

Veles Water Weekly Report

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Authors:

Lance Coogan - *CEO*

Joshua Bell - *Research Analyst*

research@veleswater.com

+44 20 7754 0342





WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Josh Bell standing in for Robin Bieber.

CLICK THE LINK BELOW

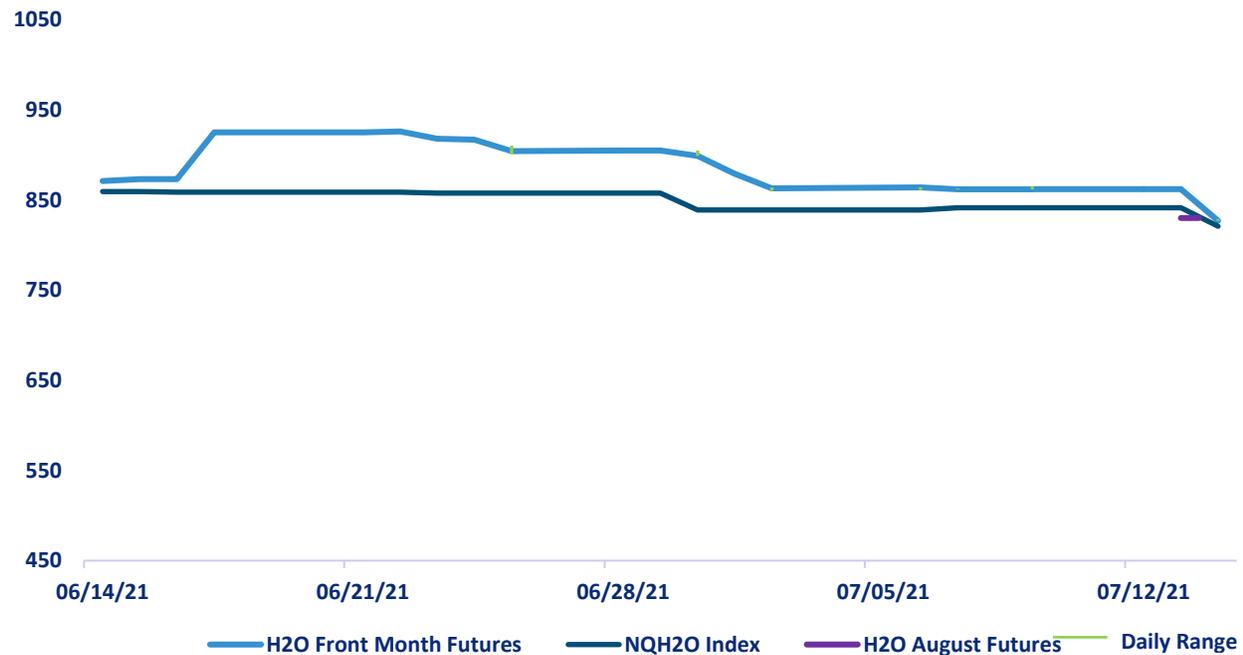
"A 2 minute technical analysis video of H2O futures."

<https://vimeo.com/575311760>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

1 Month Price Performance NQH2O Index vs H2O Futures



On June 14th the new index level was published at \$820.86, down \$20.35 or 2.42%. Over the past week the futures have been trading at a premium to the index of \$20.79 until yesterday when the premium reduced to \$6.41. The premium appears to be diminishing implying some more consolidation in the index price.

The July Futures contract has now been the front month contract for 4 weeks. The futures high of the week was on July 9th at \$865 and the low of the week was yesterday, July 14th at \$827. June 14th also marked the first set of contracts trading on the August contract which opened at \$836, with a high of \$838 and closed at \$838, \$11 higher than the front month contract. This is a reduction in month-on-month premiums which have often been higher than \$30 (with extremes being even higher) and implies softening of the underlying index price.

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

July is 827@836

August is 838@848

September 723@801

December 595@765

The December offer price is still cheaper than the July, August and September bids. The July bid to December offer is minus \$90. This is indicating a significant implied

