

# Veles Water Weekly Report

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VelesWater



# WATER FUTURES MARKET ANALYSIS

Welcome to ***WATERTALK***

by Joshua Bell standing in for Robin Bieber

**CLICK THE LINK BELOW**

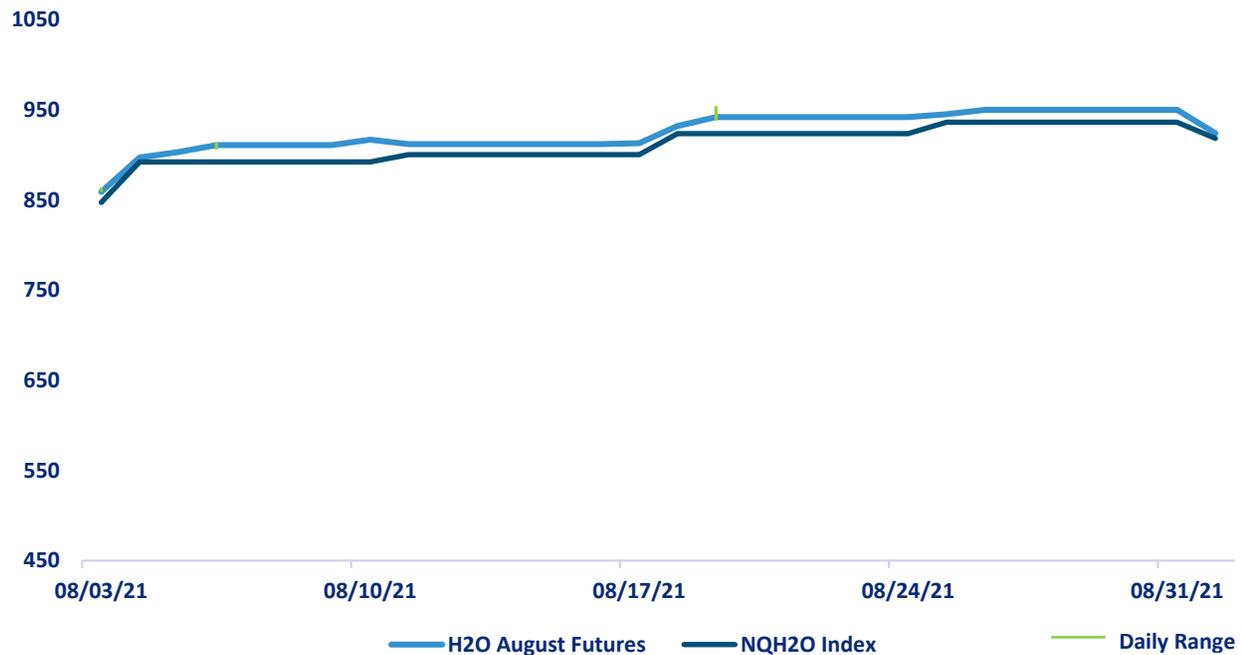
*"A 2 minute technical analysis video of H2O futures"*

<https://vimeo.com/596461700>



# NQH2O INDEX PRICE vs H2O FUTURES PRICE

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



Price Chart Based upon Daily Close

Yesterday, September 1<sup>st</sup> NQH2O was down \$17.77 or 1.90% from the previous week. Over the past week the H2O futures have closed at a premium of \$5.55-\$13.78 to the index, with a high of \$950 and a low of \$924.

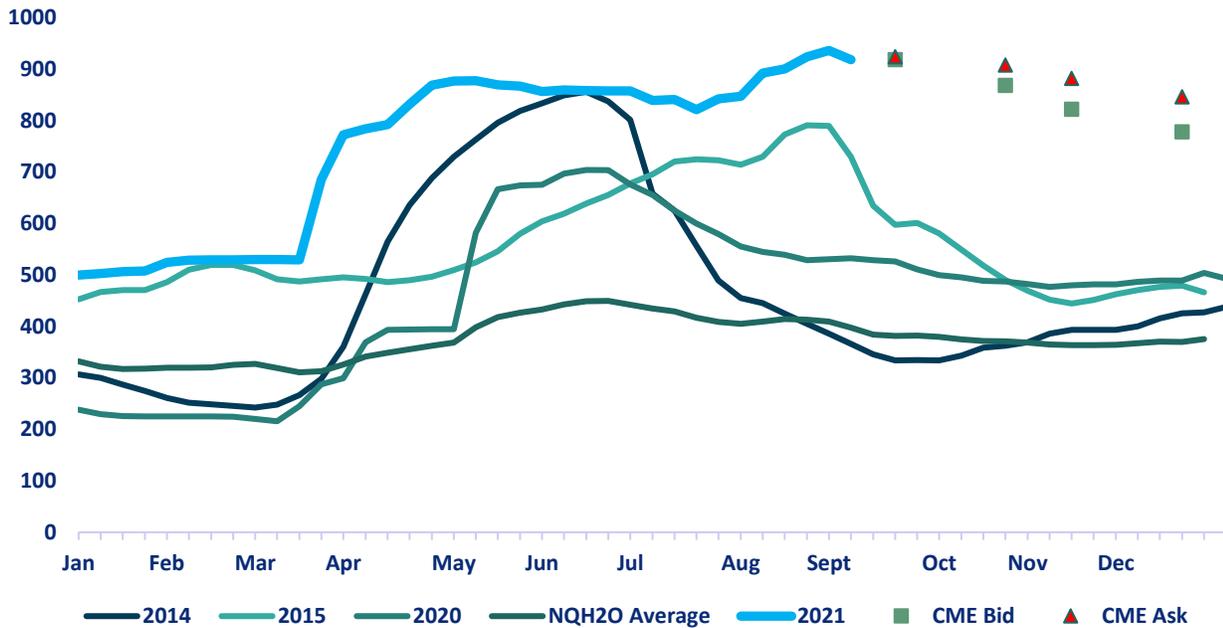
Below are the bid offer prices on different expiries being quoted in the market.

- September 918@924
- October 868@908
- November 822@882
- December 778@846
- June 22 950@1050

The December offer price is still cheaper than the September bid. The September bid to December offer is minus \$72. 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 83.75% 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.

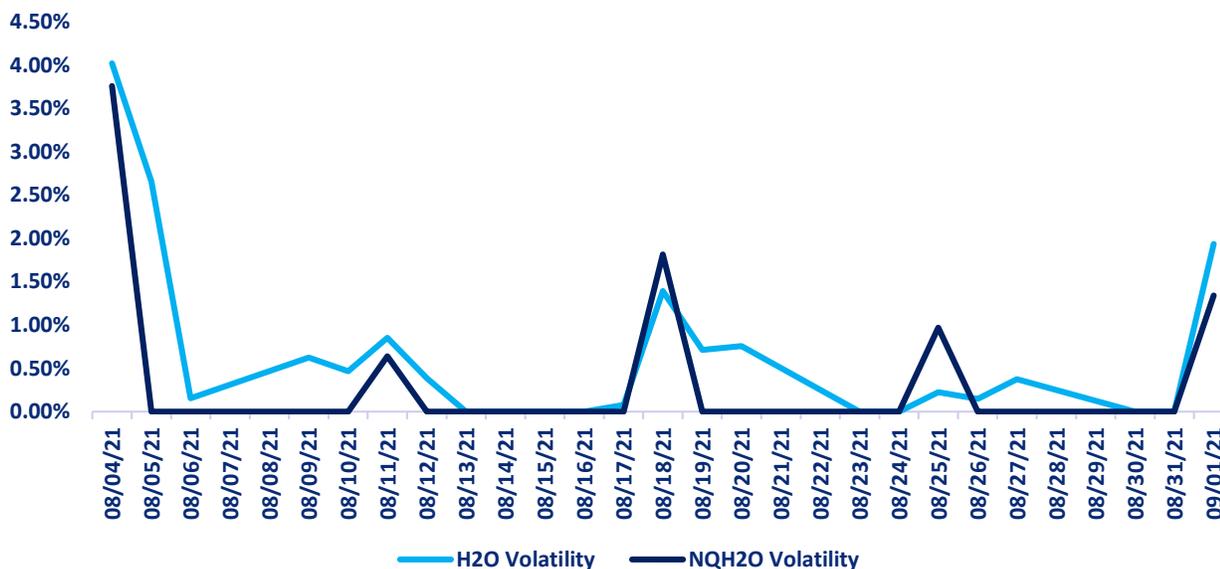
Current bids and offers in the market are still higher than historic prices showing that expectations are that this is an exceptionally dry year and prices may not fall seasonally as much as they have in prior dry years.

**(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 August future volatility high has been 1.94% on September 1<sup>st</sup> and the low has been 0% on August 30<sup>th</sup>.

