tuesday about California's summer water supplies, telling farmers and others to gear up for potential shortages.

The Department of Water Resources, in a rare turnabout, actually lowered its forecast of the deliveries it expects to make to the cities and farms that belong to the State Water Project. In its new forecast, the agency said its customers can expect just 5% of contracted supplies. In December the expected allocation was set at 10%.

The U.S. Bureau of Reclamation, which supplies water mainly to farmers through the Central Valley Project, said that due to worsening hydrological conditions, the 5% water allocation promised to its customers south of the Sacramento-San Joaquin Delta "is not available for delivery until further notice."

Precipitation levels in the Central Valley are 49% of the 20-year average. Last week the Northern Sierra region saw the highest levels, however our analysis shows that these levels are still only 53% of the march average. With no major weather front forecasted to move into the region the outlook doesn't look promising. Whilst no formal drought alert has been issued as of yet, it certainly looks like we may be heading that direction.

Snowpack levels have not yet caught up to the annual averages or the April 1st benchmark, in particular the southern Sierra is only 47% of the 20 year historical average. As a result the state's largest reservoirs are at around 50% or well below 50% of their capacity as we progress into the summer months.

Our analysis of reservoir storage still paints an alarming picture. Lake Oroville is only at 40% capacity, whilst this has increased slightly since the beginning of the month where levels were as low of 38%, these figures are still worrying low. Water agencies that rely on reservoir storage have started discussing possible restrictions and have issued warnings to the public to begin conserving water.



REGULATORY NEWS

DWR Issues Allocation Reduction for State Water Project

CALIFORNIA- The Department of Water Resources (DWR) has announced an allocation reduction for the State Water Project (SWP). Initially, the allocation announced in December was for 10 percent of requested supplies for the 2021 water year. DWR has now lowered the allocation to five percent. The new allocation amounts to 210,266 acre-feet of water that is to be distributed among 29 SWP contractors. DWR has indicated that the reduction is in response to the ongoing drought conditions California is experiencing.

"We are now facing the reality that it will be a second dry year for California and that is having a significant impact on our water supply," DWR Director Karla Nemeth said in a press release. "The Department of Water Resources is working with our federal and state partners to plan for the impacts of limited water supplies this summer for agriculture as well as urban and rural water users. We encourage everyone to look for ways to use water efficiently in their everyday lives."

Source: [Aq Net West](#)

Reclamation updates Central Valley Project 2021 water supply allocation

CALIFORNIA- On Tuesday, the Bureau of Reclamation announced an update to the initial Central Valley Project 2021 water supply allocation for agricultural water service contractors south-of-Delta. 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.

"Although conservative hydrologic data was used to develop the initial CVP water supply allocation, inflow projections to CVP reservoirs have decreased from February forecasts, which further constrain available water supply," said Regional Director Ernest Conant. "After careful consideration of water management options, we are adjusting the allocation for south-of-Delta agricultural contractors. As always, we will continue to monitor hydrology as the water year progresses and continue to look for opportunities for operational flexibility."

Northern California has about 51% of average precipitation for this time of year; state-wide average snowpack levels are at 63% of average. Ongoing dry conditions will require the coordination of federal, state and local agencies. On Tuesday, the California



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Department of Water Resources, which operates the State Water Project, is expected to announce a reduction in its anticipated water supplies.

Due to worsening hydrologic conditions, Reclamation is announcing the following update to the initial 2021 CVP water supply allocation:

- Agricultural water service contractors south-of-Delta allocation of 5% of their contract supply is not available for delivery until further notice.

There are no updates to other CVP allocations at this time.

Source: [USBR](#)

Arizona Groundwater & River Protection Bills Under Consideration

ARIZONA- Bills that would establish some groundwater rules in Arizona's unregulated rural areas are receiving opposition. Republican and Democratic legislators introduced several bills that would establish some groundwater rules in Arizona's unregulated rural areas, reported Arizona Central News. These unregulated areas have no limits on pumping and where water levels are dropping. During the hearing there were several appeals to the legislators to take steps to protect flowing streams and rivers, as the state's remaining rivers could dry up due to excessive groundwater pumping, drought and climate change. Those bills were opposed by the agriculture industry and key Republican leaders in the Legislature, according to Arizona Central News. A water proposal focusing on water quality is moving through the Legislature. According to Arizona Central News, a bill that was passed by the House would establish state clean-water rules for some of the streams and wetlands that were left unregulated when federal protections under the Clean Water Act were rolled back. One proposal by Sen. Kirsten Engel focused on protecting flowing streams and rivers. This measure was an amendment to a different water bill introduced by Republican Rep. Gail Griffin and the amendment was voted down by Republican legislators in a Senate committee, according to Arizona Central News.

