

# Water and Climate Update

May 21, 2020

The Natural Resources Conservation Service produces this weekly report using data and products from the [National Water and Climate Center](#) and other agencies. The report focuses on seasonal snowpack, precipitation, temperature, and drought conditions in the U.S.

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## Two dams fail causing record flooding in Michigan

**Extremely Dangerous Flooding Ongoing in Midland County**  
 Flood Warning in effect due to catastrophic dam failures at Edenville and Sanford  
 Weather Forecast Office Detroit, MI  
 Issued May 20, 2020 10:25 PM

**What...**  
 A Flood Warning remains in effect along the entire Tittabawassee River in Midland County due to catastrophic failures at the Edenville and Sanford dams. The river is expected to fall slowly during the night but remain above major flood stage with some fluctuation due to backwater and debris.

**Preparedness Actions...**

- Turn around, don't drown when encountering flooding roads. Most flood deaths occur in vehicles.
- Continue to heed evacuation orders given by local authorities.

**Record flooding is occurring along the Tittabawassee River from Edenville down to Midland!**

**TITTABAWASSEE RIVER AT MIDLAND**  
 (Graph showing water level in feet over time, with a peak of 34.2 ft on May 20 and a record of 33.8 ft.)

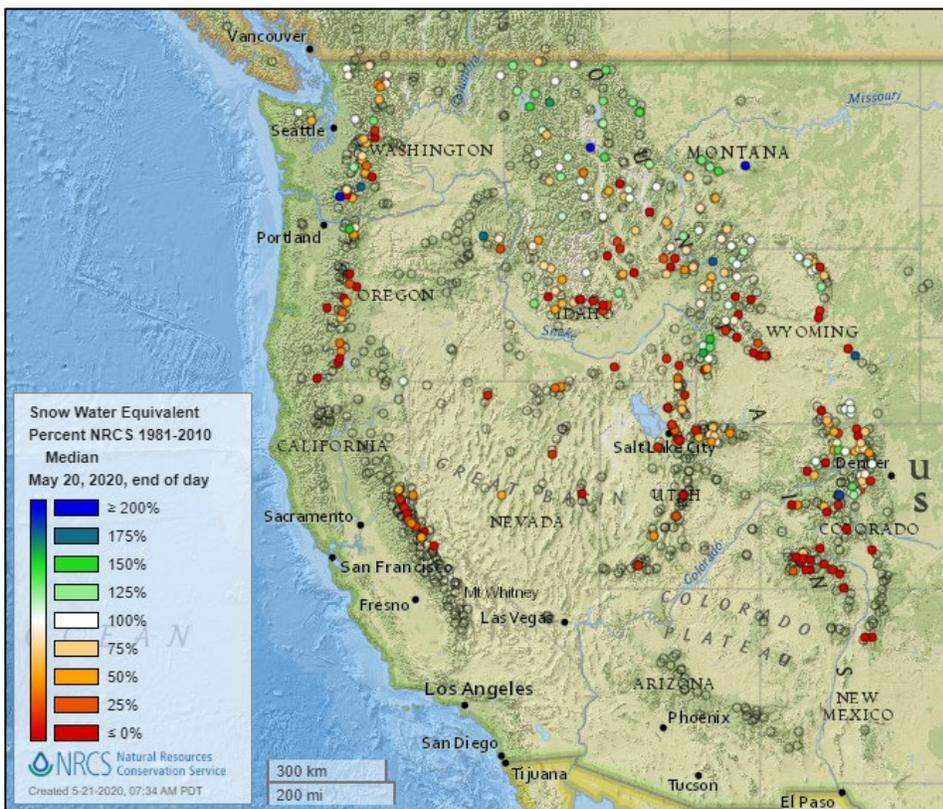
Published on: 05/20/2020 at 10:29PM

A flash flood emergency was declared May 19 - 20 along the Tittabawassee River in central Michigan due to the failure of the Edenville and Sanford Dams. These dam failures inundated downstream towns, homes, and businesses. Roads are closed and infrastructure along the river are threatened. Flood warnings remain in effect from the flood wave as water and debris continue downstream. Before the dam failures, several daily rainfall records were broken, and four to eight inches of precipitation fell over the region in previous days with flood warnings in effect for many counties in Michigan.

**Related:**

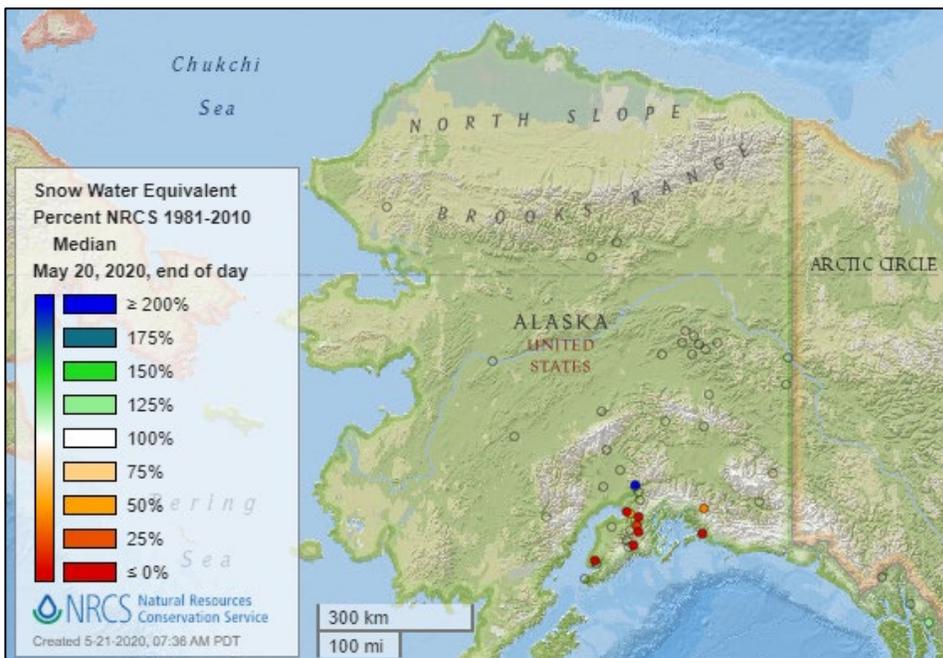
- [Michigan Dam Flooding Is a Once in 500 Years Event, Water Levels Won't Peak Until Wednesday Night, Governor Whitmer Says](#) - Newsweek
- [Sanford residents deal with aftermath of dam failure during 500-year flood](#) – ABC12 News (MI)
- [Catastrophic flooding in Michigan as dams fail](#) - CNN
- [Mid-Michigan flooding crests at 35 feet, Whitmer requests FEMA help: What we know](#) – USA Today
- [Michigan Gov. Whitmer: No casualties in 'devastating' mid-Michigan flooding](#) – Detroit Free Press
- [Michigan flooding: 'One, two, three punch' of rain overwhelms soggy state](#) – MLive (MI)

# Snow



[Snow water equivalent percent of median map](#)

**See also:**  
[Snow water equivalent values \(inches\) map](#)

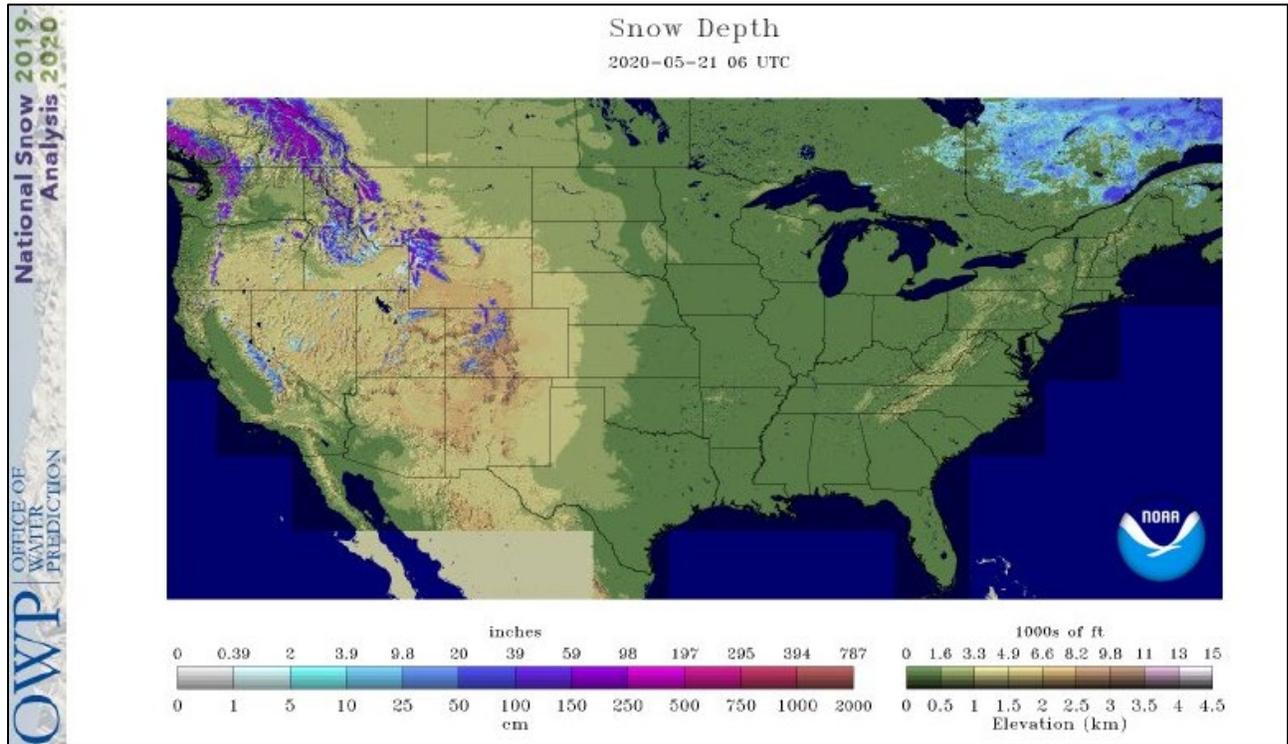


[Alaska snow water equivalent percent of median map](#)