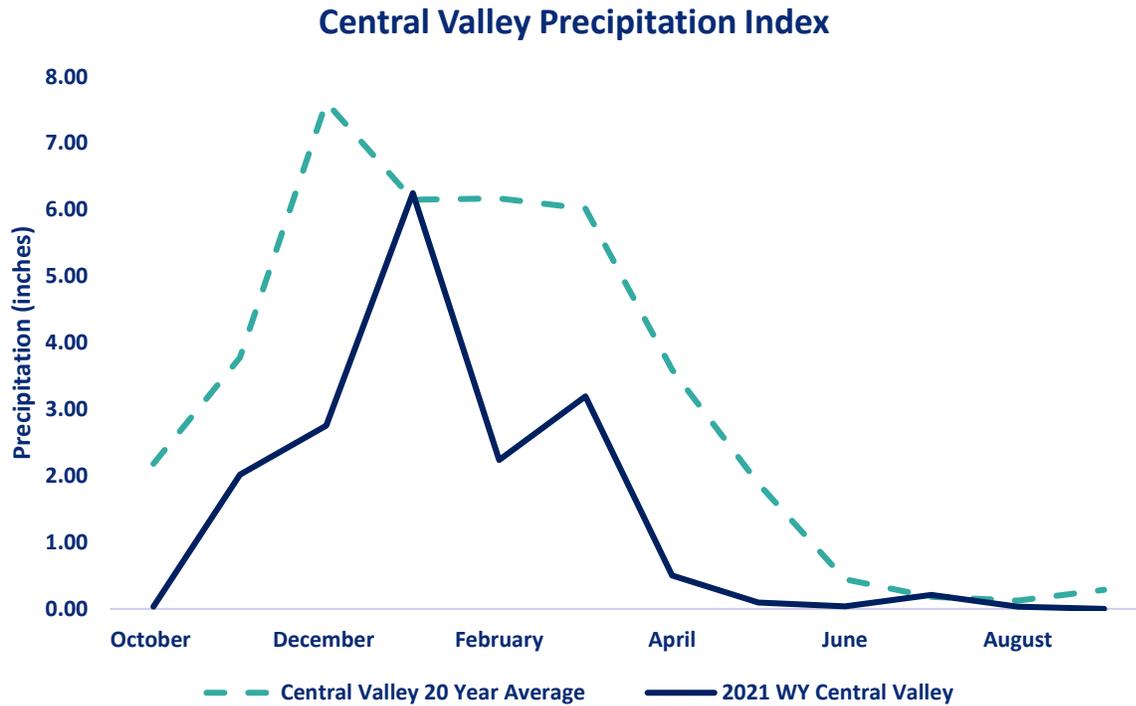
ASSET	1 YEAR (%)	2 MONTH (%)	1 MONTH (%)	1 WEEK (%)
NQH2O INDEX	33.50%	6.92%	3.78%	3.271%
H2O FUTURES	N/A	8.36%	3.96%	2.70%

For the week ending on the 1<sup>st</sup> September the two-month futures volatility is at a premium of 1.43% to the index down 0.54% from the previous week. The one-month futures volatility is at a premium of 0.17% to the index, down 1.03% for the week. The one-week futures volatility is at a discount of 0.57% to the index, a reversal of 0.99%.

*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 01/09/2021

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)	0.04	0.00	31.37%	62	48
TULARE 6 STATION (6SI)	0.05	0.00	48.08%	66	35
NORTHERN SIERRA 8 STATION (8SI)	0.01	0.00	7.02%	63	46
CENTRAL VALLEY TOTAL	0.10	0.00	28.82%	64	43

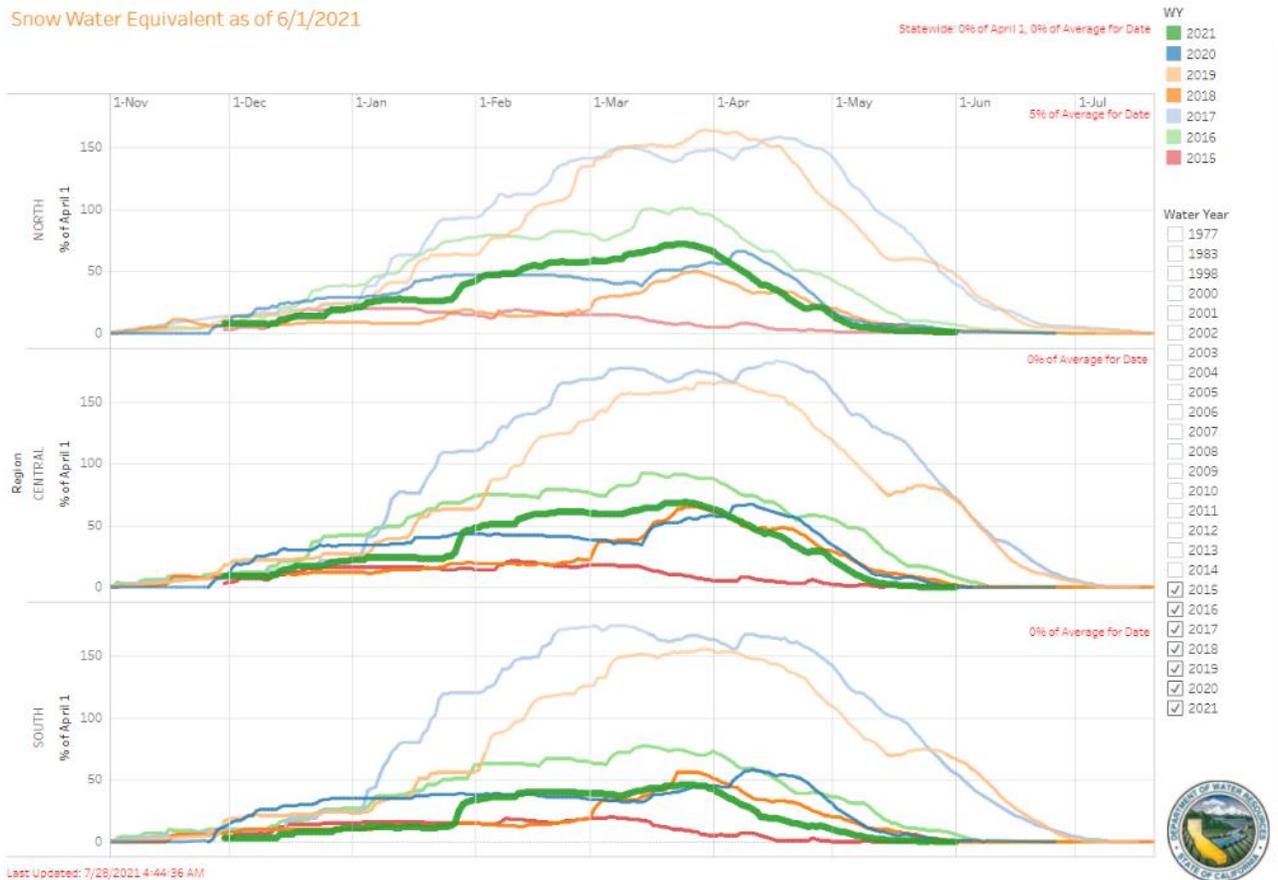
## RESERVOIR STORAGE

RESERVOIR	STORAGE (AF)	% CAPACITY	LAST YEAR % CAPACITY	HISTORIC ANNUAL AVERAGE CAPACITY %
TRINITY LAKE	856,816	35	61	47
SHASTA LAKE	1,230,515	27	52	43
LAKE OROVILLE	800,924	23	48	34
SAN LUIS RES	278,984	14	47	32



# 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	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.

# VELES WATER WEEKLY REPORT

## DROUGHT MONITOR



### U.S. Drought Monitor California

**August 24, 2021**  
(Released Thursday, Aug. 26, 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	95.58	88.37	47.40
<b>Last Week</b> 08-17-2021	0.00	100.00	100.00	95.58	88.37	48.97
<b>3 Months Ago</b> 05-25-2021	0.00	100.00	100.00	94.61	74.46	26.04
<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> 08-25-2020	20.55	79.45	54.38	31.88	3.04	0.00

