

# 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. WESTERN WEATHER DISCUSSION
11. WATER NEWS
  - I. CA WATER NEWS
  - II. US WATER NEWS
  - III. GLOBAL WATER NEWS

---

September 16<sup>th</sup> 2021

Authors:

Lance Coogan - *CEO*

Joshua Bell - *Research Analyst*

[research@veleswater.com](mailto: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**

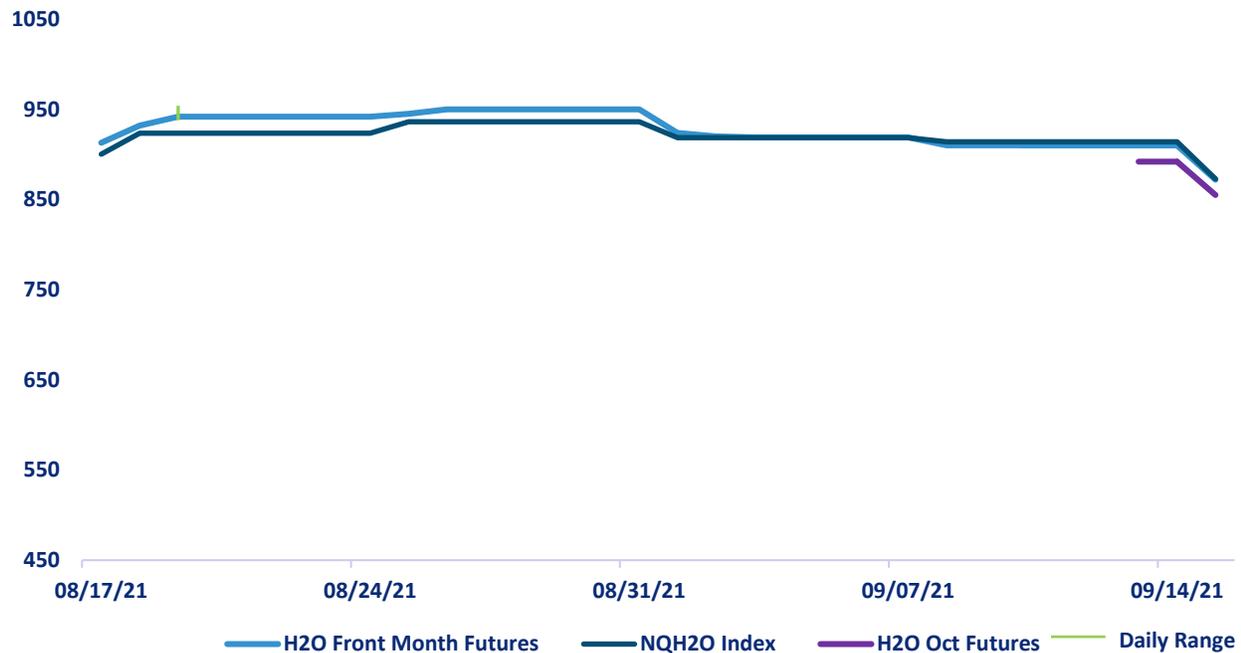
*“A 2 minute technical analysis video of H2O futures”*

<https://vimeo.com/606423657>



## NQH2O INDEX PRICE vs H2O FUTURES PRICE

### 1 Month Price Performance NQH2O Index vs H2O Futures



Price Chart Based upon Daily Close

The September Futures contract expired at \$873 on the 15<sup>th</sup> Sept, the Index was down \$41.04 or 4.49% from the previous week. Over the past week the September contract had been trading at a discount to the index of \$3.91. The October contract is now the front month contract and started trading on September 13<sup>th</sup> at \$892. With yesterday's new index level being published, the October contract traded at \$855.

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

October 859@865  
 November 819@843  
 December 771@830  
 June 22 960@1040

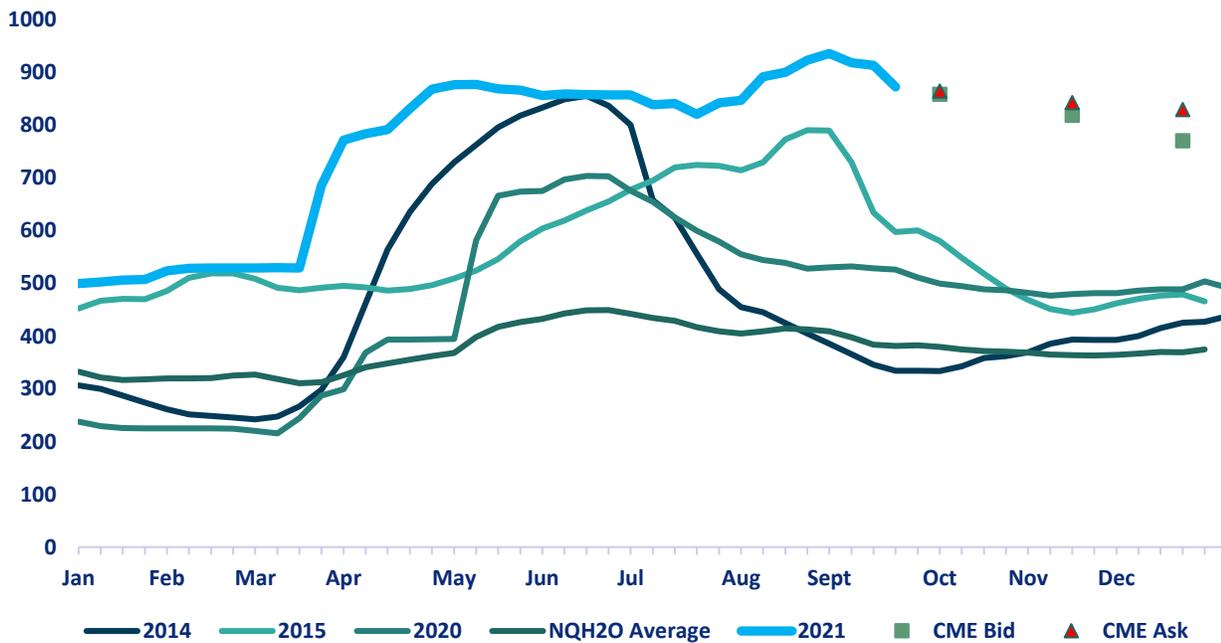
The December offer price is cheaper than the October bid by \$29. This is indicating a significant implied seasonality in the trading of water, with prices peaking in summer and tapering off in winter. NQH2O index is up 74.65% up Year to Date.

# VELES WATER WEEKLY REPORT

## 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.

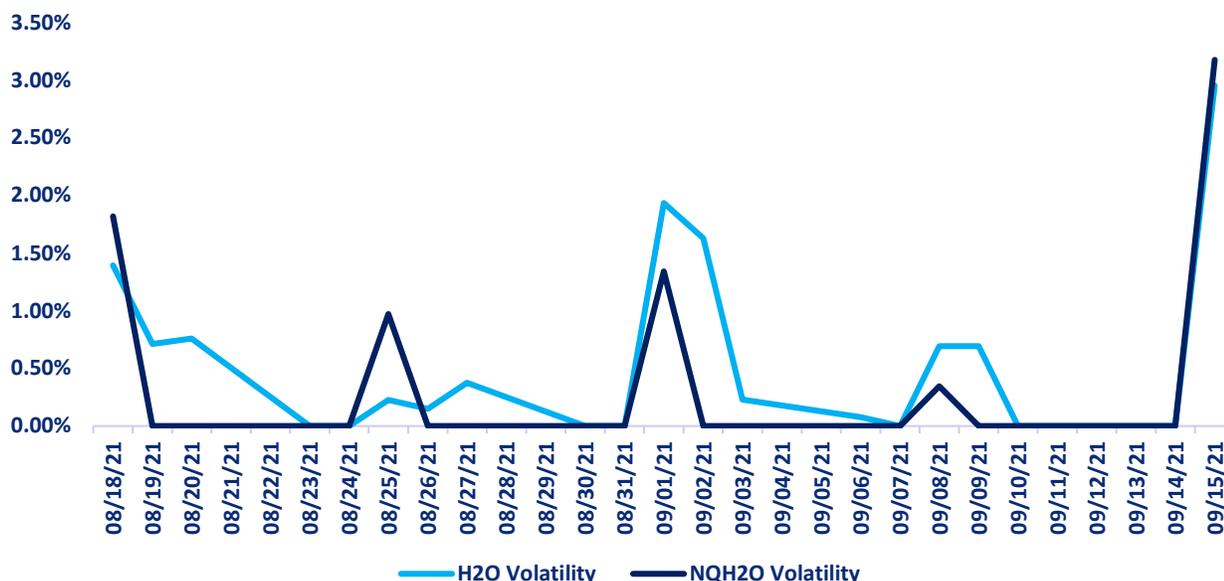
Current bids and offers in the market are still higher than historic prices showing that expectations are that this is an exceptionally dry year and prices may not fall seasonally as much as they have in prior dry years.

**(Reference: John H Dolan, CME Market Maker)**



## H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

### Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



#### DAILY VOLATILITY

Over the last week the September future volatility high has been 2.95% on September 15<sup>th</sup> and the low of 0% for rest of the week. This is a large relative volatility change and may be associated with a price trend reversal.

