

# California Water Supply Outlook Report

## April 2025



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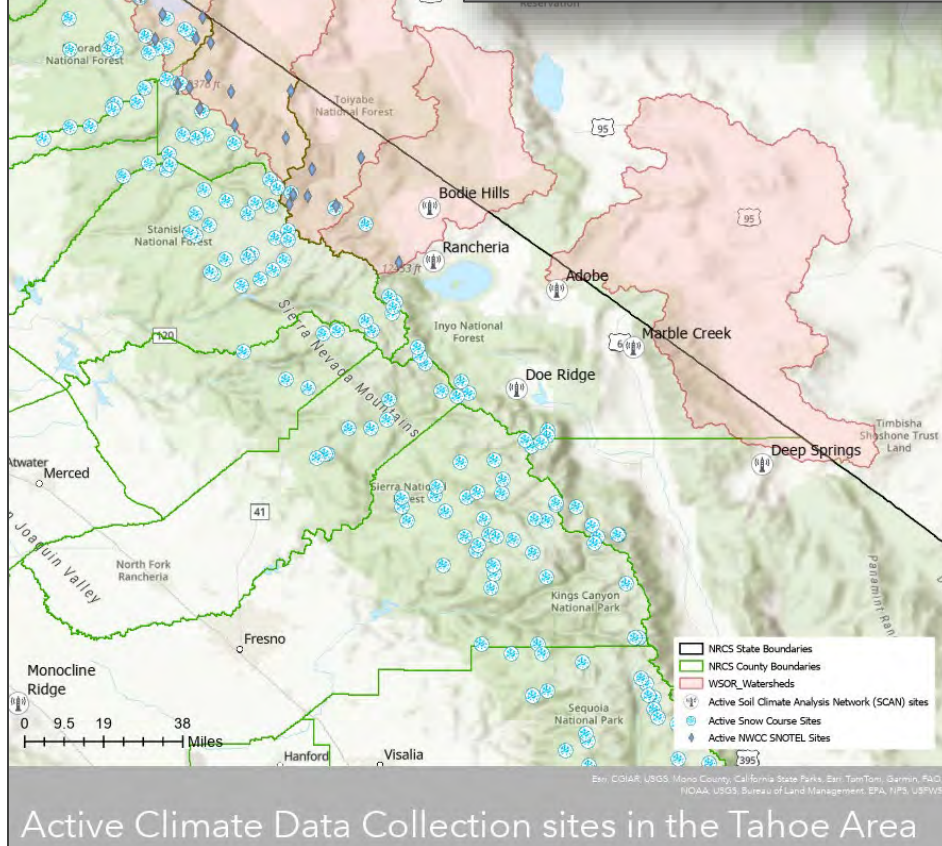
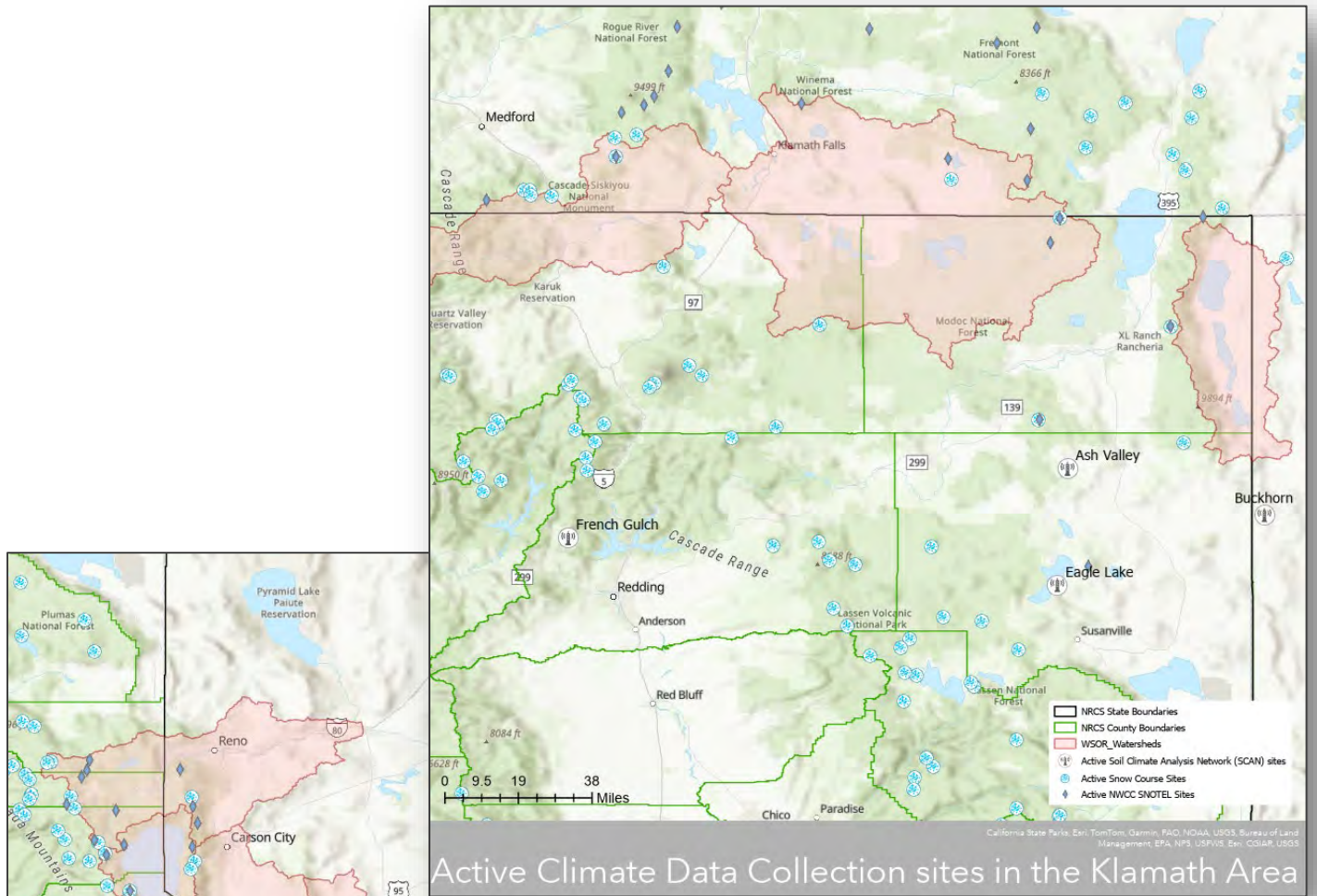






\*\*Don Pedro Reservoir is not labeled at this scale but is situated between New Melones and Lake McClure.

Map Updated 4/18/2024



\*Maps only show forecasted basins that are partially or completely contained in CA. Maps Updated 4/18/2024



# STATE OF CALIFORNIA GENERAL OUTLOOK

## April 2025

### **2025 UPDATES:**

#### **From Jeff Anderson at the NRCS Utah Data Collection Office (DCO):**

An important headline to be aware of is the **new Lost Lakes SNOTEL** (<https://wcc.sc.egov.usda.gov/nwcc/site?sitenum=1331>) at the headwaters of the WF Carson River which was installed in September. This site is located right below the Sierra crest at 8640ft and should also be useful for westside users. This is high accumulation zone.

Another important headline was the **Heavenly Valley SNOTEL Supersite Upgrade**. Heavenly is one of 18 sites across the west-wide network with “supersite” status. The upgrade included adding sensors to measure wind speed and wind direction, relative humidity, incoming and outgoing long and short-wave radiation measurements. Supersites are meant to assist research and modeling efforts. Supersites also have beaded temperature cables that measure temperature vertically every 8 inches (20cm). The cable hangs vertically off an arm on the tower and extends from -8inches below the ground surface to 127 inches above the ground.

For more information on these SNOTEL sites or to make a suggestion on improving the Water Supply Outlook Report, please email [NRCS.CA.Engineering@usda.gov](mailto:NRCS.CA.Engineering@usda.gov).

#### **Snow Survey**

NRCS CA maintains 4 snow courses in the Lake Tahoe region: Richardson #2, Palisades Tahoe #2, Rubicon #1, and Mount Rose. NRCS CA started measuring snow depth around February 1 for the 2025 Water Year and is now finished for the Water Year. Snow Course Locations and Data can be found at <https://nwcc-apps.sc.egov.usda.gov/> under “Interactive Map.”

DWR cooperator partners maintain other snow courses around CA. That data can be found in the DWR B120 links below.

#### **Snowpack**

As of April 7<sup>th</sup>, snowpack is 122 percent of normal for the dates in the northern Sierras (up from 100 percent on March 13<sup>th</sup>); 96 percent of normal in the central Sierras (up from 77 percent as of March 13<sup>th</sup>); and 85 percent of normal in the southern Sierras (up from 78 percent on March 13<sup>th</sup>). The DWR Daily Statewide Summary of Snow Water Content map is attached at the end of the General Outlook. More information is available online at: <http://cdec.water.ca.gov/snow/current/snow/index2.html>.

#### **Precipitation**

As of April 7<sup>th</sup>, the Northern Sierra-, San Joaquin-, and Tulare Basin Index stations received 118-, 75-, and 92 percent of average for this date. March precipitation increased the precipitation averages

for the Sierra and San Joaquin basins. The Tulare Basin held steady. More information is available online at: [http://cdec.water.ca.gov/snow\\_rain.html](http://cdec.water.ca.gov/snow_rain.html)

## **Reservoirs**

As of March 31, 2025, total reservoir storage in intrastate California is 116 percent of average. Total interstate reservoir storage, including Lake Powell, Lake Mead and the North Coast watershed is 84 percent of average. As of April 8, 2025, storage at Shasta Reservoir was 116 percent of average, up from 109 percent of average on March 10, 2025. Oroville Reservoir was 120 percent of average, down from 124 percent of average on March 10, 2025. As of April 7, 2025, Don Pedro Reservoir was 113 percent of average, up from 103 percent of average on March 10, 2025. The DWR Selected Reservoirs Daily Graph – Water Supply summary chart is attached at the end of the General Outlook. More information is available online at: <https://cdec.water.ca.gov/reservoir.html>.

Lake Oroville, along with 16 other reservoirs, is managed by [DWR](#) through the [State Water Project](#). Shasta Dam, along with 5 other storage reservoirs, is managed by the US Bureau of Reclamation as part of the [Central Valley Project](#). Don Pedro Dam and Reservoir is jointly owned by [Turlock and Modesto Irrigation Districts](#). These three reservoirs are just one example of why the [CA Cooperative Snow Survey Partnership](#) is so critical to understanding where and how the water is stored and eventually distributed.

## **Streamflow**

NRCS forecasts in the Tahoe, Truckee, Carson, and Walker River basins are approximately 88 - 123 percent of the 1991-2020 median. NRCS forecasts for stations in the Klamath Basin are 119 - 264 percent of the 1991-2020 medians between April and September. NRCS Forecast summaries are attached after the General Outlook Report.

For the Sacramento, San Joaquin, Tulare, North Coast, and Owens Lake forecasts, please refer to the most up to date information on the DWR and NWS webpages. Links with instructions on how to access the data are provided below.

### **Links to Data for Sacramento, San Joaquin and Tulare Lake Basins data:**

Please note that DWR and NWS use percent of average while NRCS uses percent of median to display forecasted stream flows.

- California Department of Water Resources (DWR):
  - [B120 \(ca.gov\)](#) This version of DWR’s Bulletin 120 links to the seasonal (April – July) forecasting summary for 18 points in the three watersheds and also provides DWR staff contact information.

**B-120 WATER SUPPLY FORECAST SUMMARY**  
 UNIMPAIRED FLOW FOR - February 2024  
 (Provisional data, subject to change)

Report generated: February 8, 2024 17:48

APRIL-JULY FORECAST SUMMARY (IN THOUSANDS OF ACRE-FEET)			
HYDROLOGIC REGION WATERSHED	APRIL-JULY FORECAST	PERCENT OF AVERAGE	80% PROBABILITY RANGE 90%   10%

- [B120DIST \(ca.gov\)](#) This version of DWR’s Bulletin 120 links to the monthly stream forecasts (Feb – Sept) for 16 points in CA and also provides DWR staff contact information.

