Veles Water Weekly Report

July 8th 2021

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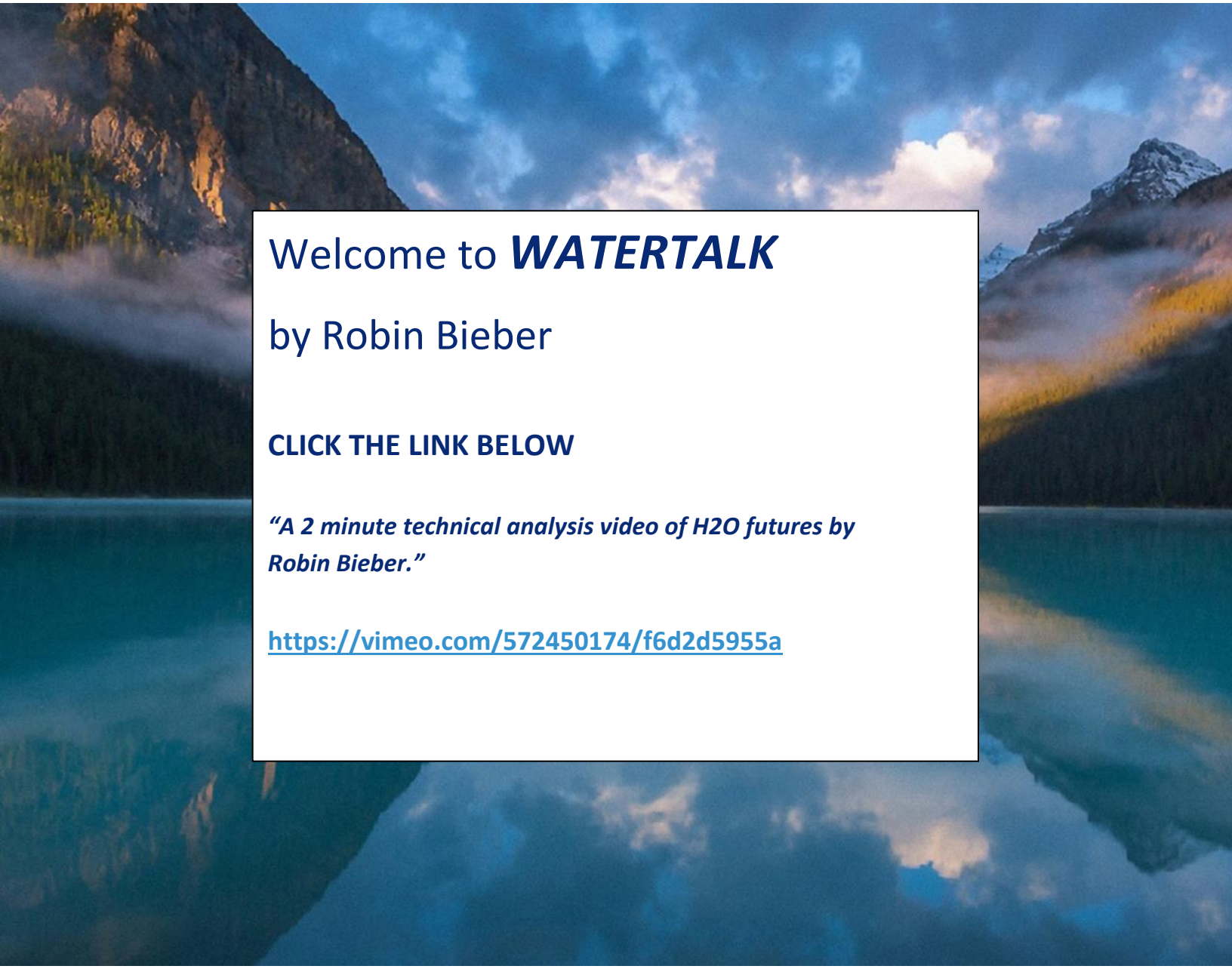
VelesWater

