

Veles Water Weekly Report

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

July 22nd 2021

Authors:

Lance Coogan - *CEO*

Joshua Bell - *Research Analyst*

research@veleswater.com

+44 20 7754 0342





WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell standing in for Robin Bieber

CLICK THE LINK BELOW

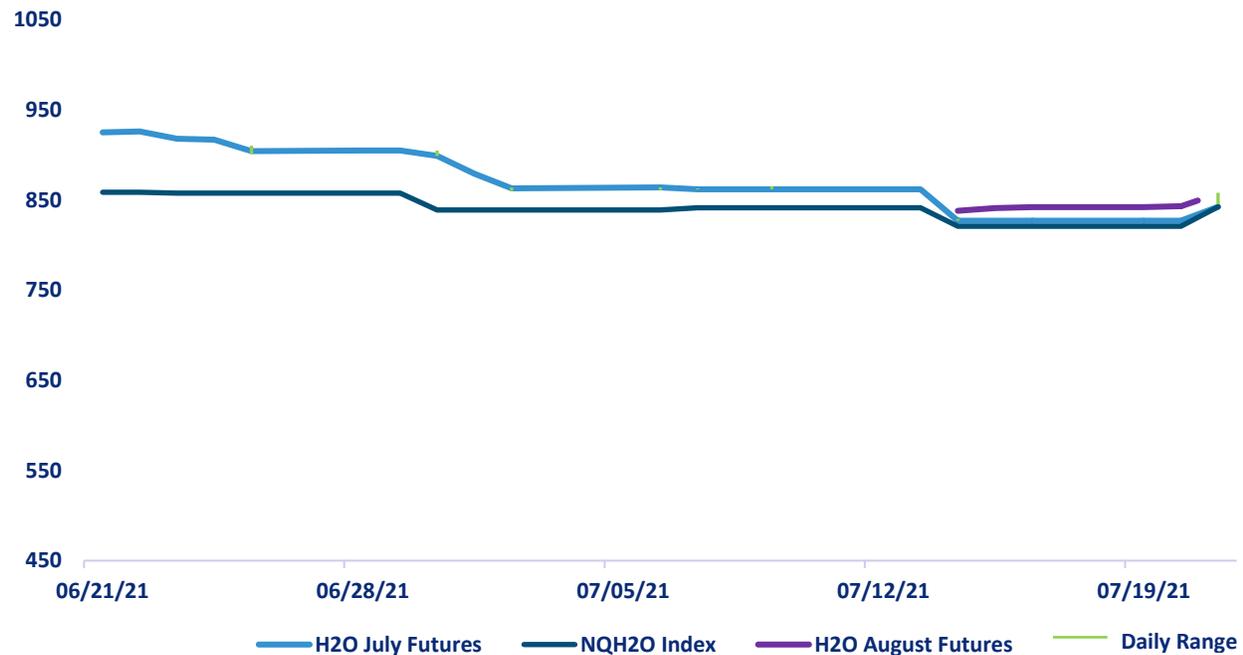
"A 2 minute technical analysis video of H2O futures"

<https://vimeo.com/577942944>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

1 Month Price Performance NQH2O Index vs H2O Futures



Yesterday the 21st July marked the expiry of the July H2O futures which settled at \$842.38, up \$21.52 or 2.62%. Over the last week the future had been trading at a premium of \$6.14. The August contract has now become the front month, the premium has increased to \$14.62. Yesterday, July 21st the August contract closed at \$857. Over the past week this contract has traded between \$838-\$857.

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

August is 838@848

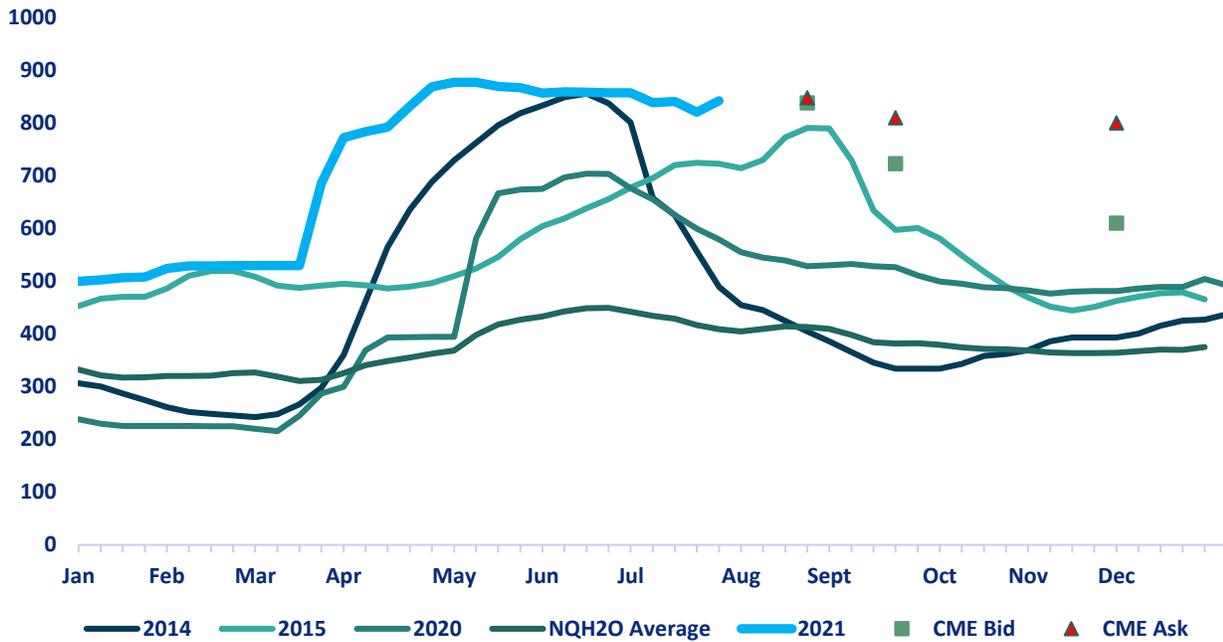
September 723@810

December 610@800

The December offer price is still cheaper than the August and September bids. The August bid to December offer is minus \$38. This is indicating a significant implied seasonality in the trading of water, with prices peaking in summer and tapering off in winter. NQH2O index is up 68.53% up Year to Date.



