

Veles Water Weekly Report

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May 27th 2021

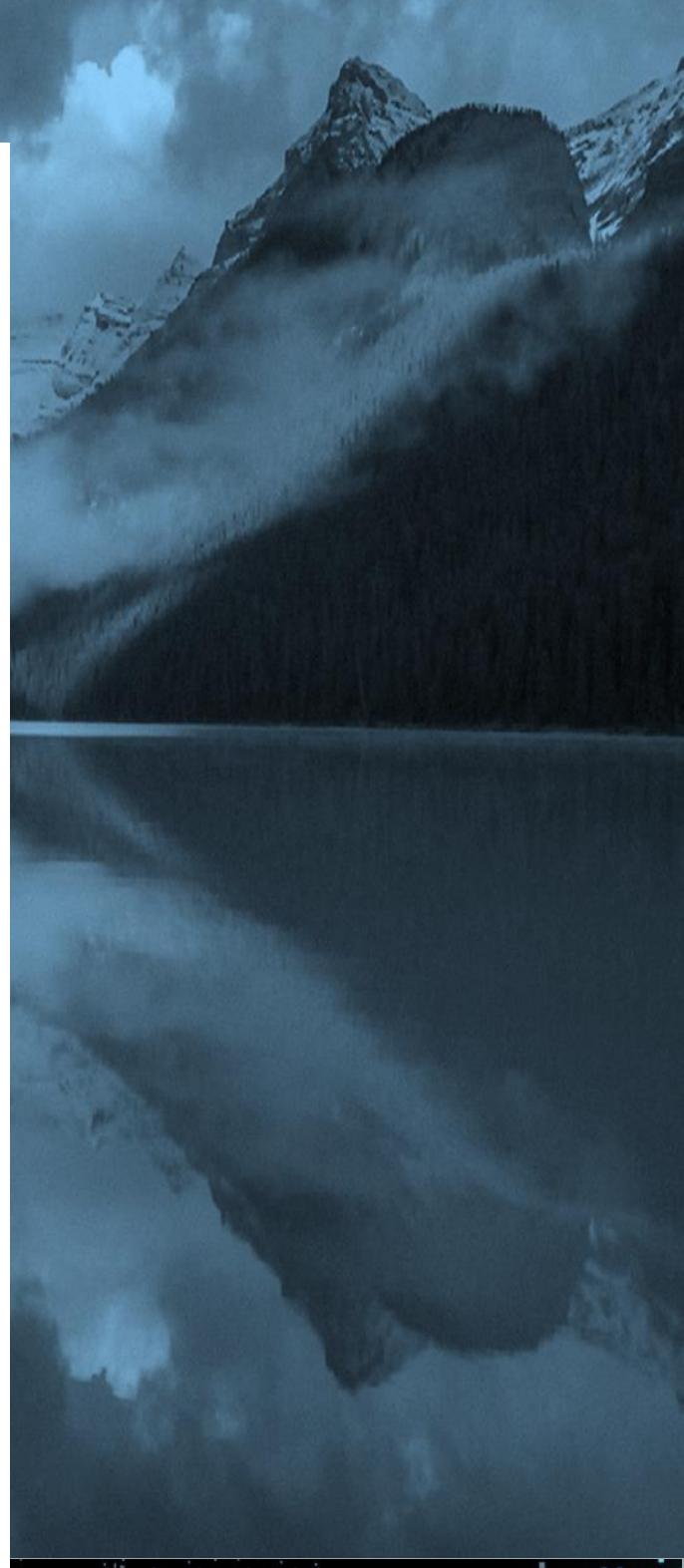
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VelesWater



