

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
-

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WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell standing in for Robin Bieber

CLICK THE LINK BELOW

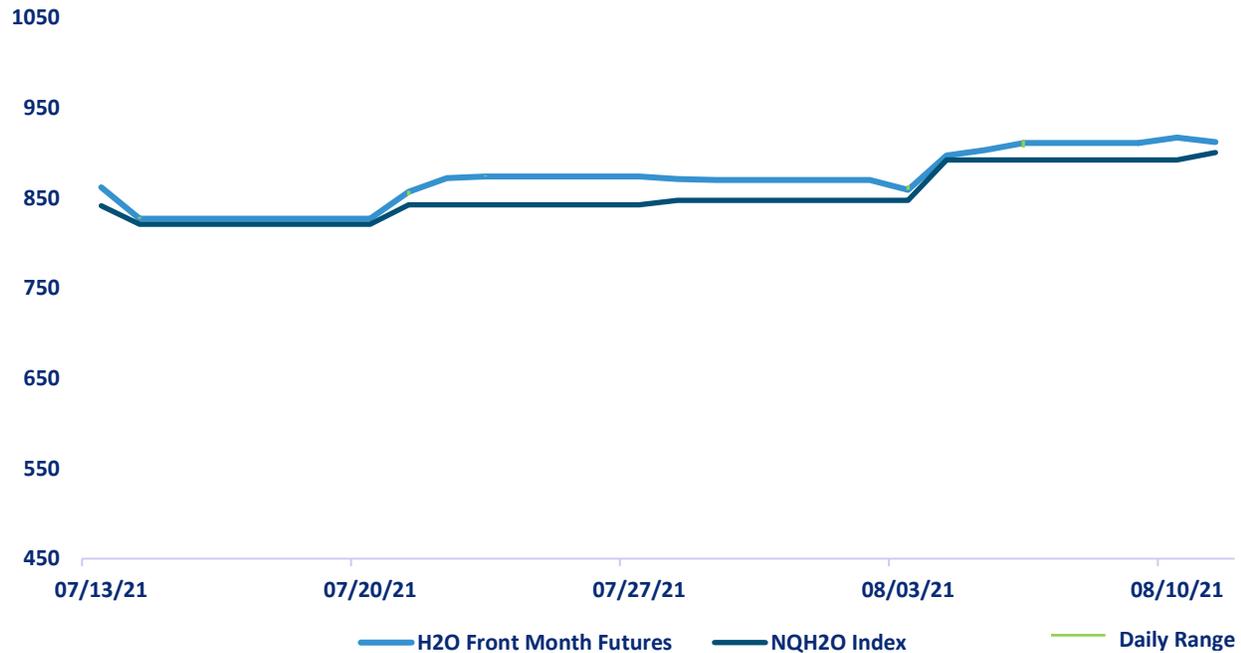
"A 2 minute technical analysis video of H2O futures"

<https://veleswater.com/veles-water-talk/>



NQH2O INDEX PRICE vs H2O FUTURES PRICE

1 Month Price Performance NQH2O Index vs H2O Futures



NQH2O Index moved above \$900 for the first time reaching a new All Time High on the 11th August at \$900.40, an increase of 0.90% or \$8.07. Over the past week the August H2O future contract has traded between \$906-\$917. The August H2O futures contract has traded at a premium to the index all week ranging between \$10.67-\$24.67.

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

August is 906@912

September 892@902

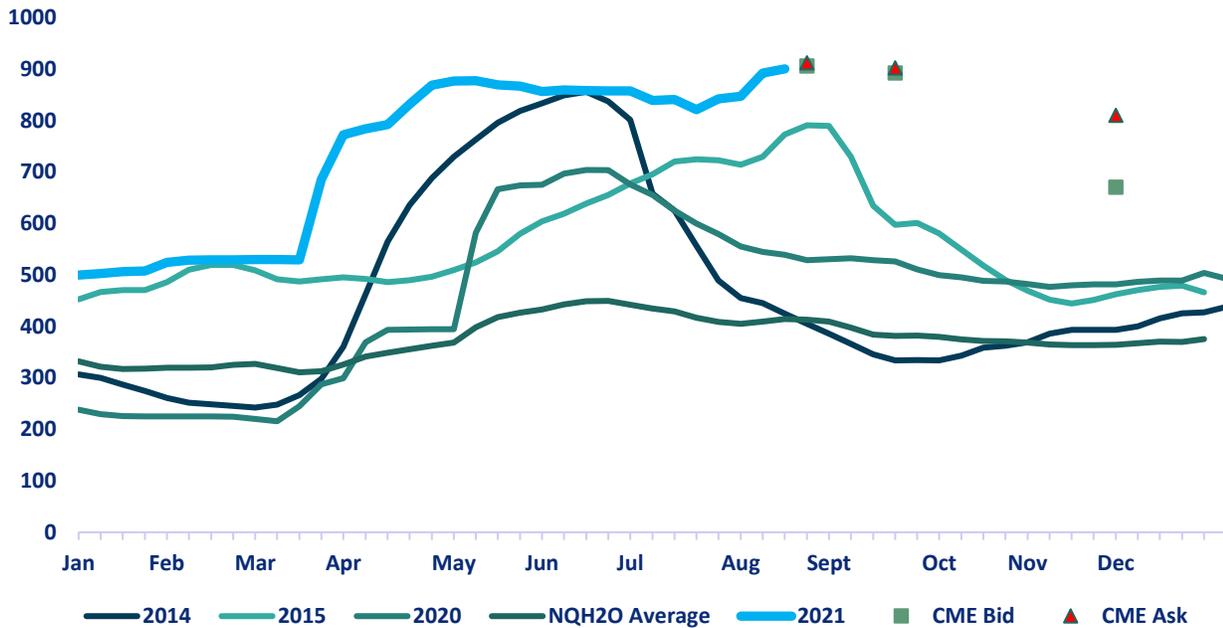
December 670@810

June 22 885@975

The December offer price is still cheaper than the August and September bids. The August bid to December offer is minus \$96. 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 80.14% 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.

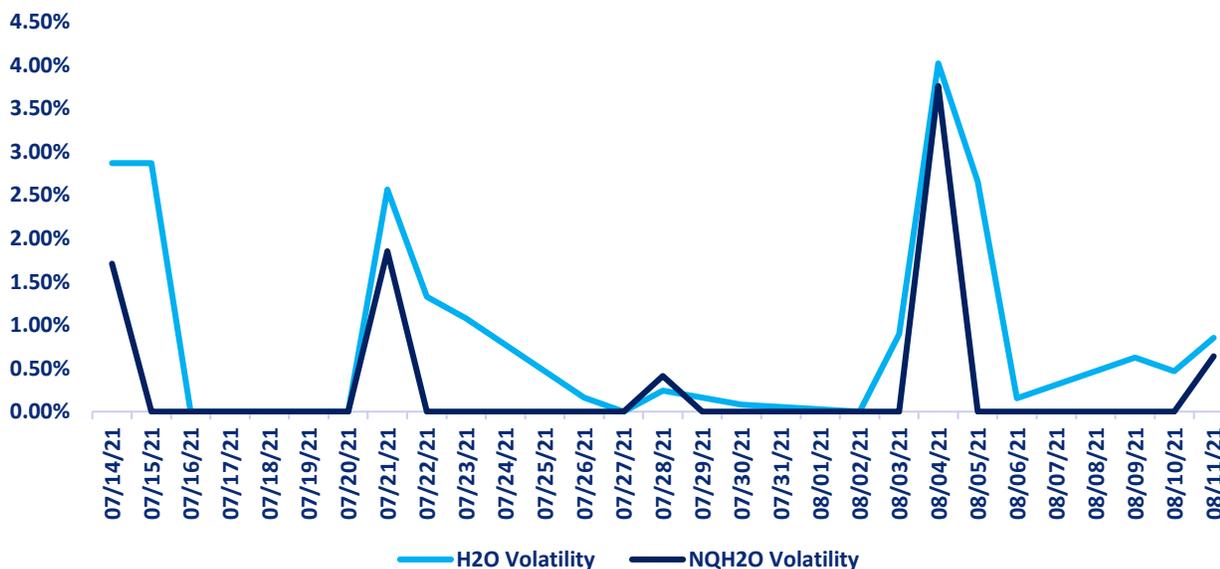
Current bids and offers in the market are still higher than historic prices showing that expectations are that this is an exceptionally dry year and prices may not fall seasonally as much as they have in prior dry years.

(John. H Dolan. Market Maker)



H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

Daily H2O Futures Volatility vs Daily NQH2O Index Volatility



ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	33.55%	6.28%	4.34%	4.41%
H2O FUTURES	N/A	10.38%	7.48%	4.48%

For the week ending on the 12th August the two-month futures volatility is at a premium of 4.11% to the index down 0.6% from the previous week. The one-month futures volatility is at a premium of 3.14% to the index, up 2.82% for the week. The one-week futures volatility is at a premium of 0.07% to the index, a reversal of 1.51%. This can be indicating that the futures are predicting that the upward moves are picking up some momentum in the short term.