**B-120 WATER SUPPLY FORECAST SUMMARY**  
 UNIMPAIRED FLOW FOR - February 1, 2024  
 (Provisional data, subject to change)

Report generated: February 08, 2024 13:31

WATER YEAR FORECAST SUMMARY AND MONTHLY DISTRIBUTION (IN THOUSANDS OF ACRE-FEET)												
WATERSHED	OCT THRU JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	WATER YEAR TOTAL	80% PROBABILITY RANGE 90%   10%	WY % AVERAGE

- National Weather Service (NWS): [CNRFC - Water Resources - Daily Water Resources Update \(noaa.gov\)](#) The California Nevada Forecast Center provides Daily Water updates. The report that is closest to the NRCS forecasting report is the “Seasonal %Avg” product in the “Forecast Flow” data type.

**Daily Water Resources Update** Web content below courtesy of: Other Resources

1 Select data type below:

Precipitation	Snow	Observed Flow	Reservoir Storage	Forecast Flow	Point Forecasts
---------------	------	---------------	-------------------	---------------	-----------------

2 Select product below:

Water Year %Avg	Seasonal %Avg	Spring Peak Flow Dates	Seasonal Volumes (text)	Seasonal Tracker (text)
Water Year Tracker (text)	Seasonal Breakdown (text)	Water Year Breakdown (text)	Next 12 Months (text)	Spring Peaks (text)

**Forecast Seasonal Volume (WY2024)**  
 Click for more options  
 Data Mode:

**Percent of Normal**

Extreme Below	Much Below	Below	Near Normal	Above	Much Above	Extreme Above
50%	70%	90%	110%	130%	150%	

Marker size scaled by average seasonal flow.

Created: Thu Feb 08 2024 at 10:15 AM PST

Seasonal Forecast Volumes (as percentages) can be provided by clicking the “show data table” button on the top right of the interactive map. This value is for the whole water year and is not broken down by month. In order to get monthly forecasting data, text reports are available. The “ESP Water Supply Seasonal Forecast” product is the one NRCS used to report data in its previous products.



[Change Map Background](#)

**Note 1 About Product:** This product is updated daily with current water year forecasts plotted.

**Note 2 About Product:** Most recent Official or Raw ESP Water Supply Forecast during the current water year.

**Alternate Text Products:** [Official Water Supply Text Forecast](#) | [ESP Water Supply Seasonal Forecast](#)  
[Current and Archived Point Data](#)



# STATEWIDE SNOW WATER CONTENT

## CURRENT REGIONAL SNOWPACK FROM AUTOMATED SNOW SENSORS

% of April 1 Average / % of Normal for This Date



NORTH	
Data as of April 7, 2025	
Number of Stations Reporting	27
Average snow water equivalent (Inches)	30.9
Percent of April 1 Average (%)	119
Percent of normal for this date (%)	122

CENTRAL	
Data as of April 7, 2025	
Number of Stations Reporting	52
Average snow water equivalent (Inches)	26.1
Percent of April 1 Average (%)	94
Percent of normal for this date (%)	96

SOUTH	
Data as of April 7, 2025	
Number of Stations Reporting	25
Average snow water equivalent (Inches)	18.6
Percent of April 1 Average (%)	82
Percent of normal for this date (%)	85

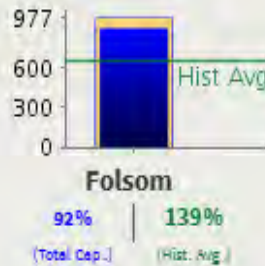
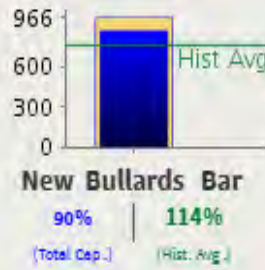
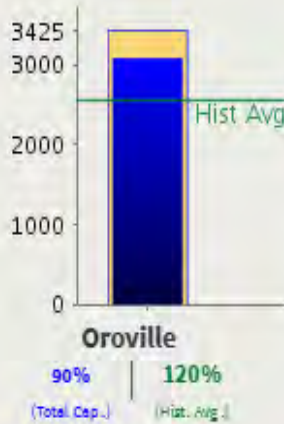
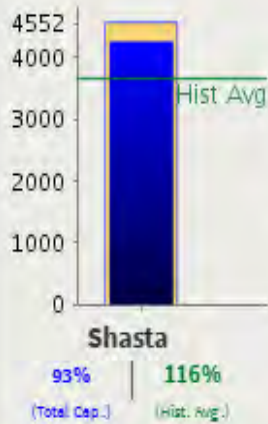
STATE	
Data as of April 7, 2025	
Number of Stations Reporting	104
Average snow water equivalent (Inches)	25.6
Percent of April 1 Average (%)	98
Percent of normal for this date (%)	100

**Statewide Average: 98% / 100%**

Data as of April 7, 2025

Data as of Midnight : 08-Apr-2025

Change Date:



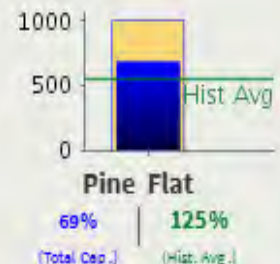
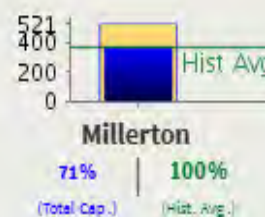
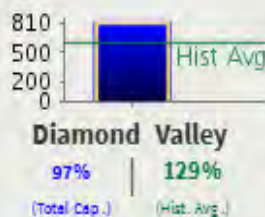
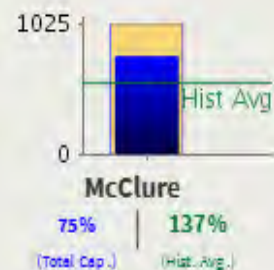
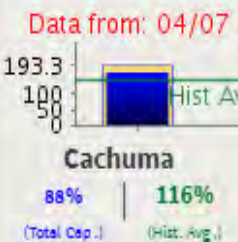
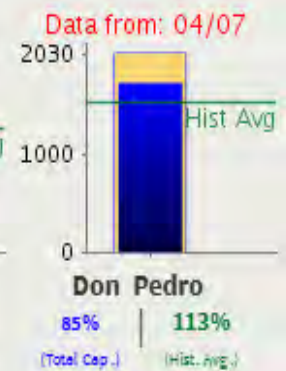
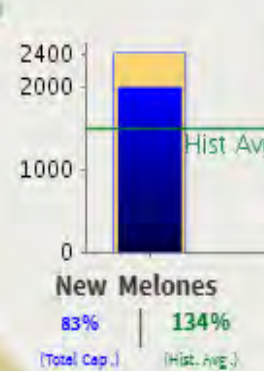
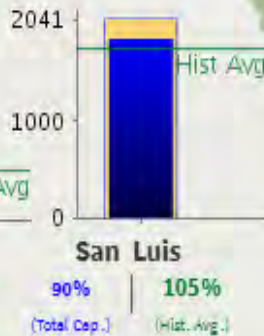
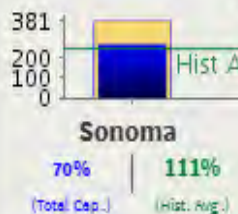
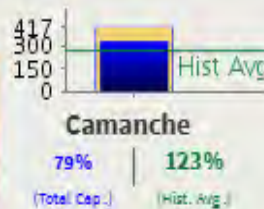
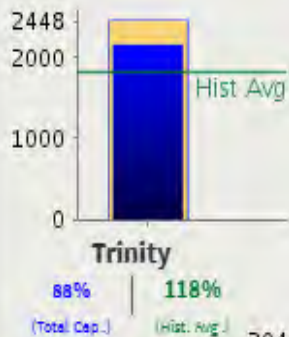
**LEGEND**

- Blue Bar:** Storage level for date
- Gold Bar:** Total reservoir capacity
- Green Line:** Historic level for date.

Capacity (TAF) | Historical Avg Mark

**% of Capacity | % Hist. Avg.**

(Click res. 3 char. code for details)



[Click to download printable version of current data.](#)

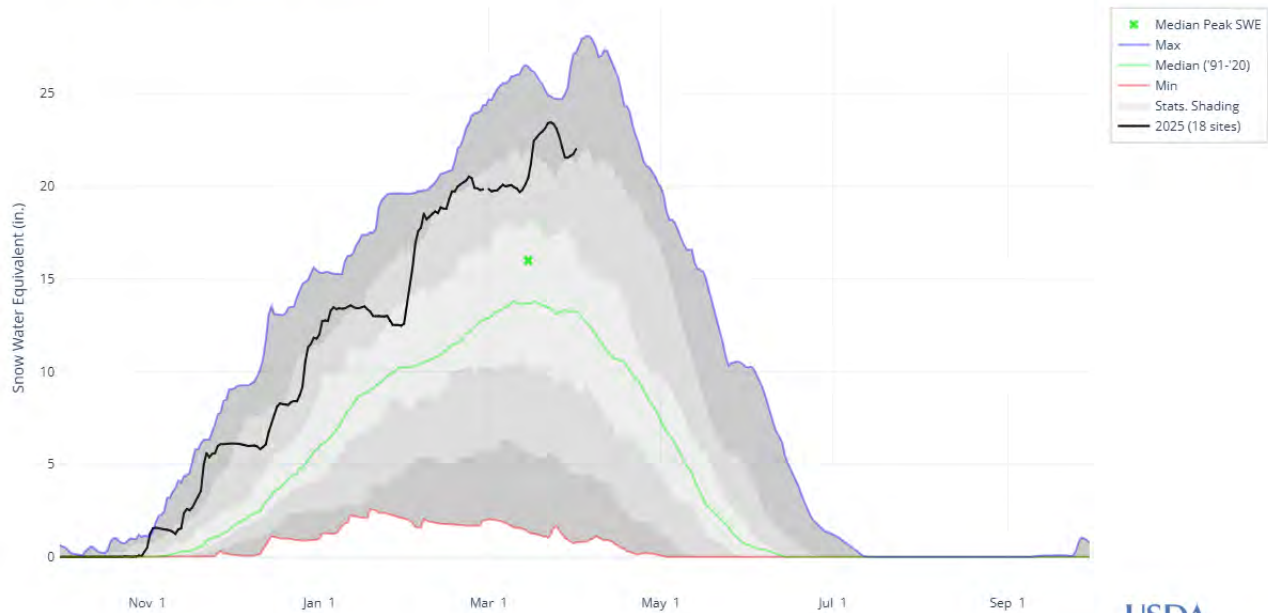
Report Generated : 09-Apr-2025 9:56 AM

The CSI link has been disabled to zoom in, for the lack of historical data.



# Klamath Basin Summary

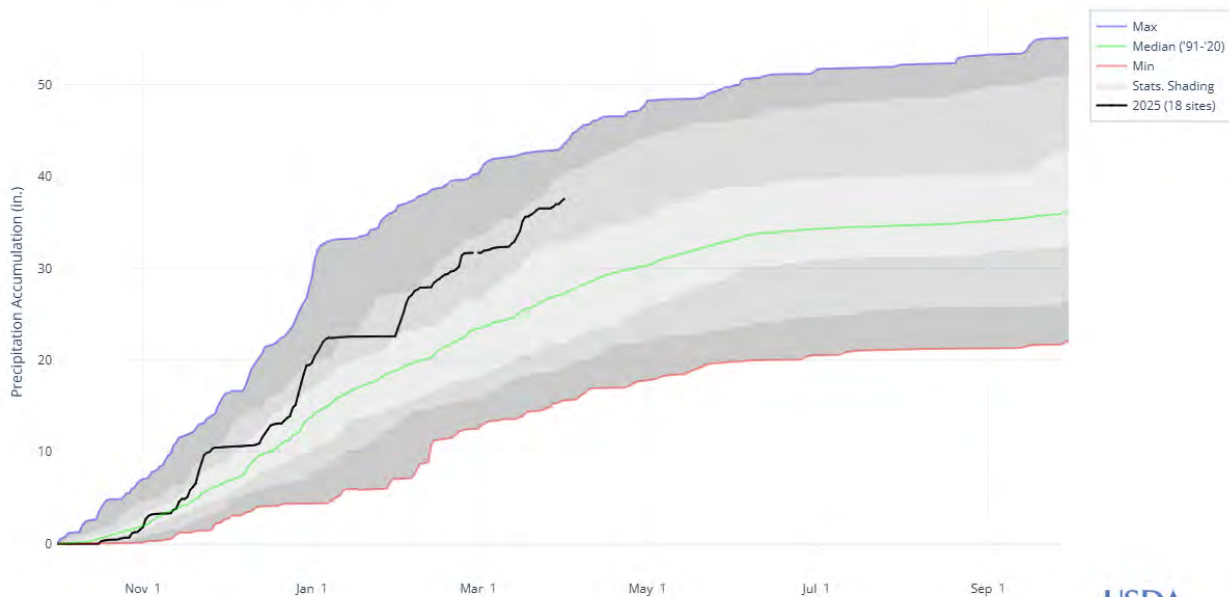
## SNOWPACK



As of April 1, the basin snowpack is above normal at 169% of median. This is higher than March 1 when the basin snowpack was 160% of median.