Bill to create a Southern LA County water watchdog

CALIFORNIA- AB 1195, as introduced, Cristina Garcia. Southern Los Angeles County Regional Water Agency.

Existing law, the County Water District Law, authorizes the formation of county water districts and authorizes those districts to appropriate, acquire, and conserve water and



VELES WATER WEEKLY REPORT

water rights for any useful purpose and to operate water rights, works, properties, rights, and privileges useful or necessary to convey, supply, store, or make use of water for any purpose authorized by that law.

This bill would create the Southern Los Angeles County Regional Water Agency as a regional water agency serving the drinking water needs of the cities, unincorporated areas, and residents in the communities overlying the Central Basin and West Coast Basin aquifers in southern Los Angeles County. The bill would require the agency to serve the region as the leader in interagency collaboration on water resource issues and to be governed by a 5-member board of locally elected officials in the agency's jurisdiction, each appointed by a specified state or local entity. The bill would authorize the agency to serve the water needs of its region through specified activities, including, among others, operating public water systems or other water infrastructure and integrating other water systems in the region into its operations, as prescribed. The bill would authorize the agency to finance its operations through specified means, including, among others, collecting water rates, charges, fees, or established parcel charges previously charged by a water system for which the agency has assumed control.

By imposing requirements on the Southern Los Angeles County Regional Water Agency, the Los Angeles County Local Agency Formation Commission, and other local agencies, the bill would impose a state-mandated local program.

Source: [CA Legislature](#)

Gov. Little signs bill to invest \$50 million in Idaho water projects

IDAHO- Idaho Gov. Brad Little has signed into a law legislation that will invest \$50 million in projects that promote clean and plentiful supplies of water for generations to come. Senate Bill 1121 signed by the governor last week is the fourth component of his "Building Idaho's Future" bills that makes strategic investments in critical state priorities. "Water is truly the source of life. How we manage – or mismanage – our water resources determines our success or failure as a state," Little said. "Our strategic investment in long-term water projects and safe water systems for our communities will benefit Idahoans for generations to come." "Building Idaho's Future" is Gov. Little's plan to use Idaho's record budget surplus to provide Idahoans tax relief and make strategic investments in transportation, education, water, capital construction, and other critical areas.

Source: [KTVB 7](#)

**Gov. Cox declares drought emergency for all of Utah**

UTAH- After a record dry summer and fall — and with winter snowpack currently at 70% of normal levels — Utah Gov. Spencer Cox signed an emergency order Wednesday declaring a state of emergency due to drought conditions.

The move comes after a recommendation from the state’s Drought Review and Reporting Committee and opens the door for drought-affected communities and agricultural producers to potentially access state or federal emergency funds and resources, according to a news release.

Under current conditions, 100% of the state is currently in the moderate drought category, 90% is experiencing extreme drought, and soil moisture is at the lowest levels since monitoring began in 2006, according to the state.

That low soil moisture is expected to adversely affect spring runoff, as all forecasts are below 72% of the state seasonal average — thereby contributing to an increased threat of wildfire. Utah was last under a drought declaration in 2018, when Gov. Gary Herbert issued an executive order as 99% of the state was in a moderate drought and over 76% was experiencing at least severe drought conditions. The emergency declaration for that drought lasted nearly a year.

Source: [The Salt Lake Tribune](#)

Proposed bill would protect water right holders

OREGON- Oregon Rep. Mark Owens, 60th House District, has introduced House Bill 2256, which would protect the water rights of landowners who practice water conservation measures. The bill has a public hearing scheduled for Thursday, March 25.

Owens said he introduced the bill because he wanted to protect the water rights of landowners from the Oregon Water Resources Department (OWRD) if landowners do not use the full amount of the water right they are entitled to.

Under current Oregon law, if a water right is not fully used during a five-year period then the water right is subject to forfeiture by OWRD.

Owens said even if farmers and ranchers practice water conservation measures to conserve water they could face forfeiture of their water rights by OWRD. This includes when the land is idled.

Source: [Lake County](#)



WATER NEWS

USGS Survey: Drought may increase arsenic levels in private wells

A new U.S. Geological Survey study highlights the importance of homeowners testing their well water to ensure it is safe for consumption, particularly in drought-prone areas. The first-of-its-kind national-scale study of private well water, conducted in collaboration with the Centers for Disease Control and Prevention, showed that drought may lead to elevated levels of naturally occurring arsenic and that the longer a drought lasts, the higher the probability of arsenic concentrations exceeding U.S. Environmental Protection Agency's standard for drinking water.

