BUREAU OF RECLAMATION

Sacramento River Group Summary

August 28, 2025

Summary of Actions

Welcome, Agenda Review, and Purpose

Mia Schiappi, Kearns & West, welcomed all participants. She read a draft working purpose of the SRG extracted from the Proposed Action in section 3.13.3.1.2 of the U.S. Fish and Wildlife Service's November 2024 Programmatic Biological Opinion of the Long-Term Operation of the Central Valley Project and State Water Project, specifically Appendix 2, Chapter 3, noting that the SHOT would give final approval of the wording. The working purpose of the SRG is below:

> The Sacramento River Temperature and Flow Technical Group is a multiagency and stakeholder group that provides technical and scientific information regarding temperature management and instream flows for the Sacramento River. The SRG meets monthly to assist in development of temperature and flow plans to protect downstream winter-run Chinook Salmon returning adults and incubating eggs from temperature and flow stressors. Reclamation provides a draft temperature management plan to the SRG in April for its review and comment, consistent with California State Water Resources Control Board Water Rights Order 90-5.

Hydrology Update

Tom Patton, Reclamation, provided the latest forecast and implications for the Sacramento River system and reported on current hydrologic conditions including flows. Patton presented the information contained in the meeting packet shared with the SRG. Sections below correspond to groups of graphs, images and tables in the meeting packet provided by Reclamation.

Current Storage, Releases, Water Temperatures, and Current Operations: Daily CVP Water Supply as of August 28, 2025.

- Reservoir Releases:
    - Keswick Dam releases to the Sacramento River are approximately 9,000 cfs and scheduled ramp downs to 8800 cfs on 8/31/25 and 8600 cfs on 9/1/25.
        - Minimum flow target is 4,000 cfs based on the 2.6 MAF carryover.
    - Trinity River releases increased for the ceremonial Hoopa Boat Dance and peaked at 2,300 cfs. Flows will decrease through mid-October to 300 cfs unless additional fishery needs are identified.

        - Whiskeytown releases to Clear Creek are currently at 100 cfs with a planned increase of 25 cfs increments in early September to support habitat and temperature goals. Temperatures at IGO are being closely monitored.
- Storage and Inflow:
    - Shasta projected end-of-September carryover is 2.6 million acre feet (MAF), which is below the 3.2 MAF flood control threshold.
    - Trinity Reservoir storage is high relative to the 15-year average.
- Precipitation
    - Accumulated precipitating has not changed much since July with the Northern Sierra 8-Station Index reporting 55.8 inches.
- Temperature Management:
    - Shasta TCD temperatures remain stable near 50°F.
    - In mid-August, all middle gates of the Shasta Temperature Control Device (TCD) were closed. All lower gates are now in use.
    - IGO water temperatures under 60°F
    - Trinity River temperatures remain low due to a strong cold water pool. There are expected increases to mean daily temperatures as flows decrease.

Reservoir Profiles and Cold-Water Pool: Graphs on Isothermobaths-2025, Graphs on Cold Water Pool Volume, Percent Exceedances (1998-2023)

- Shasta Reservoir
    - Shasta Reservoir is warming slightly and is currently near 47°F at the lower gate level and penstocks. The cold water pool is above historical averages.
- Trinity Lake
    - Trinity cold water pool value is well above long-term averages and near the 10% exceedance line at 48°F.

50% Exceedance Forecast:

- Under the 50% Exceedance Forecast average releases from into Sacramento River are at 11,000 cfs for August.
    - No flood releases forecasted through February 2026 with flow increases beginning in March 2026.
    - The Spring Creek and Carr Powerplants should be fully operational after January 1, 2026.

90% Exceedance Forecast:

- The 90% Exceedance Forecast shows a drier forecast but uses similar minimum flow targets.
- Sacrament River to maintain 4,000 cfs as the minimum flow through winter.

Seasonal Temperature and Precipitation

- There is an above-average probability for a heat across California based on current outlook.
- Seasonal precipitation outlook shows equal chances for above or below normal precipitation in Northern California.

Temperature Forecast Modeling

- Forecasted air temperatures are currently moderate with no major heatwaves anticipated.
- Models suggest a transition to the middle gates in early September, with the first side gate project to be pulled by September 6, 2025.
- Full side gate operation projected by October 23, 2025 but Reclamation will transition sooner if needed.
- The current compliance point is 53.5 °F at Clear Creek.

Questions and Discussion

- CDFW asked about what the rule of thumb is for side gate operations in the fall?
    - Reclamation shared that if September comes without the need to open the side gates, they are in good shape for temperature control through the fall. Reclamation will delay opening the second side gate for as long as possible. The PRGs can be adjusted to persevere the cold water pool.

Fall Flows Updates

- The Fall Flows group met to discuss options for flow reduction scenarios.
- Reclamation reiterated their plan to decrease current flows to 8,600 cfs and adjust weekly based on monitoring data.
- Reclamation acknowledged the potential for redd dewatering impacts but is looking to minimize while balancing flow needs for fall-run Chinook habitat.
- USFWS acknowledged that the group is working to protect fall-run Chinook as well as balancing the flows for winter-run Chinook by evaluating tradeoffs between management actions. This year is particularly tricky because of late spawning.

USFWS Fish Conditions, Forecasts and Hatchery Updates

Caitlin Dunham provided an updated on the Livingston Stone Hatchery.

- Seasonal trapping is complete at Keswick with 107 females spawned and produced 538,000 eyed eggs.
- There have been 4 egg transfers to McCloud River in coordination with the Winnemem Wintu Tribe.
- There are currently 15 spring-run female on site and spawning is expected in about a month and a half when temperatures decline.