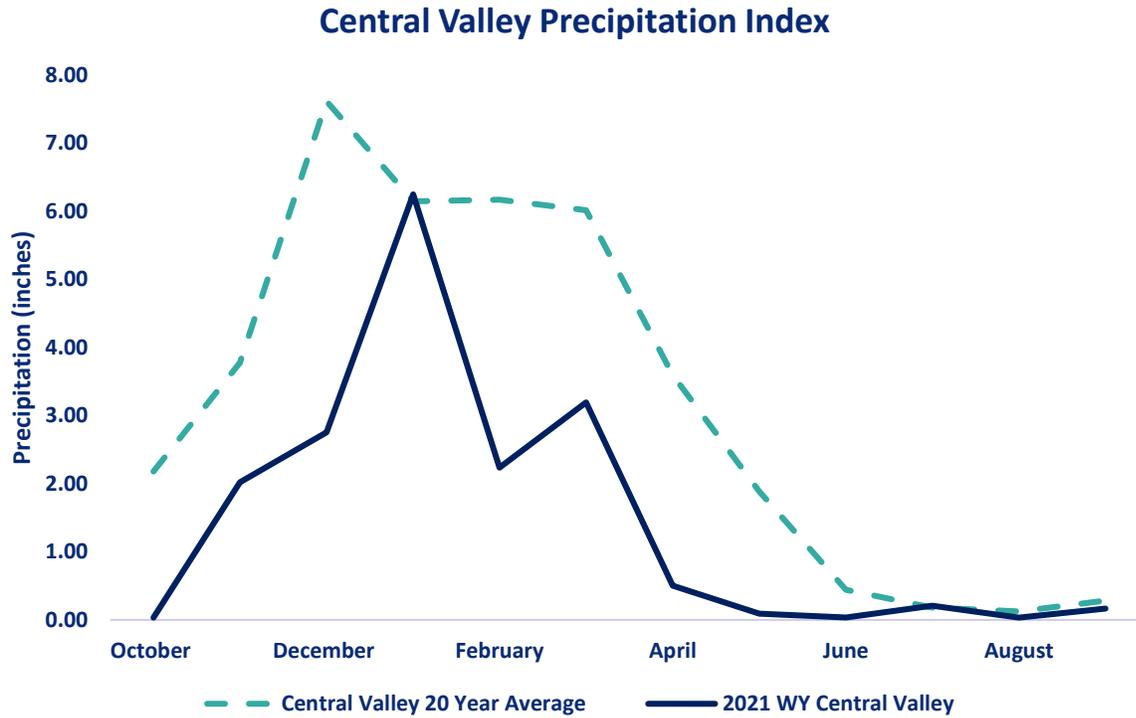
ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	33.94%	8.06%	4.94%	4.003%
H2O FUTURES	N/A	7.73%	5.18%	3.74%

For the week ending on the 15<sup>th</sup> September the two-month futures volatility is at a discount of 0.33% to the index, a reversal of 1.16% from the previous week. The one-month futures volatility is at a premium of 0.24% to the index, a reversal of 0.28% from last week. The one-week futures volatility is at a discount of 0.27% to the index, a reversal of 1.27%. This one week discount of the futures to the index can be attributed to the fact that the futures were starting to predict the downward price movement in the index over the last few trading weeks, changing from a premium to trading at a discount thereby having a lesser numerical move to make when the index changed.

*Above prices are all **HISTORIC VOLATILITIES** and **IMPLIED VOLATILITIES** will be introduced once an options market has been established. All readings refer to closing prices as quoted by CME.*



## CENTRAL VALLEY PRECIPITATION REPORT



Central Valley average is calculated using data from 19 weather stations in the Central Valley, California.  
Data as of 09/09/2021

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)	0.09	0.09	34.62%	62	47
TULARE 6 STATION (6SI)	0.1	0.10	90.50%	65	35
NORTHERN SIERRA 8 STATION (8SI)	0.31	0.31	63.85%	62	46
CENTRAL VALLEY TOTAL	0.50	0.50	62.99%	63	42.66

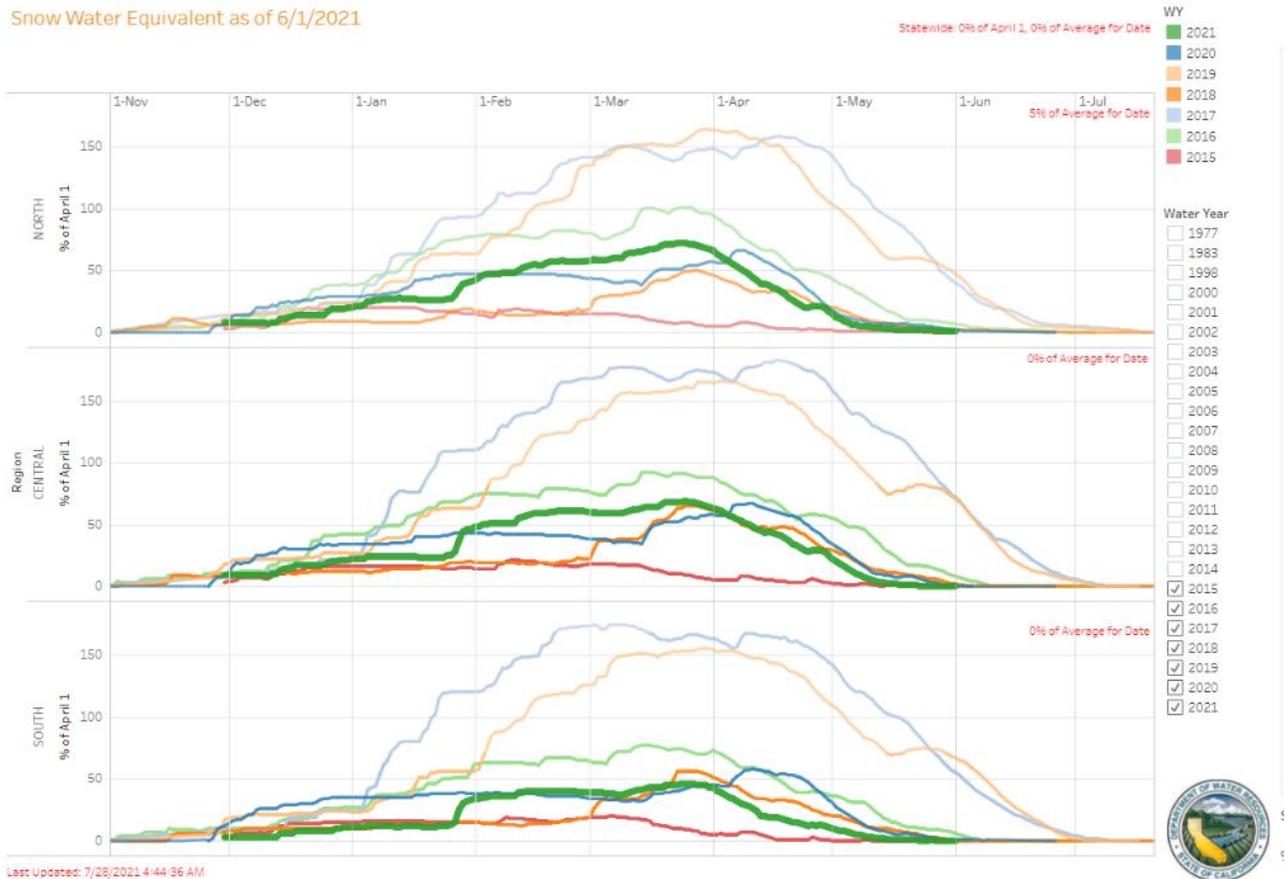
## RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	792,499	32	59	45
SHASTA LAKE	1,152,308	25	50	41
LAKE OROVILLE	790,900	22	47	35
SAN LUIS RES	249,803	12	47	28



# SNOWPACK WATER CONTENT

Snow Water Equivalent as of 6/1/2021



Last Updated: 7/28/2021 4:44:36 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	0.00%	0	0	0
CENTRAL SIERRA	0	0.00%	0	0	0
SOUTHERN SIERRA	0	0.00%	0	0	0
STATEWIDE	0	0.00%	0	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.

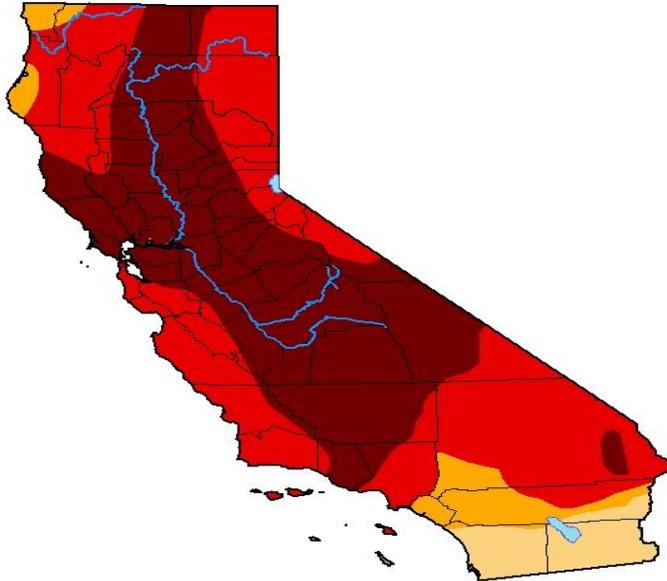
\*\* April 1<sup>st</sup> is used as the benchmark as it when the snowpack in California is generally deepest. It has been used the benchmark date since 1941 by DWR and can be used to predict spring river flow.