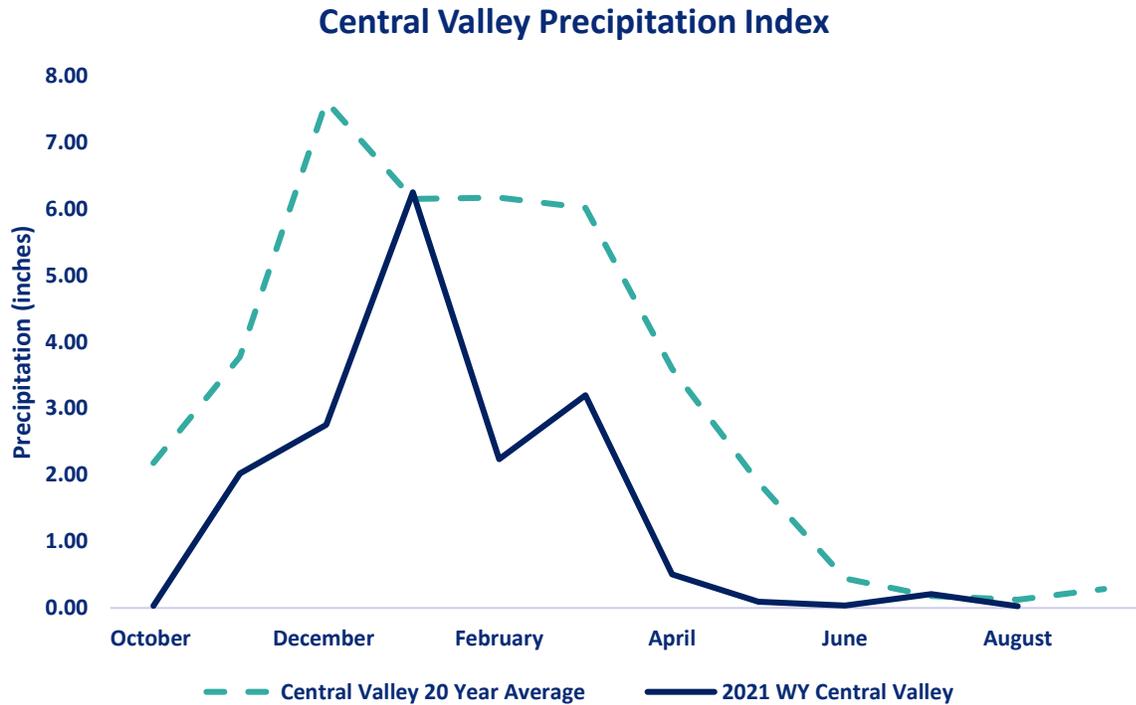
DAILY VOLATILITY

Over the last week the July future volatility high has been 2.66% on August 5th and the low has been 0.15% on August 6th.

*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 11/08/2021

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)	0.04	0.00	31.37%	62	48
TULARE 6 STATION (6SI)	0.03	0.00	28.85%	66	35
NORTHERN SIERRA 8 STATION (8SI)	0.01	0.00	7.02%	63	46
CENTRAL VALLEY TOTAL	0.08	0.00	22.41%	64	43

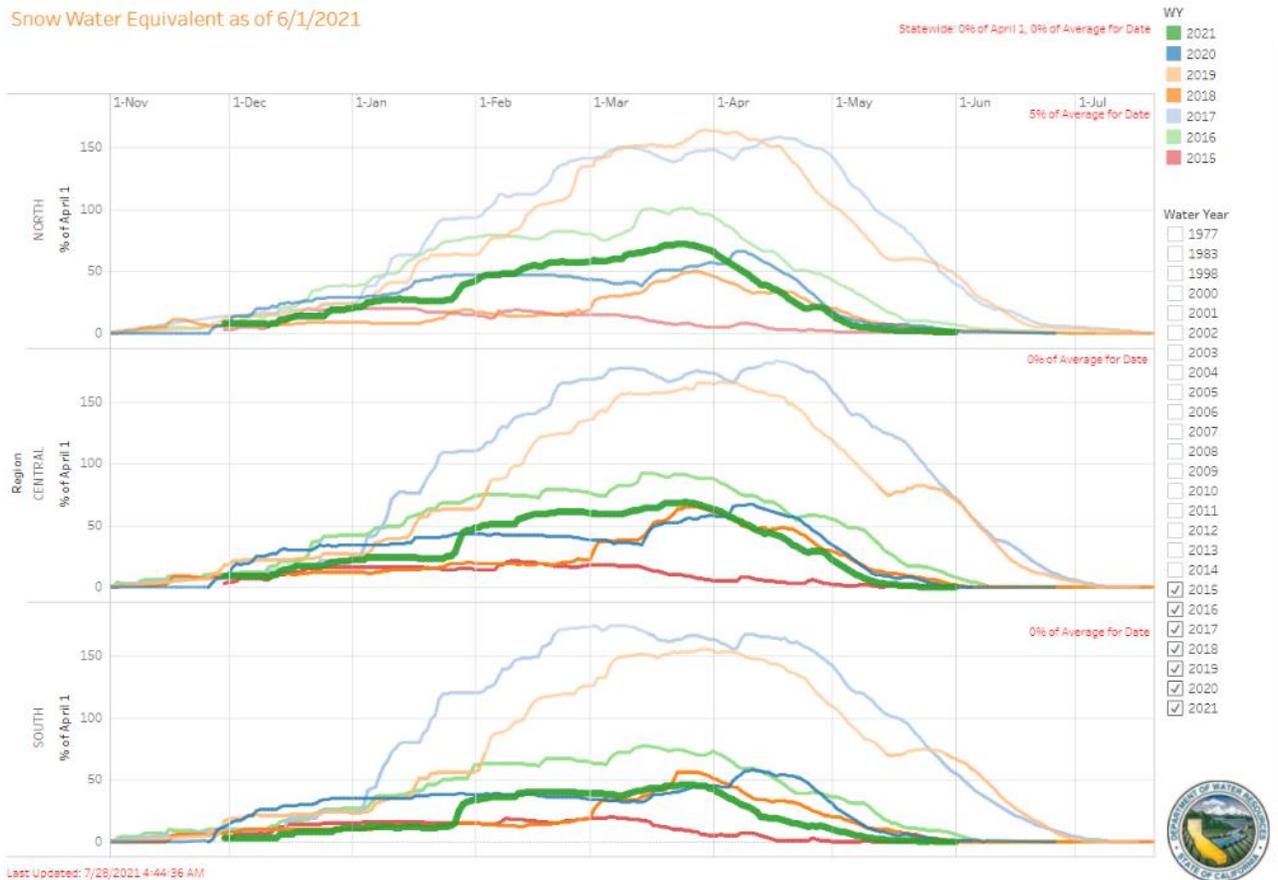
RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	950,930	39	65	50
SHASTA LAKE	1,364,643	30	56	44
LAKE OROVILLE	841,672	24	51	34
SAN LUIS RES	357,969	18	46	38



SNOWPACK WATER CONTENT

Snow Water Equivalent as of 6/1/2021



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 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.

VELES WATER WEEKLY REPORT

DROUGHT MONITOR



U.S. Drought Monitor California

August 3, 2021
(Released Thursday, Aug. 5, 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	95.07	88.37	46.45
Last Week 07-27-2021	0.00	100.00	100.00	95.09	88.59	46.49
3 Months Ago 05-04-2021	0.00	100.00	97.52	92.88	73.31	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 08-04-2020	33.74	66.26	50.38	21.50	3.04	0.00

Intensity:
 None (White)
 D0 Abnormally Dry (Yellow)
 D1 Moderate Drought (Orange)
 D2 Severe Drought (Red-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:
Richard Tinker
CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu

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



August 3, 2021
compared to
July 27, 2021

droughtmonitor.unl.edu



- 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

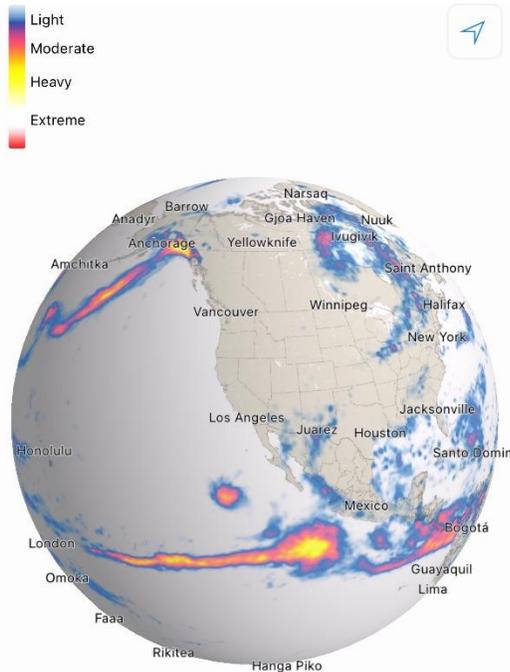
The US Drought Monitor release their statistics with a 1-week lag to this report. As can be seen from the previous page, there has been very little change in drought conditions from last week to this week.

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 no frontal activity from the Pacific heading towards



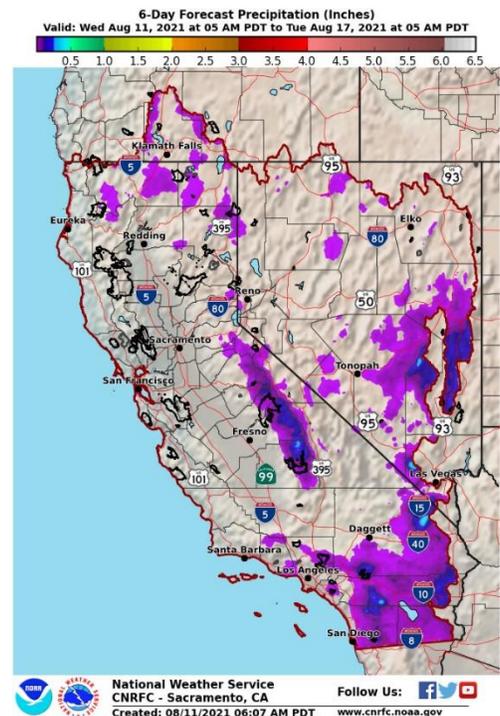
CA. there is Monsoon related moisture inflowing from the Southern border with Mexico which is bringing relief to areas in the SW spreading Northwards as high as Idaho. Our models expect these conditions to lessen over the next week.