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.

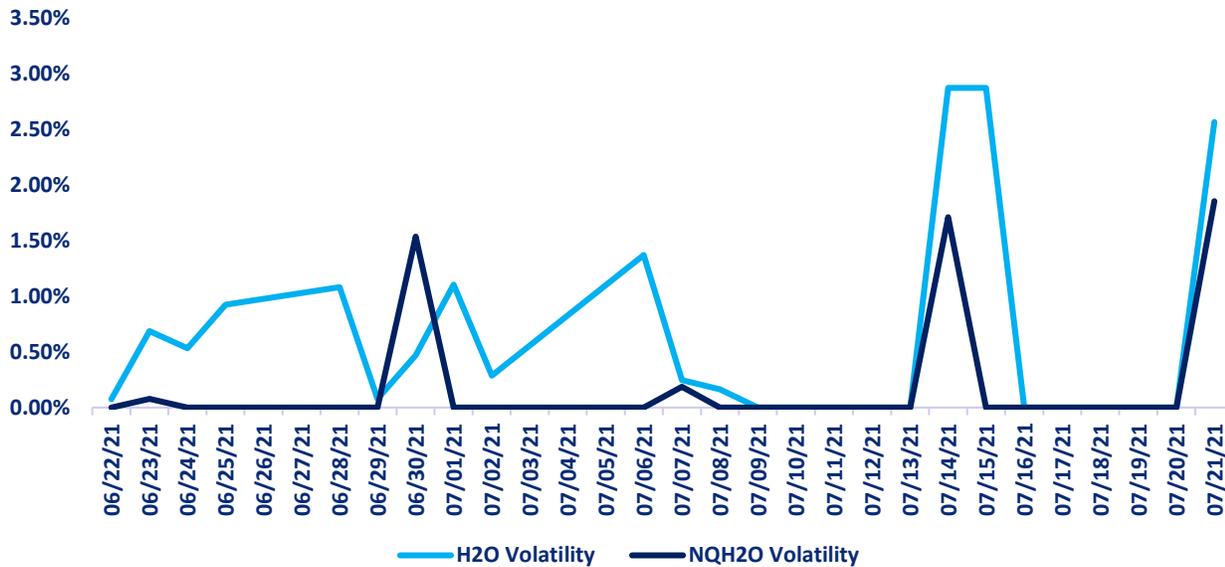
The restricted ability to “carry” water, much like one can do with financial contracts, gives this index the same type of seasonal pattern that one sees on some other commodities.

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.



Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	34.03%	4.04%	4.73%	5.041%
H2O FUTURES	N/A	9.92%	6.35%	5.44%

For the week ending on the 21st July the two-month futures volatility is at a premium of 5.88% to the index down 1.66% from the previous week. The one-month futures volatility is at a premium of 1.62% to the index, down 3.71% for the week. The one-week futures volatility is at a premium of 0.40% to the index, down 0.54%. this lessening of the differential in the short-term volatilities indicates some level of price stabilization in both the index and the futures.

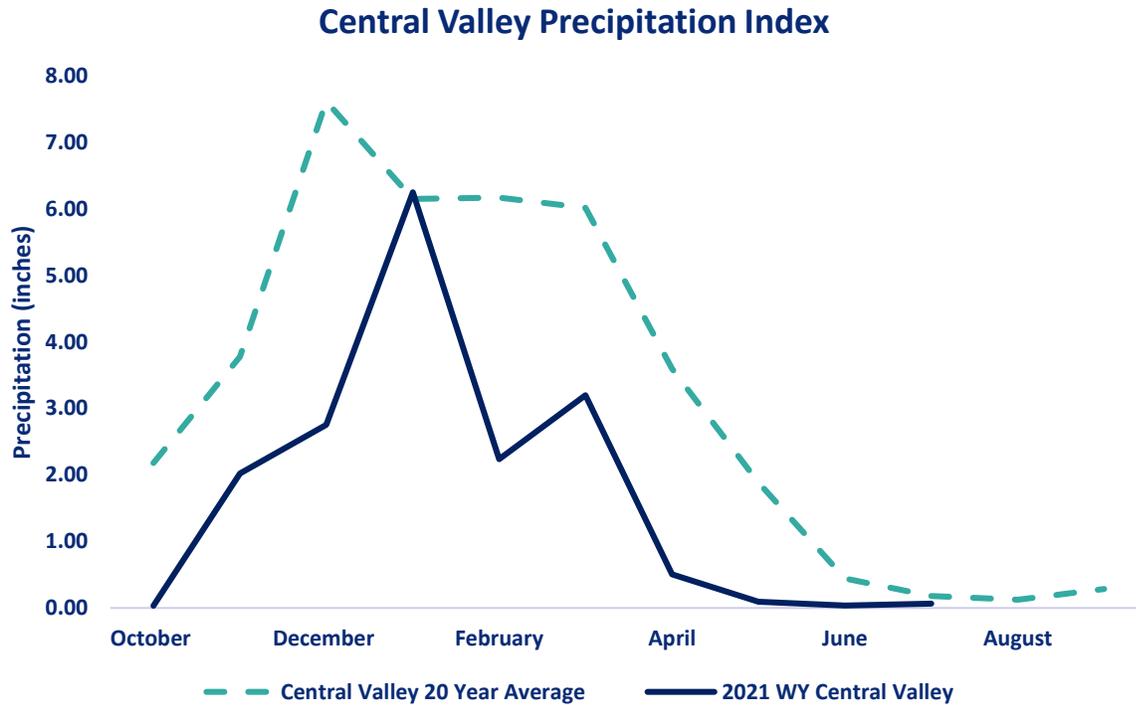
DAILY VOLATILITY

Over the last week the July future volatility high has been 2.57% on July 21st and the low has been 0% on June 16th – 20th.