# DROUGHT MONITOR

## U.S. Drought Monitor California

**September 7, 2021**  
(Released Thursday, Sep. 9, 2021)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	100.00	93.93	87.94	45.66
<b>Last Week</b> 08-31-2021	0.00	100.00	100.00	95.56	88.37	47.40
<b>3 Months Ago</b> 06-08-2021	0.00	100.00	100.00	94.75	85.20	33.32
<b>Start of Calendar Year</b> 12-29-2020	0.00	100.00	95.17	74.34	33.75	1.19
<b>Start of Water Year</b> 09-29-2020	15.35	84.65	67.65	35.62	12.74	0.00
<b>One Year Ago</b> 09-08-2020	20.45	79.55	54.18	32.98	3.04	0.00

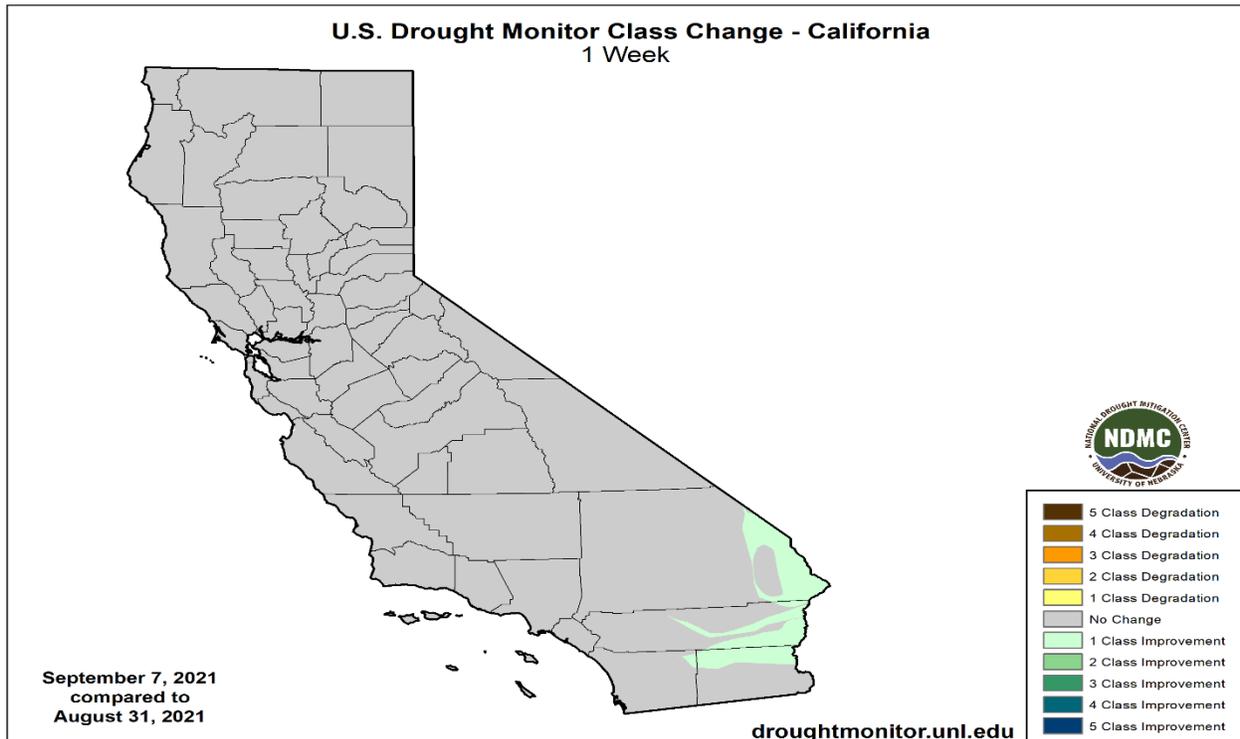
**Intensity:**  
 None (White)      D0 Abnormally Dry (Yellow)      D2 Severe Drought (Orange)      D3 Extreme Drought (Red)      D4 Exceptional Drought (Dark Red)

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:**  
David Simeral  
Western Regional Climate Center



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

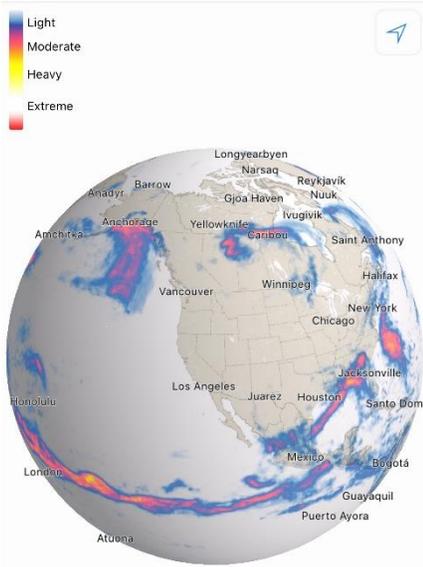


The US Drought Monitor release their statistics with a 1-week lag to this report. Over the past week there has been a 1.73% improvement in “Exceptional (D4)” Drought conditions along the southern CA/AZ boarder. There has been no change elsewhere in the state.

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 current satellite picture shows once again a very dry western region of the US. Monsoonal effects appear to have lessened for the week ahead.

Notably there is a frontal system in the NW Pacific moving towards Northern CA.

While it is still early in the year for winter rainfall our models are showing the potential for some increased rainfall to come from frontal conditions originating in the NW Pacific. Our long-term models show there may be an increased rainfall period heading into the New Year and the first quarter of 2022. Dependant on the strength of these frontal systems this may start bringing some welcome relief to the CA region over the next 6 month

period.

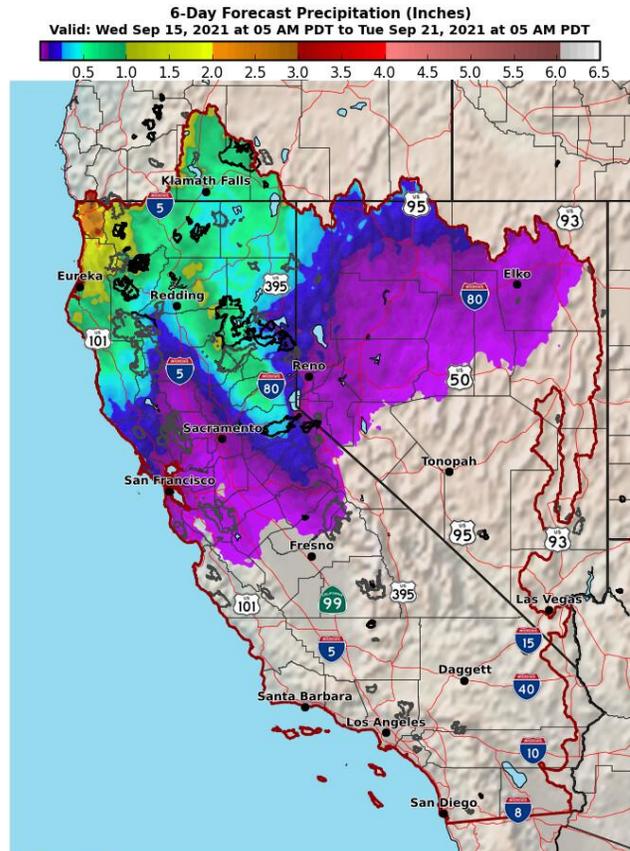
*Ref. Dark Sky*

## 10 Day Outlook

A blocking pattern is expected to remain in place through Wed, followed by weak troughing over the west coast Thu. A cold front is forecast to move across the northern CA/NV later Fri through the weekend. Models agreement regarding timing/amounts/placement of precipitation is moderate, and for the most part WPC was a good compromise between solutions.

Expect mainly light amounts to gradually spread across most of northern CA and parts of northern NV later Fri into Saturday and begin to diminish Sunday.

Reference: National Weather Service / California Nevada RFC / Sacramento CA





## WESTERN WEATHER DISCUSSION

For the week, most of the region continued to experience dry conditions, although some residual moisture from Hurricane Nora worked its way into the Southwest leading to some isolated shower activity. On this week's map, improvements were made in isolated areas of Arizona, New Mexico, and Utah where recent monsoonal rainfall has continued to improve drought conditions on a shorter-term basis. For the monsoon season (to date), some impressive rainfall totals have been observed in areas of southern and central Arizona and New Mexico as well as in areas of Utah. In Arizona, Tucson is currently having its 3rd wettest monsoon season on record with 12.41 inches (as of September 7), Flagstaff 10.35 inches (4th wettest), Payson 13.06 inches (2nd wettest), and Las Cruces, New Mexico 5.06 inches (3rd wettest).

Elsewhere in the region, much of California, western Great Basin, Pacific Northwest, and the Northern Rockies have experienced drier-than-normal conditions during the past 90-day period. In Washington, drought and associated precipitation deficits dating back to the springtime, combined with extreme summer heat, have severely impacted the state's wheat crop which is reportedly had its lowest output since 1973. According to the USDA, the percentage of topsoil rated short to very is as follows: Washington 100%, Oregon 89%, Idaho 75%, Montana 93%, Wyoming 70%, and California 85%. According to the Natural Resources Conservation Service (Sept 1), reservoir storage levels were below normal across all the western states except for Washington state (data not yet available for Montana).

Reference: Brad Rippey, U.S. Department of Agriculture  
Richard Heim, NOAA/NCEI



## CALIFORNIA WATER NEWS

### **California Farmers, Worried About Water, May Be a Force in Recall Vote**

Craig Gordon, the owner of several dairy farms near Los Angeles, is a lifelong Democrat. He supported Senator Bernie Sanders for president, he doesn't like former President Donald J. Trump and he voted for Gov. Gavin Newsom in 2018.

But lately, he said, high taxes on milk, coronavirus shutdowns that have cut into his sales and state-imposed limitations on water for agriculture have made him so angry at Mr. Newsom that he has paid for seven billboards throughout the state — most of them in the Central Valley, which produces a quarter of the nation's food — urging people to remove the governor in Tuesday's recall election.

Mr. Gordon said he has spent about \$44,000 for the billboards. "If I had to spend my last dime to get rid of this guy, I would," he said. School closings during the pandemic have inflicted losses in milk sales of roughly \$15,000 a day, he said. Between that financial blow and his taxes, he said, he'll have to sell his cows and close the business by next year.

Farmers are a key constituency in California, where the \$50 billion agricultural sector makes up about 3 percent of the state's gross domestic product. During this year of exceptional drought, they are feeling the pinch of water restrictions, prompting many to support the recall of Mr. Newsom and choose a successor who they feel supports small businesses and will fight hard for their water needs.