WATER FUTURES MARKET ANALYSIS



Welcome to ***WATERTALK***

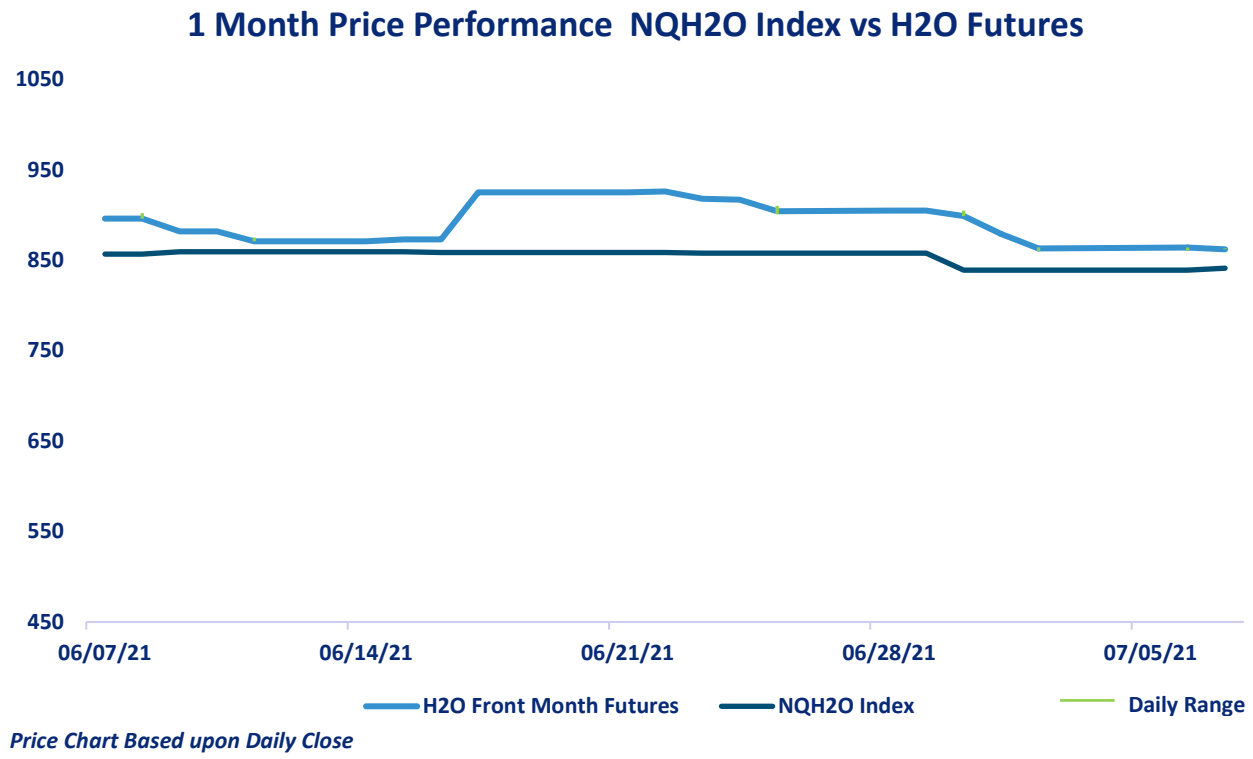
by Robin Bieber

CLICK THE LINK BELOW

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

https://vimeo.com/572450174/f6d2d5955a

NQH2O INDEX PRICE vs H2O FUTURES PRICE



On June 7th the new index level was published at $841.21, up $2.21 or 0.28%. Over the past week the futures have been trading at a premium to the index of $20-$40. 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 3 weeks. The futures high of the week was on July 1st at $879 and the low of the week was on the 2nd at $860.

The NQH2O index is up 68.30% Year to Date.

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

July is 855@863

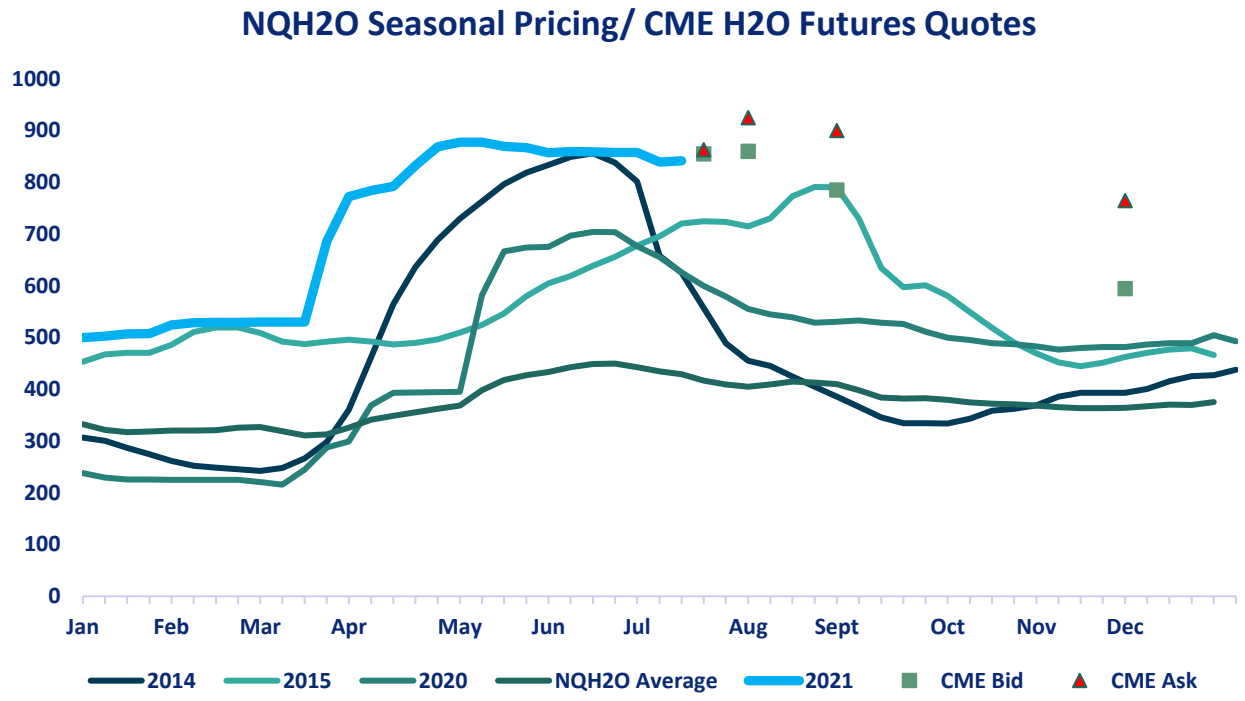
August is 860@925

September 785@900

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 seasonality in the trading of water, with prices peaking in summer and tapering off in winter.