WATER FUTURES MARKET ANALYSIS

Welcome to **WATERTALK**

by Robin Bieber

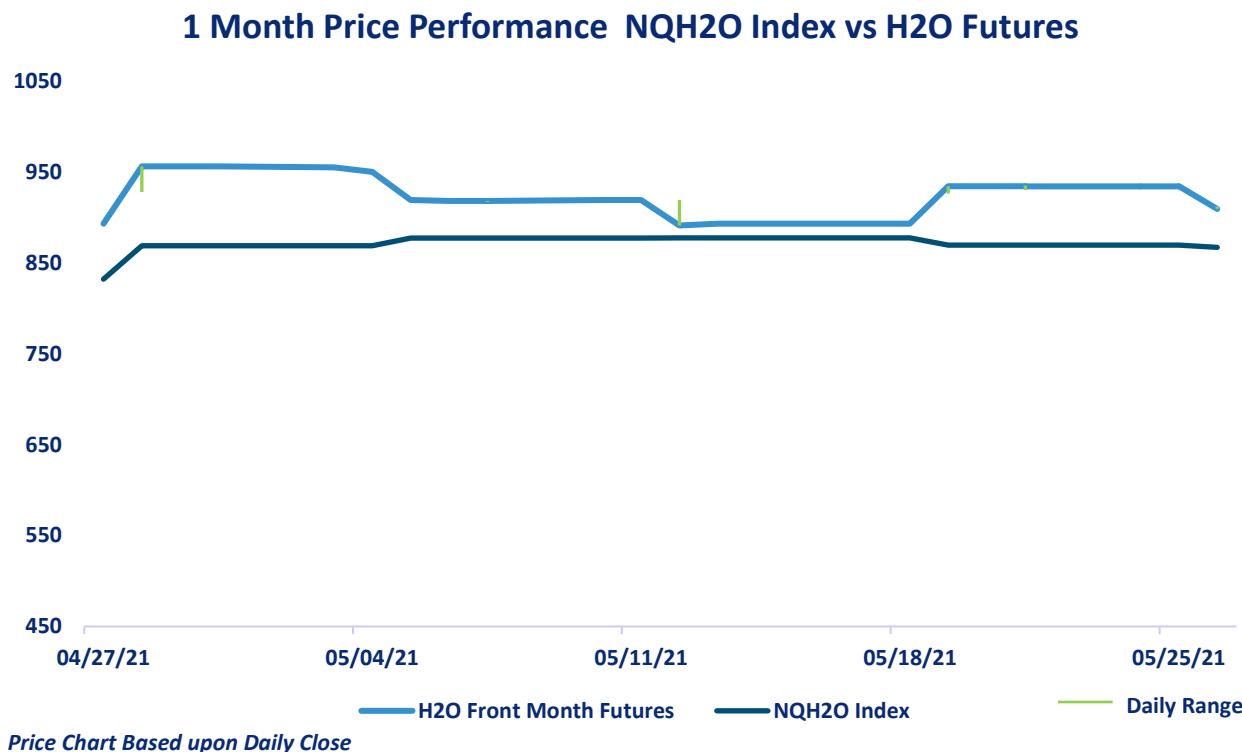
CLICK THE LINK BELOW

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

<https://vimeo.com/555582246/f63ca34424>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

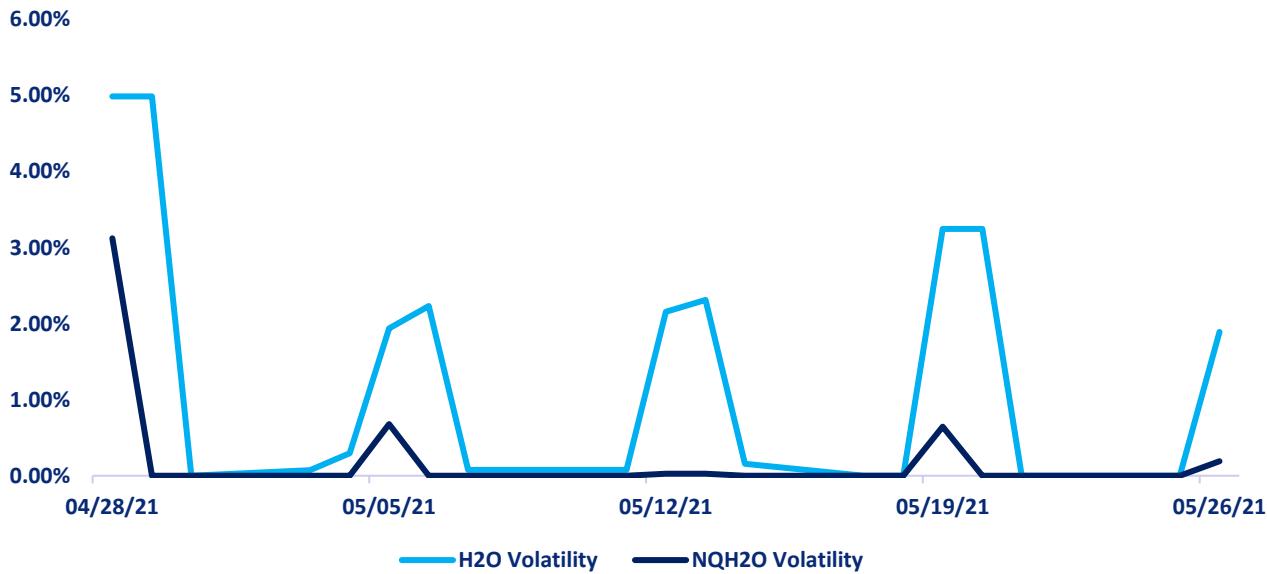


Yesterday, 27th May the new index level was published at \$867 down \$2.36 or -0.27% from the previous week. The high for the futures contract was \$935 on the 21st and the low of the week was yesterday at \$909. For most of the week the futures have been trading at a premium of \$64.64, however yesterday with the new index level the premium reduced to \$42.00 This convergence between NQH2O and the futures indicates that the market believes the index may have peaked for the short term and we potentially could see some further consolidation in the price. The long-term uptrend is still intact.



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	34.98%	26.48%	1.56%	0.640%
H2O FUTURES	N/A	19.56%	7.06%	5.26%

For the week beginning the 20th May the two-month index volatility is at a premium of 6.92% to the futures which is a reversal of 12.54% from the previous week. The one-month futures volatility is at a premium of 5.50% to the index, down 1.24% for the week. The one-week futures volatility is at a premium of 4.26% to the index up 1.56% on the week.