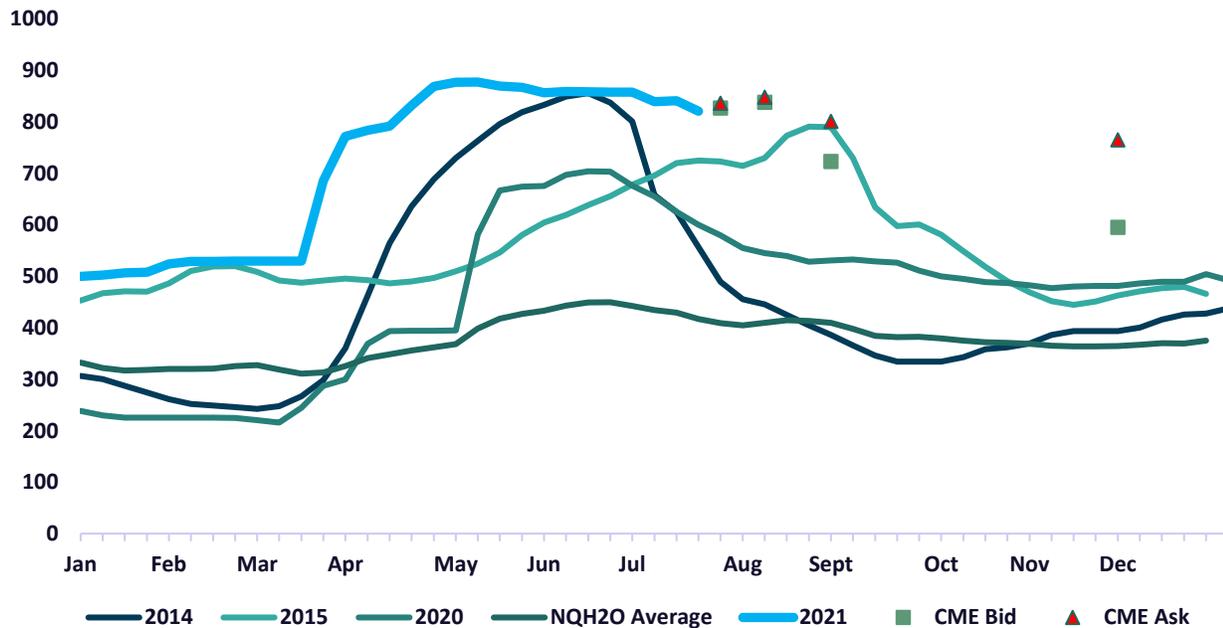


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seasonality in the trading of water, with prices peaking in summer and tapering off in winter. NQH2O index is up 64.23% up Year to Date.

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 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 some 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.

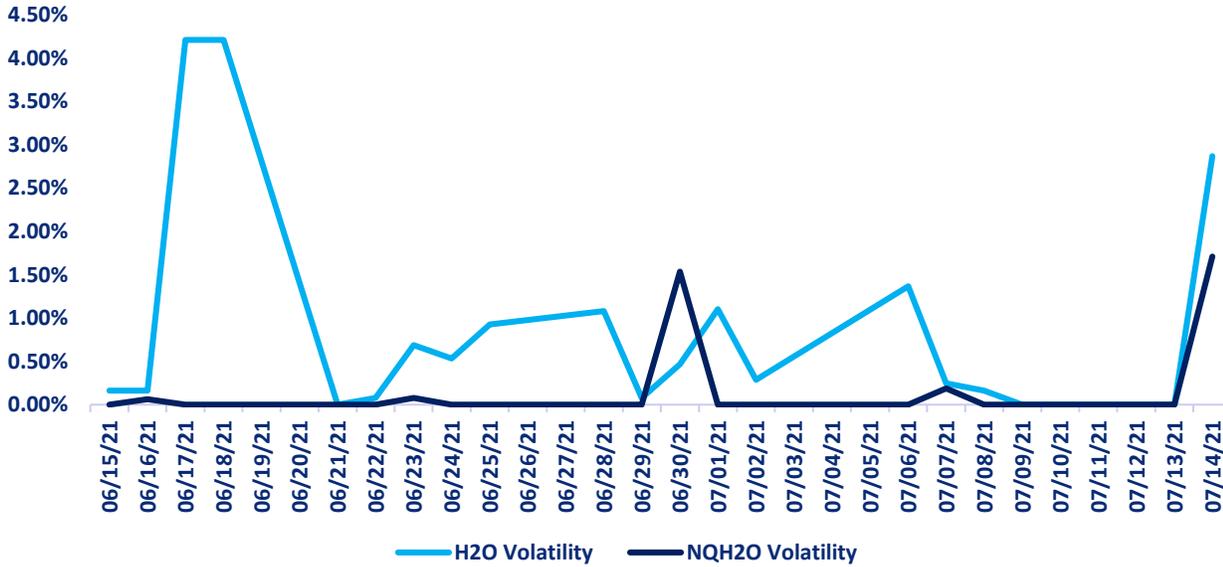
Current bids and offers in the market are still higher than historic prices showing that expectations are that this is an exceptionally dry year and prices may not fall seasonally as much as they have in prior dry years. This week’s prices still reflect North of the Delta trades.

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



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	34.30%	2.79%	2.76%	2.683%
H2O FUTURES	N/A	10.34%	8.09%	3.67%

For the week ending on the 14th July the two-month futures volatility is at a premium of 7.54% to the index up 0.14% from the previous week. The one-month futures volatility is at a premium of 5.33% to the index, up 0.86% for the week. The one-week futures volatility is at a premium of 0.99% to the index, a reversal of 1.21%.

