

May 27, 2015

California WaterBlog: “Ten ways the Feds can help ease the drought in the West”

Appendix: The drought so far in California

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California’s recent experience highlights different vulnerabilities to drought across regions and sectors, reflecting drought resiliency planning and investments that were made in advance of the current water shortage. Here we summarize the situation:²

Cities: Large urban water agencies – the suppliers of most residents and non-farm businesses – have been in relatively good shape, thanks to:

- Significant efforts to diversify and conserve water sources
- Increases local reservoir and aquifer storage
- Expanded infrastructure that facilitates regional sharing during shortages

These efforts need to continue to enable the urban economy to withstand longer and more severe droughts. Gov. Jerry Brown’s April 1 executive order and related actions will help prepare many cities for a potentially dry 2016.

Rural communities: Some smaller rural communities dependent on wells have seen extreme shortages with falling water tables. The state is providing some emergency relief, but this has proven to be challenging for residents on are domestic and small community systems (fewer than 15 connections), which are not under the jurisdiction of the federal Safe Drinking Water Act.

Farms: California’s farm production has been hit particularly hard by the drought because it heavily relies on irrigation. Last year, farmers fallowed about 500,000 acres of California’s 9 million acres of irrigated cropland. This year is similarly dry. The progressive shift toward nuts, vineyards and other tree crops – now

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² For a summary of drought impacts in California and policy priorities, see Mount, J., E. Hanak, C. Chappelle, B. Gray, J. Lund, P. Moyle, and B. Thompson, [Policy Priorities for Managing Drought](#) (Public Policy Institute of California, March 2014), and Howitt, R.E., et al. (2014). [Economic Analysis of the 2014 Drought for California Agriculture](#). UC Davis Center for Watershed Sciences. 20p. For a preview of this year’s impacts, see Lund, J., [The California Drought of 2015: A Preview](#) (California WaterBlog, March 30, 2015)

more than 40 percent of cropland in the southern San Joaquin Valley – has been a double-edged sword. While the transition has increased revenues, profits and jobs per unit of water, it also has made fallowing more costly. More groundwater pumping has enabled farmers to make up much of the lost surface water during the drought. But the increased draw has hastened water table declines, raising costs and exacerbating problems of groundwater quality and land sinking. The enactment of historic groundwater management legislation in September 2014 reflects a mounting concern about the need for sustainable groundwater management in farming regions. Water trading also helped some farmers keep orchards alive. Last year, urban purchases were limited. But this may change in 2015 as some urban suppliers seek drought reserves. In the near term, strengthening the water market is a priority, as is capturing stormwater, recycled wastewater and other non-traditional flows for underground storage or conjunctive use. Over the longer term, bringing aquifers into balance is a priority for drought resilience.

Ecosystems: Most of California’s aquatic ecosystems were already compromised before the drought, and they have been hit hard by dryer conditions. Fall 2014 surveys found delta smelt and longfin smelt at or near all-time lows. An estimated 95 percent of the 2014 offspring from endangered winter-run Chinook salmon perished because of high water temperatures in rivers. Fish rescue operations were needed for some native fishes, and wildlife refuges struggled to provide adequate water for waterfowl and other wildlife. A drought-resilience strategy for ecosystem management is needed to make the most of scarce water resources, prevent extinctions and improve changes for recovery.

Statewide water operations: Last year was the first time since 1977 that the state had to order curtailments of surface-water diversions. The experience highlighted the need to strengthen information systems to manage water more tightly. Better measurement, monitoring and forecasting are needed to make the system more equitable and transparent and to enable the most effective use of supplies. California may face greater challenges than other western states in this regard, but the general problem is widespread.