In interviews in recent days, several farmers said Mr. Newsom hadn't responded as urgently as they would like to their pleas for more water storage, such as dams, reservoirs or water banks, as a way of helping them through this drought and future ones.

"He's not there for the state of California," Mr. Gordon said of the Democratic governor. "We're angry, and the people of the state want this guy gone."

That anger spiked last month when the State Water Resources Control Board passed an emergency curtailment order for the Sacramento-San Joaquin Delta watershed, barring many farmers from using water from rivers and streams. With the drought, the Central Valley is experiencing the effects from years of pumping too much water from its aquifers.

"The stress that farmers and our farming community felt through Covid has just been exacerbated this year because of these extreme heat days and now drought," said Karen Ross, secretary of the California Department of Food and Agriculture. "The pain that can be felt cannot be minimized. It's very real."

Mr. Newsom's office said the governor supported farmers and ranchers, while also trying to promote water conservation and other measures to fight the effects of climate change. The state budget includes \$5.1 billion to be spent over four years to mitigate



## VELES WATER WEEKLY REPORT

the drought's impact. This includes funding for emergency drought-relief projects that would secure and expand water supplies, and for drought contingency planning.

Mr. Newsom has also worked with the Legislature to push for more than \$1 billion in spending on climate-smart agriculture, his office said. That includes the Healthy Soils Program, which provides grants to enable farmers to adopt soil management practices that sequester carbon. And Mr. Newsom has tried to spread the sacrifice; in July, he asked all Californians to voluntarily cut their water use by 15 percent. (About 80 percent of the water California uses goes toward agriculture.)

But in interviews, many farmers said the current water limits, combined with other state restrictions and taxes, have put a chokehold on their livelihoods.

Original Article: [The New York Times by Christina Morales](#)

### **It isn't your imagination. This summer in California is the hottest ever recorded**

Drought. Wildfires. And, for the country as a whole, temperatures worse than the Dust Bowl.

In a further bit of evidence of the reality of climate change, California has just experienced its hottest summer on record, according to data released this week by the federal government.

The National Oceanic and Atmospheric Administration said the average temperature in California reached 77.3 degrees from June to August. That topped the previous record of 76.5 degrees in summer 2017.

Although summer doesn't end until Sept. 22, the federal agency defines the "meteorological summer" as June 1 to Aug. 31.

The report didn't surprise Bill Patzert, a retired climate specialist at NASA's Jet Propulsion Laboratory in Pasadena.

"Climate change is not an existential threat," Patzert said. "This is a reality; this is not a threat anymore." He said the warming climate has contributed heavily to the state's wildfire problems, turning the forests into tinder.

"The eco-system is in transition here because of these warming temperatures. It's much drier for longer periods of time. It's much hotter."

In its monthly climate report, the federal agency noted that the Dixie Fire in Northern California became the second-largest wildfire in the state's history, while the Caldor Fire imperiled the Lake Tahoe area.

The report didn't mention other climate impacts that Californians endured this summer, including the deepening of one of the worst droughts ever. A spring heat wave evaporated a major portion of the Sierra Nevada snowpack, depriving California of an estimated 800,000 acre-feet of water — nearly enough to fill Folsom Lake.

Original Article: [The Sacramento Bee by Dale Kasler](#)



## VELES WATER WEEKLY REPORT

### **Hurtado pulls bill to repair sinking canals after legislators yank funding**

A bill navigating the California State Legislature that would have provided significant funds to repair some of the state's major waterways came to a screeching halt on Wednesday.

Sen. Melissa Hurtado (D–Sanger) announced she would be pulling Senate Bill 559 – The State Water Resiliency Act of 2021 – after the Assembly gutted its funding and amended it to include additional bureaucratic hurdles.

Senate 559 would have provided \$785 million to repair canals, roads and bridges that have been damaged by subsidence. The funds would have gone directly towards repairing sections of the Friant-Kern Canal, the Delta-Mendota Canal, the San Luis Canal and the California Aqueduct.

Gov. Gavin Newsom allocated \$200 million over two years to canal repairs in his May revision to the budget, which was ultimately approved and enacted by legislators.

But the Hurtado's bill, which directed specific funding allocations to key canal projects, was seen as the vessel to send funds directly to Valley water agencies to expedite improvements on key water arteries.

Instead, along with stripping specific spending, the amendments out of the Assembly Appropriations Committee sought to require all appropriations receive clearance from the Department of Water Resources following a bevy of studies.

The additional proposed hurdle through DWR was reminiscent of local struggles to obtain Proposition 1 funding for water storage projects from the California Water Commission.

“Western states are at war with climate change driven drought. The situation continues to worsen, and solutions for us to adapt are clear. The cries for help from communities that are running out of water and from struggling farmers wasn't enough to stop forced Assembly amendments to a sound solution,” Hurtado said in a statement to The Sun.

“It is unfortunate, but I will not add further pain to struggling farmworkers and communities. For this reason – I am withholding SB 559 for a vote this session. I am disappointed, but will keep pushing to secure adequate funding for water infrastructure, and I hope to further inform my colleagues on the consequences of drought – namely food insecurity and water shortages as I chair hearings on the Select Committee on Human Security.”

The bill was a bipartisan effort to fund the much-needed repairs for the state's water infrastructure.

Original Article: [The SVJ Sun by Daniel Gligich](#)

### **California drought: Santa Clara County residents failing to meet water conservation goals**

On June 9, as California's historic drought deepened, the largest water agency in Santa Clara County declared a drought emergency and asked the county's 2 million residents to cut water use by 15% from 2019 levels to preserve dwindling supplies.



## VELES WATER WEEKLY REPORT

But three months later, the public isn't heeding the call. New water use numbers show that Santa Clara County residents reduced water use by just 6% in July, compared with July 2019 — well short of the 15% target.

The biggest water savers were Stanford University and the city of Palo Alto, which cut water use 15% and 13%. The biggest laggards: Purissima Hills Water District in Los Altos Hills, which saw its use increase 5%, and the cities of Santa Clara and Mountain View, whose residents each reduced use by only 2%.

Officials at the Santa Clara Valley Water District, a public agency based in San Jose that set the targets, note that the countywide 6% savings is an improvement from June, when water use was the same as in June 2019.

"We're heading in the right direction," said Tony Estremera, chairman of the Santa Clara Valley Water District. "But more people have to do more."

Northern California is experiencing the driest two years in a row since 1976-77, with no guarantee that this upcoming winter will bring significant rainfall to break the drought. The 10 reservoirs in Santa Clara County on Tuesday were just 12% full.

And although there are significant water supplies in underground aquifers in the county, the water district's engineers say that if groundwater is pumped heavily next year, it could cause water tables to drop so fast that the ground could sink in some areas, a phenomenon known as subsidence, which can lead to cracked roads, gas lines, water pipes and other damage.

"Next year is really what we are worried about," Estremera said. "If it's dry again, we're in serious trouble."

Conservation experts say the 13 cities and private water companies around Santa Clara County — many of which buy water from the water district and provide it to homeowners and businesses — should be doing more.

"People are not getting the message," said Newsha Ajami, a civil engineer and director of Stanford University's Urban Water Policy Program. "6% is better than 0%. But having said that, the reality is that we might have a very dry year next year, too. And if we don't start saving, things can go dire. Every drop of water we save today is a drop of water that will be available in our future."

Complicating conservation efforts: Cities and private water companies across Santa Clara County have differing rules.

Original Articles: [Mercury New by Paul Rogers](#)

### **Emergency electric generation station in Roseville goes live this week**

The city of Roseville has approved the emergency installation of an electric generation station that will help the state meet peak energy demands during times of statewide critical energy emergencies over the next two years.

The Roseville City Council approved a contract last month with the California Department of Water Resources to site two peak-period electric generating units at Roseville Energy Park, home to the city's municipal utility. The city, in a special meeting



## VELES WATER WEEKLY REPORT

Thursday, gave final approval to operate the two 30-megawatt generators, which are already located in the city and which will be operational this week, said Erin Frye, spokeswoman for Roseville Electric.

California has authority to install new electric generation under the state of emergency declared by Gov. Gavin Newsom on July 30, when California was facing power supply shortages as the entire West was experiencing extreme heat. Additional periods of energy supply shortage are projected over the next several years as most watersheds in the West are low and are not generating as much hydroelectric power.

The state's emergency order allowed it to install the natural gas-fired generating units without all the regular permitting for such uses, including permitting under the California Environmental Quality Act, and without extensive environmental impact reports and hearings. That typical process without the emergency order could have taken months, or even years if the project was contested.

Each of the 30-megawatt units arrived recently, with each of them brought in on the backs of three big rigs. The state chose the Roseville site because it could be made operational quickly, since the site has existing access to natural gas and major transmission lines, Frye said.

The units are part of the state's effort to quickly expand electric generation due to a drought that could see the state short 3,500 megawatts during extreme weather conditions.

The state will pay Roseville \$1 million for the use of the site this year and \$3.5 million each year for the next two years of the \$8 million contract.

Roseville Electric employees will operate the plants on behalf of the state under contract, and the city will not incur any costs, Frye said.

The modular units are powered by natural gas but have the capability of running on a blend of up to 75% hydrogen in the future depending on the availability of hydrogen, said Ryan Endean, deputy directory of public affairs with the Department of Water Resources. Hydrogen has a lower carbon footprint than natural gas.

Original Article: [The Sacramento Business Journal by Mark Anderson](#)

### **Proposed change at Prado Dam could yield water for 60,000 more people**

Enough water for 60,000 Orange County residents can be generated by more efficient release of rainwater from the Prado Dam into the Santa Ana River, according to a new multi-agency report.

