

Date of Hearing: July 11, 2023

ASSEMBLY COMMITTEE ON WATER, PARKS, AND WILDLIFE

Rebecca Bauer-Kahan, Chair

SB 231 (Hurtado) – As Amended June 19, 2023

**SENATE VOTE:** 40-0

**SUBJECT:** Department of Water Resources: water supply forecasting

**SUMMARY:** Requires the Department of Water Resources (DWR) to update its water supply forecasting methodology, put in place a formal process to evaluate the accuracy of such methodology, and develop a long-term plan for responding to and mitigating drought by December 31, 2025. Specifically, **this bill:**

- 1) Requires DWR to establish a formal process to evaluate the accuracy of its water supply forecasts, develop plans for the improvement of those forecasts, and implement those plans by December 31, 2025.
- 2) Requires DWR to adopt a new water supply forecasting model that addresses the effects of climate change by December 31, 2025.
- 3) Requires DWR to implement a formal policy and procedures for documenting its operational plans for the state's water supply and the rationale for those operating procedures by December 31, 2025.
- 4) Requires DWR to develop a comprehensive, long-term plan for mitigating and responding to the effects of drought by December 31, 2025.
- 5) Requires DWR to prepare quarterly reports on its progress in meeting (1) through (4), above, and to hold a public meeting on each progress report so that affected stakeholders may provide public comment. Progress reports shall also be submitted to the Legislature and posted on DWR's internet website.
- 6) Requires DWR to review and update the comprehensive, long-term plan for mitigating and responding to the effects of drought on an annual basis beginning December 31, 2026.
- 7) Requires DWR, beginning in 2026 and annually thereafter, to present the following information to stakeholders at a public meeting:
  - a) DWR's operational decisions and rationale for the state's water supply during the preceding year;
  - b) Implementation of the water supply forecasting model and procedures adopted pursuant to this bill; and
  - c) Any updates to the plan for mitigating and responding to drought developed pursuant to this bill.
- 8) Requires DWR to submit an annual report to the Legislature that contains the information presented at the public meeting described in (7), above.

**EXISTING LAW:**

- 1) Establishes DWR with broad jurisdiction over water management including, dam safety, drought response and mitigation, water education, flood preparedness, and water supply and storage (Water Code §120 *et seq.*).
- 2) Requires DWR to develop the California Water Plan and update it every five years beginning December 31, 2003. Provides that the California Water Plan is the strategic plan for sustainably managing water resources for current and future generations. Requires DWR to establish an advisory committee made up of water stakeholders to assist in developing and updating the California Water Plan (Water Code § 10004 *et seq.*).
- 3) Requires the California Water Plan to include a discussion of various strategies including surface water storage, water conservation, water recycling, desalination, conjunctive use, and water transfers that may be pursued in order to meet the future water needs of the state, among other contents (Water Code § 10004.5).

**FISCAL EFFECT:** Unknown. This bill is keyed fiscal.

**COMMENTS:**

- 1) **Purpose of this bill.** The author moved this bill through the Senate as a placeholder bill in anticipation of the release of report by the California State Auditor. That report, “Department of Water Resources: Its Forecasts Do Not Adequately Account for Climate Change and Its Reasons for Some Reservoir Releases Are Unclear” (Audit report 2022-106), was released in May 2023 and this bill was amended on June 19, 2023, to enact some of the recommendations of Audit Report 2022-106.

According to the author, “[this bill] requires DWR to update its policies and procedures to better combat the impacts of climate change and requires DWR to document and address the decisions behind its water operating decisions. Millions of Californian’s and much of the state’s agriculture depend on DWR’s effective management of [the State Water Project]. Thus, accurate water data collection, planning, and accountability will ensure water stays a vital resource for the public for generations to come.”

- 2) **Background.** One of DWR’s many roles in water management is to collect information regarding precipitation and hydrologic conditions from across the state and to forecast water runoff from the state’s major watersheds for the spring and summer months so that water managers and water users may plan accordingly. One of the principal publications DWR uses for this purpose is the publication of Bulletin 120. DWR issues Bulletin 120 four times a year, in the second weeks of February, March, April, and May, to summarize precipitation and snowpack conditions, reservoir storage, and runoff to date in various regions of the state. Bulletin 120 also forecasts water runoff from the state’s major watersheds for the remainder of the year. Each edition of Bulletin 120 provides a median and 80% probability range of runoff from major watersheds that is based on observed hydrologic conditions to date and historical data.

