Veles Water Weekly Report

1. WATERTALK
   TECHNICAL ANALYSIS BY ROBIN BIEBER

2. NQH2O INDEX VS H2O FUTURES PRICE PERFORMANCE

3. NQH2O INDEX AND H2O FUTURES VOLATILITY ANALYSIS

4. CENTRAL VALLEY PRECIPITATION REPORT

5. RESERVOIR STORAGE

6. SNOWPACK WATER CONTENT

7. CALIFORNIA DROUGHT MONITOR

8. CLIMATE FORECAST

9. CALIFORNIA WEATHER DISCUSSION

10. REGULATORY NEWS

11. WATER NEWS

May 13th 2021
Authors:
Lance Coogan - CEO
Joshua Bell - Research Analyst
research@veleswater.com
+44 20 7754 0342
Welcome to WATERTALK
by Robin Bieber

CLICK THE LINK BELOW

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

https://vimeo.com/548748677/1b8f5e6e94
On the 12th of May NQH2O increased 0.04% up $0.31 to $877.36, a new all-time high. The May contract’s high for the week was on the 10th and 11th at $919. The low of the week was $891 yesterday, May 12th. For most of the week the futures have been trading at a premium to the index of between $40.95 - $41.95. However yesterday the premium to the index decreased to $13.64. This convergence between NQH2O and the futures indicates that the market believes the index may have peaked for the time being and we potentially could see some downside in the price. The long-term uptrend is still intact. With the index surpassing its all-time high previously achieved last week the Year-to-Date increase for NQH2O is 75.53%.
H2O FUTURES AND NQH2O INDEX VOLATILITY ANALYSIS

Daily H2O Futures Volatility vs Daily NQH2O Index Volatility

<table>
<thead>
<tr>
<th>ASSET</th>
<th>1 YEAR (%)</th>
<th>2 MONTH (%)</th>
<th>1 MONTH (%)</th>
<th>1 WEEK (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NQH2O INDEX</td>
<td>37.58%</td>
<td>26.25%</td>
<td>4.97%</td>
<td>0.93%</td>
</tr>
<tr>
<td>H2O FUTURES</td>
<td>N/A</td>
<td>32.1%</td>
<td>11.57%</td>
<td>3.65%</td>
</tr>
</tbody>
</table>

In the week beginning the 5\textsuperscript{th} May the two month futures volatility is at a premium of 5.85\% to the index up 0.10\% from the previous week. The one-month futures volatility is at a premium of 6.74\% to the index, down 0.14\% for the week. The one-week futures volatility is at a premium of 2.72\% to the index up 1.51\% on the week.

DAILY VOLATILITY

The daily volatility high for the May futures for the week was 3.14\% on the 12\textsuperscript{th} May with a low of 0\% on the 10\textsuperscript{th} May.

Above prices are all \textbf{HISTORIC VOLATILITIES} and \textbf{IMPLIED VOLATILITIES} will be introduced once an options market has been established.
Central Valley Precipitation Index

Central Valley average is calculated using data from 19 weather stations in the Central Valley, California. Data as of 05/13/2021

<table>
<thead>
<tr>
<th>STATION</th>
<th>MTD (INCHES)</th>
<th>WEEK ON WEEK CHANGE (INCHES)</th>
<th>% OF 20 YEAR AVERAGE MTD</th>
<th>2021 WYTD VS 2020 WYTD %</th>
<th>2021 WY VS 20 YEAR AVERAGE TO DATE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAN JOAQUIN 5 STATION (5SI)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>61</td>
<td>49</td>
</tr>
<tr>
<td>TULARE 6 STATION (6SI)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>66</td>
<td>36</td>
</tr>
<tr>
<td>NORTHERN SIERRA 8 STATION (8SI)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>57</td>
<td>48</td>
</tr>
<tr>
<td>CENTRAL VALLEY TOTAL</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
<td>61</td>
<td>44.33</td>
</tr>
</tbody>
</table>