DAILY VOLATILITY

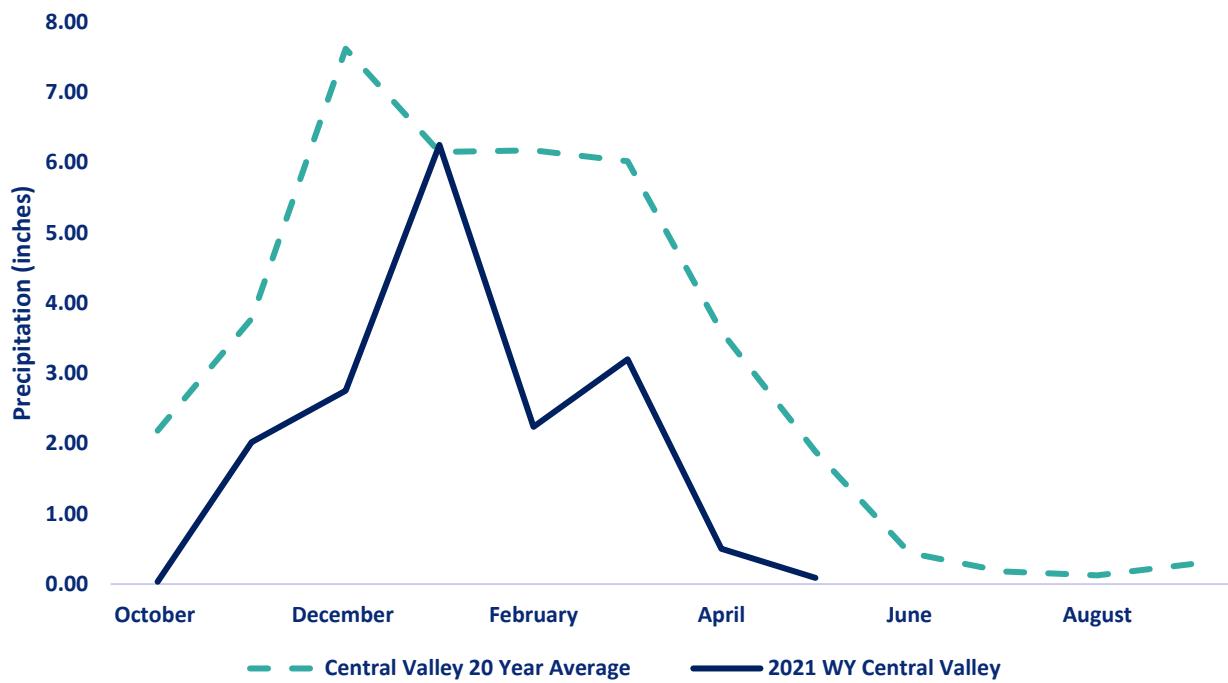
Over the last week the June future volatility high has been 3.25% on the 19th May and the low has been 0% on the 24th.

*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 Precipitation Index



Central Valley average is calculated using data from 19 weather stations in the Central Valley, California.

Data as of 05/26/2021

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)	0.07	0.04	3.63%	64	48
TULARE 6 STATION (6SI)	0.01	0.00	0.83%	68	35
NORTHERN SIERRA 8 STATION (8SI)	0.18	0.17	7.11%	63	47
CENTRAL VALLEY TOTAL	0.26	0.21	3.86%	65	43.33

RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,276,659	52	77	61
SHASTA LAKE	2,037,582	45	78	52
LAKE OROVILLE	1,378,635	39	69	47
SAN LUIS RES	920,975	45	67	55

