

Managing California's Freshwater Ecosystems: Lessons from the 2012-16 Drought

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The 2012-16 drought was unprecedented in its combination of warmth and dryness. In California and other western states, the drought tested the capacity of federal, state, and local institutions to maintain flow and water quality necessary for ecosystem health.

In this report, we draw lessons from the 2012-16 drought to explore approaches that can help Californians improve the efficiency and effectiveness of freshwater ecosystem management for future droughts.

To highlight the challenges of ecosystem management during drought, we developed eight case studies. These case studies fall into three broad categories: regulated waterways (i.e., those with dams), unregulated waterways, and managed wetlands.

Based on these case studies, we developed three recommendations for better

managing freshwater ecosystems in California during drought: better water accounting, preparation, and water budgeting.

We propose that focusing on these recommendations could improve freshwater ecosystem conditions for the benefit of native plants and animals. These improvements could reduce conflicts over allocation decisions by providing greater assurances and certainty to water users. And they could help prepare California for the increasingly severe drought conditions projected as climate changes.

Main Points

The 2012-16 drought generated an opportunity to learn about how freshwater ecosystems can be more effectively managed during drought.

To improve drought management, water accounting and monitoring systems must be overhauled and include water used to meet ecosystem objectives.

Annual water planning that anticipates drought would better engage and inform water users.

An Ecosystem Water Budget that can be flexibly managed would be an effective step toward meeting environmental objectives during drought.

Mount, J., B. Gray, C. Chappelle, G. Gartrell, T. Grantham, P. Moyle, N. Seavy, L. Szeptycki, B. Thompson. 2017. [Managing California freshwater ecosystems: Lessons from the 2012-2016 drought](#). Public Policy Institute of California report.