**See also:**  
[Alaska snow water equivalent values \(inches\) map](#)

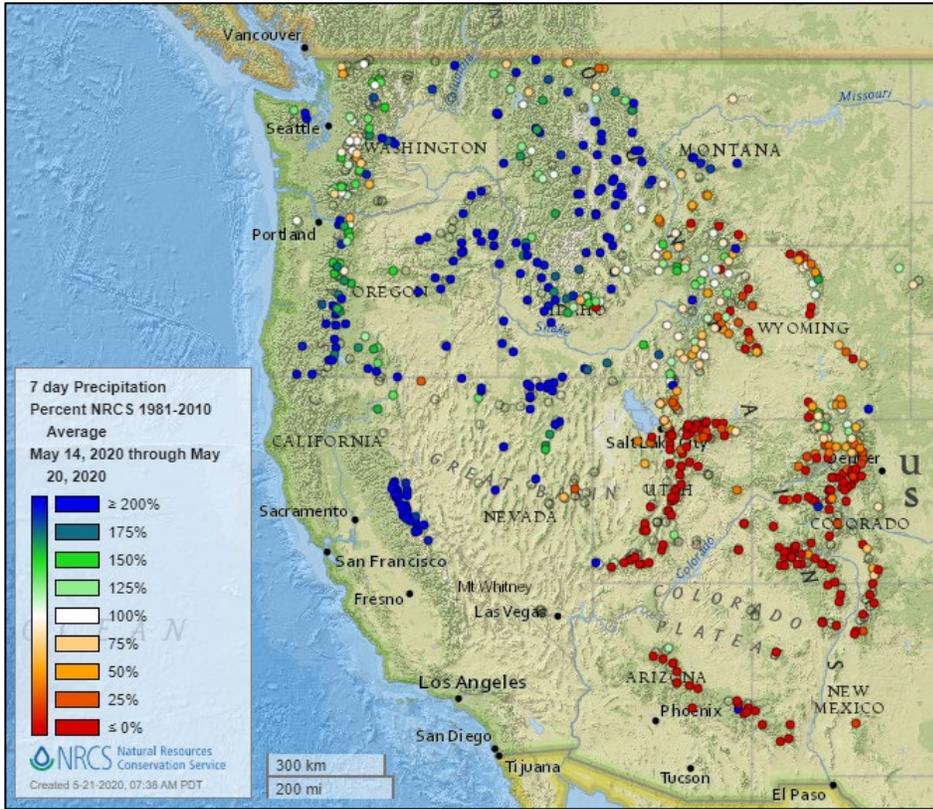
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA Office of Water Prediction



# Precipitation

## Last 7 Days, NRCS SNOTEL Network

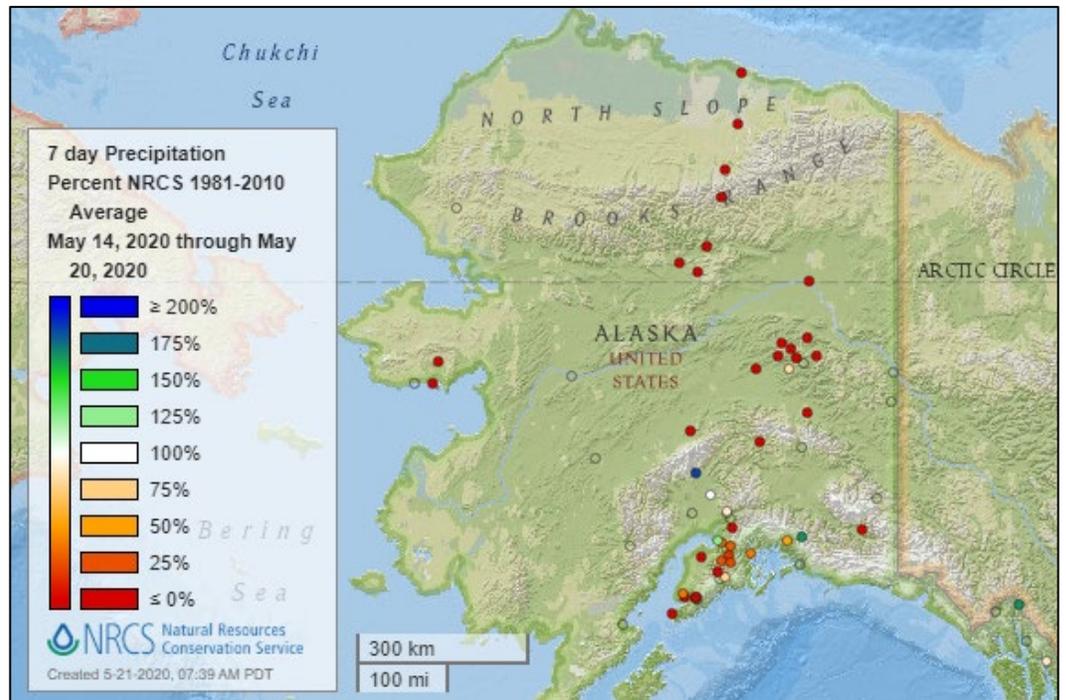


[7-day precipitation percent of average map](#)

**See also:**  
[7-day total precipitation values \(inches\) map](#)

[Alaska 7-day precipitation percent of average map](#)

**See also:**  
[Alaska 7-day total precipitation values \(inches\) map](#)



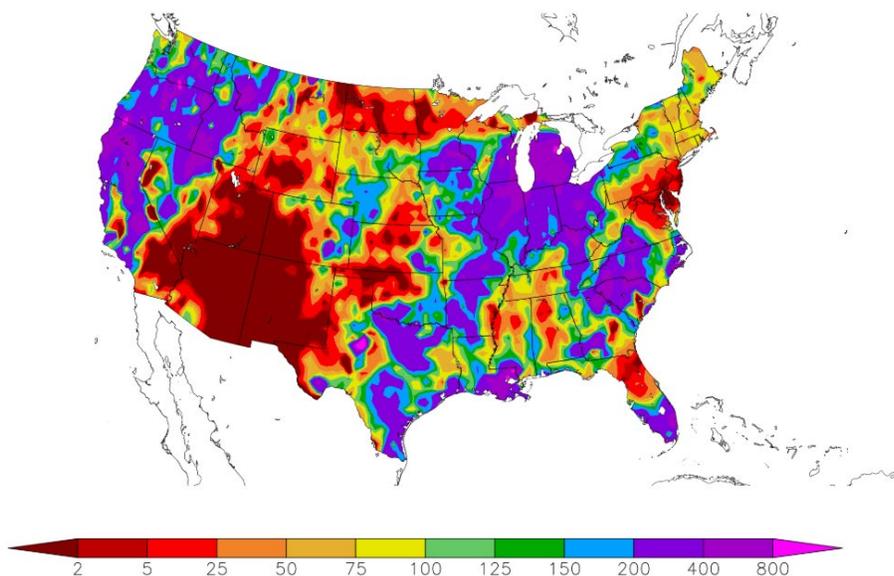
**Last 7 Days, National Weather Service (NWS) Networks**

Source: Regional Climate Centers

[7-day precipitation percent of normal map](#) for the continental U.S.

**See also:** [7-day total precipitation values \(inches\) map](#)

Percent of Normal Precipitation (%)  
5/14/2020 – 5/20/2020



Generated 5/21/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

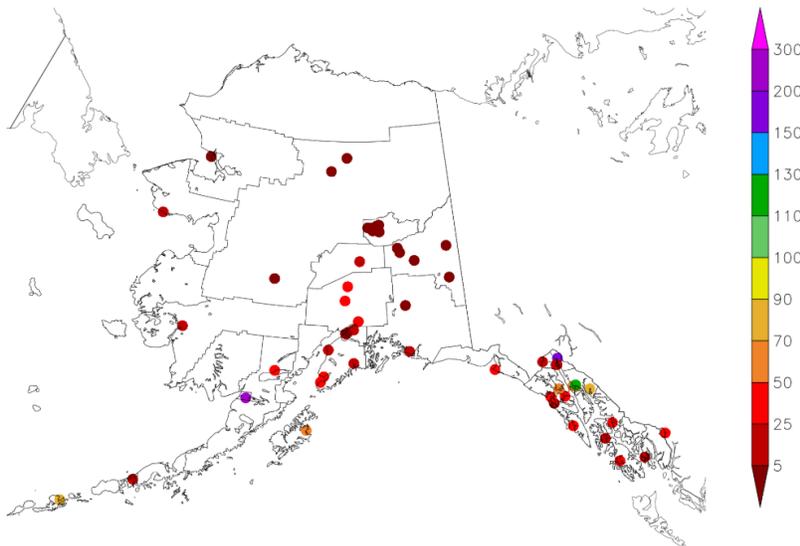
**Last 7 Days, National Weather Service (NWS) Networks**

Source: Regional Climate Centers

[7-day precipitation anomaly map](#) for Alaska.