During a year of average rainfall, that's the amount of water currently flowing into the ocean that could be captured for urban use, according to the two co-chairmen of the committee overseeing project. The proposed plan, slated to begin phasing in next year, would enable more rainwater to be absorbed into the county's major groundwater basin before it reaches the Pacific.



## VELES WATER WEEKLY REPORT

“Local stormwater capture is important because it lessens demand on imported water supplies, which are more costly and less reliable than groundwater,” said Steve Sheldon, president of the Orange County Water District.

The district manages water for 19 local water agencies that serve 2.5 million residents in north and central Orange County. That region currently imports about 23% of its water from northern California and the Colorado River, with the rest generated locally. The groundwater aquifer stores water from local sources as well as some of what’s imported. The dam, located just off the 91 Freeway near Corona and constructed in 1941 to minimize flood risk in Orange County, continues to be used first and foremost for flood control. When enough storm water builds up in the reservoir, the Army Corps of Engineers increases the amount it releases downstream into the Santa Ana River. That can result in the water moving faster than can be absorbed before it reaches the ocean. The plan outlined in the new report is based on monitoring forecasts for atmospheric river storms, which are responsible for the region’s heaviest rains and provide as much of as half of annual precipitation in the West.

If water levels reach the currently designated release height in the reservoir but there are no atmospheric river storms forecast in the immediate future, flows would remain at lower rates to allow the water time to settle into the groundwater aquifer.

“The beautiful thing about this is capturing more water without having to build anything new,” said Greg Woodside, executive director of planning for the water district. Woodside is also a co-chairman, along with Marty Ralph of UC San Diego’s Center for Western Weather and Water Extremes, of the steering committee for the project, dubbed FIRO for Forecast-Informed Reservoir Operations.

Also participating in the project are the Army Corps, U.S. Fish and Wildlife Service, the state Department of Water Resources, Orange County Public Works and the California Nevada Forecast Center. Work on the project began in 2018 and the report released late last month, a preliminary viability assessment, is expected to give way to a final assessment and a five-year trial program that would begin as early as next year.

That initial effort could capture an average of 4,000 acre feet per year, depending on rainfall. It would then ramp up to 7,000 acre feet — enough for 60,000 people — in 2027.

Original Article: [The Orange County Register by Martin Wisckol](#)

## **Biden pushes for investments to confront climate crisis on California stop of western U.S. trip**

President Joe Biden on Monday renewed his push for significant investments to combat climate change as he visited California during a three-state western U.S. tour and took an aerial tour of areas hit by one of the country's worst fire seasons.

The trip is aimed at highlighting the devastation caused by a warming planet, pushing for more resources to tackle the issue and touting the environmental initiatives that are part of the infrastructure bills his administration is pushing.



## VELES WATER WEEKLY REPORT

Biden will also campaign for fellow Democrat Gavin Newsom, who is battling to maintain his governorship in California's recall election on Tuesday. [read more](#)

Biden toured the California Governor's Office of Emergency Services in Sacramento with Newsom, where he addressed emergency operations officials and said parents are not just worried for their children over COVID-19 but whether they can also breathe the air. "Scientists have been warning us for years that extreme weather is going to get more extreme. We're living it in real time now," Biden said.

Extreme weather events cost the United States \$99 billion last year, and that record would be broken again this year, the president said, underscoring the need for urgent, decisive action to combat global warming.

"We have to think big. Thinking small is a prescription for disaster," he said, touting a \$1.2 trillion bipartisan infrastructure bill and a separate \$3.5 trillion package he said would work to combat climate change over a decade. The measures face hurdles in the closely divided U.S. Congress.

Biden got a firsthand look at the damage in California as his Marine One helicopter flew over a parched landscape hazy with smoke from the relentless wildfires. Patches of black in the landscape showed areas where the fires had been put out.

Original Article: [Reuters by Steve Holland](#)

### **California drought driving up greenhouse gas emissions: study**

Drought in California, coupled with population growth, is accelerating the need for energy-intensive water projects — driving up greenhouse gas emissions and thwarting the pace of statewide decarbonization efforts, a new study has found.

Water use, collection, treatment and management is linked to about 20 percent of California's statewide electricity use, one-third of non-power-plant natural gas consumption and 88 billion gallons of diesel use, according to the study, published by the Oakland-based Pacific Institute and commissioned by the nonprofit think tank Next 10.

Up against formidable water challenges, urban water planners are opting to integrate new water supply technologies, like desalination and water recycling, the researchers observed. And while these supply choices usually require less energy than transporting water long distances, the authors said that these facilities do expend more energy than withdrawing from traditional resources, like reservoirs and aquifers.

"If you think about water and energy together, then some of the decisions we make will be different," Peter Gleick, co-founder and president emeritus of the Pacific Institute, told The Hill. "Given the climate crisis, it's important we make smarter decisions about both water and energy."

Water and energy are "inextricably linked in California," according to the authors, who stressed that the State Water Project — which pumps water from Northern California lengthy distances — is the single largest consumer of electricity in the state. Such



## VELES WATER WEEKLY REPORT

interdependencies mean that “as one resource faces constraints or challenges, so does the other,” in a relationship known as the “water-energy nexus.”

Although declining groundwater levels have made pumping water more energy-intensive in the agricultural sector, the report found that escalating urban water demands are taking a greater toll on the state’s electricity usage — with urban water roughly twice as energy-intensive as agricultural water.

As such, efforts to improve efficiency in urban water usage would have the biggest impact on California’s water-related greenhouse gas emissions, according to the authors. A failure to make such upgrades would lead to a 24 percent increase in urban water demand between 2015 and 2035, resulting in a 21 percent increase in annual water-related electricity use and a 25 percent increase in natural gas consumption, the study found.

“When we save water, we also save energy and reduce greenhouse gas emissions,” Julia Szinai, lead author of the report and a researcher at the Pacific Institute, said in a news release. “The importance of water conservation measures in meeting California’s climate targets should not be underestimated, especially as drought and water scarcity become more intense with climate change.”

Original Article: [The Hill by Sharon Udasin](#)

## US WATER NEWS

### **Here’s what’s in the \$1T infrastructure package for Western water**

A \$1 trillion infrastructure bill that received bipartisan support in the Senate last month includes billions of dollars for Western water projects and programs.

The Biden administration has called the infrastructure bill, which includes \$8.3 billion for Western water infrastructure, “the largest investment in the resilience of physical and natural systems in American history.”

Of the \$8.3 billion dedicated to Western water, \$450 million is set aside for a competitive grant program to fund large-scale projects that advance water recycling.

“This will secure the water future of Nevadans as well as Americans across the Colorado River Basin,” Southern Nevada Water Authority General Manager John Entsminger said this month.

That program could help pay for a massive recycling project in California that would leave Nevada with access to more water in Lake Mead.

Under the proposed project, the Metropolitan Water District of Southern California would recycle wastewater and inject it into the ground for later use, leaving more water in the lake.

In exchange for helping to pay for the project, the Southern Nevada Water Authority would receive some of California’s share of water from Lake Mead.



## VELES WATER WEEKLY REPORT

It's one of the ways officials want to combat a shrinking Lake Mead, which received its first federal shortage declaration last month. The declaration means Nevada will have its allocation of Colorado River water slashed next year.

Democratic Sen. Catherine Cortez Masto, who authored the large-scale recycling grant program provision of the bill, said the project could produce enough water to serve more than 500,000 homes. (Rep. Susie Lee, D-Nev., co-sponsored similar legislation in the House, citing the need for water recycling to address the drought in the West.)

"That is one project," Cortez Masto said at a news conference in Las Vegas on Sept. 1. "It is important for us to continue to make these investments in drought resiliency throughout the West."

She said that is why the infrastructure bill includes \$8.3 billion for water projects and programs in the West. Sen. Jacky Rosen, D-Nev., also backed the inclusion of water infrastructure in the sweeping bill.

The largest amount of money set aside in the Western water infrastructure section of the bill — \$3.2 billion — will go toward aging infrastructure. Another roughly \$3 billion will be split up almost equally for storing and moving water, rural water projects and water recycling efforts.

An additional \$1 billion will be split between desalination projects and studies, a dam safety program, and the design, study and construction of aquatic ecosystem restoration and protection projects.

Lawmakers also budgeted \$300 million for drought mitigation measures in the Colorado River Basin, and another \$50 million for endangered species recovery and conservation programs in the region.

The rest of the Western water budget in the infrastructure bill includes watershed improvement and management projects and federal grants for various water projects.

Original Article: [Las Vegas Review Journal by Blake Apgar](#)

### **Drought Drying Carson River Hits Nevada Pastures, Ranchers**

Sixth-generation rancher Devere Dressler remembers seeing the Carson River teeming with fish as it flowed out of the eastern Sierra Nevada range, where the peaks were always capped with snow.

Now, as the impacts of severe drought are felt across the West, Dressler sees a river running low, with far fewer fish, and bare mountain tops.

Dressler, who has lived and worked in the northern Nevada Carson River Basin for 71 years, called it "disturbing" to no longer see suckerfish or minnows in the river and only an occasional trout. He remembers always seeing snow in the Sierra into July and August, but in 2021, the snow was gone in June.

"This is the worst I've seen. I've never seen snow go away," he said.

As the Carson River runs low and the land dries up, ranchers like Dressler are feeling the impacts on their lives and livelihoods.



## VELES WATER WEEKLY REPORT

Dressler, who operates a ranch southwest of Gardnerville with his wife, has cut down the size of his herd of cattle by a third. He's allowed some of the 1,200 acres (4.86 square kilometers) that the cattle roam on go dry, opting to use less water from the river on the land.

"I don't want to take too much water out of the river. I leave it in for the other users, and my biggest concern is the wildlife," he said. "Next year, if we have a repeat dry year, we may have to reduce our numbers more. Time will tell."

The rights to use the water are based on seniority and availability. With the river running low, some agricultural producers haven't received any water allocations since June.