NQH2O INDEX HISTORY



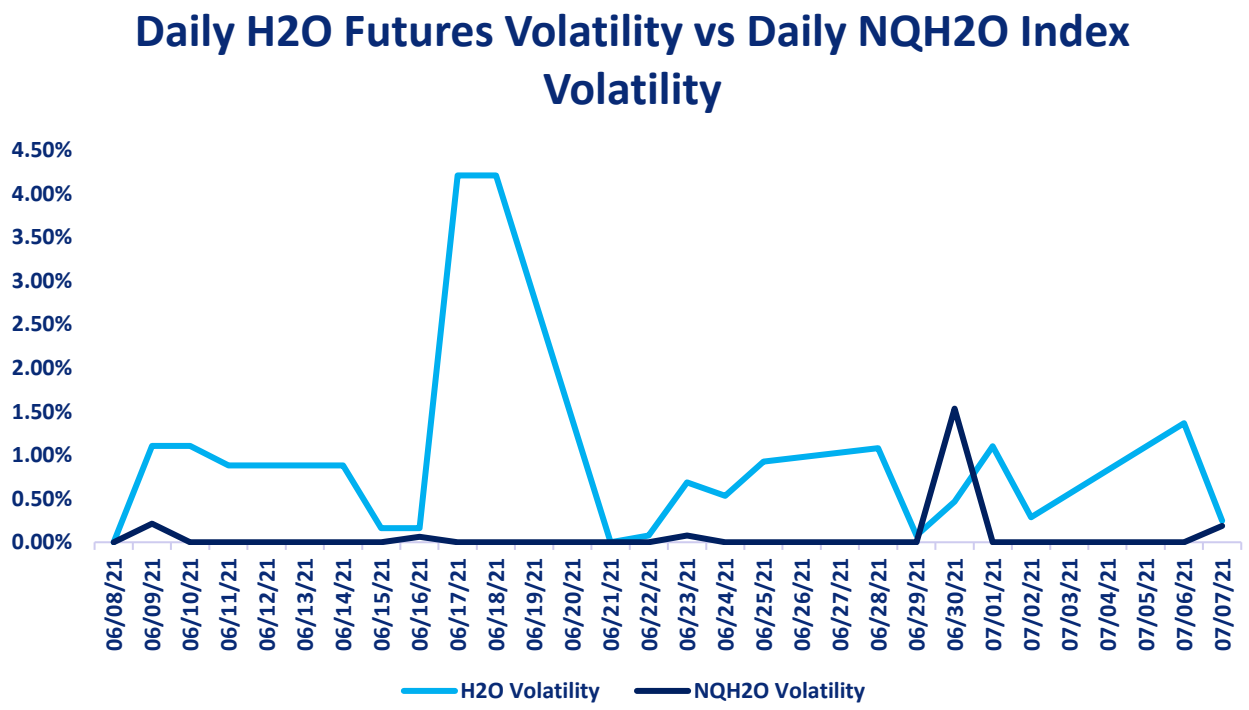
The graph above lays out the Nasdaq Veles water index by year, showing 2014, 2015 2020, 2021 plus an average price of the last eight years. In very dry years, prices clearly rise through the spring, peaking in May to July (with the exception of 2015) as demand for water from farmers peaks. Prices then 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.

H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS



ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	34.56%	2.52%	2.22%	2.43%
H2O FUTURES	N/A	9.99%	7.29%	2.21%

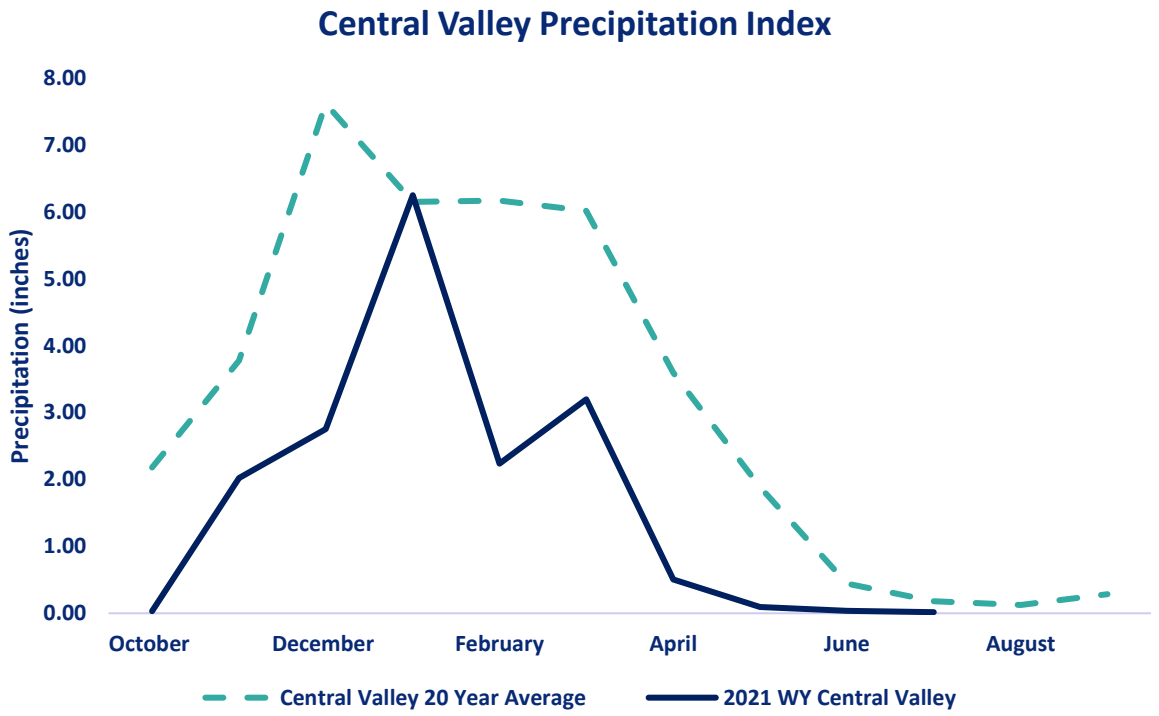
For the week ending on the 7th July the two-month futures volatility is at a premium of 7.4% to the index up 2.29% from the previous week. The one-month futures volatility is at a premium of 4.47% to the index, up 0.6% for the week. The one-week futures volatility is at a discount of 0.22% to the index down 0.51%, implying the week ahead may have show limited volatility.

