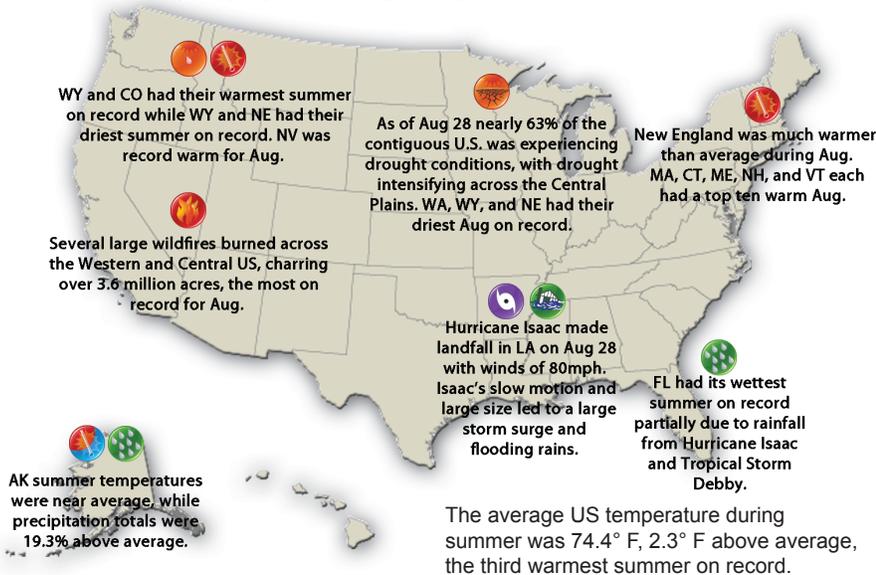


Quarterly Climate Impacts and Outlook

Western Region September 2012

National - Significant Events for June - August 2012

Significant Events for August and Summer 2012



Highlights for the West

Critical **fire conditions** (low relative humidity, high wind, drought conditions) persisted across much of the West, allowing wildfires to develop and spread rapidly.

The **Southwest monsoon** brought rain to Arizona as well as parts of Nevada, Utah and Colorado.

Thunderstorms at the end of July stretched from California to Oregon and Washington.

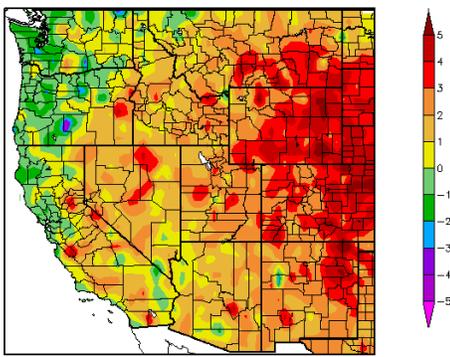
Coastal upwelling was a bit below normal off the Pacific Northwest, although water temperatures remained cooler than average, and zooplankton biomass was among the highest seen in 14 years.

Recent **equatorial sea surface temperatures** are more than 0.5°C above average in the eastern Pacific Ocean.

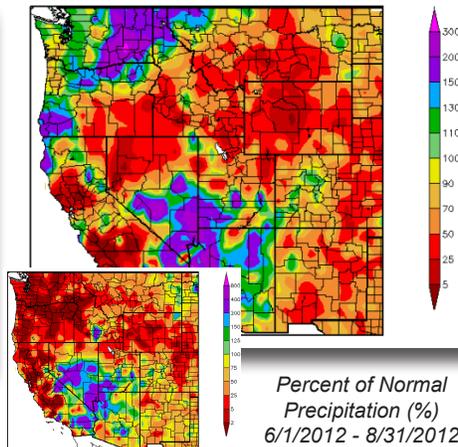
Regional - Climate Overview for June - August 2012

Temperature and Precipitation Anomalies

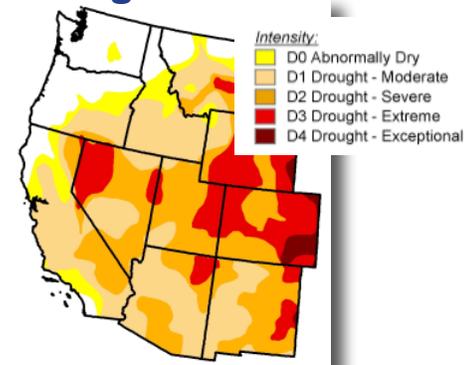
Drought in the West



Departure from Normal Temperature (°F)
6/1/2012 - 8/31/2012



Percent of Normal
Precipitation (%)
6/1/2012 - 8/31/2012



US Drought Monitor
9/4/2012

The temperature anomalies shown in the left panel indicate that most of the interior West had above-normal temperatures (warm colors), with slightly cooler-than-normal temperatures in the Northwest and along the Pacific Coast region.

The Pacific Northwest (Washington, western Oregon, northern California) and the Southwest Monsoon region (southern California, southern Nevada, southwest Utah and Arizona) had above-normal seasonal precipitation, while the remainder of the west received much less precipitation than normal. In contrast, August precipitation in the Northwest was well below normal (inset). (Provisional temperature and precipitation data courtesy of the High Plains Regional Climate Center, www.hpcc.unl.edu.)

The US Drought Monitor shows abnormally dry to extreme drought conditions in much of the West. (The Drought Monitor is a collaborative product from the USDA, NOAA and National Drought Mitigation Center www.droughtmonitor.unl.edu/monitor.html.)

Regional Impacts - for June - August 2012

Climate and Weather

High evapotranspiration rates in response to high temperatures have reduced the benefits of precipitation when it has occurred.