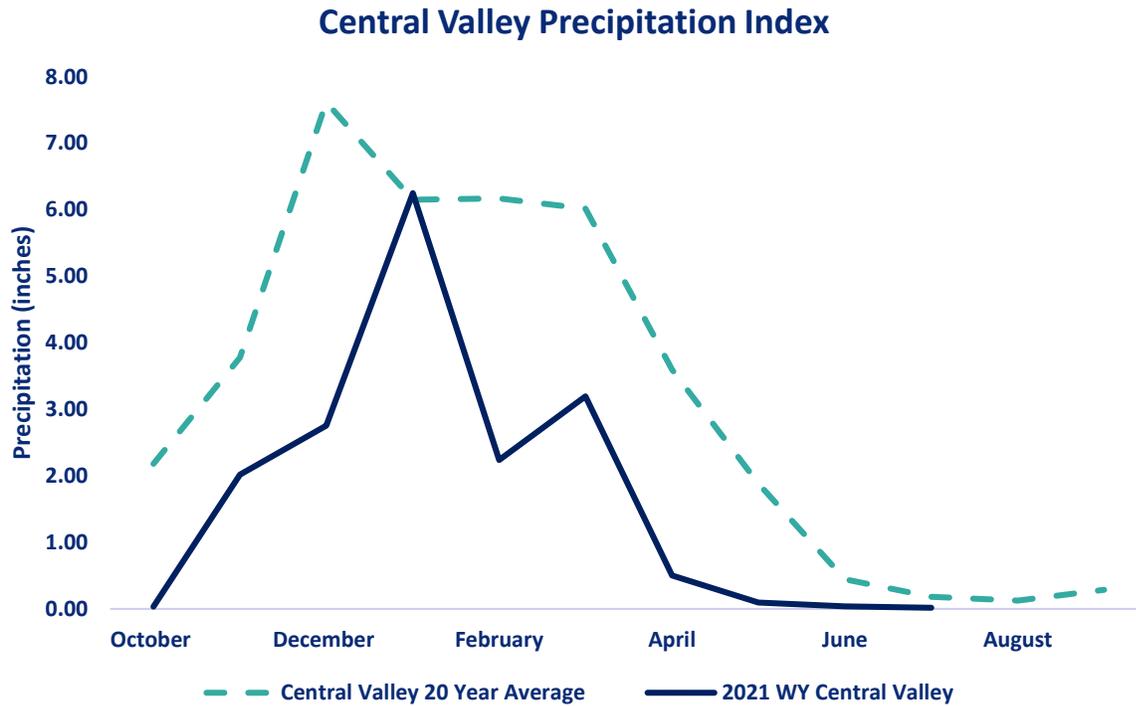
DAILY VOLATILITY

Over the last week the July future volatility high has been 2.87% on July 14th and the low has been 0% on June 8th – 13th.

*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 14/07/2021

STATION	MTD (INCHES)	WEEK ON WEEK CHANGE (INCHES)	% OF 20 YEAR AVERAGE MTD	2021 WYTD VS 2020 WYTD %	2021 WY VS 20 YEAR AVERAGE TO DATE %
SAN JOAQUIN 5 STATION (5SI)	0.01	0.00	5.35%	63	47
TULARE 6 STATION (6SI)	0.04	0.04	17.24%	66	34
NORTHERN SIERRA 8 STATION (8SI)	0.04	0	33.90%	62	46
CENTRAL VALLEY TOTAL	0.09	0.04	18.83%	64	42.33

RESERVOIR STORAGE

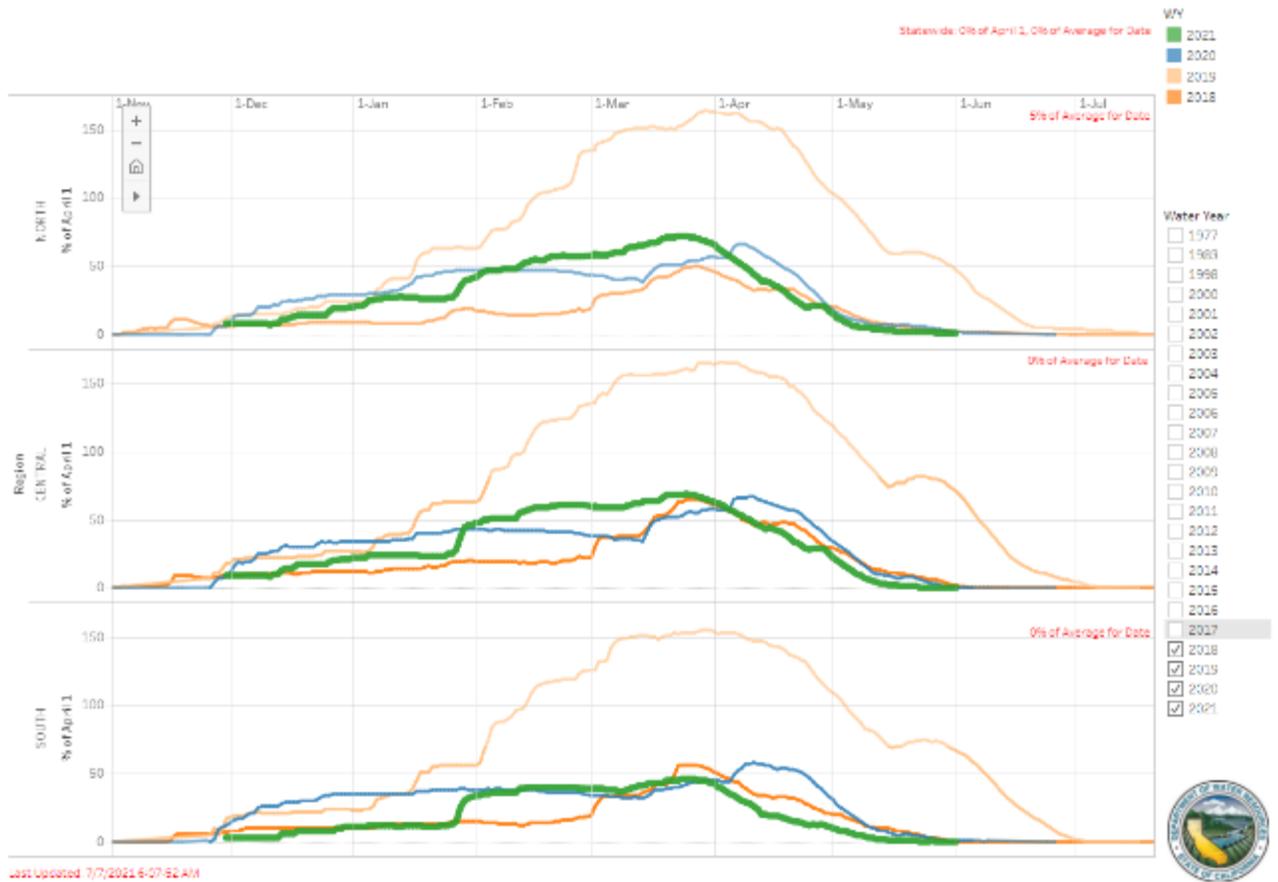
RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,101,490	45	70	55
SHASTA LAKE	1,631,047	36	65	47
LAKE OROVILLE	1,032,597	29	58	38
SAN LUIS RES	566,407	28	49	51

