Sacramento River Group – Spring Pulse Flow Planning Subgroup Meeting Summary

Tuesday, April 21, 2026, 1:00-2:00 p.m.

Participants

- ACID: Daniel Ruiz
- CDFW: Travis Apgar, Matt Johnson, Ryan Revnak, Crystal Rigby
- DWR: Kevin Reece
- NMFS: Kyra Fitz
- SWFSC: Miles Daniels, Cyril Michel, Jeremy Notch
- SWRCB: Craig Williams
- SRSC: Thaddeus Bettner, Yuen Lenh, Anne Williams
- USBR: David Ayers, Elissa Buttermore, Mandy Migura, Tom Patton, Derek Rupert
- USFWS: Bill Poytress
- NorCal Guides: James Stone
- Kearns & West: Terra Alpaugh, Chelsea Cullen

Action Items

Reclamation

- Prepare temperature analysis information for discussion at the April 23rd SRG meeting.

Key Discussion Topics

Agenda Review

Kearns & West (K&W) reviewed the agenda and held roll call by organization.

Pulse Outcomes/Fish Monitoring

USFWS reported on their most recent standardized passage data, also available through SacPAS:

- Large hatchery releases were made on April 7 and April 9 in conjunction with the pulse flow; these produced sharp, short spikes in the estimated passage of fish during the first 36 hours after release. After the spike, passage estimates fell through the end of the pulse on April 15 and they have not seen any residual impacts of the pulse on fish passage thereafter.
- Unlike other periods when USFWS runs the traps continuously, during the April 7 and April 9 releases, the team used randomized sub-sampling during day and night to estimate 24-hour passage, so as not to harm the fish. . .
- Spring-run vs fall-run size-class signal: many of the released/uncorrected fish fell into spring-run length class, producing a pronounced spring-run-sized peak. However, they suspect many of those were actually fall-run fish that grew fast given unusual temperature conditions this year. Mark-corrections will be available in ~2 weeks.

SWFSC reported on telemetry results from the pulse flow:

- Tagging schedule: pre-pulse releases on April 1-2, during pulse on April 8, and after pulse on April 17.
- Arrival patterns: pre-pulse group exhibited widespread and slower downstream movement; during-pulse group showed more directed downstream migration to lower river/Delta.
- Survival:
    - To Sacramento: no statistically significant difference between pre-pulse and during-pulse groups.
    - Through Delta: marked improvement for the pulse group, with pre-pulse ~6% survival through the Delta vs. during-pulse ~40%.
    - To Benicia (downstream endpoint): pre-pulse ~0.4% vs. during-pulse ~2.5% (approx. fivefold increase), though absolute survival to Benicia remains low.
    - CDFW's concurrent weekly tagging of fish from the spring run JPE effort showed similar findings: week 3 (released April 10 in the midst of the pulse) had ~14.8% survival to Sacramento vs. 3.2% for releases prior to the pulse; Delta survival high for weeks 2 and 3; Benicia survival ~2.6% pre-pulse vs. ~7% pulse. They are unsure why the CDFW fish had better survival overall than those released by SWFSC specifically for this effort.
- Turbidity:

        - Wilkins Slough turbidity receded after last week's pulse and likely to bump back up this week with the rain forecast.
        - Freeport turbidity (best gauge in the lower river) increased during the pulse; an additional signal of turbidity was seen from the small storm after the pulse, and has been receding since.
- Freeport flows (tidally filtered) peaked above ~37,000 cfs entering the Delta when combining pulse, storm runoff, and American River contributions.

Questions and comments from participants:

- SRSC asked whether there are any major changes in Delta operations during this period that would have affected the fish differently.
    - SWFSC responded that Delta survival is calculated as "of the number of fish that arrived to the city of Sacramento, how many of those survived to Benicia?" Historically, temperature and flow are the primary factors that affect survival through the Delta. An 11,000 cfs pulse at Wilkins Slough is not enough to impact those parameters alone going to affect survival in the Delta. However, the Sacramento pulse coincided with storm runoff, an American River pulse, and flood releases from Oroville and New Bullards Bar, such that Freeport flows (tidally filtered) peaked above ~37,000 cfs entering the Delta.
    - Reclamation responded that pumping exports did increase but since then have dropped off. Pumping has been minimal since April 13.
- NorCal Guides provided anecdotal input on predation from their guides and anglers on the river during and after the pulse flow: between April 8 to 10, anglers reported that 35-40% of surveyed stripers' stomach contents contained salmon smolts. As turbidity increased in the Colusa to Wilkins Slough reach between April 12 to 18, less than 10% of surveyed fish had salmon smolts in their stomachs. During the April 18th derby, they opened 72 bass and only found 1 smolt.
    - SWFSC noted that the receiver data available in a few months will provide a picture of where salmon survival may be lowest. They can try to align that with striped bass movement. They asked whether the pulse stimulates the stripers to move upstream.
    - NorCal Guides said that the stripers do move upstream as flows go up. As the turbidity increased around April 12th, they moved from the Knights Landing area to Colusa (~8-10 miles upriver); now they are moving south again.