DAILY VOLATILITY

Over the last week the July future volatility high has been 1.37% on July 6th and the low has been 0.25% on June 29th.

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

CENTRAL VALLEY PRECIPITATION REPORT



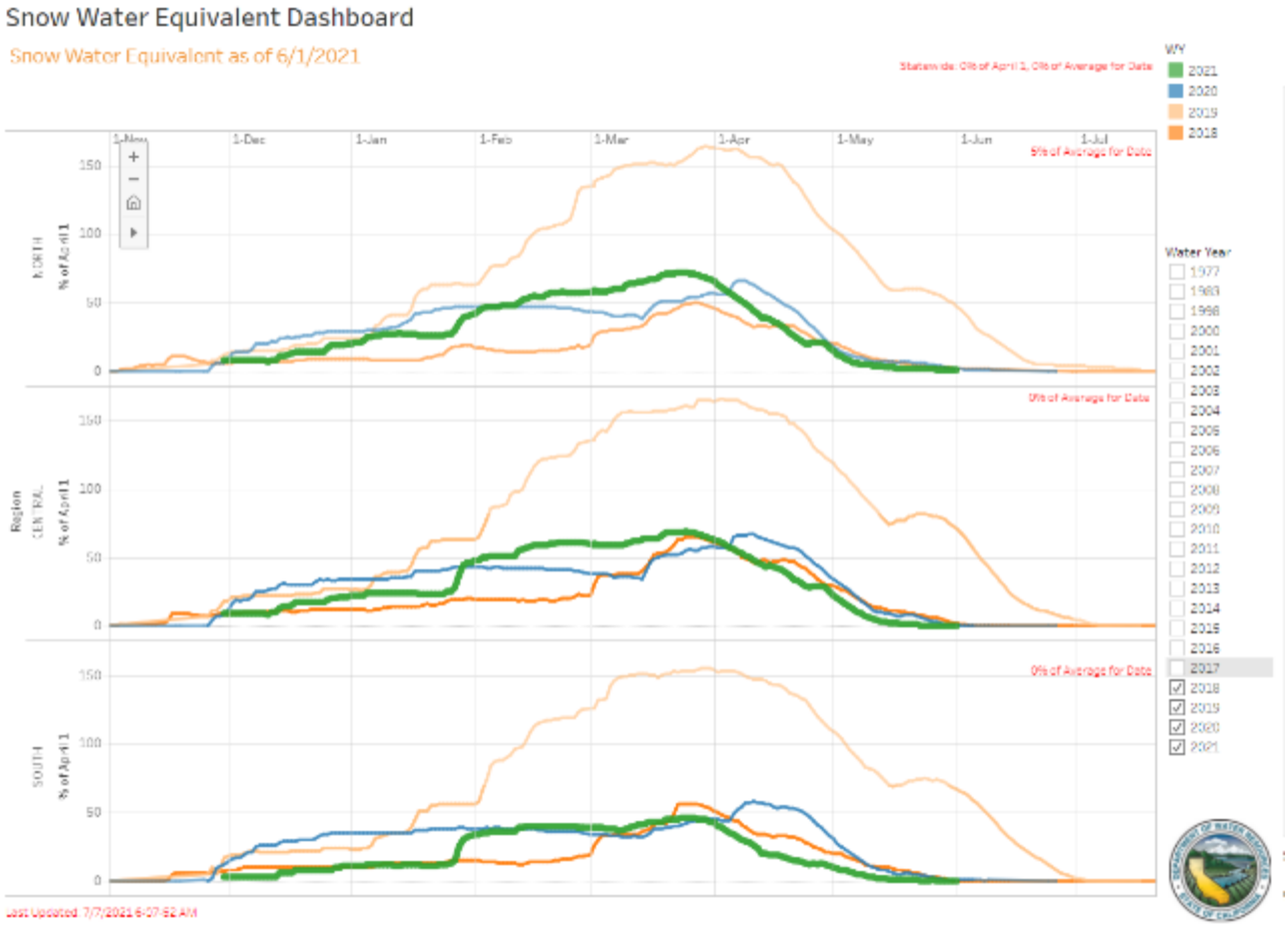
Central Valley average is calculated using data from 19 weather stations in the Central Valley, California.
Data as of 07/07/2021