► [View snowpack for individual sites by accessing the basin data report here.](#)

## PRECIPITATION



March precipitation is above normal at 149% of median. Precipitation since the beginning of the water year (October 1 - April 1) is 142% of median.

► [View precipitation for individual sites by accessing the basin data report here.](#)

Statistical shading percentiles are calculated from period of record (POR) data, excluding the current water year. Percentile categories range from: minimum to 10th percentile, 10th-30th, 30th-70th, 70th-90th, 90th-maximum.

## RESERVOIR STORAGE

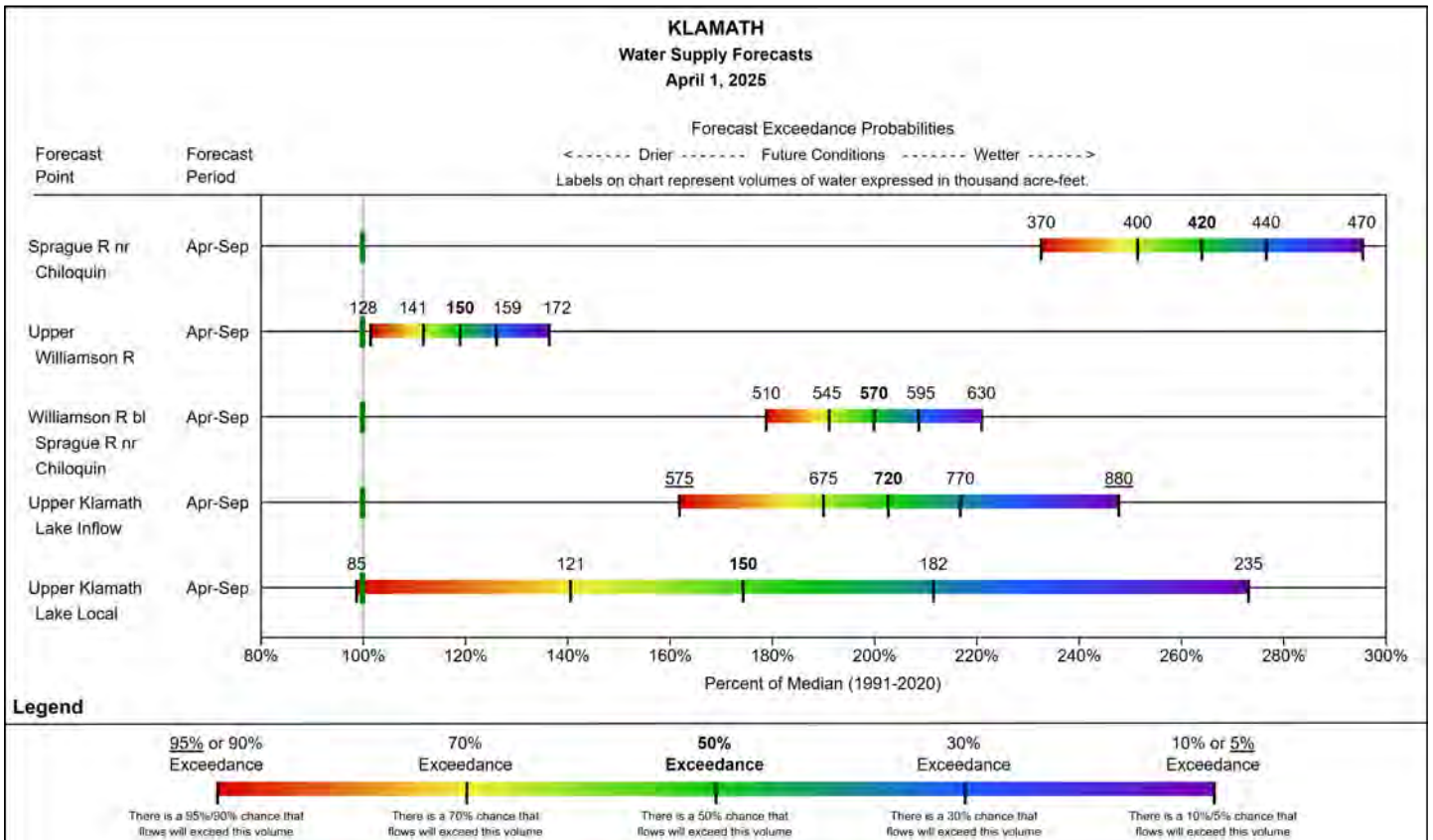
As of April 1, storage at major reservoirs in the basin ranges from 86% of median at Fourmile Lake to 139% of median at Upper Klamath Lake. *View reservoir storage for individual sites by accessing the basin data report [here](#).*

KLAMATH					Water Year 2025		
Site	Elevation (ft)	Capacity (kaf)	Median (kaf)	Median % Capacity	Storage (kaf)	% Capacity	% Median
Fourmile Lake	5750	15.6	7.4	47	6.365	41	86
Hyatt Prairie	5020	16.2	12	74	11.693	72	97
Gerber	4830	94.3	56.6	60	72.94	77	129
Howard Prairie	4530	62.1	38	61	43.939	71	116
Clear Lake	4480	513.3	155	30	180.53	35	116
Upper Klamath Lake	4140	523.7	441.9	84	613.305	117	139
<b>Basin Index</b>						<b>76</b>	<b>131</b>
<b># Reservoirs</b>						<b>6</b>	<b>6</b>

## STREAMFLOW FORECAST

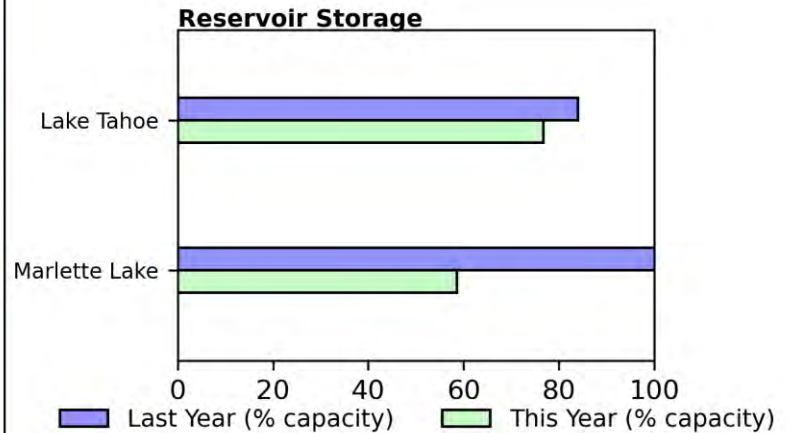
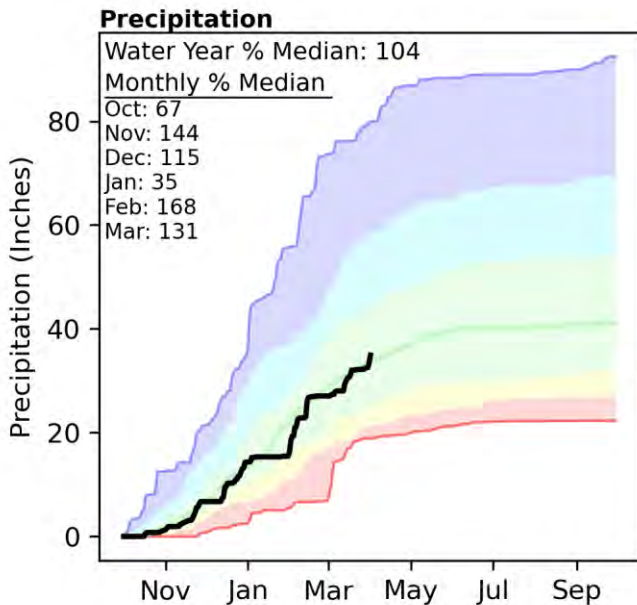
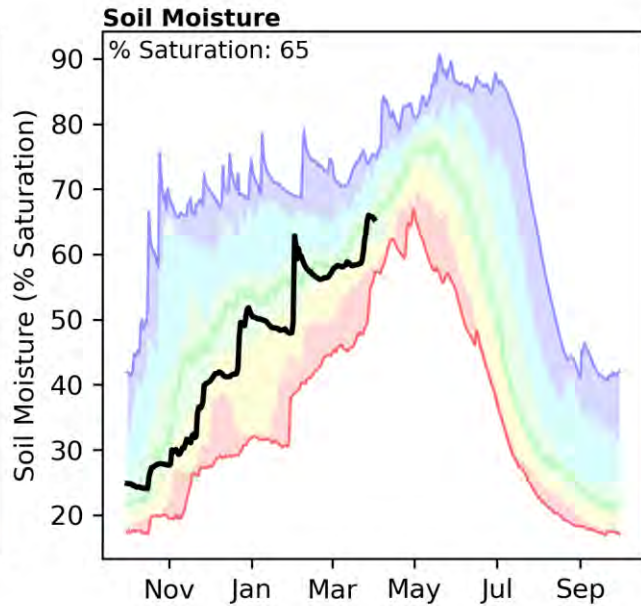
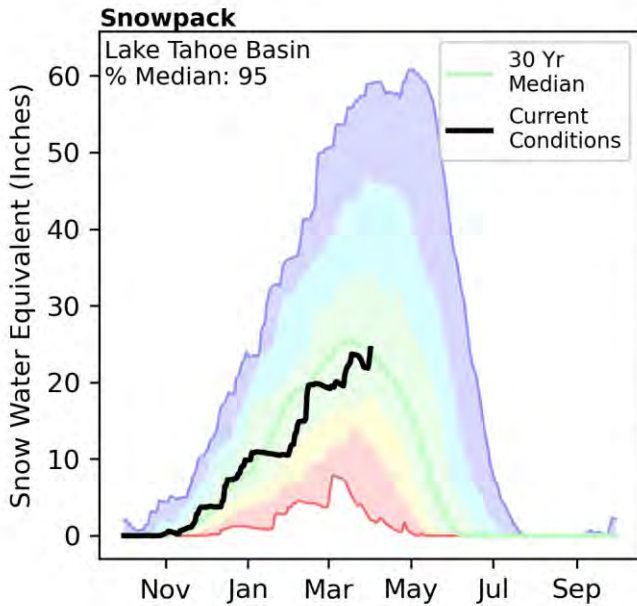
The streamflow forecasts for the primary period in the basin range from 119% to 264% of median.

