

October 22, 2014

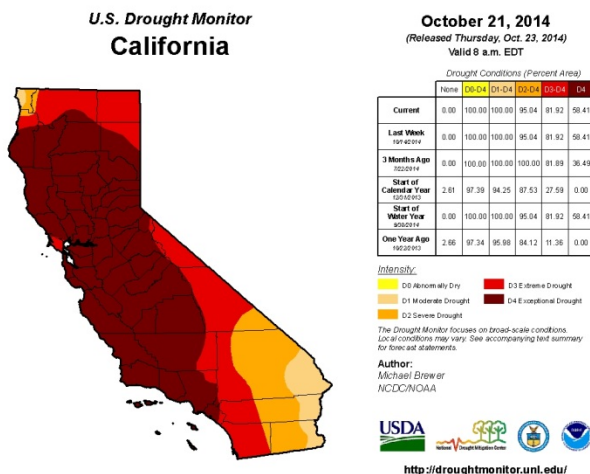
California Drought: Water Supply and Conveyance Issues

Overview

Nearly 60% of the state of California is experiencing “exceptional drought”—the most severe drought classification (see **Figure 1**, below). The 2014 water year ended September 30 as the third-driest year on record in terms of precipitation. Additionally, precipitation during the winter and spring months in 2013 was the lowest on record, leaving water storage reservoirs unusually low going into 2014. Water deliveries to water districts receiving water from federal and state facilities throughout the state were cut due to hydrological and regulatory factors. Some areas relying on groundwater saw wells go dry. The National Oceanic and Atmospheric Administration predicts below-normal precipitation again for this winter.

A drought declaration made by California Governor Jerry Brown on January 17, 2014, remains in effect (see <http://gov.ca.gov/news.php?id=18368>).

Figure 1. California Drought Conditions (Oct. 14, 2014)



Source: <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA>.

The U.S. Department of Agriculture announced disaster declarations for most California counties (see **Figure 1**) and other areas in the Southwest. Such declarations trigger the availability of emergency loans designed to partially compensate for losses for producers who cannot obtain commercial credit.

Meanwhile, the Bureau of Reclamation (Department of the Interior) announced cutbacks to Central Valley Project (CVP) water users—including unprecedented cutbacks to senior water rights contractors and zero deliveries to many other contractors. The CVP supplies water to hundreds of thousands of acres throughout the state, as well as to some municipal and industrial (M&I) water users and wildlife

refuges. The State Water Project (SWP) announced cutbacks to 2014 water deliveries—no new water was delivered to most contractors except in cases of public health and safety. The SWP primarily provides water to M&I users and some agricultural users. Major CVP and SWP pumps that supply water for central and southern California are located at the southern portion of the Sacramento and San Joaquin Rivers Delta confluence with San Francisco Bay (Bay-Delta). Approximately 22 million people receive water from the Bay-Delta annually.

What’s at Stake?

The widespread nature of drought conditions, coupled with low water supplies in the state’s major reservoirs and regulatory restrictions on CVP and SWP operations to protect water quality, fish, and wildlife, mean that many sectors and areas have been affected. Many cities and counties have instituted water rationing, and the governor called for consumers to cut water use by 20%.

Congress funds and oversees the Central Valley Project, which in a normal water year delivers, on average, approximately 7 million acre-feet of water annually. CVP 2014 water deliveries have been severely curtailed due to drought and other factors.

California is the country’s largest agricultural producer in terms of cash farm receipts—accounting for 11% (nearly \$45 billion) of the U.S. total in 2012, the last year for which data are available (see <http://www.cdffa.ca.gov/statistics/>). The drought has affected crop and rangeland conditions on non-irrigated land and required livestock producers to use supplemental hay and grain. Hundreds of thousands of acres have gone fallow because sufficient water was not available. However, fruit and nut orchards continue to need irrigation during drought. The effects of drought on California agriculture could have ramifications beyond the state, with reduced supplies and higher product prices for some commodities—particularly those for which California is the primary producer (e.g., almonds). For example, California produces 65% of the nation’s non-citrus fruit and nuts. On the other hand, where substitutions exist for some crops and are readily available, prices may not be immediately affected.

Availability of groundwater or purchase of water from others may help some weather the dry conditions; however, with every corner of the state categorized as a primary drought disaster area, it is not clear how much water will be available. Some areas are already experiencing low groundwater levels and subsidence due to increased groundwater pumping in 2014 and preceding dry years. Further, this could be the beginning of a longer-term

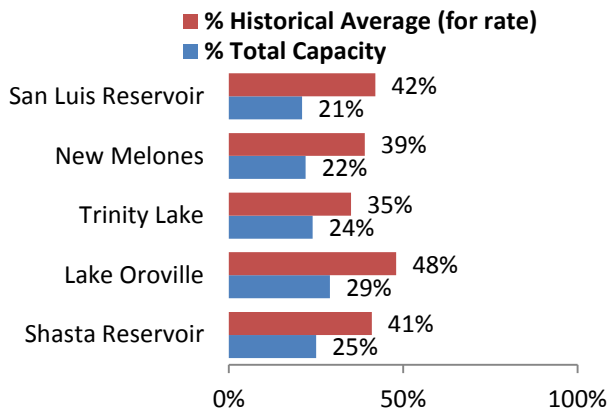
drought, in which case relying on diminishing groundwater supplies may not be an option. A statewide groundwater management law was enacted in September 2014.

