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## State Water Resources Control Board

June 10, 2026

Levi Johnson  
Central Valley Project Operations Manager  
U.S. Bureau of Reclamation  
[lejohanson@usbr.gov](mailto:lejohanson@usbr.gov)

### ORDER 90-5 SACRAMENTO RIVER TEMPERATURE MANAGEMENT PLAN

Dear Mr. Johnson:

This letter is in response to the U.S. Bureau of Reclamation's (Reclamation) final Sacramento River Temperature Management Plan (TMP) received on June 1, 2026<sup>1</sup>, pursuant to State Water Resources Control Board (State Water Board or Board) Water Right Order 90-5 (Order 90-5). The State Water Board appreciates the recent coordination with Reclamation on the development of the TMP and the additional time to comment on it.

The State Water Board understands that this has been a challenging hydrologic year due to the early snow melt and acknowledges that temperature management conditions remain somewhat uncertain given the hydrology, meteorology, and fisheries conditions. In our May 15, 2026 comment letter, State Water Board staff requested that the final TMP include measures that are more likely to result in favorable temperature management conditions for winter-run and fall-run Chinook salmon, which could include higher end of September (EOS) carryover storage levels to improve temperature conditions this year and safeguard against potential impacts next year. Reclamation's proposed operations under the final TMP, however, remain largely unchanged from the draft TMP. Further, these operations are not consistent with Board staff's prior understanding of operations under Reclamation's 2024 Shasta Operations Framework for the Long-Term Operations of the Central Valley Project and State Water Project

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<sup>1</sup> Reclamation transmitted the final TMP via email to the Board after business hours on Friday, May 29, 2026. Accordingly, the final TMP is considered officially received the next business day, Monday, June 1, 2026.

E. JOAQUIN ESQUIVEL, CHAIR | ERIC OPPENHEIMER, EXECUTIVE DIRECTOR

(LTO). The LTO was developed to provide predictable operating rules to help prevent low reservoir storage levels and associated temperature and water supply management concerns. We note that the California Department of Fish and Wildlife expressed similar concerns in its May 27, 2026 comment letter on the draft TMP. Given these circumstances, I cannot approve the final TMP as currently written. If the TMP is updated to address the concerns identified in this letter, I will reconsider approval.

### Background

Order 90-5 included conditions in the water right permits and licenses for Keswick Dam, Shasta Dam, and the Spring Creek Power Plant that obligate Reclamation to meet temperature requirements on the Sacramento River for the protection of Sacramento River fish species, including winter-run and fall-run Chinook salmon. Specifically, Order 90-5 requires Reclamation to operate to achieve an average daily water temperature of 56 degrees Fahrenheit (F) on the Sacramento River at Red Bluff Diversion Dam (RBDD), located 60 miles downstream of Keswick Dam (RM 243), to protect aquatic habitat conditions for spawning, rearing, and migration needs of salmon (including both winter-run and fall-run Chinook salmon) and other native fish populations during periods when higher temperatures would adversely affect the fishery. Reclamation is required to identify an alternative compliance location and prepare an associated TMP if there are factors beyond Reclamation's reasonable control that prevent Reclamation from meeting 56 degrees F at RBDD.

### Draft TMP

Reclamation submitted a draft TMP on April 29, 2026, for review by the State Water Board and other agencies and organizations. State Water Board staff submitted comments on the draft TMP on May 15, 2026, raising concerns with the draft and requesting that Reclamation address these concerns in the final TMP. Specifically, Board staff raised concerns with:

- projected EOS carryover storage;
- low cold water storage;
- timing of side gate operation;
- high peak summer flows and associated potential for redd dewatering; and
- potential for high temperature-dependent mortality (TDM) based on TDM modeling.

State Water Board staff also identified inconsistencies with Board staff's understanding of operations called for under the 2024 Shasta Operations Framework that was expected to result in improved temperature management outcomes and carryover storage conditions.

### Final TMP

The final TMP is very similar to the draft TMP. Consistent with the draft TMP, Reclamation has identified this year as a Bin 2A year type under the Shasta Operations Framework, with an EOS carryover storage of 2.2 million acre-feet (MAF) and a temperature target of 53.5 degrees F at the Clear Creek gage (CCR) during the

temperature management season, which translates to meeting 56.0 degrees F under Order 90-5 at Balls Ferry (RM 276). The final TMP EOS carryover storage is substantially the same as the draft TMP due to higher releases, even though there was some modest improvement in hydrologic conditions that occurred during May compared to assumptions under the draft TMP.<sup>2</sup> These low EOS carryover storage levels create concerns this year and going into next year for temperature management for both winter-run and fall-run Chinook salmon. In addition, higher releases increase concerns that winter-run Chinook salmon redds will be established at higher flow levels and subject to dewatering when flows drop later in the season.

