

Drought and the SIERRA NEVADA

Sierra Nevada snowpack is at its lowest

At the end of what are typically California's wettest months, manual and electronic measurements recorded the statewide water content of Sierra snowpack at about 5% of average, and many reservoirs fed by Sierra rivers are only half full. The impacts of ongoing drought, record low snowpack, and dwindling reservoir levels are being felt across the state:

- For the first time in state history, Governor Edmund G. Brown Jr. issued an executive order mandating a 25% reduction in water use in cities and towns across California due to record-low snowpack and the ongoing drought.
- Dry conditions are leading to a year-round fire season in the Sierra. For example, the Round Fire on the east side of the Sierra in early February burned 7,000 acres in an area that would normally be under several feet of snow.
- Recent surveys indicate that as many as 10.4 million trees in the southern Sierra have died as a result of the ongoing drought and a rise in bark beetle infestations.
- Hydropower production in the Sierra dropped by nearly 50% as a result of the drought, forcing utility companies to bridge the power gap with more expensive alternatives.
- Records show that snowpack in the Tuolumne River Basin - the primary water supply for the City of San Francisco - contained 74,000 acre-feet of water. During the same week last year the snow total was 179,000 acre-feet.

Sierra forests and meadows play a role in ensuring water quality and reliability for the state. As is evidenced by the ongoing drought, rising temperatures and changing precipitation patterns threaten California's water system and make investing in resilient Sierra Nevada watersheds more important than ever.



The Sierra Nevada Region is the source of more than 60% of California's developed water supply.

Healthy Sierra Nevada forests and meadows are critical components to California's water system, and restoring them has become more important than ever.



Left: CA Department of Water Resources surveys Sierra snowpack near Echo Summit in April 2010.
Right: CA Department of Water Resources Sierra snowpack survey at the same location in April 2015.

Statewide Summary of Snow Water Content

% of April 1 Average / % of Normal for This Date



Sierra Nevada resources are already under pressure

During the historic drought of 1977 roughly 22 million people called California home. Now, California's population has grown to more than 38 million, and in 2050 the population is projected to increase to 50 million. As our population grows, even more pressure will be placed on the state's primary water source - the Sierra Nevada.

Sierra meadows have become degraded, resulting in a loss of natural storage that would be released slowly over the dry months when flows are needed most. Healthy meadows also filter sediment and pollutants, contributing to higher quality water for your tap. Investing in meadow restoration is key to optimizing the storage and water quality improvement opportunities that the Sierra Nevada provides naturally.

In addition, Sierra forests are overgrown and unhealthy, and current drought conditions will likely result in an increase in the frequency and intensity of large, damaging wildfires. These fires, like the Rim Fire, can dramatically increase sedimentation and reduce the storage capacity of existing reservoirs.

Sierra Nevada forests and watersheds are at a critical point. Failure to understand the urgency of the situation in the Sierra Nevada will have devastating impacts on California's water future. A well-coordinated, comprehensive program that increases the pace and scale of restoration is essential to address the conditions that currently exist.

The Sierra Nevada Conservancy, in partnership with the U.S. Forest Service, has launched the Sierra Nevada Watershed Improvement Program - a coordinated, integrated, collaborative program to restore the health of California's primary watershed through increased investment and needed policy changes. Restoring and protecting the health of forests, soils, streams, and meadows, improving habitat conditions, preserving working landscapes, and improving local socio-economic conditions will be key outcomes of the Program, and will help prepare California's primary water source for future drought conditions.

Immediate investments in projects that make the Sierra Nevada more drought and fire resilient, such as meadow restoration, forest thinning, and biomass utilization, are essential to ensuring that California's water system can perform under future pressure.

The Sierra Nevada Conservancy is a state agency that carries out a mission of protecting the environment and economy in a complementary fashion across 25 million acres, one-quarter of the state. To learn more, please visit the Sierra Nevada Conservancy Web site.

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