**See also:** [7-day total precipitation values \(inches\) map](#)

Percent of Normal Precipitation (%)  
5/14/2020 – 5/20/2020



Generated 5/21/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

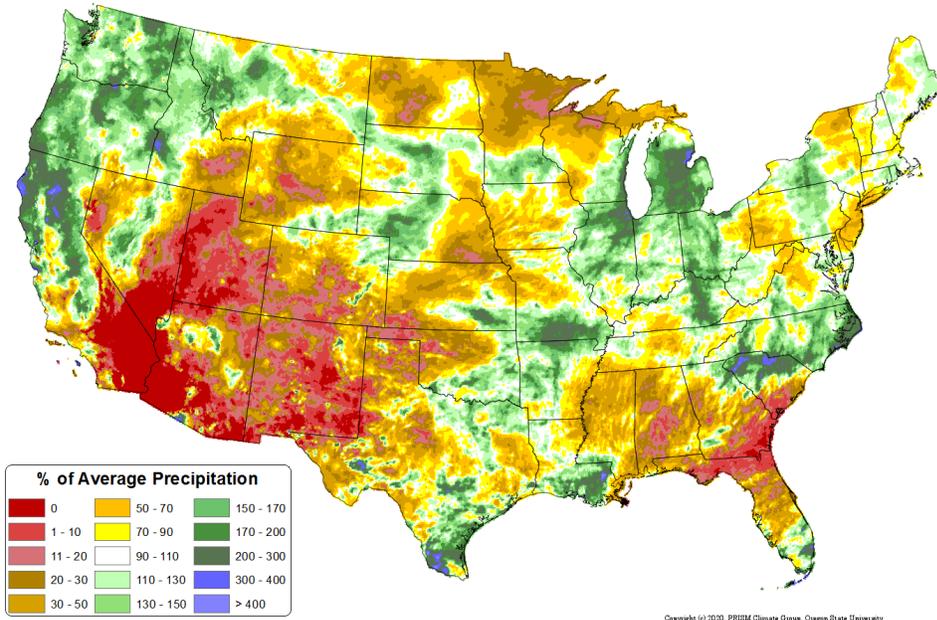
# Water and Climate Update

## Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

Total Precipitation Anomaly: 01 May 2020 - 20 May 2020  
Period ending 7 AM EST 20 May 2020  
Base period: 1981-2010  
(Map created 21 May 2020)

[Month-to-date national total precipitation percent of average map](#)



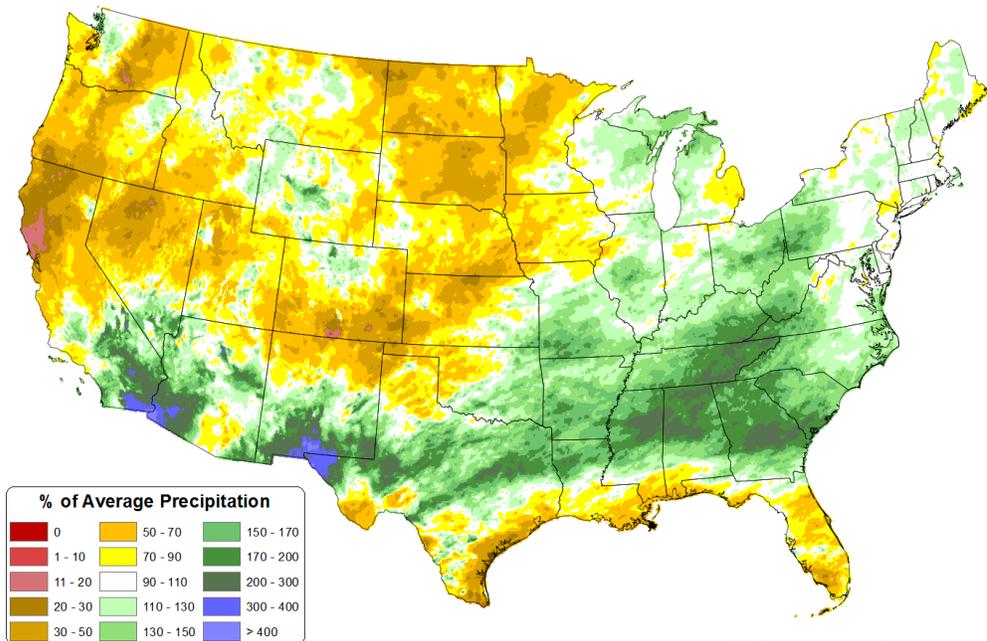
Copyright (c) 2020, PRISM Climate Group, Oregon State University

## Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

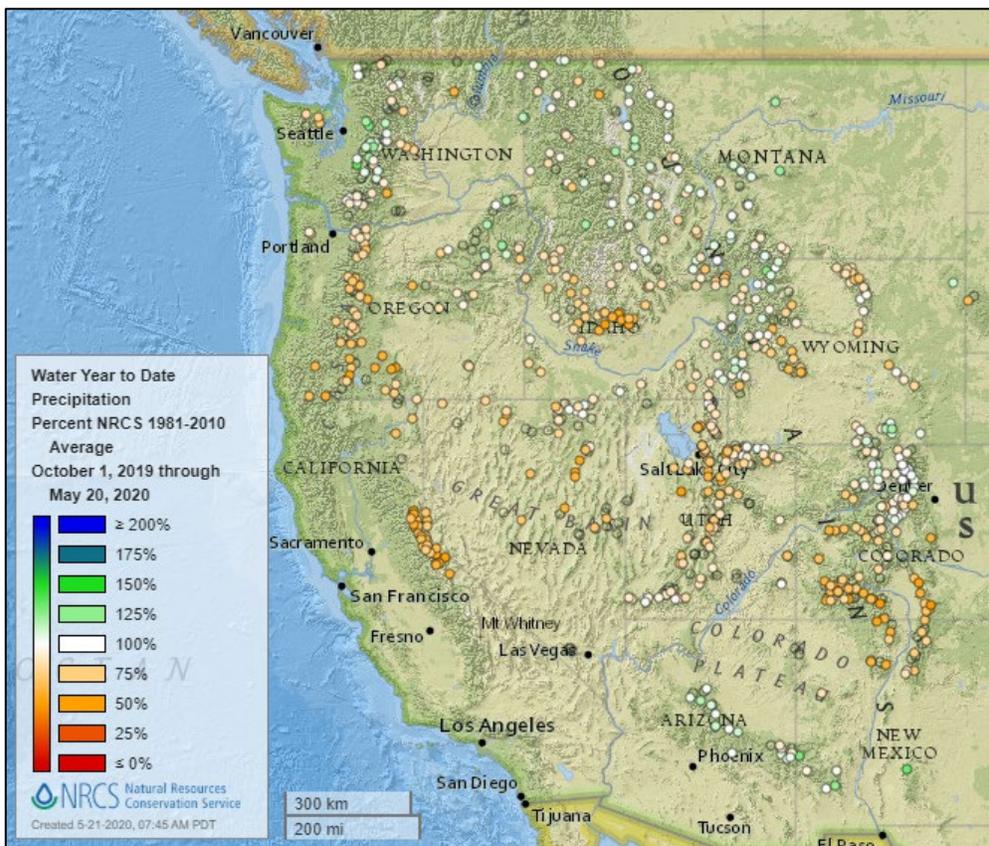
[February through April 2020 total precipitation percent of average map](#)

Total Precipitation Anomaly: Feb 2020 - Apr 2020  
Period ending 7 AM EST 30 Apr 2020  
Base period: 1981-2010  
(Map created 02 May 2020)



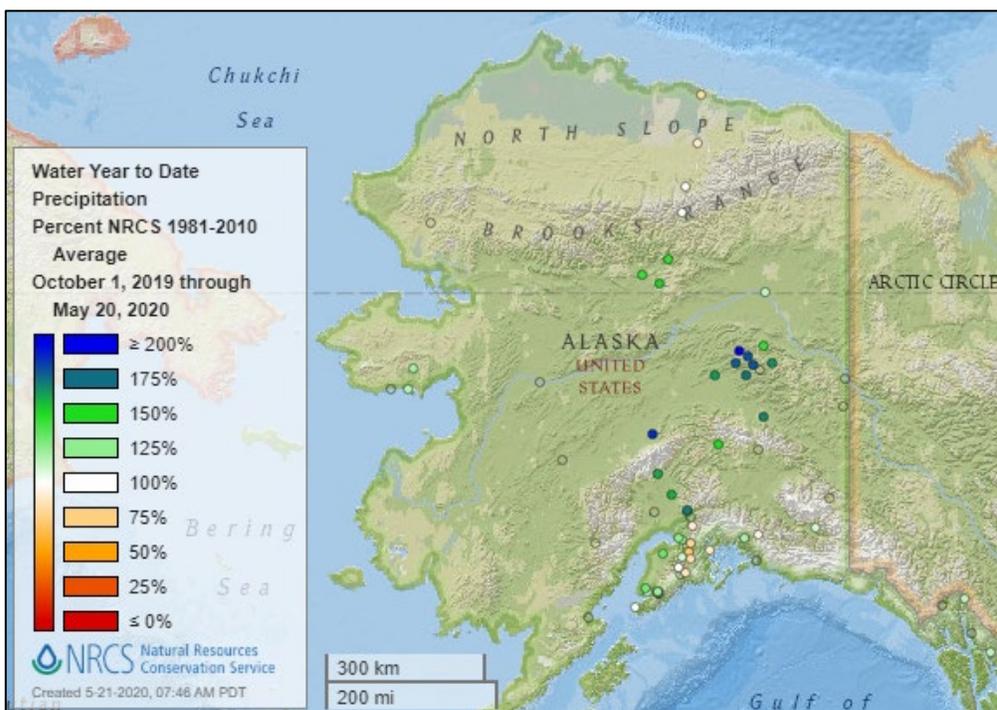
Copyright (c) 2020, PRISM Climate Group, Oregon State University

Water Year-to-Date, NRCS SNOTEL Network



[2020 water year-to-date precipitation percent of average map](#)

**See also:**  
[2020 water year-to-date precipitation values \(inches\) map](#)



[Alaska 2020 water year-to-date precipitation percent of average map](#)

**See also:** [Alaska 2020 water year-to-date precipitation values \(inches\) map](#)

## Temperature

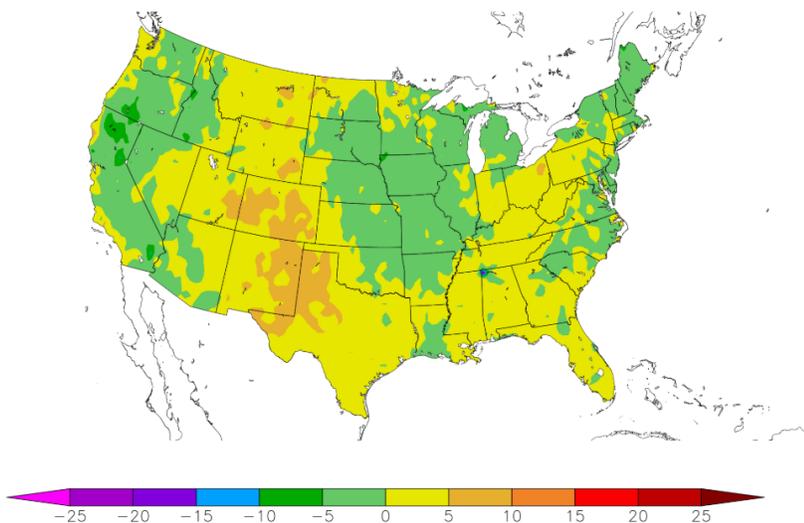
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for the contiguous U.S.