Board staff's previous understanding – based on Reclamation's description of the Proposed Action for LTO that was evaluated by the 2024 Biological Opinion (BiOp) – was that the EOS carryover storage objective for a year such as 2026 would be at least 2.4 MAF based on the end of April (EOA) storage of 4.2 MAF. A higher EOS storage of 2.4 MAF would improve conditions this year for winter-run and fall-run Chinook salmon, and would provide better conditions going into next year, particularly if next year is dry.

In addition to the concerns related to EOS carryover storage, the final TMP continues to indicate a low volume of water less than 48 degrees F in Shasta Reservoir. This cold water pool is critical to temperature management, and the volume at present is similar to the critical drought years of 2015 and 2022 – both of which experienced high TDM. The low volume of cold water, and similarities to previous drought years with high temperature mortality, is concerning due to Reclamation's proposed high summer releases. The California Department of Fish and Wildlife expressed similar concerns in their comments on Reclamation's draft TMP. In addition, use of the temperature control device side gates, which is an indication of the loss of temperature control, is projected to occur in late August (first side gate use) to early September (full side gate use), which is well before the end of the winter-run Chinook temperature management season and during the beginning of the fall-run Chinook spawning season.

The combination of low cold water pool volumes, high releases, low EOS carryover storage volumes, and early side gate use raise concerns for winter-run and fall-run Chinook salmon. Reclamation conducted TDM modeling of its proposed operations under the 90 percent hydrologic forecast, using both a pooled 2013-2025 redd distribution scenario and a 2025-only redd distribution scenario, and including both stage-independent (assuming eggs are sensitive to temperatures throughout the incubation period) and stage-dependent (assuming eggs are sensitive to temperatures just prior to hatch) modeling. These results ranged from 2.8 percent to 4.9 percent TDM for stage independent modeling and 0.3 percent to 1.1 percent TDM for stage-dependent modeling depending on redd distribution.

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<sup>2</sup> Relative to the Draft TMP, projected monthly summer releases in the Final TMP increased from 12,500 cfs to 12,600 cfs in July, 11,800 cfs to 12,650 cfs in August, and 7,500 cfs to 8,000 cfs in September (TMP Table 2).

The National Marine Fisheries Service's Southwest Fisheries Science Center (SWFSC) also presented results for the 2013-2025 pooled redd distributions and the 2025-only redd distribution with results ranging from 19 percent to 45 percent for stage-independent TDM modeling and 6 percent to 26 percent for stage-dependent TDM modeling depending on redd distribution (SWFSC modeling; TMP Attachment 5). SWFSC also evaluated a scenario in which releases from Shasta are reduced by 200,000 acre-feet to achieve an EOS carryover storage of 2.4 MAF consistent with expectations for storage this year under the Shasta Operations Framework. This modeling showed a potential reduction to TDM of between 2-11 percent for winter-run, as well as delayed side gate use and reduced peak release levels.

While the TDM estimates from Reclamation and SWFSC identify a range of uncertainty, taken together with the other factors of low EOS storage, low cold water pool volume, early side gate use, and high peak summer flows, the results support more conservative temperature management operations both for purposes of reducing concerns this year and next year.

#### Response to the Final TMP

Based on the above concerns, I am objecting to the final TMP as per the language in Water Rights Order 90-5. In absence of an approved TMP, Reclamation should continue to meet a temperature target of 53.5 degrees F at the Clear Creek gage (CCR) during the temperature management season, which translates to meeting 56.0 degrees F under Order 90-5 at Balls Ferry (RM 276). Reclamation is also required to continue to submit monitoring and reporting documents to the State Water Board and to notify the State Water Board within 72 hours if real-time conditions or ongoing evaluation indicate that daily average water temperatures of 56 degrees F will not be achieved at Balls Ferry.

Approval of the TMP may be reconsidered if Reclamation modifies the TMP to address the above concerns. State Water Board staff would like to continue working with Reclamation to improve temperature management planning in the future, including through participation in the guidance development process that Reclamation has commenced to better define Sacramento River temperature management planning under the 2025 LTO, while also complying with Order 90-5.

Thank you for your continued cooperation and coordination on this matter. If you have any questions regarding this letter, please contact Diane Riddle at [diane.riddle@waterboards.ca.gov](mailto:diane.riddle@waterboards.ca.gov) or Matt Holland at [matthew.holland@waterboards.ca.gov](mailto:matthew.holland@waterboards.ca.gov).

Sincerely,

A handwritten signature in black ink on a light gray background. The signature is written in a cursive style and reads "Eric Oppenheimer".

Eric Oppenheimer  
Executive Director, State Water Resources Control Board