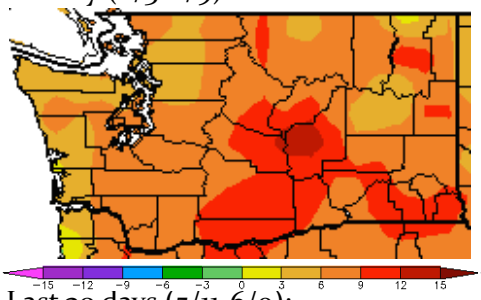
Washington State
Weekly Drought Monitoring Report

Thursday, June 11, 2015 Issue 9

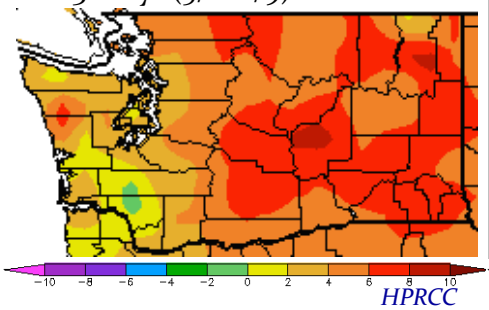
Statewide Overview

Mean Temperature Anomalies (°F)

Weekly (6/3-6/9):



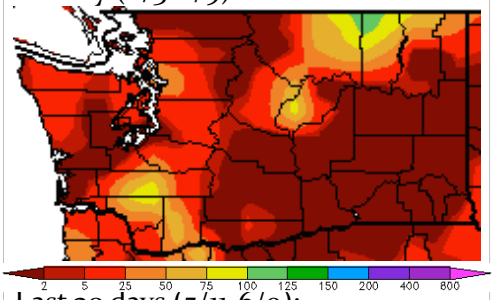
Last 30 days (5/11-6/9):



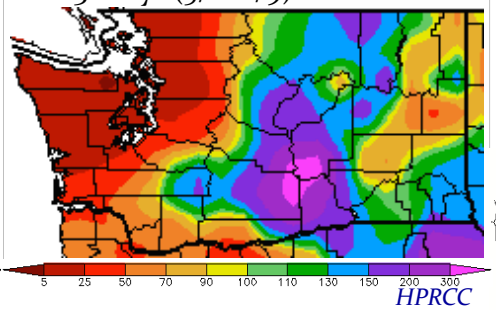
HPRCC

Precipitation Percent of Normal (%)

Weekly (6/3-6/9):



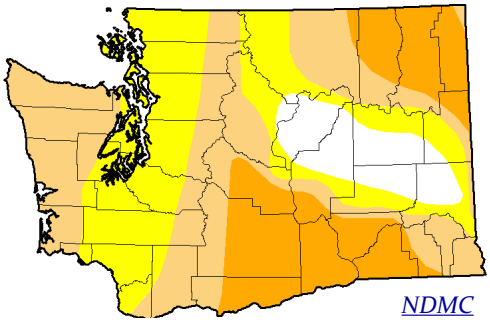
Last 30 days (5/11-6/9):



HPRCC

Drought Monitor, Streamflow, and Wildfire Outlook

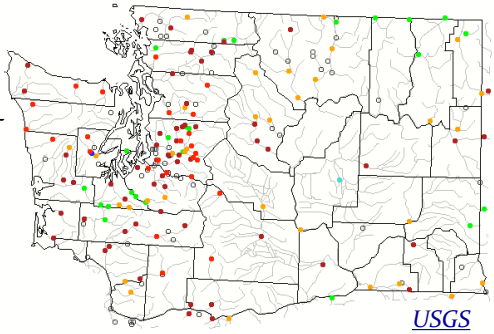
US Drought Monitor (6/9):



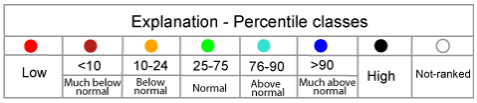
NDMC

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

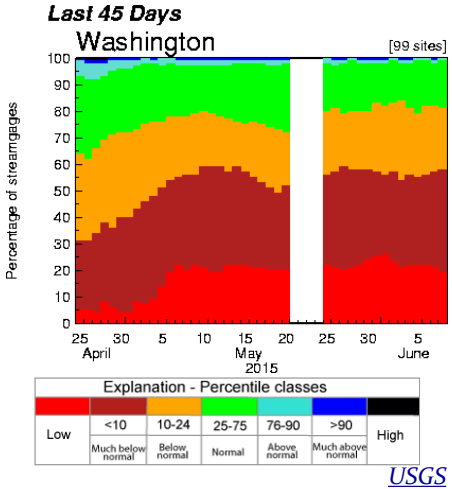
7-day Average Streamflow (6/9):