**See also:** [7-day temperature \(° F\) map](#)

Departure from Normal Temperature (F)  
5/14/2020 – 5/20/2020



Generated 5/21/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

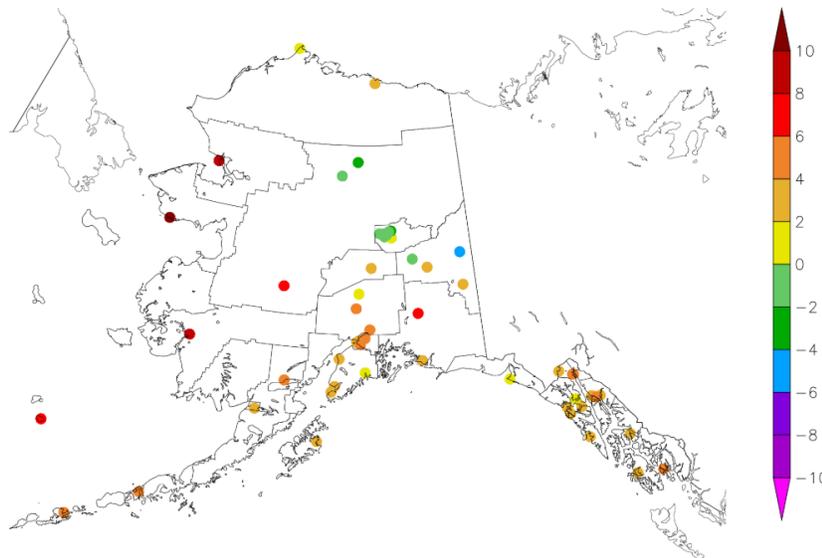
### Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for Alaska.

**See also:** [7-day temperature \(° F\) map](#)

Departure from Normal Temperature (F)  
5/14/2020 – 5/20/2020



Generated 5/21/2020 at HPRCC using provisional data.

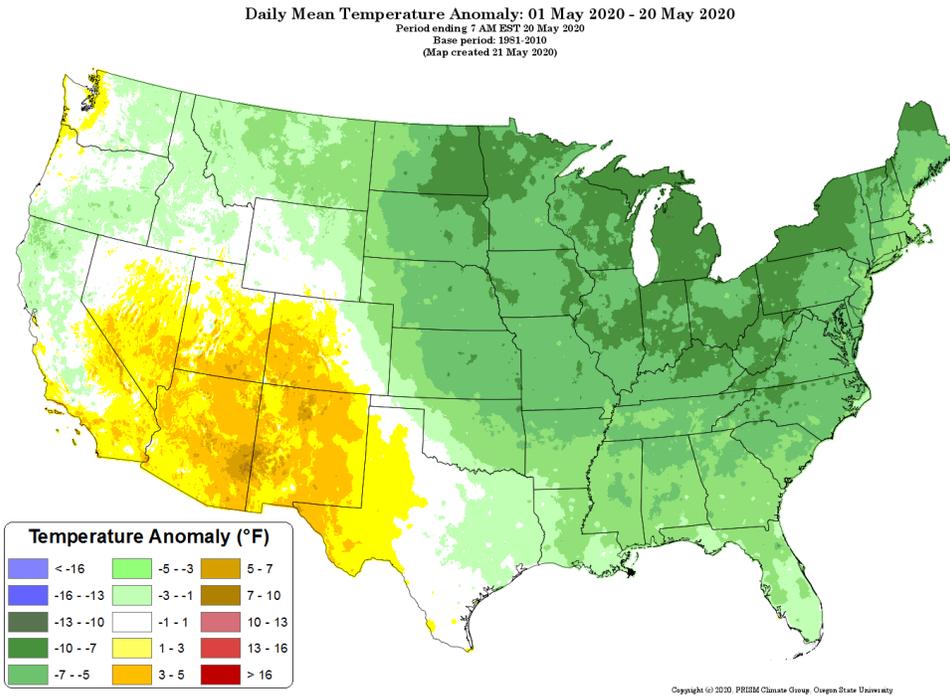
NOAA Regional Climate Centers

# Water and Climate Update

## Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

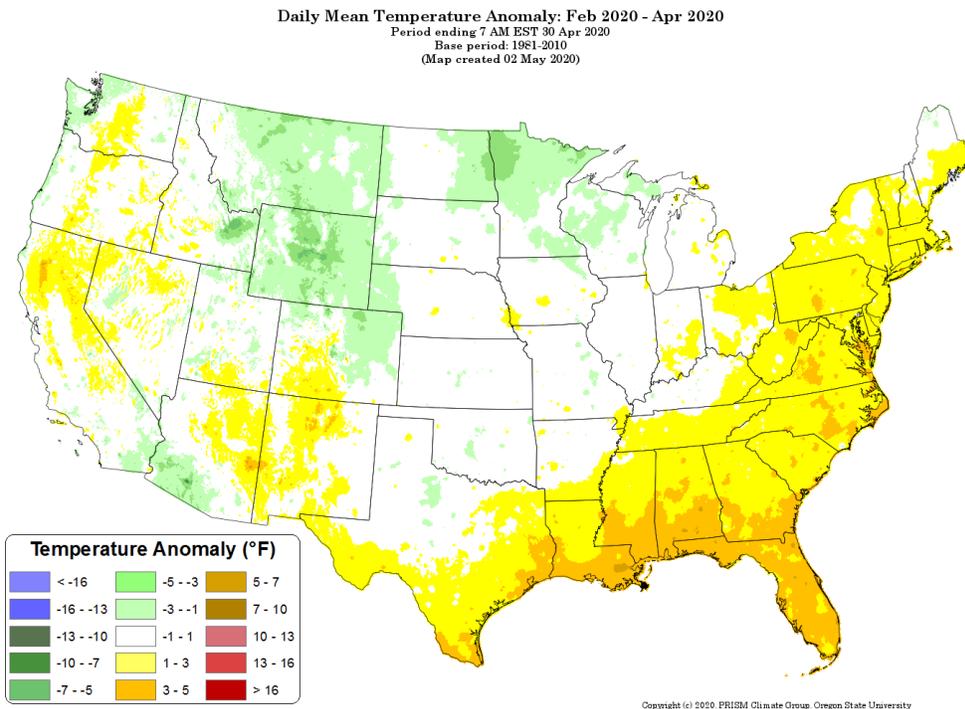
[Month-to-date national daily mean temperature anomaly map](#)



## Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

[February through April 2020 daily mean temperature anomaly map](#)