NOAA data shows that the average monthly temperature in July was 80 degrees, 5.3 degrees above normal, (the average temperature from 1901 to 2000). June's average temperature was 75 degrees, 6.8 degrees above normal.

10 Day Outlook

A high-pressure ridge just off the west coast is centered offshore of the Pacific Northwest this morning. This feature is expected to drift toward the east and then build toward the Great Basin for the end of the week. High temperatures are expected to be above normal into the weekend. With flow from the south and east...expect available moisture to continue to increase with scattered convection possible mainly during the afternoon and early evening hours. As was the case overnight across southeast CA and San Diego County it cannot be ruled out this convection lasting into the nighttime hours with subtle disturbances moving through the flow. Best opportunity looks to be over the central/southern Sierra along with portions of southern CA into southern NV. Models are also hinting at lesser of a chance of showers and thunderstorms over the upper Klamath River basin down across northeast CA. A short wave trough will approach the Pacific Northwest next week, which should help to lower

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VELES WATER WEEKLY REPORT

temperatures a bit. This may suppress convective activity or at least limit it to areas closer to the lower Colorado River basin.

Reference: Hydrometeorological Discussion

National Weather Service / California Nevada RFC / Sacramento CA

WESTERN WEATHER DISCUSSION

The West has been a region of extremes for a few weeks now. Abundant monsoonal rainfall has affected Arizona and New Mexico for about a month, and recently heavy rains expanded as far northward as eastern Nevada, southern Idaho, Utah, and the adjacent fringes of the High Plains Region. July 2021 was the wettest month ever in Tucson, Arizona, where more than 8 inches of rain fell. This stands in sharp contrast to the approximately 0.5 inch of rain that fell last July. A 5-day stretch in late July saw more rain than the entire year of 2020. Across southeast Arizona, 13 flood warnings were issued for at least a brief time in a small area during 2020. So far this summer, 83 such warnings have been issued. Still, while the monsoon has been very beneficial across southern and central sections of the West Region, the protracted length and severity of the drought there still has most of this region in Severe Drought (D2) or worse, with a large area of D3 and D4 covering Utah and most of Nevada. Across the northern and western tiers of the West Region, conditions have been far drier, and with frequent rounds of abnormal heat, drought conditions and impacts continue to increase. Eastern Washington, central Oregon, and now parts of Montana are in Exceptional (D4) drought, with 1-classification deterioration noted across the entire state of Montana last week. The dryness and periodic intense heat have abetted the development and spread of large wildfires. So far this year, roughly the western half of the country has endured almost 17,000 large fires which have scorched about 2.5 million acres of land.

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



WATER NEWS

CALIFORNIA WATER NEWS

Ways to save water during the drought — and whether it's worth doing at all

In case you hadn't heard, California is once again in a drought.

But don't take our word for it. The pictures tell a chilling (or, rather, incrementally heating) story. Boat slips on dry land. "Bathtub rings" around lakes. Juvenile salmon cooked to death in warming rivers. And the U.N.'s Intergovernmental Panel on Climate Change issued a report on Monday that outlines just how much damage has been done and who's to blame: "It is a statement of fact, we cannot be any more certain; it is unequivocal and indisputable that humans are warming the planet."

Something has to change.

In July, Gov. Gavin Newsom asked Californians to reduce residential water usage by 15% to help combat the drought. Back in 2015, then-Gov. Jerry Brown asked for a 25% reduction. A year later, residential water usage was down 24.5%.

But now, some Californians who made those impactful changes half a decade ago — ripping out lawns, replacing old toilets and showerheads, letting the Prius develop a tactile layer of dirt and dust before hitting the car wash — are stumped as to how to cut back any more without risking a body odor apocalypse on top of the climate one.

"For my household, meeting the governor's requested 15% reduction in water use will be impossible unless we stop showering," wrote one reader in a letter to the editor.

Furthermore, if we previously cut residential usage by a quarter and still landed back in a drought, what's the point of cutting more? Could it possibly make a difference?

Perhaps surprisingly, yes.

First, it's important to know how California uses water. About 80% of water used in the state goes toward agriculture, said Kelly Sanders, associate professor of civil and environmental engineering at USC. The other 20% is urban usage, she said, which is split roughly in half between indoor and outdoor use. So when we talk about shorter showers and turning off the tap when you brush your teeth, you're playing with a pretty small slice of the overall pie.

Original Article: [The LA Times by Jessica Roy](#)



VELES WATER WEEKLY REPORT

Northstate Farmer and State Department of Water Resources speak up on water cut backs

As California continues to experience severe drought conditions, cutbacks on water usage to conserve water are also becoming more common.

In Wednesday's meeting, a number of experts spoke, including the California Department of Water Resources State Climatologist Mike Anderson, and Resource Manager Jeanine Jones.

During the meeting, we were briefed on the current drought conditions, which are extreme to severe in much of the state.

We asked what the future looks like for farmers in the state when it comes to water allocations and cutbacks. State Water Resources Program Manager Roberto Cervantes tried to stress no one is excited about the cutbacks, "The overall impact is a reduction in water for the agricultural community, it reduces the size of their crops. These curtailment orders and calculations aren't taken lightly, we take these things very seriously, we realize these allocations impact real people." says Cervantes.

Cervantes says everyone who is a water user could be impacted. He says as of now the drought is so bad there is not much water available even for water rights holders before 1914.

The Department of Water Resources says there are 9 million agricultural acres in the state.

One Northstate farmer and livestock range and pasture advisor for the University of California, Josh Davy, says "I'm not sure that it is fully understood, the gravity of the impact. I think the big part being, we need to understand we can't put these operations on hold." continues "I hope that we are encouraged to look at not only water management but water storage, and our capacity to be able to do that."

Davy says collectively, farmers in the state could lose millions of dollars due to the lack of water.

Original Article: [KRCRTV by Kassandra Gutierrez](#)

Rare California water restrictions hit farmers amid dire shortages

Faced with dire water shortages and a severe drought, California has moved to enact emergency restrictions that will prevent thousands of farmers and landowners from using water drawn from an enormous system of streams and rivers that services nearly two-thirds of the state.



VELES WATER WEEKLY REPORT

Regulators on the water resources control board, which oversees the allocation of the state's water, voted unanimously on Tuesday to stop diversions from the Sacramento-San Joaquin Delta, a vast watershed sprawling from Fresno to the Oregon border. This unprecedented action will primarily affect those using water for agricultural irrigation purposes, the Los Angeles Times reported. The restrictions will force some farmers to rely on alternative supplies, such as groundwater wells. But the timing of the order, which will take effect in two weeks, could spare many growers from hardship as the greatest agricultural demand on the watershed tends to fall in late spring and summer, the newspaper said.

Original Article: [The Guardian by Dani Anguiano](#)

Westlands, Environmental Group Align in Water Rights Fight

California doesn't have enough water to meet all demands even in wet years, and when drought strikes the competition becomes, to put it mildly, intense.

State and federal officials who must ration the restricted supply are beset with pleas from farmers, municipal water systems and advocates for the environment.

However, water managers must also contend with a bewildering array of water rights, some of which date to the 19th century, as well as long-standing contractual obligations and laws, both statutes and judicial decrees, on maintaining flows for spawning salmon and other wildlife.

Those conflicting factors came into play last week when the state Water Resources Control Board voted unanimously to curtail nearly all agricultural water diversions from the Sacramento-San Joaquin Delta watershed, which stretches about 500 miles from near the Oregon border to near the Tehachapi Mountains.

The decree will affect farmers, who use most of the water allocated for human use, but not immediately. The season for irrigating crops is nearly over and water managers delivered a fairly substantial share of agricultural water earlier in the year — too much in the eyes of environmental groups.

However, if drought and the board's no-diversion policy continue into 2022, they will almost certainly ignite a high-stakes political and legal conflict over whether the state can essentially usurp historic water rights and dictate how local farm water systems are to be operated.

Valerie Kincaid, a water law attorney who represents the San Joaquin Tributaries Authority, bluntly told the board, "We now have a draft regulation that exceeds water board authority," hinting that a legal battle over water rights is looming.



VELES WATER WEEKLY REPORT

The state first began regulating water in 1914 and holders of pre-existing water rights, plus landowners adjacent to waterways, have long been presumed to have virtually unfettered rights to draw water without regulation.

However, in more recent years, the legal status of those pre-1914 rights has been questioned. As drought gripped the state during his first stint as governor 40-plus years ago, Jerry Brown appointed a commission to review water rights, saying, “the existing law included impediments to the fullest beneficial use of California’s water.”

Nothing came of that effort but when another drought hit during Brown’s second governorship, his water board appointees attempted to breach senior water rights by punishing a small water district near Tracy for ignoring a curtailment order.

“We are a test case,” the Byron-Bethany district’s manager, Rick Gilmore, said at the time. “I think this has become a larger issue. I think the water board wants to use this as a precedent so they can start to gain more control over senior water right users.”

Water Rights Battle

The conflict fizzled before it could morph into an all-out legal battle but other senior rights holders did win a legal ruling that the state was issuing its curtailment decrees without due process.

Environmental groups and some agricultural interests that lack water rights, such as the immense Westlands Water District, seem to be spoiling for a water rights battle.

Westlands endorsed last week’s board action, referring to deliveries to senior rights holders as “unlawful diversions” of water needed to maintain water quality. Westlands thus became a strange bedfellow ally of the Natural Resources Defense Council, which complains that the federal Central Valley Project gave farmers with senior rights too much Lake Shasta water in the spring, leaving too little to support salmon spawning runs. As drought becomes more frequent, California will — or should be — compelled to re-think its entire water system and the status of water rights will be a central and very volatile factor.