Drought and Water Resources Impacts

Reservoir volumes throughout much of the region have continued to decline and the upcoming fall and winter season rainfall will be critical for water supply: Lake Powell is at 58% of capacity, Lake Mead 51% and Elephant Butte Lake 8%.

Natural Resources

In June, July and August, across the western USA approximately 14,262 wildfires burned over 6.5 million acres.

Freshwater streams had warmer water and low-flows, resulting in both voluntary and non-voluntary fishing curtailments as well as supplemental water releases from dams.

Large wild animals are being drawn into neighborhoods in pursuit of more abundant food in preparation for winter.

Cooler than average temperature and high abundance of 'northern' zooplankton are favorable for juvenile salmon survival, and returns of adult Coho salmon in 2013 and Chinook in 2014 are likely to be higher than average.

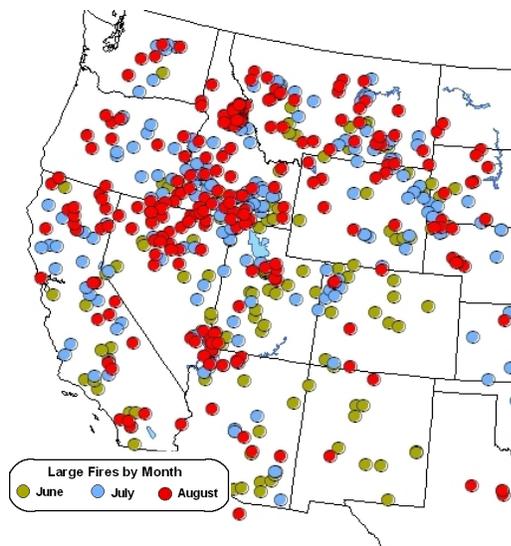
Agriculture

Grazing quota allotments on public lands are reduced due to rangeland conditions while supplemental hay is not locally available.

Health

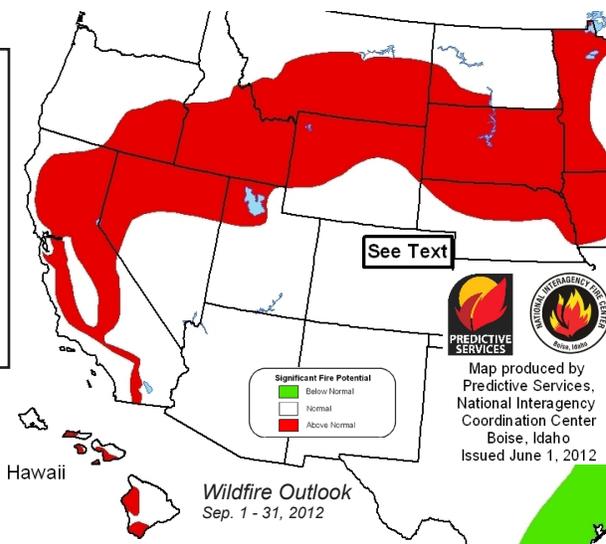
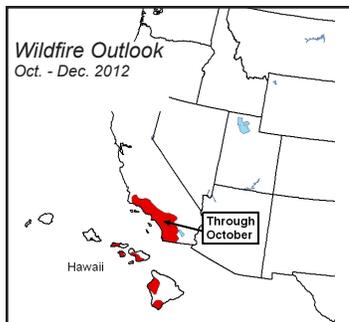
Increases in West Nile virus outbreaks are due to favorable conditions of hot and dry weather with episodic rainfall.

Air quality and visibility were degraded by wildfire smoke.



Large wildfires in the western US in June, July and August. Wildfire activity was high in the southern interior west for the first part of the summer and became more active further west and north over the second half of the summer. (Map produced by Predictive Services, National Interagency Coordination Center, Boise, Idaho. www.predictiveservices.nifc.gov)

Regional Outlook - for Fall 2012



NIFC Monthly and Seasonal Fire Potential

The West experienced rainfall deficits resulting in below normal live and dead fuel moistures in a band stretching from central and northern California, through the northern Great Basin and into the Northern Rockies and Northern Plains (red shading). Across many of these areas a heavier and more continuous than normal fuel bed is creating conditions where fires are able to spread more rapidly and into areas not normally seen this time of year. Looking at the seasonal forecast (inset) fire potential in the west decreases, with an area of above normal significant fire potential likely to remain over portions of Southern California.

NOAA Seasonal Climate Outlook

There is a greater likelihood of El Niño than ENSO-neutral conditions, an increased chance for above median precipitation from southern California eastward to New Mexico and northward into Utah and Colorado due to moisture surges from convection in the eastern Pacific, and an increased likelihood of below median precipitation in the Pacific Northwest (Climate Prediction Center, www.cpc.ncep.noaa.gov).

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
- National Interagency Fire Center**
www.nifc.gov
- USDA/NRCS National Water and Climate Center** - www.wcc.nrcs.usda.gov
- DOI WaterSMART**
www.usbr.gov/WaterSMART
- NOAA/ESRL Physical Sciences Division**
esrl.noaa.gov/psd
- NOAA's Western Regional Collaboration Team**
www.regions.noaa.gov/western/western_region_team.html
- Western Water Assessment**
colorado.edu
- Climate Assessment for the Southwest**
climas.arizona.edu
- California Nevada Applications Program**
meteora.ucsd.edu/cap
- Climate Impacts Research Consortium**
pnwclimate.org/resources
- Colorado Basin River Forecast Center**
www.cbrfc.noaa.gov
- California Nevada River Forecast Center**
www.cnrfc.noaa.gov
- NOAA Fisheries Service** - www.nmfs.noaa.gov
- NWS Western Region's Climate Service**
nws.noaa.gov/om/csd/index.php?section=programs#western
- State Climatologists** - stateclimate.org