



# Sacramento River Group – Spring Pulse Flow Planning Subgroup Meeting Summary

Tuesday, March 24, 2026, 1:00-2:10 p.m.

## Participants

- ACID: Daniel Ruiz
- CDFW: Travis Apgar, Tracy Grimes, Crystal Rigby
- DWR: Ryon Kurth, Kevin Reece
- NMFS: Kyra Fitz
- SWFSC: Flora Cordoleani, Cyril Michel,
- SWRCB: Jeff Laird, Diane Riddle
- SRSC: Mike Deas, Yuen Lenh, Anne Williams
- USBR: David Ayers, Amelia Barnum, Elissa Buttermore, Lisa Elliot, Andrea Hamilton, Randi Field, Mechele Pacheco, Tom Patton, Derek Rupert
- USFWS: Matt Brown, Kevin Niemela, Robert Null, Bill Poytress
- WAPA: Eric Mork
- NorCal Guides and Sportsman's Association: James Stone
- Kearns & West: Terra Alpaugh, Chelsea Cullen

## Action Items

### Reclamation

- Prepare temperature modeling outputs.

### SWFSC

- Prepare an interactive scenario filtering tool [DONE]
  - [2026 Sacramento River Spring Pulse Flow Scenario Evaluation](#)

# Key Discussion Topics

## Agenda Review

Kearns & West (K&W) reviewed the agenda and provided an update from the March 17th meeting. On March 23, K&W distributed the March forecast from Reclamation, an updated spreadsheet outlining scenarios, and survival analysis prepared by SWFSC.

## Operations Update & Forecast

James Stone, NorCal Guides and Sportsman's Association, described the current conditions on the Sacramento River where low flows and clear water are increasing predation risk and other cause mortality for 6 million fall run smolts being released from the Coleman Hatchery. He advocated for pulse flows to reach 10,000 cfs at Colusa Bridge gage this week and again April to reduce temperature and increase turbidity to support these fishes' migration. He reminded the group that these hatchery fish are intended to help the California salmon fishery, which has been closed the last two years, and supports 24 million jobs.

Reclamation provided an update on current conditions:

- Shasta storage is currently at 4 MAF with 90% forecast as the baseline and may peak in April near 4.1 MAF, with little additional gains expected. April–July forecasts look low due to a very diminished snowpack. Forecasted end of September Shasta storage is roughly 2.1 MAF by end of September under the baseline (no pulses), which means lower carryover and potential temperature management concerns later in the year. The March 1 forecast numbers were generated before there was a storm forecasted for next week, but Reclamation does not anticipate it will be large enough to significantly change the numbers.
- Reclamation received a profile yesterday, which resembled the drought years, i.e., the very coldest water is largely absent. This will be used to forecast the ability to control downstream water temperatures through the season with and without pulse flows. They plan to evaluate the temperature impacts of a 50,000 acre-foot (AF) pulse in April, a 50,000 AF pulse in May, both pulses for 100,000 AF combined, and a larger combined pulse of 50,000 AF in April and 100,000 AF in May. Reclamation noted pulses more than 100,000 AF will reduce end of September storage below 2 MAF and may create temperature management risks.
- Keswick reservoir flows are now at 4,000 cfs, ramping up to 9,000 cfs in April/May and peaking 12,500 cfs in summer.
- Wilkins Slough flows are at 8,200 cfs and slowly receding.
- ACID is installing flashboards for their diversion dam in the river now and expects to complete work by Friday. While they are in the river, flows need to remain at 4,000 cfs for safety, so pulse flows cannot be implemented right now. ACID can reduce the

number of flashboards to allow higher river flows but that requires coordination and additional river work.

- Reclamation prefers to consider pulse scenarios with a water cost under ~100,000 MAF given the concern about reducing EOS storage below 2 MAFs but will analyze larger scenarios if requested.