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 21/07/2021

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)	0.03	0.03	16.04%	63	47
TULARE 6 STATION (6SI)	0.12	0.08	51.72%	66	35
NORTHERN SIERRA 8 STATION (8SI)	0.04	0.04	33.90%	62	46
CENTRAL VALLEY TOTAL	0.19	0.15	33.89%	64	42.67

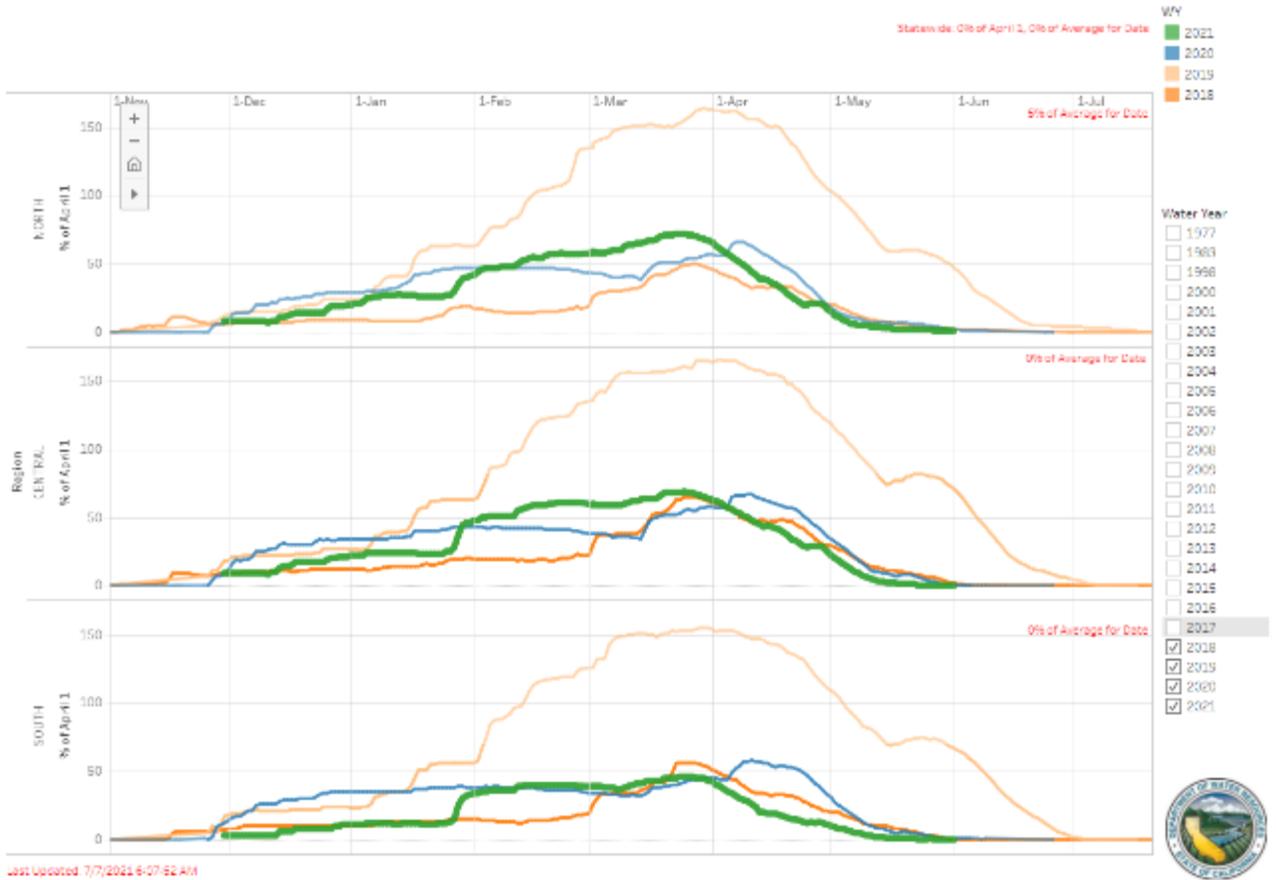
RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	1,066,370	44	69	53
SHASTA LAKE	1,561,284	34	63	46
LAKE OROVILLE	970,790	27	56	36
SAN LUIS RES	508,667	25	48	46



SNOWPACK WATER CONTENT

Snow Water Equivalent Dashboard



Last Updated: 7/7/2021 6:07:52 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	0.2	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.

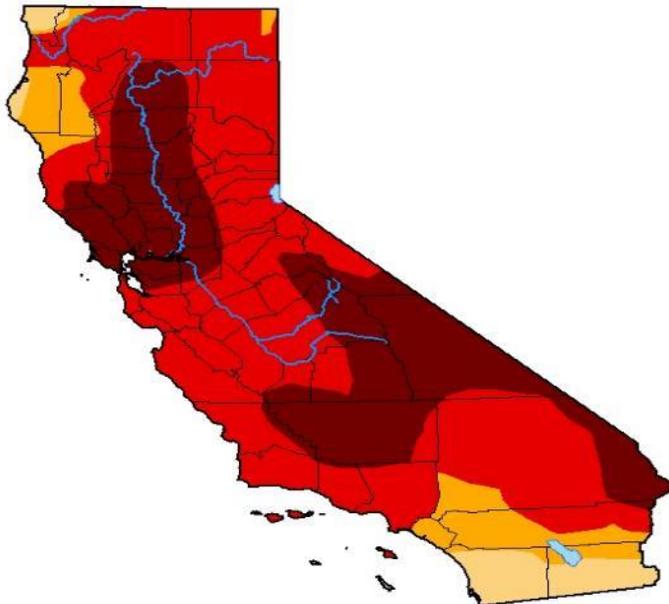
VELES WATER WEEKLY REPORT

DROUGHT MONITOR



U.S. Drought Monitor California

July 13, 2021
(Released Thursday, Jul. 15, 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	94.75	85.73	33.32
Last Week 07-06-2021	0.00	100.00	100.00	94.73	85.44	33.32
3 Months Ago 04-13-2021	0.78	99.22	94.14	76.97	38.68	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 07-14-2020	40.38	59.62	48.19	21.50	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:

Adam Hartman
NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu

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



July 13, 2021
compared to
July 6, 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