Original Article: [CalMatters/ GV Wire by Dan Walters](#)

How the California Megadrought Is Affecting Food Prices

The West is currently facing its worst megadrought in at least 1,200 years. This has caused multiple states to impose water restrictions, and it doesn’t look like things are going to get better any time soon. Lake Mead’s water supply, which provides water to Arizona, Nevada, and part of Mexico, is currently at its lowest level since the Hoover



VELES WATER WEEKLY REPORT

Dam was completed in 1936. Other reservoirs from Lake Powell to many in California have followed suit.

All of this is causing major problems for farmers in California, Arizona, and beyond. California produces “over a third of the country’s vegetables and two-thirds of the country’s fruits and nuts” and much of its dairy products, according to the California Department of Food and Agriculture. That means what’s happening in the West is going to have implications for the entire nation. If we don’t move quickly to address climate change and how we manage water resources, this could become a problem that only gets harder to manage every year.

As farmers fight for water, multiple types of food could increase in price due to this megadrought. Timothy Richards, an agricultural economist at Arizona State University, said we’re already starting to see this happen.

“So far we’re seeing avocado prices up 10%,” Richards said. “All of the usual culprits that are water-intensive in California agriculture are starting to increase in prices.”

Richards said he also expects the price of lettuce and tree nuts like almonds and pistachios to go up. Growing tree nuts is highly water-intensive, and some California farmers are already ripping out their almond trees, which is a big deal considering it takes about five years just for a tree to produce enough almonds to start selling them, let alone turn a profit.

“When you grow those tree crops, that’s a 25-year investment,” Richards said. “Farmers are buying as much water as they can find to feed those crops, because if they lose water for those crops, they lose all of that investment.”

That could have long-term impacts on almond prices given the investment timetable. Other food items could see short-term price increases as well. California produces 100% of U.S.’s sushi rice, an extremely water intensive crop. Due to the drought, it appears its price is also going to increase. Richards said dairy prices may be affected due to the fact that the alfalfa dairy cows eat requires so much water to grow. It’s not just dairy cows either. Levan Elbakidze, an associate professor of agriculture at West Virginia University, said hay prices have increased significantly, which could affect beef prices considering that’s what the cattle eat. He agreed that lettuce and almond prices will likely increase.

Elbakidze said how much food prices will increase will depend on how much we can import and at what price we can import those goods. We may also need to consider shifting where we grow things. He said California grows strawberries, for example, but



VELES WATER WEEKLY REPORT

so does Florida. The latter could increase strawberry production to keep them affordable and readily available, blunting some of the impacts of the drought.

"If this lasts for years, we will see adjustments in our production practices," Ebdakidze says.

Due to the fact Lake Mead's water supply is so low, a good year of rain and snowpack wouldn't be enough to bring it back above drought levels. He said he believes it would require about three wet years to make that happen.

Original Article: [Gizmodo by Thor Benson](#)

IID's new Coachella Valley Energy Commission tackles energy, water divide

Seeking to stave off legislation that would force Riverside County representation on its board of directors, the Imperial Irrigation District on Thursday convened the first meeting of its new Coachella Valley Energy Commission.

Under a long-term agreement with the Coachella Valley Water District, IID provides electrical power to 100,000 Coachella Valley residents. That pact expires in 2033, and the new commission's overarching goal is to hammer out a way forward for those customers.

"As we approach the end of a 99-year arrangement ... we must work together and adapt to changing circumstances and plan for a future of mutual benefit," said IID Board of Directors Vice President J.B. Hamby, who chairs the new commission. "That's not just overcoming perceived differences between Coachella and Imperial Valleys, but within the Coachella Valley as well. Our task is to overcome geography, wealth, backgrounds, and past differences as we plan our shared future."

Coachella Valley officials and customers are concerned about IID's aging or inadequate infrastructure to handle growth, and possibly higher consumer costs to pay for new equipment. While some praised Hamby for his collaborative approach and long-term planning, others on the commission and others not included on it, notably CVWD and community groups in the eastern Coachella Valley, expressed some criticism.

Activists and residents from Mecca, Thermal, Coachella, North Shore and Indio said they often experience more frequent and longer outages than wealthier communities and neighborhoods, and they deserve critical infrastructure upgrades and better representation.

"The electrical power grid in the (eastern Coachella Valley), and rural communities in general, has failed to provide reliable energy service to its customers. Extreme weather events have become more common, often exacerbated by climate change," leading to



VELES WATER WEEKLY REPORT

downed transmission lines and other woes, wrote 42 community members in a letter to IID's board. "Residents go days without electricity, losing food, access to critical medical equipment and online education."

Original Article: [Desert Sun by Janet Wilson](#)

California Department of Water Resources Statement on the Status of Hyatt Powerplant at Lake Oroville Says the State has Planned for its Loss in Both Water and Grid Management

Located near Oroville Dam, Edward Hyatt Powerplant is an underground, hydroelectric, pumping-generating facility located in Butte County, California. Construction of the plant began in 1964 and was completed in 1967. Hyatt Powerplant maximizes power production through pumped storage operation where water, released for power in excess of local and downstream requirements, is returned to storage in Lake Oroville during off-peak periods and is used for generation during peak power demands. Water from the lake is conveyed to the units through penstocks and branch lines. After passing through the units, water is discharged through the draft tubes to one free surface and one full-flow tailrace tunnel.

Credit:DWR

August 7, 2021 - On Thursday, Department of Water Resources Director Karla Nemeth released the following statement regarding the status of hydropower operations at the Hyatt Powerplant at Lake Oroville.

“DWR State Water Project operations managers have taken the Hyatt Powerplant at Lake Oroville offline due to falling lake levels. This is the first time Hyatt Powerplant has gone offline as a result of low lake levels. However, DWR anticipated this moment, and the state has planned for its loss in both water and grid management. We have been in regular communication about the status of Hyatt Powerplant with the California Independent Service Operator (CAISO) and the California Energy Commission and steps have been taken in anticipation of the loss of power generation.

“This is just one of many unprecedented impacts we are experiencing in California as a result of our climate-induced drought. California and much of the western part of the United States are experiencing the impacts of accelerated climate change including record-low reservoir levels due to dramatically reduced runoff this spring.

“DWR will continue to focus on reservoir operations and water storage management at Lake Oroville to preserve as much water in storage as possible. DWR will use the River



VELES WATER WEEKLY REPORT

Valve Outlet System to release some water from the base of Oroville Dam to maintain river temperature requirements and outflows to the Feather River.

“Falling reservoir levels are another example of why it is so critical that all Californians conserve water. We are calling on everyone to take action now to reduce water use by 15 percent, to preserve as much water supply in storage as possible should we experience another dry year. We are all in this together.”

Background

DWR is delivering five percent of requested water supplies to State Water Project contractors who in turn provide water for agricultural and urban use. Deliveries are being met almost entirely from storage at San Luis Reservoir in Merced County and those deliveries have little impact on the amount of water being stored or released from Lake Oroville.

Original Article: [CA DWR](#)

Impacts of California drought, water woes threaten energy, agriculture

California is seeing the effects of the West's historic "megadrought," which has cut off critical water resources in multiple states.

As heat waves continue to threaten communities, the state has been forced to scrutinize the way it distributes the water that's still accessible.

According to the U.S. Drought Monitor, more than 95% of the region is in "moderate" to "exceptional" drought.

On Thursday, the Golden State was forced to shut down the six-turbine Edward Hyatt Power Plant – one of its largest hydroelectric plants – because there is not enough water to power it.

The plant draws from the Oroville Dam reservoir that has sunk to a historic low of fewer than 642 feet above mean sea level.

Officials said that it was the lowest level since the country's tallest dam was finished in 1967 and the first time the hydroelectric plant has been shut due to a lack of water.

The California Department of Water Resources said the shutdown had been expected "and the state has planned for its loss in both water and [electrical] grid management."

The plant can produce enough power for 80,000 homes and businesses. Hydropower provides around 15% of California's electricity.



VELES WATER WEEKLY REPORT

Last month, Gov. Gavin Newsom signed an emergency proclamation making it easier for the state to obtain additional power capacity in order to avoid blackouts under high-demand conditions.

"This is just one of many unprecedented impacts we are experiencing in California as a result of our climate-induced drought," DWR Director Karla Nemeth said.

Aerial images have shown reservoirs and other water sources drying up over the last few months, forcing residents to haul in houseboats and the state to transport millions of impacted salmon to the coast.

Lake Mead, a key reservoir on the Colorado River that supplies 40 million people including Californians, also dipped to its record low last month and is expected to continue declining until November.

The water level there impacts hydropower generation at Hoover Dam.

Lake Oroville, Lake Mead, Utah's Great Salt Lake and Lake Powell – the second-largest reservoir in the U.S. which sits on the Utah-Arizona border and has also seen its water level plummet to a historic low – serve as climate change harbingers.

Original Article: [Fox News by Julia Musto](#)

Oceanside Awarded \$1.7 Million for Pure Water Oceanside Project

On track for completion in 2022, Pure Water Oceanside will create a new local source of high-quality drinking water that is clean, safe, drought-proof and environmentally sound.

Aiding in the development of the water purification project has been funding in excess of \$17 million from Federal, State and local water districts received in prior years. Now, the city has learned that the Secretary of the Interior will be recommending an additional \$1.7 million grant award for construction of the Pure Water Oceanside project.

The funding will be awarded via the Bureau of Reclamation's WaterSMART: Title XVI WIIN Water Reclamation and Reuse Projects funding opportunity. Oceanside is one of eleven applicants being named in the Federal appropriations process for this funding.

Through the Title XVI program, U.S. Bureau of Reclamation provides grants to water districts and communities to reclaim and reuse wastewater and impaired ground and surface water in the Western United States. The funding may be used for the planning, design or construction of water recycling and reuse projects.