***Participant questions and comments included:***

- SWFSC asked whether the ACID diversion structure is designed to handle up to 15,000 cfs.
  - Reclamation responded that ACID's comfort level in terms of protecting their infrastructure is for maximum flows of 14,000 cfs, but the structure can be managed to withstand up to 15,000 cfs with additional coordination and work.
  - ACID confirmed that they can install fewer flashboards if Reclamation anticipates going above 14,000 cfs but they need to be informed of that need to give them time to coordinate.
- SWFSC reminded the group that last year's pulse of 14,000 cfs in May was not enough to meet the 11,000 cfs target at Wilkins Slough. After mid-April, diversions progressively increase, making it harder to ensure the pulse flow at Wilkins Slough reaches 11,000 cfs.
  - Reclamation concurred and stressed that the April accretion/depletions number is an average; the daily number is likely positive at the beginning of the month and negative at the end of the month.
- SRSC asked whether the current 90% forecast shifts the bin classification from Bin 1 to Bin 2.
  - Reclamation explained that end-of-April (EOA) peak storage and end-of-September (EOS) storage both matter to the bin classification. Even though EOA storage will be >3.7 MAF (Bin 1), with the projected September storage of 2.1 MAF, they will not be in a Bin 1 Year – that number would put them in a Bin 2B year.
- USFWS asked whether and how the current high water temperatures are incorporated into the SWFSC's survival modeling.
  - Reclamation responded that temperature modeling focuses below Keswick.
  - SWFSC responded that pulses can cool downstream water but if temperatures are already very high, cooling may not be sufficient. SWFSC suggested that the group should meet a week before each proposed pulse flow to assess the temperatures and determine whether it is advisable to initiate migration during that period.
- SWRCB asked whether, if pulses push the EOS storage below 2 MAF, there is a risk of moving into Bin 3.
  - Reclamation confirmed that dropping below 2 MAF would push into bin 3. Their preference is to keep end of September above 2 MAF; however, the tradeoffs need further discussion.

- SRSC raised a concern with implementing spring pulse flows in any volume given the low forecasted end of September storage levels. They reminded the group that they bin year types and end of September targets were established to provide protection from multi-year droughts by operating to keep Shasta higher in the prior years leading into droughts.
- SWFSC acknowledged concerns about water cost but also reminded the group that these marginal water years are when pulse flows are most likely to have impact on improvements in fish survival.

### **Analysis of Survival by Scenario**

SWFSC shared their analysis of fish survival across 655 pulse flow scenarios of 150,000 MAF or less. They evaluated multiple pulse lengths (3 and 4day pulses), and 1–3 total pulses across a set of candidate weeks in April–May.

- Two survival models were used: an older Michel et al model and a newer Burford model. The Burford model accounts for how pulses affect survival and shift migration timing, i.e., it incorporated how many additional fish are expected to initiate migration in response to pulses using historical Red Bluff trap data.
- Top ranked scenarios tended to have pulses starting around week 4, because they are informed by historic migration data that shows little fall and spring run migration in late March/early April followed by an increase into late April and May. However, this year fish could be reacting to conditions in the basin and move earlier.
- Many top scenarios include three pulse weeks with some back-to-back events and some with one-to-two-week gaps. Although most of the top ten scenarios require more than 100 TAF of water, the modeling framework can be adapted to limit scenarios to a maximum allowable volume (e.g., 100 TAF) and to provide interactive filtering.
- Week 4 and week 8 coincide with new moons (lower lunar illumination), which could reduce predation risk, making those weeks biologically preferable.

### ***Participant questions and comments included:***

- USFWS stated that half of Coleman’s hatchery fish are being released now and additional flow is needed. They will release the remaining fish on April 6th and 7th (week 3 of the model) and advocate for a pulse at that time. They noted that hatchery fish are about three weeks ahead of their normal development due to water temperatures, which suggests that natural origin fish might also be developmentally ahead and ready to migrate earlier.
- USFWS reported they are observing the typical lull in fish outmigration on the river that SWFSC described in late March/early April, and fish timing is looking similar to last year and previous years.

- CDFW shared that if temperatures allow, the Nimbus fish hatchery is planning a fall run release at the end of April/early May.

### **Next Steps**

- NorCal Guides and Sportsman's Association and USFWS strongly advocated for immediate pulse flows. Reclamation acknowledged their concern but explained that an immediate pulse flow is not operationally feasible because of the need for advance scheduling and the need to keep flows lower while ACID installs their diversion dam. Reclamation indicated that the earliest viable pulse may be the week of April 6th if managers agree.
- Reclamation will perform temperature modeling for the scenarios outlined above, share results, and discuss at the SRG meeting on Thursday. They will aim to provide modeling outputs in advance if possible.
- SWFSC will work on developing an interactive scenario filtering tool.
- SRG will keep the regular Tuesday slot on the calendar next week to further discuss pulse timing with the potential for identifying a week 3 pulse to align with the hatchery releases.