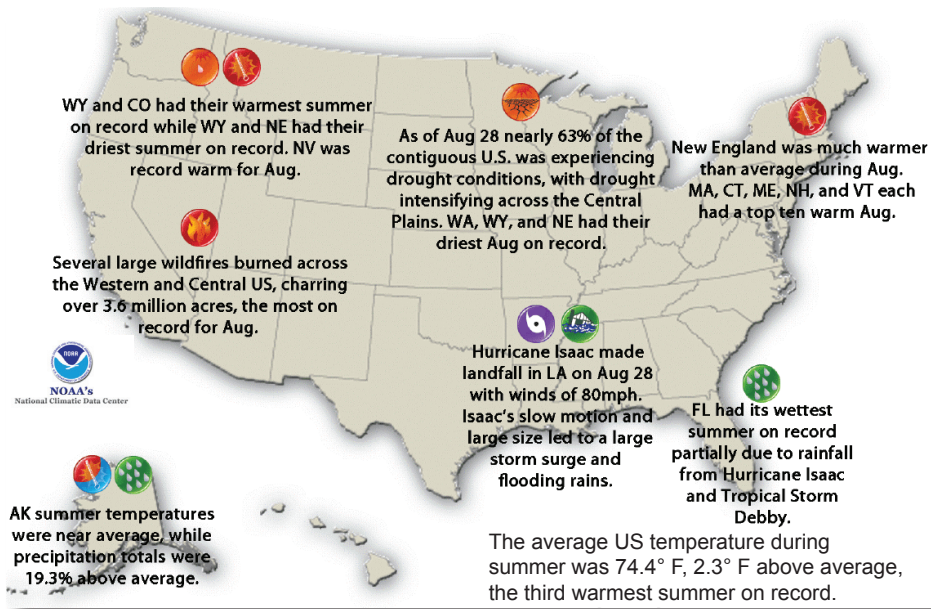


Quarterly Climate Impacts and Outlook

Western Region September 2012

National - Significant Events for June - August 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 southern California, Nevada, Utah and Colorado.

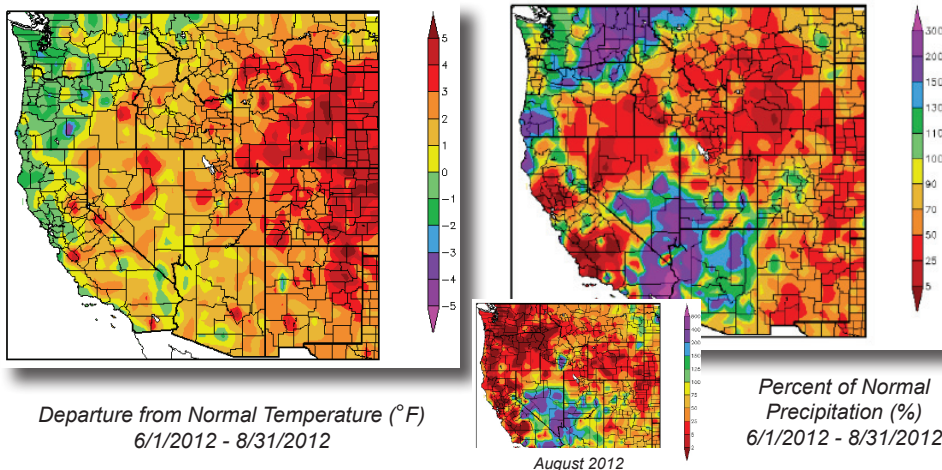
Severe thunderstorms stretched from California to Oregon and Washington at the end of July.

Coastal upwelling was a bit below normal off the Pacific Northwest, water temperatures were cooler than average, and food abundance was among the highest in 14 years.