Reservoir Storage

<table>
<thead>
<tr>
<th>RESERVOIR</th>
<th>STORAGE (AF)</th>
<th>% CAPACITY</th>
<th>LAST YEAR % CAPACITY</th>
<th>HISTORIC ANNUAL AVERAGE CAPACITY %</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRINITY LAKE</td>
<td>1,303,556</td>
<td>53</td>
<td>77</td>
<td>64</td>
</tr>
<tr>
<td>SHASTA LAKE</td>
<td>2,204,216</td>
<td>48</td>
<td>79</td>
<td>56</td>
</tr>
<tr>
<td>LAKE OROVILLE</td>
<td>1,461,419</td>
<td>41</td>
<td>69</td>
<td>50</td>
</tr>
<tr>
<td>SAN LUIS RES</td>
<td>995,463</td>
<td>49</td>
<td>71</td>
<td>57</td>
</tr>
</tbody>
</table>
**SNOWPACK WATER CONTENT**

Snow Water Equivalent Dashboard

Snow Water Equivalent as of 5/11/2021

<table>
<thead>
<tr>
<th>REGION</th>
<th>*SNOWPACK WATER EQUIVALENT (INCHES)</th>
<th>WEEK ON WEEK CHANGE %</th>
<th>% OF AVERAGE LAST YEAR</th>
<th>% OF 20 YEAR HISTORICAL AVERAGE</th>
<th>% OF HISTORICAL **APRIL 1ST BENCHMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTHERN SIERRA</td>
<td>1.3</td>
<td>-78.69%</td>
<td>13</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>CENTRAL SIERRA</td>
<td>1.4</td>
<td>-83.91%</td>
<td>17</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>SOUTHERN SIERRA</td>
<td>0.7</td>
<td>-76.67%</td>
<td>15</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>STATEWIDE</td>
<td>1.1</td>
<td>-82.54%</td>
<td>16</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

*Snow Water Equivalent, or SWE, is a commonly used measurement used by hydrologists and water managers to gauge the amount of liquid water contained within the snowpack. In other words, it is the amount of water that will be released from the snowpack when it melts. SWE has regional variance.

** April 1st is used as the benchmark as it when the snow pack in California is generally deepest. It has been used the benchmark date since 1941 by DWR and can be used to predict spring river flow.
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.
Over the last week CA has not seen any significant precipitation. High temperatures have returned to the region raising fears of an early start to the fire season. The general forecast is dry with no large weather systems looming. Parts of the Sierra Mountain range could see low levels of precipitation.

The US Drought Monitor release their statistics with a 1-week lag to this report. Most notably “Extreme Drought D3” conditions have increased by nearly 20%. These drought conditions cover 73.31% of the state of California.

Ref. Dark Sky

1-10 Day Outlook

Expect a quiet pattern the next couple days associated with a low-amplitude ridge near the western U.S. A weak disturbance today could bring a couple light showers to far northern CA/NV during the afternoon/evening hours. Expect a stronger trough to approach northern CA from the north Friday and form a closed low along the northern CA coast Friday night. This is expected to lead to light showers in far northern CA/NV Fri into Friday night with a few showers possible into the central CA coast Saturday morning.
CALIFORNIA WEATHER DISCUSSION

Drought conditions in California have worsened over this past week causing Gov. Gavin Newsom to declare expanded drought conditions. Whilst stopping short of declaring a statewide drought, the latest declaration encompasses 41 of 58 counties that make up California. Extreme drought conditions (D3) now encompass 73.31% of California, this up nearly 20% from last week.

The Sierra snowpack, an enormously important source of water for California, has all but melted and whilst we would normally expect to see an increase in river flow and reservoir storage, we have not. Statewide SWE levels are at 4% of the April 1st benchmark. This is due to poor soil moisture content and increased temperatures in the region which has led to increased absorption.