The project will provide more than 32% of the City of Oceanside's water supply, or 3 to 5 million gallons per day, and be the first operating advanced water purification facility



VELES WATER WEEKLY REPORT

in San Diego County. Currently, the City imports approximately 85% of its drinking water from the Sacramento Bay Delta and the Colorado River, which are hundreds of miles away. Construction for the project is underway and includes a new water purification facility, pipelines under Douglas Drive and North River Road, three injection wells and monitoring wells.

"We are excited to continue working with the Bureau of Reclamation on Pure Water Oceanside. Their continued support along with multiple grant, loan and incentive programs through the EPA, the Department of Water Resources as well as Metropolitan Water District and the San Diego County Water Authority continue to make local water supply development affordable for the City of Oceanside customers," said Water Utilities Director Cari Dale.

Pure Water Oceanside was previously awarded a combined \$6 million for the fiscal year 2019 and 2020 Title XVI WIIN grant opportunity, totaling \$7.7 million with this year's award. The City also received \$3.115 million in State grant funding for the Project from the Department of Water Resources (DWR). These funds result from Proposition 1, a bond measure approved by voters in 2014 to improve water infrastructure statewide. EPA selected Pure Water Oceanside and portions of Oceanside's recycled systems for a Federal WIFIA loan. The interest rate on the loan was 1.20%. Additionally, Metropolitan Water District and the San Diego County Water Authority also approved Local Resources Program funding, which provides a financial incentive to develop local water supplies. Other funding sources come from developers as well as ratepayers.

Original Article: [Patch by Lisa Frost](#)

PWD considers water use restrictions

As a historic drought grips California and the rest of the Western United States, the Palmdale Water District Board of Directors on Tuesday will consider implementing Stage Two of its Water Shortage Contingency Plan, continuing voluntary water use reductions for customers while leaving open the possibility of mandated reductions.

The Board meeting begins at 6 p.m. Members of the public may participate via teleconference by dialing 571-748-4021, attendee PIN 660-786-940#.

The declaration won't have much immediate effect on customers, who have already been asked to reduce their water use, District spokeswoman Judy Shay said.



VELES WATER WEEKLY REPORT

The District in June adopted an updated Water Shortage Contingency Plan, in which the requested 15% reduction falls under Stage Two instead of Stage One as it was in the previous plan.

The Board had already enacted Stage One of the previous plan in April.

The Board may chose to make the reduction voluntary or mandated, and may switch between the two requirements, according the staff report.

District staff is recommending the reduction remain voluntary at this time, while the District continues educational and other outreach to encourage customers to conserve water.

The Board may also decide to implement a drought surcharge or drought factor in billing under the Stage Two declaration.

The District's water plan shows it has the capacity to withstand one year of drought without depleting supplies, but the problem becomes more acute if drought continues for consecutive years.

A 15% reduction in water use this year will help ensure supplies for next year, officials said.

State Water Project deliveries this year are down to only 5% of their allotment. This water, delivered through the California Aqueduct, is one of three sources of water for the District. A second source, water collected in the reservoir behind Littlerock Dam from runoff in the San Gabriel Mountains, is also severely depleted.

The District has the capacity for pumping enough groundwater to meet supply needs this year, but that amount will decrease next year, under the terms of the court judgment that dictates groundwater rights in the Valley.

Original Article: [AV Press by Allison Gatlin](#)

Amid drought, California cuts Merced, Valley farmers off from main river water sources

State regulators cut off Merced and central San Joaquin Valley farmers from their main irrigation supplies Tuesday, banning them from drawing water from the California's main rivers and streams as the drought worsens.

The State Water Resources Control Board heard hours of debate before unanimously voting to impose an "emergency curtailment" order covering the rivers of the Sacramento-San Joaquin Delta watershed — essentially the entire Central Valley.



VELES WATER WEEKLY REPORT

It's the most dramatic step taken to date by state regulators since the drought was officially declared in most of California's counties, and it surpasses any of the moves made during the previous drought.

"This is a terrible situation that we're all in," said board member Sean Maguire.

The board decision is the latest blow to California agriculture and the state's \$50 billion-a-year farm economy. Already, most of the farmers who rely on the State Water Project or the federal government's Central Valley Project have had their allocations slashed to nothing or nearly nothing. The state board's order affects those with direct legal rights to divert water from the rivers.

The drought year sets Fresno-area farmers up for difficult decisions on fallowing land. Joe Del Bosque's farmland straddles Merced and Fresno counties. He said recently the drought this year means he had to fallow a 100-acre asparagus field worth "hundreds of thousands of dollars" and he's looking at how much he'll have to cut back on melon fields.

"If you look at California, it's been 50 years since we've built new water storage. That's too long," he said. "It's very daunting."

The board said it needed to curtail farmers' usage to preserve river flows for drinking water as well as endangered fish species. "Adoption of an emergency regulation is necessary to address the immediate and dire water shortages in the Delta watershed," the order says.

Some farm groups, while not contesting the decision, said the order underscores the desperate need for more reservoirs and dams to store water.

Original Article: [Merced Sun Star by Thaddeus Miller](#)

Could California handle another year of drought? State officials weigh in on current situation

In a multi-agency meeting on the state of California's drought conditions, state officials painted a broader picture on water allocation, lack of available water and what the Golden State is facing in the months and years to come.

Officials expect record low water levels across the state, especially for Oroville and San Luis Reservoir. Jeanine Jones with the California Department of Water Resources said the state is at 58% of average reservoir storage as a whole for this time of year. As of Monday, Aug. 9, Lake Oroville came in at 34% of average and Folsom Lake came in at 35% of average.



VELES WATER WEEKLY REPORT

The lack of storms from atmospheric rivers and massive snowpack run-off is to blame for the lack of water in reservoirs. The soils were so dry, the little water California received, in terms of snowpack, was unable to seep into the ground.

"If next year is bad, we will need 140% of average precipitation to get average run off. It shows how truly dry we are," Jones said.

Climatologists say it's too early to tell if it's going to be a wet or dry year during winter time circulations. A lot of what happens is affected by the jet stream.

In 2011, storms from the Gulf of Alaska helped to provided better snowpack. The 2018-19 water year was also better than average, but since then, it's been below average water and drought years.

The big focus now is on underground storage basins.

"Drinking water aside, small water systems are really affected," Jones said. "Problems are private wells and dry wells with small systems in Tulare County may only have 100 connections or less."

The lack of water in reservoirs is trickling down to other issues, like the energy grid, agriculture communities and state recreation parks.

Robert Cervantes, the enforcement program manager for the Division of Water Rights, said a hydro-analysis was performed in May, showing supply and demand calculations across California's watersheds. This led to an informational meeting and letters sent out to priority water rights holders, letting them know there would not be enough water to meet the demand. For many farmers, this meant they would need to decide on which crops to grow and even if they would need to fallow land.

"These curtailment orders weren't taken lightly," Cervantes said. "They impact real people with businesses. What the orders mean is that we're taking formal action to reduce the amount of water legally available for diversions."

Original Article: [ABC 10 News by Carly Gomez](#)



US WATER NEWS

Report outlines Colorado River resilience strategies

As extreme drought strains water supplies across the seven Colorado River Basin states, a coalition of conservation groups has released a report outlining long-term water resilience strategies in the basin.

State, federal and tribal investments should prepare the basin for watershed conditions that climate scientists are predicting, not "the ones we might wish for," said Kevin Moran, senior director of the Colorado River program at the Environmental Defense Fund, which helped commission the report.

"Resilience to me means the capacity of any system to adapt to changing conditions while still preserving outcomes that matter to communities and the environment," Moran said.

Some report recommendations build on existing initiatives, like urban water conservation and irrigation efficiency projects.

But others, like covering reservoirs or repurposing water rights from retired coal plants, are largely untested.

Other strategies include:

- Forest management and restoration
- Natural distributed storage
- Regenerative agriculture
- Cropping alternatives and new market pathways for farmers
- Industrial conservation and reuse
- Reducing dust on snow

"We've seen the devastating effects in recent months of extreme heat, wildfires, and dwindling water supplies," Moran said. "It's time that we start talking about practical solutions that can address the causes of these interconnected crises."

The Colorado River supports \$1.4 trillion in agricultural and commercial activity each year, according to a 2014 Arizona State University study.

The report comes as western water discussions play out on the national stage during congressional infrastructure package negotiations.

U.S. Interior Secretary Deb Haaland and Assistant Secretary for Water and Science Tanya Trujillo have visited Colorado and New Mexico this summer, where many water managers presented them with federal infrastructure "wish lists."



VELES WATER WEEKLY REPORT

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

Rio Grande farmers have unique relationship with irrigation technology

Technology can help farmers target their irrigation to the needs of the crop and the soil, thereby making them more water efficient – if it is adopted.

Researchers at the Texas Water Resources Institute, TWRI, a unit of Texas A&M AgriLife, recently completed a phase of research in the Rio Grande Coordinated Agriculture Project. The effort looked at area farmers' use of scientific irrigation scheduling technology and what prevents some from adopting it.

"Irrigation scheduling is a science where we try to find out how much water is required at what time to achieve a certain crop yield goal," said Ali Ajaz, Ph.D., Texas A&M AgriLife Extension Service program specialist for TWRI and investigator on the project.

Ajaz explained that few farmers use scientific irrigation scheduling technology. Instead, many farmers across the country, and in the Rio Grande region in particular, still use conventional ways of determining when to irrigate their crops. This can be anything from the feel of the soil, to visually assessing the condition of the crops, to irrigating when neighbors irrigate.

By contrast, scientific irrigation scheduling technology can integrate the use of soil and plant moisture sensing devices, weather data, computer modeling and other integrations of data into decision making.