Forecast and Operations Update

Reclamation provided an overview of current conditions:

- Temperature hasn't been a concern with the cooler weather. The warmer water at the top of the reservoir is being released to conserve the remaining cold water for later in the year.
- Flows at Wilkins Slough. Projected peak just under 16,000 cfs
- Anticipate irrigation demands to begin picking up significantly next week and will likely backfill on the recession with increased Keswick releases next week and the first week of May.
- Keswick releases averaged 7,000 cfs for April with a ramp toward 9,000 by end of month; the May average is projected near 9,700 cfs; and the June average is projected at 11,000 cfs.
- Shasta is gaining storage, so that the storage projection for end of April is just above 4 MAF; end of May projected near 3.8 MAF; end of June projected near 3.4 MAF; end of September increased slightly to 2.2 MAF.

Potential Pulse 2 Scenario Development

The group discussed the following for considering a second pulse:

- SWFSC updated the Shiny app tool so the model reflects actual pulse cost of the first pulse. Assuming a maximum water budget of 100 TAF, the highest-ranked pulse timing from the survival models favors mid-May weeks (May 12 or May 19), but flow ceiling constraints at ACID make pulses that deep into the irrigation season infeasible. Only near-term options (April 28 or May 5) are projected to reach 11,000 cfs at Wilkins Slough, given the ACID constraint of 15,000 cfs.

Participant questions and comments included:

- SRSC asked what the focus is for the next pulse flow.
    - SWFSC responded this is a larger question for the group. Historically, the focus of spring pulses has been to benefit wild spring run smolts. However, it's unknown how the warm March might have affected growth and timing for out migration of those spring run.
    - CDFW responded that they are continuing to trap on Mill and Deer Creek and catch has been exceptionally low compared to previous years. This past week, there were 5 spring run juveniles in the Deer Creek trap and none have been caught in Mill Creek. In spite of the low numbers, the fish appear to be tracking with prior trends for outmigration timing.
        - SWFSC shared that the outmigration timing of the Mill Creek fish has usually coincided with snowmelt events in early to mid-May.
- ACID confirmed that their infrastructure can handle flows up to 15,000 cfs.

- Reclamation shared that the temperature analysis should be ready by April 23 for discussion about impacts of a pulse flow on temperature management.
- NMFS asked about the end of September storage estimate.
    - Reclamation responded that the April 90% forecast anticipates slightly over 2.2 MAF for end of September.
    - Reclamation confirmed the 2.2 MAF includes the water already spent on the first pulse.
- USFWS asked whether the increased demands in the next week will decrease with the upcoming forecasted storm.
    - Reclamation responded they're anticipating drier weather moving forward so they anticipate it to be dry enough for demands to remain in spite of precipitation.
- USFWS asked whether there are any additional pulses planned for the American River they could consider synching with since Delta survival is currently high.
    - Reclamation responded that reservoirs are making storage management releases so that they do not fill to early: the American River is currently at 7,500 cfs in releases with good inflow, and Oroville is holding 5,000 cfs release on the Feather River. Anticipate that a lot of the reservoirs will be reducing going into May.
- NMFS asked whether there will be additional data outside of the April forecast to share with FAWOG at the April 22nd meeting.
    - Reclamation responded that there may be some preliminary temperature results, but it may only be the forecast.
- SWFSC shared that they have a tagging crew currently on their way to Redding for the pre-pulse group since it was believed prior to this meeting that the week of April 27th was the only feasible pulse option. Now that the week of May 4 is also an option, they asked which week is move likely.
    - Reclamation responded that the most likely week is May 4th.

Next Steps

- Reclamation anticipates having temperature analysis information for discussion at the April 23rd monthly SRG meeting.