*State Water Project (SWP).* DWR is also responsible for managing the SWP, “a multi-purpose water storage and delivery system that extends more than 705 miles” and encompasses a collection of canals, pipelines, reservoirs, and hydroelectric power facilities

that delivers clean water to 27 million Californians, 750,000 acres of farmland, and businesses throughout California. The SWP collects surface water from the northern part of the state in its largest reservoir, Lake Oroville, and transports that water south through rivers, the Sacramento-San Joaquin Delta, and the California Aqueduct to 29 cities, counties, and water districts that have contracts with SWP (“State Water Project Contractors”). DWR delivers a percentage of water to its contractors depending on hydrologic conditions and forecasted runoff. The contractors request an amount of their contracted water on October 1<sup>st</sup> (the beginning of the “water year”) and DWR issues an initial percentage allocation around the beginning of December indicating how much water DWR anticipates, based on hydrologic conditions, it will be able to deliver to contractors in the remainder of the year. This initial allocation is typically adjusted three to four times over the winter and early spring as the total precipitation for the year becomes clearer. As an example, for the Water Year 2022, DWR announced an initial allocation of 0% due to drought conditions in December 2021, though it did indicate DWR would deliver enough water to meet human health and safety needs. As drought conditions largely persisted throughout the rest of the winter and early spring, the final allocation for 2022 Water Year was 5% as announced on March 18, 2022.

*Water Year 2021.* By all accounts, 2021 was an extraordinarily challenging hydrologic year. It is California’s second driest year on record and experts at the Public Policy Institute of California dubbed it the year that “broke” the California water system. For its part, DWR published a report on it dubbing 2021 an “extreme” year and discussed how climate change had invalidated historical precedents and assumptions regarding hydrologic projections. Due to dry conditions and high temperatures, runoff from snowpack was significantly lower than DWR forecasted. Due to high temperatures and dry soil, the snowpack had effectively melted (or evaporated) by May, much earlier than expected. Governor Newsom proclaimed a drought for Sonoma and Mendocino counties in April 2021, extended that emergency to the rest of Northern and Central California in May, and then to coastal California in July.

- 3) **Audit Report 2022-106 and DWR’s response.** Due to DWR’s errors in runoff forecasts in Water Year 2021, the California State Auditor conducted an audit of DWR’s methodology used to forecast runoff and manage SWP pursuant to a legislative request. The audit was completed in May 2023 and found problems with DWR’s forecasting methodology and that it lacked documentation on its rationale for operational decisions. In its response to the audit, DWR acknowledges it made a forecasting error in 2021 yet disagrees with the audit’s finding that DWR has been slow to incorporate climate change into its forecasting and operational decisions and lacks a comprehensive plan to respond to drought. DWR indicates it will implement other recommendations made in the audit (see below) and notes that “the shift at DWR is well underway to move from a statistical, record-based forecasting model to water supply forecasts that simulate the physics of interactions among the atmosphere, water as rain or snow, and the land surface....” The audit’s principle findings are:

- DWR has not adequately ensured that its water supply forecasts account for the effects of climate change.
- DWR must do more to prepare for the impact of more severe droughts on the SWP’s operations.

Below are the audit’s principle recommendations, a summary of DWR’s response to each finding, and a discussion of how, and if, this bill addresses each recommendation:

- Audit finding: to ensure that its Bulletin 120 water supply forecasts are as accurate as possible, DWR should implement a forecast verification process by November 2023.
  - DWR's response: DWR “will implement the audit recommendation that it establish a formal process to evaluate forecasting models.”
  - *This bill requires DWR to implement this recommendation by December 2025.*
- Audit finding: to ensure that its water supply forecasts better account for the observed effects of climate change as soon as possible, DWR should continue to implement its plan to adopt an updated water supply forecasting model and updated procedures.
  - DWR's response: DWR views “the runoff forecasting error of 2021 as an opportunity to learn, adjust, and improve” and is currently doing this.
  - *This bill requires DWR to implement this recommendation by December 2025.*
- Audit finding: to better prepare to effectively conduct SWP operations during future, possibly more extreme drought periods, DWR should, by May 2024, develop a long-term plan for proactively mitigating and responding to the impacts of drought on SWP.
  - DWR's response: DWR has undertaken multiple initiatives to mitigate the effects of climate change and drought. “Those initiatives – some complete, others underway – are not encapsulated in a separate document called the ‘long-term drought plan,’ but these initiatives nevertheless constitute a comprehensive strategy to mitigate the effects of future droughts.”
  - *This bill goes beyond this recommendation and requires DWR to develop a comprehensive, long-term plan for mitigating and responding to the effects of drought statewide by December 2025 and to update this plan on an annual basis beginning in 2026.*
- Audit finding: to ensure that it can demonstrate effective oversight of SWP operations and efficient use of the project's water supply, DWR should, by May 2024, develop and implement a policy and set of procedures for documenting its operational decisions and rationale.
  - DWR's response: DWR maintains it does have sufficient documentation to demonstrate its rationale for reservoir releases and that its most engaged stakeholders, including regulators and the 29 public water agencies that have contracts with SWP, have not raised concerns about recordkeeping. DWR does state that it “sees the value in presenting existing records in a more publicly accessible way and will explore reasonable alternatives to make those records accessible.”
  - *This bill requires DWR to implement this recommendation by December 2025.*
- Audit finding: to ensure that its operation of SWP reflects the possibility of more extreme climate conditions, DWR should, by May 2024, evaluate the data and information that it relies upon in its monthly and annual planning for its Lake Oroville reservoir operations, including the volumes of water that it will need to store to achieve its objectives. It should update the data and information as needed.
  - DWR's response: DWR had already begun to do this.
  - *This bill does not explicitly address this recommendation, though its major provisions do require DWR to take into account climate change and to regularly report on its operational decisions for SWP.*