Question & Answer

- USFWS asked about the genetics of the 15 spring-run females?
    - Dunham shared that the state have collected samples two weeks ago for testing
    - DWR confirmed that most of the samples collected were spring-run at Keswick and traced to Butte Creek. The suggested that this is possibly due to Butte Slough gate operations.
- CDFW asked about winter-run Chinook in Butte Creek and was interested in why Butte Creek spring-run were found in Sacramento River traps?
    - CDFW confirmed that the fish sampled were a majority of Butte Creek origin with a small amount from Feather River hatchery. The majority of the pre-spawn mortality turn out to be from Livingston Stone Hatchery.
- CDFW asked Dunham about her impression of the number of spring-run Chinook this season, especially given the genetics results showing most were from Butte Creek?
    - Dunham shared that spring-run Chinook numbers were minimal overall. Most fish were adipose-present and they were retained at the hatchery rather than released.
- USFWS asked whether there were plans for eggs from the Keswick trap fish?
    - CDFW commented that they are meeting with Region 2, there is a possible eyed-egg transfer to SCARF or Clear Creek, and there is a potential pairing of Butte Creek and Feather River lineage similar to last year.

Bill Poytress, USFWS, shared updated on juvenile passage.

- There were 12,500 juvenile winter-run Chinook that have passed Red Bluff Diversion Dam. This is approximately 5% cumulative passage.
- Peak migration for winter-run Chinook is September to October but delayed spawning may push this peak to November.
- Pre-spawn mortality rates are high but improving.

CDFW Sacramento River Fish Monitoring Update

Doug Killam, CDFW, shared updates on river fish monitoring.

- Aerial redd surveys have seen 423 redds, which is high.

- The lowest redd is at the mouth of Bear Creek.
- 213 shallow winter-run Chinook redds are being tracked and crews are monitoring dewatering risks post flow reductions.
- Carcass surveys
    - 2,825 females with 8,000 projected redds
    - 85% are of hatchery origin. 2,930 have been submitted to USFWS for genetics.
    - There is high pre-spawn mortality early in the season but reduced to 2% total by late July to August.

Questions & Answers

- Reclamation asked CDFW whether it was possible for dewatered redds to be excavated and moved back to water? Reclamation shared that this is a topic of interest for SHOT.
    - Killam shared that in his experience it has not been tried but generally excavation would be risky and difficult. Eggs are buried 20 plus inches into the rocks. When dewatered the rocks heat up quickly and the heat exposure is lethal to the redds. Modifications involve removing 3 to 4 inches of gravel if near emergence and in flowing water. Killam continued that they will modify a redd if it stands a chance to get water flowing back over it.
    - Further, Killam shared that they plan on doing this year. The redds might be 20 inches deep, as they get dewatered, the tops are sticking out. In those cases, if there is current on all sides and you remove 3-4 inches of gravel, those fish have water over the top of them where they can mature. We typically do that for eggs that are fairly mature 3 months after redds are laid when the fry are about to emerge.
    - USFWS shared that digging up redds is difficult and would likely crush eggs and fry and asked CDFW if their modifications are effective?
        - CDFW shared that they have seen fry emerging from eggs in redds that have been modified but its difficult to observe.

CVP Water Temperature Modeling Platform (WTMP) Presentation

Yung-Hsin Sun, Sunzi Consulting, began the WTMP presentation by sharing the purpose of is to compare new WTMP ResSim and W2 Shasta models against legacy HEC-5Q for Sacramento River temperature compliance and coldwater pool forecasting. A fall rollout is planned, with ResSim-W2 integration to support full Shasta-Trinity-Keswick-Clear Creek system modeling.

Mechele Pacheco, USBR Central Valley Operation Office, provided model details.

Modeling Setup

- The baseline for the Shasta temperature profile is from August 19, 2025.
- Inputs:

- ResSim/W2 – L3MTO meteorology
- HEC-5Q – Historical inputs
- Gate Assumptions
- HEC-5Q – blended middle/lower gates
- ResSim/W2 – all lower gates

Results

Temperature Trends:

- ResSim - Cooler in Aug–Sept; warms more quickly in late fall as coldwater depletes.
- W2 Shasta - Maintains 50°F target the longest.
- All models meet ≤53.5°F CCR compliance, with late-fall differences driven by coldwater depletion and gate sequencing.

Coldwater Pool Volumes (9/30):

- HEC-5Q - 682 TAF
- ResSim - 583 TAF
- W2 Shasta - 713 TAF (largest retention)

Side Gate Timing:

- HEC-5Q - Sept 6
- ResSim - Sept 20
- W2 – Oct 9
- Full side gate operations: Oct 23–Nov 1 (depending on flows + temperatures)

Discussion

- Reclamation asked why W2 Shasta retain coldwater longer?
    - Pacheco responded that gate sequencing assumptions plus meteorology inputs slow depletion compared to ResSim and HEC-5Q.
- Reclamation asked if the goal to replicate HEC-5Q or improve forecasting accuracy?
    - Pacheco responded that the goal has improved operational forecasting under regulatory and hydrologic constraints, not replication.

Next Steps

- Link W2 + ResSim for integrated system modeling.
- Add TCD gate overlays to isothermal plots to better visualize operational decisions.

Topics for Elevation to Shasta Operations Team (SHOT)

The facilitator asked the group if there is anything that needs to be elevated to the SHOT. The group had no topics to elevate to the SHOT.

Adjourn