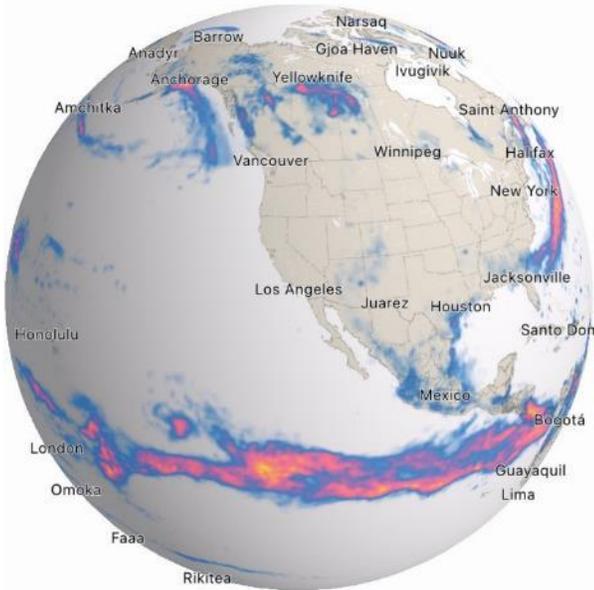
droughtmonitor.unl.edu



CURRENT SATELLITE IMAGERY



The US Drought Monitor release their statistics with a 1-week lag to this report. Drought conditions have remained largely unchanged from the previous week apart from a small region on the CA/AZ border.

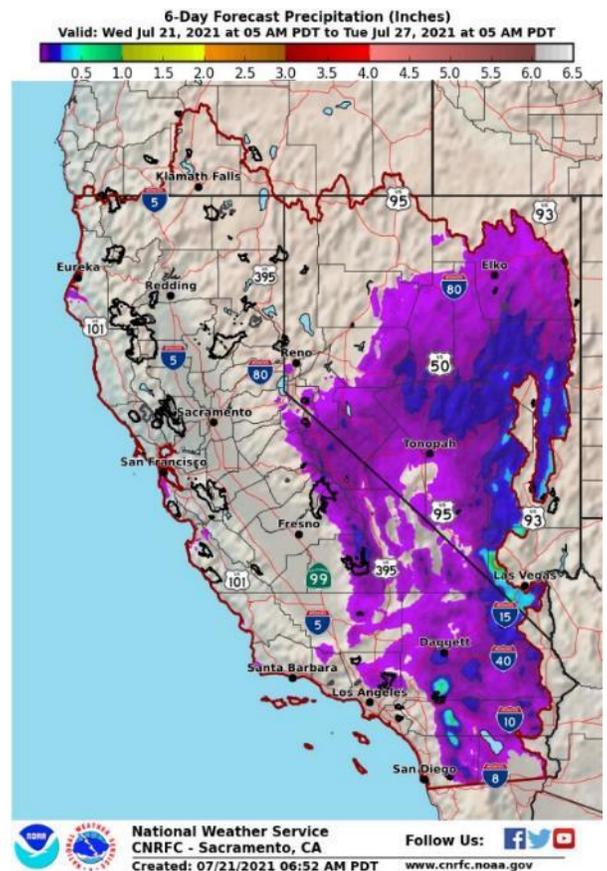


Over the past week monsoon conditions have moved north through Mexico delivering small pockets of precipitation in the Southern and Central regions of the Sierra and along the CA/AZ border. Our models indicate this may continue over the next month.

Ref. Dark Sky

10 Day Outlook

High pressure has begun shifting towards the four corners, limiting moisture over the region. As such, expect afternoon showers and thunderstorms to dwindle today, and remain limited to areas near the CA/AZ border and southeastern NV. Over the weekend, high pressure may shift somewhat and allow for monsoon activity to shift back into NV and over the Central and Southern Sierra. Otherwise, dry conditions will prevail across the area with temperatures slightly above seasonal normal.





CALIFORNIA WEATHER DISCUSSION

Hot, windy weather, thunderstorms and other challenging firefighting conditions prompted officials to call for more resources and issue new evacuation notices as two fast-moving wildfires in Oregon and California continued to grow.

Officials working on the more than 388,000-acre Bootleg Fire in south central Oregon—the largest fire now burning in the U.S.—warned the fire would continue to spread over the next several days due to tinder-dry vegetation and winds reaching 25 miles an hour. In Northern California just south of Lake Tahoe, wind from nearby thunderstorms increased the spread of the 39,045-acre Tamarack Fire as new evacuation orders were set Monday evening.

The blazes are among 83 large wildfires burning more than 1.2 million acres across 13 states, according to the National Interagency Fire Center. Nearly 20,000 firefighters are working to contain the flames, with the highest number of fires in Montana, Idaho, Oregon, California and Washington. Smoke extended as far east Tuesday as the New York metro area, the National Weather Service.

The National Weather Service issued red-flag warnings in Idaho, Wyoming, parts of Montana, Washington, Oregon and northern California Tuesday. The warnings indicate gusty winds and low relative humidity in the area, creating “critical fire weather danger” that could accelerate the spread of existing or new fires.

Efforts to contain the Bootleg Fire have been so challenging that some firefighters have had to move off the front lines for designated safety areas 10 days in a row after assessing changing weather patterns and unburned vegetation, officials said Tuesday.

Original Article: [The Wall Street Journal by Jennifer Calfas](#)

A major California hydroelectric power plant could soon stop generating power amid worsening drought conditions.

According to state water officials, the Edward Hyatt Powerplant at Lake Oroville could go offline as soon as August or September — a time frame that would coincide with a feared power crunch this summer. The plant, which opened in the late 1960s, has never been forced offline by low lake levels before.

“I think it’s a bit shocking,” said Jordan Kern, a professor at the department of forestry and environmental resources at North Carolina State University. “The fact that it’s projected to go offline just speaks to how severe the drought is,” said Kern, who studies how power grids are impacted by extreme weather.



VELES WATER WEEKLY REPORT

California Energy Commission spokesperson Lindsay Buckley said the commission is actively planning for the power plant to go offline this summer. But the Hyatt power plant is far from the only hydroelectric power source in the state that will likely be affected by California's extreme weather.