In-state power production, recreation, air quality, and fish and wildlife also are likely to be affected. California hosts many recreational reservoirs, river rafting opportunities, and recreational and commercial fisheries that could be at risk. The state contains many threatened and endangered species and provides significant waterfowl habitat along the Pacific Flyway—critical to migrating birds. Certain water levels (and temperatures) are needed in waterways and lakes to maintain aquatic ecosystems and species viability.

Current Hydrologic Status

Water levels at California’s largest reservoirs are well below their historic averages for fall. The largest reservoir, Lake Shasta, is at 41% of average for this time of year.

Figure 2. Five Largest Reservoirs (Oct. 16, 2014)



Source: <http://cdec.water.ca.gov/cgi-progs/products/rescond.pdf>.

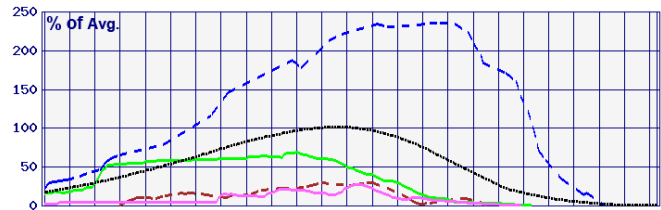
Water content in snow in the Sierra-Nevada Mountains was well below normal (see **Figure 3**) through June 2014. Such levels are important because snowpack constitutes a major part of water storage for the state. Runoff from snowpack supplies major reservoirs; however, if there is no snowpack or low water content, reservoirs that are already low from last year’s low water supply will not refill.

Regulatory Factors

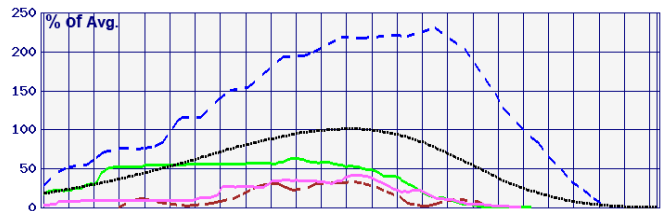
Complicating the hydrologic situation is a complex web of regulatory requirements on CVP and SWP operations. These requirements affect how much water is delivered from the projects. Regulatory requirements include certain releases of water from reservoirs and limits on pumping from the Bay-Delta to protect threatened and endangered species, as well as for state water quality regulations. The state system of water rights priorities and Reclamation contracts also play a role in water allocation during drought. While some are calling for modification of some regulations, others fear changes may risk irreversible harm to fish species. Furthermore, it is unclear how much water would be available if these restrictions are lifted and whether the amount would have a significant effect on alleviating the impacts of drought.

Figure 3. Snow Water Content, Percent of April 1 Average Throughout Year (June 9, 2014)

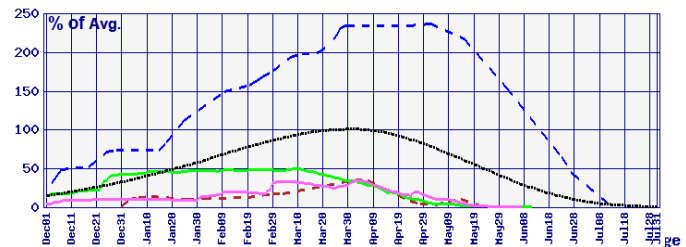
Northern Section



Central Section



Southern Section



Source: California Data Exchange Center (http://cdec.water.ca.gov/cgi-progs/snow/PLOT_SWC).

Federal Response

While much of drought planning and response happens locally, the federal government has historically helped farmers in times of drought. (See CRS Report RS21212.) Additionally, the Administration in November 2013 announced a National Drought Resilience Partnership to help prepare for and reduce drought impacts. However, there is no overarching federal drought policy or program.

Because of the CVP’s importance to water users and resources throughout the state, Congress also plays a role in CVP water management. Congress addressed the situation in part by including provisions to facilitate water banking, water transfers, and new storage projects in the 2014 Consolidated Appropriations Act (P.L. 113-76). The act also extended through 2017 authorization for the Emergency Reclamation States Drought Relief Act, which provides for assistance to 17 western states and Hawaii. Other legislation under consideration (e.g., H.R. 1927, H.R. 3964, and S. 2198) could have significant effects on federal agency responses, including actions related to public safety, human health, economic productivity, and the viability of threatened and endangered species in California.

Betsy A. Cody, bcody@crs.loc.gov, 7-7229.