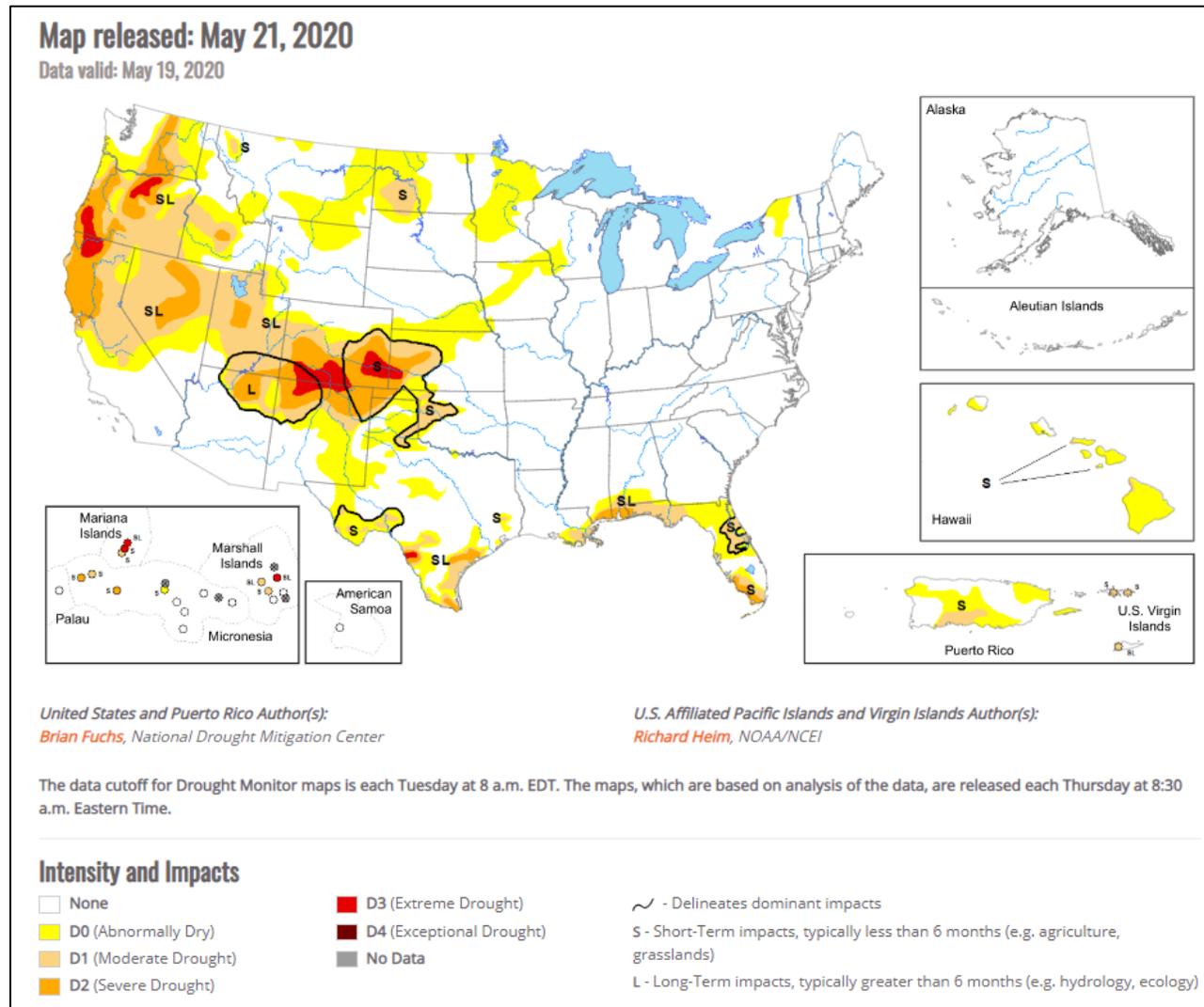
# Drought

## [U.S. Drought Monitor](#)

Source: National Drought Mitigation Center

## [U.S. Drought Portal](#)

Source: NOAA



## [Current National Drought Summary, May 21, 2020](#)

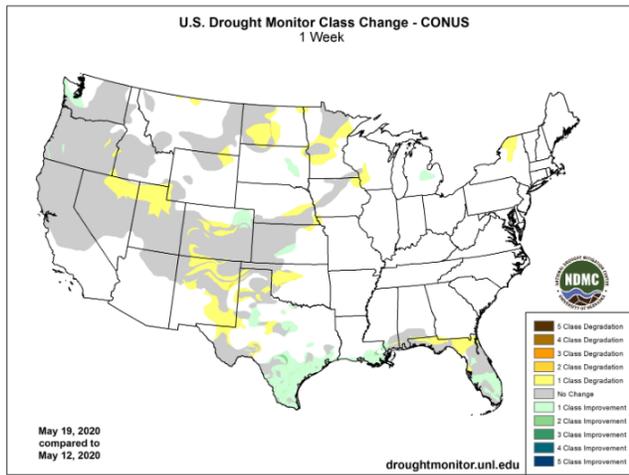
Source: National Drought Mitigation Center

“The southern Plains, Mississippi Valley, Pacific coast and south Florida were the recipients of the greatest rains this week, with some areas of Louisiana and south Florida recording 5+ inches of rain for the week. Dryness over the East and West was also coupled with warmer than normal temperatures over the West. Temperatures were 3-6 degrees above normal over the Nevada, Utah, Colorado and New Mexico regions while the northern Plains was 6-9 degrees below normal. Many dry areas of the Plains and Midwest have not had drought development due to the unseasonably cool temperatures in May.”

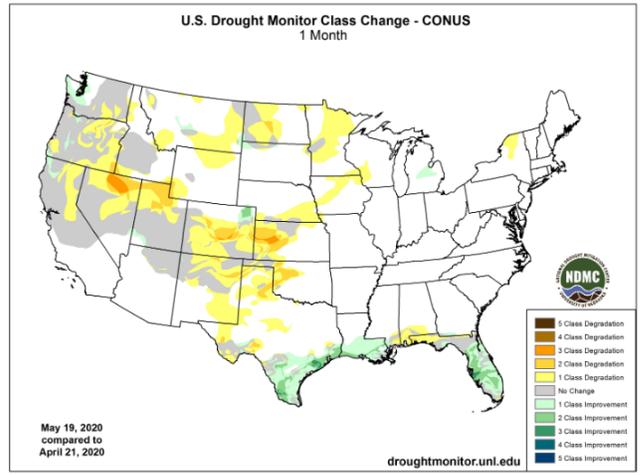
## Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

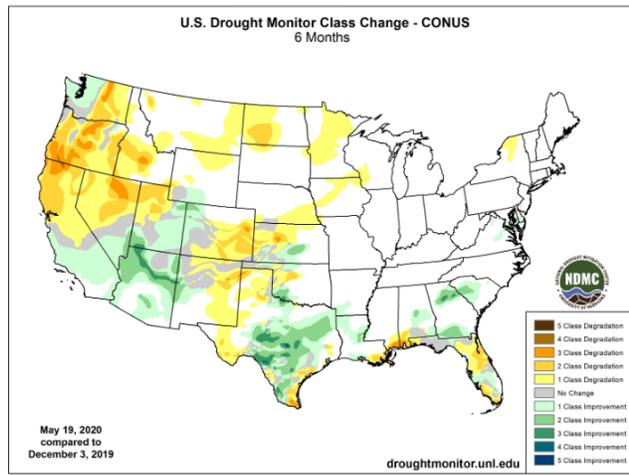
### 1 Week



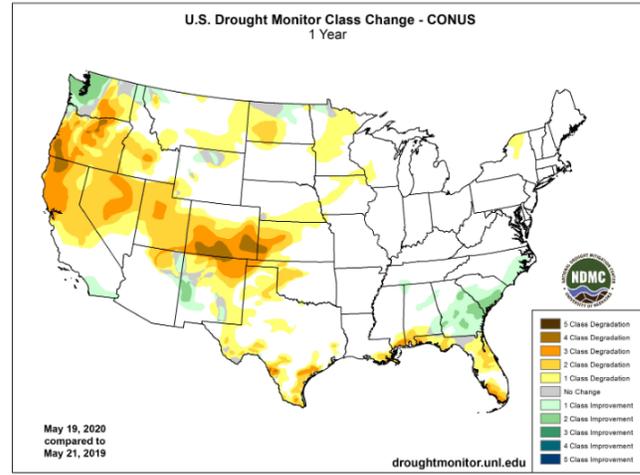
### 1 Month



### 6 Months



### 1 Year



[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

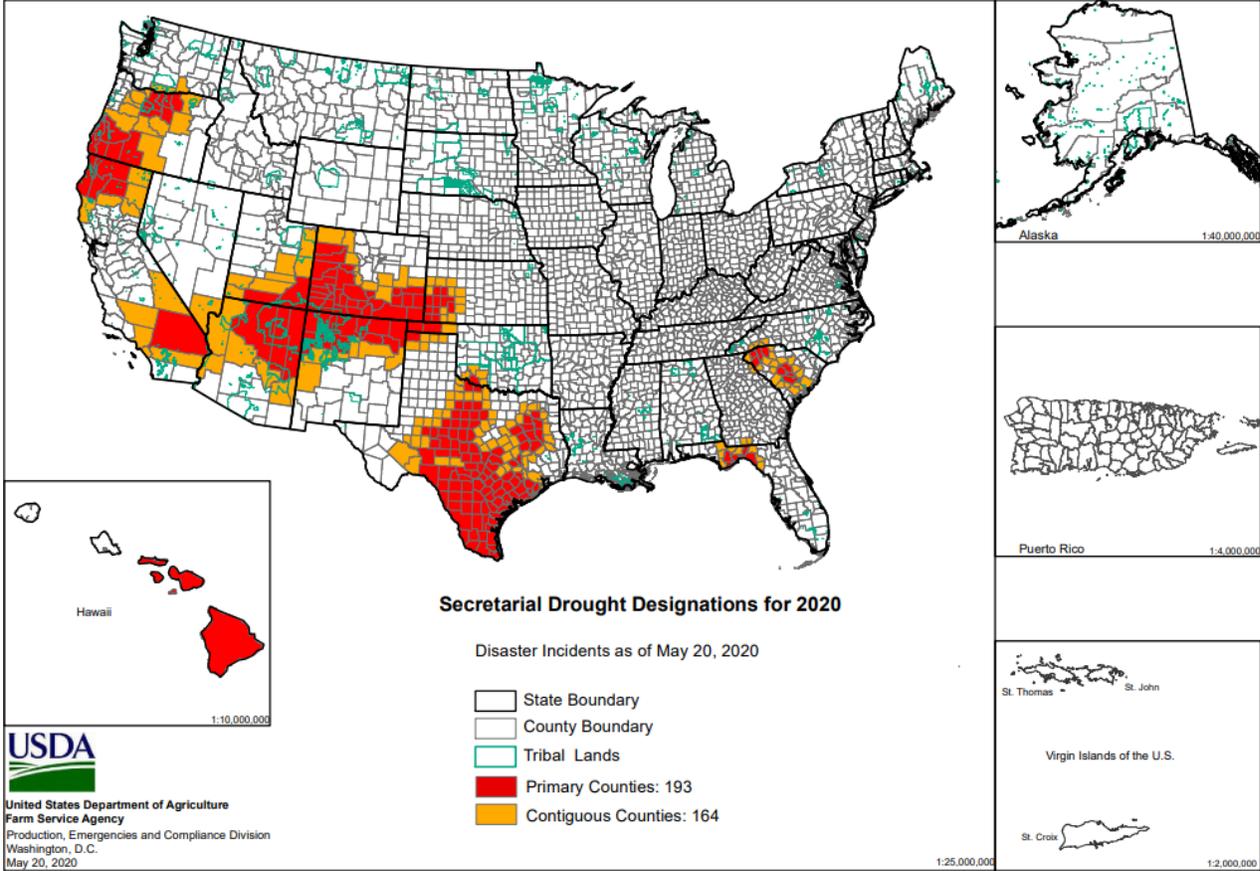
## Highlighted Drought Resources

- [Drought Impact Reporter](#)
- [Quarterly Regional Climate Impacts and Outlook](#)
- [U.S. Drought Portal Indicators and Monitoring](#)
- [U.S. Population in Drought, Weekly Comparison](#)
- [USDA Disaster and Drought Information](#)