A TWRI data collection team — Allen Berthold, Ph.D., Texas A&M AgriLife Research assistant director; Taylor Olsovsky, an AgriLife Research research associate; and Dhruva Kathuria, Ph.D., former graduate research assistant from the Department of Biological and Agricultural Engineering — sent surveys out to 1,500 Rio Grande irrigators in Texas and New Mexico.

Original Article: [Agri Life Today by Kerry Halladay](#)

Despite rain Utah reservoirs see no improvement, storage drops to 53%

As monsoon moisture exits the region and a drier stretch moves in, there doesn't appear to be an end in sight to Utah's ongoing drought.

The Utah Department of Natural Resources released the weekly drought update that stated that most of the state is still in an extreme drought despite the recent heavy rains that caused severe flooding in some areas.



VELES WATER WEEKLY REPORT

The rains did not help improve the state's shrinking reservoirs with the statewide average storage falling to 53 percent, from 55 percent just last week.

“Recent monsoons have soaked many parts of the state. This much-needed rain has helped reduce wildfire risk and temporarily improve soil moisture and streamflows. The storms have not, however, pulled us out of this drought,” Utah Department of Natural Resources Executive Director Brian Steed said. “Hopefully, steady rain and snow will continue into this winter when it will have the most significant impact on drought conditions.”

The DNR said the monsoonal rains we experienced are not all that common. They haven't been this robust over the past two years which has led to much drier soils and inefficient runoff.

They also mentioned that the rains have had a positive effect, leading to less water use on lawns as many Utahns have turned off their sprinklers to allow the rain to keep things fresh.

Original Article: [KJZZ by Sara Knox](#)

Drought relief approved for Oregon farmers as state reforms water well rules

The feds are footing the bill for parched Oregon farmland in the Klamath River Basin as the state looks to better manage its water wells.

On Monday, the U.S. Department of Agriculture announced a \$15 million grant it is awarding to the Klamath Drought Response Agency to offset losses related to irrigation. It follows a host of water conservation efforts in Klamath County in response to the region's shrinking water supply. As of Wednesday, the Upper Klamath Lake was at 38% capacity, according to the U.S. Bureau of Reclamation.

The news follows the closure of a major water source for the region, the Klamath Project's "A" Canal, for the rest of the year in light of the state's historic drought. The canal is a significant component of the Klamath Project, providing access to Upper Klamath Lake, supplying water to more than 200,000 acres of farmland.

The USDA says it will monitor the program's disbursement of the money and the need for additional financial support. The costs could be high for Southern Oregon farmers.

It was in 2001 that the region last saw a drought as severe as the one blanketing the Western U.S. in 2021. Based on research conducted by Oregon State University and the University of California, the disaster cost local farmers as much as \$46 million in crop and animal losses. Observers speculate this summer's drought is poised to top that figure.



VELES WATER WEEKLY REPORT

Original Article: [Blue Mountain Eagle by Tim Gruver](#)

State approves \$47 million for water improvements

The state approved more than \$47 million Thursday for projects to improve drinking and clean water infrastructure in eight of New York's 10 regions after statewide funding delays caused by the COVID-19 pandemic.

The state Environmental Facilities Corp. Board of Directors approved the grants, or interest-free and low-cost loans for drinking water and wastewater projects in cities, towns and villages in the north country, Capital District Finger Lakes, Mid-Hudson, Mohawk Valley, Southern Tier, and Central and Western New York.

"With this latest round of funding, EFC continues its commitment to helping communities undertake drinking water infrastructure and clean water initiatives in a cost-effective manner," Environmental Facilities Corporation President and CEO Joseph Rabito said in a statement. "Municipalities are completing projects statewide that will impact quality of life and water protection for years to come."

August is National Water Quality month, Rabito added.

The town of Pamela, Jefferson County, will receive the largest award for drinking water projects, including \$3 million in grants and \$13,477,234 in short-term, interest-free financing to install 75,000 linear feet of new water mains, to improve its water storage tank site, upgrade data control computer systems and replace 11,620 linear feet of existing water mains, according to a statement from Gov. Andrew Cuomo's office.

Town officials were notified the project would be funded by the state in 2019, but have been waiting for the award since, Pamela Town Supervisor Scott Allen said.

Original Article: [NNY 360 by Kate Lisa and Brain Kelly](#)

Senate passes \$1.2 trillion infrastructure bill in win for Sen. Kyrsten Sinema

The Senate passed the \$1.2 trillion bipartisan infrastructure package co-negotiated by Sen. Kyrsten Sinema, setting the stage to enact a massive infusion of federal spending to improve the country's public works.

The legislation passed the evenly divided Senate 69 to 30, with Vice President Kamala Harris presiding and announcing the final vote. It now moves to the House of Representatives, although it is unclear when the House might act on it.

The legislation, which includes \$550 billion in new spending, would make significant improvements to the nation's roads, bridges, transit, water systems, power grids, broadband access, airports, electric grids, ports of entry and other public infrastructure.



VELES WATER WEEKLY REPORT

At the same time, it would increase spending in an effort to build out infrastructure needed for a low-carbon economy — such as a network of electric vehicle charging stations and expanding clean transit options — to help reduce emissions and improve the country's water and air quality.

Underserved and low-income families should see more affordable and faster internet. The federal government will fully pay for enacted Indian water rights settlements that have for years been waiting on Congress for the funding to complete related tribal water infrastructure projects. And sanitation will be improved for an estimated 15,000 Navajo homes and thousands of other homes in tribal communities across Arizona.

Original Article: [AZ Central by Yvonne Wingett Sanchez](#)

Infrastructure bill could support water conservation in Southern Nevada

The U.S. Senate's passage of the roughly \$1 billion dollar infrastructure package could help Southern Nevada with our water allocation from the Colorado River.

Nevada receives about 300,000 acre feet of water under the deal -- the least amount among the seven states who draw water from the Colorado River.

Our allocation could go up if a water treatment plant partnership between the Metropolitan Water District of Southern California and the Southern Nevada Water Authority gets built.

A deal between the two water agencies would see part of California's 4.4 million acre feet water allocation given to Nevada in exchange for subsidizing construction of a \$450 million water recycling plant.

According to Bronson Mack from the Southern Nevada Water Authority, if the feasibility study and environmental assessments get the green light and the plant is built, then Nevada would contribute about 25% of the cost.

In exchange, some of the water that California draws on from the Colorado River would belong to Nevada.

The infrastructure deal must be passed by the House of Representatives and then signed into law by President Joe Biden.

What our allocation for our investment would amount to would be determined by the size and cost of the plant, according to Mack.

Original Article: [Fox 5 Vegas by Les Krifaton](#)



Attorney General Nessel works to reverse Trump-era Clean Water Act rule, give states more authority

Michigan Attorney General Dana Nessel joined an 18-state coalition to urge the repeal of a Trump-era rule that reduces state authority in the to approve or deny projects under the Clean Water Act.

Nessel joined other states like Oregon, Minnesota and Maryland in sending a letter to the Environmental Protection Agency, urging the agency to make changes to the rule, which was created in 2020. The states argue that, since its implementation, the rule has created “uncertainty and confusion,” which has complicated and delayed action that is urgently needed.

"Not only is this rule illegal, but it is harmful to our natural resources," Nessel said in a statement. "Protecting Michigan's water resources is crucial to the well-being of our residents and our environment. I urge the EPA to act quickly to repeal these misguided rule amendments."

Michigan has thousands of miles of streams and lakes used for drinking water, fishing and fun.

According to a poll conducted by Michigan State University's Health and Risk Communication Center in 2020, 78 percent of residents of states surrounding the Great Lakes support protecting streams and wetlands.

The poll also found that people who felt a sense of ownership or responsibility for their local watersheds were more supportive of their protection.

Original Article: [Fox 47 News by Elle Meyers](#)

Years of drought have led to the lowest water level in Lake Mead since the 1930s — what comes next?

The Colorado River is running low.

Battered by 20 years of drought, flows have been consistently dropping in the river that 40 million people depend upon. The water level in Lake Mead is the lowest it has been since Hoover Dam was built, at 36% capacity.

On Aug. 15, the U.S. Bureau of Reclamation will declare a shortage. That will result in a cut in deliveries to Arizona farmers. Most people won't notice any changes, either in their bills or the new subdivision being built down the block.



VELES WATER WEEKLY REPORT

But other cuts are looming, and life in the Southwest will become more complicated. Experts say a few wet winters won't change anything; the river is overallocated between states, and it's not coming back.

Should we conserve? Or not worry about it? Will we have water cops and drought-shaming, like Nevada and California?

"We have developed very adaptive, complicated systems so that we can have a high degree of water certainty, which we need to have because we're in one of the most arid places in the U.S.," said Sarah Porter, director of the Kyl Center for Water Policy at Arizona State University's Morrison Institute for Public Policy, a policy research think tank.

We don't see big impacts to residential users in the immediate future." — Sarah Porter
There won't be any immediate effects on urban growth. No city has looked to the Colorado River to support growth for some time — that water was allocated a long time ago. Developers are required to show proof of a 100-year supply for any residential project.

"More than half of the growth occurring in the (Central Arizona Project canal) service territory is occurring through enrollment in the groundwater replenishment district," Porter said. "The projections are for the rate of growth in their groundwater replenishment district to stay the same or increase, not to decrease."

A developer can enroll a development in the groundwater replenishment district. The development is served by the groundwater and through that enrollment. It's then the district's job to go find water to replace what has been mined.

The Central Arizona Groundwater Replenishment District has a 30-year deal with the Gila River Indian Community to lease a water supply. It's intended to bridge a transition to another water source.

Lots of cities have more than enough water for all their projected growth, especially the older cities that were here when the Salt River Project was established 118 years ago. Some cities have found other supplies of water, either through long-term leases with Native American tribes or through other kinds of supplies that have become available. It doesn't mean these cities don't face challenges, but they're not worried about where to find water supplies.