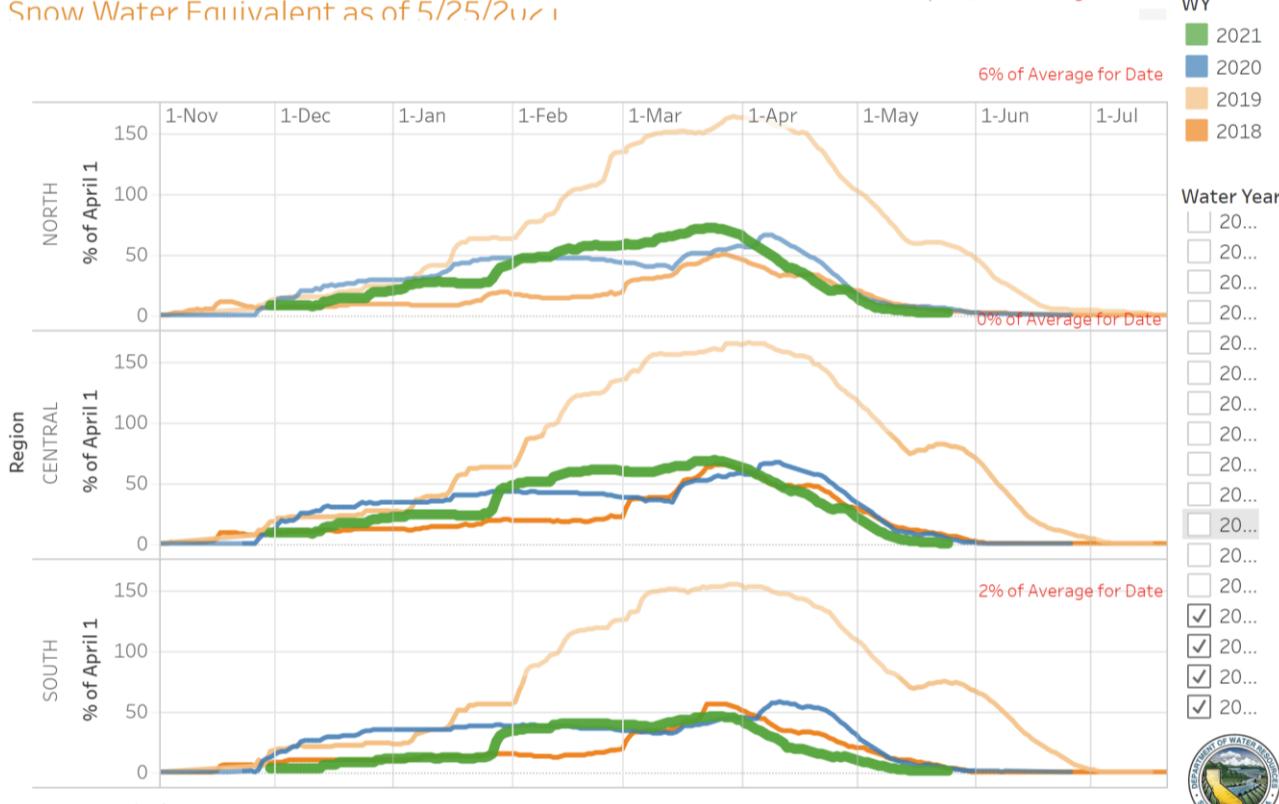


SNOWPACK WATER CONTENT

Snow Water Equivalent Dashboard

Snow Water Equivalent as of 5/25/2021

Statewide: 1% of April 1, 2% of Average for Date



Last Updated: 5/26/2021 7:17:12 AM



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	0.4	-33.33%	15	6	2
CENTRAL SIERRA	0	-100.00%	0	0	0
SOUTHERN SIERRA	0.2	-71.43%	6	2	1
STATEWIDE	0.2	-81.82%	10	2	1

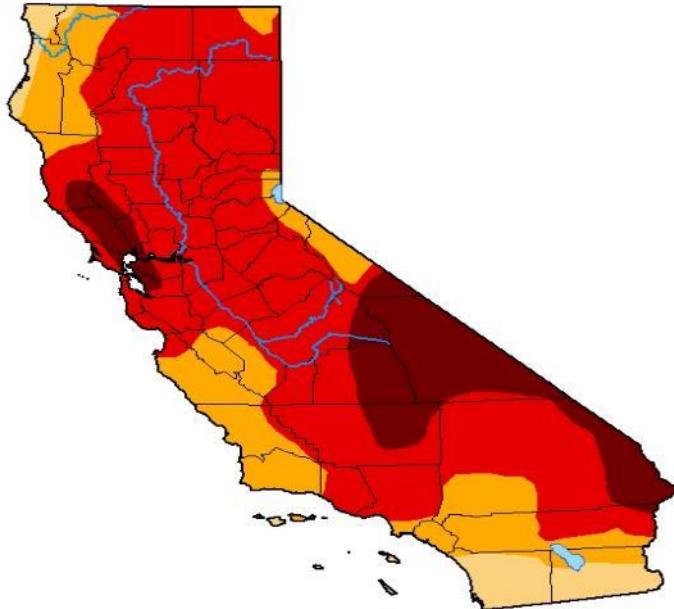
*Snow Water Equivalent, or SWE, is a commonly used measurement used by hydrologists and water managers to gauge the amount of liquid water contained within the snowpack. In other words, it is the amount of water that will be released from the snowpack when it melts. SWE has regional variance.

** 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

**May 18, 2021**

(Released Thursday, May 20, 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	94.31	73.33	15.91
Last Week 05-11-2021	0.00	100.00	100.00	94.31	73.33	13.53
3 Months Ago 02-16-2021	0.70	99.30	84.88	57.58	30.99	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 05-19-2020	41.80	58.20	46.67	20.84	2.97	0.00

Intensity:

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

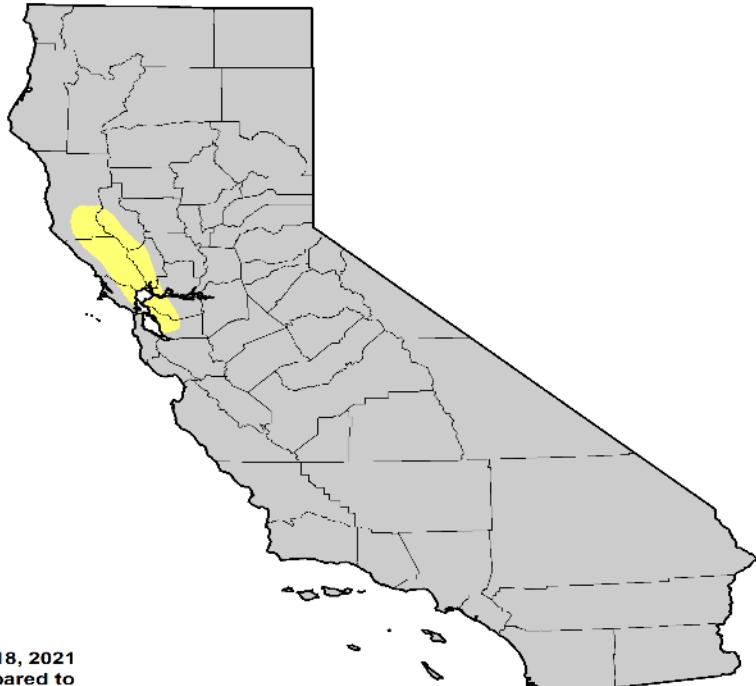
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Adam Hartman
NOAA/NWS/NCEP/CPC