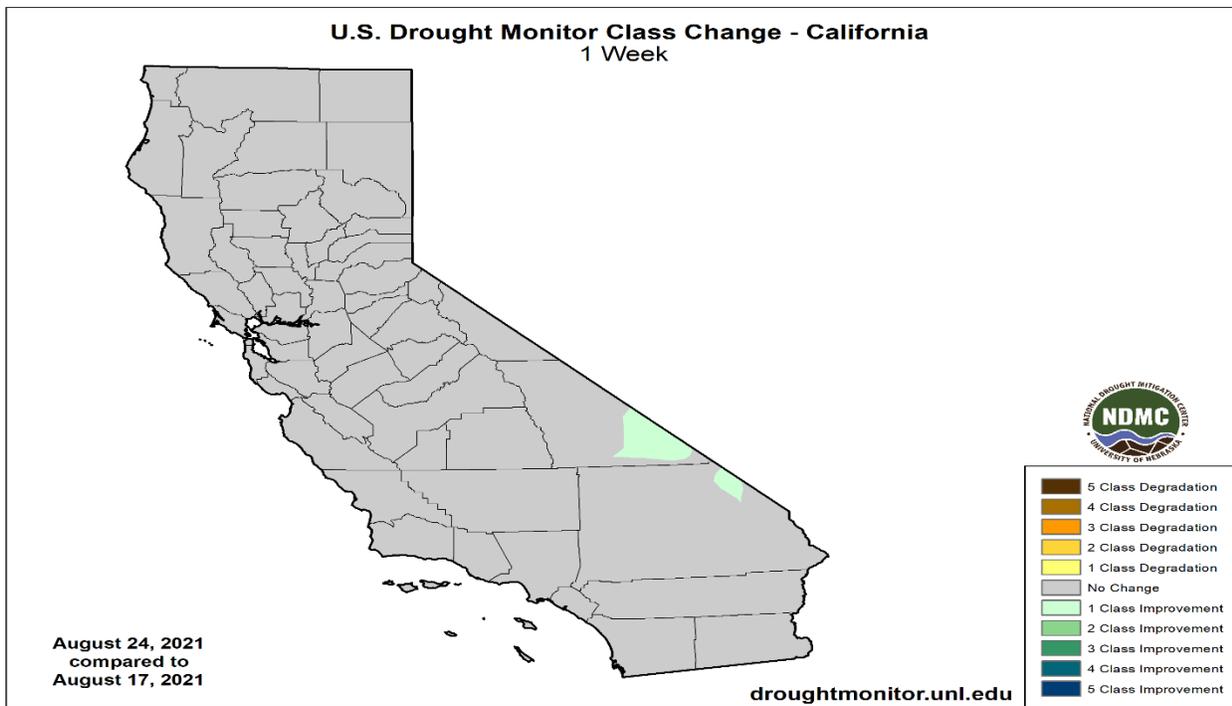
**Intensity:**  
 None (White)  
 D0 Abnormally Dry (Yellow)  
 D1 Moderate Drought (Orange)  
 D2 Severe Drought (Red-Orange)  
 D3 Extreme Drought (Red)  
 D4 Exceptional Drought (Dark Red)

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:**  
Curtis Riganti  
National Drought Mitigation Center



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

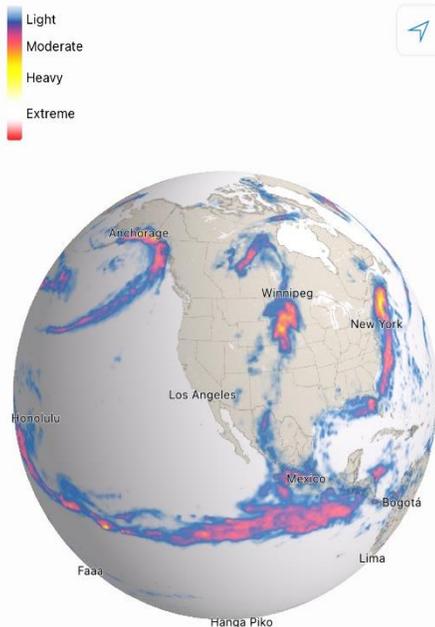


The US Drought Monitor release their statistics with a 1-week lag to this report. For the first time in 3 months there has been a class 1 improvement in in drought conditions. The improvement has taken place on the California/ Nevada border. Exceptional drought conditions have also improved 0.57%.

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



Ref. Dark Sky

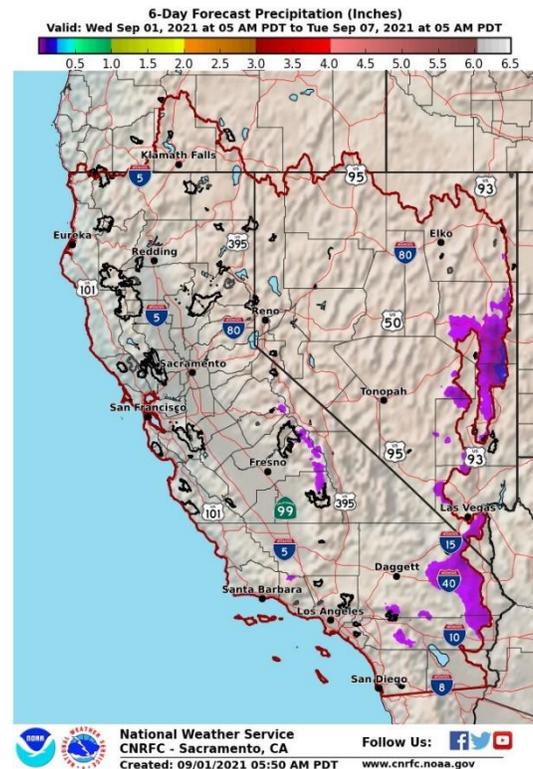
The current satellite picture shows the significant Monsoonal effect moving northwards from this last weeks' inflow of moisture from the Tropical regions of Mexico which moved in over Arizona and then in a North Easterly direction.

Coupled with this moisture inflow from the South, there is a frontal system over the Pacific moving towards Northern CA. This should bring some light precipitation to these areas. The amount of precipitation received will depend on the relative strength of the High-pressure system still prevalent in the SW. In summary our models show a wetter week in the NW CA region and a slightly drier week in the AZ and surrounding regions.

## 10 Day Outlook

The weak upper low off the northern Baja coast is moving inland to the northeast today...while the downstream high pressure cell near the 4-Corners region gets displaced over the Great Plains. The system moving across southern Canada is elongating an upper trough back across the Pacific Northwest and just off the CA coast. This will bring drier conditions after one last day of scattered showers near the NV/UT and CA/AZ border. Into the weekend and early next week high pressure will rebuild over the 4-Corners region and continue to expand westward over the Great Basin and eventually CA. Expect temperatures to rebound above normal for this time of year by next week. Also...the door may open up for some moisture to creep northward across the southern half of the area on Monday...which could bring some isolated showers during the afternoon hours.

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



National Weather Service  
 CNRFC - Sacramento, CA  
 Created: 09/01/2021 05:50 AM PDT  
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[www.cnrfc.noaa.gov](http://www.cnrfc.noaa.gov)



## WESTERN WEATHER DISCUSSION

Drought continued to plague much of the West region of the United States this week. Heavy rains in parts of Arizona, Idaho, Montana, and Utah combined with well below normal temperatures (ranging from 4 to 8 degrees below normal) to stave off any expansion or worsening of drought areas this week. Due to recent monsoonal rainfall, drought conditions improved in Northern Arizona, Southern Utah, adjacent parts of Southern Nevada, Southeast California, and in New Mexico. Heavy rain in the far Northern Idaho Panhandle led to a small reduction in exceptional drought coverage. It is possible that conditions may continue to improve in some locations after this week's rainfall, though it is currently unknown how beneficial this week's rains were in locations that were quite dry previously.

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



## CALIFORNIA WATER NEWS

### Water Market heats up as a parched California scrambles for supplies

CME water futures nearly double year to date

A drought in California has led to a spike in the state's water prices, nearly doubling the value of futures contracts for the essential commodity this year and creating opportunities in water-related investments.

As of Aug. 24, the Nasdaq Veles California Water Index , which represents the weighted average price of water-rights transactions across five major markets in California and is published weekly, has climbed by roughly 87% year to date to \$923.54 per one-acre foot. The unit of measure represents the amount of water needed to submerge one acre of land in one foot of water, or about 325,851 gallons of water. On the CME CME , water futures based on that index have climbed 90% this year to \$942 per one-acre foot.

It's a "perfect storm of conditions" for California's water, with "worsening supply/demand imbalances, telltale signs of climate change, and a hesitancy by state officials to step up permanent solutions like conservation, water reuse, and desalination," says Deane Dray, a managing director and multi-industry analyst at RBC Capital Markets.

The Department of Water Resources reported that storage in major California reservoirs stood at just 53% of their historical average as of July 31.

Droughts like the one in California can "no longer be considered rare, unexpected, or even abnormal," said Kirsten James, program director, water at Ceres, a sustainability nonprofit organization. "The climate crisis is acting as a threat multiplier, accelerating the already daunting pressures" on the state's freshwater resources.

At least 50% of the stocks listed in each of the four major U.S. stock indexes are in industries with medium-to-high water risk, according to an analysis by Ceres, says James. Even so, companies often "do not realize they will be significantly impacted if they fail to be an active player in smart water management." Opportunities for water-related investment exist in areas such as water treatment and conservation that can help California manage drought, she says.

Original Article: [Market Watch by Myra P. Saefong](#)

### Forest Service officials confirm all California national forests to temporarily close

All of California's national forests will be closed beginning late Tuesday.



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The closures will go into effect at 11:59 p.m. Tuesday and stay in place until the same time on Sept. 17, according to an announcement by the U.S. Department of Agriculture Forest Service's Pacific Southwest Region.

"We do not take this decision lightly, but this is the best choice for public safety," said Regional Forester Jennifer Eberlien. "It is especially hard with the approaching Labor Day weekend, when so many people enjoy our national forests."

The order doesn't affect the Humboldt-Toiyabe National Forest, which is not in the Pacific Southwest Region, officials said.