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	0.01	5.35%	63	47
TULARE 6 STATION (6SI)	0	0.00	0.00%	67	34
NORTHERN SIERRA 8 STATION (8SI)	0.04	0.04	33.90%	63	46
CENTRAL VALLEY TOTAL	0.05	0.05	13.08%	64	42.33

RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,137,163	46	71	55
SHASTA LAKE	1,698,470	37	67	47
LAKE OROVILLE	1,089,224	31	60	38
SAN LUIS RES	630,267	31	51	51

SNOWPACK WATER CONTENT



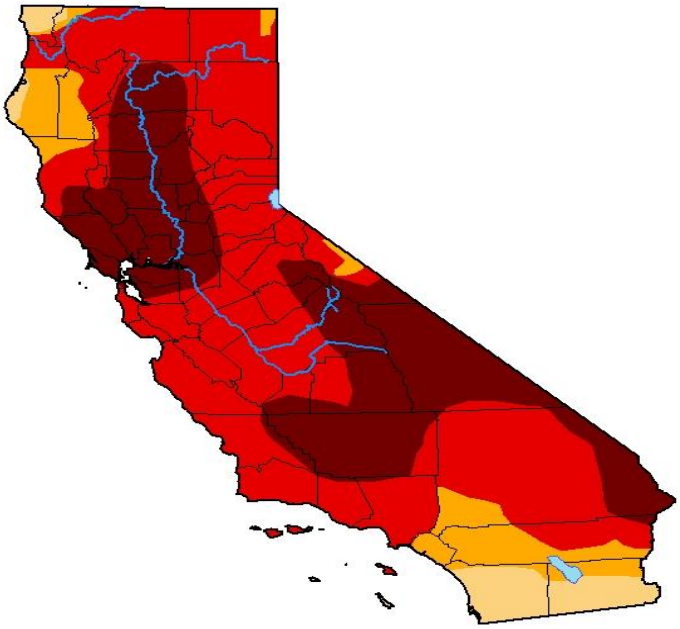
REGION	*SNOWPACK WATER EQUIVALENT (INCHES)	WEEK ON WEEK CHANGE %	% OF AVERAGE LAST YEAR	% OF 20 YEAR HISTORICAL AVERAGE	% OF HISTORICAL **APRIL 1ST BENCHMARK
NORTHERN SIERRA	0.2	0.00%	9	5	1
CENTRAL SIERRA	0	0.00%	3	0	0
SOUTHERN SIERRA	0	0.00%	3	0	0
STATEWIDE	0.1	0.00%	3	0	0

***Snow Water Equivalent*, or SWE, is a commonly used measurement used by hydrologists and water managers to guage 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



June 29, 2021
(Released Thursday, Jul. 1, 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 06-22-2021	0.00	100.00	100.00	94.73	85.44	33.32
3 Months Ago 03-30-2021	0.77	99.23	90.66	64.02	31.76	5.36
Start of Calendar Year 12-29-2020	0.00	100.00	95.17	74.34	33.75	1.19
Start of Water Year 09-29-2020	15.35	84.65	67.65	35.62	12.74	0.00
One Year Ago 06-30-2020	41.79	58.21	46.74	20.84	2.45	0.00

Intensity:

