

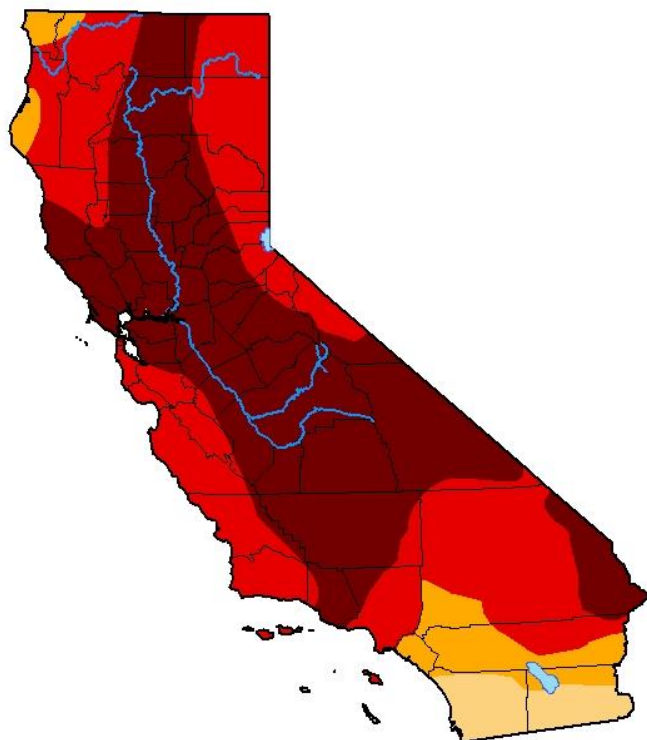
**ASSEMBLY COMMITTEES ON AGRICULTURE AND WATER, PARKS,  
AND WILDLIFE**  
*The Drought and Its Impact on California Agriculture*  
August 23, 2021

**Current Hydrologic Conditions**

Per the U.S. Drought Monitor, all of the state is currently experiencing drought conditions, roughly 85% of the state is experiencing “extreme drought,” and nearly 50% of the state is experiencing “exceptional drought”<sup>1</sup> conditions (see Figure 1).

**U.S. Drought Monitor  
California**

**August 17, 2021**  
(Released Thursday, Aug. 19, 2021)  
Valid 8 a.m. EDT



**Intensity:**

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*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)

**Figure 1: U.S. Drought Monitor, Conditions for August 17, 2021.**

Cumulative precipitation levels in the Tulare, San Joaquin, and Northern Sierra regions are on track to be among the lowest on record (Table 1). The 2021 water year (the “water year” is October 1<sup>st</sup> through September 3<sup>st</sup>) will likely end up as California’s 3<sup>rd</sup> driest on record.

**Table 1: California cumulative daily/monthly precipitation for August 17, 2021.**

Index	2020-21 Cumulative Daily Precipitation to Date (inches)	% of Average for August 17 <sup>th</sup>	Average Cumulative Precipitation for Water Year, 1966-2015 (inches)
Northern Sierra 8-Station Index	23.2	46%	51.8
San Joaquin 5-Station Index	18.7	48%	40.2
Tulare Basin 6-Station Index	9.8	35%	28.8

Source: Department of Water Resources.

The snowpack is a significant source of water for cities, farms, and the environment in California as it melts and flows down California’s rivers. The June 1<sup>st</sup> “snow water content” is an important indicator of how wet or dry a year is. In an average year, there is still a fair amount of snow in California’s upper watersheds and it gradually melts through the end of June (and into early July in wet years), turning into runoff that augments California’s water supply. This year, the snowpack was effectively gone as of June 1<sup>st</sup> (Table 2) and over 685,000 acre-feet (AF) of anticipated runoff never occurred as that moisture either evaporated or was absorbed by dry soils.<sup>ii</sup>

**Table 2: June 1, 2021 statewide snow water content compared to average.**

Region	Average snow water equivalent (inches)	% of Average for June 1 <sup>st</sup>
Northern Sierra/Trinity	0.2	5%
Central Sierra	0	0%
Southern Sierra	0	0%
<b>Statewide</b>	<b>0.1</b>	<b>0%</b>

Source: Department of Water Resources.

California has over 1,000 reservoirs that capture and store water during the rainy months for use later in the season. At present, most reservoirs are holding much less water than average for this time of year and are well below their respective capacities (Table 3).