Original Article: [U.S News by Associated Press](#)

### **Depleted by drought, Lakes Powell and Mead were doomed from the beginning**

For the first time, the U.S. Bureau of Reclamation issued a water shortage for Lake Mead starting in 2022. Located between southern Nevada and northwestern Arizona, Lake Mead provides water and generates electricity for the more than 20 million people in the lower Colorado River Basin.

This shortage isn't a surprise. Water levels at Lake Mead and Lake Powell to the northeast have already reached historic lows amid the summer drought. By January, the bureau projects water levels at Lake Mead to fall to 1,065.85 feet — nine feet below the first shortage trigger elevation. Levels on Lake Powell, which stores water for the Upper Colorado River Basin, are only marginally better, projected to be just 45 feet above the required elevation to produce hydropower.

The overall situation is not good, but why? This whole reservoir system along the Colorado River Basin was designed to get us through the drought years. Why isn't it working? A glimpse into the history of the system, how it was designed and the impacts of climate change sheds light on why it was destined to fail — and why it may never recover.

As Americans began moving west, they found that Western rivers behaved very differently from those found in the Midwest and East Coast.

Western rivers were fed by snow from the peaks of the Rocky Mountains. During the winter, river flows would decrease, sometimes even freeze over. As spring and summer arrived, the warmer temperatures melted snowpack that accumulated on the mountains over the winter. Then the melt would run off at exactly the perfect time — the beginning of the growing season. Water would be abundant for farming and other needs during the warm season.

But issues arose with this "perfect" system. People learned less snowfall in one winter would result in less water flowing in the spring and summer. Water might not be as abundant as desired.

Then came an issue of who could use the water. Consider a farmer named Joseph. He and his family would settle on their land and pull from the river during the warm season.



## VELES WATER WEEKLY REPORT

It had been a good winter so they expected high river flows that spring. Instead, the flows were really low. Where was his water?

He would go upstream to find that another farmer named William had settled his family there, and he was taking the water. Joseph told William that he couldn't have the water. But William said it flowed through his land and therefore it was his. Joseph argued that it would actually flow through this land, and he was here first — it was his.

Thus was born the idea of water appropriation, albeit this is an extremely simplified and embellished version of the story.

Later, the Colorado River Compact of 1922 determined the river belonged to all parties where the river and its tributaries flowed. Everyone would share it equitably. This would include the upper basin states (Wyoming, Utah, Colorado and New Mexico) and the lower basin (Arizona, Nevada, and California).

The compact stated the upper basin would share 7.5 million acre-feet per year and the lower basin would also share 7.5 million acre-feet per year. Since the majority of this water originates in the Rocky Mountains of the upper basin states, those states must ensure the consistent delivery of water to the lower basin.

Lake Mead (initially formed by the Hoover Dam in 1935) was designed to hold water for the lower basin states. As an “insurance policy,” the upper basin had Lake Powell, which began filling in 1963. If drought meant the upper basin states couldn't deliver their promised amount to the lower basin, they could deliver it with water in the savings account of Lake Powell.

Original Article: [Washington Post by Becky Bolinger](#)

### **Google sets new water goals as droughts worsen**

With drought sucking the Western US dry, Google announced new plans to protect vital water resources. Google guzzles up water to cool its data centers, three of which are in the drought-stricken West. To offset its thirst, the company said that by 2030, it wants to replenish 120 percent of the water it consumes.

Google laid out three strategies to accomplish that goal: using water more efficiently in its operations, partnering with communities to make watersheds healthier, and offering its technologies as tools to predict and prevent water stress.

The company has faced pushback from communities near its data center in South Carolina and a new one to be built in Arizona. Residents there were worried that Google would burn through too much of their water. Arizona farmers are already facing deep water cuts because of a historically awful drought.

If Google succeeds in replenishing more water than it uses, it will become “water positive.” It's the latest trend in environmental pledges from companies including Facebook and Microsoft.

They're all in a race with climate change, which is intensifying droughts in already parched places like California, Arizona, and Nevada. Ninety-five percent of Nevada, where Google has two data centers, is in a “severe” drought, according to the US



## VELES WATER WEEKLY REPORT

Drought Monitor. And “severe” drought plagues more than 93 percent of California, home to Google’s headquarters.

“I grew up in Muir Beach, California, and was fortunate to spend my childhood exploring its beautiful forests and streams. Today, these delicate ecosystems are threatened as the entire west coast of the U.S. is experiencing one of the worst droughts in recorded history,” Google chief sustainability officer Kate Brandt said in a blog post yesterday.

Google’s water withdrawal — for data centers and its other operations — more than doubled from 2.5 to 5 billion gallons of water from 2016 to 2019, according to its most recent sustainability report. Over that time, the company invested more heavily in data centers behind its search engine, cloud computing, and YouTube. It now has some two dozen data centers scattered across the globe.

Original Articles: [The Verge by Justine Calma](#)

### **In response to Western drought, a flood of legislation**

Las Vegas visitors can still snap selfies with the mermaids swimming among tropical fish in the Silverton Casino’s massive aquarium and gaze at the colorful dancing water displays of the iconic Bellagio fountains — for now.

But southern Nevada and much of the American West are struggling to cope with a worsening drought that has strained municipal water supplies, agricultural operations and wildlife populations.

Tens of millions of Americans live in areas being punished by drought, from Oregon’s Klamath River basin to California’s Central Valley. The crisis is ramping up pressure on Capitol Hill to act even as lawmakers confront sharp partisan differences over the best ways to respond.

The bipartisan infrastructure bill approved by the Senate includes provisions aimed at mitigating drought impacts, and Democrats are looking to build on that with additional measures in their budget reconciliation package.

The seriousness of the situation is particularly evident in the seven-state Colorado River Basin, where water levels at Lake Mead and Lake Powell have dropped to record lows, not just affecting the amount of water available for households and agriculture but also threatening electricity generation at the Hoover Dam, which serves areas across Nevada, California and Arizona.

The Bureau of Reclamation recently declared the first-ever federal water shortage for the Colorado River, triggering cuts in the water available to Arizona farmers. Climate change is expected to exacerbate the situation, in part by reducing the amount of snowpack that helps fill the river as it melts every year.

House Natural Resources Chair Raúl M. Grijalva, D-Ariz., said in a statement at the time that the declaration represented a “stark reminder” of how climate change is affecting the water supply for tens of millions across the West.



## VELES WATER WEEKLY REPORT

“We have a plan in place to manage the Colorado River drought conditions that we’re experiencing today, but we have to prepare for a future markedly drier than even the two decades of drought that has led up to today’s announcement,” he said. Indeed, lower water levels at Lake Mead could be ahead, John Entsminger, general manager of the Southern Nevada Water Authority, testified before Congress earlier this year.

“Looking out just a few years, if the same hydrology levels that we've experienced recently continue, there's a high probability that Lake Mead water levels will continue to decline, potentially reaching an elevation within the next decade where we will hover just above the point where Hoover Dam can no longer deliver water downstream and power production will come to a halt,” Entsminger told lawmakers.

Southern Nevada residents rely on the Colorado River for nearly all of their municipal water supply and have tried to mitigate the situation through infrastructure projects and conservation initiatives. That includes investigators who patrol the Las Vegas Valley on the lookout for faulty sprinklers and other water waste.

Such efforts have produced results. Nevada’s consumption of Colorado River water has fallen 23 percent since 2002 even as the population has risen more than 52 percent, Entsminger said. Nevada recently adopted a ban on using Colorado River water for irrigating decorative grass in medians, parking lots and other areas that will go into effect by 2026.

And yet the need for more action can be seen in the closed boat launches and “low water” warning signs all around Lake Mead, not to mention the “bathtub ring” that shows just how far its water levels have fallen in recent years.

Farmers from Blythe, Calif., to central Arizona wonder about the future of their operations if conditions remain dry and their share of the river water continues to be curtailed. It will be a rolling crisis due to complicated considerations over the seniority of water rights. The federal shortage declaration is first hitting the Central Arizona Project, which supplies water to farms growing crops such as alfalfa, cotton and corn.

If farmers can’t get the water to grow their crops, it would represent both a blow to those local economies and potentially a hike in food prices for consumers across the country.

Original [Article by Joseph Morton](#)

## GLOBAL WATER NEWS

### **Pune dams at full capacity; water discharge begins**

PUNE With good rainfall in the catchment and ghat areas, dams across Pune are full with a continuous discharge of water on going.

Till Monday, Khadakwasla dam had discharged 4.87 thousand million cubic feet (TMC) of water as per officials from the water resources department.



## VELES WATER WEEKLY REPORT

HV Gunale, chief engineer, water resources, Pune division, said that all four dams are at capacity as of Monday.

“Khadakwasla, Temghar, Warasgaon and Panshet dams are at full capacity with 100 per cent water storage,” said Gunale.

“The dams collectively have 29.15 TMC water,” said Gunale.

On Monday, the Panshet dam catchment area received 10 mm rainfall. Temghar has reported 30 mm rainfall, Warasgaon reported 14 mm and Khadakwasla reported 4 mm rainfall on Monday.

From June 1 till September 13, Khadakwasla reported 583 mm of rainfall, whereas Panshet reported 1,866 mm. Warasgaon reported 1,844 mm and Temghar reported 2,839 mm rainfall during this time.

As compared to 2020, between June 1 to September 13, Khadakwasla reported 994 mm rainfall and Panshet reported 2,160 mm rainfall. Warasgaon has reported 2,060 mm and Temghar reported 2,734 mm of rainfall during this time.

Original Article: [Hindustan Times by Namrata Devikar](#)

### **Zero Mass Water: Why All The Hate?**

The poster-child of air to water tech

Zero Mass Water attracted \$50m investment from BlackRock yet atmospheric water generation continues to be a divisive technology in the water sector. Why? Tom Freyberg investigates.