droughtmonitor.unl.edu

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



May 18, 2021
compared to
May 11, 2021

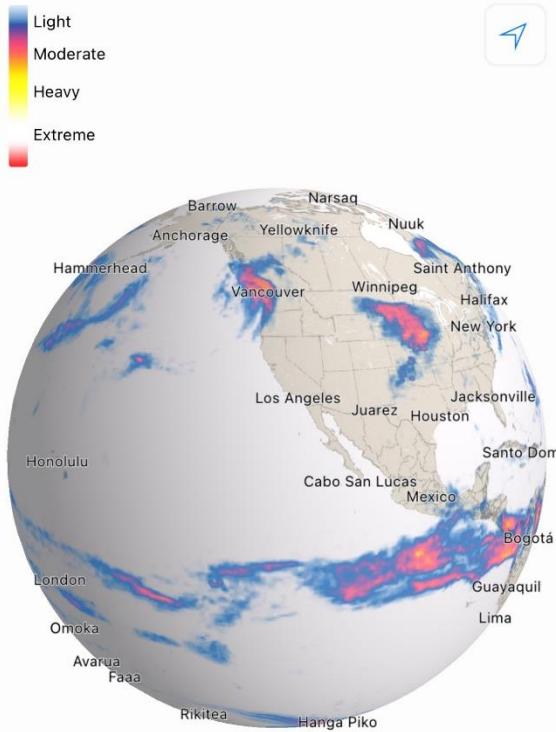
droughtmonitor.unl.edu

[Color Key]	5 Class Degradation
[Color Key]	4 Class Degradation
[Color Key]	3 Class Degradation
[Color Key]	2 Class Degradation
[Color Key]	1 Class Degradation
[Color Key]	No Change
[Color Key]	1 Class Improvement
[Color Key]	2 Class Improvement
[Color Key]	3 Class Improvement
[Color Key]	4 Class Improvement
[Color Key]	5 Class Improvement

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



Ref. Dark Sky

The Central Valley and the Sierra has seen some light precipitation over the last week. Temperatures are currently below average for this time of year. Moving into the weekend temperatures are expected rise.

The US Drought Monitor release their statistics with a 1-week lag to this report. Droughts conditions have remained steady since last week, the only change has been on the Northern Coast where there has been a class 1 degradation moving from D3 to D4.

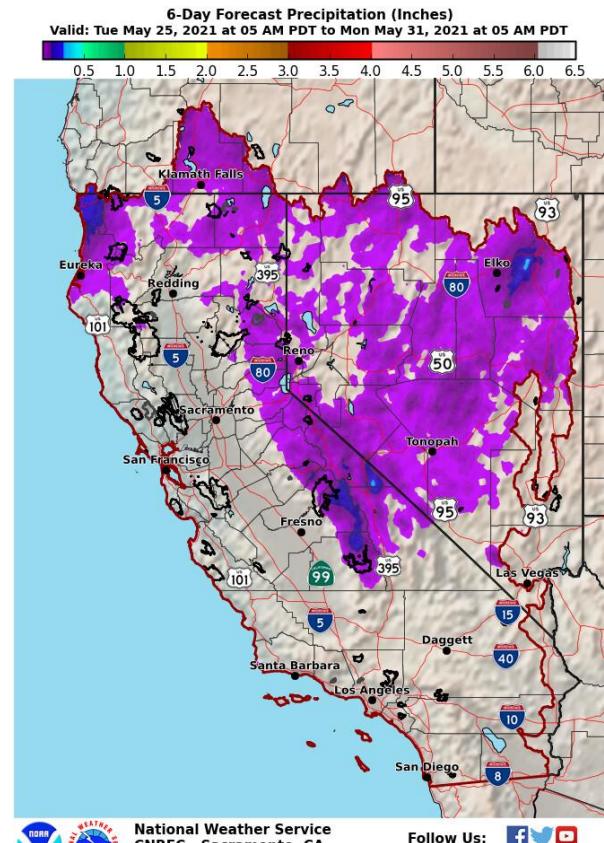
1-10 Day Outlook

A weak system is currently pushing through southern OR, bringing showers to areas along the OR/CA border.

Scattered showers are expected to continue through the day, with isolated thunderstorms possible.

A transient ridge pushed through Wednesday, but was quickly displaced by yet another weak system moving out of the Pacific NW. Only a few passing showers are expected out of this on Thursday, along the OR/CA border and SRN OR Cascades.

For the weekend, expect a deepening trough to push into CA, bringing scattered showers over the Sierra. Mainly afternoon/evening precipitation activity is likely, both Saturday and Sunday.



National Weather Service
CNRFC - Sacramento, CA
Created: 05/25/2021 06:46 AM PDT

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CALIFORNIA WEATHER DISCUSSION

Snowpack in the Central Sierra has now completely melted and other regions are not far away. There has been no increase in river flow or reservoir storage which we would normally expect to see, this is due to poor soil moisture, high levels of soil absorption and above average temperatures for this time of year over the past 60 days.