USGS



7-day Average Streamflow (6/10):



USGS

A snapshot of recent conditions for WA State is shown on this page using statewide temperature, precipitation, and streamflow over varying time frames. The last 7 days (6/3-6/9) were very dry over WA state, with any precipitation falling on the 3rd. An upper level high pressure system began building into the region on the 4th, however, and the rest of the period was dry and warm. Neither Seattle, Yakima, Wenatchee, Quillayute, or Bellingham, to name a few, recorded any precipitation during the last week. Temperatures were also very warm, with temperatures well into the 80s or low 90s in western WA and temperatures in the 90s and even the 100s in eastern WA. Wenatchee, for example, reached 103°F on the 8th, which is the second earliest date on record (since 1959) with temperatures exceeding 100°F. Over the week, average temperatures were 6-12°F above normal throughout most of the state.

Streamflows averaged over the last 7 days have remained low or record-low around the state, and stream gauges in Okanogan county that have been near-normal are now below normal. On the other hand, streamflow in northeastern WA has improved. For the state as a whole, the percentage of stream gauges with below normal streamflow has been roughly the same since Memorial Day weekend with 58% of gauges in the state below the 10th percentile. The area of "moderate drought" on US Drought Monitor has expanded on the Peninsula/coastal WA in response to the drier than normal conditions over the last two months and the extremely low streamflows.

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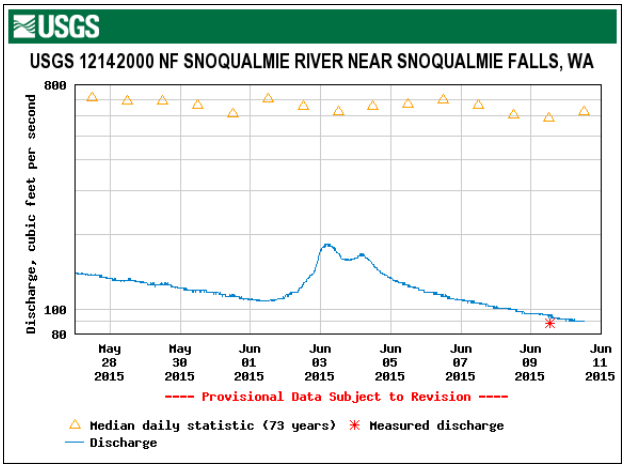
Statewide Drought Declared

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.

King and Pierce Counties

Streamflows in King and Pierce county have been dropping over the last several weeks: in part because of the lack of precipitation, but also because the snowmelt contribution has ended. The streamflow over the last two weeks (May 28-June 10) for the Snoqualmie River is much below normal, and is a record low for this time of year. The current streamflow is about as low as it would normally be in early August. This is not the only report of milestones being reached earlier than usual this year; snow water equivalent (SWE) in the mountains peaked 1-2 months earlier than usual, which has set off a chain reaction. Most recently, Sunrise Road in Mt. Rainier National Park opened on June 5, which is about a month earlier than usual. For many hiking enthusiasts, this can be seen as a drought perk.