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SNOWPACK WATER CONTENT



Snow Water Equivalent Dashboard



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	0.00%	9	5	1
CENTRAL SIERRA	0	0.00%	3	0	0
SOUTHERN SIERRA	0	0.00%	3	0	0
STATEWIDE	0.1	0.00%	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 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.

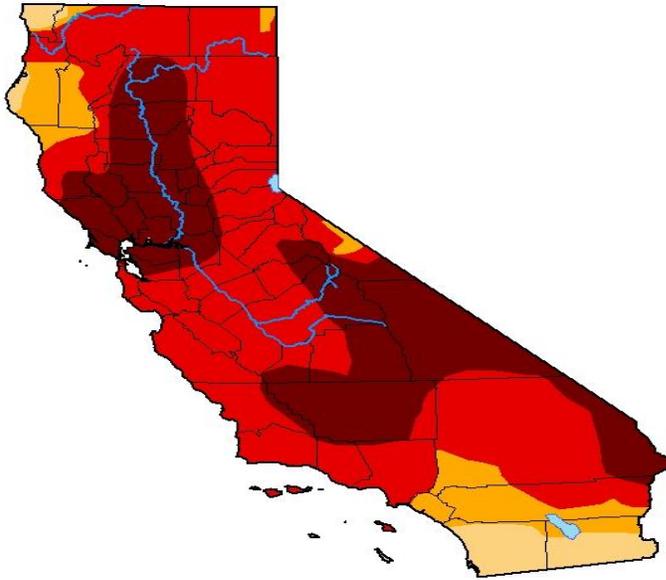
VELES WATER WEEKLY REPORT

DROUGHT MONITOR



U.S. Drought Monitor California

July 6, 2021
(Released Thursday, Jul. 8, 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	94.73	85.44	33.32
Last Week <small>06-29-2021</small>	0.00	100.00	100.00	94.73	85.44	33.32
3 Months Ago <small>04-06-2021</small>	0.77	99.23	92.65	69.68	35.42	5.36
Start of Calendar Year <small>12-29-2020</small>	0.00	100.00	95.17	74.34	33.75	1.19
Start of Water Year <small>09-29-2020</small>	15.35	84.65	67.65	35.62	12.74	0.00
One Year Ago <small>07-07-2020</small>	41.79	58.21	46.74	20.84	2.45	0.00

Intensity:

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

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

Author:

Deborah Bathke
National Drought Mitigation Center



droughtmonitor.unl.edu

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



July 6, 2021
compared to
June 29, 2021



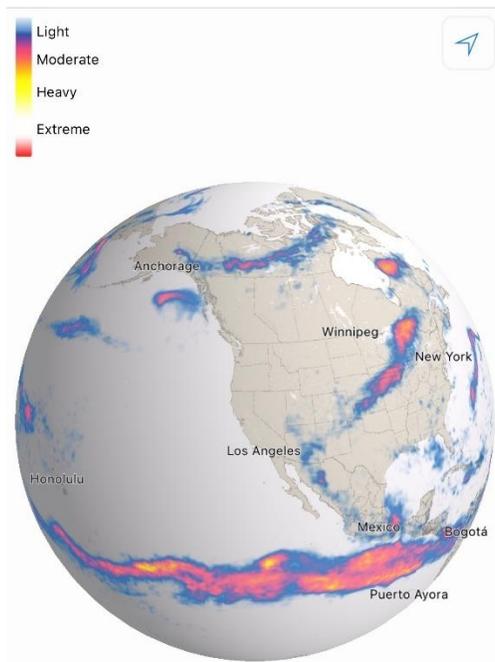
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

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



The US Drought Monitor release their statistics with a 1-week lag to this report. Drought conditions have remained unchanged from the previous week. That is now 4 weeks without significant change. Condition still remain dry. Increase wildfire warnings have been issued. As per the satellite picture there is minimal precipitation to come off the Pacific, with moisture inflows occurring in the South from Monsoonal effects.