The water level in Lake Tahoe is 2.5 feet lower than this time last year. USGS 7-day average stream flows across the coastal ranges near the Bay Area have dropped below the 2nd percentile. In addition, CPC soil moisture ranks below the 1st percentile, NASA GRACE indicates severely depleted groundwater, and vegetation indices (VegDRI and VHI) indicate severe vegetation stress. There are increasing reports of reduced pasture forage, livestock requiring supplemental feed and/or being sold off, and some reports of livestock mortality. Additionally, stock ponds are running dry and farmers have been forced to haul water in some locations. Given the worsening conditions, drought was deteriorated from D3 (extreme) to D4 (exceptional) in areas along the coastal ranges near the Bay Area.

([CA Drought Summary by Adam Hartman and Denise Gutzmer](#))

Over the past week there has been a light snowfall in the Northern Sierra but this has done little to alleviate conditions. Forecasts have fell short of the promising figures promised at the beginning of the week. Our analysis of California's major reservoir storage indicates that capacity is still well below average for this time of year.

Effects from the drought conditions are already being felt in the agricultural industry with farmers reporting that they are pulling crops from the ground in order to still maintain a business and efficiently use the little water they have. This has led to some farmers having to lay off workers.



REGULATORY NEWS

Facing Dry Year, CA State Water Board is Draining California's Folsom Lake Reservoir

Following the *Globe* article Friday about the state draining reservoirs even with the dry year California is facing, we noted that California's largest reservoirs less than two years ago were absolutely teeming with water from 107% to 145% of average. Water expert Kristi Diener said California's reservoirs held enough water in 2019 for everyone who relies on them for their water supply, for 7 years.

A longtime friend of the *Globe*, Graig Gottwals, an attorney and professional bass fisherman, reported another infuriating aspect of the draining of California reservoirs – specifically Folsom Lake in the Sacramento region.

"I've lived near and bass fished Folsom for 17 years now," Gottwals said. "Beginning roughly 10 to 12 years ago, the state decided that whenever the lake dropped under 400 feet in elevation, boaters had to abide by a 5 mph speed limit. This was for purported safety reasons."

Original Article: [California Globe by Katy Grimes](#)

California DWR and Reclamation seek temporary changes to Delta outflow

California's State Water Resources Control Board has just issued this Notification of Submission of a Temporary Urgency Change Petition (TUCP) by the California Department of Water Resources (DWR) and the United States Bureau of Reclamation requesting changes to outflow requirements for the Sacramento-San Joaquin Delta and agricultural water quality requirements on the Sacramento River from June through August 15.

Original Article: [Red, Green and Blue by Dan Bacher](#)

State plans \$30 million wall to stop saltwater intrusion into delta - drought fallout

In the latest chapter of California's unfolding drought, state officials are planning to build a giant rock wall across a river in the Sacramento-San Joaquin River Delta to save the vital freshwater estuary from San Francisco Bay's saltwater.

The emergency measure is a page from last decade's drought when the delta, a maze of sloughs and man-made channels east of the Bay Area, was at risk of becoming too salty to provide water to the nearly 30 million Californians who depend on it.



As in 2015, the freshwater rivers that feed the 1,100-square-mile delta have gotten so low that they no longer counter the brackish flows that push in from the bay. The state Department of Water Resources expects a temporary barrier, similar to last decade's 750-foot-wide wall in the West False River, to slow the tides that carry in saltwater and keep the delta fresh.

Original Article: [*The San Francisco Chronicle by Kurtis Alexander*](#)

WATER NEWS

California drought hits extreme levels, wildfire threat grows

California's drought, already rated "severe" to "extreme" for most of the state, is expected to worsen throughout the summer, combining with higher-than-average temperatures and dry vegetation to steadily increase the risk of wildfires, according to the interagency National Integrated Drought Information System

That assessment comes in the wake of the state's worst wildfire season on record, 2020, which saw five of California's six largest recorded infernos and extended the trend of wildfire seasons here growing longer and more intense.

There have been 2,436 wildfires in California so far this year, charring 14,717 acres, easily outpacing the 1,554 fires that burned 2,617 acres through May 18, 2020, according to Cal Fire.

California is hardly alone, with much of the Southwest in the second year of drought — and several states are experiencing even worse conditions.

Original Article: [*The OC Register by Martin Wisckol*](#)

Climate-Fueled Drought Puts American West in Peril Ahead of Wildfire Season

At the opening of the 2020 wildfire season, 3% of California was in extreme or exceptional drought and more than 4% burned. This year, more than 73% of the state faces similar drought conditions.

In other parts of the Southwest, juniper trees are dying off at increased rates because of the intensification of a climate change-fueled megadrought and turning forests, with trees covered in dead needles, into 30-foot-tall tinder boxes.

"It's like having gasoline out there," Brian Steinhardt, a national forest fire zone manager in Arizona, told the AP. Soil in the western U.S. is drier than at any time since 1895 (the year Frederick Douglass died and Babe Ruth was born), which means "the dice are loaded toward a lot of forest fire this year," UCLA climate and fire scientist Park Williams



told the AP. New research also shows wildfires are burning at higher elevations as climate change dries out forests previously too wet to support large burns.

Original Article: [Eco Water by Climate Nexus](#)

CA Decides to Sacrifice Salmon for Agribusiness Profits

Late Friday the State Water Resources Control Board appeared to tentatively approve a temperature management plan for Shasta Dam that sacrifices salmon and fishing jobs for agribusiness profits this year, violates water quality standards, and leaves California woefully unprepared if next year is also dry.

