



Department of Water Resources

Its Forecasts Do Not Adequately Account for Climate Change and Its Reasons for Some Reservoir Releases Are Unclear

Background

The Department of Water Resources (DWR) and State Water Resources Control Board (State Water Board) have key responsibilities in managing California's surface water. State law requires DWR to develop annual forecasts of the State's water supply, which affect water management at both the state and local level. DWR also manages the State Water Project, a water storage and delivery system that supplies water to almost 27 million Californians and 750,000 acres of farmland. The State Water Board administers water rights and controls water quality. The increasing effects of climate change have had ramifications for the State's water supply, and climate researchers project that these effects will continue to increase, including by causing more frequent and severe drought. DWR has pledged to play a leadership role in adapting to the effects of climate change.

Key Recommendations

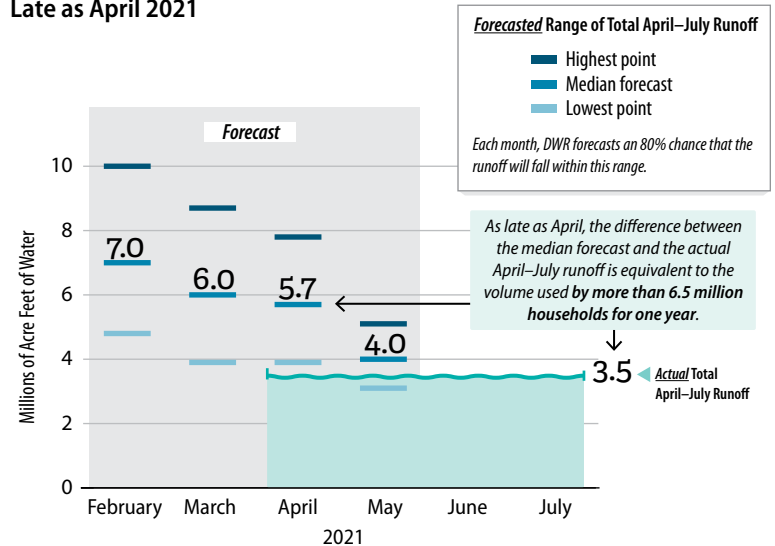
DWR should do the following to ensure its effective management of surface water:

- Implement a formal process for annually evaluating the accuracy of its forecasts and implementing plans to improve them.
- Continue implementing its plan to adopt a new water supply forecasting model and procedures that better address the effects of climate change and provide updates on its website.
- Develop a comprehensive, long-term plan for mitigating and responding to the effects of drought, including more frequent and more severe droughts, on the State Water Project.
- Implement a formal policy and procedures for documenting its operational plans and the rationale for its operational decisions, including regarding reservoir releases.

Key Findings

- In water year 2021, DWR significantly overestimated the water supply. The figure depicts DWR's error for the Sacramento Valley and San Joaquin Valley regions. DWR attributed its error to severe conditions brought on by climate change. The State Water Board does not participate in DWR's development of water supply forecasts.

DWR Significantly Overestimated the State's 2021 Water Supply as Late as April 2021



- DWR has not fully adapted its forecasting model and procedures to account for the effects of climate change, despite acknowledging the need to do so more than a decade ago. Some federal and local agencies use models that take into account data that is relevant to climate change, such as temperature and soil moisture.
- DWR has not developed a comprehensive, long-term plan for mitigating or responding to the effects of more severe future droughts on the State Water Project.
- DWR balances multiple demands on water from the State Water Project, including meeting the needs of water users, protecting wildlife, and storing water for future use. However, DWR did not adequately document its rationale for significant releases in water years 2021 and 2022.
- DWR lacks formal processes for reviewing and improving the effectiveness of both its water supply forecasts and its reservoir operations.