

Washington State Weekly Drought Monitoring Report

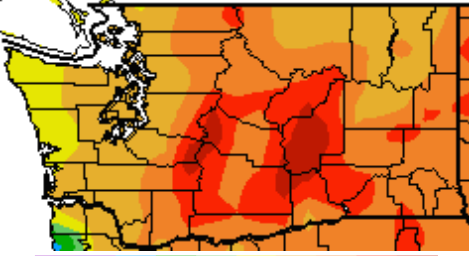
Thursday, June 18, 2015

Issue 10

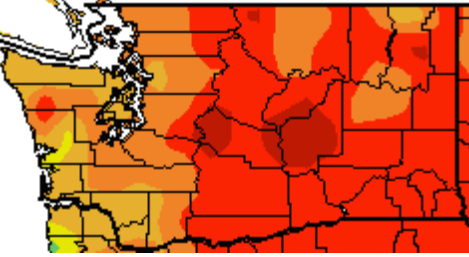
Statewide Overview

Mean Temperature Anomalies (°F)

Weekly (6/10-6/16):



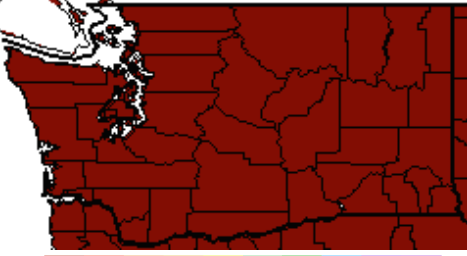
Last 30 days (5/18-6/16):



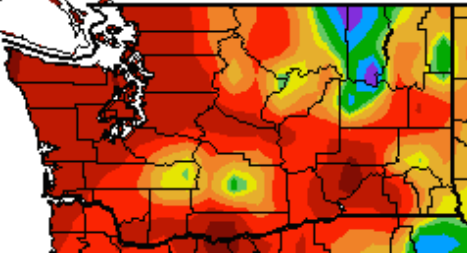
HPRCC

Precipitation Percent of Normal (%)

Weekly (6/10-6/16):



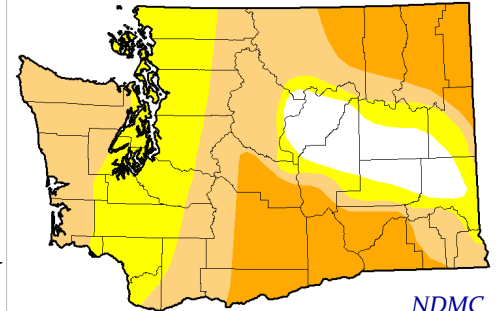
Last 30 days (5/18-6/16):



HPRCC

Drought Monitor, Streamflow, and Wildfire Outlook

US Drought Monitor (6/16):

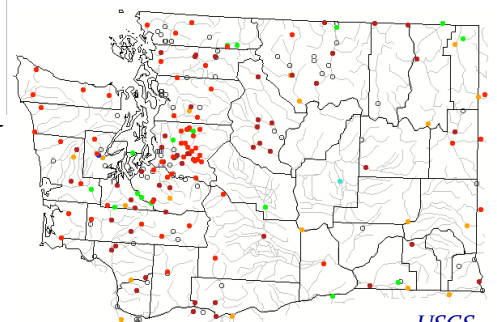


NDMC

Intensity:

- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought

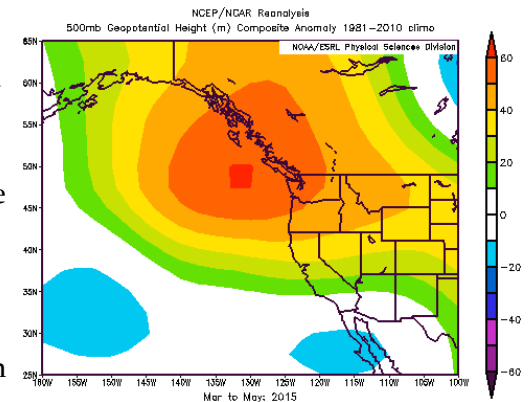
7-day Average Streamflow (6/16):



