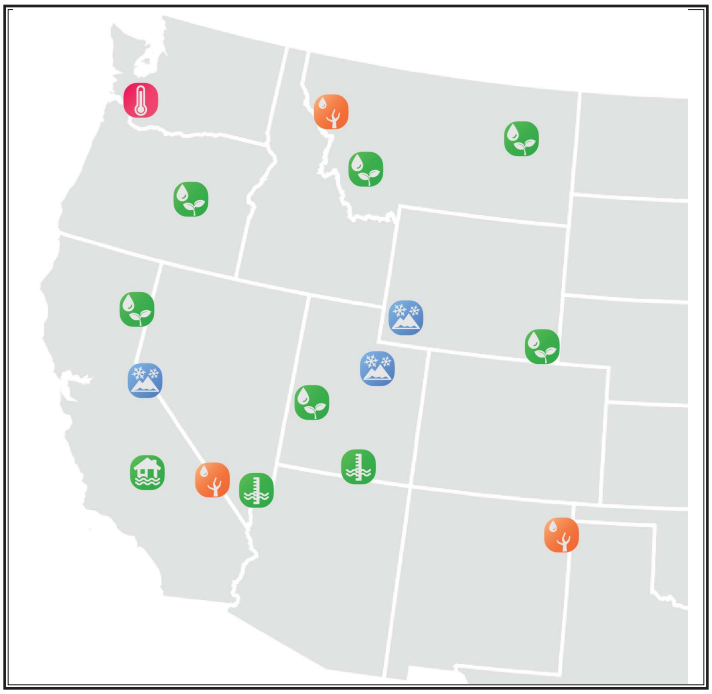
Quarterly Climate Impacts and Outlook

Western Region

June 2023

Significant Events for Mar-Apr-May 2023

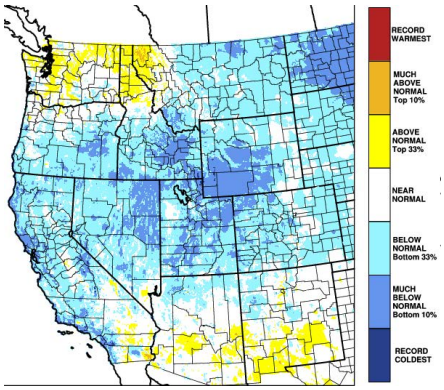


Mar-Apr-May Highlights

- Record-to-near record seasonal peak snowpacks were widespread in the western U.S.
- Drought persists in northern Idaho, northwestern Montana, southern Nevada, eastern California, and northeastern New Mexico.
- Cold and wet weather led to substantial drought improvement throughout the Western U.S.
- Moderate to exceptional drought covers less than 4% of the West, down from nearly 69% at this time in 2022.
- Lake Powell (UT) and Lake Mead (NV) levels rose in the spring but remain at extremely low levels.
- An early season heatwave impacted the Pacific Northwest in mid-May with Seattle, WA and Portland, OR setting daily temperature records.
- El Niño conditions in the tropical Pacific Ocean began to occur in March and and will remain, and possibly strengthen, over the summer and fall of 2022/2023.

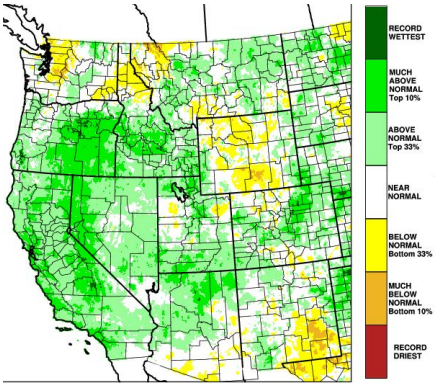
Regional Overview for Mar-Apr-May 2023

Mean Temperature Percentile
Mar-Apr-May 2023



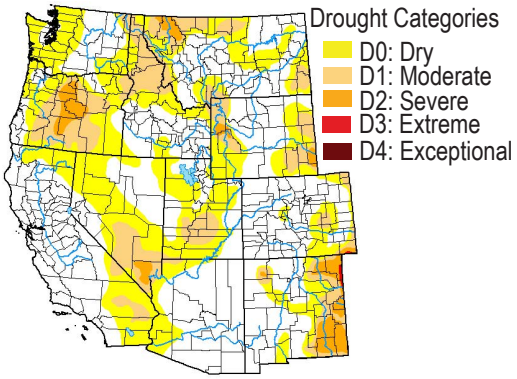
Temperatures were generally cool to cold west-wide, with notable cold anomalies along the California coast and in the interior intermountain West. Washington, the Idaho panhandle, and far western Montana as well as southern Arizona and New Mexico were slightly warmer than normal.

Precipitation Percentile
Mar-Apr-May 2023



With few exceptions, spring was wetter than normal in the western U.S., largely owing to a wet March. April was dry in the southwestern states whereas May was very dry along Pacific Northwest coast. Dry conditions were observed in Wyoming, northwestern Montana, the Idaho Panhandle, and southeastern New Mexico.

US Drought Monitor
May 30 2023



All western states continue to have some level of drought, with just over half of the area (53%) in no drought. Owing to the wet and snowy winter, however, no areas of exceptional drought exist and less than 4% of the area is in severe to extreme drought–the less than 0.1% classified as extreme is found in far northeastern New Mexico.