Officials said they hope to reduce the number of people visiting national forests to prevent anyone from being trapped during an emergency such as a wildfire.

Having fewer people on national forest lands also decreases the likelihood of new fires starting and will help keep firefighters and the community safer by limiting possible COVID-19 exposure, officials said.

While California has seen massive wildfires, forestry officials said they worry about the "record level" conditions for fires and dry fuels, fires behaving "beyond the norm" of experience, "significantly limited" resources to fight fires, and no predicted relief from weather conditions into the late fall, according to Monday's announcement.

Original Article: [The LA Times by Gregory Yee](#)

### **Many California farmers have water cut off, but a lucky few are immune to drought rules**

The nearly 500,000 acres of sushi rice grown in the Sacramento Valley each year serve as the wetland habitat for thousands of migrating birds along the Pacific Coast. Yet the crop also uses more water than most, and about half of the product is exported to countries including Japan and South Korea.

Since the 1920s, farmers have grown rice in the Sacramento Valley, where old hands fly crop duster planes and rice emblems mark the county buildings. Now, due to decades-old agreements with the federal government, rice farmers like Gallagher are going relatively unscathed by unprecedented emergency water cuts to farmers this month as others fallow fields, wells go dry and low water levels imperil Chinook salmon, the native cold-water fish that play critical ecological roles and support a billion-dollar fishing industry.

A handful of districts supplying farmers including Gallagher are receiving nearly 2 million acre feet of water this drought year, enough to supply the city of Los Angeles for roughly four years. Their seniority is a function of the state's complicated water rights



## VELES WATER WEEKLY REPORT

system, which some experts say is ripe for reform as extreme drought magnifies the inequities within it.

Developed in the 19th century by miners who used water to blast gold out of the Sierra foothills, California water rights are based on a concept known as “first in time, first in right.”

The principle, which remains central to state water law today, roughly translates to “first come, first served” to a quantity of water from a natural source. During drought, rights are curtailed by state regulators from newest to oldest to protect water for residential use and human health and safety essentials.

Most farmers across the state who rely on the Central Valley Project, the nearly two dozen dams and hundreds of canals that make up the federal water allocation system, are getting 5% or less of their usual water supply this year.

The state water board’s most recent emergency order barred thousands of farmers, landowners and others from diverting water from the massive Sacramento-San Joaquin Delta watershed that stretches from Fresno to the Oregon border, forcing many to turn to groundwater pumping.

Some of them with rights claims predating 1914, the year California enacted its water rights law, say the State Water Resources Control Board lacks authority to curtail them and sued over the issue during the last punishing drought.

Meanwhile, districts like Gallagher’s that have contracts with the water project based on those rights, called the Sacramento and San Joaquin River Settlement Contractors, have never been cut off by more than 25% — even in the driest years.

Original Article: [The LA Times by Ari Platcha](#)

### **Droughts are Making Water, Earth's Most Vital Liquid, an Increasingly Solid Investment**

It's been almost nine months since Wall Street turned on the taps — with the launch of the Nasdaq Veles California Water Index on December 7th, 2020, investors have been able to bet on the price movement of water.

The real-world droughts that followed have made for an oasis of opportunity.

As droughts and wildfires hammered the U.S. West Coast, California declared a state of emergency in April, and last month asked residents to cut their water use by 15%. As of July 31, California's major reservoirs held just 53% of their historical averages. While the circumstances bode poorly for the verdant lawns and gardens of Hollywood's rich and famous, the new H2O futures market is thriving:



## VELES WATER WEEKLY REPORT

The Nasdaq Veles Index, which represents the average price of water-rights transactions across California, has risen 87% this year to over \$923 per one-acre foot (or per 325,851 gallons of water).

"The path of least resistance for water prices is higher, as water scarcity is already a concern in certain areas around the world, and we believe that water as a commodity is gaining more traction," Deane Dray, a managing director at RBC Capital, told Barron's.

Original Article: [The Motley Fool](#)

### **City Receives Significant Grants to Advance Water Self-Sufficiency Projects**

The City of Santa Monica's Department of Public Works, Water Resources and Engineering Divisions have successfully secured multiple grants, totaling over \$45 million, to fund various water self-sufficiency projects to diversify and increase Santa Monica's local water supplies.

"These grants come at a critical time and will help fund local water supply projects to enhance drought resiliency and reduce the City's reliance on imported water," said Interim Public Works Director Rick Valte. "Public Works looks forward to delivering these projects in the near and long term that will positively impact the Santa Monica community for decades."

The grant awards are as follows:

**Arcadia Water Treatment Plant Upgrades:** The California Department of Water Resources' Water Desalination Grant Program awarded \$10 million on December 6, 2019 to enhance the production efficiency of the City's Arcadia Water Treatment Plant. The grant aims to aid the advancement of water desalination facilities which would serve as an alternative water source and buffer against drought conditions. The funding agreement was finalized in June 2021 and the project is scheduled to break ground in September 2021.

**Sustainable Water Infrastructure Project (SWIP):** In February 2021, the City was awarded \$8.77 million through the State Water Resources Control Board's Proposition 1 Storm Water Grant Program to support the construction of the SWIP stormwater harvesting tank, particularly because it will improve local beach water quality by diverting stormwater away for treatment and beneficial reuse. An additional \$7.5 million was secured through the County of Los Angeles' Measure W Safe Clean Water Program that supports projects that capture, clean, and conserve stormwater which would increase local water supplies and improve water quality.



## VELES WATER WEEKLY REPORT

**Production Efficiency Enhancement Project and SWIP:** In May 2021, the Metropolitan Water District of Southern California's Local Resources Program awarded \$19.6 million over a 25-year period. The Local Resources Program aims to aid member agencies implement local water supply projects that reduce the strain on imported water supplies and enhance the region's water supply to adapt to persistent droughts and climate change.

Original Article: [The City of Santa Monica](#)

### **California moves slowly on water projects amid drought**

In 2014, in the middle of a severe drought that would test California's complex water storage system like never before, voters told the state to borrow \$7.5 billion and use part of it to build projects to stockpile more water.

Seven years later, that drought has come and gone, replaced by an even hotter and drier one that is draining the state's reservoirs at an alarming rate. But none of the more than half-dozen water storage projects scheduled to receive that money have been built.

The largest project by far is a proposed lake in Northern California which would be the state's first new reservoir of significant size in more than 40 years. People have talked about building the Sites Reservoir since the 1950s. But the cost, plus shifting political priorities, stopped it from happening.

Now, a major drought gripping the western United States has put the project back in the spotlight. It's slated to get \$836 million in taxpayer money to help cover its \$3.9 billion price tag if project officials can meet a deadline by year's end. The Biden administration recently committed \$80 million to the reservoir, the largest appropriation of any water storage scheduled to receive funding next year.

And the project could get some of the \$1.15 billion included in an infrastructure bill that has passed the U.S. Senate.

Still, the delay has frustrated some lawmakers, who view it as a wasted opportunity now that the state is preparing to cut off water to thousands of farmers in the Central Valley because of a shortage.

"The longer you don't build, the more expensive it gets," said Republican state Sen. Brian Dahle, whose rural Northern California district includes farmers.

Storage was once the centerpiece of California's water management strategy, highlighted by a building bonanza in the mid-20th century of a number of dams and reservoirs. But in the more than 40 years since California last opened a major new reservoir, the politics and policy have shifted toward a more environmental focus that



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has caused tension between urban and rural legislators and the communities they represent.

Original Article: [The Independent](#)

### **Southern California desert farmers will earn millions to fallow fields, save Colorado River water**

California farmers near the Arizona border with the oldest rights to Colorado River water will reap \$38 million over three years to not plant some of their fields and leave extra water in the rapidly declining Lake Mead reservoir.

Located roughly halfway between Los Angeles and Phoenix, growers near the City of Blythe in Riverside County have first priority to the river water. They hold rights that stretch back to 1877, superseding 40 million customers in eight states who also depend on it.

But with continued drought and overuse, a first-ever shortage in the river system was declared a week ago by federal authorities, triggering cuts to Arizona, Nevada and Mexico's supplies next year.

In response, farmers who control the Palo Verde Irrigation District voted unanimously this month to agree to cancel planting some of their crops for three years. They will be paid about \$925 per acre this year via federal drought response funds and water ratepayers in Arizona, Nevada and Southern California, with 2% increases each year after that.

The partnership between PVID, the U.S. Bureau of Reclamation, the Metropolitan Water District of Southern California, the Central Arizona Project and the Southern Nevada Water Authority is expected to conserve up to 180,000 acre-feet of water over the next three years, equal to about three feet of Lake Mead's water level. An acre-foot of water is enough to supply about two households for a year.

Bart Fisher, a PVID trustee whose family owns the 11,500-acre Fisher Ranch, said his ranch would hold off this month on planting melons, durum wheat and alfalfa on "a few thousand" of the 11,500 acres they own.

He said he and others were acting not because they want the money, but because they want to help others and try to guarantee continued water supply for all.