Secretarial Drought Designations

Source: USDA Farm Service Agency

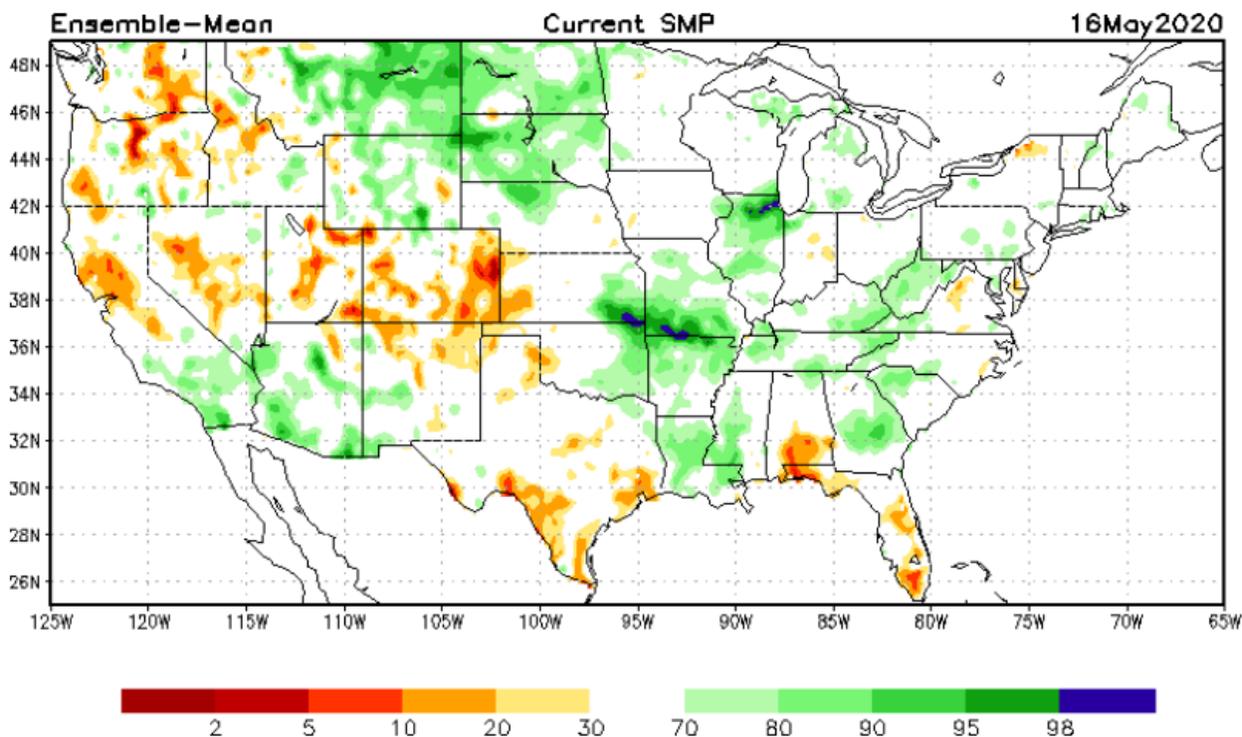
2020 Secretarial Drought Designations - All Drought



## Other Climatic and Water Supply Indicators

### Soil Moisture

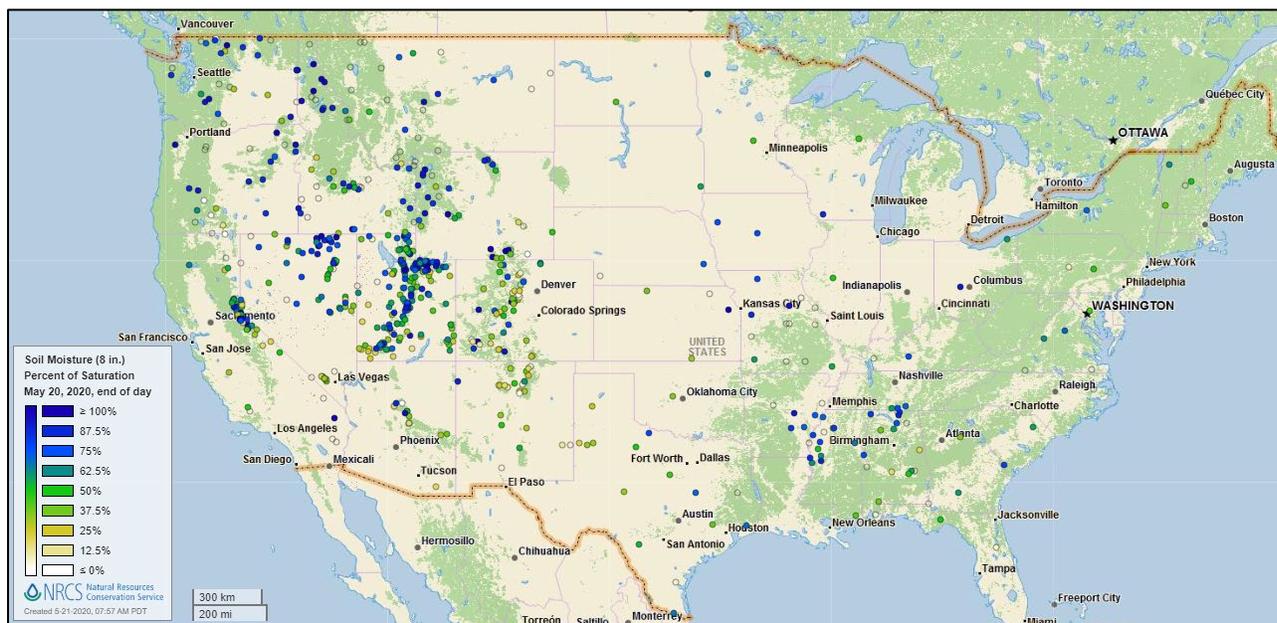
Source: NOAA National Centers for Environmental Prediction



[Modeled soil moisture percentiles](#) as of May 16, 2020

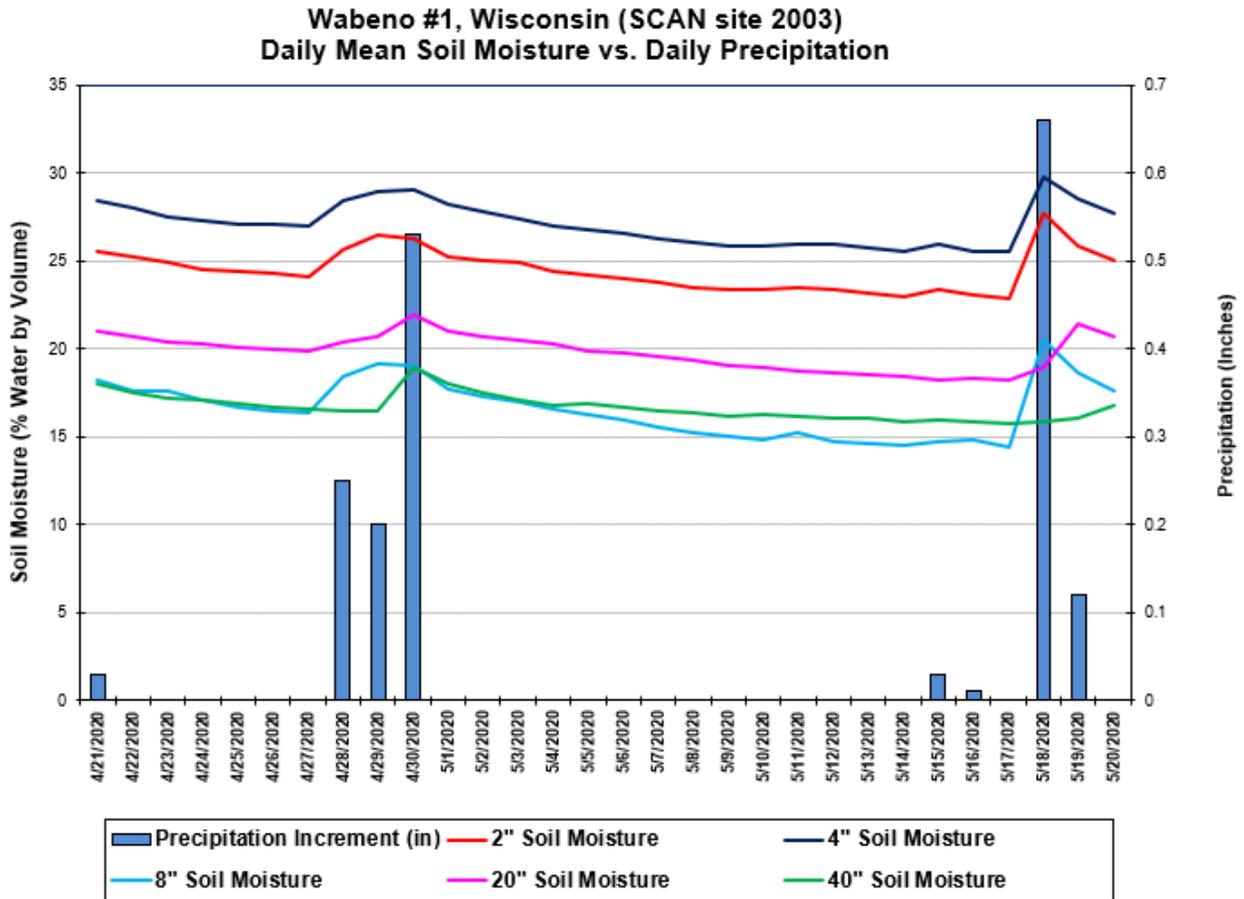
### Soil Moisture Percent of Saturation

Source: NRCS SNOTEL and [Soil Climate Analysis Network](#) (SCAN)



**Soil Moisture Data**

Source: NRCS [Soil Climate Analysis Network](#) (SCAN)



This chart shows the soil moisture and precipitation for the last 30 days at the [Wabeno #1](#) SCAN site in Wisconsin. Two larger precipitation events during the 30 days increased soil moisture at all sensor depths. Accumulated precipitation for the period was 1.83 inches