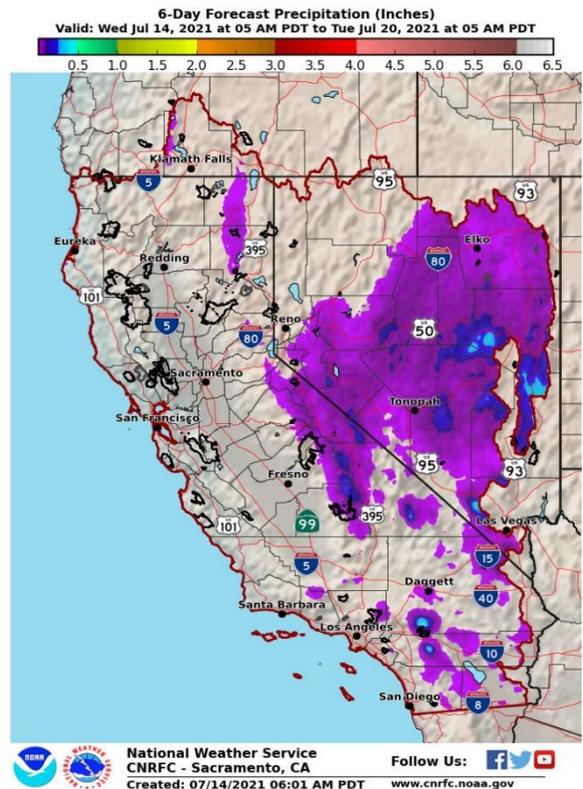
85.44% of California is currently in Extreme Drought (D3) compared to this time last year when only 2.45% of the state was classified as in Extreme Drought.

Ref. Dark Sky

10 Day Outlook

Over the next few days expect the center of the upper ridge to move closer to its climatological location near the 4-Corners region while an upper low develops off the coast and deepens over the northeast Pacific. This will bring drier southwest flow to the region into the weekend. However, the pattern begins to shift a bit into next week as the upper high strengthens and moves toward the north. With the upper trough remaining offshore and the axis of this feature generally along 135W the flow across the region will become a bit more south to southeast and once again, begin to draw moisture toward the region.

This should bring increase in convective activity...especially from the Sierra and points eastward and possibly portion of the southern CA coastal mountains between LA and San Diego and locations over southeast CA.





CALIFORNIA WEATHER DISCUSSION

Another relentless heat wave is expected to grip the West this weekend. The extreme conditions in the forecast have prompted the National Weather Service (NWS) to categorize much of California and Nevada in the highest heat risk level by Sunday. Over 30 million people are under heat alerts across the western states as temperatures are forecast to soar well into the triple digits this weekend, threatening to break daily high-temperature records.

Nearly the entire state of California will be impacted by this heat wave, in addition to the major metro areas in the Southwest.

"Numerous daily high temperature records could be in jeopardy of being broken, particularly for California and Nevada. Highs could approach 115-120 degrees for the lower elevations of Arizona and eastern California this weekend," the Weather Prediction Center (WPC) said on Friday.

Death Valley could even reach 130°F or higher on Sunday and Monday, coming close to the hottest temperature ever recorded on Earth, which was 134°F at the same location in 1913.

Original Article: [CNN by Hannah Gard and Haley Brink](#)

WATER NEWS

California isn't running out of water; it's running out of cheap water

A California water myth which becomes especially pernicious in droughts is that California is "running out of water" (Hanak et al. 2009). Viewing California's supply and demand pressures in terms of fixed water requirements perpetuates this myth and invariably places undue attention on building additional supply infrastructure. Instead, managing water as a scarce resource suggests a balanced portfolio of water trading, investments in conveyance, smart groundwater replenishment, and demand management. With such a balanced portfolio, 1) California's water supply situation is not broadly dire, and 2) California's vast and interconnected water infrastructure and groundwater resources can minimize most problems from the state's highly variable climate.



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An economics-driven model of California's water system, the California Value Integrated Network (CALVIN), has provided such insight from several perspectives, including climate change, groundwater, water markets, and reservoir operations. But in many of these studies, authors lamented an unrealized potential to capture the impact of hydrologic variability more realistically. With perfect foresight, CALVIN was run with complete foreknowledge of 82-years of hydrology – giving exactly optimal solutions to managing reservoir over-year (“carryover”) storage through multi-year droughts, for example. Now, with access to high performance computing resources, a limited foresight carryover storage value function (COSVF) method (Draper 2001) has been applied to California's entire system – more than 26 surface reservoirs and over 30 groundwater basins (Arnold 2021, Khadem 2018). These model runs are the most comprehensive and realistic analyses of the potential for broad integrated portfolios of actions across water agencies to address California's water supply problems.

Water supply is not the sole objective of carryover storage operations. Federal and State operators of Shasta and Oroville reservoirs seek to maintain storage reserves for environmental requirements. For example, Shasta's carryover storage objectives include maintenance of a cold-water pool to support Salmon habitat in the Sacramento River. Other economic objectives include recreation and hydropower. CalSim-II's higher carryover storage relative to limited foresight CALVIN are partially attributable to these objectives in addition to Federal and State contractual water supply obligations to Sacramento and Feather River water rights holders. While CALVIN incorporates minimum environmental flow constraints, more complex environmental requirements such as cold-water pool management and some Delta operational constraints are less well represented. Nevertheless, the limited foresight CALVIN results provide a more realistic representation of the economic value of carryover storage in California's multi-reservoir conjunctive use system.