Newer cities like Buckeye and Queen Creek, however, are actively looking for water supplies.

The challenge for those areas that are growing on groundwater supplies with a promise to replenish in the future is what they are going to do when the groundwater supplies



VELES WATER WEEKLY REPORT

aren't available. Where are they going to get their water supply? How much growth should Arizona or the CAP area accommodate when we know that — at some point — there won't be any groundwater for all that growth?

“One of the things that's very evident if you look at the Arizona intrastate agreement around the Colorado River shortage, it's clear that there has been a big effort to try to protect the highest-priority users, which are cities and tribes, from shortage,” Porter said. “So the supplies for tribes and cities aren't impacted until we get to Tier 3.”

Tier 3 is when Lake Mead drops to 1,025 feet. It will hit Central Arizona Project municipal and industrial water users. A Tier 2 declaration is expected in 2023.

Porter doesn't see a near future involving things like water cops. One reason for that is who got water a hundred years ago.

There isn't one bucket of water that all the cities share; there is a priority system. But why should Phoenix and Mesa and Tucson have high priority when Buckeye wants to grow?

When a city knows how much water it has, it can plan and ensure a high degree of water resilience when it has secure long-term supplies. It enables everyone from lowest to highest to understand what their likely future is. And it's why some cities can build water-use-intensive data centers and microchip fabs and others can't.

“It means that you have winners and losers, and that's what we sort of have here,” Porter said. “We have places that want to grow, and they're really facing the challenge of how to get the water for growth. Now, did cities who have a lot of water now face that same challenge a long time ago? Yes, they did. They did before the CAP was built and they did before the Roosevelt Dam was built. It's been an ongoing challenge. It's just that some places have been in it longer and are arguably better off when it comes to water.”

Water rates are going to go up in cities where part of the supply comes from the Colorado River via the Central Arizona Project Canal. It's cheaper to move 2 million acre-feet of water than it is to move 1 million acre-feet. That's not going to cause a jump in your bill.

“We don't see big impacts to residential users in the immediate future,” Porter said.

Cities may step up conservation campaigns to stretch their supplies. And cities in the ground water replenishment district can expect their bills to go up “quite significantly,” according to Porter. (They won't see that cost on their water bill, but on their property tax bill.)



VELES WATER WEEKLY REPORT

“A lot of water policy has been designed to take us away from the edge of the knife and take us as far away as we reasonably can be,” Porter said. “We're on the edge, but we really are trying to plan out decades and decades in advance.”

Original Article: [ASU News by Scott Seckel](#)

A Crisis Of Water And Power On The Colorado River

The Colorado River is tapped out.

Another dry year has left the waterway that supplies 40 million people in the Southwest parched. A prolonged 21-year warming and drying trend is pushing the nation's two largest reservoirs to record lows. For the first time this summer, the federal government will declare a shortage.

Climate change is exacerbating the current drought. Warming temperatures are upending how the water cycle functions in the Southwest. The 1,450-mile long river acts as a drinking water supply, a hydroelectric power generator, and an irrigator of crop fields across seven Western states and two in Mexico. Scientists say the only way forward is to rein in demands on the river's water to match its decline.

With the river's infrastructure able to cushion against some of the immediate effects, what manifests is a slow-moving crisis. Water managers, farmers and city leaders clearly see the coming challenges, but haven't yet been forced to drastically change their uses, always hoping for another wet year to stave off the inevitable.

But with its two biggest buckets — Lakes Powell and Mead — at or below 35% of capacity, and projected to decline even further, a reckoning over the West's water use appears closer on the horizon.

Extremely dry conditions like the region is experiencing in 2021 make clear that the Colorado River is currently unable to meet all the demands communities in the Western U.S. have placed on it, and it's up to its biggest users to decide who has to rely on it less.

The Colorado River starts on Colorado's Western Slope, where father and son Wayne and Brackett Pollard run cattle. Up on a sagebrush-covered hillside, under a shade tree, the two men look down onto the river near Rifle. Their cattle graze on both sides, including on hay fields irrigated by the river's water.

“Typically, this would be high water and it hasn't really come up at all,” Brackett Pollard said in mid-June. Being a farmer or rancher in the West comes with a list of superlatives this year. He rattled them off: driest, hottest, lowest, worst.

“Last year was considerably dry, maybe the driest we'd seen. And now we're looking even drier,” Brackett said.



VELES WATER WEEKLY REPORT

“Our springs are starting to dry up, up on the mountain and everywhere,” Wayne added.

The river’s entirety, from its headwaters in Rocky Mountain National Park to the U.S.-Mexico border, experienced its driest 12-month period on record from May 2020 to April 2021. Record low levels of soil moisture diminished this past spring’s runoff, locking in water supply shortfalls until at least next winter when all hopes will be for a heavy blanket of snow.

Nearly all of the Upper Colorado River basin is experiencing severe drought or worse. Fishing and recreation closures on some tributaries, like the Dolores, Animas and Yampa Rivers, have started rolling out early as flows dwindle.

This dry spell comes with the usual lack of rain and snow, and the relentless sun, Brackett said. But this summer a hot wind has also arrived, functioning like a giant hair dryer pointed right at his pastures.

“It’s just like sucking the moisture out even more so,” Brackett said.

Food for cattle depends on the availability of water. The Pollards grow hay to supplement their livestock, and rely on grazing permits on public land. This summer, with viable ground more limited due to drought, they decided to put cattle on irrigated land that would normally be used to grow hay for later in the season. That’s a loss in income they’ll have to absorb.

Original Article: [Inside Climate News by Luke Runyon](#)

GLOBAL WATER NEWS

Project Signing: World Bank Signs \$250 Million Project to Make Existing Dams Safe and Resilient across India

The Government of India, the Central Water Commission, government representatives from 10 participating states and the World Bank today signed a \$250 million project, to support the Government of India’s long-term dam safety program and improve the safety and performance of existing dams across various states of India.

The Second Dam Rehabilitation and Improvement Project (DRIP-2) will strengthen dam safety by building dam safety guidelines, bring in global experience, and introduce innovative technologies. Another major innovation envisaged under the project, that is likely to transform dam safety management in the country, is the introduction of a risk-based approach to dam asset management that will help to effectively allocate financial resources towards priority dam safety needs.



VELES WATER WEEKLY REPORT

The project will be implemented in approximately 120 dams across the states of Chhattisgarh, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Rajasthan, and Tamil Nadu, and at the national level through the Central Water Commission (CWC). Other states or agencies may be added to the project during project implementation.

The Department of Economic Affairs, Ministry of Finance stated that “Dams provide critical infrastructure for power generation, flood moderation, and water supply for drinking, agriculture, and industrial use. Strengthening their structural safety and operational management will help in building better resilience to handle the effects of climate change. The Government of India has committed financial resources for a National Dam Safety Program including phased project support from development partners”.

The agreement was signed by Rajat Kumar Mishra, Additional Secretary, Department of Economic Affairs, Ministry of Finance on behalf of the Government of India; representatives from the state governments of Chhattisgarh, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Rajasthan, and Tamil Nadu; and Junaid Ahmad, Country Director, India on behalf of the World Bank.

“This is the world’s largest dam management program. Its objective is to break the costly cycle of ‘build-neglect-rebuild’ which characterizes the operations and maintenance of infrastructure across sectors,” said Junaid Ahmad, World Bank Country Director in India. “The expected outcomes will be game-changing: sustaining the livelihoods and food security of millions of Indians who depend on irrigated agriculture and enabling farmers to shift out of pumping groundwater, thereby, reducing energy consumption and greenhouse gas emissions. This program can act as a lighthouse for other countries tackling the challenge of managing hydraulic infrastructure.”

India is home to over 5000 large dams with a storage capacity of more than 300 billion cubic meters. Rainfall, which occurs mainly in intense and unpredictable downpours within short monsoon seasons, is of high temporal and spatial variability and does not meet year-round irrigation and other water demands. Considering this, storage of water in dams is essential for the country’s economic growth and for the millions of people who rely on their waters to sustain livelihoods. With average annual cost of floods in India estimated at US\$7.4 billion, many dams are critical in mitigating floods. Their failure could pose serious risks to downstream communities.



VELES WATER WEEKLY REPORT

World Bank support to dam safety in India includes the recently closed DRIP-1 (\$279 million + \$62 million Additional Financing) that improved the safety and sustainable performance of 223 dams in six states of India and one central agency. Original Article: [World Bank](#)

What Are Blue Bonds?

Our planet is often referred to as the blue planet since around 70% of the Earth's surface is covered with water. However, over the years, our water bodies have been flooded with pollutants, making marine pollution a serious problem.

To tackle this problem, there has been a rise in initiatives and projects geared towards climate change, sustainability, and the restoration of our ecosystem. One initiative is green bonds, which are instruments that finance climate-friendly projects. Green bonds have been around since 2008.

Recently, a new type of sustainability bond has emerged as the latest financing instrument: Blue bonds.

The concept of blue bonds is relatively new and comes at a time when trends suggest that there is a high demand for instruments that support sustainability issues.

Our oceans are not just a habitat to millions of species. They are also a provider of more than half of the world's oxygen, a major absorber of carbon dioxide, an important source of food and medicines, employment generator and a key determinant of environmental health. Waterways are considered to be the main routes for trade, and international shipping transports more than 80% of global trade all over the world, according to data by the UN International Maritime Organization. "The annual gross marine product (GMP)—equivalent to a country's annual gross domestic product—is at least \$2.5 trillion; the total "asset" base of the ocean is at least \$24 trillion," according to a report by the World Wild Life. When compared with GDPs of nations, the "ocean economy" emerges as one of the top ten largest economies in the world.