According to statistics released by Cal Fire, there has been a significant increase in the number of wildfires and acres burned in comparison to last year. The first few weeks of May 2021 have seen almost double the amount of wildfires of 2020.

The Bureau of Reclamation announced last week that CVP agricultural water service contractors north of the delta would not be receiving their 5% allocation until further notice. This is due to worsening drought conditions, poor precipitation, and below average snowpack. With a dry summer irrigation season forecast and above average temperatures the situation is not looking good for those who rely on the state and federal water systems.

The hydrological conditions discussed in this report have contributed to an increase of 75.5% in NQH2O since the start of the year. This has led to agricultural users in the Central Valley altering their water management strategies. Some have been fallowing entire orchards whilst some have changed the way they irrigate their crops.
REGULATORY NEWS

Gavin Newsom declares drought emergency for most of California, announces relief plans
Gov. Gavin Newsom expanded his drought emergency declaration to 39 more counties Monday, underscoring the rapid deterioration of California’s water supply in recent weeks.
The governor broadened his earlier drought order, which was limited to two counties on the Russian River, to cover most of parched California, which is plunging into its second major drought in less than a decade.
The new order covers the Sacramento and San Joaquin river watersheds, the Tulare Lake basin region and the Klamath region in far Northern California. About 30% of the state’s population is now covered by the declarations, including the greater Sacramento area and Fresno, Merced and Stanislaus counties in the San Joaquin Valley.
Newsom did not issue any mandatory drought conservation measures, as his predecessor Jerry Brown did during the last drought.
But such mandatory orders, which could force urban Californians to cut back on outdoor usage, “are on the table” if the state has another dry winter, said Natural Resources Secretary Wade Crowfoot.
Original Article: The Sacramento Bee by Dale Kasler

California declares drought emergency across vast swath of the state
California has expanded a drought emergency declaration to a large swath of the nation’s most populated state amid “acute water supply shortages” in northern and central parts of California.
The declaration, expanded by Governor Gavin Newsom on Monday, now includes 41 of 58 counties, covering 30% of California’s nearly 40 million people. The US drought monitor shows most of the state and the American west is in extensive drought just a few years after California emerged from a punishing multiyear dry spell.
Officials fear an extraordinary dry spring presages a wildfire season like last year, when flames burned a record 6,562 sq mi(16,996 sq km).
The declaration comes as Newsom prepares to propose more spending on short- and long-term responses to dry conditions. The Democrat last month had declared an emergency in just two counties north of San Francisco – Mendocino and Sonoma.
VELES WATER WEEKLY REPORT
The expanded declaration includes the counties in the Klamath River, Sacramento-San Joaquin Delta and Tulare Lake watersheds across much of the northern and central parts of the state.
The Sierra Nevada snowpack, which provides about a third of the state’s water, was at just 59% of average on 1 April, when it is normally at its peak.
This year is unique in the state’s recorded history because of extraordinarily warm temperatures in April and early May, the administration said. That led to quick melting of the Sierra Nevada snowpack in the waterways that feed the Sacramento River, which in turn supplies much of the state’s summer water supply.
The problem was worse because much of the snow seeped into the ground instead of flowing into rivers and reservoirs, the administration said.

Original Article: The Guardian by Associated Press

Governor Ducey Signs Historic Water Protection Legislation
Governor Doug Ducey today signed legislation to ensure clean water in nearly 800 Arizona streams, lakes and rivers that are critical for drinking, fishing and recreation.
“Living in the desert, the value of water is something we in Arizona know well, and we have taken great steps to protect it, including the Groundwater Management Act and the Drought Contingency Plan,” said Governor Ducey. “But just having water is not enough. We need to ensure our water supplies are clean and safe. That’s why I signed into law another landmark Arizona water protection bill — the Surface Water Protection Program providing protections for nearly 800 Arizona streams, lakes, and rivers.”