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

### **San Diego launching Pure Water, largest infrastructure project in city's history**



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San Diego officially launched the largest infrastructure project in urban history on Friday. This is a sewage recycling system that promotes water independence in the region in the face of more severe droughts caused by climate change.

A multi-billion dollar project called “Pure Water” is a long-running, proactive public education campaign to combat troublesome proceedings, complex labor transactions, and the derogatory early nickname “Tap from Toilet.” The culmination of the process. Construction workers have been working on some of the preliminary elements of Pure Water for several years, but this fall marks the start of construction of the three most important projects in the system.

They are the \$ 356 million sewage purification plant in western Miramar, the \$ 123 million pipeline that runs through most of Claremont that carries sewage to that plant, and the \$ 110 million that makes it possible. Molina Boulevard Pumping Station.

The pipeline, in which some Claremont residents fought in protests and proceedings, will intermittently destroy parts of the community until 2024. However, city officials have created a special “working group” to keep residents up to date.

Completed in 2025, the first phase of pure water will produce 34 million gallons of drinking water per day. A larger second phase, due to be completed in 2035, will add an additional 53 million gallons.

Together, the two phases of pure water are expected to reduce the share of imported San Diego water from about 85% to less than 50%.

Original Article: [California News Times](#)

## US WATER NEWS

**As drought ravages the West, any investor not focused on climate risk is ‘really kidding themselves,’ says this portfolio manager**

Nearly all of the U.S. West has been parched by drought this summer, with dry and dangerous conditions exacerbating California’s wildfires and leading to emergency steps to address extreme water shortages.

Conditions have become so alarming that the U.S. government earlier in August issued a first-time declaration of a water shortage on the Colorado River, triggering fears of water-rights wars as communities from Arizona to Mexico grapple with the dramatic drop of large reservoirs.

While Western droughts have been a recurring stress for decades, intensifying as the planet warms, climate risks are being viewed as an increasingly powerful force for financial markets.



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The Drought Aware app doesn't make predictions, but it is interactive (and free), providing data on drought conditions going back 20 years, said Dan Pisut, content lead for Esri's ArcGIS Living Atlas of the World team.

It basically serves as a springboard, Pisut said, adding that USDA agricultural sales figures are based off voluntary figures that are self-reported by farmers, which means they can differ from total sales.

For a deeper dive, the National Integrated Drought Information System recently pegged the annual U.S. cost of drought at over \$6 billion each year, a toll it says hurts not only crops C00, -1.22% W00, -0.10% and livestock DJCILV, 0.00%, but presents a "serious hazard with substantial socioeconomic consequences."

### Living with drought

Drought can spark mass migrations, as it did in the 1930s during the Dust Bowl. More recently, it has threatened the loss of family farms as far east as Minnesota.

"Drought is just one of those perils we are going to have to assess," said Sean McCarthy, head of municipal credit research at PIMCO, adding that climate risk isn't something 10 years down the road. "It is here now. I think most people are starting to recognize that as well."

Original Article: [Market Watch by Joy Wiltermuth](#)

## **Federal judge throws out Trump administration rule allowing the draining and filling of streams, marshes and wetlands**

A federal judge Monday threw out a major Trump administration rule that scaled back federal protections for streams, marshes and wetlands across the United States, reversing one of the previous administration's most significant environmental rollbacks. U.S. District Judge Rosemary Márquez wrote that Trump officials committed serious errors while writing the regulation, finalized last year, and that leaving it in place could lead to "serious environmental harm."

A number of business and farm groups had supported the push to replace Obama-era standards with the Navigable Waters Protection Rule, on the grounds that states were better positioned to regulate many waterways and that the previous protections were too restrictive.

The ruling in the U.S. District Court for the District of Arizona, which applies nationwide, will afford new protections for drinking-water supplies for millions of Americans, as well as for thousands of wildlife species that depend on America's wetland acreage.



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Márquez, a Barack Obama appointee, noted that the U.S. Army Corps of Engineers, which oversees permits to dredge and fill waterways under federal jurisdiction, determined that three-quarters of the water bodies it reviewed over a nearly 10-month period did not qualify for federal protection under the new rule. Federal agencies identified 333 projects that would have required a review under the Obama rule, she added, but did not merit one under the Trump standards.

"We are reviewing the ruling," said Environmental Protection Agency spokesman Nick Conger, who declined to comment further.

The decision underscores the extent to which legal fights are shaping environmental policy across the country. Just this month, the Interior Department said it would resume auctioning off new oil and gas leases to comply with an order by a Louisiana federal judge, while another federal judge blocked a controversial oil project planned for Alaska's North Slope.

Original Article: [The Washington Post by Dino Grandoni and Brady Dennis](#)

### **Could desalination play a role in the future of the Colorado River?**

Shattering the stillness of a frigid January moonlit sky, the sunrise's amber aura glimmers over the Tinajas Altas mountain range — giving way to a sandscape of semi-succulent shrubs.

The sun's increasingly insistent rays animate an otherwise desolate desert corridor that links the city of Yuma, Arizona, to the San Luis Port of Entry along the U.S.-Mexico border. White school buses shuttle Mexican agricultural workers to Arizonan farm acreage, home to America's heartland of winter leafy greens. Just a few miles west is the Colorado River, the region's historic lifeblood — a lifeblood so under threat that the Bureau of Reclamation declared its first federal shortage for the basin Aug. 16.

A little more than 7,500 miles due east, another arid expanse — the Arava Valley — slithers through similarly hostile environmental conditions along the border of Israel and Jordan, enlivened by the occasional kibbutz or solar field. A barricade of mountains divides the two countries until their forced meeting point at the Red Sea. The predominantly parched valley holds just occasional floodwaters, underscoring Israel and Jordan's shared need for an elusive natural resource: water. This need has, in recent decades, allowed for collaboration in an otherwise strained relationship.

"Water, by its very nature, is used to extinguish fires, not to ignite them," Munther Haddadin wrote in his 2002 book, "Diplomacy on the Jordan: International Conflict and Negotiated Resolution," while he was Jordan's chief water negotiator. Despite tensions



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in other areas of diplomacy, as well as ongoing criticism regarding Israel's water distribution to Palestinian people in Gaza and the West Bank, Israel and Jordan have largely been able to collaborate on this resource. Nearly two decades later, Oded Fixler, deputy director general of Israel's Ministry of Regional Cooperation, echoed Haddadin, saying, "Water is a means of cooperation and not a cause for dispute."

This diplomatic reality largely comes because of Israel's desalination operations, which make it possible for the salty Mediterranean Sea to provide around 80 percent of the country's drinking water. Such innovation has made it so Israel no longer faces the same water challenges that some other co

In North America, the countries that share the Colorado River Delta are experiencing a similar reality as their own diplomatic relationship is shaped by cross-border water exchanges. And like Israel and Jordan, the U.S. and Mexico are considering the role desalination might play in sharing this vital resource.

"There are a lot of obstacles to doing a joint investment with a water exchange," said Sharon Megdal, director of the University of Arizona Water Resources Research Center and editor of the 2012 book "Shared Borders, Shared Waters: Israeli-Palestinian and Colorado River Basin Water Challenges." "If they could do that in the Israel-Jordan-Palestine area, if we want to do it here, we should be able to. The political situation makes it so difficult to get things done in that region, yet they're doing it."

The Colorado River traverses the U.S.–Mexico border and, due to withdrawals and diversions upstream, typically peters off just a couple miles south of the Morelos Dam. Straddling the two countries at the junction of the Canal Alimentador Central and the Colorado River, the dam controls water flow from the U.S. to its neighbor. While local residents dream of seeing the river flow along its historic route — from the Rocky Mountain headwaters to the Sea of Cortez — that's unlikely to happen without a big boost to the region's water supply through desalination and wastewater reuse.

Establishing a desalination facility jointly operated by the U.S. and Mexico could help "bolster resilience in the Colorado River Basin," according to the Binational Study of Water Desalination Opportunities in the Sea of Cortez. The April 2020 study is a product of the Minute 323 accord, a 2017 agreement focused on bolstering the Colorado River Basin. The study's authors explored the feasibility of a shared desalination plant in a region "home to some of the most prolific agricultural areas in the world" where limited resources threaten "economic vitality."

Looking at water projections for Arizona, Nevada and California, the authors estimated deficits — the difference between water demand and what the Colorado River can



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provide — of just under 1 million acre-feet of water per year by 2035. With similar calculations for Mexico, the researchers projected a deficit of 160,000 acre-feet of water per year by 2030 in Sonora and northern Baja California.

A desalination facility at the Sea of Cortez, also known as the Gulf of California — the body of water that the Colorado River historically drained into — would provide an additional 50,000 to 200,000 acre-feet of water per year. Funding for such a project would most likely come from a U.S. state or another American entity, which would then gain access to some of the water Mexico is entitled to under the Colorado River treaty — a fixed 1.5 million acre-feet annual supply of Colorado River water guaranteed to Mexico in 1944 by the Mexican Water Treaty — through the Imperial Dam, according to Tom Buschatzke, director of the Arizona Department of Water Resources. Mexico, in exchange, would be able to use the desalinated water that the facility would produce.