Aggressive use of carryover water storage in California's major reservoirs is economically prudent and reduces overall groundwater reliance. Water supply risks of lower carryover storage are further mitigated through greater system integration such as increased water trading, groundwater banking, and drought water use reductions. The higher risks of having low carryover storage, although not quantified here, appear to fall on California's stressed ecosystems. A warming climate, expected to continue through at least mid-century even with aggressive global greenhouse gas mitigation, is changing runoff timing, magnitude, and frequency in ways that will make managing carryover



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storage more challenging. Future work should focus on this aspect and incorporate alternative hydrologic traces reflecting expected climate changes.

Original Article: [Wyatt Arnold, California Water Blog, Center for Watershed Sciences, UC Davis](#)

Governor calls for reduced water usage amid 2021 California drought

Governor Gavin Newsom has placed 50 of California's 58 counties under a drought emergency order, and the number may grow. The latest to join the order are those located north of the Tehachapi mountains. This includes Marin, Monterey, San Luis Obispo, Inyo, Santa Barbara and Santa Clara counties.

"Those are the effects of climate change. It's here, and it's human-induced," Newsom said, as reported by ABC. "I think in the state of California, we've moved beyond the debate and are moving toward finding a solution."

Instead of mandating and enforcing water restrictions, Newsom is asking for people to voluntarily comply. The goal: reduce water usage by 15%. This goes for agricultural and industrial uses, as well as residential. "We're hopeful that the people in the state of California will take that mindset that they saw in the last drought and take that forward," Newsom said. California has allocated \$5.1 billion to deal with the drought, including emergency response and investing in the state's water infrastructure.

California's largest reservoirs, Lake Shasta and Lake Oroville, hold less than half their usual amount of water, according to the state Department of Water Resources. Both lakes are in Northern California. Southern California is currently faring better, with Castaic Lake at 58% of its average level, and Lake Perris with notably more water than it usually holds this time of year.

Original Article: [In Habitat by Teresa Bergen](#)

SoCal's largest water reservoir filled to 80% capacity despite drought

Southern California's largest reservoir is filled to more than 80% of its total capacity, despite the fact the state as a whole is in the second year of a severe drought. And Diamond Valley Lake near Hemet is proving to be a key asset in making up for the shortfall in water from other sources after another year of below-normal precipitation. "The lake has a purpose that helps us in emergencies like earthquakes, but primarily in droughts like this," said Brent Yamasaki, Metropolitan Water District's head of



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operations.

"It actually holds more water when it's full than Lake Havasu."

Original Article: [ABC 7 News by Rob McMillan](#)

Israel's Watergen helping Arizona Native Americans make water from air

Israeli startup Watergen, which has developed a technology to produce water from air, has installed a generator for a Navajo Nation Native American community in Arizona to help them deal with a crippling water shortage.

The first generator was set up at the Rocky Ridge Gas & Market in northeast Arizona and aims to address the lack of access to clean drinking water within the Hard Rock community there, according to a joint press statement issued Thursday.

Nearly 10,000 families across Navajo Nation lack access to running water, per recent estimates. Local groundwaters have been contaminated over the years by mining and the situation has been exacerbated by the devastating drought affecting the Western United States.

The Watergen GEN-M generators produce up to 211 gallons (800 liters) of purified drinking water per day, depending on climate conditions. The Israeli startup will monitor the project's effectiveness in the Hard Rock Community and evaluate whether it can be replicated elsewhere within the Navajo Nation.

"We live in a region in which drinking water sources have been compromised by coal mining. Any way to mitigate the need for water while the aquifers recover is critical," said Nicole Horseherder, Executive Director of Tó Nizhóní Ání, a local environmental group, which is one of the partners in the initiative.

Original Article: [Times of Israel by Toi Staff](#)

Almond growers had expected a record Central Valley harvest. Drought just took 13%

The worsening drought forced a 13% cut in the projected almond crop in California.

The U.S. Department of Agriculture now expects about 2.8 billion pounds from the August-October harvest. The initial estimate in May was for a record 3.2 billion pounds. Some growers have opted to strip nuts from branches so their trees can get by with less irrigation this summer, Monday's report said. Water is especially short in parts of the western and southern San Joaquin Valley.

Any upside? Growers with adequate water can expect higher prices per pound from almond buyers around the world. This includes the Modesto, Turlock, Oakdale and South San Joaquin irrigation districts.



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The state accounts for about 80% of the global almond supply. Farms and processing plants employ several thousand people in and near Stanislaus County. Even with Monday's revision, this year's harvest would be the second-largest ever, topped only by the 3.12 billion pounds in 2020. The Almond Board of California, based in Modesto, noted this in a news release.

"The report still forecasts a really large crop, and it's further proof that California is an ideal place to grow almonds, even in difficult times," said board chairman Kent Stenderup, a grower in Kern County.

The estimates are made each year by the USDA's National Agricultural Statistics Service. The first is announced in May, based on a telephone survey of growers about how their almonds are developing. The second is in July, following visits to orchards to count and measure nuts.

The initial projection was based in part on favorable weather in February and March for the bees that pollinate the trees. Growers also reported little trouble with almond pests or diseases.

The winter had below-average rain and snow. The outlook got even worse with the lack of spring storms.

Original Article: [The Modesto Bee by John Holland](#)

It's Not Just Water Supply: Drought Harms Water Quality, Too

A June heat wave sparked an earlier-than-expected algae bloom in the drought-ravaged drinking water reservoir in Price, Utah—a sign of climate change-related water quality challenges to come in the tinder-dry West.