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

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

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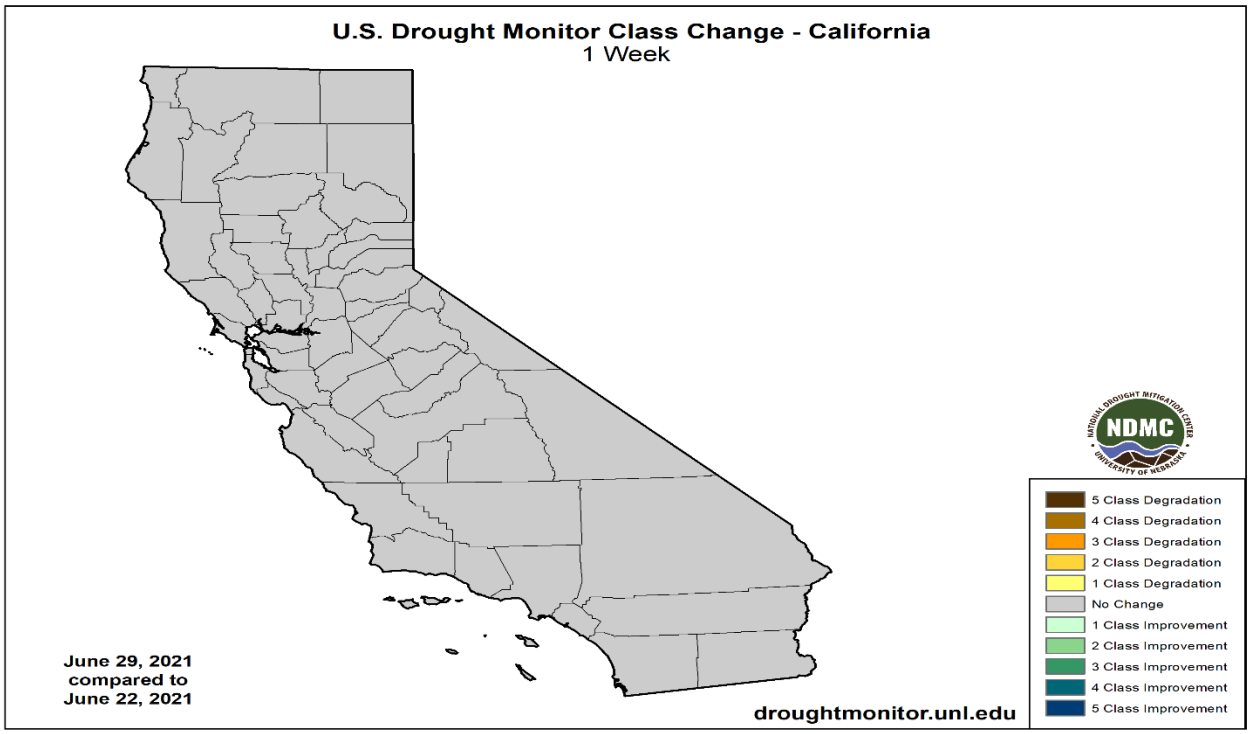
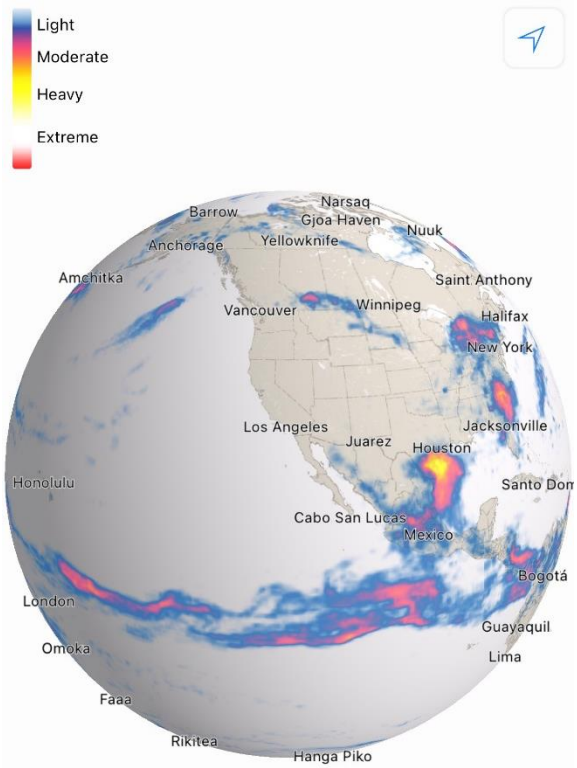
droughtmonitor.unl.edu



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



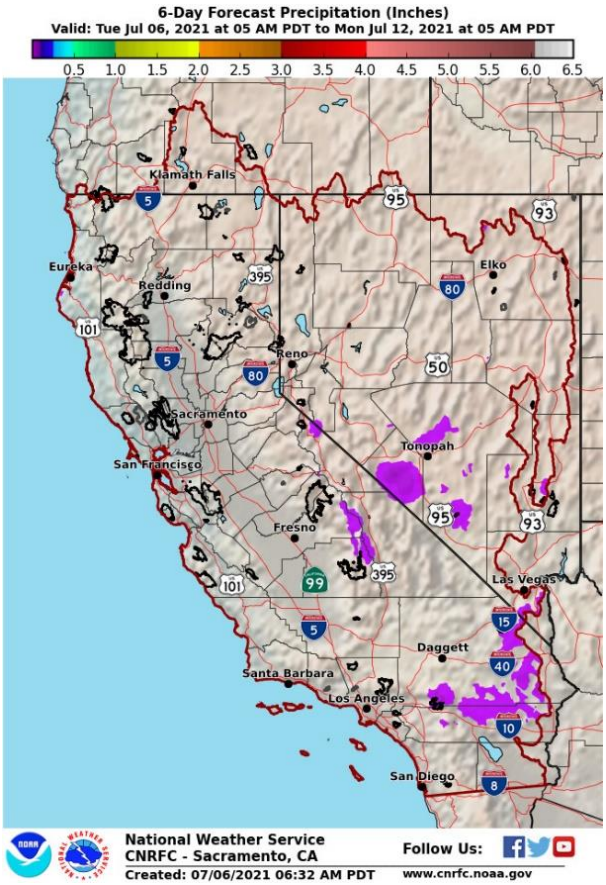
Since last week's report there has been little precipitation in California. The weather pattern we reported on last week had been held east by the Sierra with the Northern and Central Regions seeing small amounts of precipitation. Some Monsoon effect is still possible in SE Arizona.

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 3 weeks without significant change. Conditions still remain dry. Increased wildfire warnings have been issued.

Ref. Dark Sky

10 Day Outlook

High pressure aloft over the SW U.S. is expected to provide dry conditions with temperatures well above average for the next few days. By Fri into the weekend, expect flow aloft to turn a bit more southeasterly, allowing limited moisture advection into the region and the potential for a few mainly afternoon showers over portions of the Sierra, western NV, and southern CA. Temperatures should remain well above average through the period.



CALIFORNIA WEATHER DISCUSSION

Over the past week California has seen rising temperatures and this trend is showing no signs of letting up with highs expected to hit triple digits in some regions over the weekend. With the increased temperatures comes the elevated risk of wildfires.

According to the National Weather Service the threat of monsoonal weather is lurking on the horizon. Whilst thunderstorms are not forecast, dry lightening could develop which has historically caused some of the largest wildfires in the state.

Reservoir storage is still worrying low and California's major reservoirs sit around 50% lower than they were a year ago. This is mainly due to poor precipitation levels in the winter and well below average snowpack in the Sierra. Poor soil moister levels meant that when the snow in the Sierra did melt in the spring the run-off into the states streams, river and reservoirs was well below average as absorption rates were exceptionally high.