USGS

Explanation - Percentile classes							
●	●	●	●	●	●	●	○
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Mar-May Atmos. Circulation Anomalies:



ESRL

A snapshot of recent conditions for WA State is shown on this page using statewide temperature, precipitation, streamflow, and circulation patterns over varying time frames. Temperatures have remained warmer than normal for the last 7 days (6/10-6/16) and the last 30 days. Parts of eastern WA have seen average temperature anomalies exceeding 6°F in some places. No precipitation has fallen over WA State over the last week, producing the rather ominous looking percent of normal precipitation map. On a longer time scale, most of the state has been extremely dry, especially western WA.

Warm temperatures and little precipitation has caused the 7-day average streamflow to drop in western WA, and even the snowmelt-fed streams in north central WA have much below normal streamflow as a result of earlier melt. 7-day average streamflows in Okanogan and Chelan counties are below the 10th percentile and below the 24th percentile on a longer time scale (28 days). In accordance with the low streamflows, the US Drought Monitor has expanded the area of moderate drought (D1) in those areas and expanded the area of severe drought (D2) in eastern Okanogan county due to lack of water for livestock. The final map, showing the March through May 500 hPa geopotential height anomalies over the Pacific Northwest, may not make the most sense to our non-meteorologist readers, but shows higher than normal 500 hPa heights to our west. In other words, a ridge of high pressure has been the common circulation pattern this spring, responsible for our early summer-like weather.

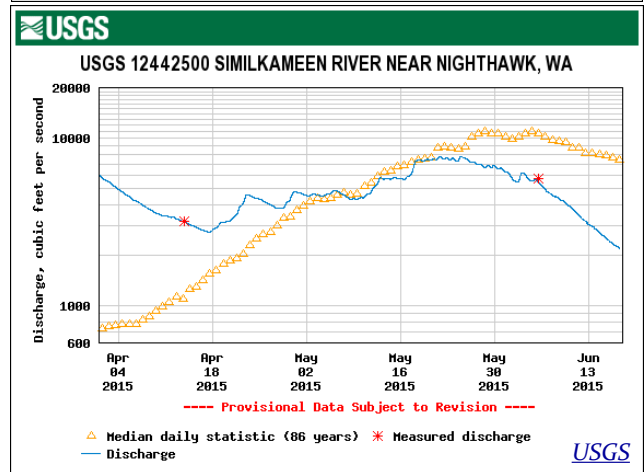
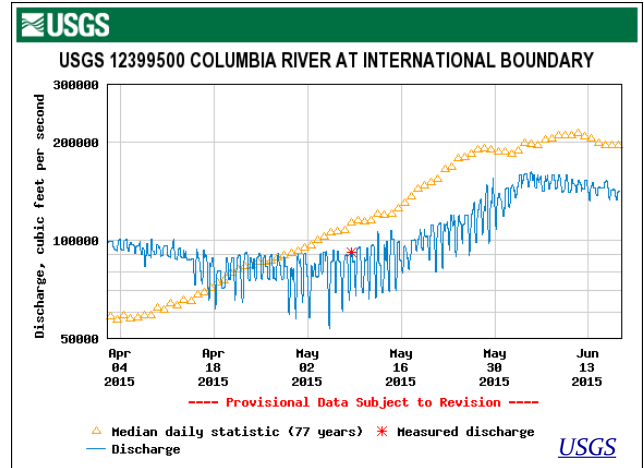
Contacts: Karin Bumbaco (kbumbaco@uw.edu)
Nick Bond (nab3met@uw.edu)
Jeff Marti (jema461@ecy.wa.gov)

Statewide Drought Declared

On May 15, Governor Inslee declared a statewide drought; more information can be found at WA State [Department of Ecology](#). This section will focus on a few areas of the state in a little more detail.