Original Article: [Los Angeles Times by Julia Wick](#)

WATER NEWS

The Water Risks Facing California: New Index Offers Future Price Visibility

A new futures contract based on the Nasdaq Veles California Water Index provides longer-term visibility into the price of water, according to Roland Fumasi of RaboResearch.

California is facing another dry summer in 2021, and for agricultural producers, that means a difficult growing season. Drought emergencies have been declared for 41 California counties, mostly in Northern and Central California, home to the majority of the state's farmland. The situation has put a strain on the state's traditionally fragile water resources, resulting in water price spikes for producers looking to sustain their crops.

California is the top producing agricultural state by cash receipts. Its top five products by total value in 2019 were dairy, almonds, grapes, cattle and strawberries, according to the California Department of Food and Agriculture.

Traditionally, ag producers in the state have dealt with challenges of accessing scarce water supplies in one of a few ways, says Fumasi: Using reliable wells (up to 15,000 are drilled each year in the state), long-term contracting to buy water where there is an abundance, fallowing farm ground or buying additional surface water on the open market. "In the short run, that's where you can see users have to deal with a lot of price variability," says Fumasi.

Original Article: [The Street by Evan Peterson, CME](#)

Monsoon promises much needed rain for the parched West, but the prospect for lightning strikes could mean more fires

Monsoon season is in full swing in the West with no end in sight, bringing hopes of a dent in the unrelenting historic drought -- but with thunderstorms comes lightning and the potential for more wildfires.



VELES WATER WEEKLY REPORT

After enduring heat waves and years of minimal monsoonal moisture, the desert Southwest is seemingly back on track with an already above-average monsoon season.

The region expects to see temperatures below average all week due to the rainfall, bringing a welcome relief after extreme heat early in the summer.

"The unsettled regime will keep highs up to 5 to 10 degrees or so below normal over the southwestern US," said the Weather Prediction Center (WPC).

Cooler temperatures and widespread rainfall could help satiate the parched soil, and the WPC expects improvements to the drought as a result.

Northern California and southern Oregon will see elevated fire weather conditions on Monday due to the potential for dry thunderstorms in an area that is already devastated by the country's largest wildfire.

The Bootleg Fire, located near the border of California and Oregon, has seared more than 300,000 acres of forest. Fire officials have said that it might take a significant weather event to put it out.

"We are experiencing extremely dry conditions with record to near-record temperatures. Conditions on the ground due in part to the historic drought have accelerated the fire season. The combination of the weather and fuel conditions have led to the rapid growth of the fire," Fire spokesperson Katy O'Hara told CNN.

Original Article: [CNN by Hannah Gard and Monica Garrett](#)

California drought: La Niña could dash hopes of desperately needed rain this winter

The punishing drought conditions afflicting most of California are expected to endure for months, climate experts with the National Oceanic and Atmospheric Association said Thursday.

There is a 60% chance, NOAA experts said, of a La Niña event this winter — conditions that would likely bring about a cool and very dry winter.

Swaths of California, including nearly all of the Bay Area, is in the worst, or “exceptional” drought category.

Last month, just over 15% of the contiguous U.S. recorded record-breaking temperatures in June. Numerous pockets across the globe shattered all-time heat records.

Weather forecasters do not anticipate much more rain in San Francisco for the rest of the year. The city received only 6.81 inches of rainfall so far in 2021, 65% lower than what would be considered normal.



VELES WATER WEEKLY REPORT

Last year looked much the same: San Francisco only got 5.86 inches of rain, said Eleanor Dhuyvetter, a meteorologist with the National Weather Service. With the city's average yearly rainfall of 20 inches, the last two years have exhibited among the worst and unusual drought conditions.

Original Article: [San Francisco Chronicle by Omar Shaikh Rashad](#)

California Department of Water Resources to Use Innovative Airborne Technology to Map State's Groundwater Basins

The California Department of Water Resources (DWR) is using an innovative, helicopter-based technology to gather information about the state's groundwater aquifer structure to support drought response and the implementation of the Sustainable Groundwater Management Act (SGMA).

DWR's use of airborne electromagnetic (AEM) surveys advances Governor Newsom's Water Resilience Portfolio goal of using technology to support the State's understanding of groundwater resources.

"The data collected during these surveys will provide a better understanding of California's groundwater systems, and in turn support more informed and sustainable groundwater management and drought preparedness and response approaches," said Steven Springhorn, DWR's SGMA Technical Assistance Manager.

Beginning this month, DWR will conduct AEM surveys of groundwater basins in the Salinas Valley, Paso Robles and Cuyama Valley. During the surveys, a low-flying helicopter tows a large hoop with scientific equipment approximately 100 feet above the ground surface. The helicopter, flown by experienced and licensed pilots, will make several passes over the survey areas and may be visible to residents.

Surveys will be conducted over the next several years in high- and medium-priority groundwater basins around the state, where data collection is feasible.

Original Article: [Sierra Sun Times/ CA DWR](#)

Seaspan completes \$750m offering of blue transition bonds

Canadian containership owner/operator Seaspan Corporation has successfully closed its issuance of \$750m in senior unsecured notes. The notes are being issued in connection with Seaspan's Blue Transition Bond Framework (BTBF), which is designed to align with the guidelines of the International Capital Market Association's Green Bond Principles 2021 (GBP). The GBP identify best practices in financial instruments that enable capital-



VELES WATER WEEKLY REPORT

raising and investment for new and existing projects with intended environmental benefits.

Seaspan intends to allocate the net proceeds of the offering to acquire, finance or refinance new and/or existing eligible projects consistent with its BTBF. The transaction furthers Seaspan's sustainability efforts, advances its sustainability-linked capital structure, and adds liquidity to support additional growth opportunities.

Original Article: [Splash 272 by Kim Biggar](#)

'We're all in the same boat'

It's going to be a long, hot summer, and water-stressed communities across New Mexico are feeling the heat.

Water managers from around the state and several federal agencies gathered in Albuquerque on Thursday to discuss drought and water resilience.