Researchers estimate that during drought conditions, 4.1 million people in the lower 48 states who use private domestic wells are potentially exposed to unsafe levels of arsenic. This is an increase of 54% from the estimated 2.7 million people exposed to unhealthy arsenic levels in private wells during normal, non-drought conditions.

Source: [Water World](#)

Climate change could reduce Tucson groundwater supplies, new study finds

Climate change, a known threat to the Colorado River, stands a good chance of cutting into the Tucson area's future groundwater supplies, too, a new study says.

The U.S. Bureau of Reclamation study warns that the hottest weather Tucson is likely to get in the future would reduce natural replenishment of the aquifer by rainfall and runoff down our streams and washes.

At the same time, if the urban area's growth continues its outward spread as it's done since World War II, that could also reduce the amount of renewable water going into the aquifer to replenish it after new developments pump it out, the study said.

The study based its projections on a number of computer model analyses. It concluded that in a very hot future climate, and with continued sprawl, the aquifer could by 2060 hold less than half the amount of groundwater that it would hold if the climate stayed about the same as today and our growth became more compact.

Source: [Tucson](#)



VELES WATER WEEKLY REPORT

California agencies will reap windfall from Biden infrastructure plan — if it gets traction

A Biden initiative expected to pour up to \$3 trillion into repairing America's decrepit infrastructure and funding other programs has sparked a scramble across the nation for the federal funds — with California expecting to reap the biggest piece.

The potential federal bounty opens the door to a list of ambitious projects: electrifying the Burbank-to-Anaheim passenger rail system, straightening the Los Angeles-to-San Diego rail line to cut travel time, and building a 1.3-mile tunnel to extend a passenger line to downtown San Francisco.

Source: [LA Times](#)

Federal court dismisses Oregon lawsuit challenging Native American water rights

The United States Court of Appeals for the District of Columbia affirmed the dismissal of a lawsuit on Friday brought by Oregon ranchers which would have prevented the Klamath Tribes from exercising their water rights when they interfere with Oregon ranchers' irrigation.

The district court originally dismissed the ranchers' lawsuit for lack of standing under Article III of the US Constitution and ruled that the Klamath Tribes' water rights, pursuant to a treaty made in 1864, superseded the water rights of the ranchers. In the treaty, the Klamath Tribes ceded the majority of their land to the United States, but reserved the right to the Klamath Reservation, where they possessed the exclusive ability to fish and gather. These rights were taken in 1887, but were restored nearly one hundred years later.

The ranchers alleged the following injuries as a result of the collaboration between the federal government and the Klamath Tribes to make decisions regarding water usage: "(1) reduction of wildlife on their ranches, (2) infestation of undesirable plants, (3) the loss of plant communities, (4) lost revenues, and (5) reduced property values." The court found that because the Klamath tribes had the right to enforce their water rights superior to those of the ranchers, regardless of any action of the federal government, there was no causation between the federal government and the injuries the ranchers claimed to have suffered. Additionally, the court held, "[E]ven if the federal government were prohibited from enforcing the Tribes' rights. . .the Tribes would do so themselves, resulting in the same hardships to the ranchers." The court therefore upheld the dismissal on the lack of constitutional standing.

Source: [Jurist](#)

**Nevada town files lawsuit trying to block U.S. government from renovating canal**

A Nevada town founded a century ago by pioneers lured to the West by the promise of free land and cheap water in the desert is trying to block the U.S. government from renovating a 115-year-old earthen irrigation canal with a plan that would eliminate leaking water that local residents long have used to fill their own domestic wells.

A federal judge denied the town of Fernley's bid last year to delay plans to line parts of the Truckee Canal with concrete to make it safer after it burst and flooded nearly 600 homes in 2008.

Now, lawyers for the town a half-hour east of Reno have filed a new lawsuit accusing the U.S. Bureau of Reclamation of illegally failing to consider the expected harm to its municipal water supply and hundreds of private well users who tap into the groundwater based on what they say are binding water allotments, some dating to World War II.

A decision is crucial for the town and surrounding farms in the high desert where only 6 inches (15 centimeters) of rain falls annually. And the dispute could have far-reaching implications for the one in five U.S. farmers who use water delivered by federal canals in 17 western states to irrigate an area three times the size of Connecticut.

The agency says lining the canal at a cost of about \$148 million is necessary to prevent another costly disaster like the 2008 canal break. The Truckee-Carson Irrigation District managing the canal system settled a class-action suit for \$18.1 million in 2016 with 1,200 victims of the flood that damaged 590 homes.

Source: [My News 4](#)

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Source: [LA Times](#)



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