Original Article: [GreenBiz by Sharon Udasin](#)

### **4 Nevada agencies receive federal water conservation grants**

Four Nevada water projects are among 82 nationwide selected by the U.S. Bureau of Reclamation to receive a total of \$5.5 million in grant money.

“Through a relatively small investment, Reclamation can support western communities with grant funding to improve water conservation and reliability,” Chief Engineer David Raff said in a news release. “These small, community-driven projects help improve water resiliency in these communities as they seek to meet future water needs.”

Boulder City received the maximum \$75,000 to help upgrade 306 manual read meters to automatic systems. The new meters will allow the city to spend less time gathering data and to get more accurate readings throughout the city.

Henderson will use its \$30,763 grant to upgrade 128 meters with cell-based registers. The project will help reduce energy use and enhance the data available to customers, according to the release.

The Moapa Valley Water District also received the maximum amount and will use the money to upgrade water meters throughout the district.

Original article: [The Las Vegas Review Journal by Jonah Dylan](#)

### **Why Water Cuts Are Coming to Arizona, Nevada, and New Mexico**

Warmer average temperatures are reducing the snow level whose melt is relied upon to fill storage reservoirs like Lake Mead, leading to the Bureau of Reclamation announcing unprecedented cuts in water deliveries to Arizona, Nevada, and New Mexico in 2022.



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Cordie Qualle, former interim director of the California Water Institute and a lecturer in engineering at Fresno State, discusses the policy implications.

The Bureau of Reclamation, the agency charged with water resources management for the West at the federal government level, announced unprecedented Tier 1 cuts in water deliveries from Lake Mead on the Colorado River to Arizona, Nevada, and Mexico in 2022. The Tier 1 cuts will reduce water deliveries due to historic low water levels in Lake Mead.

California deliveries are not impacted by this announcement due to senior water rights, but they could be coming if water levels continue to drop. The Colorado River watershed and most western river watersheds that feed reservoirs with snowmelt are not producing as much runoff as they have historically due to the warming atmosphere affecting snow elevations and dryer and warmer soil and air temperatures.

Warmer temperatures are, on average, raising the snow level, which reduces the snow pack reservoir that we rely on to slowly melt through the spring and early summer to fill our storage reservoirs like Lake Mead. Warmer soil and air temperatures raise the elevation at which snow accumulates and results in less snow melt becoming runoff as it is instead absorbed by the warmer, dryer soils or evaporates directly through a process known as sublimation. The poor runoff efficiency due to these factors created low reservoir storages in California and on the Colorado River.

The snow moisture content, known as snow water equivalent (SWE), typically measured on April 1 by water resource managers within each watershed, is used to predict watershed runoff volumes for the following spring and summer based on the historic record. The surprise in 2021 was that, due to the warmer than normal temperatures, the runoff volume that was anticipated based on the 2021 April SWE, did not show up. The runoff volumes were well below the anticipated volumes based on historic values.

Original Article: [Bloomberg by Cordie Qualle](#)

### **Scientists launch effort to collect water data in parched West**

The U.S. Department of Energy on Tuesday announced a new kind of climate observatory near the headwaters of the Colorado River that will help scientists better predict rain and snowfall in the U.S. West and determine how much of it will flow through the region.

The multimillion-dollar effort led by Lawrence Berkeley National Laboratory launches this week. The team has set up radar systems, balloons, cameras and other equipment



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in an area of Colorado where much of the water in the river originates as snow.

More than 40 million people depend on the Colorado River.

Alejandro Flores, an associate professor of hydrology at Boise State University, said the weather in mountainous areas is notoriously difficult to model and the observatory will be a “game changer.”

“We have to think about the land and the atmosphere as a linked system that interact with each other,” he said in a call with reporters. “Up until now, there have been a lack of observations that help us understand this critical interface.”

The West is in the midst of a more than 20-year megadrought that studies link to human-caused climate change. That, along with increased demand on the Colorado River, led to the first-ever shortage declaration in August, and there’s an increasing threat of deeper, more widespread water cuts. Arizona, Nevada and Mexico won’t get their full allocations of river water next year.

Scientists will use the observatory to gather data on precipitation, wind, clouds, tiny particles, humidity, soil moisture and other things. Along with a better understanding of the hydrology, they hope to learn more about how wildfires, forest management, drought and tree-killing bugs play a part in water availability.

A big issue in predicting water supply in the West centers on soil moisture and content, said Berkeley National Laboratory scientist Ken Williams, the lead on-site researcher. The monsoon season largely was a dud across the Southwest for the past two years, which means more melting snow soaks into the ground before reaching streams and rivers, he said.

Original Article: [The Columbian by Felicia Fonseca](#)

### **\$2.3 billion to improve or remove U.S. dams included in new federal infrastructure bill in wake of a Stanford Uncommon Dialogue agreement**

In the fall of 2020, amidst a global pandemic and one of the most divisive periods in American history, the hydropower and river conservation communities, traditionally at odds, reached an agreement to work together to address the nation’s more than 90,000 dams.

The momentous agreement was the result of a two-and-a-half-year Uncommon Dialogue, an ongoing process organized by the Stanford Woods Institute for the Environment that brings public and private sector leaders and researchers together to develop practical solutions to pressing sustainability challenges.



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Now, key ideas from that pact, and a subsequent detailed proposal, are incorporated into the bipartisan Senate infrastructure bill, including \$2.3 billion for the “3Rs” of U.S. dams: rehabilitation for safety, retrofit for power and removal for conservation. If enacted, the pending infrastructure bill would be the largest new federal funding for infrastructure in decades.

Dan Reicher, a senior research scholar at the Woods Institute and a former U.S. assistant secretary of energy, leads the Uncommon Dialogue on “Hydropower: Climate Solution and Conservation Challenge.”

“It was a risky idea and a heavy lift but it is exciting to see our breakthrough 3Rs agreement turned into a significant federal down payment on the massive funding needed – measured in the tens of billions of dollars – to address serious problems and major opportunities at the nation’s dams,” said Reicher, who is also the founding executive director of the Stanford Steyer-Taylor Center for Energy Policy and Finance and former director of Climate and Energy Initiatives at Google.

As outlined in the October agreement, the goals of the 3Rs are to help confront climate change, increase the safety of U.S. dams and improve the ecological health of the nation’s rivers. To that end, the \$1 trillion infrastructure bill, which the Senate adopted on Aug. 10, includes \$753 million for safety and environmental improvements at existing hydropower facilities, adding hydropower generation to dams that currently do not produce power and for “pumped storage” projects; \$800 million for rehabilitation and repair of high hazard dams and safety projects; and \$800 million for the removal of dams in the interest of safety and the environment.

“Hydropower is a critical component of our ability to address climate change, but we can’t emphasize hydropower over the health of rivers or the safety of the public. The 3Rs effectively advance all three objectives at the same time,” said Woods Institute director Chris Field.

The bipartisan Senate infrastructure bill is currently being considered in the House, where tensions have been high on how to move forward on the bill and whether to wait for action on a broader \$3.5 trillion budget bill. On Tuesday, House Democrats voted to allow committees to begin writing the \$3.5 trillion budget bill and also set a deadline of Sept. 27 for the House to pass the infrastructure legislation.

Original Article: [Stanford News by Devon Ryan](#)



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### Arizona stored water to help during shortages. What happens when we start using it?

The Arizona Water Banking Authority has stored more than 4 million-acre feet of water underground – a godsend as Colorado River water shortages deepen.

But how, exactly, are we supposed to get that water back out?

Cities began clamoring for more specificity as the prospects for severe shortages began growing on the Colorado River. After a few years of meeting, a statewide planning group has fleshed out a more detailed plan to recover this water.

And just in time.

If the forecast holds, even cities and tribes with the most senior Central Arizona Project (CAP) water could be impacted by cuts along the Colorado as soon as 2025. And large-scale, shortage-fueled recovery will no longer be a “someday.”

It’ll be a key part of how we smooth out the next few years.

The state water bank oversees about a third of the water we’ve stored underground for a (non)rainy day. The rest is water that cities and others have ferreted away themselves for later use.

This water is stored in layers of sediment, so physically recovering it requires wells, pumps, pipes and other connections to get it where it needs to go.

That infrastructure was hardly top of mind in the 1990s when the first water was banked underground. The focus was more on finding suitable areas to store water long term and getting it there quickly so that we didn’t risk losing any of the state’s excess CAP water to California.

It was long assumed that CAP would be the primary entity to recover water bank supplies and distribute them to users via its canals. But that also would require a significant amount of infrastructure, at great cost to CAP and its users.

The updated plan plus new revisions in state law give users the option to recover this water themselves, or in partnership with others, rather than rely solely on CAP to do it. Cities believe these changes could help them maximize existing infrastructure to recover water bank water closer to home.

After all, many have supplies stored outside of their service areas and are already making plans to recover that water when it’s needed. They believe they could cement deals among themselves, or with CAP, to move supplies or transfer water credits more efficiently and at a potentially lower cost than if CAP were to do this by itself.