*For data in tabular format and to view other forecasts please view the basin data reports [here](#).*



# Lake Tahoe Basin | April 1, 2025

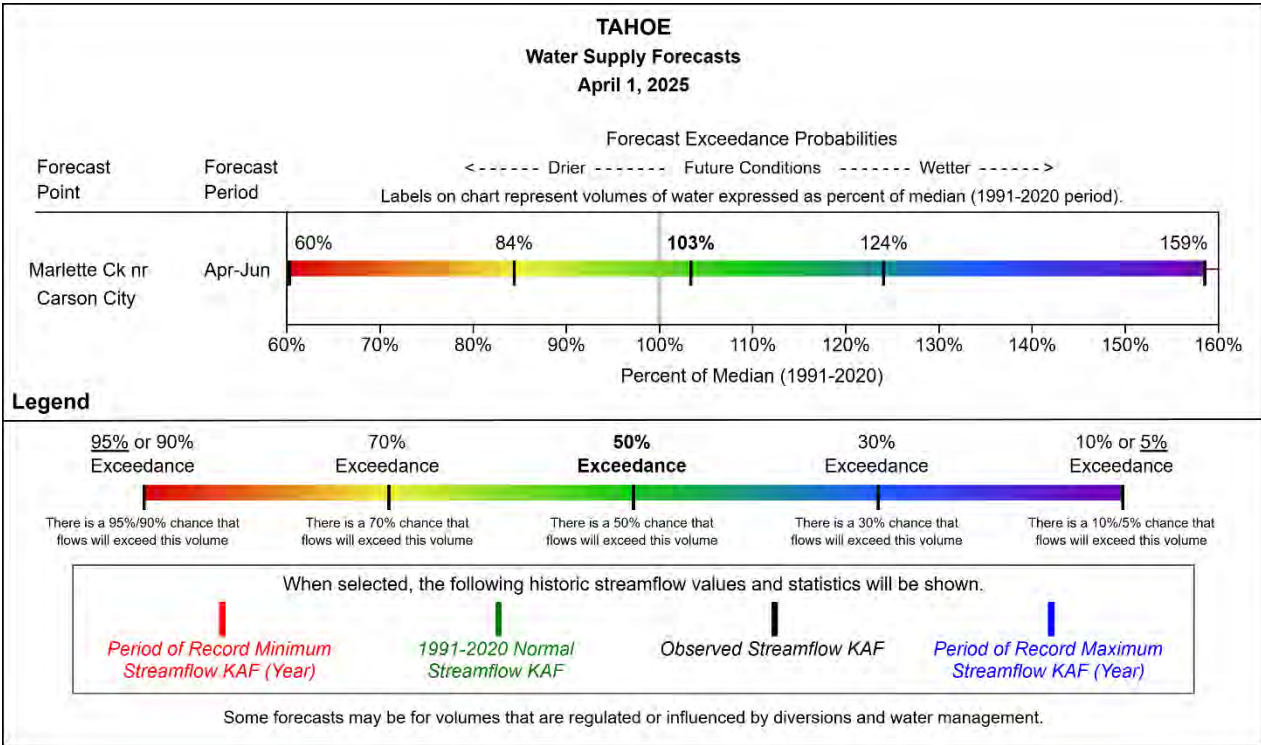
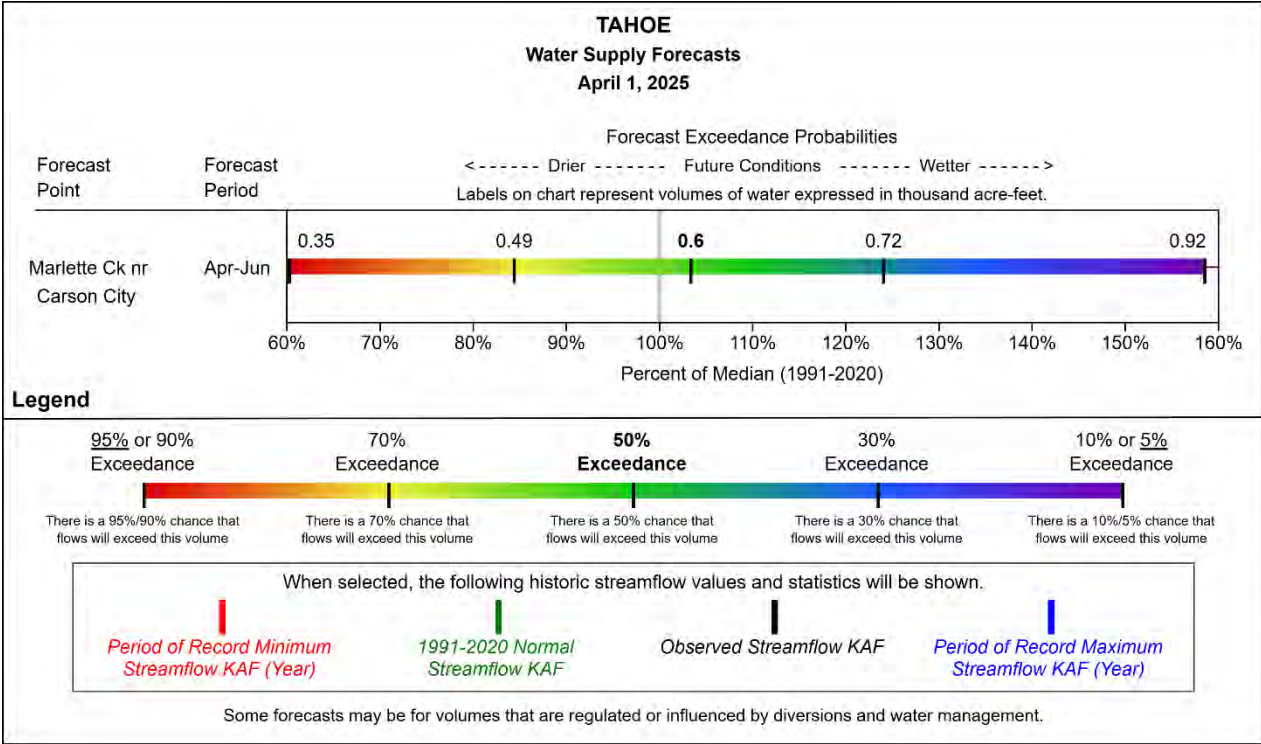
Snowpack in the Lake Tahoe Basin is about normal at 95% of median, compared to 113% at this time last year. Precipitation in March was well above normal at 131%, which brings the seasonal accumulation (October-March) to 104% of median. Soil moisture is at 65% saturation, same as last year at this time. Reservoir storage is 76% of capacity, compared to 84% last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.  
For more information visit: [30 year normal calculation description](#)

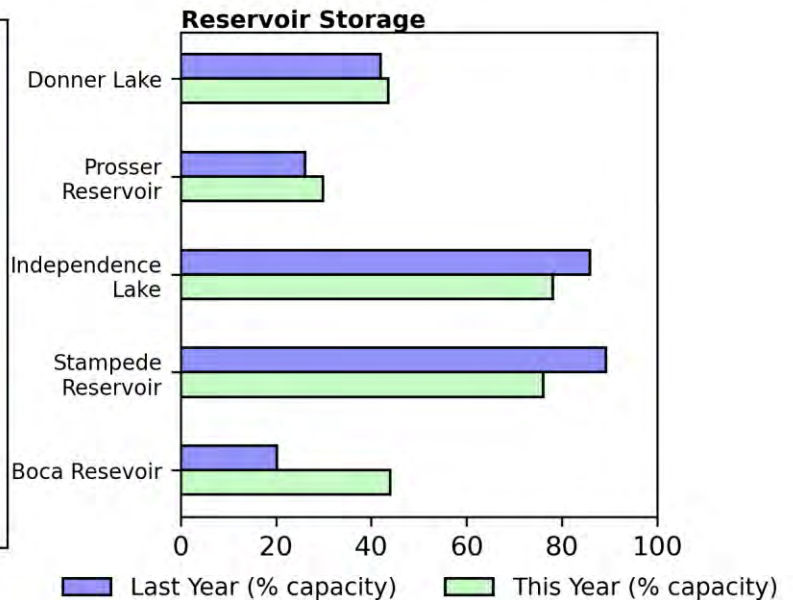
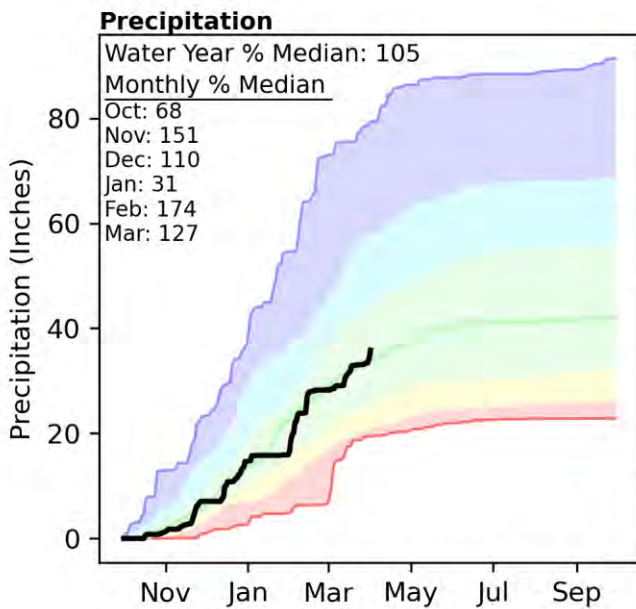
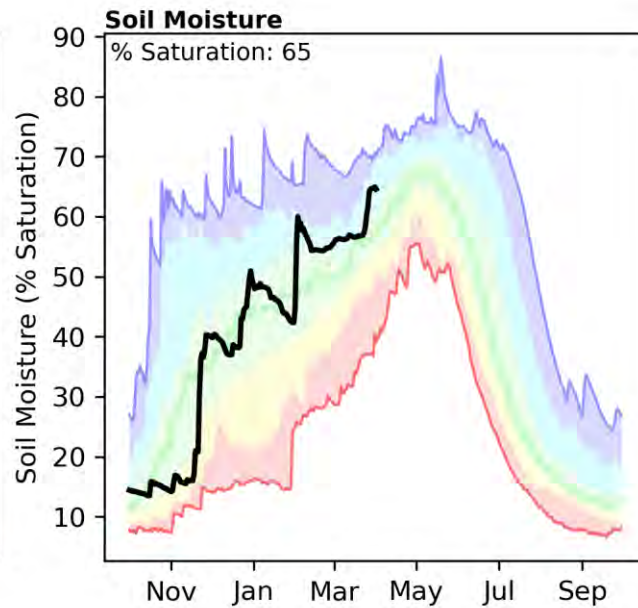
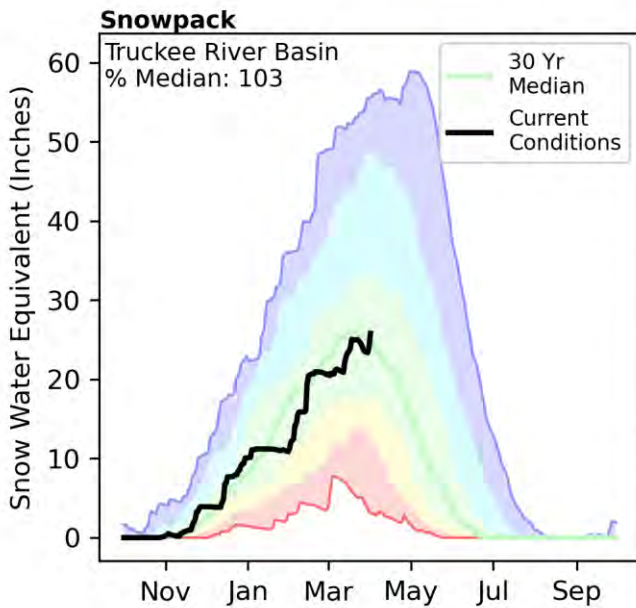
**Important Information about Forecast Coordination:** Hydrologists with the NRCS and National Weather Service California Nevada River Forecast Center (CNRFC) coordinate Lake Tahoe Rise, Truckee River at Farad, Little Truckee River near Boca, and the Carson River at Ft. Churchill forecasts (following page) using output of their respective hydrology models at the request of the Bureau of Reclamation. The NRCS model is a statistical model based on the current data as of the first of each month. The CNRFC ensemble forecasting system incorporates near-term weather prediction and climatology into their model. These models can provide different answers because of the nature of the model systems, and from the inclusion of future weather in the CNRFC model. The hydrologists agree on forecast values using guidance from both models to best provide an accurate water supply forecast for these points.





