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## INTERMOUNTAIN WEST CLIMATE SUMMARY



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### **April 2010 Mini-Summary Announcements & News**

This month's Summary is a short supplement that covers only precipitation and drought, snowpack conditions, and streamflow forecasts. If you are interested in the most recent updates of other maps and products we feature in the full-length IWCS, please follow the links on the [Notes and Weblinks](#) page. We will release the next full-length IWCS in the 3rd week of May.

#### ***CWCB releases draft of CRWAS Phase 1; comment by July 21***

The Colorado Water Conservation Board (CWCB) has released the draft of the Colorado River Water Availability Study (CRWAS), Phase 1, for public review. A PDF of the report is [available through the CWCB website](#). The study is intended to answer the deceptively simple question, "How much water from the Colorado River Basin System is available to meet Colorado's current and future water needs?" The study analyses incorporate future climate change as reflected in projected changes in both natural streamflow and agricultural water demand.

The review period has been extended to July 21, 2010. The CWCB asks for input from any interested parties; send comments to Ray Alvarado of CWCB at [ray.alvarado@state.co.us](mailto:ray.alvarado@state.co.us) with the subject line: "CRWAS Public Comments".

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### **Precipitation and Drought Conditions**

Reflecting continued El Niño influence, storm tracks in March generally favored the southern portions of the Intermountain region, with above-average precipitation across most of southern **Utah**, central and southeastern **Colorado**, and also southeastern **Wyoming**. Dry weather continued across northern and western **Wyoming**, northern **Utah**, and northwestern **Colorado**, as reflected in the April 1 snowpacks in those areas (Figure SP-1, below). From April 1 through April 15, storm tracks finally shifted to the north, bringing well above-average precipitation to those areas which had been driest in March and throughout the winter: western **Wyoming**, northeastern **Utah**, and northwestern **Colorado**.

As a result of this shift in moisture conditions around April 1, from mid-March to mid-April there was little change in the drought areas across the region, with a contraction in D0 conditions in southern **Utah**, a contraction of D0 and D1 in northwestern **Colorado**, and a contraction of the D1 conditions surrounding the D2 core area in

western **Wyoming**. (Figure RC-1).