**Table 3: Select reservoir conditions, August 17, 2021**

<b>Reservoir</b>	<b>River</b>	<b>Capacity (AF)</b>	<b>Current Storage (AF)</b>	<b>% of Capacity</b>	<b>Average Storage for Date (AF)</b>	<b>% of Average for Date</b>
Trinity Lake	Trinity	2,447,650	919,596	38	1,875,991	49
Sonoma Warm Springs	Russian	381,000	118,751	31	209,765	57
Shasta	Sacramento	4,552,000	1,317,192	29	3,050,510	43
Oroville	Feather	3,537,577	824,257	23	2,444,101	34
Folsom	American	977,000	236,155	24	649,490	36
New Melones	Stanislaus	2,400,000	948,146	40	1,425,822	66
Don Pedro	Tuolumne	2,030,000	1,102,236	54	1,489,962	74
San Luis	San Luis Creek	2,041,000	332,960	16	925,049	36
Millerton (Friant)	San Joaquin	520,500	225,300	43	280,236	80
Pine Flat	Kings	1,000,000	199,649	20	441,311	45

Source: Department of Water Resources

While the focus of this hearing is on California, it is important to note that California is not alone when it comes to facing extremely dry conditions. According to the U.S. Drought Monitor, virtually all of the Southwestern United States is currently experiencing drought conditions. This is of concern to California because Southern California’s cities and suburbs receive roughly one-third of their water from the Colorado River.<sup>iii</sup> The Bureau of Reclamation announced on August 16, 2021, the first ever shortage on the Colorado River. This determination will result in cutbacks to the water supply for Arizona, Nevada, and Mexico.<sup>iv</sup> These states, as well as other Southwestern states, including California, may face additional cutbacks if drought conditions in the Colorado River Basin persist.

### **Governor Newsom’s Emergency Proclamation**

Due to the dry conditions, Governor Newsom declared a state of emergency for the Russian River watershed in Mendocino and Sonoma counties on April 20, 2021. On May 10, 2021, the Governor expanded the proclamation to cover an additional 39 counties in the Klamath,

Sacramento-San Joaquin Delta, and Tulare Lake watersheds. The proclamation allows for waiver of the California Environmental Quality Act and public contracting law requirements for drought response actions.

### **2021 Water Allocations**

Contractors to the State Water Project (SWP) and the Central Valley Project (CVP) are expecting to receive a fraction of their contracted supplies this year. On March 23, 2021, the SWP notified contractors that they would receive 5% of their allotted water this year (210,266 AF of a requested 4,172,786 AF). CVP is managed by the Bureau of Reclamation (Reclamation) and delivers water to farms and urban areas in the Central Valley and Bay Area. In February, Reclamation notified agricultural water service contractors north-of-Delta and south-of-Delta that they would receive 5% of their contracted supply. On March 23<sup>rd</sup>, Reclamation stated that the 5% allocation for south of Delta contractors would not be available until further notice. Reclamation indicated in March that CVP contractors would still receive approximately 3.9 million AF in 2021 (out of 9.5 million AF under contract), with roughly 80% of planned water deliveries by Reclamation in 2021 for agriculture (see <https://www.usbr.gov/mp/cvp-water/docs/cvp-allocation.pdf>).

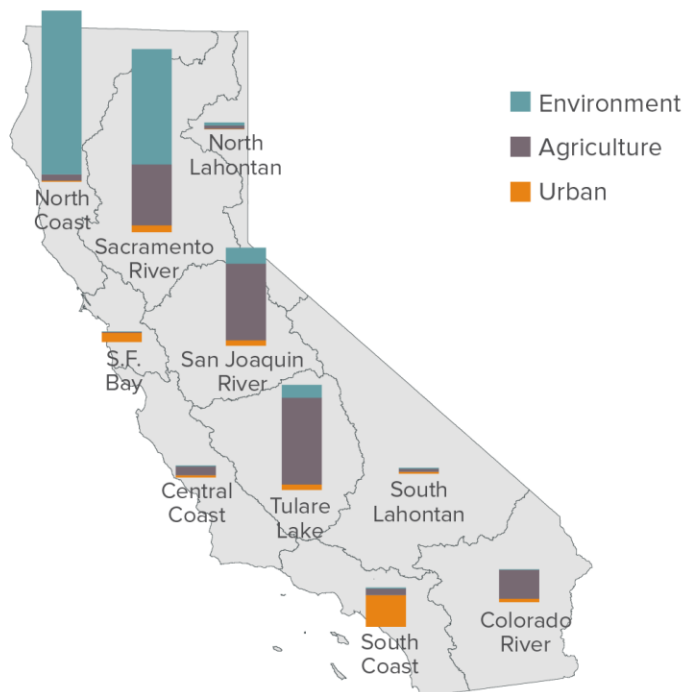
### **Impact on the Agriculture Sector**

Agriculture is a significant sector in California's economy, producing around \$50 billion in revenue in 2019. There are more than 400 commodity crops grown across California, including a significant portion of all fruits, vegetables, and nuts for the United States. In 2019, there were 69,900 unique farms and ranches in the state, operating across 24.3 million acres of land. The average farm size was 348 acres, significantly less than the average farm size in the U.S. of 444 acres.