Specifically, the State Water Board indicated that they would approve a temperature management plan if it achieves 1.25 million acre feet of water in Shasta at the end of September. As the State Water Board knows, allowing storage to drop that low is estimated to kill more than 50% of the endangered winter run Chinook salmon (see slide 5, pasted below) and results in water temperatures in October and November that are so hot that they are likely to kill the vast majority of the fall run Chinook salmon that spawn in the Sacramento River later this year—just like in 2014. What's more, it means that there will be very little water in storage at the end of the year, so California will be in far worse shape than this year if 2022 is also dry.

Original Article: [NRDC by Doug Obegi](#)

Texas Water Development Board approves watershed flood protection planning studies

The Texas Water Development Board (TWDB) today approved financial assistance totaling \$6,167,500 in grant funding from the Flood Infrastructure Fund (FIF) for watershed flood protection planning studies at its meeting May 20 in Austin.

Passed by the 86th Texas Legislature and approved by voters through a constitutional amendment in 2019, FIF was created to provide funding for drainage, flood mitigation, and flood control projects.

The TWDB is the state agency charged with collecting and disseminating water-related data, assisting with regional water and flood planning, and preparing the state water and flood plans. The TWDB administers cost-effective financial assistance programs for the construction of water supply, wastewater treatment, flood control, and agricultural water conservation projects.

Original Article: [Fort Worth Business Press](#)



North Texas' newest water reservoir filling up with recent rain

Heavy rains in North Texas are quickly filling Texas' newest lake.

In early February, Bois D'Arc Lake looked like a dry spot with a small creek flowing into it. As construction of a dam continues and with all of the recent rain, the North Texas Municipal Water District's lake has begun to capture water.

It's a man-made 16,000-acre water reservoir in Fannin County, about 75 miles northeast of Dallas.

The lake is still not full enough for boating or other recreation yet and a lot of work remains. But it looks a lot more like a lake than it did a few months ago.

The NTMWD expects it to have enough water to begin supplying about 70 million gallons of water a day to customers sometime next year.

Original Article: [Fox 4](#)

What's causing California's drought?

California's new drought is worsening. After two severely dry winters, reservoirs are shrinking, fire danger is rising and water supplies are looking more tenuous.

The past two years have been the driest in nearly half a century, since 1976-77. How did the state find itself in a new crisis just as the COVID pandemic is fading? Scientists say California's parched plight largely comes down to two words: "atmospheric river."

An increasing body of research is showing that the state's water supply each year depends almost entirely on a handful of big make-or-break storms. And the last two winters, too few arrived.

These moisture-rich atmospheric river events — also called Pineapple Express storms — barreling in off the Pacific Ocean each winter can provide up to 50% of the state's annual rainfall. If California receives more atmospheric river storms than normal, as it did in 2017, reservoirs fill, roads wash out and floodwaters rise. Fewer than normal for a couple of years in a row, like this winter and last winter, and California is high and dry.

Original Article: [Mercury News by Paul Rogers](#)

Drought intensifies and expands across the American West

The scale of the drought hitting the American West is beginning to crystallize as Nevada, New Mexico and Arizona experienced their driest year in terms of precipitation on record, according to the National Center for Environmental Information.

VELES WATER WEEKLY REPORT



In Utah and California, it was the second-driest winter on record. For Wyoming, it was the third-driest ever. For Colorado, only three winters were ever drier in the 127-year history of record-keeping at the center.

Montana wasn't far behind.

The U.S. Drought Monitor released a report Thursday that showed dryness covers approximately 50% of the contiguous United States, an unfortunate moment of historical proportions according to climate and weather experts.

"The drought monitor has been around for more than two decades, and we have only seen four springs where we've seen more than 40% drought coverage in the lower 48 states," said Brad Rippey, USDA meteorologist. "For the record, those years were 2000, 2003, and then in the wake of the big 2012 drought with the spring of 2013."

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

California Weighs Changes For New Water Rights Permits In Response To A Warmer And Drier Climate

As California's seasons become warmer and drier, state officials are pondering whether the water rights permitting system needs revising to better reflect the reality of climate change's effect on the timing and volume of the state's water supply.

A report by the State Water Resources Control Board recommends that new water rights permits be tailored to California's increasingly volatile hydrology and be adaptable enough to ensure water exists to meet an applicant's demand. And it warns that the increasingly whiplash nature of California's changing climate could require existing rights holders to curtail diversions more often and in more watersheds — or open opportunities to grab more water in climate-induced floods.

Original Article: [Water Education Foundation by Gary Pitzer](#)

Without water, California's farmers make hard choices: which crops go and which ones stay

In wetter times, these feathery beds of asparagus would produce generations of tender green spears, reaching for the vast San Joaquin Valley sky.

On Monday they were disked into the dry dirt, their long lives cut short by unreliable and expensive water.

"It's a really sad day," said Fresno County's Joe Del Bosque, who has destroyed 100 acres of organic asparagus so he can divert precious water to more valuable melons. "The water is so uncertain this year. We didn't think we'd have enough to carry it through."



With no guarantee of irrigation water this summer, Del Bosque and other California farmers are making tough choices, sacrificing one crop to save another. The strategy is part of a larger and longer agricultural shift here in the heart of California's \$50 billion agriculture industry: Low-value, high-water crops are disappearing from the Golden State.