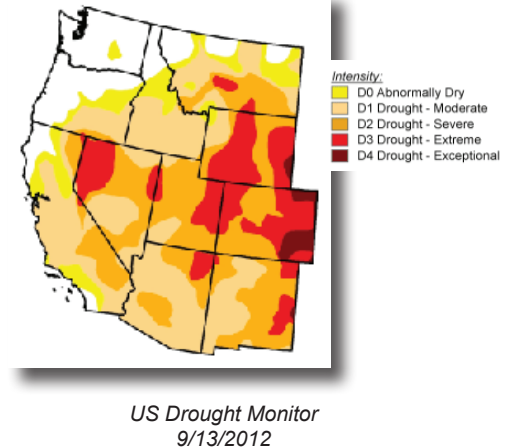
Recent **equatorial sea surface temperatures** are more than 0.5°C above average in the eastern Pacific Ocean; however ENSO-neutral conditions continued during August.

Regional - Climate Overview for June - August 2012

Temperature and Precipitation Anomalies



Drought in the West



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.

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. August precipitation in the Northwest was well below normal (see inset), and August was the driest on record in Washington. (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 reduced the benefits of precipitation when it occurred.

Drought and Water Resources Impacts

Reservoir volumes throughout much of the region 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%. Collectively, California reservoirs are below the median capacity for the first time in five years.

Natural Resources

Over 14,000 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 reservoir water releases.

Large wild animals entered neighborhoods in pursuit of food.

Juvenile salmon survival is favorable due to cooler than average ocean temperatures and high food abundance.

Returns of adult Coho salmon in 2013 and Chinook in 2014 are likely to be higher than average.

Agriculture

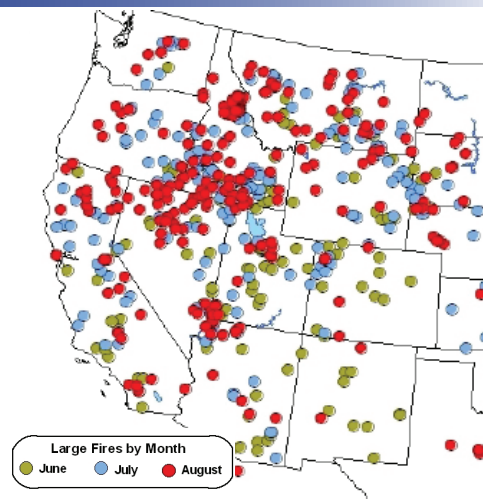
Agricultural productivity (such as the apple harvest in WA) was reduced due to hail damage.

Grazing quota allotments on public lands were reduced due to poor rangeland conditions while supplemental hay is in short supply and expensive.

Health

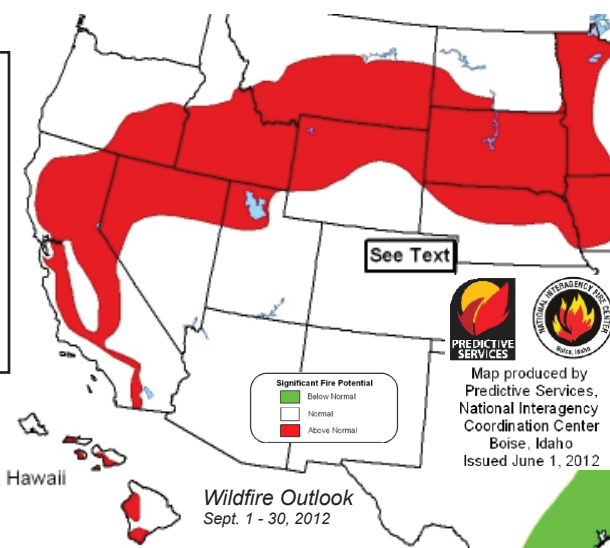
West Nile virus outbreaks increased due to favorable conditions of hot and dry weather with episodic rainfall.

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) *100 acres or greater in timber, 300 acres or greater in brush and grass, and/or have been assigned a Type 1 or 2 Incident Management Team.

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 prone to fire at this time of year. The seasonal forecast (see inset) indicates fire potential in the west decreases, except for some areas of Southern California.

NOAA Seasonal Climate Outlook

Weak El Niño conditions are likely to develop during the fall, and persist into winter and early spring. An increased likelihood of below median precipitation is expected in the northwest US through spring of 2013. Should El Niño conditions become established, there will be an enhanced chance for above median precipitation across the southwestern US through the end of the upcoming winter and early spring. (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