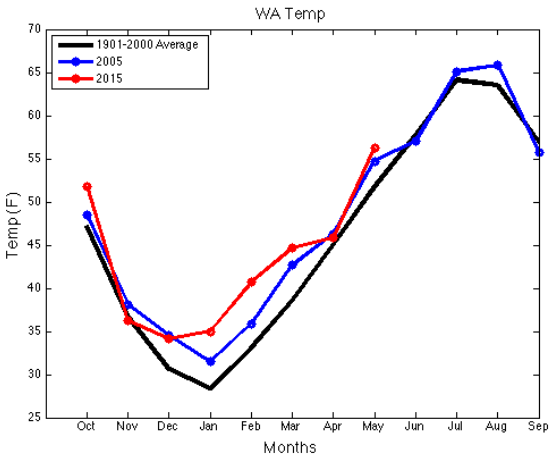
USGS

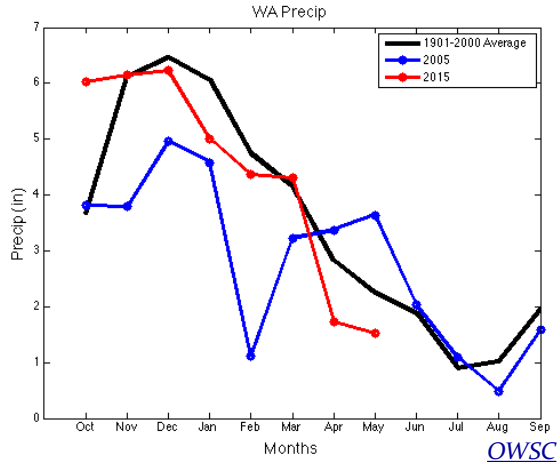
Early Season Heat Wave

As mentioned above, high temperatures that typically are not seen until late June or July were recorded in the last few days. Many of these break calendar day records; examples include Priest River Dam (101°F), Yakima (100°F), Colville (97°F), Ephrata (99°F), Omak (96°F), Pullman (88°F), and Wenatchee (99°F) on June 9. Similar temperatures were recorded on the 8th: Spokane Airport (96°F), Walla Walla (102°F), SeaTac Airport (87°F-tie), Chelan (98°F), Ritzville (97°F) and on the 7th.

Temperature and Precipitation: 2005 vs. 2015

The last statewide drought declaration was in 2005 resulting from low snowpack. The plots on the right show the monthly statewide average temperature (top) and precipitation (bottom) for the 2005 and 2015 water year (Oct 1 through Sept 30) along with the 20th century (1901-2000) average. While there are some similarities between the years, there are some differences too. Temperatures in January through March for the 2015 water year were much warmer than those in 2005. February, for example, was 4.8°F warmer than in 2005. Also note that 2005 precipitation was below normal, while October through March precipitation in 2015 was much closer to normal. In 2005, a few intervals of warm, wet weather associated with atmospheric rivers were interspersed with periods of lesser precipitation and near-normal temperatures. On the other hand, 2015 featured more consistently above normal temperatures, causing most of the precipitation in the mountains to fall as rain rather than snow. Another significant difference is 2005's wet spring – including big snows in the mountains in late March – that actually mitigated some feared impacts. In contrast, spring has been drier than normal this year, as has been reported in this report over the last several weeks.





OWSC

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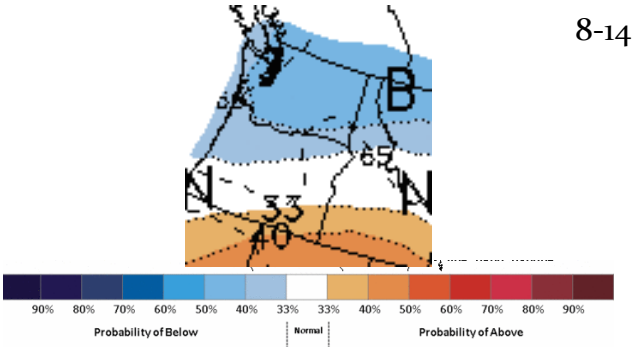
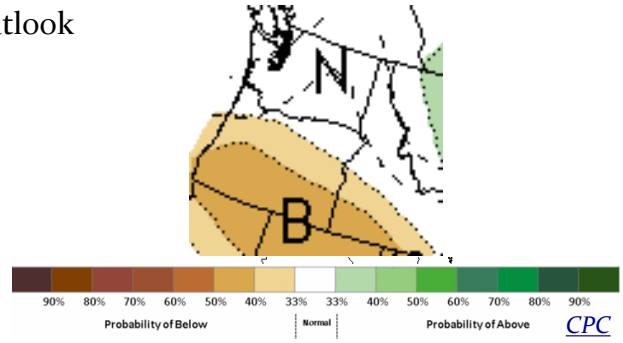
Extended Outlook