Cotton, the San Joaquin Valley's main cash crop for much of the 20th century, is nearly abandoned. Alfalfa, whose purple blossoms once filled fields with a tangy fragrance, is also shrinking. Crops that are labor intensive and face fierce foreign competition, such as asparagus, have lost their luster.

Instead growers are moving to less thirsty or more lucrative fruits, vegetables, grapes and nut trees, according to USDA data. Some are making seasonal shifts to avoid summer's punishing drought, relying more on winter-planted crops like garlic, carrots and onions.

"There's a concentration of value," said Josue Medellin-Azuara, associate director of the University of California's Center for Watershed Science, who studies agricultural trends. "We still have crop categories that use substantial water. But we're shying away from some crops that do not offer as much in revenues and jobs."

Scarce winter rains mean that fields and pastures are already dry in a springtime season that is normally lush and generous. The reservoirs are suffering as well. Storage levels at Lake Shasta and Lake Oroville are only 53% and 47% of average.

Farmers on the west side of the San Joaquin Valley started the season with a government-issued allocation of only 5% of water from federal sources. As more recent settlers in the state, they are "junior" water rights holders; their allotments are an offer, not a guarantee. Now even that tiny allocation has been suspended.

Original Article: [The Mercury News by Lisa M. Krieger](#)

Drought is so bad in California that farmers aren't planting crops this season

Severe drought conditions in California are forcing many farmers to forego planting crops this season because there is not enough water – and this situation will be felt at the grocery store, even as food price inflation already tightens its grip on the U.S. economy.

The drought has forced some farmers to destroy crops, like Joe Del Bosque's asparagus field in California's Central Valley. He had to make a tough decision, save his asparagus, which needs a lot of water, or save his melon crop, which doesn't require near as much water.



"It feels terrible," Del Bosque said. "First of all, it's a producing field. It could have gone another three years, but what hurts is we had about 20 people working this field, and we have to tell them there's no work for them next year."

"You don't see drought as a natural disaster where something is falling, cracking open, or washing away what you see out here in a drought is nothing," Del Bosque said. "Bare land. No crop, no water, and no people are working. It's just silence. That's what a drought is here, no food. It's deafening and disheartening."

Original Article: [Digital Journal by Karen Graham](#)

SRP water-banking facility back online after year pause to assist with drought

After more than a year of being offline, one of Arizona's largest water-banking facilities is back in operation this month, officials announced Wednesday.

The Granite Reef Underground Storage Project stores water for use during prolonged drought periods or when a shortage is declared on the Colorado River system, which officials expect to happen in 2022.

The stored water, nearly half of which is stored on behalf of the Arizona Water Banking Authority, would then be available to be pumped out of the ground and delivered to residents.

Original Article: [KTAR News by Suelen Rivera](#)

Should population shift force new Colorado River talks?

The wild, wild West of water is coming to a head and Arizona looks to be on the losing end.

Projections suggest that Lake Mead will be drawn down to its lowest level since Hoover Dam was completed, necessitating Tier 1 water restrictions by the end of the year. While Arizona and Nevada water users will see even greater cutbacks under the restrictions to their Colorado River allocations, California will maintain unfettered access to the massive water system.

For farmers with access to the federal Central Arizona Project, this means the irrigation taps will be turned off once Lake Mead falls to 1,075 feet in surface elevation. Results of the curtailment of surface water to central Arizona farms are predictable. Like their California neighbors facing similar water cuts, Arizona farms will either go without or face having to pump from dwindling aquifers.

Unlike California, Arizona apparently does not have a groundwater law to force the sustainable balance of aquifers.



A farmer from southeast Arizona called me recently to ask if there was any truth to the rumors of \$1,800 water costs in California, then proceeded to share how a neighboring agricultural operation with apparent deep pockets sunk a well that he fears will sink his livelihood.

Original Article: [Western Farm Press by Todd Fitchette](#)

California facing drought crisis as water shortages mount and fire danger escalates

California's deepening drought has worsened into a crisis, as a second dry year in a row has diminished the state's water supply and another difficult fire season looks inevitable. Nearly three-quarters of the state is in extreme to exceptional drought. With the wet season all but over and a hot, dry summer probably ahead, water shortages and fire danger are poised to intensify.

The past several weeks have shown dramatic change in drought status: Extreme drought has expanded through the northern Sierra's crucial water region and in the agricultural San Joaquin Valley.

Exceptional drought, the worst category in the federal government's U.S. Drought Monitor, has descended upon the Bay Area and the nearly snow-free southern Sierra. Moderate drought conditions or worse cover all of California.

Original Article: [The Washington Post by Diana Leonard and Laris Karklis](#)

Drought Imperils Economy in California's Farm Country

California is gripped in severe drought just four years after emerging from the last one, forcing many farmers to scramble to find enough water. The U.S. Bureau of Reclamation has cut the water allocations for many to zero this year. Last year, when the latest dry spell began, the same farmers were allocated 20% of what they are contracted to receive annually.

Some are responding by letting fields go fallow. "We need 39 days and 39 nights of rain," said Steve Danley, water manager of the Zumwalt Mutual Water Co., whose 20 rice-grower customers are leaving all but 500 of their 6,000 acres unplanted after the provider lost its federal water.

Original Article: [The Wall Street Journal by Jim Carlton](#)



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