WATER NEWS

US: California water futures trading will increase price transparency – consultant

The trading of water futures that began late last year will increase price transparency in California, where farmers are seeing access restricted to state water allocations, an expert has said.

In December, water joined gold, oil and other commodities traded on Wall Street, highlighting worries that the life-sustaining natural resource may become scarce across more of the world.

Kevin Assemi, a farmer in Fresno and partner in Water & Land Solutions, an agricultural water and land use consulting firm, told Reuters that the state's water market is opaque, despite having a robust water infrastructure system.

The state is divided into hundreds of water districts, all of which have their own local environmental and municipal approval process, and may also have to deal with federal regulations, he said.

Assemi told the publication he is a "big advocate" of having a futures market because it could bring more attention to issues that affect water supply.

Dewane says the discrepancy in groundwater and imported water costs throughout California shows the inefficiency in water pricing, and by publishing the price of water in a futures contract would increase transparency. Seeing that price would help people understand the value of water.

Original Article: Fresh Fruit Portal

California Farmers Finding New Ways to Navigate Water Risk

California is in the grips of another devastating drought, brought on by hot temperatures, reduced water levels from the Colorado River, and less mountain snowpack.

It was only two years ago that the Golden State exited a five-year drought that sharply curtailed water use, and now farmers are facing another water shortage. In March, U.S. Department of Agriculture Secretary Tom Vilsack designated most of California as a primary disaster area, and in May, Governor Gavin Newsom declared a drought emergency in 41 of the state's 58 counties, including many agricultural producers.

The Drought Monitor shows widespread drought across California, with northern areas of the state, including counties such as the San Joaquin valley and Napa and Sonoma in exceptional drought, and southern areas including Los Angeles and Orange County in severe to extreme drought.

That's caused water restrictions throughout the state for all water users to some degree: agricultural, commercial and residential. That's caused water restrictions throughout the state for all water users to some degree: agricultural, commercial and residential.

But drought-like conditions aren't the only challenges California ag producers and other users face. Increasing demand on existing water supplies, climate change and regulations have had their own impacts. Necessity, though, spurs innovation and improved technology has made water users much more efficient, and a new water futures contract may help improve price transparency to the region.

Original Article: Reuters by Debbie Carlson

Could a New Futures Contract Help California's Ag Producers?

From almonds to zucchini, California generates a bountiful alphabet soup of foods readily available at your local supermarket or favorite restaurant. But there's one precious commodity the most populous U.S. state, and the country's top agricultural producer, never seems to have enough of: water.

California and its water have long had a complicated relationship. In recent years, severe drought and wildfires in the U.S. West, combined with concerns over climate change, only intensified the debate over how to serve the needs of the state's fruit and vegetable growers, residents in and around major cities like Los Angeles and San Francisco, and the environment.

California water is very much a "market," valued at $1.1 billion according to WestWater Research, and it's a market that has evolved to the point where, some argue, it's ready for an exchange-traded financial vehicle, like a futures contract, to help farmers and other stakeholders gain greater visibility into market conditions and better manage risks.

In December, CME Group launched a futures contract based on the Nasdaq Veles California Water Index (ticker symbol H2O). The index tracks the price of water rights leases and sales transactions across the five largest and most actively traded regions in California.

Roland Fumasi, head of Food & Agribusiness research at RaboBank North America, said recent shifts in California's agricultural industry underscore the need for greater price transparency and risk management in the water market. In the Central Valley, for example, many growers moved from "annual" crops to "permanent" plantings – trees and vines that require water year-round.

"From an economics perspective, it's critical the water we have goes to its best use, and many of these permanent crops offer growers the highest revenue per acre to maximize the value of the water they have access to," Fumasi said. "We also must be mindful of the environmental needs in California and recognize California's importance globally in food production. There will be an increasing need to make water purchases and utilize something like a futures contract to hedge market risk."

Original Article: Institutional Investor by Bruce Blythe

Drought: The end of California's groundwater free-for-all

The water spigots on California farms will soon be twisted tighter.

As the state faces a growing threat from drought, an increasing number of water agencies are planning to require flow meters on agricultural wells, part of a landmark effort to measure and constrain pumping that used to be free and unlimited. It's a controversial step aimed at protecting water supplies that could change cultivation practices in the Golden State's thirsty fields.

"It's hard to be as efficient as possible if you don't know how much water you're using," said Sierra Ryan, interim water resources manager for Santa Cruz County.

Under the state's tough new groundwater protection law, "we now have a legal obligation to manage our groundwater sustainably," she said. "And we cannot manage the basin with such large uncertainties in our water use."

The new approach is a major shift. Since California's early rough-and-tumble frontier days, the ability to pump water from a private well on personal property has been an agricultural birthright. If you owned the land, the thinking went, you owned the water under it. So while cities charge residents based on the amount of water they use, rural well owners did not need to report – or measure – their pumping.

Even as aquifers drained, causing the land to sink and seawater to intrude, "well meters" were fighting words. The only way for officials to gauge pumping was to take aerial photos or track electricity consumption.

But the 2014 Sustainable Groundwater Management Act — SGMA, pronounced "sigma" — changes all that. It was adopted during the state's last devastating drought, when farmers relied on their wells for survival and pumped from aquifers like never before.