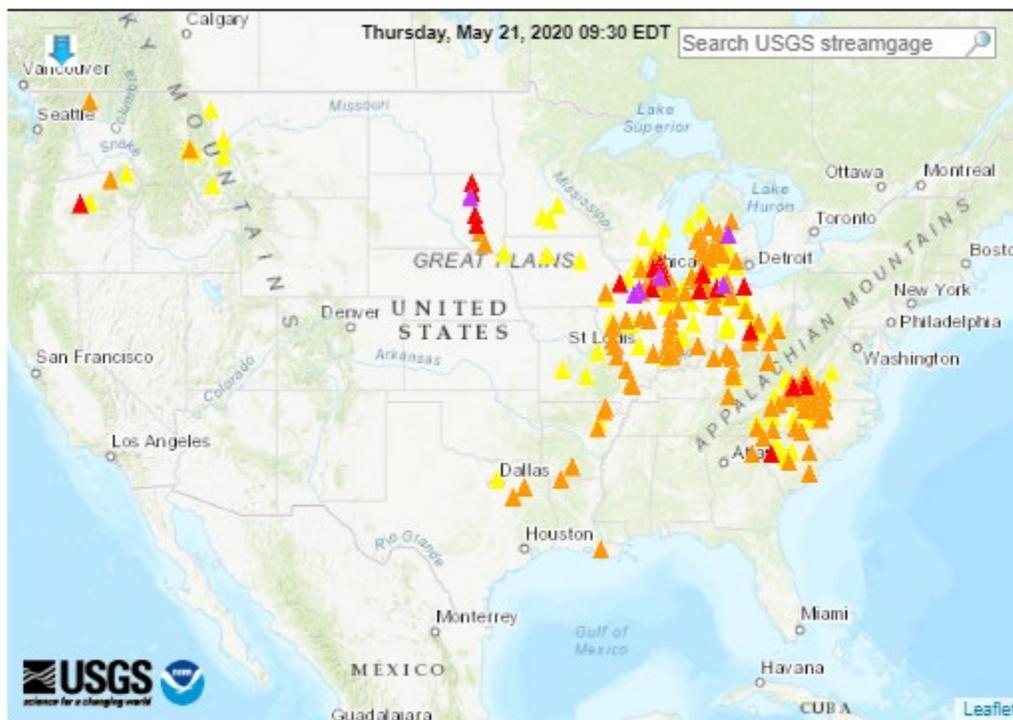
**Soil Moisture Data Portals**

- [CRN Soil Moisture](#)
- [Texas A&M University North American Soil Moisture Database](#)
- [University of Washington Experimental Modeled Soil Moisture](#)

**Streamflow, Drought, Flood, and Runoff**

Source: U.S. Geological Survey

**Map of flood and high flow conditions**  
 (156 in floods [major: 6, moderate: 21, minor: 129], 87 in near-flood)



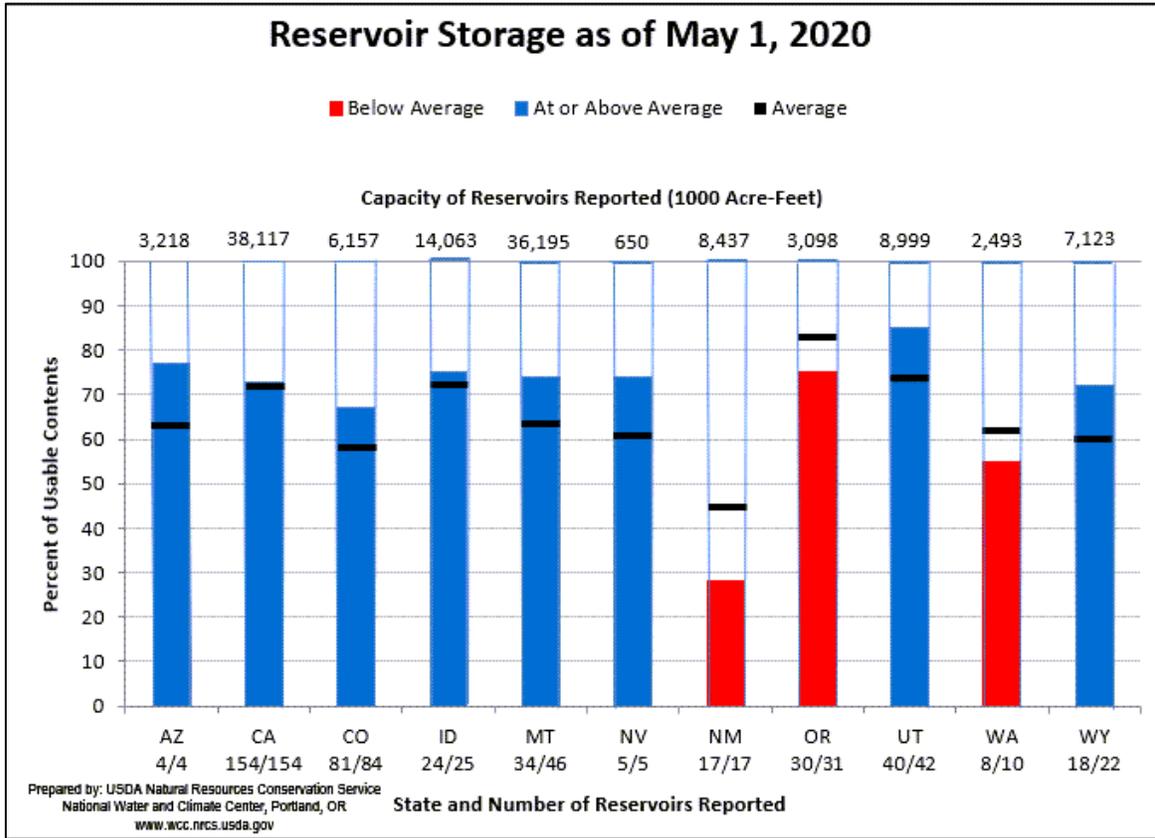
Explanation - Percentile classes						
<95	95-98	>= 99	Above action stage	Above flood stage	Above moderate flood stage	Above major flood stage
			▲ Streamgage with flood stage	○ Streamgage without flood stage		

[WaterWatch: Streamflow, drought, flood, and runoff conditions](#)

## Reservoir Storage

### Western States Reservoir Storage

Source: NRCS National Water and Climate Center



May 1, 2020 Reservoir Storage: [Chart](#) | [Dataset](#)

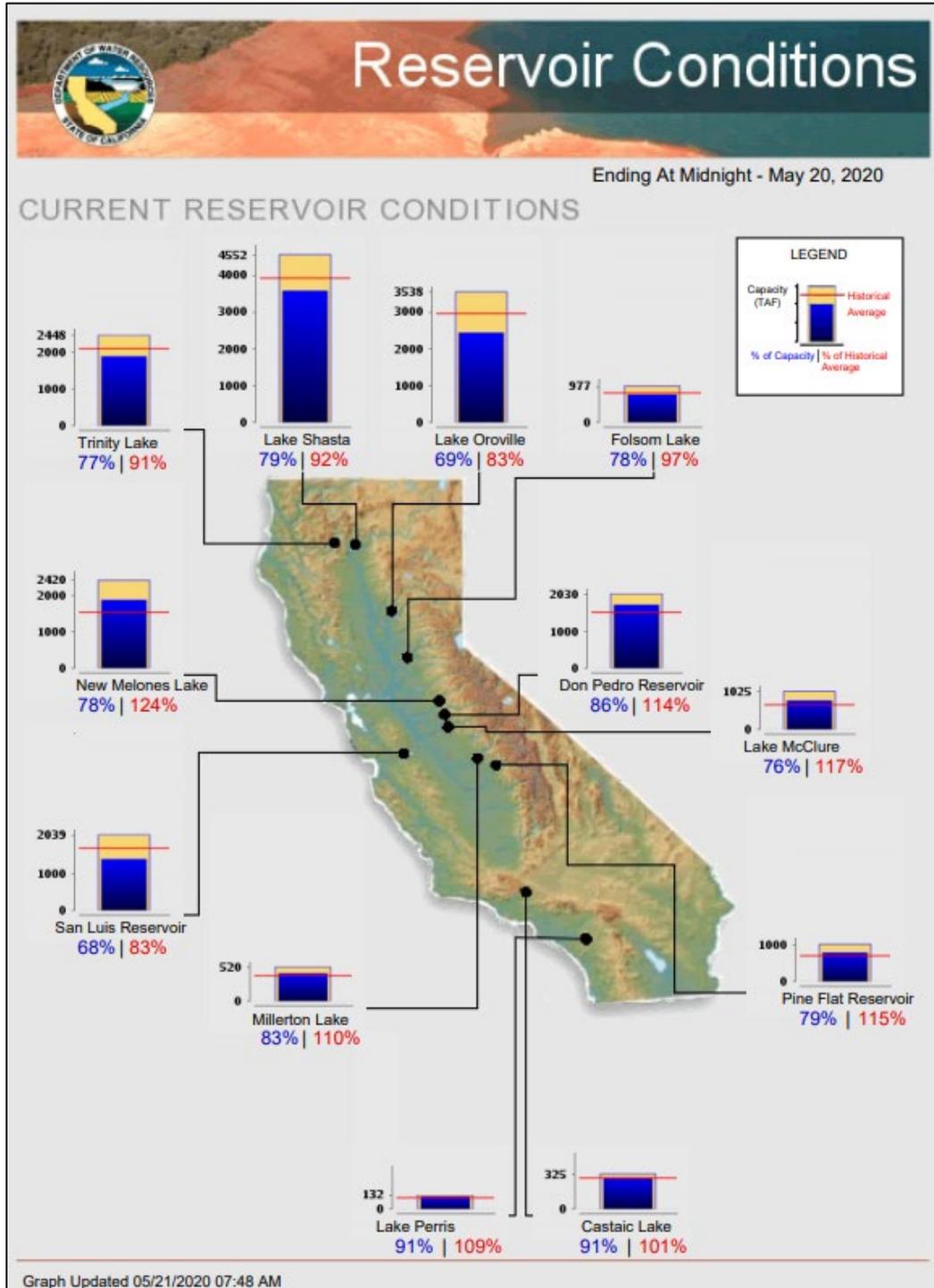
### Hydromet Teacup Reservoir Depictions

Source: U.S. Bureau of Reclamation

- [Upper Colorado](#)
- [Pacific Northwest/Snake/Columbia](#)
- [Sevier River Water, Utah](#)
- [Upper Missouri, Kansas, Oklahoma, Texas](#)

Current California Reservoir Conditions

Source: California Department of Water Resources



[Current California Reservoir Conditions](#)