Zero Mass Water (ZMW) has fast-tracked its position as the poster-child of the air-to-water market, after securing \$50 million investment from BlackRock.

The Series C1 equity financing included Breakthrough Energy Ventures, which includes investors Jeff Bezos, Bill Gates, Richard Branson and Michael Bloomberg.

Yet, the company, and the wider atmospheric water generation (AWG) technology, appears to be extremely divisive in the global water sector.

To some, CEO Cody Friesen is a charismatic idol with an answer to the world’s water problems.

To others, a leader who is raising eyebrows of seasoned water practitioners by selling a technology with claims more akin to science fiction than reality.

With the promise to “do for drinking water what solar panels have done for electricity”, the ambitious Arizona-based start-up provides ‘Source Hydropanel’ technology.

The panels essentially take in sunlight and air to create water from the atmosphere, adding minerals, ozonating and then storing the water ahead of its use.

Why all the hate?

In May, Global Water Intelligence (GWI) published an analysis of the technology.

It was referenced as an “incredibly inefficient means of making water” that has caught the “imagination of billionaire backers and ill-informed philanthropists”.



## VELES WATER WEEKLY REPORT

The analysis reported that, as the unit produces 3.4 litres of water per day, it would cost \$177,353 to meet a person's daily needs (based on panels costing \$3000, and providing 201 litres of water per day).

In a follow up article on LinkedIn, GWI publisher Christopher Gasson added that: "There is no place on earth where a hydropanel is the most cost-effective source of water."

Stating that the panels are paid for by donors, including finance institutions such as the Asian Development Bank, US AID and the Inter American Development Bank, Gasson added that Zero Mass Water "is not really in the business of selling water".

"In this crazy world of guilt-ridden billionaires, extreme poverty and anxiety about climate change and the environment, its main product is emotional," he said.

A stone thrower's opportunity

Tom Ferguson, VP of programming at Imagine H2O, said the \$50 million investment is considerably larger than other recent equities rounds in the water technology market. "Typically they fall in the \$2.5m to \$10m range, so there is a shock factor to a round this big."

He said it is second only to PrecisionHawk, which brought in a \$75 million round but in agricultural technology, with Fracta's \$37m investment from Kurita in 2017 possibly a better comparison.

Commenting on the investment and criticism ZMW has attracted, he told Aquatech Online: "This is a stone thrower's opportunity – whenever there's a national news article there's always a reason why the "non-water people" are wrong."

Original Article: [Aqua Tech](#)

### **Water crisis could lead to conflicts in the Middle East**

The Middle East is warming at twice the global average and this summer several countries like Kuwait, Oman, Iran, the United Arab Emirates and Saudi Arabia recorded temperatures exceeding 50 degrees Celsius (122 Fahrenheit), as forests burn, and severe droughts become more and more frequent. There is compelling evidence that it will be the Middle East region that climate change will hit hardest.

Already several rivers in the Middle East have lost almost half of their annual flow in the last fifty years.

During the same period, the surface area of several lakes has shrunk considerably. A case in point is lake Urmia in Iran, which has halved in size - from 5,400 square kilometres in the 1990s to 2,500 square kilometres - partly due to the building of dams in its basin, which reduced the flow of water in the lake and partly due to climate change.

All over the Middle East the per capita amount of water every year becomes less and less, and many people fear that the old saying that "the wars of the future will be fought over water than oil" may soon become a frightening reality in this volatile region.

Amro Selim, Director of the Elmoustkbal Organization for Strategic Studies also points out "Most countries in the Middle East region share at least one underground water reservoir with their neighbours, which highlights the importance of cooperative



## VELES WATER WEEKLY REPORT

management of shared water resources. This also indicates that control of water resources and access to water will be the principal cause of the conflicts and disputes that the region will likely experience in the near future."Disputes over water are quite frequent in the Middle East, as many of the rivers and lakes in the region are shared by two or more countries. Building dams in one country significantly reduces the amount of water available to neighbouring countries, which see the area available for irrigated cultivation diminish, threatening the livelihood of their citizens.

An example of this is the construction of the Grand Renaissance Dam in Ethiopia on the Nile River, which reduced downstream flow to Egypt by more than 25 per cent. Egyptian President Abdel Fattah el-Sisi has threatened military action unless the ground rules for filling the dam are agreed upon. Sisi openly declared the dam is "a matter of life and death" for Egypt.

Original Article: [Big News Network by John SolomouNicosia](#)

### **Are 'water positive' pledges from tech companies just a new kind of greenwashing?**

Corporate America is making a new kind of climate pledge. In recent months, multiple tech giants have pledged to use their reach and resources to join the fight for water conservation. Facebook made an announcement at the end of August declaring their efforts to "be water positive by 2030." And just this week, Google made a similar announcement to make its data centers more efficient and support water security in the communities it operates in.

Google, Facebook, and several other companies have promised to put more water back into the environment than they pipe in—an exchange they call "water positive." This means they plan to cut the amount of water needed to run their facilities, while protecting natural waterways and preserving access to clean drinking water in drought-prone areas. The math is based on the number of gallons they want to restore, not newly produced H<sub>2</sub>O. Both Facebook and Google have also promised to share their conservation research and tech with others.

Their timing makes a lot of sense. Many Western states are experiencing water shortages this year. Last month, officials announced a water shortage for the massive Lake Mead reservoir after a 22-year-long drought in the region. Federal officials soon followed with unprecedented water cuts for about 40 million people who rely on the Colorado River, which feeds Lake Mead.

Water stress is also a global issue—more than a billion people worldwide lack steady access to clean water, according to the World Wildlife Fund. While this is often due to infrastructure issues, climate change has also changed precipitation patterns, causing more droughts and floods that affect vulnerable communities.

Given the current state of the planet, it's only fitting that corporations like Facebook and Google change how they use up water and other vital resources, says Pamela Chasek, a



## VELES WATER WEEKLY REPORT

professor and chair of the political science department of Manhattan College, who has also commented on past corporate climate pledges.

“The typical data center uses about 3-5 million gallons of water per day—the same amount of water as a city of 30,000-50,000 people,” Venkatesh Uddameri, professor and director of the Water Resources Center at Texas Tech University told NBC News earlier this year. Much of it is used to chill the giant servers, machine learning systems, and other hardware the companies run around the clock.

Both Facebook and Google say they’re testing out ways to cut down the water used to cool these data centers. “For example, we deployed technology that uses reclaimed wastewater to cool our data center in Douglas County, Georgia,” Google Sustainability Officer Kate Brandt writes in an email to PopSci. “At our office campuses in the San Francisco Bay Area, we worked with ecologists and landscape architects to develop an ecological design strategy and habitat guidelines to improve the resiliency of landscapes and nearby watershed health.”

In its pledge post, Facebook noted that it uses “onsite recycled water systems” at some global offices. The company also stated that it’s developed technology that enables “data centers to be cooled with outside air,” allowing them “to operate 80 percent more water efficiently on average compared to the industry standard.”

Original Article: [Popular Science by Angely Mercado](#)

### **Joburg can no longer rely on its water supply**

"We did not have water for nine days in July. Now it’s happened for the second time within a month," said Tilly Meyer from the Glenzicht Retirement Village in Oakdene, Johannesburg.

Oakdene is one of six areas (South Hills, Linmeyer, Risana, Tulisa Park, parts of Oakdene and parts of Rosettenville Extension) receiving water from the South Hills tower, which were hit by water supply interruptions last week.

A staff member from South Hills Clinic said a week without water had a severe impact on them

He said:

Our facility must be cleaned at least three times a day, but when there was no water, we could only clean it twice a day, at most. We could not flush our toilets or wash hands with soap and water as often as we’re used to. It was inhumane for our staff to be working under such conditions.

The clinic relied on a water truck that parked outside daily for use by the community.

"Last week, officials came to inspect the yard to see where a water tank could be installed. We are hopeful that a tank will be installed soon as it will help, especially when the water supply is interrupted," he said.

"The City of Johannesburg has experienced unprecedented water supply challenges in some parts of the City in the past few months," said Mayco Member for Environment and Infrastructure Mpho Moerane in a statement released on Wednesday.



## VELES WATER WEEKLY REPORT

A South Hills resident said it was only after some of them protested at the South Hills tower, on the fifth day of no water, that an explanation was given.

According to Johannesburg Water spokesperson Eleanor Mavimbela, the water supply to the South Hills tower was interrupted because Rand Water, the bulk water supplier in Gauteng, had a power supply issue at their Zuikerbosch purification works on 26 August. This affected their Palmiet pump station that feeds the Meyers Hill reservoir.

"Water levels in the Meyers Hill reservoir were below the threshold at which we could pump water into the South Hills tower. This meant that areas receiving water from the tower were without supply since 26 August," said Mavimbela.

Ageing infrastructure and Rand Water reducing water supply to Gauteng have also affected the supply for other areas in Johannesburg. Rand Water said it was "under severe pressure whereby the water demand consistently exceeds the water supply".

It said restrictions were implemented to allow for the recovery of its network systems. Residents can expect an intermittent water supply.

The City is currently under mild (level one) water restrictions.

In its 2021/22 business plan, Johannesburg Water said the replacement costs for infrastructure, as at 30 June 2020, was R88 billion, with an infrastructure renewal backlog of R20.4 billion.

Klipfontein View in Midrand was also without water at the end of August, for almost two weeks.

"At first, we were told that we don't have water because of the Rand Water restrictions. But after a few days, we were told that valves had broken down, which interrupted water supply to Klipfontein View," said the DA's Ward 32 Councillor Bongani Nkomo. Nkomo said water had been restored to 80% of Klipfontein View on Tuesday night, while the remaining 20% of the area is still without water.

"The remaining 20% form part of the high-lying areas and will be supplied with water tankers until supply has been restored," he said.