Contacts: D. McEvoy (mcevoyd@dri.edu)
B. Hatchett (benjamin.hatchett@dri.edu)

Regional Impacts for Mar-Apr-May 2023

Drought and Water Resources

The wet and snowy winter helped many stressed reservoir systems recover. Lake Mead began its rise in early April, surpassing the 2022 levels on May 14. At the time of writing (June 15), Lake Mead is at 1,055 ft (31% of capacity). Lake Powell rose over 54 feet since mid-April and continues to rise, but remains only 36% full.

Many smaller reservoirs throughout the West are at or near full, but lower levels still plague reservoirs such as those in the Rogue River, and Trinity Lake.

Agriculture

Rangeland conditions are in fair to excellent condition west-wide, with 20-30% of Arizona and New Mexico rangelands listed in poor condition.

Wildlife

Wyoming Game and Fish estimates upwards of 80% of adult mule deer and nearly all fawns were killed this winter and spring due to the extremely snowy conditions that limited mobility and access to forage.

Wet and Snowy Winter Brings the Return of Tulare Lake to California's San Joaquin Valley

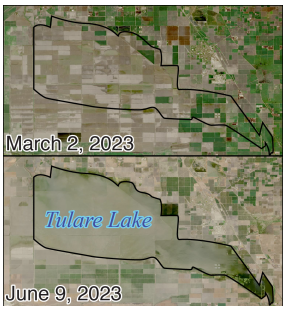
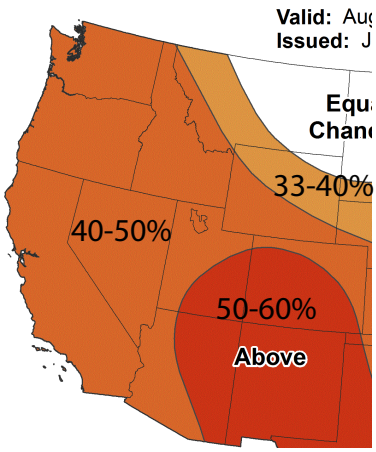


Image: Comparison of visible satellite images on March 2 and June 9 2023 showing the filling of Tulare Lake (outlined in black) due to heavy rainfall and snowmelt-derived runoff. Credit: NASA Worldview/ ESA Sentinel

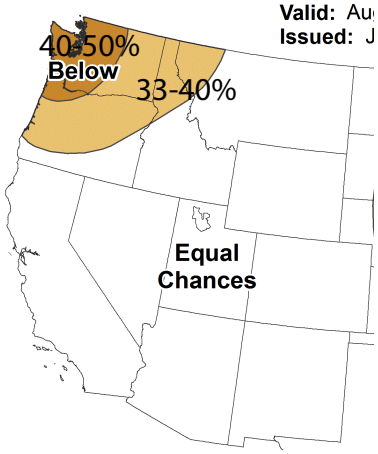
Tulare Lake, which was western North America's largest freshwater lake prior its draining by European settlers to begin agricultural activities in the 1800s, has returned following a wet and snowy winter. In addition to runoff, levee failures are contributing to the inundation. As of mid-June, the lake covers approximately140 square miles and is flooding agricultural lands as well as homes, roads, and other infrastructure. The lake will likely remain through the following winter as infiltration and evaporation are the only major ways to lower its water level. The last time the lake filled was in 1983.

Regional Outlook for Aug-Sep-Oct

CPC Temperature Outlook



CPC Precipitation Outlook



Numbers indicate percent chance of temperatures in warmest/coolest one-third and precipitation in wettest/driest one-third. Outlook produced June 15, 2023.

The CPC outlook for August-October favors warmer than normal conditions and equal chances for above or below normal precipitation. The greatest chances of above average temperatures occur in NM, southeastern UT, much of CO, and eastern AZ. Equal chances of above or below normal temperatures are expected for northeastern WY and eastern MT. Only the Pacific Northwest is expected to see below average precipitation. Here, given the early snowmelt and expected anomalously warm temperatures, favorable (i.e., dry) fuel moisture conditions for wildfire ignition and spread can be expected. Elsewhere, warm conditions following a wet winter imply drying of newly-grown fine fuels and heavier fuels, aiding wildfire spread potential.

Western Region Partners

- Western Regional Climate Center wrcc.dri.edu
- National Integrated Drought Information System (NIDIS) - drought.gov
- Western Governors' Association westgov.org
- Western States Water Council westgov.org/wswc
- NOAA/ESRL Physical Sciences Division esrl.noaa.gov/psd
- NOAA Climate Prediction Center www.cpc.ncep.noaa.gov
- National Centers for Envir. Info. (NCEI) www.ncei.noaa.gov
- USDA/NRCS National Water and Climate Center - www.wcc.nrcs.usda.gov
- National Interagency Fire Center www.nifc.gov
- Western Water Assessment wwa.colorado.edu
- Climate Assessment for the Southwest climas.arizona.edu
- California Nevada Applications Program cnap.ucsd.edu
- Climate Impacts Research Consortium pnwclimate.org/resources
- NWS Western Region Forecast Offices www.wrh.noaa.gov/

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