COLORADO
Colorado Water Conservation Board
Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Megan Holcomb, Sr. Climate Change Specialist
Kevin Houck, P.E., Chief, Watershed & Flood Protection Section

DATE: March 11, 2021

AGENDA ITEM: 20. Spring Drought and Flood Climate Report

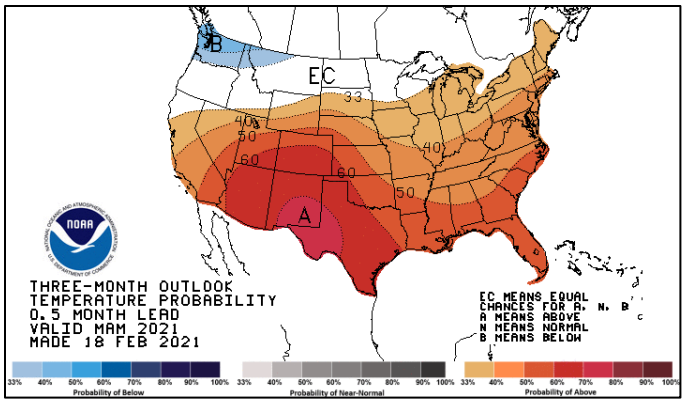
Staff Recommendation:
This is an informational item only. No Board action is required.

Background:
Staff will present the latest information on drought and flood current conditions and outlooks for the coming months. Staff will share long-term regional forecasts and possible impacts from current weather patterns, snowpack, reservoir levels, stream flows, and related data.

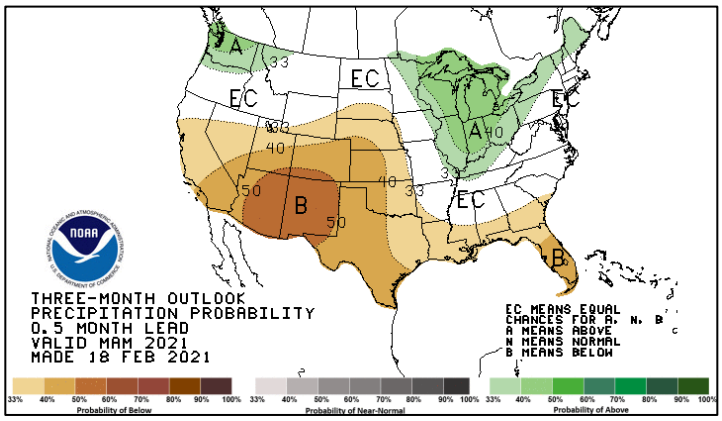
The annual Joint Water Availability and Flood Task Force meeting will be held virtually on March 18 from 9:00am to 12:00pm. Daily flood threat bulletins will be available on the CWCB website during the Colorado flood season from May through September.

Overview:
The 2021 water year (Oct. to Feb.) shows continuance of the 2020 drought cycle through the spring and, likely, the remainder of the year. This annual board report last March marked "business as usual" with above average snowpack and strong February storms. However, dry soils, high springtime temperatures, and high winds quickly translated average snowpack into below average stream flows statewide. The deepening of soil moisture and precipitation deficits throughout 2020 points to the high likelihood of another low runoff year, even if we continue to accrue late winter snowpack. Above normal temperatures and below average precipitation are anticipated in the upcoming months for Colorado.

Temperature Outlook:
NOAA's Climate Prediction Center maps show 60% probability of above average temperatures for Colorado through May 2021, while experimental long-lead forecasts show above average temperatures every month following through May 2022. A climate story that continues to emerge from Colorado data is the significant impact of rising average temperatures on drought intensity, specifically through ecosystem and vegetation stress (high soil evaporation and evapotranspiration).

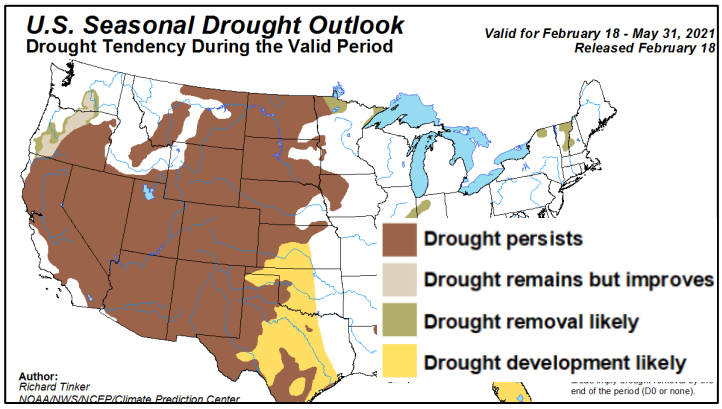


Precipitation Outlook:
Similarly, outlooks for the spring season lean toward below average precipitation, with long-lead forecasts extending that shortfall through the entirety of 2021. Through end-of-January, statewide snowpack was 65% of normal. After a few February storms, statewide snowpack rose to 88% of normal as of Feb. 25th.



Globally, we are still in a La Niña climate pattern that is expected to weaken by spring. Typically La Niña years bring our northern mountain ranges increased precipitation during winter months, but this has not been the case this year.

Drought Outlook //
Extreme drought conditions persist as we reach our ninth straight month of above-average temperatures combined with eleven months of below-average precipitation. Minor drought category improvements can be seen for the San Luis Valley in the *retrospecitve* U.S. Drought Monitor maps for February.



Flood Outlook //
Forecasts point to a reduced risk of flooding for both snowmelt and rain-induced events relative to an average threat. One significant exception to this will be an increased risk for flash floods and debris flows downstream of 2020 burn scars.

Some good news comes from the 2018 wildfire burn scars. The past decade indicates that the third season following the fire event starts usually begins the substantial recovery that continues into successive years. So the flood risk from these 2018 fires should be tangibly reduced this year, although some gradually-diminishing residual hydrological effects could linger for a few more years.

It is also worth emphasizing that the majority of Colorado flood events throughout the State's history are due to individual rain events that are impossible to predict more than a few days in advance. As an example, this year bears a similar climate signature to 1999, in which extensive spring rains triggered a disaster declaration in the Arkansas River valley. Vigilance is always needed.