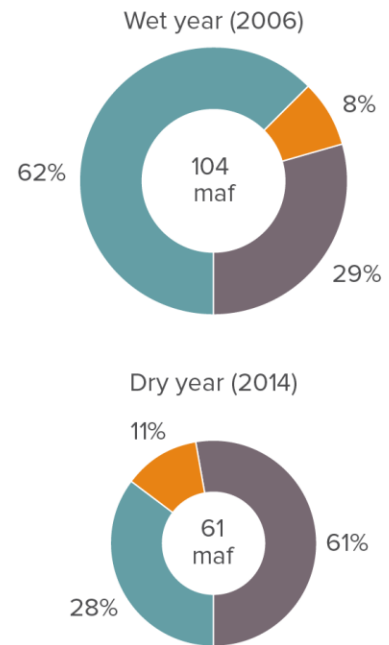
Of California's approximately 100 million acres of land, 24.3 million acres are used for agriculture. Of this, 14 million acres are grazing land. About 9 million acres of irrigated land or one-third of the state's cropland, are considered to be prime, unique or of statewide importance.

In an average year, about 40% of California's water consumption, or approximately 34.1 million AF, is used for agricultural purposes. However, the exact proportion of total water usage for agriculture can vary widely between 'wet' and 'dry' years. In wet years, agriculture is responsible for closer to 30% of total water consumption and in dry years, agriculture is responsible for closer to 60% of total water consumption. Water for agriculture is used to irrigate more than 9 million acres of cropland annually.

Average annual applied water use (1998–2015)



Statewide applied water use, millions of acre-feet (maf)



Source: Department of Water Resources, *California Water Plan Update 2018 (Public Review Draft)*.

Water for agriculture comes from two primary sources: surface water and groundwater. Surface waters include natural lakes, rivers, and streams, as well as a large network of reservoirs and a complex distribution system of aqueducts and canals that carry water from the location of the source to the agricultural users. Groundwater aquifers range in depth and accessibility across the state, and historically have been used to supplement surface water supplies in dry years.

UC Davis’s Center for Watershed Science estimated the cost of the drought in 2015 had “*Direct agricultural costs of drought will be about \$1.84 billion and 10,100 direct seasonal jobs. When multiplier effects are considered, losses to all economic sectors will be as high as \$2.74 billion and nearly 21,000 total jobs*”. That is roughly a 3.9% economic impact across the agriculture sector. The vast majority of the 2015 economic impact fell on the Central Valley.

The agricultural sector experienced a decrease in water deliveries and a corresponding decline in production. Farmers and ranchers, however, were able to moderate the drought’s impacts somewhat by pumping groundwater.

Currently 47.1% of the state is in “Exceptional Drought”, compared to 2014 when 58.41% of California land was affected. Areas under Exceptional Drought range from Shasta County in the north to Kern County in the south, along with a large portion of the north coast (Marin, Sonoma, Napa, Lake and Mendocino counties). Exceptional Drought can have the following results:

- Fields are left fallow; orchards are removed; vegetable yields are low; honey harvest is small
- Fire season is very costly; number of fires and area burned are extensive

- Fish rescue and relocation begins; pine beetle infestation occurs; forest mortality is high; wetlands dry up; survival of native plants and animals is low; fewer wildflowers bloom; wildlife death is widespread; algae blooms appear.

The PPIC Water Policy Center stated in a May 2019 report, *California needs to adapt to increasing drought intensity. Agriculture relies heavily on groundwater during droughts, particularly in the Central Valley, but more sustainable groundwater management is needed to maintain this key drought reserve. An increase in tree and vine crops, which need to be watered every year, is making farming more vulnerable to water shortages. State law [the Sustainable Groundwater Management Act (SGMA)] now requires water users to bring their groundwater basins into long-term balance by the early 2040s. This will likely require farm water use to fall in regions that have been over-pumping, including the southern Central Valley and the Central Coast. In urban areas, the greatest potential for further water savings lies in long-term reductions in landscape irrigation—a shift requiring changes in plantings and watering habits. Finally, state and federal regulators will need new approaches to reduce harm to fish and wildlife during increasingly intense droughts. This will require better drought planning, investments in new habitat, and setting aside water during wet years for ecosystem uses in dry years.*

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<sup>i</sup> The U.S. Drought Monitor uses various indicators to determine an “exceptional drought.” Possible impacts include “exceptional and widespread crop/pasture losses” and “shortages of water in reservoirs, streams, and wells creating water emergencies.” <https://droughtmonitor.unl.edu/About/AbouttheData/DroughtClassification.aspx>.

<sup>ii</sup> Rogers, P. (2021 June). Vanishing snowpack runoff stuns California water managers. *Bay Area News Group*. <https://www.marinij.com/2021/06/24/where-did-sierra-snow-go-this-spring-not-into-california-rivers-and-water-supplies/>.

<sup>iii</sup> Public Policy Institute of California. (2018). *The Colorado River*. <https://www.ppic.org/publication/californias-water-the-colorado-river/>.

<sup>iv</sup> <https://www.usbr.gov/newsroom/index.html#/news-release/3950>