# Truckee River Basin | April 1, 2025

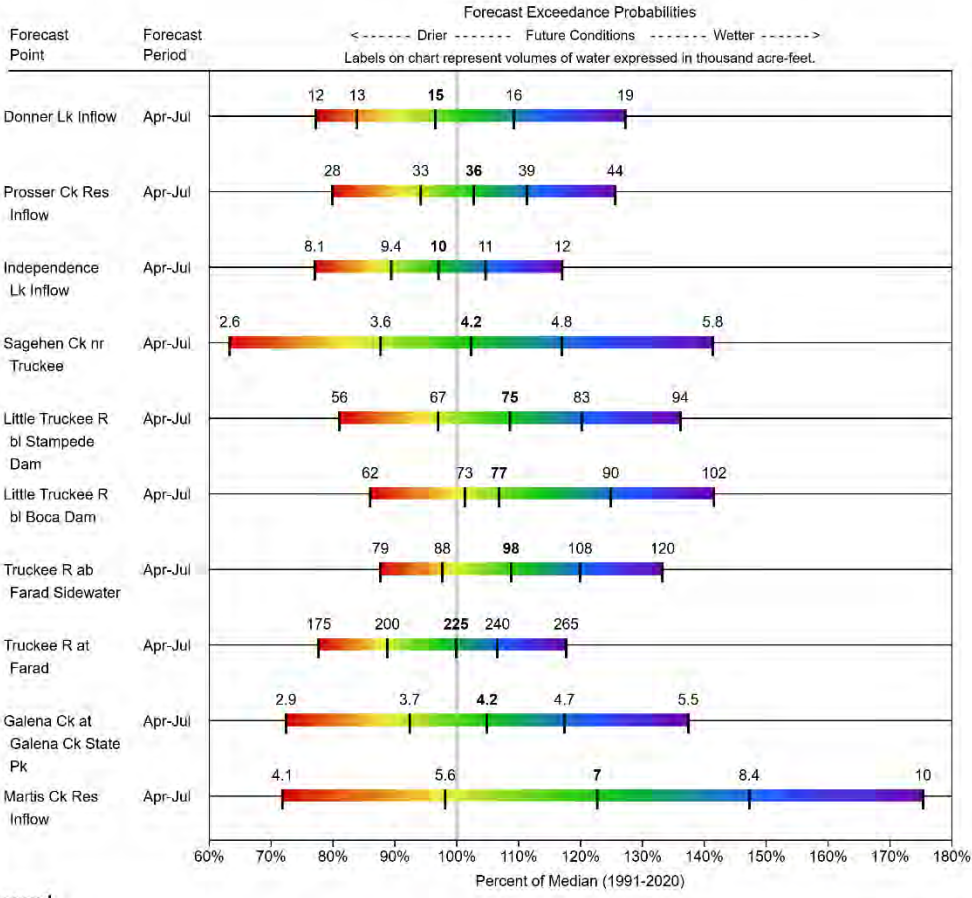
Snowpack in the Truckee River Basin is about normal at 103% of median, compared to 111% at this time last year. Precipitation in March was above normal at 127%, which brings the seasonal accumulation (October-March) to 105% of median. Soil moisture is at 65% saturation compared to 60% saturation last year. Reservoir storage is 67% of capacity, compared to 73% last year.



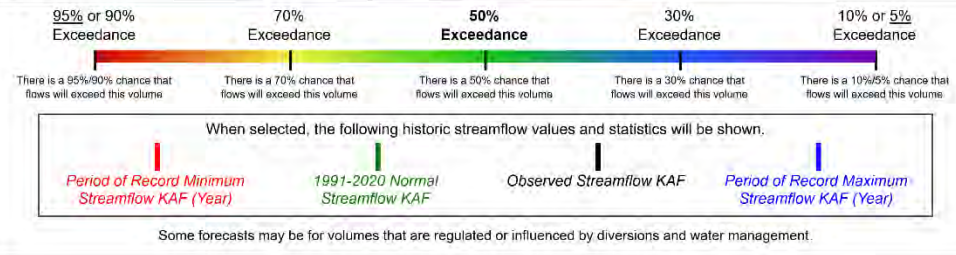
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.  
For more information visit: [30 year normal calculation description](#)

**Important Information about Forecast Coordination:** Hydrologists with the NRCS and National Weather Service California Nevada River Forecast Center (CNRFC) coordinate Lake Tahoe Rise, Truckee River at Farad, Little Truckee River near Boca, and the Carson River at Ft. Churchill forecasts (following page) using output of their respective hydrology models at the request of the Bureau of Reclamation. The NRCS model is a statistical model based on the current data as of the first of each month. The CNRFC ensemble forecasting system incorporates near-term weather prediction and climatology into their model. These models can provide different answers because of the nature of the model systems, and from the inclusion of future weather in the CNRFC model. The hydrologists agree on forecast values using guidance from both models to best provide an accurate water supply forecast for these points.

**TRUCKEE**  
**Water Supply Forecasts**  
**April 1, 2025**

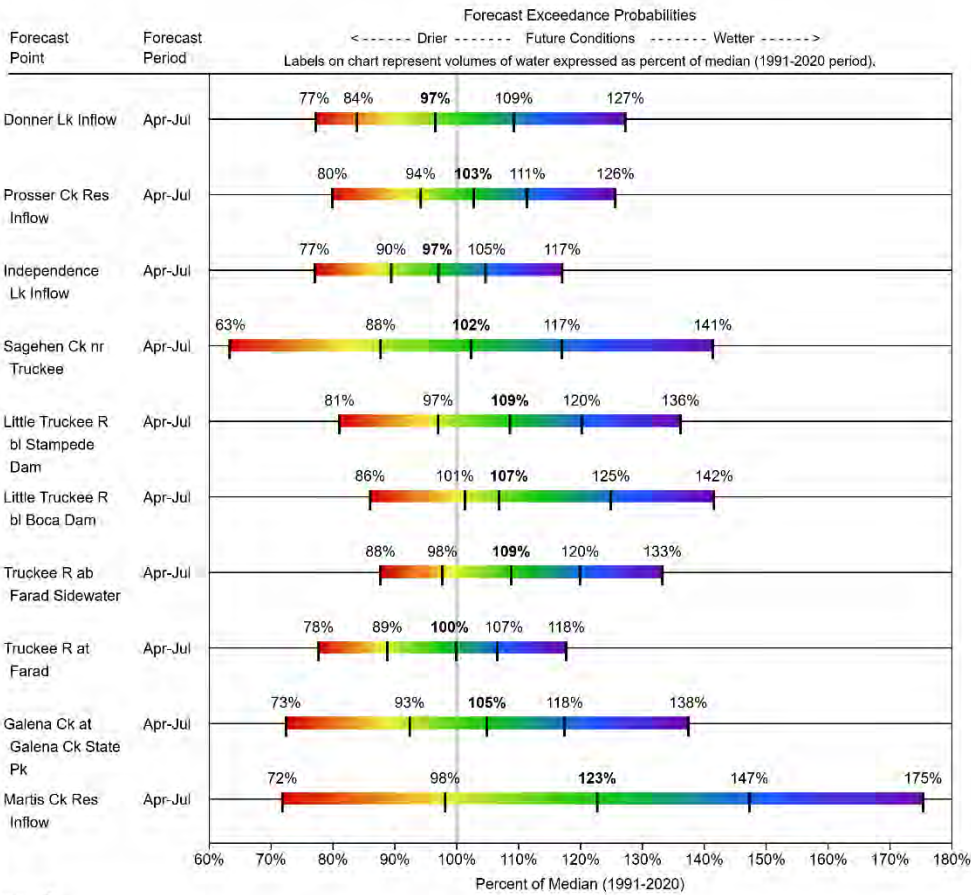


**Legend**

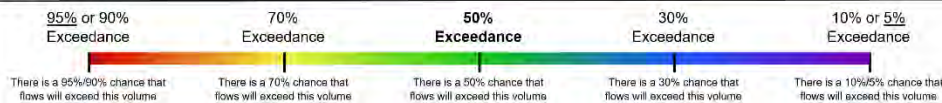




**TRUCKEE**  
**Water Supply Forecasts**  
**April 1, 2025**



**Legend**



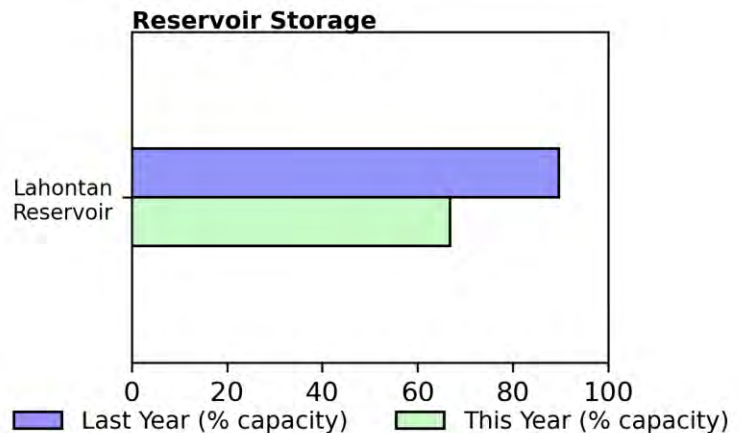
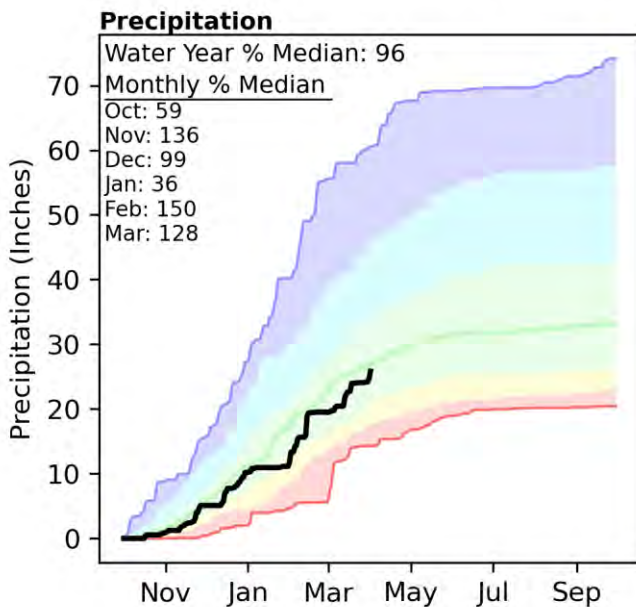
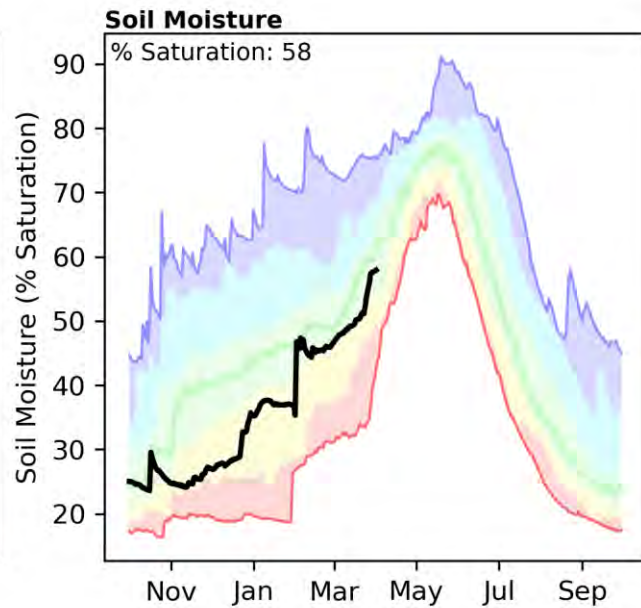
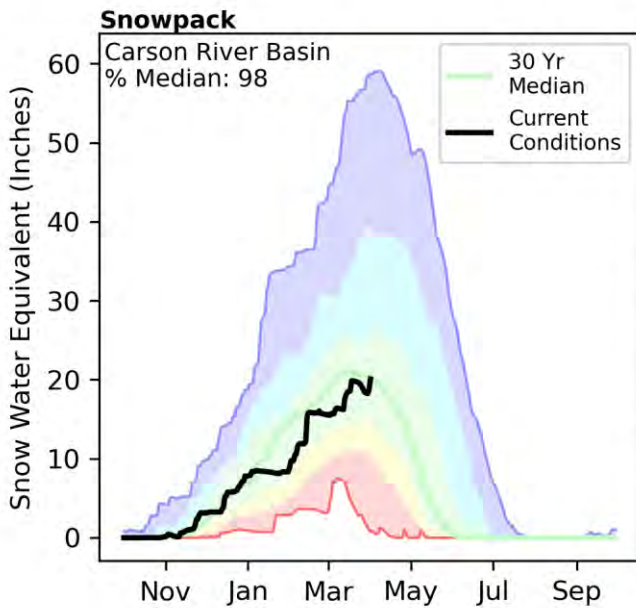
When selected, the following historic streamflow values and statistics will be shown.