## Short- and Long-Range Outlooks

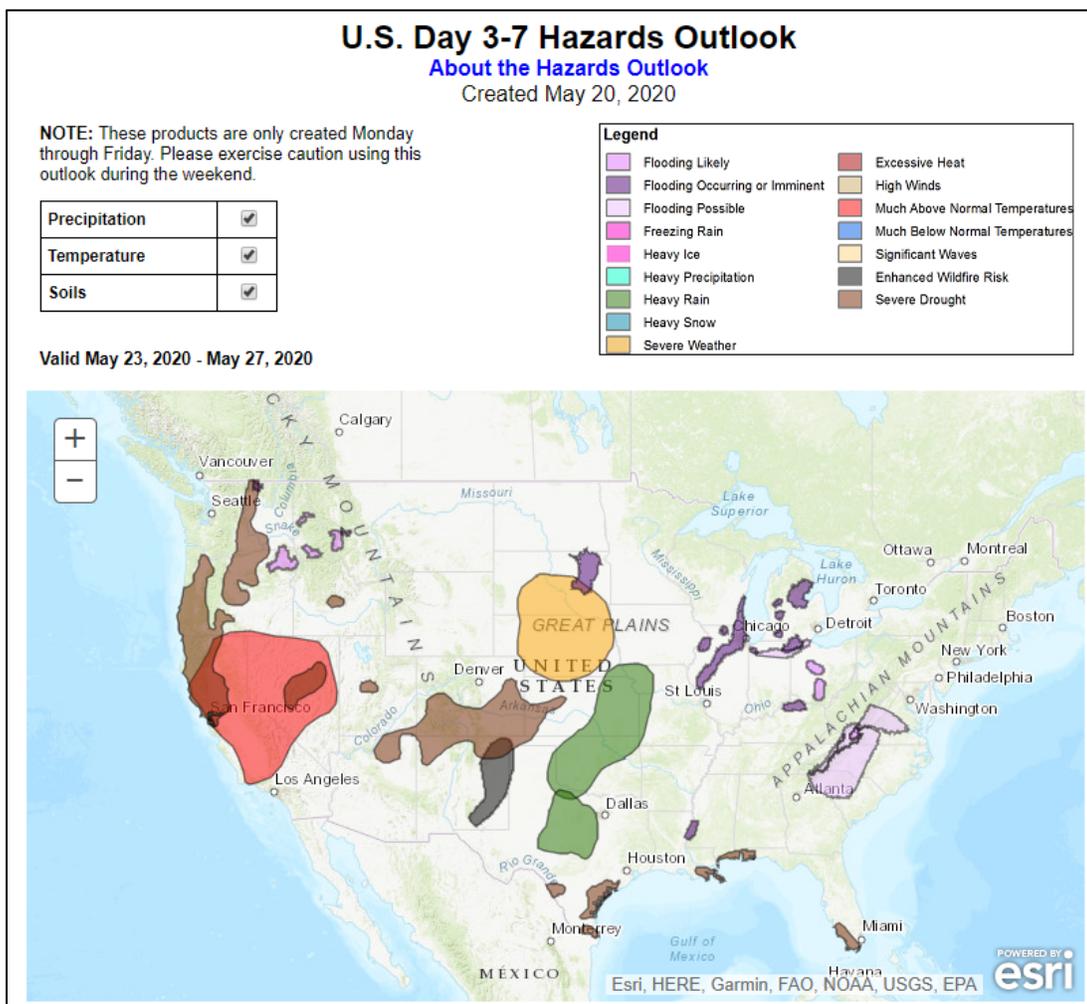
### Agricultural Weather Highlights

Author: Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB

**National Outlook, Thursday, May 21, 2020:** “Slow-moving storm systems are currently centered over the Tennessee Valley and the southern Canadian Prairies, respectively. The Southeastern storm will gradually weaken and drift eastward but could produce an additional 1 to 3 inches of rain in the middle Atlantic States. Meanwhile, the Canadian storm will continue to spark scattered showers from the Pacific Northwest to the northern Rockies. In addition, showers and locally severe thunderstorms will remain active in the vicinity of the storm’s trailing cold front; 5-day rainfall totals could reach 1 to 3 inches or more across portions of the Plains and Mississippi Valley. In contrast, little or no rain will fall during the next 5 days in northern New England and from California to the Four Corners region. Building warmth will accompany California’s dry weather, while temperatures will also rebound to above-normal levels from the Gulf Coast northward into the Midwest. The NWS 6- to 10-day outlook for May 26 – 30 calls for the likelihood of near- or above-normal temperatures nationwide, except for cooler-than-normal conditions in the southcentral U.S. Meanwhile, above-normal rainfall from the Gulf Coast States northward into the Ohio Valley and lower Great Lakes region should contrast with drier-than-normal weather along the northern Atlantic Coast and from northern California and the Pacific Northwest to the northern Plains.”

### Weather Hazards Outlook: [May 23 – 27, 2020](#)

Source: NOAA Weather Prediction Center

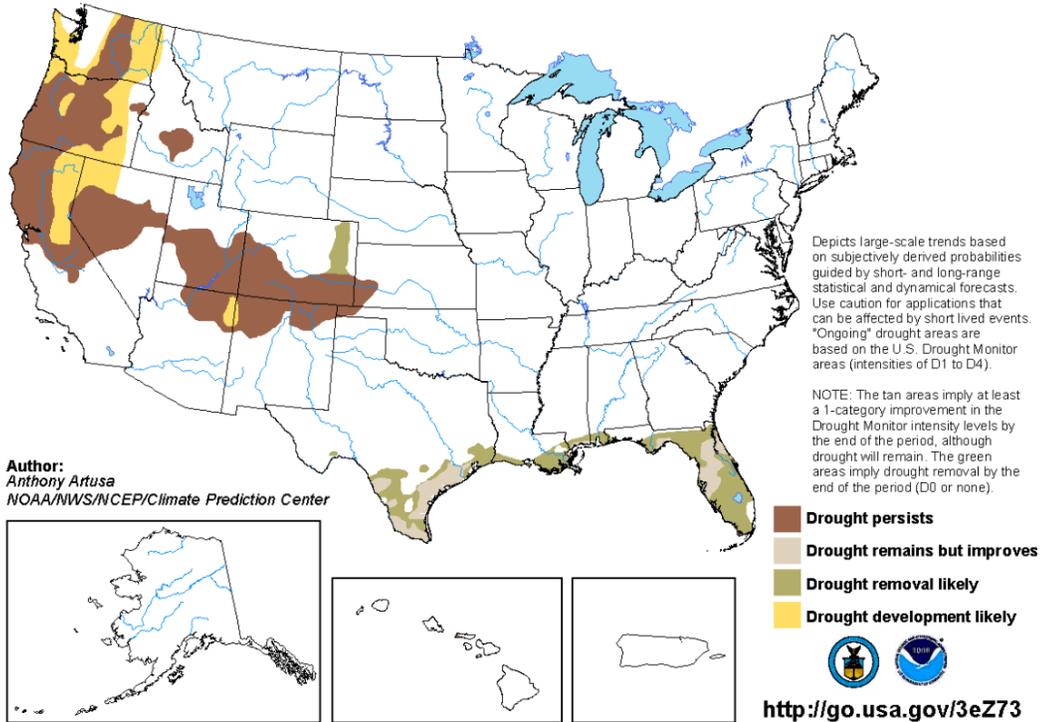


Seasonal Drought Outlook: [April 16 – July 31, 2020](#)

Source: National Weather Service

**U.S. Seasonal Drought Outlook**  
Drought Tendency During the Valid Period

Valid for April 16 - July 31, 2020  
Released April 16

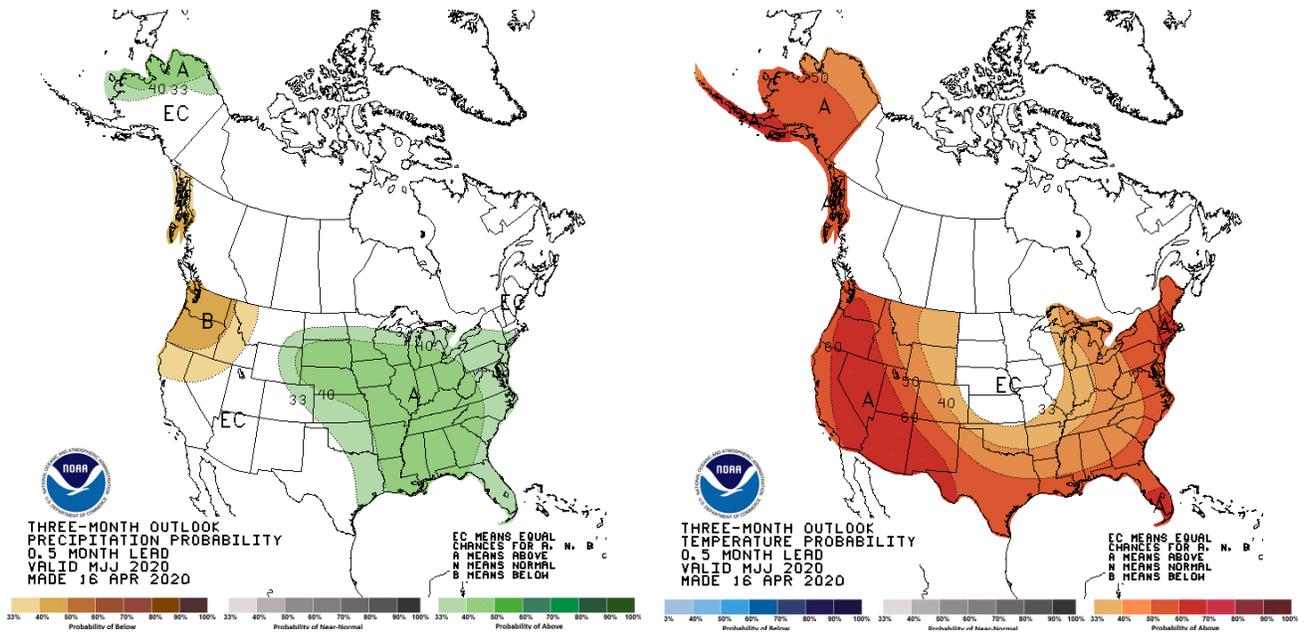


Climate Prediction Center 3-Month Outlook

Source: National Weather Service

[Precipitation](#)

[Temperature](#)



[May-June-July \(MJJ\) 2020 precipitation and temperature outlook summaries](#)

## More Information

The NRCS [National Water and Climate Center](#) publishes this weekly report. We welcome your feedback. If you have questions or comments, please [contact us](#).