Tanya Trujillo, the U.S. Interior Department assistant secretary for water and science, said her agency is working to offer immediate relief for large water systems in the Colorado and Rio Grande basins, but also long-term resources for individual communities.

"There's no doubt that the conditions this year have been more drastic than we anticipated," said Trujillo, a former New Mexico Interstate Stream commissioner who now oversees the Bureau of Reclamation and the U.S. Geological Survey. "Climate change effects are playing out through droughts and water supply concerns around the West."

The Bureau of Reclamation announced this week a \$15 million drought relief distribution to Klamath Basin irrigators in Oregon and California.

Original Article: [Albuquerque Journal by Theresa Davis](#)

EPA evaluating water rule, definition again

Last month, federal officials announced plans to revise the definition of the "waters of the United States" (WOTUS) as defined in the 2020 Navigable Waters Protection Rule (NWPR).

The 2020 definition, enacted by President Donald Trump's administration, detailed waters that do not fall under federal jurisdiction through the Clean Water Act (CWA) to include features only containing water in direct response to rainfall, groundwater, many ditches, farm and stock watering ponds, waste treatment systems and prior converted cropland.



VELES WATER WEEKLY REPORT

The NWPR followed up on rulemaking by the Trump Administration to repeal the Obama-era WOTUS rule that many agricultural organizations, including Texas Farm Bureau (TFB), said jeopardized farms and ranches by allowing EPA to define stock tanks, ditches and even fields as WOTUS.

“After reviewing the Navigable Waters Protection Rule as directed by President Biden, the EPA and Department of the Army have determined that this rule is leading to significant environmental degradation,” U.S. Environmental Protection Agency (EPA) Administrator Michael Regan said. “We are committed to establishing a durable definition of ‘waters of the United States’ based on Supreme Court precedent and drawing from the lessons learned from the current and previous regulations, as well as input from a wide array of stakeholders, so we can better protect our nation’s waters, foster economic growth and support thriving communities.”

The EPA and Army said they are aware of 333 projects that would have required permitting under CWA prior to the NWPR. At the agencies’ direction, the Department of Justice (DOJ) filed a motion in the U.S. District Court of Massachusetts requesting remand of the rule.

In response, Sens. Joni Ernst and Chuck Grassley introduced the Define WOTUS Act to legislatively define WOTUS so a “reasonable” definition of the term would be permanent.

“The Obama-Biden WOTUS rule was an egregious overreach, giving the federal government authority to regulate water on 97 percent of the land in Iowa, and I fought tirelessly to scrap the absurd rule and replace it with one that provides more certainty to Iowa’s hardworking families, farmers and businesses,” Ernst said. “As the Biden administration seeks to undo this work, it’s more important than ever to ensure a new, reasonable WOTUS definition is made permanent—which is exactly what this bill would do.”

Other lawmakers appear to be concerned about the Biden administration’s move to rescind NWPR, as well. In a June 9 Senate Appropriations Committee’s Subcommittee on Interior, Environment and Related Agencies hearing, Alaskan Sen. and Committee Ranking Member Lisa Murkowski asked Regan not to engage in regulatory overreach, saying it was “imperative” to engage with Congress and “consider all perspectives before taking action.”

Original Article: [Texas Farm Bureau by Jennifer Whitlock](#)



VELES WATER WEEKLY REPORT

How diverse are cities' water supplies — and are they enough?

Drought raises questions about how much communities have stored

When it comes to supplies of water, many local cities are dependent on one far-away source: the San Francisco Regional Water System, which comes from the Sierra Nevada, mainly the Hetch Hetchy reservoir. Numerous Peninsula cities get 100% of their water from this supplier.

But the West's deepening drought and recent calls for Californians to voluntarily reduce their water use by 15% have residents starting to wonder: Just how resilient are local water systems in the event of a long-term drought or an emergency?

Data from the Bay Area Water Supply and Conservation Agency (BAWSCA) indicates that local cities have little in the way of alternative or local sources to their imported water supply. Storage is also limited.

Some communities are better diversified than others. Mountain View and Stanford have perhaps the greatest amount of diversity; East Palo Alto has no emergency source other than through tie-ins with surrounding cities who also rely on Hetch Hetchy supplies.

Even the well-diversified supplier Valley Water, also known as Santa Clara Valley Water District, is dependent on imported sources of water from the San Francisco Bay-San Joaquin Delta and Hetch Hetchy supplies.

Groundwater, local storage and recycled supplies would not be enough to offset a loss of water from these life-sustaining sources if they run dry. Valley Water's current concerns perhaps illustrate just how vulnerable the Bay Area's water supply can be. Anderson Reservoir, the largest in Valley Water's storage system, has been reduced to nearly a puddle since federal authorities mandated a seismic retrofit that will take a decade to complete. The water district's other major water supplies from the San Francisco Bay-San Joaquin Delta have also been vastly reduced by state and federal authorities to provide additional needed water for wildlife and natural fisheries.

California has experienced multiple, extended periods of dry weather since 1895, and one of the most exceptional occurred between 2011 and 2017, according to the National Oceanic and Atmospheric Administration's National Integrated Drought Information System.

Original Article: [Palo Alto Weekly by Sue Dremann](#)



Kern River at lowest water levels since 2014

The California Department of Water Resources monitors the Full Natural Flow (FNF) from Lake Isabella. That's rain, snowmelt, and any groundwater that makes it to the river.

In 2017, the river had a level of 167. That dropped to 33 the next year. It rebounded in 2019 and then dropped once again last year to 20.

Because it's been so dry this last year a lot of the snowmelt was absorbed into the ground and never made it to the river.

Water Year 2020 was California's 13th driest based on statewide precipitation and 5th driest based on statewide runoff. It is likely that the present water year will end up being drier, possibly coming in at second driest for runoff (behind 1977) for some parts of the state. Present very dry and warm conditions increase the risk of a dry 2022 because of moisture deficit in the hydrologic system, including depleted soil moisture. Above-average precipitation would be needed to achieve average runoff.

California Department of Water Resources

The reading for this year is registering as an 8 - the lowest since 2014. That's when Kern County had the last drought.