Original Article: Lake Powell Life by Dave
WATER NEWS

Reclamation halts water deliveries to northern Californian Farmers
More than a month after announcing it was suspending water deliveries to farmers on the west side of the San Joaquin Valley, the Bureau of Reclamation delivered equally bad news to farmers north of the Sacramento-San Joaquin Delta. Their water supplies, tabbed at 5 percent of their contracted amount, were not available for delivery via the Central Valley Project due to limited supply.
“Northern California has about 48% of average precipitation for this time of year; statewide average snowpack levels are at 24% of average,” the Federal water agency said Wednesday. “With a dry forecast and warm temperatures, much of the remaining snowpack is expected to melt over the next few weeks; however, the dry pre-existing conditions will limit snowmelt-driven reservoir inflow.”
The move is a rare sign of the worsening effects of the current drought in California.
Original Article: The SJV Sun by Alex Tavlian

California Department Of Water Resources Urges Caution During Castaic Dam Modernization In Santa Clarita
The California Department of Water Resources (DWR) advises being cautious during visits to Castaic Lake starting this May during construction on the Castaic Dam in Santa Clarita, which is expected to include a series of modernizations to prepare for potential major earthquakes.
Intending to reduce risks from potential major earthquakes, the DWR plans to oversee Castaic Dam construction in Santa Clarita, but the department also warns of potential water hazards during the process.
During the drawdown that is scheduled to begin in early May, all visitors are advised to be aware of fluctuating water levels and to stay away from water hazards, according to the DWR.
“The reservoir will reach a low elevation of 1,380 feet above mean sea level by fall 2021. The water level will be lowered by over 100 feet during this period,” according to a statement from the DWR. “By spring 2022, Castaic Lake will return to normal operations with water levels based on available conditions at that time.”
VELES WATER WEEKLY REPORT

The projects include the installation of new equipment to monitor the dam’s stability and construction to strengthen the dam’s intake tower access bridge, according to the DWR.

Original Article: KHTS by Rachel Matta

IDWR to change water administration of water rights in the Portneuf Basin

Seven irrigation districts and canal companies representing the Snake River Surface Water Coalition (SWC) sent a letter on April 23 to the Director of the Idaho Department of Water Resources (IDWR) requesting the Director instruct Watermasters in the Portneuf River Basin to regulate surface water rights in the Portneuf River Basin during the 2021 irrigation season in priority with Snake River water rights, IDWR officials said Friday.

The SWC is comprised of the A&B Irrigation District, Burley Irrigation District, Milner Irrigation District, North Side Canal Company and Twin Falls Canal Company through their attorney Travis Thompson. They were joined in the letter by American Fall Reservoir District #2 and Minidoka Irrigation District through their attorney Kent Fletcher.

The SWC request for regulation is in response to a below-normal runoff forecast for the Upper Snake River. The Bureau of Reclamation/Army Corps of Engineers’ joint April forecast for the Upper Snake River predicts 80% of average runoff or 2.6 million acre-feet. Shortages could occur to some of the SWC members on the Snake River as a result of below-normal water supplies. The Portneuf River Basin is a tributary of the Snake River located in Southeast Idaho.

Original Article: Local News 8

Navajo-Gallup water delay spurs problem solving in arid Southwest

Early this year, five of Gallup, New Mexico’s 16 water wells stopped producing water, including two of its biggest. After a few days of maintenance, two worked. The other three were out of commission for more than a month. Had it happened in summer, the city might have asked residents to dramatically reduce use.

“I’m not in crisis mode,” said Dennis Romero, Water and Sanitation Director for the City of Gallup, but “it could go to crisis mode very quickly.”