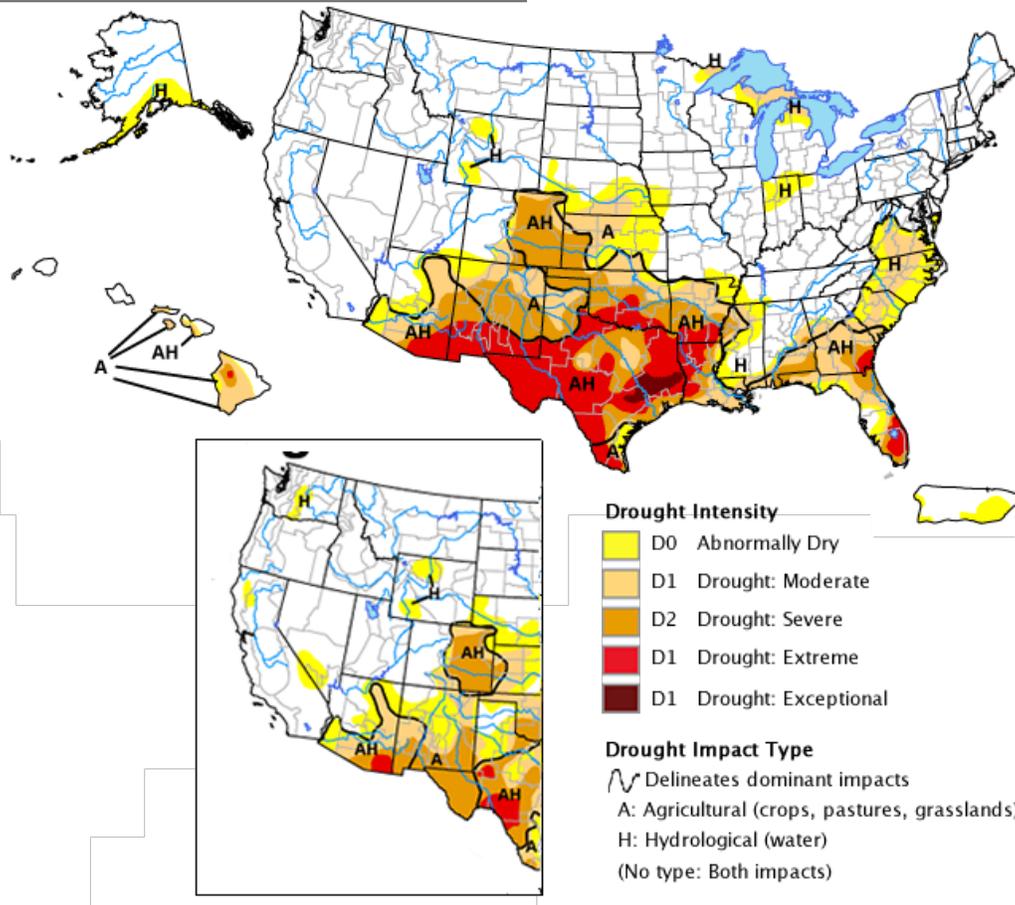


Figure RC-1. Drought Monitor from April 15, 2010 (full size) and March 16, 2010 (inset, lower left) for comparison. (Source: National Drought Mitigation Center)

According to the U.S. Seasonal Drought Outlook, northwestern **Colorado** and southwestern **Wyoming** should see some improvement in drought status in the next two months, but drought will persist elsewhere in western **Wyoming** (Figure DO-1).

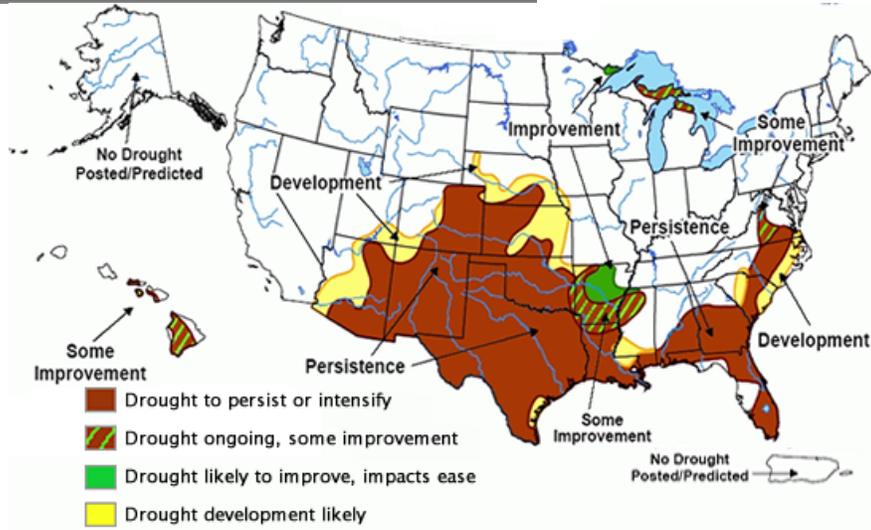


Figure DO-1. Seasonal Drought Outlook for April 15, 2010 to July 2010. (Source: NOAA Climate Prediction Center)

[Notes & Weblinks \(Recent Conditions\)](#)

(provides explanations of graphics and additional information sources)

[Notes & Weblinks \(Seasonal Drought Outlook\)](#)

*(provides explanations of graphics and additional information sources)*[RETURN TO TOP](#)**Intermountain West Snowpack**

Precipitation in March favored the parts of the Intermountain West that already had near- or above-average snowpacks, but did little to enhance those areas which have been dry throughout the winter. As a result, the April 1 snowpacks still show a strong north-south gradient across the region, with well below-average conditions (<70%) prevailing in western and central **Wyoming** and northeastern **Utah**, below-average (<90%) throughout western and northeastern **Colorado** and central **Utah**, and near-average to above-average conditions elsewhere, with the largest anomalies (>150%) in portions of southern **Utah** (Figure SP-1). Overall, the regional April 1 snowpack is dominated by below-average conditions in individual basins. (*Note: also see the [Snowpack Update](#) at the bottom of this section.*)