Original Article: [AZ Central by Joanna Allhands](#)



## GLOBAL WATER NEWS

### Managing Risk: It's Time To Talk About Water

As World Water Week comes towards a close, it's important to recognise water as a major risk to individuals, communities and economies. It's been estimated that \$301 billion is at risk due to poor water management and the risks are global. Whether it's concern about overabundance due to rain and floods, or lack of water through drought and/or mismanagement, there is a growing recognition that water constitutes a societal threat.

According to Cate Lamb, Global Director of Water Security at CDP, water problems are likely to become much worse around the world as climate breakdown takes hold. The latest IPCC report suggests that temperature rises will be accompanied by big changes in the planet's water cycle, with areas that are already wet becoming much wetter, and already arid areas becoming prone to greater drought. The report found that extreme rainfall intensifies by 7% for each additional 1C of global heating, driven by a well understood thermodynamic relationship.

Water risk is not a problem that we're going to have to face in the future, it's affecting us now. It is becoming more salient as we're consuming more water, due to population growth and economic development, and this in turn is driving awareness of the impact of distributional differences.

Not only are we seeing dramatic floods in Europe and Asia, droughts and wildfires around the globe are changing market dynamics. One quarter of the world's population live in countries with extreme water stress and even in the US over 60 million Americans are living under drought conditions. This impacts individuals and communities, but also supply chains, corporate operations and economies. Water restrictions on the Colorado River have significant implications for example – according to the 2020 report *Water Disruption: Investment Risk from Multiple Angles*, the Colorado River provides municipal water to over 40 million people, irrigates over 5.5 million acres of agricultural land, and generates over \$1.4 trillion in annual GDP while supporting 16 million jobs.

Lamb says, "It is clear from the [IPCC] report that limiting our carbon emissions, whilst vital, will not be enough to solve the global climate crisis. Managing our water resources, landscapes, institutions and infrastructure will be vital to enabling us all to thrive in a changing climate." Stephen H. Dover, Chief Market Strategist and Head of



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Franklin Templeton Investment Institute agrees that water risk is global and has implications across all asset classes from equities to municipal bonds.

Original Article: [Forbes by Felcia Jackson](#)

### **Drinking water crisis: Locals gherao panchayat office in Odisha's Jagatsinghpur**

Distressed by continued drinking water crisis, irate locals of Oradailo village in Erasama block gheraoed the panchayat office in Jireilo on Sunday, August 29, 2021, and demanded immediate resolution of the issue. They were pacified after block officials intervened and assured water supply through tankers soon. Sources said, acute water scarcity continues to plague coastal villages of Erasama, Balikuda and Naugaon blocks in the district and has worsened in the recent years. While women travel long distances to fetch water, tube wells in villages are of little help as the water is mostly saline, muddy and high on fluoride content.

Considering their plight, the State government had allocated Rs 173 crore for construction of drinking water pipeline project on Devi River in 2018. After filtration, the river water would be supplied to residents in the three blocks. Once implemented, the project would benefit 64 villages in Balikuda, 57 in Erasama and 7 in Naugaon block. However, the project has made little headway.

After allocation of funds, the Panchayati Raj and Drinking Water department in 2019 had sought intervention of all three block development officers for contribution of gram panchayat (GP) share as part of the state saturation plan, for implementation of rural piped water supply projects (small, medium, mega) in rural areas.

It was also decided that new rural piped water supply scheme shall be taken up in a convergence mode with assistance of the Central Finance Commission. Following requisition by the executive engineer of the Rural Water Supply and Sanitation division, BDOs of Balikuda, Naugaon and Erasama had requested sarpanches of 13 panchayats in Balikuda block, 12 in Erasama block and 2 in Naugaon to deposit `10 lakh each. Sources said, majority panchayats have deposited their GP share with the savings bank account of Odisha State Water & Sanitation Mission (OSWSM) but even then, the project has made little progress.

President of Balikuda Sarpanch Association Niranjan Panda said, "I have deposited GP share of Rs 10 lakh last year. Besides, 13 GPs have already deposited Rs 1.30 crore but the project is yet to pick up pace." On the other hand, executive engineer, RWSS Kishore Kumar Kabi informed that work is held up as technical experts of the contract agency are not coming from outside for installation of heavy electrical equipments and other



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machineries due to the Covid situation. Steps are being taken to complete the project by December 2021, he said.

Original Article: [The New India Express](#)

### **Agricultural Rebound Phenomenon: USask researchers warn of increased water demand on the South Saskatchewan River Basin**

“Typically, modern irrigation can decrease demand, but we found that after some years demand may paradoxically increase,” said Mohammad Ghoreishi, first author of a paper, ‘Peering into agricultural rebound phenomenon using a global sensitivity analysis approach’, published in Elsevier’s Journal of Hydrology.

“Due to modern irrigation, many farmers can switch to higher value crops and expand irrigation acreage to increase profits, which can increase agricultural water demand,” said Ghoreishi, a PhD candidate at the School of Environment and Sustainability (SENS) and a researcher at USask’s Global Institute for Water Security (GIWS).

The paper is based on a study of what’s happening in the Bow River Basin, where the Alberta government is managing the water resource and balancing the needs of groups, from individuals to municipalities to commercial enterprises, through licensed water allocations.

The researchers created a complex socio-hydrological agent-based model that integrates socio-economic and hydrological factors in agricultural systems to explain the agricultural rebound phenomenon, considering aspects, such as profit maximization and personal interactions between farmers that factor into their decision-making.

Ghoreishi said the global sensitivity analysis approach, which examines not only the impact of individual factors but also their joint effects on agricultural rebounding, provides better insights into the phenomenon, and the goal is to communicate and share the findings with government policymakers.

With the Saskatchewan government ready to embark on a major agricultural irrigation development, the Alberta experience provides useful lessons, he said.

In the Bow River Basin, many farmers who adopted modern irrigation systems and benefited from higher yields, reduced labour, and more precise application of fertilizer and chemicals, are using their surplus water allocations to expand operations and move to higher value crops.

If water conservation is a goal, said Ghoreishi, the lack of restriction on unplanned expansion can be concerning, and the government might need to consider buying back some water rights in such cases.



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“Imagine that a severe drought happens after many farmers expand their irrigated areas due to a so-called water conservation program. Probable increase in agricultural water demand in Alberta may create a downstream impact,” he said, noting that Saskatchewan could be on the receiving end of this problem as it shares the water flow on the South Saskatchewan River.

Along with restricting unplanned irrigation expansion, the researchers recommend governments should tap into the social capital that accrues through farmer interactions, in order to mitigate agricultural rebounding.

“Effective collective actions could be enhanced by community participation and raising awareness through formal channels to inform an individual farmer of the average water use in their community,” the researchers state. “Collective actions can control the rebound phenomenon by enabling farmers to compare their water use with that of their neighbours, which may be an effective strategy in reducing water use.”

Oxford University researcher Razi Sheikholeslami, formerly at SENS and GIWS, collaborated with Ghoreishi on the project. GIWS members Amin Elshorbagy, professor in USask’s College of Engineering, and Saman Razavi, SENS associate professor, are Ghoreishi’s supervisors and co-authors of the paper. Kenneth Belcher, professor in the College of Agriculture and Bioresources, collaborated with Ghoreishi on the project. Ghoreishi’s research was funded by a PhD Excellence Scholarship from SENS, and the Integrated Modeling Program for Canada – a part of the Global Water Futures program – as well as NSERC.

Original Article: [University of Saskatchewan](#)

### **Digital Tech Can Help African Island States Cope With Climate Change**

Investing in digital technologies can help African small island developing states (SIDS), vulnerable to extreme weather events, cope with growing impacts of climate change, says the United Nations (UN) Economic Commission for Africa (ECA).

Cape Verde, Comoros, Guinea-Bissau, Mauritius, Sao Tome and Principe and the Seychelles are the African members of the SIDS, a grouping of 38 countries located in the Caribbean, the Pacific, the Atlantic, Indian Ocean and South China Sea.

The increased risk of natural disasters, coupled with sea level rise, which accompanies climate change makes African SIDS particularly vulnerable because their economies are anchored on tourism and fisheries, according to Jean-Paul Adam, Director of Technology, Climate Change and Natural Resource Management at the ECA.



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While African countries risk losing up to 15% of their GDP to climate change by 2030, a major climate disaster could completely wipe out the economies of African SIDS

Jean-Paul Adam, ECA

In an interview, Adam added that opportunities for economic diversification are limited for African SIDS due to their distance from markets and lack of economies of scale. Besides, access to development finance in the form of grants and loans from institutions like the World Bank and bilateral donors is challenging. This type of finance is determined by the GDP per capita -- the amount of income generated by an average person in a given area in a specific year.

Owing to their small populations, Adam noted, SIDS are disadvantaged from accessing this funding because they are more likely to have a higher GDP per capita. One high net worth individual in such a small population can skew the overall result much more than in a large one.