■ *Period of Record Minimum Streamflow KAF (Year)*     
 ■ *1991-2020 Normal Streamflow KAF*     
 ■ *Observed Streamflow KAF*     
 ■ *Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

# Carson River Basin | April 1, 2025

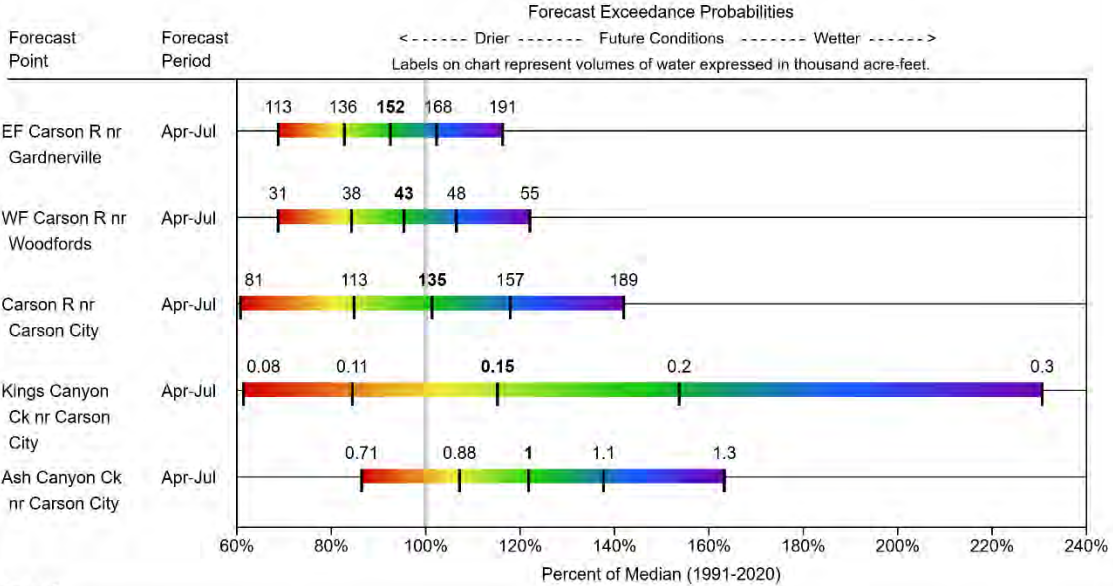
Snowpack in the Carson River Basin is about normal at 98% of median, compared to 117% at this time last year. Precipitation in March was above normal at 128%, which brings the seasonal accumulation (October-March) to 96% of median. Soil moisture is at 58% saturation compared to 59% saturation last year. Reservoir storage is 67% of capacity, compared to 90% last year.



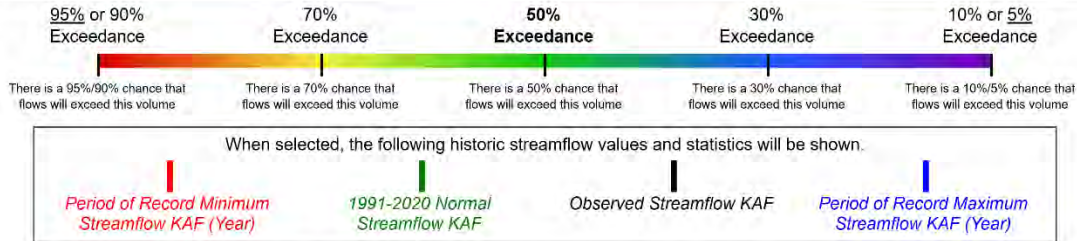
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.  
For more information visit: [30 year normal calculation description](#)

**Important Information about Forecast Coordination:** Hydrologists with the NRCS and National Weather Service California Nevada River Forecast Center (CNRFC) coordinate Lake Tahoe Rise, Truckee River at Farad, Little Truckee River near Boca, and the Carson River at Ft. Churchill forecasts (following page) using output of their respective hydrology models at the request of the Bureau of Reclamation. The NRCS model is a statistical model based on the current data as of the first of each month. The CNRFC ensemble forecasting system incorporates near-term weather prediction and climatology into their model. These models can provide different answers because of the nature of the model systems, and from the inclusion of future weather in the CNRFC model. The hydrologists agree on forecast values using guidance from both models to best provide an accurate water supply forecast for these points.

**CARSON**  
**Water Supply Forecasts**  
**April 1, 2025**



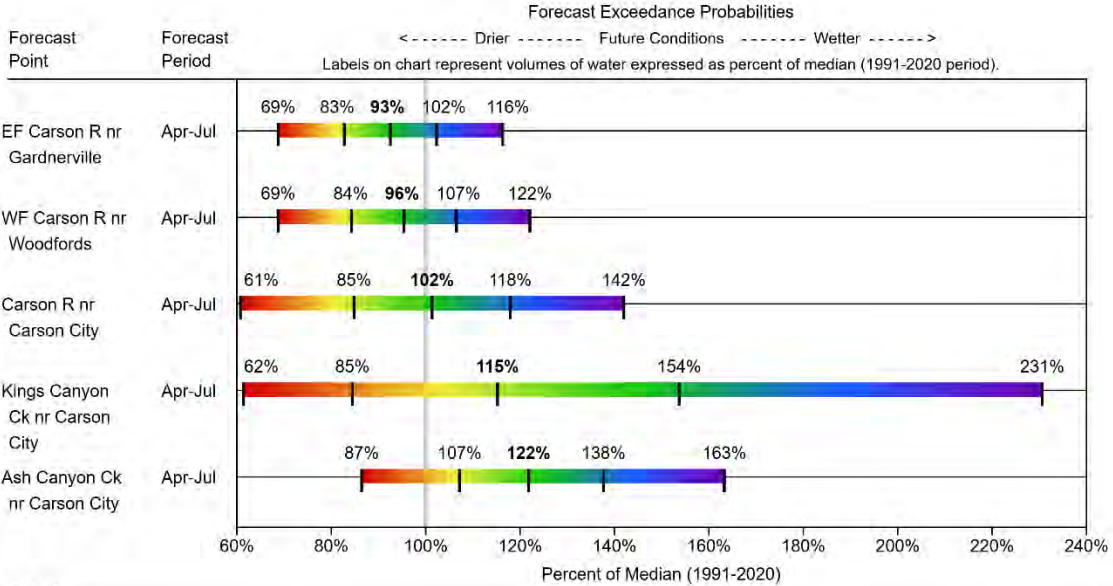
**Legend**



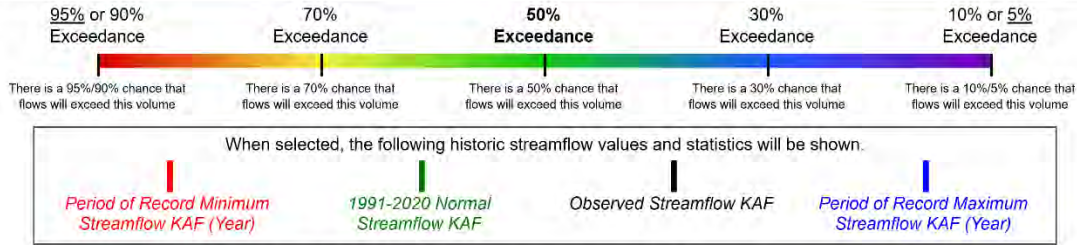
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.



**CARSON**  
**Water Supply Forecasts**  
**April 1, 2025**



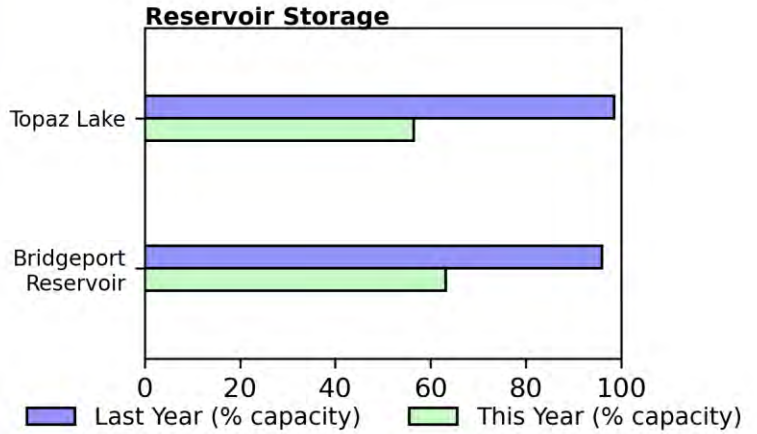
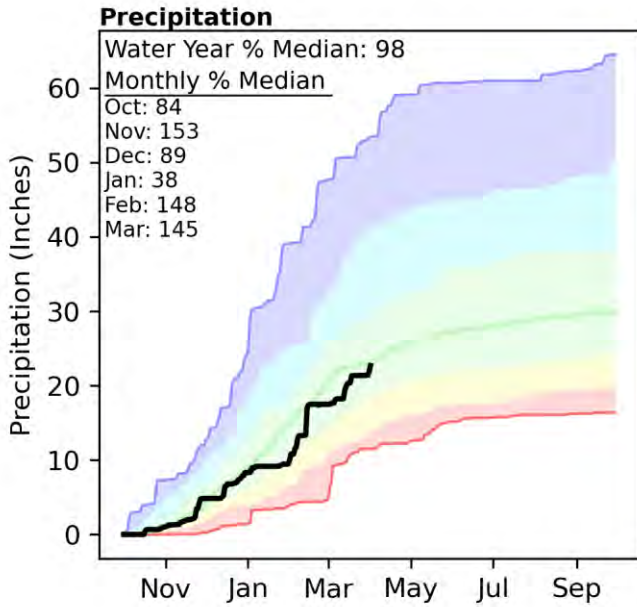
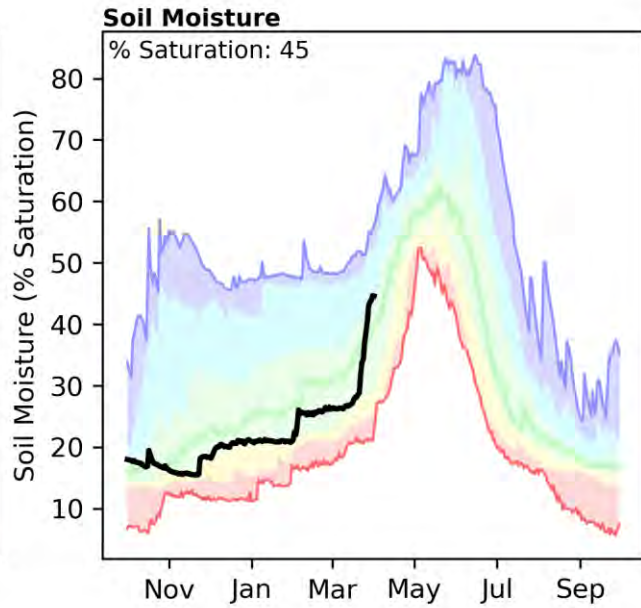
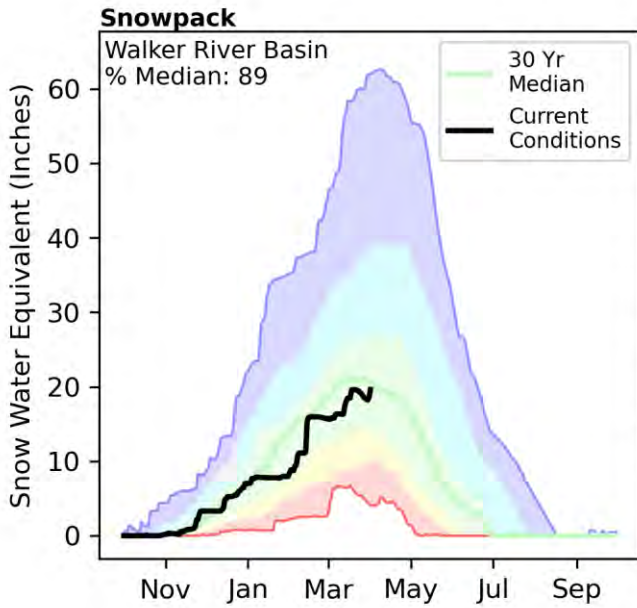
**Legend**