Okanogan County

Environment Canada has reported similarly warm and dry spring conditions in British Columbia. The Upper Columbia had closer to normal snowpack over the winter, but was still below normal, and with the recent warm and dry spell, the Columbia River near the border of Canada and WA is only at about 70% of normal (right; top). Another streamflow site close to the border - Similkameen River at Nighthawk - also has below normal streamflow, and a daily record low streamflow for June 17 (right; bottom). As illustrated by the orange triangles, the typical flow on this river peaks in late-May/early-June from snowmelt contributions. This year, streamflow peaked in early to mid-May, and the plot helps explain why gauges in north central WA were indicating near normal flows on most streams, but are now much below normal.



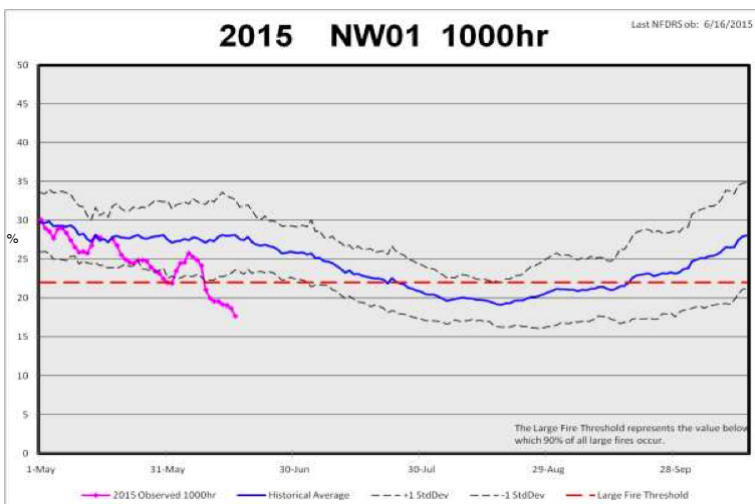
Olympic and Kitsap Peninsulas

The warm and dry stretch of weather in western WA has added additional stress on water supply on the Olympic Peninsula. The [Clallam](#) Public Utility District has restricted water use as of 6/10, specifying that eastern Clallam county residents cannot use water outdoors unless there's an emergency. Voluntary water restrictions are in place in [Gig Harbor](#), with officials noting that there has been higher water usage in May of this year than last year, and that restrictions may become mandatory depending on the usage trends. A relatively small fire - burning 250 acres thus far - is occurring in [Olympic National Park](#), which is early in the season to see a fire on the west side of the Cascades. The fire is being allowed to burn, as it has not threatened any structures, but "fuels" - the amount of biomass ready to burn under certain conditions - throughout the region are extremely dry. The plot below shows 1000-hr fuel moisture (representative of larger biomass that can burn for quite a while) for a region that encompasses most of western WA from the

[Northwest Coordination Center](#). The fuels are currently as dry as what is typically seen in August, meaning that once ignited, fires are apt to be larger and more serious.

Yakima area

The Lower Columbia Basin is drier than normal over the last 30 days, with the impact of thunderstorms in May not evident on that time scale. Another example of mandatory water use restrictions around the state is represented by the [Kennewick](#) Irrigation District. As of 5/31, residents are only allowed to water outdoors at certain times of day and days of the week in an effort to conserve water.



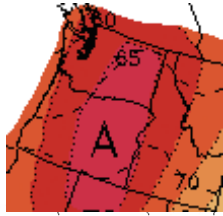
NWCC

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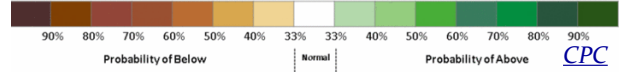
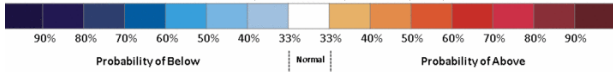
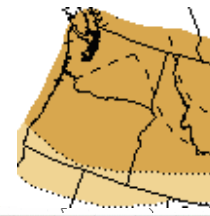
Extended Outlook