While African countries risk losing up to 15 percent of their GDP to climate change by 2030, according to an analysis by the ECA's African Climate Policy Centre, a major climate disaster could completely wipe out the economies of African SIDS, Adam said. "In the same way that in the face of Covid-19 no one is safe until all are safe, the same applies to the climate crisis. As such, SIDS illustrate the extreme vulnerability of all African countries to climate change."

The UN, which recognised SIDS as a special case for environment and development at the 1992 UN Conference on Environment and Development, describes these countries as facing unique social, economic and environmental vulnerabilities. With a total population of just over 4 million, African SIDS are located in remote, low lying areas that are vulnerable to sea level rise and cyclones.

Climate change impacts and unmanageable high population growth means that African SIDS may not meet several Sustainable Development Goals (SDGs) by 2030, according to the UN's report on World Population Prospects 2019.

While climate change affects the development of all nations regardless of location or economy size, SIDS - which contribute only one percent of global greenhouse gas emissions -- are the most vulnerable to its devastating impacts, the UN Development Programme warned.

"Digital strategies are part of the means by which SDGs implementation can be accelerated," said Adam.



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"Digital strategies can facilitate efficiencies in terms of investing in resilience as well as efficiencies in terms of economic returns," added Adam. He noted that artificial intelligence (AI) used in digital technologies for analysis of climate change data can help African SIDS better understand the impact of climate on key industries like fisheries, and to measure environmental impacts.

The ECA is supporting African countries, including SIDS, to improve their climate information services by tapping into potential digital technologies like remote-sensing AI to measure environmental impacts. This could be done through remotely deployed cameras and drones, according to Adam.

"Digitisation strategies can also improve the monitoring of environmental risks through the use of remote sensing equipment, and these strategies can also be deployed to improve investment in key sectors such as tourism, allowing more cost effective and targeted marketing, for example," he added.

Adam said the ECA is supporting the establishment of a regional centre on AI in Brazzaville, Congo, to explore opportunities for the use of the technology to address environmental impacts.

Digital technologies are already being used extensively by countries like Seychelles and Mauritius to target their main tourism markets more effectively, he added.

African countries have a unique opportunity to use digital technologies to drive large scale transformation and competitiveness, according to the US policy research think tank, Brookings Institution. Brookings said that AI, which is projected to add 15.7 trillion dollars to global GDP by 2030, presents avenues for the public and private sectors to optimise solutions to the most crucial problems facing Africa today.

Beyond digital technologies, Adam said that by adapting economic strategies that prioritise climate resilience, African SIDS can be better placed to respond to climate change, and also create more jobs and value addition.

"Focusing on the blue economy approach, for example, can build long term economic multipliers in terms of improved yields from fisheries resources, and also build more inclusive value chains that bring more benefits to local populations," he said.

A blue economy approach uses the principles of a green economy, the sustainable use of resources based on the ability to regenerate them, in an environment where the main resources are aquatic. For example, fisheries are managed based on the status of fish stocks, and measures are taken to protect areas critical for fish reproduction such as mangroves and coral reefs.



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African SIDS have access to very limited land space but large ocean area, and the proper management of this space can yield numerous benefits," Adam observed, including as sources of financing.

"Seychelles successfully raised a 30-million-dollar blue bond from the international market on the basis of sustainable management of its fisheries sector," said Adam, adding "the sustainable management of oceanic spaces can also lead to opportunities for potential carbon pricing transactions although this is something at the early stages of exploration."

Other possible financial innovations to mobilise funding, he added, include SDG-linked green or blue bonds and proposals for debt swaps -- refinancing debt on better terms and investing the savings in climate resilience.

Original Article: [All Africa by Busani Bafana](#)

### **The economic necessity to invest in nature**

The loss of biodiversity and ecosystem services could not only jeopardise the achievement of SDGs but also undo decades of development gains and keep poor countries from securing future growth.

The World Bank has recently published an approach paper titled, 'Unlocking Nature-Smart Development' which projects a 70% decline in Bangladesh's GDP growth rate (the highest in South Asia) from 2021 to 2030 even if a select few of its ecosystem services collapse.

Bangladesh, as a biodiversity-rich country, hosting coastal, marine, inland freshwater, terrestrial forest, hilly and man-made homestead ecosystems stands to lose a lot in terms of future growth capacity due to the degradation of nature.

However, by framing the degradation of biodiversity and ecosystem services (referred to as nature) as a development issue, the WB paper offers hope highlighting the various opportunities associated with integrating nature into development policies that could reduce or even reverse the negative impacts.

Moreover, the paper cites sources that show policies and investment in nature can result in job creation, poverty alleviation, equitable prosperity and faster post-pandemic recovery.

With the UN Biodiversity Conference (COP-15) of the Convention on Biological Diversity scheduled to take place this October in Kunming, China, the paper hopes to offer insights that could be used to design and implement the new Global Biodiversity



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framework. It also outlines six 'specific response' areas that governments can focus on to effectively incorporate nature into their development planning.

### Framing the Problem

Before we explore potential solutions or development opportunities offered by the paper regarding the biodiversity and ecosystem services crisis, let us define the key terms, 'biodiversity' and 'ecosystem services' and put them in perspective.

The Food and Agriculture Organisation of the United Nations (FAO) defines biodiversity as the variety and variability of animals, plants and micro-organisms at the genetic, species and ecosystem levels, which is necessary to sustain key functions of the ecosystem.

Why are properly functioning ecosystems so important?

That is because the world's ecosystems provide 'biodiversity or ecosystem services' that directly benefit the activities and well-being of mankind. For example, pollination, nutrient cycling and soil formation provided by the ecosystems directly benefit farm yields and the global food supply.

In an assessment report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) in 2019, one out of an estimated eight million animal and plant species is threatened with extinction while 14 of the 18 assessed categories of ecosystem services declining since 1970.

These figures cast an ominous shadow on the future of the world's biodiversity and ecosystem services foreboding a future filled with severe water crisis, extreme weather, pathogen spillovers and dwindling fish catches.

With poorer countries disproportionately relying on their biodiversity and ecosystems to generate wealth, the WB's model estimates that a "collapse of even a limited range of ecosystem services – a 90% reduction in pollination of crops by wild pollinators, provision of timber from tropical forests, and food from marine fisheries – could jeopardise the prospects of some of the poorest economies to grow out of poverty".

### Nature-smart Development

Notably, the WB's analysis shows that the economic sectors that put the most strain on nature — food, land use, and ocean usage; infrastructure and urban development; and energy and mining – will ultimately provide solutions to the global biodiversity crisis.

How can policymakers harness the benefits and opportunities of ecosystem services to both save the environment and achieve sustainable development? The six global



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response areas for nature-smart development delineated by the WB in the paper include:

- Policy dialogue and reform- Economic policies addressing and tracking the drivers of nature degradation and incorporating biodiversity into financial decisions and national development policies, etc.
- Nature-positive investments- Promoting agroforestry, identifying and protecting ecologically sensitive zones, utilising green infrastructure like mangroves and wetlands for flood protection, etc. depending on the type of economic sector, etc.
- Locally relevant conservation- Facilitating community-based eco-tourism, addressing illegal logging and poaching, establishing effective benefit-sharing mechanisms for conservation with locals, etc.
- Finance mobilisation- Facilitating a supply of bankable green or blue projects, creating and promoting financial instruments that attract investment in environmentally sustainable projects, incorporating sustainability into business and financing decisions, etc.
- Decision support tools- Employing open-access tools to measure the impact on biodiversity through various relevant metrics and spatial data and integrating these metrics into development or planning decisions.
- Leveraging partnerships- Cooperation among development partners, international donors, development banks, regulators and financial institutions to jointly address the biodiversity crisis is essential for an effective global response. The design and implementation of a post-2020 global biodiversity framework after the COP-15 is crucial in this regard.

In broad strokes, the WB proposes that policymakers systemically consider the implications of various national policies on biodiversity and the ecosystem using modelling tools and frameworks before deciding.

Case in point, when wind-energy farms constructed in Jordan threatened the survival of the country's unique bird species due to a lack of framework, the IFC approached and helped the stakeholders develop a monitoring and managing framework to reduce the impact on the bird population.

Moreover, a data-driven approach (i.e., satellite imaging and AI) may be utilised to monitor and map out the various ecosystems and wildlife habitats in the country to ensure policy decisions do not unwittingly jeopardise biodiversity services.



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Similarly, cracking down on illegal wildlife trade and poaching while promoting ecotourism might be a good way to mobilise the local communities to preserve the biodiversity of their environment.

Furthermore, the introduction and promotion of financial instruments like green bonds, blue bonds (for marine conservation projects for example), green 'sukuk' bonds, sustainable development bonds, etc. can help investors provide the much-needed funding for projects that protect biodiversity and the environment.

In fact, there is a forecasted \$711 billion gap in biodiversity financing by 2030 unless changes to policies are made. In that regard, Bangladesh has launched its first green bond and green sukuk bonds this year.

Similarly, mandating listed companies to disclose ESG metrics might be an effective way of directing capital (especially FDI) towards enterprises that are also sustainable.

Original Article: [TBS News by Shadman Saquib Rahman](#)

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