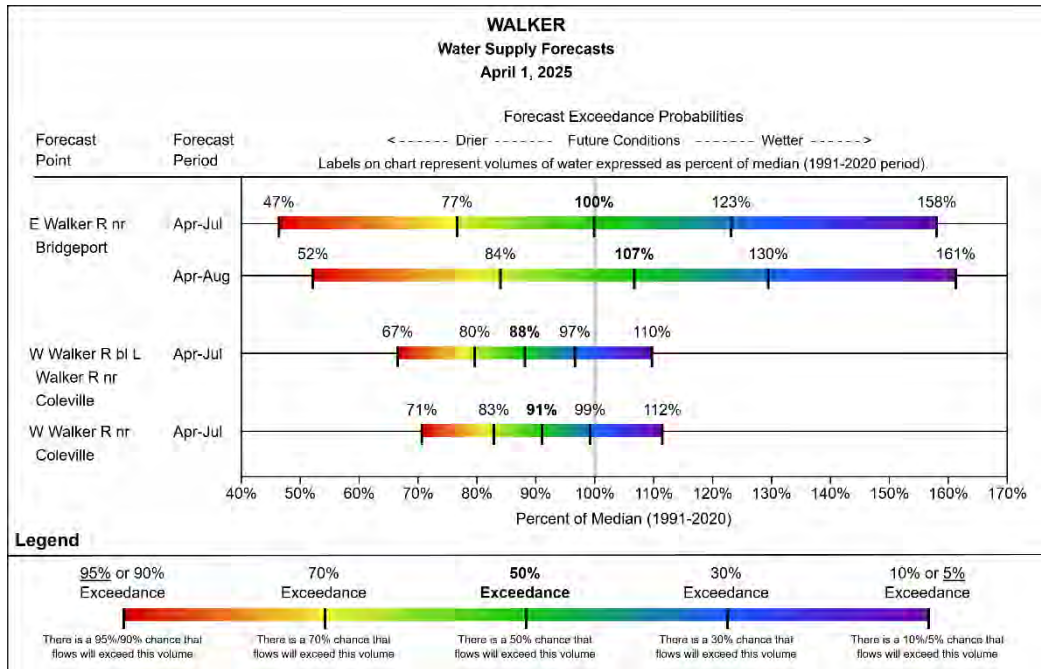
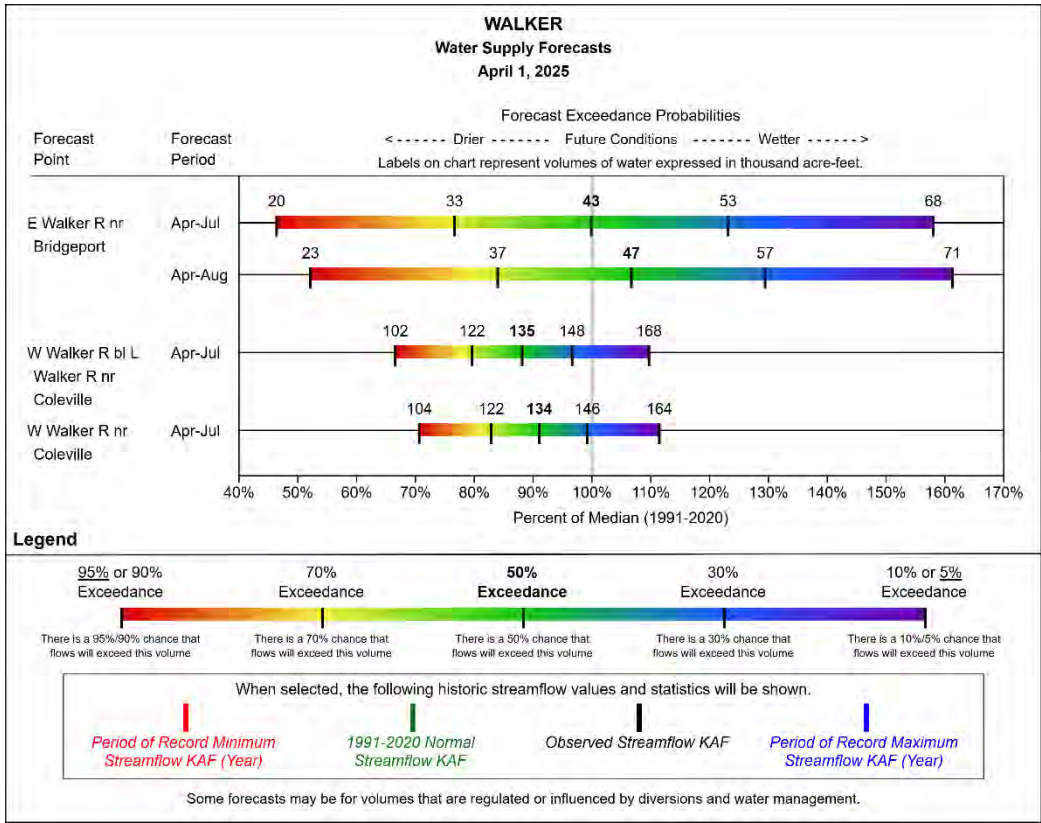
Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

# Walker River Basin | April 1, 2025

Snowpack in the Walker River Basin is below normal at 89% of median, compared to 108% at this time last year. Precipitation in March was well above normal at 145%, which brings the seasonal accumulation (October-March) to 98% of median. Soil moisture is at 45% saturation compared to 27% saturation last year. Reservoir storage is 59% of capacity, compared to 97% last year.



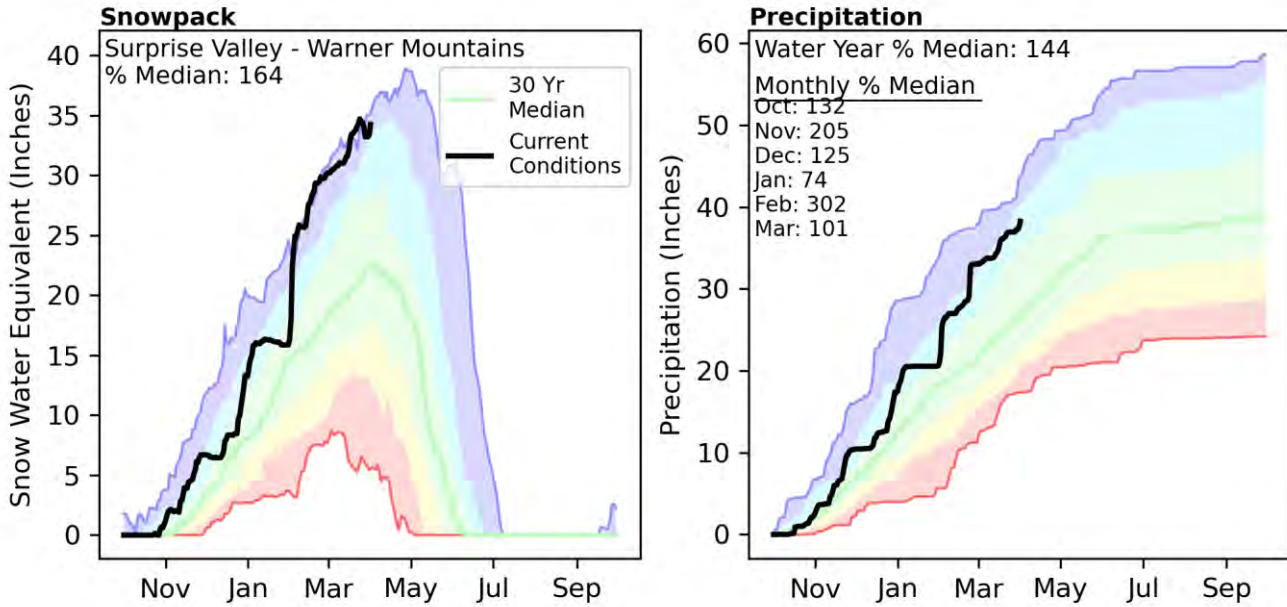
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles. For more information visit: [30 year normal calculation description](#)





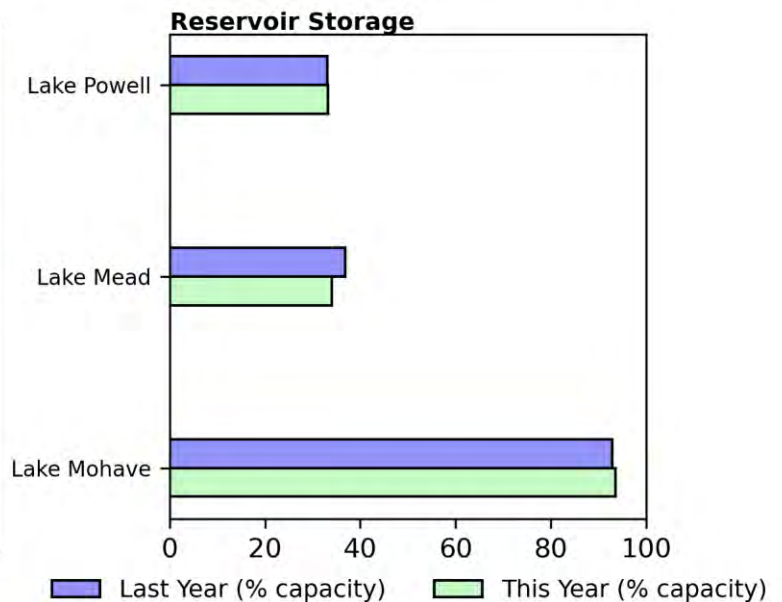
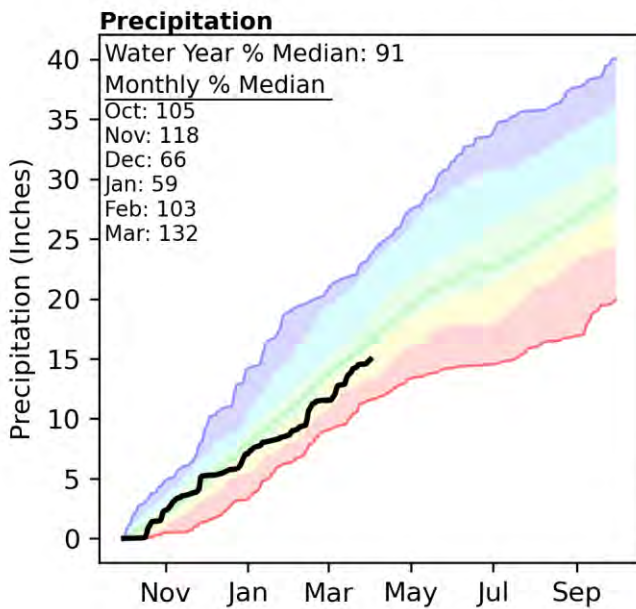
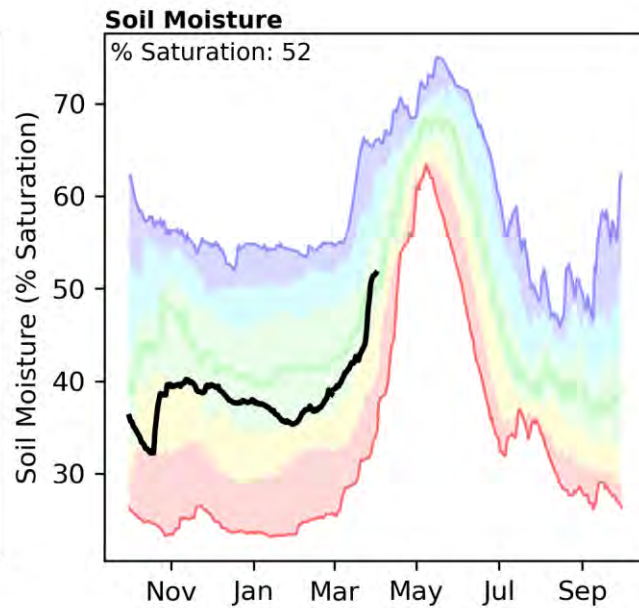
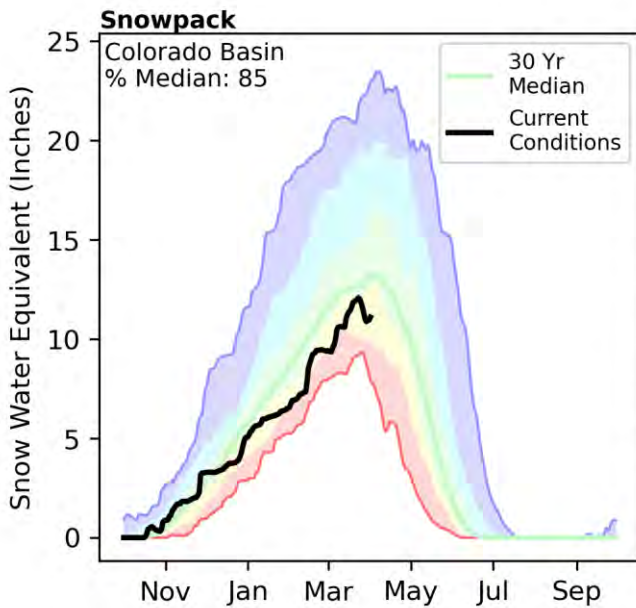
# Surprise Valley - Warner Mountains | April 1, 2025

