National Weather Service
National Oceanic and Atmospheric Administration

River Forecast Center
California Nevada
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Water Resources Update - March 15, 2022

A couple of storm systems will bring some much needed precipitation to the area on Tuesday and over the weekend. While the systems are welcome, they will provide little relief from the large precipitation deficits we have accrued since January.

KEY POINTS

- **With half the month in the rear-view mirror and the forecast trending dry, there will be no Miracle March this year.**
- **How is the snowpack shaping up compared to last year and what are some key differences? Read on…**

DETAILS

- **Precipitation and snowpack**
  - The first half of March has brought no relief to the drought conditions. As with the months of January and February, snow in the Sierra continues to melt at about the same rate it is being added. It's quite remarkable that the Sierra snowpack has remained roughly the same since late December (Figure 1). With the spring snowmelt season just around the corner, how does the snowpack this year compare to 2021 and what are some key differences? As shown in Figure 1, the current snowpack is quite similar to that of 2021 across much of the Sierra. One big difference this year is the much better soil moisture conditions throughout the Sierra (Figure 2). Dry soils below the snowpack reduced runoff efficiency in 2021, as large soil moisture deficits were present heading into the spring melt period. Those soil moisture deficits are not present this year as soil moisture has remained high since the atmospheric river event back in October. A couple of warm periods, one in mid-February and one in early March, resulted in river rises indicative of late spring conditions. This is another indication that soils are near saturation and primed for runoff. One source of uncertainty we are wrestling with this year is how well are the snow pillow and snow course measurements representing the current state of the snowpack? Snow pillows and snow courses are often located in sheltered areas where snow tends to accumulate and remain in place until the spring at high elevations. After a prolonged period of dry, sunny weather this winter, which included several big wind events, the prevailing thought is that more snow has melted and sublimated as a result of the winter weather pattern than would normally be expected. This would leave exposed locations, particularly those that are south facing, with less snow than would normally be expected given the current snow measurements. The result of this would be reduced runoff efficiency, particularly as the snow covered area begins to shrink.

- **Seasonal water supply forecasts**
  - The seasonal water supply forecasts (Figure 3) have continued to drop this month due to below average precipitation. Another factor contributing to the decreasing seasonal runoff forecasts is the melting snowpack. With another warm period on the horizon next week, additional snowmelt prior to April 1st will continue to drive those seasonal forecasts lower, while the water year runoff forecasts may show smaller declines.

- **Weather outlook**
  - A couple of weak systems will bring some light precipitation to much of CA this week. Beyond this upcoming weekend, the weather pattern is likely to shift back to a warm, dry pattern for next week. Precipitation and temperature outlooks from the Climate Prediction Center (CPC) show elevated chances for warm and dry weather as we head into the second half of March (Figure 4 and Figure 5). CPC experimental forecasts for weeks 3-4 show no favored outcome for precipitation for much of our region.

- **Sources**
  - Figure 1: cdec.water.ca.gov/snowapp/swcchart.action Figure 2: nrcs.usda.gov/wps/portal/nrcs/detail/nv/snow/products/?cid=nrcseprd1685435 Figure 3: cnrfc.noaa.gov Figure 4, 5, & 6: www.cpc.ncep.noaa.gov

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