The shortage isn’t wholly surprising — 20 years ago, the city decided it could limp along on aging groundwater wells with dropping water levels until a new water project began delivering San Juan River water in late 2024. The project is also connecting nearby
Navajo communities, where many residents lack running water, an issue the Navajo Nation says is long past due and in need of a fix. But now a potential four-year delay could force a growing number of people to rely on these strained groundwater sources. A plan to keep taps from running dry will come with a price tag. The situation highlights how precarious water has become for this city of almost 22,000 in western New Mexico and offers a peek inside the complicated mix of relationships, creativity and familiarity with multiple government agencies that’s required to manage water in the 21st century.

Original Article: [New Mexico in Depth by Elizabeth Miller](#)

**Irrigators look to replace hydro plant**

Two local irrigation districts are looking to replace the aging Grand Valley Power hydroelectric plant by the Colorado River near Palisade with a new, adjacent plant after deciding against trying to keep the old plant running.

The Orchard Mesa Irrigation District and Grand Valley Water Users Association expect to spend some $10 million, not counting cash spending and in-kind contributions to date, on what is to be called the Vinelands Power Plant. It will replace a plant that dates to the early 1930s.

The existing plant is owned by the federal Bureau of Reclamation but administered by the two local irrigation entities, with Orchard Mesa Irrigation overseeing day-to-day operations and Grand Valley Water Users diverting water for it. The local entities hold a lease of power privilege contract granted by Bureau of Reclamation to operate and maintain the existing plant, and will be negotiating a new lease with the agency for the new plant.

Original Article: [The Daily Sentinel by Dennis Webb](#)

**CVP Adds Water Supply Hold for Northern California**

The California Bureau of Reclamation has put water supply allocations on hold for Central Valley Project (CVP) water contractors located north of the Delta. The bureau said the announcement is in response to worsening water availability conditions in the state.

In February, the bureau announced a 5% water allocation for contractors both north and south of the Delta in the CVP. South-of-Delta contractors were notified in March that their 5% allocation was on hold due to lack of rain and snowfall. Just over a month later,
north-of-delta contractors received the same news. The bureau stated in the release that the water supply allocations are on hold until further notice.

North-of-delta contractors get their water from canals and basins such as Shasta Dam, Tehama-Colusa Canal, Folsom Dam and the Sacramento River Water Rights Settlement. Original Article: AG Net West by Taylor Hillman

Kern farmers make do under drought conditions
Kern County ag producers are making changes big and small — from redeveloping entire orchards to fine-tuning their irrigation systems — as they try to adjust to worsening drought conditions across the Central Valley.
Strategies vary depending on access to water and ability to shift irrigation to different fields. Some landowners are trying to hold onto as much water as they can in case prices rise later in the year.
Complicating every equation is California's Sustainable Groundwater Management Act. It limits how much can be pumped from irrigation wells. Because of local water banking, some growers do expect to tap groundwater for irrigation this year.
After a dry winter more than half the state is in extreme drought. In March, Sacramento announced State Water Project contractors will receive just 5 percent of their allocation this year, the third-smallest in the project's history. Original Article: Bakersfield.com by John Cox

The sun may offer key to predicting El Niño, groundbreaking study finds
When it comes to long-term hurricane forecasts, tornado predictions in the Plains or prospects for winter rain in California, you’ll often hear meteorologists refer to El Niño or La Niña. They are phases in a cycle that starts in the tropics, spreading an influence across the globe and shaping weather both close to home and on different continents.
Now there’s emerging research to suggest that cosmic rays, or positively charged, high-energy particles from space, might be the mechanism that flips the switch between phases. Cosmic rays come from outside our solar system, but the number and intensity that reach Earth hinge on the magnetic field of the sun.
A swing between El Niño and La Niña can have dramatic implications on global weather, bringing widespread shifts in precipitation and changes in temperature that can be problematic for vulnerable populations and have massive economic effects. In California, for instance, flood events during El Niño periods have proven 10 times more
VELES WATER WEEKLY REPORT
costly than those during La Niña events. In some parts of the world that depend heavily on agriculture and marine commerce, a flip from El Niño to La Niña can alter daily life.
Original Article: The Washington Post by Matthew Cappucci

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