The DA's Ward 57 Councillor Faeza Chame said four suburbs in her ward - South Hills, Linmeyer, Risina and Tulisa Park - were affected.

Original Article: [News 24 by Masego Mafata](#)

### **Rocky Mountain dry: Canada's waning water supply sows division in farm belt**

Where fly fisherman Shane Olson once paddled summer tourists around in a boat, he now guides them by foot – carefully navigating shallow waters one step at a time.

"Every year, these rivers seem to be getting smaller, faster," Olson, 48, said, whipping a gleaming fishing line over the Crowsnest River about 45 miles (72 km) from the U.S. border.

It is an alarming trend in Canada's breadbasket, and a sign of water scarcity to come as climate change speeds the melting of Rocky Mountain glaciers feeding rivers that deliver water to some 7 million people across the Prairies.

"We are pushing it to the absolute breaking point," Olson said.



## VELES WATER WEEKLY REPORT

The province of Alberta could face a C\$22.1 billion (\$17.53 billion) loss, or roughly 6% of its gross domestic product, as Saskatchewan River Basin flows drop, according to a study last year in the journal Ecological Economics

At the same time, water demand is growing, sparking competition among miners, farmers and First Nations.

A seven-hour drive downstream from Olson's fishing spot, the province of Saskatchewan is planning a C\$4-billion expansion of its irrigation system. Upstream in the Rockies, developers have proposed eight new steel-supplying coal mines.

In an interview with Reuters this year, Canadian Environment Minister Jonathan Wilkinson called rising Prairie water demand amid climate change “a major source of concern.”

While Canada is the world's third most water-abundant nation, the Prairies - Alberta, Saskatchewan and Manitoba - are prone to both flooding and drought. Their water supply depends on how much snow collects in the Rockies – known as the region's “water towers” - and how quickly it runs off as it melts.

But water abundance is a Prairie myth, scientists say.

During the second half of this century, most Canadian Rocky glaciers will melt, according to a 2019 study in Water Resources Research. The region's water outlook will be “bleak” long before then, said University of Lethbridge geographer Christopher Hopkins.

Warmer temperatures are causing mountain snow and ice to melt earlier in the year, increasing the likelihood of summertime water shortages, according to research published last year in Environmental Reviews.

As the climate changes, winter precipitation falls more frequently as rain than snow, leaving less water stored in the mountains, hydrologist John Pomeroy said.

Original Article: [SwissInfo/ Reuters by Rob Nickle and Jeff Lewis](#)

## **Asian Development Bank Issues Blue Bonds for Asia-Pacific Oceans**

To finance ocean protection projects in Asia and the Pacific, the Asian Development Bank has issued its first dual-tranche blue bonds denominated in Australian and New Zealand dollars.

The funding gap to support healthy oceans is getting wider every year and the scale of the problem requires a leap from small transactions to transformative market deals, the ADB says. “Innovative financial products like blue bonds diversify and expand the investor base, thereby increasing the amount of capital that can be invested in ocean health.”

The A\$208 million (around US\$151 million) 15-year issue was purchased by the Dai-ichi Life Insurance Company and arranged by Citigroup Global Markets Limited.

The NZ\$217 million (around \$151 million) 10-year issue was purchased by Meiji Yasuda Life Insurance Company and arranged by Credit Agricole CIB. The bonds were issued under ADB's expanded Green and Blue Bond Framework.



## VELES WATER WEEKLY REPORT

“Having our first Australian dollar 15-year and New Zealand dollar 10-year blue bonds under ADB’s Green and Blue Bond Framework is a new milestone for sustainable ocean finance. The tenor reflects the needs and our long-term support for the sector,” said ADB Vice-President for Finance and Risk Management Ingrid van Wees. “With our framework, we set a new standard for blue financing in the market that can be replicated,” van Wees said.

The bonds are part of ADB’s Action Plan for Healthy Oceans and Sustainable Blue Economies launched in 2019, which aims to catalyze sustainable investments in Asia and the Pacific by committing to invest and provide technical assistance of at least US\$5 billion by 2024.

“The Action Plan for Healthy Oceans and Sustainable Blue Economies is a vital part of ADB’s strategy to expand the necessary support for its developing member countries to invest in healthy oceans, ensure the achievement of SDG 14, and contribute to the security and prosperity of the region,” said Bambang Susantono, ADB vice-president for knowledge management and sustainable development.

Sustainable Development Goal (SDG) 14 addresses “life below water” and is one of 17 SDGs established by the United Nations in 2015.

One example of an eligible project that may be financed by the bond is the Greater Malé Waste-to-Energy Project in Maldives, which will stem the flow of plastics and other wastes to the ocean and reduce greenhouse gas emissions.

Another is the Anhui Huangshan Xin’an River Ecological Protection and Green Development Project in China, which will reduce nonpoint source pollution to the marine environment from “source to sea” by supporting green farming and controlling pesticide and fertilizer use.

ADB’s blue bonds are replicable, scalable, and aim to grow the ocean economy across Asia and the Pacific. The proceeds will finance projects that enhance ocean health through ecosystem restoration, natural resources management, sustainable fisheries and aquaculture, reduction of coastal pollution, circular economy, marine renewable energy, and green ports and shipping.

At the same time, these investments are intended to support sustainable economic growth and jobs for the future.

Original Article: [Environnemental News Service](#)

### **Chile seeks to guarantee water rights amid severe drought**

Residents of Chile’s central and Metropolitan regions eagerly awaited storms predicted for the middle of August. Although flood warnings were placed for the Andean foothills, they needed water. The annual rainfall deficit was 80% in some areas. The rain arrived, but far from the intensity expected.



## VELES WATER WEEKLY REPORT

With 12 years of uninterrupted mega-drought and a water shortage decree, today every storm counts. Worryingly, projections say the current situation will become permanent, even if there are more rainy years.

Climate change is steadily decreasing rainfall, so Chile will not only have to adapt to this new scenario, but will also have to revise its plans to move away from hydroelectric energy, which relies on a steady flow of water. And also to achieve carbon neutrality by 2050.

According to recent data from the General Water Directorate (DGA), the recent rains increased the average volume of water in reservoirs by 18%. Hydroelectric power currently accounts for almost 30% of Chile's energy matrix.

Even so, the outlook is far from auspicious. A few days earlier, the Ministry of Energy published a decree seeking to curb electricity rationing which runs until 31 March 2022. It aims to reduce the impact of the water deficit on users, increase generation capacity and encourage voluntary savings.

The mining sector, the country's main export, has already begun to suffer from the lack of water. While many mines have installed desalination plants, or will do so, some already expect drops in production due to water shortages. This is the case of Antofagasta PLC, which revised down its copper production estimates from between 730,000-760,000 tonnes to between 710,000-740,000.

On 26 August, a few days after rains quenched the thirsty reservoirs, agriculture minister María Emilia Undurraga declared an agricultural emergency due to the water deficit in the regions of Coquimbo, Valparaíso, O'Higgins and Maule. The Los Lagos region was already classified as such. The minister warned that the emergency was not simply a one-off, but a reality of climate change.

"We are facing the most intense and extensive drought in our history," said Guillermo Donoso of the Catholic University's Centre for Water Law and Management. "The projections (due to climate change) are for a reduction in rainfall in the central north and central-south, and with increases in temperature in all regions of the country," he added.

While fluctuations in annual rainfall are possible, there are many unknowns, according to René Garreaud, deputy director of the Centre for Climate Science and Resilience. "There is an indication that the lack of rainfall is due to climate change, in addition to the natural climate variability," he said.

This will depend directly on global greenhouse gas emissions and how much the average global temperature eventually rises. "Although these are not absolute forecasts, but projections, if the temperature rises between 1.5 and 2 degrees Celsius, Chile will have more droughts, but if it rises more, the scenario for the country will be even worse," Garreaud warned.

The connection between water scarcity and climate change is only now coming to light. The growth in water consumption rates is keeping pace with the rate of economic growth in many countries. "This is happening in Chile, but in a context of a growing water



## VELES WATER WEEKLY REPORT

deficit, the increase in consumption will not be feasible to maintain," explained Guillermo Donoso.

More and bigger reservoirs, desalination plants and wastewater reuse are part of water supply management today. However, Donoso warned that such solutions are not sustainable if they do not factor-in demand management.

In Chilean cities, average water consumption is 170 to 180 litres per person per day, one of the highest in OECD countries. "There are even areas where consumption exceeds 300 litres," Donoso said. On top of this, around 35% is lost in the distribution network because of poor infrastructure.

Chile does not have a head office that directs all administrative bodies that manage water, said Elizabeth Garrido, director of the School of Environmental Sciences and Sustainability at the Andrés Bello University.

Original Article: [Dialogo Chino by Lorena Guzman](#)

### **China to create first green stock index in fresh push to curb carbon emission**

China will set up a green stock index and develop futures trading for carbon emission rights - both of which will be the first such instruments, according to a new sweeping guideline issued on Sunday, marking an important step in expanding China's market-oriented securitization and financing mechanisms to accelerate the country's long-term carbon trading and achieve its carbon neutrality goal.

China will also research and develop financing tools based on multiple environmental resources rights, including pollution emission rights, water rights and carbon emission rights, according to the guideline jointly issued by the General Office of the Communist Party of China Central Committee and the General Office of the State Council, China's cabinet. The guideline aims to deepen reforms on environmental protection compensation-mechanism.

The measures are explorations in fostering energy conservation and environmental protection goals with securitization tools, with the key goal focusing on reducing carbon emissions in the country, Yang Fuqiang, a research fellow at Peking University's Research Institute for Energy, told the Global Times on Sunday.

Prior to the announcement, China had yet to launch a green stock index. In August, global stock markets index provider MSCI unveiled two climate change indexes for China to gauge the country's transition to a low-carbon economy.

Original Article: [Global Times](#)



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