Original Article: [23 ABC by Anthony Wright](#)

Drought Threatens to Close California Hydropower Plant for First Time

A California power plant likely will shut down for the first time ever because of low water during a prolonged drought, squeezing the state's very tight electricity supplies, state officials said yesterday.

The Edward Hyatt power plant, an underground facility next to Oroville Dam in Butte County, is expected to close in August or September, said John Yarbrough, California Department of Water Resources assistant deputy director of the State Water Project. The plant has run continuously since opening in 1967. It receives water from Lake Oroville, and that reservoir has dropped because of the drought, as CNN previously reported.

Lake Oroville is among several California reservoirs hit by drought.

In addition, "high heat events in California and the rest of the West have begun earlier than usual and have exceeded historic temperature levels," the California Energy Commission and California Public Utilities Commission leaders said in a July 1 letter to the California Independent System Operator (CAISO), the grid manager.



VELES WATER WEEKLY REPORT

The state's power system expects to lose about 1,000 megawatts of power generation as a result. While that's a fraction of a system with daily peak demand of 44,000 MW, supplies already are tight, said Lindsay Buckley, a California Energy Commission spokesperson.

"Based on our May projections, we really didn't have 1,000 megawatts to lose," Buckley said in an interview. "So it's something that we're now grappling with" related to the state's hydropower resources.

The Golden State's drought is connected to warming and is one of the many ways climate change is hitting the state and its power supplies, according to climate scientists. California also is struggling with the impacts of wildfires and extreme heat. State officials anticipate that to keep the lights on this summer, they will rely in part on residents cutting back their power use during peak demand hours, roughly from 4 to 9 p.m. local time.

Original Article: [Scientific American by Anne C. Mulkern](#)

Water Banks in Washington State: A Tool for Climate Resilience

Water banks—a tool for exchanging senior water rights and offsetting new ones—can address multiple problems in contemporary water law. In the era of climate change, water banks enable needed flexibility and resilience in water allocation. As growing cities require new water rights, water banks can repurpose old water for new uses. These advantages should lead the Washington State Legislature to incentivize water banks, but in the 2018 "Hirst fix" it embraced habitat restoration as a false equivalent for water. The Legislature is rightfully concerned about the speculation that some private water banks allow. But overall, water banks enable new and productive uses while maintaining water in streams. Moving forward, Washington should embrace water banks for each unique basin's needs.

Original Article: [Jennifer J. Seely, Comment, Water Banks in Washington State: A Tool for Climate Resilience, 96 Wash. L. Rev. 729 \(2021\).](#)

Farmers and ranchers in Utah have cut water use 70-75% compared to last year

With extreme drought conditions impacting all of Utah, all citizens of this state have been asked to take large measures to help sustain our limited water supply this year. Simple things such as taking shorter showers, installing water-efficient appliances and systems, and limiting the watering of our lawns are just a few examples of what has been asked of us to "Slow the Flow." However, each time a new plea to conserve water



VELES WATER WEEKLY REPORT

is issued, a wave of criticism of farmers and ranchers and their water use practices follows right behind.

While it is true that agricultural water use makes up the majority of Utah's water usage, there are many things about agricultural water use that are unknown to the general public, including many benefits that are provided to Utah's natural resources. Here are a few facts to consider:

- Agricultural water use has natural restrictions based on the regional precipitation, soil moisture and the amount of water runoff available from precipitation during the winter months. Once the water is gone, there is no more irrigation water for the fields.
- Farmers and ranchers are limited to what water rights they own or are available to them. They do not have unlimited access to whatever water they want or need.
- Water used for agricultural purposes is secondary, meaning it is untreated, unfiltered water that cannot be used for drinking or everyday human use.
- Projects that bring water to Utah's deserts and wildlands for livestock also help sustain wildlife year-round in those areas.
- Flood irrigation helps maintain water levels in household and municipal wells by recharging aquifers.
- Farmers and ranchers continually work toward adopting more efficient watering practices. Irrigation system upgrades have helped many increase their water efficiency and become up to 90% water efficient.

The Utah Department of Agriculture and Food is helping farmers implement more efficient irrigation systems through our Water Optimization Program. In the first year of projects, Utah farmers saved 27,910 acre-feet of water — that's about 9.1 billion gallons of water!

Most importantly, water used in agriculture provides the food and fiber that sustains us all. As we've discovered over the past year-and-a-half, the importance of local food security cannot be overstated. Local agriculture is the key to local food security.

Original Article: [The Desert News by Craig Buttar](#)s

Lake Mendocino is drying up, and 1,600 Russian River water rights are about to be halted

Water supplies in Lake Mendocino are shrinking at a faster rate than they were a month ago, raising the risk the reservoir could be depleted by fall and setting regulators up to



VELES WATER WEEKLY REPORT

halt diversions from the Russian River for about 1,600 water rights holders before the end of July.

Two-thirds of those diverters, including farmers, ranchers, vineyard operators, rural residents and municipal suppliers, already were put on notice a month ago, when authorities said not enough water existed in the upper river to support irrigation, household use and the watershed's imperiled fish species.

Now, amid the hottest and driest months of a deepening, two-year drought, regulators are poised to move forward with a more aggressive crackdown, called a curtailment of water rights.

It is likely to be unprecedented in scope, affecting hundreds of property owners along the upper river as well as public agencies, including the cities of Healdsburg and Cloverdale, that rely partly on the river for drinking water.

The action is meant to preserve minimal flows in the driest parts of the Russian River's main stem and dwindling supplies in Lake Mendocino, which, like larger Lake Sonoma, hit record seasonal lows even in early spring.

Supplies behind Coyote Dam at Lake Mendocino are now dropping close to a key threshold that will trigger regulators' move to halt downstream diversions.

Even as that grim scenario is unfolding, withdrawals from the river remain high between Cloverdale and vineyard-dense Alexander Valley.

That use has surprised water managers, especially after more than 900 water rights holders in the area were told starting last month that there was not enough in the upper river to sustain diversions for irrigation and household use. The notice stopped short of official curtailment but came with a host of potential fines — up to \$1,000 a day or more based on quantity of water used.