Snowpack in the Surprise Valley - Warner Mountains is well above normal at 164% of median, compared to 151% at this time last year. Precipitation in March was about normal at 101%, which brings the seasonal accumulation (October-March) to 144% of median.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.  
For more information visit: [30 year normal calculation description](#)

Snowpack in the Colorado Basin is below normal at 85% of median, compared to 119% at this time last year. Precipitation in March was well above normal at 132%, which brings the seasonal accumulation (October-March) to 91% of median. Soil moisture is at 52% saturation compared to 49% saturation last year. Reservoir storage is 35% of capacity, compared to 37% last year.



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th percentiles.  
For more information visit: [30 year normal calculation description](#)

# Appendix: Interpreting the Streamflow Forecast Chart

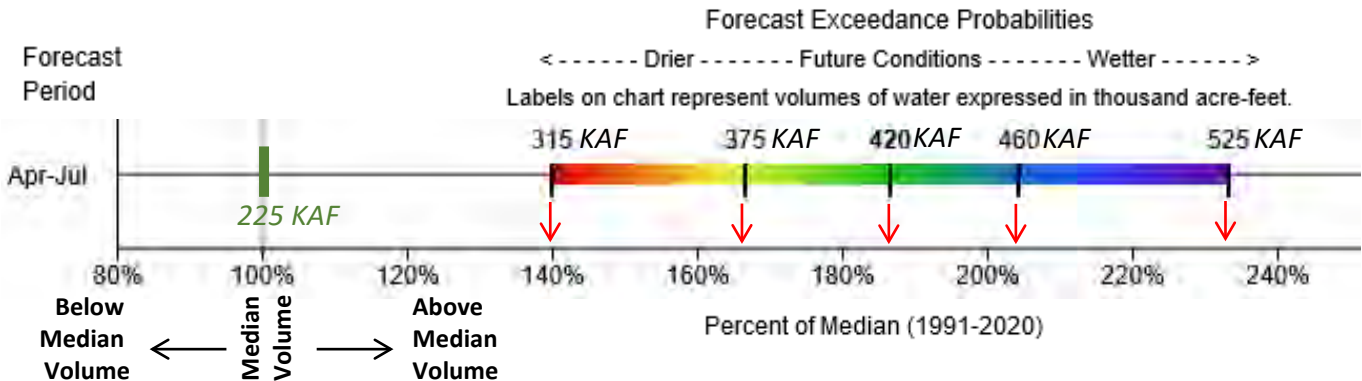
**Forecast Exceedance Probabilities for Risk Assessment**  
**Chance that actual volume will exceed forecast**

Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Median (KAF)
APR-JUL	315	375	420	187%	460	525	225

The Forecast Chart (below) provides an alternative to the tables (above) used in the basin summaries. The chart displays the forecast exceedance range as a colored bar. The vertical lines on the bar signify the five forecast exceedances.

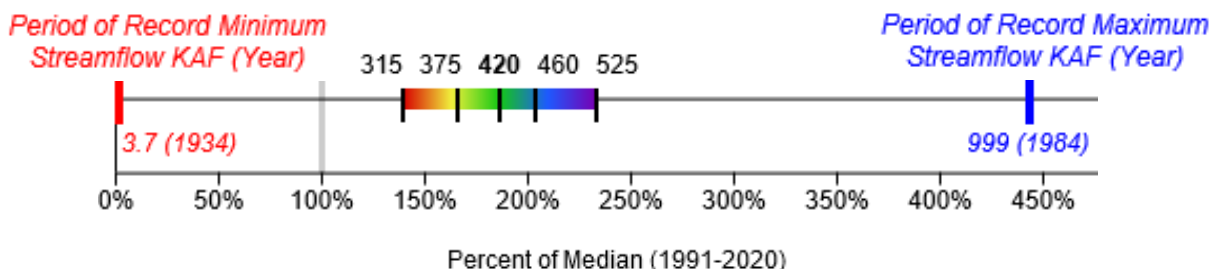


The numbers above the forecast bar are the five exceedance probability volumes in thousand acre-feet (KAF). Each exceedance forecast's percent of median can be estimated by looking at the horizontal axis. The green line and number centered above 100% on the horizontal axis represents the 1981-2010 historical median streamflow for the forecast period in KAF.



In the example above, the entire forecast bar is shifted right of the green bar indicating a forecast for above the median Apr-Jul streamflow of 225KAF. The 50% exceedance is represented by the black line in the green portion of the colored bar. This represents a forecast volume of 420KAF which is ~185% of median. If drier than normal future conditions occur the 70% exceedance forecast may be more likely (375KAF or ~165% of median). If future conditions turn wetter than normal, the 30% exceedance forecast may be more likely (460KAF or ~205% of median). Water users are encouraged to consider the range of forecast exceedances instead of relying solely only on the 50% forecast.

In very wet or dry years forecasts may approach historical records. In these cases the period of record minimum or maximum may be displayed. The minimum is represented by a heavy red line, while the maximum is represented by a heavy blue line. The numbers below the red and blue lines represent the volume in KAF and the year it occurred in parentheses.



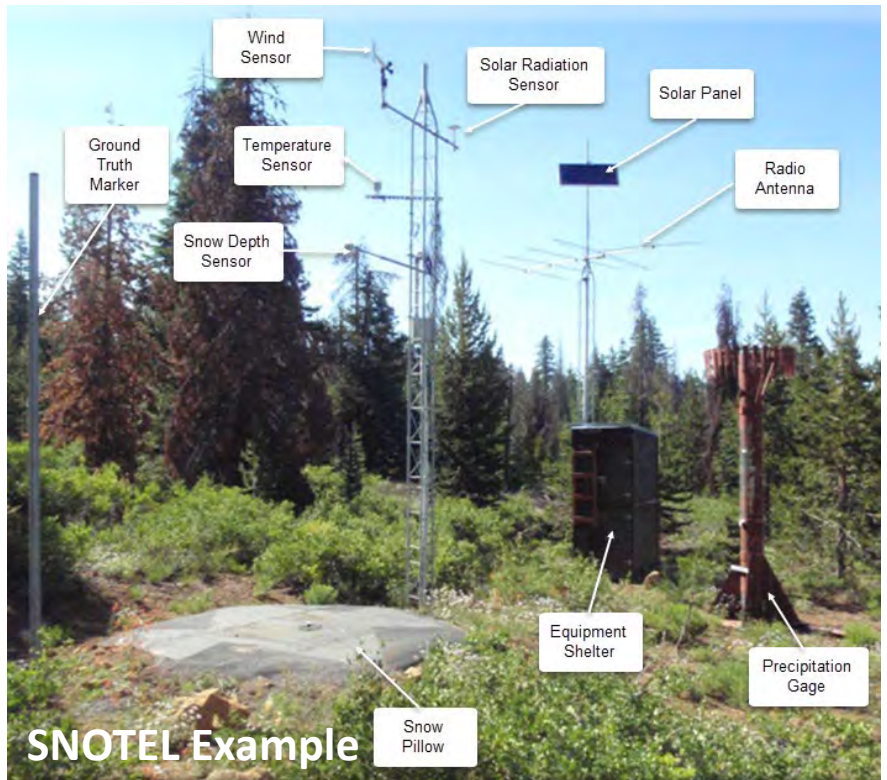
[Click here](#) for an online version which allows users to see averages instead of medians, as well as historic forecasts.



# Appendix - SNOTEL and Snow Course Overview

## SNOTEL

The NRCS operates an extensive, automated data collection network called SNOTEL (short for Snow Telemetry). SNOTEL sites are designed to operate unattended in remote mountain locations. Data are collected and transmitted hourly and available on the internet. Daily data (midnight values) are quality checked by NRCS hydrologists on at least a weekly basis. SNOTEL sites provide snowpack water content data via a pressure-sensing snow pillow. Other data include snow depth, water year precipitation accumulation, air temperature with daily maximums, minimums, and averages, soil moisture and soil temperature at depths of 2, 8 and 20 inches. The earliest NRCS SNOTEL sites have data back to 1981 or a bit earlier.



**SNOTEL Example**

## Snow Course

Snow courses are measurement transects where snow tubes are used by snow surveyors during the winter season to determine the depth and water content of the snowpack. Hollow snow tubes are used to vertically core the snowpack. The tubes are then weighed to determine the water content of the snow. Generally, snow courses are situated in meadows or forest openings protected from the wind. A snow course measurement is the average of a number of sample points, typically 5 to 10. Snow courses are measured on a monthly basis typically between February 1 and April 1. Snow courses provide a longer record than SNOTEL. The earliest snow courses in the Lake Tahoe and Truckee basins have data back to 1910.



**Snow Course Example**

**Sample points**

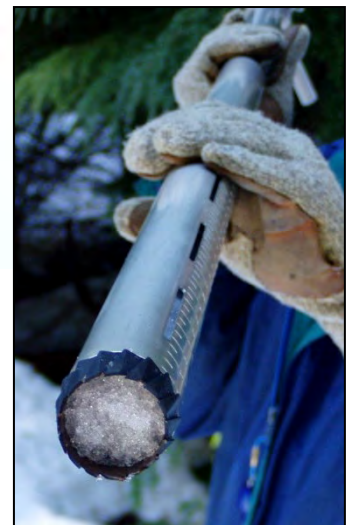
## Snow Water Equivalent (SWE):

Sometimes also called snow water content, this is the amount of water contained within the snowpack. It can be thought of as the depth of water (in inches) that would result if you melted the snowpack. For example, if the snowpack was contained 12 inches of SWE, then when melted there would a puddle of water 12 inches deep on the ground.

SWE measurements made by snow pillows or snow tubes rely on the fact that water weighs the same whether it is liquid or frozen.



Weight of frozen water = Weight of liquid water



Snow core inside snow tubes

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YOU MAY OBTAIN THIS PRODUCT AS WELL AS  
CURRENT SNOW, PRECIPITATION, TEMPERATURE  
AND SOIL MOISTURE, RESERVOIR, SURFACE  
WATER SUPPLY INDEX, AND OTHER DATA BY  
VISITING OUR WEB SITE:  
<https://www.nrcs.usda.gov/resources/data-and-reports/california-snow-survey>



## **California Water Supply Outlook**