- **Audit finding:** to ensure that it continually improves the effectiveness of its management of SWP, DWR should develop and implement a formal, written process for reviewing its planning and operations at least once annually.
  - **DWR's response:** "DWR has an established process that includes monthly reviews of previous water supply forecasts and an annual workshop to review operations at the end of the water year. This process includes both internal and external reviews conducted with numerous representatives of the public water agencies that receive water from [SWP]."
  - *This bill requires DWR to do this annually at a public meeting beginning in 2026; however, this bill would go beyond the audit's recommendation and requires this annual meeting to also review DWR's forecasting model and long-term plan for responding to drought (that is required by this bill).*

4) **Suggested committee amendments.** The transparency goals of this bill are laudable; however, this bill may go too far in the reporting it requires and it requires DWR to do things it is already doing. To address this concern, the Committee may wish to request that the author take the following amendments:

**Amendment 1** – To avoid the potential of duplicating existing efforts and allow more time to determine whether existing drought planning efforts by DWR are sufficient or if, indeed, the Legislature needs to direct DWR to develop such a plan, amend proposed Water Code §§ 240 and 241 and add 242 as follows:

**240.** (a) On or before December 31, 2025, the department shall do all of the following:

(1) Establish a formal process for annually evaluating the accuracy of the department's water supply forecasts, developing plans for the improvement of the forecasts, and implementing those plans.

(2) Adopt a new water supply forecasting model and procedures that better address the effects of climate change on the state's water supply.

(3) Implement a formal policy and procedures for documenting the department's operational plans for the state's water supply and the department's rationale for its operating procedures, including the department's rationale for water releases from reservoirs.

~~(4) Develop a comprehensive, long term plan for mitigating and responding to the effects of drought.~~

**241.** (a) (1) Commencing in 2026, and annually thereafter, the department shall present, at an open and public meeting, all of the following information to stakeholders, representatives of relevant governmental agencies, and other members of the public:

(A) The department's operational decisions and their rationale for the state's water supply during the preceding water year.

(B) Implementation of the water supply forecasting model and procedures adopted pursuant to Section 240.

~~(C) Any updates to the plan for mitigating and responding to the effects of drought developed pursuant to Section 240.~~

242. (a) The department shall inventory its existing drought mitigation and response plans and submit a report to the Legislature identifying these plans and their purpose by

December 31, 2025. The report shall include a recommendation on whether there is a need for a new comprehensive, long-term plan for mitigating and responding to the effects of drought at the state level.

(b) The report shall be submitted in compliance with Section 9795 of the Government Code.

**Amendment 2** – To avoid bogging DWR down with excessive process to achieve better incorporation of climate change into its weather forecasting and modeling efforts, strike the requirement for quarterly reports in proposed Water Code §240 (b) and replace with a single progress report due on December 31, 2024 as follows:

(b) (1) The department shall prepare a-~~quarterly reports~~ report to the Legislature on its progress toward meeting the requirements set forth in subdivision (a) by December 31, 2024. ~~These progress reports~~The report shall include a description of the methodology and procedures used by the department for purposes of the actions required pursuant to subdivision (a).

(2)~~The department shall provide an opportunity for stakeholders, federal, state, and local agencies, and other members of the public to comment on the progress reports prepared pursuant to paragraph (1).~~

(3)~~The department shall provide the progress report-reports~~ to the Legislature pursuant to Section 9795 of the Government Code and shall make the progress report-reports publicly available on the department’s internet website.

- 5) **Related legislation.** SB 366 (Caballero) of the current legislative session revises and recasts requirements for the contents of updates to the California Water Plan, requires the Department of Water Resources (DWR) to develop a long-term water supply planning target for 2050, and establishes an interim target of 10 million acre-feet (AF) of additional water by 2040. SB 366 is also before this Committee at this hearing.

SB 659 (Ashby) of the current legislative session requires DWR to develop a groundwater recharge action plan by January 1, 2026, that includes recommendations to create additional groundwater recharge capacity. SB 659 is also before this Committee at this hearing.

## REGISTERED SUPPORT / OPPOSITION:

### Support

None on file

### Opposition

None on file

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