The law asserts that groundwater is a shared resource. While it upholds a farmer's right to pump, it imposes rules on its use. For the first time in California history, managers of the state's 140 most overdrawn groundwater basins must balance the amount of water being pumped from, and recharged into, aquifers by 2040. It allows increased pumping during drought only if no major problems result.

Managers of the most imperiled aquifers submitted their sustainability plans in January 2020. Santa Cruz County, for instance, aims to protect its groundwater in a multi-part plan of metering, conservation and recycling. In the Salinas Valley, a basin manager also will require metering.

Original Article: Mercury News by Lisa M. Krieger

Lake Mead level continues to drop, affecting power production

Hoover Dam is home to one of the largest hydropower plants in the United States. And more than half the electricity it produces is sent to California.

But its ability to send that electricity has been dwindling and the reservoir levels at the dam have been sinking to record lows.

On a visit to the dam, it doesn't take long to see just how low Lake Mead has fallen.

Photos provide a drastic comparison. A picture of the reservoir in November of 2000 shows just how much water has disappeared compared to a more recent view, when the reservoir was at a record low.

"If you look at it on the reservoir here, you'll see that we're down about 158 feet from full pool. That's what we euphemistically call the bathtub ring," said Doug Hendrix of the Bureau of Reclamation. "I mean, we've been creeping down to this level for quite some time … for the last 22 years."

The bureau, which runs the dam, gave us a tour to explain the problems the drought is causing. And it's not just the water supply.

It's the power supply, too.

Lake Mead's water is used to spin the turbines that produce electricity at Hoover Dam. It's one of the largest hydropower plants in the United States.

Original Article: 8 News LV by Chip Yost

Water is disappearing in the West -- and not just during the summer

Skiers and snowboarders pray for snow so they can shred the slopes. Climatologists and hydrologists have an entirely different and more critical reason to cross their fingers for the "white gold."

The West's historic drought has many impacts, including water shortages, more severe wildfire seasons and unprecedented heat waves, to name a few. Intense droughts are a result of many factors, one of which scientists have recently began to analyze with more scrutiny: snow drought.

Though the impact is most intense in the summer months, when rain is sparse and temperatures are high, droughts actually start to take shape during the winter.

One of the West's largest and best water reservoirs is snow on mountaintops. Water falls as snow in the winter and stays frozen (ideally) through late spring. When the snow melts, the water runs down into rivers and fills human-made reservoirs, just in time for the summer heat.

Snow runoff is a critical fresh water source around the world; around a sixth of Earth's population uses runoff for drinking, farming, power and other uses, according to the National Oceanic and Atmospheric Administration.

A snow drought in the West appeared early last winter, according to the National Integrated Drought Information System. The paltry snowpack, paired with well-below normal rainfall and extreme heat, is at the core of the region's water-supply concerns.

On Thursday, the US Drought Monitor reported 93% of the West is in drought, the most expansive drought in that region in modern records.

The melt runoff is particularly critical in California, where snow on the Sierra Nevada provides about 30% of the state's water. And one of the areas hardest hit by snow drought this year was the Sierra range.

California has three major reservoir types, said Claudia Faunt, a hydrologist for the California Water Science Center: Surface reservoirs -- such as Oroville and Shasta -- groundwater, and snowpack, which "melts and feeds the surface water system."

Faunt told CNN the amount of water in the snowpack and the timing of when it melts is critical for surface reservoirs.

"Reservoirs are managed to have water available to meet the demands of farming and also recreation, and municipal supplies," Faunt said. "If there's not much snowpack or it melts a lot earlier, it impacts how reservoir operations are done and how much water is pumped from groundwater."

Original Article: CNN by Hannah Gard

Water risk likely to be three times higher than carbon risk

The potential financial impact from water risk is expected to be thrice as high as that from carbon risk, Barclays has found.

In a research note published June 14, analysts at the UK-based bank identified water scarcity as “the most important environmental concern” for the global consumer staples sector, which is the most exposed sector to water risk.

Barclays said water scarcity could result in a $200 billion impact on this sector, which includes everything from food and beverages to agriculture and tobacco.

It estimated that the global consumer staples sector will incur a cost of $11 billion in the redressal of proactive water management. The cost of inaction is around 18x higher than the cost of action.

Global MNCs such as Unilever, Colgate and Reckitt Benckiser could potentially face a 40-to-50 percent EBITDA impact, even in the less extreme of Barclays’ possible scenarios.

Beth Burks, director of sustainable finance at S&P Global Ratings, referred to water as “one of those classic externality risks” due to its hereditarily low prices, which are now rising across the world.

The average price of water rose by 60 percent in the 30 largest American cities between 2010 and 2019, according to data analysis by Barclays. California Water Futures have constantly increased by as much as 300 percent in recent years, Barclays said.

Water scarcity is really important because there will be serious problems when it runs out, Burks told CNBC.

Barclays added that agricultural commodities are extremely vulnerable to water price fluctuation. They face operational risks and disruption from occurrences such as floods or droughts, and legal cases linked to pollution and higher fines therein. Companies such as Coca Cola (India) and Constellation Brands (Mexico) have postponed plans to create new facilities due to water-related concerns.

The British bank found that mentions and comments on "water" in company transcripts rose 43 percent in 2020 compared to 2019. This jump reflected an increasing corporate awareness of the risks related to clean water and sanitation.

Original Article: CNBCTV 18