Temperature



8-14 Day CPC Outlook

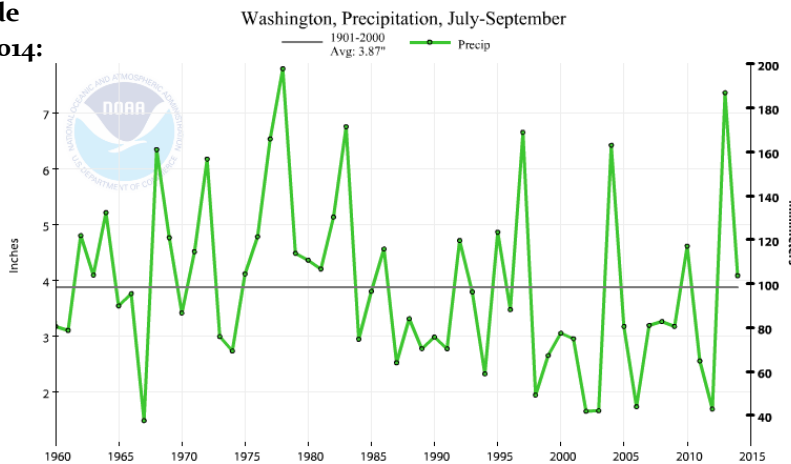
Precipitation



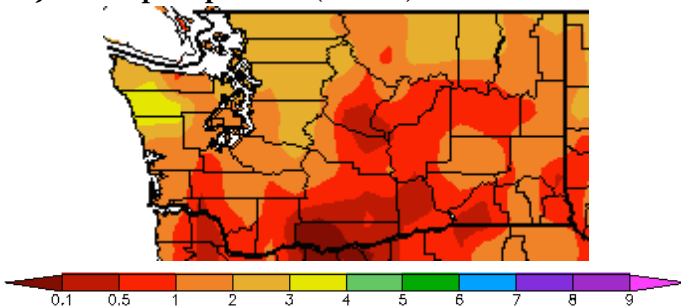
The 8-14 day forecast from NOAA/CPC indicates the effects of the consensus model forecast of a ridge of higher than normal geopotential heights at 500 hPa over the NE Pacific extending into western North America. The expected consequence is warmer and drier weather than normal for WA state for the period of 25 June-1 July.

The summer solstice is approaching, and it is worthwhile to consider the range of rainfall amounts that WA state can receive during the normally warm and dry summer months. A time series from 1960 through 2014 of the total rainfall during the months of July through September (JAS) from a statewide average perspective is shown below. There have been years during which this statewide average exceeded 7 inches and also years during which less than 2 inches of precipitation occurred. Two maps from recent years are used to further illustrate this contrast. The total July-September precipitation during the dry summer of 2012 (left) indicates especially low values for the southern portion of the state, with most locations including the southern Cascade Mountains checking in with striking totals of less than an inch for the entire 3-month period. The next year, 2013, featured an abnormally wet summer (right), with much of the west side of the state receiving more than 10 inches of precipitation (note different scales are used at the top ends for the two plots). The east side of the Cascade Mountain crest was much drier in 2013, but still noticeably wetter than the previous year. Will the summer of 2015 for WA be more like 2012 or 2013? Only time will tell, of course, but right now indications are that it will be somewhere in between. Regardless, the recent summer of 2013 indicates that enough rain can fall to alleviate concerns for the west side of the state, but it seems unlikely that enough could occur on the east side to put much of a dent in present deficits.

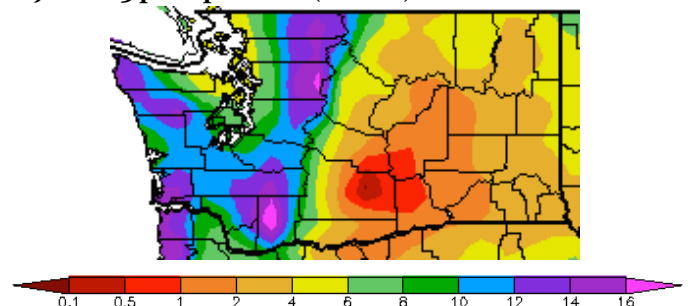
Average JAS statewide precipitation 1960-2014:



JAS 2012 precipitation (inches):



JAS 2013 precipitation (inches):



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