Extreme heat and wildfires are engulfing the region amid a historic drought that scientists think may be the region's worst in at least 1,200 years. In response, some drinking water systems are beginning to grapple with maintaining both water supplies and water quality as they deal with potential legal and regulatory concerns.

Climate change-driven heat and drought are exacerbating long-standing water shortages in the West, said Anne Castle, a senior fellow at the University of Colorado Law School and a former water lawyer at Holland & Hart LLP.

"The drought and dry conditions in the West are lowering water tables, making existing wells more unreliable, and reducing the dilution of contaminants in both surface and ground water," she said.



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The problem will only build upon water systems' challenges upgrading infrastructure and securing supplies as they shrink in the West, said Tim Davis, director of Utah's Division of Drinking Water.

In a sense, Price—a city of 8,265 southeast of Salt Lake City—is lucky because water managers will be able to switch water sources before treatment costs increase and the algae bloom affects water quality severely, said Miles Nelson, the city's public works director.

Harmful algae are common, but usually bloom later in the summer when water temperatures heat up.

But experts warn that other communities won't be as lucky. Though uncertainty remains about how the drought will affect drinking water quality, some water lawyers fear it could create a situation similar to the 2014 lead contamination crisis in Flint, Mich. that triggered a public health state of emergency.

Original Article: [Bloomberg Law by Bobby Magill and Emily C. Dooley](#)

Old Hill Partners Completes a \$7 million Senior Secured Term Loan secured by Water Rights

Old Hill Partners recently provided a \$7 million senior secured term loan secured by water rights in the Western U.S. We financed a real estate developer looking to warehouse water resources for a planned development project. The financing served as a hedge against escalating prices for water rights. It was priced with current and deferred interest components. This transaction arose as a sequel to a prior \$11 million credit facility Old Hill provided to the company in 2019.

“We operate in a segment of the lending market that requires specialized knowledge and that is being avoided by large traditional banks due to post-crisis regulatory constraints. The firm's experience in the asset-based lending (ABL) sector allowed us to execute on a transaction that offered a flexible financing solution for the borrower that is not available from traditional lenders. We worked very closely with the borrower to craft a custom transaction, secured by strong collateral, that aligned the interests of all involved,” said, Sam Adams, Senior Portfolio Manager at Old Hill.

Old Hill provides asset-based lending solutions for borrowers seeking \$10 to \$50 million in financing. The firm structures senior secured debt in the form of term, draw down, and revolving-to-term facilities of up to four years and loan-to-value ratios in the range of 35% to 85%. Collateral types include pools of loans or leases (specialty finance), receivables, inventory, machinery, and equipment.



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Original Article: [Globe Newswire Old Hill Partners](#)

Historic Drought Shrinks Crop Prospects in Western U.S.

Water The historic drought conditions in the Western U.S. intensified last quarter with water allocations to some agricultural irrigators cut to zero in California. Ninety-five percent of California and Arizona, 77% of Oregon, and 46% of Washington are experiencing severe drought conditions or worse. The region is now in the worst drought in four decades. Reservoirs are well below normal following the unusually dry winter and unseasonably warm spring that evaporated the Sierra Nevada snowpack, which typically supplies a third of California's water needs. Snowpack levels had fallen to just over 50% of the seasonal average. California's State Water Resources Control Board notified 6,600 farmers in June of "impending water unavailability," with many farmers told they will receive little to no water allocations. Senior water right holders, though, will receive greater allocations. The extreme drought situation is expected to persist until winter rains arrive and is shrinking crop prospects. Growers are adjusting to the historic dryness by fallowing crop acreage and allocating scarce water to permanent plantings rather than field crops like silage, hay, and cotton, or by removing permanent crops. Growers who are struggling with no water allocations may pump from backup wells, or purchase water through the water market. Prices on the Nasdaq Veles California Water Index (NQH20) have nearly doubled since January to \$850/acre foot.

Original Article: [Co Bank Quarterly Report by Tanner Ehmke](#)

Drought Spreads to 93 Percent of West—That's Never Happened

The western United States is experiencing its worst drought this century, threatening to kill crops, spark wildfires and harm public health as hot and dry conditions are expected to continue this month.

More than 93% of the land in seven Western states is in drought conditions, and nearly 59% of the area is experiencing extreme or exceptional drought—the two worst conditions—according to the latest figures released by the U.S. Drought Monitor.

Both figures are the highest this century for the area that covers all of Arizona, California, Idaho, Montana, Oregon, Washington and most of Utah.

Before this year, the record for the amount of Western land in extreme or exceptional drought was 43%, set in September 2003.



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The conditions have led to fire and fishing restrictions across the West and have prompted wildfire alerts. The National Interagency Fire Center is warning that the intensifying drought across the West is creating significant wildfire risk over the next three months from California to the Northwest and across the northern Plains.

“Last year, we had a lot of wildfire and a lot of smoke. It would be very surprising if that did not happen again this year,” Douglas Kluck, NOAA’s director of regional climate services in Kansas City, said in a virtual presentation last week.

Agriculture Department reports show that several crops, including wheat, sunflowers and barley, are threatened by the extensive drought, which is concentrated in the West but is also affecting areas as far east as the Dakotas, Minnesota and Iowa.

