Source List for Priorities for California’s Water: Thriving with Less

This document provides background references for the PPIC policy brief, Priorities for California’s Water: Thriving with Less (November 2022). If you have any questions about the information in the report or these sources, contact us at water@ppic.org.

Continuing Change

- Conditions have changed, making droughts more intense:


- All runoff in the Delta watershed was used either upstream of the Delta (85%) or within the Delta (15)%:

- Rock barriers were installed in the Delta to keep salinity at bay: State Water Resources Control Board. 2021. “DWR Drought Salinity Barrier Projects.”


- Many rivers, lakes, and estuaries are being impacted by declining water quality, including increasing harmful algal blooms:
  - Jung, Y. “Why toxic algae blooms are on the rise across California — and expected to get worse.” San Francisco Chronicle, June 14, 2022.
  - State Water Board website on harmful algal blooms.

- The state has adopted plans to improve supply reliability — including the governor’s new Water Supply Strategy: *California’s Water Supply Strategy - Adapting to a Hotter, Drier Future*. 2022. August.
The state negotiating voluntary agreements to meet environmental objectives: California Natural Resources Agency. n.d. *Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds*.


State-federal cooperation on water management has been increasing for operations of two large water projects: Fish and Wildlife Service. n.d. *Central Valley Project and California State Water Project Consultation*.

The federal Bipartisan Infrastructure Bill has allocated $3.5 billion to improve water infrastructure in California:


The Inflation Reduction Act has another $4 billion to support western drought management:

Over the past three years the state legislature has authorized more than $8 billion to improve water supply and river and wetland ecosystems: *California State Budget 2022–23 (Enacted)*.

Water for Communities

- The state’s communities are using roughly the same amount of water as in the late 1980s, despite growing by more than 10 million residents: Hanak, E. and J. Mount. 2019. *Water Use in California*. Public Policy Institute of California. Municipal and industrial water use in 2018 was approximately 7.1 million acre-feet (from DWR).
- Efforts to encourage such reductions have varied across the state during the current drought: Escriva-Bou et al. 2022. “How Are California’s Cities Managing the Drought?” *PPIC Blog*. October 31.
- Smaller, rural utilities are often isolated and more vulnerable to impacts such as dry wells and poor water quality: Chappelle, C., J. Collins, and E. Hanak. 2021. *Access to Safe Drinking Water in California*. Public Policy Institute of California.
- Over the past two years numerous small water systems have faced shortages . . . :
  - Vad, J. 2022. “Even emergency water suppliers are close to tapped out as more valley towns go dry.” *SJVWater*. July 19.
- . . . and more than 2,000 domestic wells have gone dry: Department of Water Resources. “Has your well gone dry?” *Dry Well Reporting system*.
- Groundwater sustainability agencies now have a responsibility to mitigate the impacts of groundwater overdraft on rural drinking-water wells, but these efforts are still in early stages: Hanak, E. and a. Escriva-Bou. 2022. “Testimony: Implementing SGMA at Ground Zero—Challenges and Opportunities for the San Joaquin Valley.” *PPIC Blog*. February 15.


Water for Agriculture

California accounting for 12 percent of agricultural production, including more than 70 percent of the nation’s fruits and nuts with annual revenues of more than $50 billion in 2021: U.S. Department of Agriculture. Cash receipts by commodity State ranking, *Economic Research Service.*


SGMA is designed to bring overpumping to an end by the early 2040s: California Department of Water Resources. n.d. California’s Groundwater and Sustainable Groundwater Management Act.


At least 500,000 acres of land will likely need to come out of intensively irrigated production: Hanak, E. et al. 2019. *Water and the Future of the San Joaquin Valley.* Public Policy Institute of California.

Farmers in Imperial County are being called on to reduce their use: Becker, R. 2022. “California offers to reduce imports of Colorado River water.” *CalMatters.* October 5.


Encouraging growers to shift to other uses can reduce the economic and environmental costs of land fallowing, like increased dust: Ayres, A., J. Kwon, and J. Collins. 2022. *Land Transitions and Dust in the San Joaquin Valley.* Public Policy Institute of California.

Encouraging growers to shift to . . .


Water for the Environment

- **California’s freshwater biodiversity has been declining for decades**: Moyle, P.B., R.M. Quiñones, and J.V. Katz. 2015. *Fish Species of Special Concern in California*. California Department of Fish and Wildlife.


- **These factors have likely played a major role in the decline of the Sacramento–San Joaquin Delta**:


- **Healthy ecosystems serving as important natural infrastructure to...**

- **Ecosystem-based management integrates the environment into all phases of decision-making**: Mount, J. et al. 2019. *A Path Forward for California’s Freshwater Ecosystems*. Public Policy Institute of California.


- **Accelerating the pace and scale of physical habitat improvements through more nimble permitting is vital**: Grenier, L., S. Panlasigui, C. Pickett, G. Sencan. 2021. *Advancing Ecosystem Restoration with Smarter Permitting*. Public Policy Institute of California.

- **This year’s statewide Programmatic Biological Opinion for restoration programs is a major step in the right direction**: U.S. Fish and Wildlife Service. 2022. “Aquatic restoration projects made easier in California thanks to new statewide consultation available to federal agencies.” *Press Release*. September 15.

- **The extensive portfolio of actions provided in the governor’s Water Supply Strategy left the environment out**: *California’s Water Supply Strategy - Adapting to a Hotter, Drier Future*. 2022. August.
Wet-year Strategy

- **Climate models do not project a California that is in a permanent state of drought:** State of California. *Key Findings.* California’s Fourth Climate Change Assessment.


- **Flood-managed aquifer recharge on farms is gaining considerable momentum:**


- **Reservoir operators are using new forecasting models to better manage the trade-offs between flood protection and water supply during storms:** Center for Western Weather and Water Extremes. n.d. *Forecast Informed Reservoir Operations.*

- **California already has some very good models for how to do this through existing groundwater banks:** Ayres, A. E. Hanak, B. Gray, G. Sencan, E. Bruno, A. Escriva-Bou, and G. Gartrell. 2021. *Improving California’s Water Market.* Public Policy Institute of California.

- **Modeling suggests that extreme regional floods are becoming more likely:** Huang, X. and D. Swain. 2022. “Climate change is increasing the risk of a California megaflood.” *Science Advances.*