Temperature

8-14 Day CPC Outlook

Precipitation



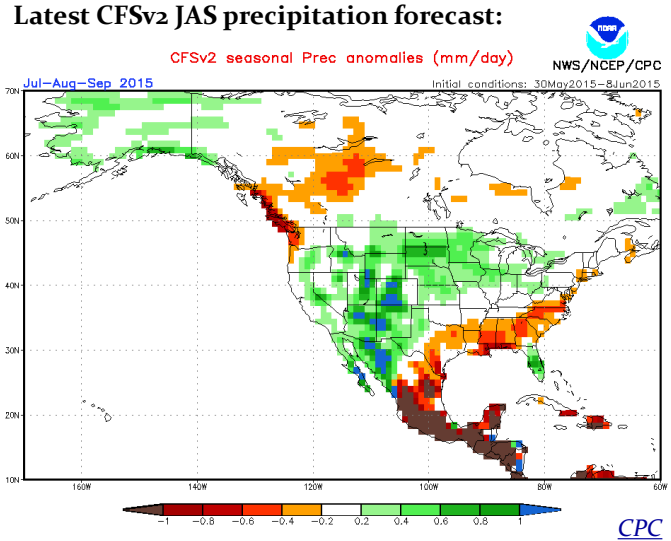


CPC

The 8-14 day forecast from NOAA/CPC reflects the effects of a regional circulation pattern favoring onshore-directed flow at low-levels. This is apt to yield weather that is common during June, specifically morning clouds with partial afternoon clearing in western Washington, and partly cloudy conditions in eastern Washington. The circulation also favors some light precipitation at times. As a result, during the period of 19-25 June it is anticipated that WA will experience slightly below normal temperatures and near-normal precipitation totals. There is greater uncertainty in the 8-14 day temperature forecast than usual. The expected regional circulation anomalies are of modest amplitudes, and their effects will be mitigated by the relatively warm ocean temperatures that are still present off the coast of the Pacific Northwest.

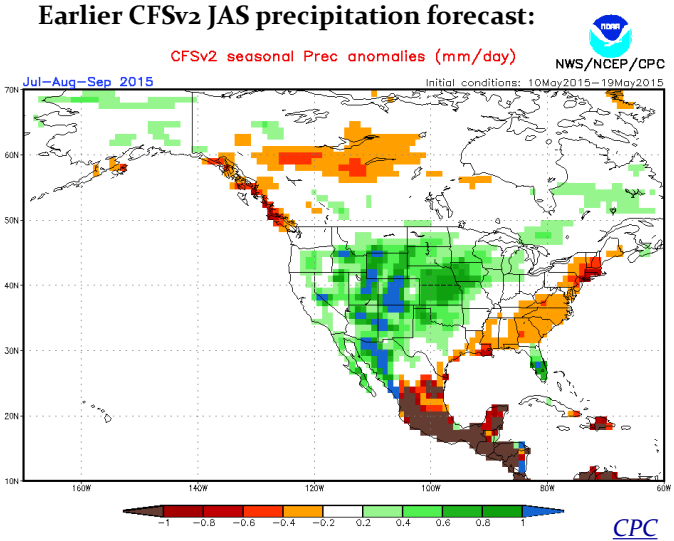
The latest 10-day ensemble mean projection from NOAA's Coupled Forecast System (CFSv2) climate model for precipitation during July-September (JAS) 2015 is shown below at left; its counterpart from model runs carried out 20 days earlier is shown below at right. This most recent set of runs indicates below normal precipitation for the western portion of WA while the earlier set of runs projected near normal amounts statewide. The two sets of runs are virtually identical in terms of their projections of a warmer than normal summer. While the latest set of CFSv2 model output is a bit more pessimistic in terms of rainfall during the upcoming summer, it should be noted that the skill in these projections is limited. Moreover, there are considerable differences in the precipitation projections from the individual models comprising the National Multi-Model Ensemble (NMME). One of these models is actually indicating slightly wetter than normal for WA, and the rest range from quite dry to near normal precipitation amounts. From an overall perspective, the latest climate model results continue to suggest a wetter than normal summer for the interior portion of the western US, and somewhat drier than normal weather for western WA.

Latest CFSv2 JAS precipitation forecast:



CPC

Earlier CFSv2 JAS precipitation forecast:



CPC

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