Original Article: [Scientific American by Thomas Frank](#)

A Massive Water Recycling Proposal Could Help Ease Drought

Lake Mead, which provides water for 25 million people in the American West, has shrunk to 36 percent of its capacity. One rural California community has run out of water entirely after its well broke in early June. Fields are sitting fallow, as farmers sell their water allotments instead of growing crops, putting the nation’s food supply in peril.

As the West withers under extreme drought, legislators in the US House of Representatives have introduced HR 4099, a bill that would direct the Secretary of the Interior to create a program to fund \$750 million worth of water recycling projects in the 17 western states through the year 2027. (The bill, which was introduced at the end of June, is currently before the House Committee on Natural Resources.)

“This is beginning to be our new normal—88 percent of the West is under some degree of drought,” says Representative Susie Lee (D-Nevada), who introduced the bill. “Lake Mead is at the lowest level it has been at since the Hoover Dam was constructed. And the Colorado River has been in a drought for more than two decades.”

All the while, the population and economy in the western US have been booming, putting tremendous pressure on a dwindling water supply. “We have, I guess, more people—one. And there's an increase in the agricultural area—two,” says Representative Grace Napolitano (D-California), who introduced the bill. “And then climate change is exacerbating the problem.”

Part of the solution, the legislators say, is to fund the construction of more facilities that can recycle the wastewater that flows out of our sinks, toilets, and showers. You may think that’s gross and preposterous, but the technology already exists—in fact, it’s been around for half a century. The process is actually rather simple. A treatment facility takes



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in wastewater and adds microbes that consume the organic matter. The water is then pumped through special membranes that filter out nasties like bacteria and viruses. To be extra sure, the water is then blasted with UV light to kill off microbes. The resulting water may actually be too pure for human consumption: If you drank it, the stuff might leach minerals out of your body, so the facility has to add minerals back. (I once drank the final product. It tastes like ... water.)

The recycled H₂O can be pumped underground into aquifers, then pumped out again when needed, purified once more, and sent to customers. Or it may instead be used for non-potable purposes, like for agriculture or industrial processes.

Basically, you're taking wastewater that'd normally be treated and pumped out to sea—wasting it, really—and putting it back into the terrestrial water cycle, making it readily available again to people. “Part of what makes it so important as an element of water supply portfolios is its reliability,” says Michael Kiparsky, director of the Wheeler Water Institute at the University of California, Berkeley. “To the extent that urban centers exist and produce wastewater, it can be treated. It gives a reliable source of additional water supply—even in dry years when supply is limited and developing alternative sources would be difficult or impossible.”

Original Article: [Wired by Matt Simon](#)

A Delta in Distress

Global warming has already left its mark on the backbone of California's water supply, and represents a growing threat to its first developed agricultural region, state experts have warned in a new study.

The Sacramento-San Joaquin Delta fuels California's \$3 trillion economy, including its \$50 billion agricultural industry, sustains more than 750 plant and animal species and supplies 27 million people with drinking water.

But global warming is likely to destabilize the landscape that made the delta a biodiversity and agricultural hotspot, according to a study released late last month by a state agency charged with preparing the region for the climate crisis.

The sprawling island-studded delta, about an hour's drive northeast from San Francisco, is fed by a network of streams and tributaries as intricate and life-sustaining as the veins that carry blood to the heart, making the estuary a critical ecological resource for diverse wildlife populations.

It's also the linchpin of the state's water supply. Starting in the 1930s, federal and state agencies built a massive maze of dams, reservoirs, pumping stations, levees and canals



VELES WATER WEEKLY REPORT

to transfer the state's most coveted resource from the water-rich north to farms and cities in the thirsty southern reaches of the state.

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

The California agricultural landscape will look different a decade from now, but maybe not as different as you think

With drought conditions worsening in many parts of California and more water restrictions, farmers will likely idle between 600,000 to 800,000 acres this year, says Roland Fumasi, EVP & North American Regional Head, RaboResearch Food & Agribusiness. That does not include the potential impacts of the Sustainable Groundwater Management Act (SGMA).

While much of the western U.S. is experiencing drought conditions, California is one of the hardest hit. As of June 22, 2021, 100% of the state is experiencing some degree of drought. About 33% of the state has been categorized under exceptional drought, the most intense drought classification. But water access varies greatly by region of the state.

During the last major drought, which ended in 2016, Fumasi said there were about 600,000 acres that didn't get planted. The number could be a little worse this year because soil recovery from the last drought has limited water availability even more, added the California native.

When it comes to SGMA, Fumasi says "we are still in the early stages." But some of the water districts are already starting to implement higher costs for groundwater pumping or higher fees associated with trying to conserve groundwater — even though the SGMA plans have not yet been approved by the state.

"We're going to see a lot more groundwater pumping this year than we would otherwise, just to keep crops alive. But that's going to come at a higher cost."

As a result, "we're going to see less water find its way to thirstier crops like alfalfa, cotton and rice. Some farmers in the Sacramento Valley are going to sell water and plant less rice," Fumasi said.

The Nasdaq Veles Water Index, which tracks the spot rate of surface water per acre-foot in California, dropped down to \$480/acre-foot last winter and as of July 9, was about \$841/acre-foot — about a 75% increase.



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Fumasi says there'll be growers who will be paying more for water to keep permanent crops alive — whether that's blueberries or pistachios, and almonds in some cases. However, he points to a weak almond market that may complicate decision-making.

Original Article: [Agri Pulse by Sara Wyant](#)

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