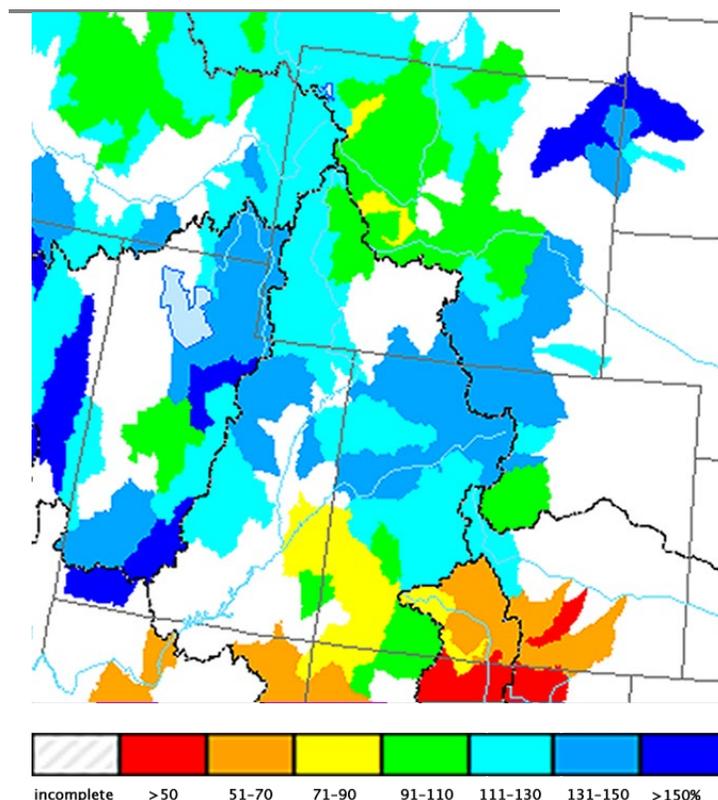


Figure SP-1. Snow water equivalent (SWE) as a percent of average for available SNOTEL and snow course sites in the Intermountain West as of April 1, 2010 (Source: NRCS).

**Colorado's** April 1 statewide snowpack (SWE) was unchanged from March 1 relative to average conditions, at 88% of average. The highest basinwide snowpacks are in the Rio Grande (115%) and Arkansas (102%) basins, which benefited the most from March storms. Snowpack percentages across the northern basins of the state remained well below average on April 1, with the lowest percentages measured in the combined Yampa and White basins at only 73% of average.

The **Wyoming** statewide April 1 snowpack was well below average at 73% of average. Snowpacks in the northwestern part of the state are lowest, at 59% of average, and southwestern basins are at 68% of average. Conditions in the eastern half of the state are generally better than the western half, with the northeastern Wyoming snowpacks at 76% of average, and southeast Wyoming at 87% of average.

In **Utah**, the statewide April 1 snowpack was 80% of average. Individual basin snowpacks show a dramatic gradient from north to south, with the Bear River basin the lowest at 58% of average, Weber (64%), Provo (71%), Uintah Basin (76%), Southeast Utah basins (92%), Sevier (111%) and then the Southeast Utah basins leading the state with 148% of average.

*Snowpack Update, April 20:* As mentioned above, a series of storms in the last few days of March and the first two weeks of April brought significant moisture to those parts of the region with the lowest winter snowpacks, especially in western **Wyoming**, boosting percent-of-average SWE to its highest level since January at many sites. However, the third week of April saw substantial warming and melting across much of the region. As a result, in

**Wyoming**, basin snowpacks have changed little since April 1 as a percent of average. In **Utah**, snowpacks have held steady since April 1 compared to average, or have declined slightly. In **Colorado**, the northwest and north-central basin snowpacks changed little since April 1, but elsewhere in the state there have been substantial snowpack declines. From March 30 to April 13 there were four widespread dust-on-snow deposition events. These events collectively affected most of **Colorado's** mountains, and statewide field observations from April 12 to 16 showed that a merged dust layer from the events was at or just below the snow surface and enhancing radiative melt of the snowpack. (For more information on dust-on-snow events, see the [CODOS program page](#) at the Center for Snow and Avalanche Studies, and the [July 2008 IWCS Feature Article](#).)