Original Article: [The Press Democrat by Mary Callahan](#)

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



VELES WATER WEEKLY REPORT

holders to curtail diversions more often and in more watersheds — or open opportunities to grab more water in climate-induced floods.

“California’s climate is changing rapidly, and historic data are no longer a reliable guide to future conditions,” according to the report, *Recommendations for an Effective Water Rights Response to Climate Change*. “The uncertainty lies only in the magnitude of warming, but not in whether warming will occur.”

The report says climate change will bring increased frequency and intensity of extreme weather events, such as atmospheric rivers and drought, prolonged fire seasons with larger fires, heat waves, floods, rising sea level and storm surges. Already, the state is experiencing a second consecutive dry year, prompting worries about drought. “The wet season will bring wetter conditions during a shorter period, whereas the dry season will become longer and drier,” the report said.

The State Water Board report catalogues 12 recommendations — inserting climate-change data into new permits, expanding the stream-gauge network to improve data and refining the means to manage existing water rights to ensure sufficient water is available to meet existing demands. At the same time, the report says, the State Water Board should build on its existing efforts to allow diverters to capture climate-driven flood flows for underground storage. Because floods and the magnitude of the peak flows are expected to increase under many climate change projections, “there may be greater opportunity to divert flood and high flows during the winter to underground storage,” the report said. The State Water Board could build on the flood planning data used by the Department of Water Resources to help inform water availability analyses and to spell out conditions for the resulting water right permits for floodwater capture.

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

As Climate Change Turns Up The Heat In Las Vegas, Water Managers Try To Wring New Savings To Stretch Supply

Las Vegas, known for its searing summertime heat and glitzy casino fountains, is projected to get even hotter in the coming years as climate change intensifies. As temperatures rise, possibly as much as 10 degrees by end of the century, according to some models, water demand for the desert community is expected to spike. That is not good news in a fast-growing region that depends largely on a limited supply of water from an already drought-stressed Colorado River.

With this in mind, the Southern Nevada Water Authority (SNWA), the wholesale water provider to more than 2 million people in the Las Vegas metro area, is seeking to drive



VELES WATER WEEKLY REPORT

down daily per capita water use (now at about 112 gallons), through wide-ranging, innovative and permanent conservation methods. The goal is to reduce daily water use to 98 gallons by 2035, even as projections indicate per capita water use could increase by nine gallons a day as the climate warms.

Meanwhile, the Colorado River Basin plunges deeper into historic drought that seems certain to lead to water supply curtailments for Nevada and Arizona. Cities in the arid Southwest for years have sought to drive down water use to stretch supplies. Now, a warming climate, continued population growth and increased water demand have raised the stakes. In response, SNWA aims to wring more water savings out of everything from ice machines and grassy medians to industrial cooling towers, an aggressive conservation effort that could provide examples for communities throughout the Southwest.

"We have been extremely successful helping the community embrace living in the desert and adopting a conservation mindset," said Marilyn Kirkpatrick, chair of SNWA's board of directors. "However, we have more work ahead to continue helping the community – especially new residents – use water as efficiently as possible."

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

Water deliveries ending early for local farmers as dry conditions continue

This year's surface water flow through Fresno Irrigation District canals is one of the shortest in history.

In a few weeks, this canal near Stan Morita's Biola farm will run dry because the 2021 water delivery season lasted for just the month of June.

"I can't remember when we only had one month of Fresno Irrigation District water," Morita said.

"Back in 2015, it was very similar," says FID General Manager Bill Stretch. "It was about the same duration. Probably prior to that, it would be 1977." Without canal deliveries, farmers in FID will rely on their pumps for the rest of the season.

"It takes much longer to irrigate with my pump, which is run by electricity rather than the canal water, which is coming from the mountains," Morita said. Morita expects his well will provide enough water to develop a large crop of Thompson seedless grapes.

Many farmers will pay a lot more to PG&E this year to irrigate. Morita says instead of taking four days to move canal water, he'll have to pump well



VELES WATER WEEKLY REPORT

water for two weeks, 24 hours a day.

"Last month, for a couple of weeks, it was over \$1,000 and that's one irrigation," he said. "I've done two already and I'll have to do at least two more this year." FID irrigation runs typically last five or six months as 450,000 acre-feet of water are moved around the district.

Original Article: [ABC 30 by Dale Young](#)

\$1.8 million grant to improve Shelby County water system

Shelby County received a \$1.8 million grant Tuesday, the first recipient to receive funding from the Better Kentucky Plan's \$250 million Cleaner Water Program.

The program will deliver clean drinking water and improve water and sewer systems across the state, creating approximately 3,800 jobs. The Shelbyville Municipal Water and Sewer Commission will use the funding to construct a new 36-inch gravity sewer main to the new Shelbyville Wastewater Treatment Plant. The new sewer main will replace two sewage pumping stations, one of which is at capacity and is prone to sanitary sewer overflows caused by heavy rain.

"The Shelbyville area has experienced considerable growth in recent years and the western area, served by the Shelbyville Municipal Water and Sewer Commission, is an attractive location for businesses and industries looking to expand," said Gov. Andy Beshear. "Eliminating the underperforming pump stations in Shelbyville's industrial park area with a new sewer main will ensure that citizens and businesses have reliable and operational water systems for years to come."

At a meeting of the Shelby County Water Management Council, members unanimously agreed to direct their entire \$1.8 million county allocation to the Shelbyville project.

"Shelbyville's existing wastewater treatment plant is nearing 90% capacity and a second treatment plant is under design with construction to be complete in 2023," said Shelby County Judge-Executive Dan Ison. "This new sewer main is necessary to get sewage to the new plant while avoiding sewage overflows. We're grateful for the funds and know they will be put to good use with this project."

"This project is essential for continued residential, commercial and industrial growth in our community and will enable us to continue the quality service that we offer to our citizens," said Shelbyville Mayor David Eaton. The Kentucky Regional Planning and Development Agency submitted the funding request to the Kentucky Infrastructure Authority (KIA), the agency responsible for administering the \$250 million Cleaner Water Program. Original Article: [WTVQ by Steve Rodgers](#)



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