It is estimated that more than two-thirds of the annual base economic value of the ocean is produced by assets that rely directly on "healthy conditions." However, the health of the ocean is deteriorating due to multiple factors, such as the rising pollution levels, exploitation of marine natural resources, eutrophication, acidification and ocean warming. There has also been an alarming rise in dead zones in recent years from 400 in 2008 to 700 in 2019. According to a research study, if no action is taken to address the projected growth in plastic production and consumption, the amount of



VELES WATER WEEKLY REPORT

plastic that enter the ocean each year will nearly triple by 2040. However, the use of technology and other solutions “together could reduce by 2040 about 80% of the plastic pollution that flows into the ocean annually,” the study said.

The challenges faced by our marine ecosystem are recognized by the United Nations (UN) Sustainable Development Goals (SDG) as Goal 14, which aims to “conserve and sustainably use the ocean, seas and marine resources for sustainable development.”

Enter blue bonds

Blue bonds are pioneering financial instruments that are designed to support sustainable marine and fisheries projects. They are a subset of the green bonds. The World Bank defines blue bonds “as a debt instrument issued by governments, development banks or others to raise capital from impact investors to finance marine and ocean-based projects that have positive environmental, economic and climate benefits.”

Back in October 2018, the Republic of Seychelles launched the world’s first sovereign blue bond.

“The bond, which raised \$15 million from international investors, demonstrates the potential for countries to harness capital markets for financing the sustainable use of marine resources” according to the World Bank.

Original Article: [Nasdaq by Prableen Bajpai](#)

Imo, Delta 5 other states to benefit from World Bank’s \$700m loan for water projects

THE Federal Government yesterday said that seven states, comprising Imo, Delta, Bauchi, Ekiti, Katsina, Kaduna and Plateau will benefit from the first tier of the World Bank \$700 million for specific water projects in the country.

This is as the government has regretted the controversies surrounding the National Water Resources Bill currently before the National Assembly, saying that misinformation on the bill was deliberately being sent out for political reasons.

Minister of Water Resources, Sulaiman Adamu, who stated this while briefing State House correspondents at the Presidential Villa, Abuja, on the score card of his ministry, said the states will access between \$50 or \$60 million having met the criteria set up by the World Bank to do so.

The briefing was organised by the Presidential Communication Team.

According to the Minister, “Some certain criteria were set up by the World Bank and us. And the states had to meet this eligible criteria. And the projects are submitted into tier



VELES WATER WEEKLY REPORT

one and tier two. Tier one are for those that will get a substantial amount, maybe \$50, \$60 million for the urban schemes.

“For the P-WASH (Plan – Water, Sanitation and Hygiene) Action Plan, is the rural component and it is going to the state specifically. Some are going as grant while some of it is going to some specific projects. And like I said, there eligible criteria that states ought to have met, it is not all the 36 states. There are conditions attached on which basis that this money is going to be disbursed.

“So the whole thing has not been finalised yet, but what we have is an approval in general from the World Bank specifically for this, there’ll be some realignments here and there and that’s something that we’re going to be working on between our ministry, Ministry of Finance and the World Bank.”

He said the federal government was working on 116 ongoing and abandoned projects in the Ministry, adding that 38 irrigation, 458 water supply schemes and 37 dams and reservoirs have been completed.

He also said the federal government has declared that the days it was Father Christmas in terms of providing water projects in states are over.

Adamu announced that the maximum commitment to states henceforth will be 30 percent as it’s been discovered that some states were deliberately laidback and unwilling to do their parts in maintaining projects sited in their states.

Original Article: [Vanguard News Nigeria by Johnbosco Agbakwuru](#)

Investing in Nature Unlocks Development Benefits

Nature’s ability to provide services like clean water and food security is in jeopardy, threatening the very existence of human life. Nearly one million animal and plant species (out of an estimated eight million total) are threatened with extinction, and 14 of the 18 assessed categories of ecosystem services have declined since 1970 (IPBES 2019). As with climate change, severe degradation of nature threatens communities, value chains, and economies, and low-income countries stand to lose the most, as the recent Economic Case for Nature report estimates.

A new World Bank Group approach paper, Unlocking Nature-Smart Development, builds evidence that nature loss is capable of erasing recent gains in development and stripping some of the poorest countries of the foundations for future growth. The silver lining is that investing in nature can also be a development opportunity. For example, a recent World Bank study on protected areas in four countries demonstrated that investment in conservation generates positive economic returns, creates income



VELES WATER WEEKLY REPORT

multipliers, and provides practical green recovery options in times of COVID-19. Shifting sectors and value chains toward nature-smart practices can also create inclusive, long-term value and greener and higher quality jobs.

Transformative global action is needed to address a challenge this magnitude and make the most of the opportunities. The new paper outlines the building blocks of an effective global response, as well as six specific response areas intended to guide governments and inform broader discussions on how to integrate nature into development planning and implementation

Analysis shows that a few economic sectors are at the core of unlocking a nature-smart agenda. In other words, solutions to the crisis lie in the economic sectors that put the greatest pressure on biodiversity and ecosystem services: land and ocean use, infrastructure, and energy and extractives (WEF 2020b). For this reason, World Bank Group's work on biodiversity goes beyond conserving and protecting nature. Biodiversity is integrated into the broader portfolio of the World Bank in sectors like agriculture, forestry, watershed management, fisheries, and coastal zone management. The World Bank Group has been engaged in biodiversity for over three decades supporting countries in the transition to a greener, more resilient, and inclusive economy. In 2019-2020, the World Bank portfolio included 70 active projects supporting biodiversity in more than 50 countries, with a net commitment amount of US\$1.18 billion.

Here are some ways in which the World Bank is assisting countries with biodiversity and ecosystem services:

Investing in Nature-Based Solutions

Seeing nature as a solution can help countries tackle multiple challenges simultaneously, like food and water security, human health, and climate change. For instance, green infrastructure, such as mangroves, wetlands, and watersheds can enhance the performance of traditional infrastructure built for flood protection. Between 2012 and 2017, 81 World Bank projects supported green infrastructure and urban biodiversity solutions (Browder et al. 2019). It is estimated that nature-based solutions could deliver 37 percent of the cost-effective climate mitigation needed through 2030 (Griscom et al. 2017).

One example is the Metro Colombo Urban Development Project, which has supported urban wetland management and strategic planning for urban resilience at the municipal level. The project has supported tools to assess alternative approaches to flood risk mitigation and investing in flood protection through preservation of wetlands. During



VELES WATER WEEKLY REPORT

the COVID-19 pandemic, urban biodiversity has become even more vital, because it is linked to better quality of life and public health.

Increasing the Effectiveness of Protected Areas and Maximizing their Benefits to Local Communities

Protected forest areas are most effective when the community is a partner and jobs are created, including for indigenous peoples. Another priority area for the WBG is the creation of incentives for conservation, for example, by leveraging innovative co-financing models and financing mechanisms, to reduce the funding gaps for protected areas.

The GEF-funded Amazon Sustainable Landscapes program is designed to protect biodiversity and the integrity and resilience of the Amazon. The Amazon contains 40 percent of the planet's rainforest and a critical reservoir of biodiversity, but is facing immense pressure from deforestation, land degradation, fragmentation, and overexploitation of forest and freshwater ecosystems. The program is strengthening the management effectiveness of 65 million hectares of protected areas, facilitating the creation of 4.3 million hectares of new protected areas, and promoting sustainable productive practices in 11 million hectares. It is also implementing conservation agreements with Indigenous Peoples and local communities to build capacity and support local governance of natural resource management.

Mobilizing finance

Estimates reveal that there is a financing gap of US\$711 billion per year for biodiversity. In a recent report, the World Bank Group calls for a comprehensive approach to mobilizing resources that involves greening finance – directing financial flows away from projects with a negative impact on nature towards those with positive impact, as well as financing green - unlocking investment in conservation, restoration, and sustainable use of nature.

Another way to mobilize finance is through the design and application of financial instruments for conservation such as labeled bonds, transition bonds, sustainability-linked bonds, and insurance products, in the context of biodiversity. Over the past decade, the World Bank Group has created the foundation for what is today more than a US\$750 billion green bond market, which is connecting environmental projects with capital markets and mainstream investors. Since 2008, the World Bank has raised US\$14.3 billion through 168 green bonds issued in 22 currencies. The success of green bonds has inspired the creation of other thematic bonds, such as blue bonds.

Original Article: [World Bank](#)



Macquarie invests \$1.4 bln in Britain's Southern Water

Macquarie Group's MQG.AX asset management arm on Monday agreed to buy a majority stake in Southern Water for more than 1 billion pounds (\$1.39 billion), pledging to transform the British utility that has faced criticism and fines for polluting local rivers. The investment comes a month after Britain handed Southern Water a record fine of 90 million pounds after it pleaded guilty to illegal discharges of sewage that polluted rivers and coastal waters in southern England.

Southern Water provides services to 2.6 million water customers and 4.7 million wastewater customers across southern England in Sussex, Kent, Hampshire and the Isle of Wight.

The Australian fund said 2 billion pounds would be invested over the next four years of the current regulatory period to fix the pipes, pumping stations, and sewers that are underperforming and causing harm to the local environment.

"We acknowledge the business' transformation will take time and that is why we intend to own our stake in Southern Water over multiple regulatory periods," said Leigh Harrison, Head of Macquarie Infrastructure and Real Assets.

Macquarie Asset Management has \$427 billion in assets under management spread across Australia, the Americas, Europe, and Asia.

The fund, which has consulted with the British water regulator, said it has made several commitments to Southern Water including improving the water company's environmental track record, reducing leaks, and ensuring affordable customer bills.

Original Article: [Reuters/Nasdaq by Yadarisa Shabong](#)

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