[The majority of the text in this section comes from the NRCS State Basin Outlook Reports.]

#### [Notes & Weblinks](#)

*(provides explanations of graphics and additional information sources)*

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### Spring and Summer Streamflow Forecasts for the 2010 Runoff Season

The April 1 outlooks for spring and summer streamflows reflect the generally below-average snowpacks, as well as dry antecedent soil moisture conditions in the fall. Streamflows are forecasted to be below average (<90% of average) across the region except for basins in southeastern **Wyoming**, south-central and southeastern **Colorado**, and southwestern **Utah** (Figure STRM-1). The lowest flows (<50% of average) are expected in western **Wyoming** and northern **Utah**.

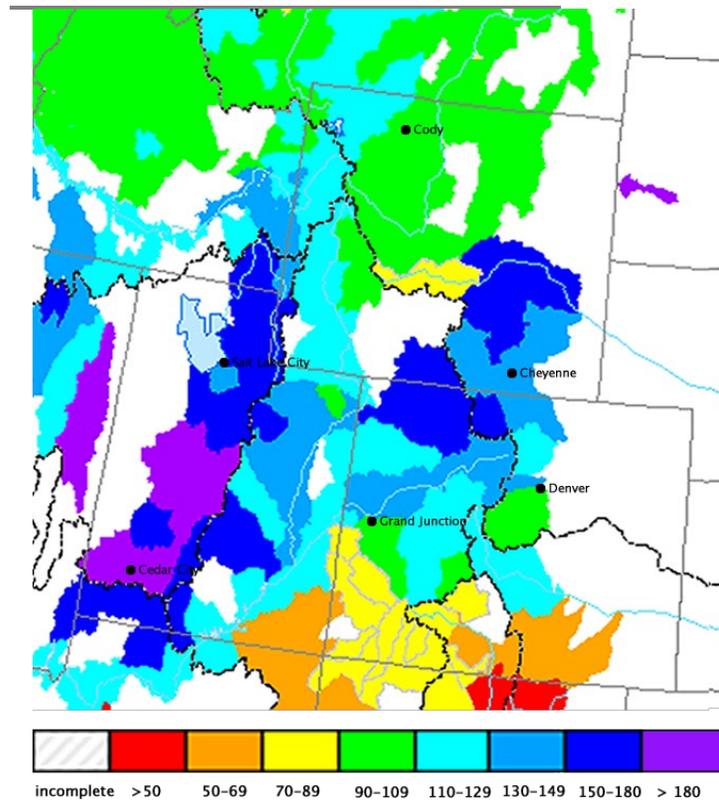


Figure STRM-1. NRCS outlook for natural streamflows for spring and summer 2010 in the Intermountain West region as a percent of average streamflows (data through April 1, 2010). (Source: NRCS)

As of April 1, most of **Colorado** is facing a below-average spring and summer runoff in 2010. The only basins of the state which can expect above-average runoff are those which originate in the Sangre de Cristo Mountains. The lowest forecasts are for the upper reaches of the Colorado, Yampa and the North Platte rivers (55% to 60% of average).

Streamflows for April to September is expected to be below average across **Wyoming**, with a statewide yield of 54% of average. Spring and summer flows for individual basins are forecasted to be from 38% to 76% of average, with the exception of the Belle Fourche & Cheyenne River Basins, both at 106% of average.

In **Utah**, most spring and summer flows are forecasted to be from 40% to 80% of average. The lowest forecasted flows are in the northern part of the state, the extreme being a forecast of 17% of average flow for the Bear River

at Stewart Dam, and highest in the south, with a forecasted flow of 152% of average for the Sevier River near Kingston.

The Colorado Basin River Forecast Center's (CBRFC) April 1 water supply forecast projects that April-July unregulated inflow to **Lake Powell** will be 5.0 million acre-feet (maf), or 63% of average.

[The majority of the text in this section comes from the NRCS State Basin Outlook Reports.]

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