

Upper Sacramento Scheduling Team

Spring Pulse Flow Planning Subgroup

Thursday, February 11, 2021, 12:00-1:00 p.m.

Meeting Summary

Participants

Agency	Attendees
Reclamation	Elissa Buttermore, Suzanne Manugian, Tom Patton
USFWS	Jim Earley, Charlie Chamberlain
NMFS	Flora Cordoleani, Cyril Michel, Stephen Maurano
CDFW	Bill Poytress, Ken Kundargi,
DWR	
SWRCB	Craig Williams
SRSC	Anne Williams
Kearns & West	Terra Alpaugh, Alyson Scurlock

Action Items

- All to provide additional feedback on the Spring Flows Study Plan and Operational Process Plan if there is any.
- All to provide additional feedback on the draft pulse flow scenarios, including which scenarios are high priority for being included in the flow spreadsheet for review at the next subgroup meeting.
- Tom to update the flow spreadsheet:
 - Add a column for Clear Creek Flows
 - Input 2018 forecast values and send to the group.
- Suzanne to add a 4-day pulse duration option to the pulse flow scenarios criteria.
- Cyril to share a slide plotting the time it takes a group of fish to move down the Sacramento to inform the optimal pulse length.
- Suzanne and Cyril to coordinate on an exercise with historical flow data to assess what travel times are generated by the proposed pulse flow scenarios.
- Tom to share the final February forecast at the February 24 meeting as well as any initial tier analysis.
- K&W to add Charlie Chamberlain to USST meeting invites and send the Spring Pulse Flow Study Plan and Operational Process Plan and the USST Pulse Flow Guidance Document.
- K&W to cancel subgroup meeting on February 17.

Key Discussion Topics with Summary of Perspectives, Outcomes, and Agreements

Meeting Objectives

1. Introduce the flow sheet and how it will be used as an evaluation tool
2. Review initial pulse flow scenarios

Spring Pulse Flow Study Plan and Operational Process Plan Update

Kearns & West circulated the revised Spring Pulse Flow Study Plan and Operational Process Plan on 2/4 that incorporates USST member's comments. Both documents will be considered living documents as the USST works its way through the first round of considering a spring pulse flow.

Flow Sheet

Reclamation presented a flow spreadsheet that can be used as a tool to compare the effects of alternative spring pulse flows on key variables (e.g. volume of additional Keswick flow over baseline; estimated June EOM Shasta storage). The flow spreadsheet includes preliminary information from Reclamation's draft February forecast. Reclamation also presented a similar flow spreadsheet with March 2019 water year data for comparison to show what it might look like when a spring pulse flow is triggered.

Perspectives and questions shared by subgroup members included:

- NMFS asked which tier would correlate with the February 90% flow values and if a column could be added to the spreadsheet that shows tiers.
 - Reclamation said this year is likely a Tier 4 year. When the forecast is finalized, Reclamation can start to do temperature model runs and at that point, evaluate what tiers would be possible.
- SRSC asked if the varied travel time of water from Keswick to Wilkins Slough is considered when calculating flow values in the Wilkins Slough Daily Flows tab in the spreadsheet.
 - Reclamation said that the Wilkins Slough flow is currently a simple calculation, so differential travel times are not currently factored in, but more variables could be considered during the season to generate more precise values.
- NMFS stated that they thought a pulse flow might be beneficial for years when it was less wet and asked if additional years with more normal conditions, such as 2018, were analyzed.
 - Reclamation said the spring pulse flow criteria specifies a 90% forecast with an end of April storage greater than 4 MAF. Reclamation stated that historic years with wet forecasts were the ones that triggered a spring pulse flow due to the conservative forecast and high storage requirements.
 - NMFS suggested that using the April forecast would be more accurate and asked if using the April forecast would result in more years in which conditions met the spring pulse flow criteria.
 - Reclamation said they reviewed the February, March, and April 90% forecasts for the last 10 years. They shared the spreadsheet with their analysis, which showed that

there were several years in which April forecasts triggered a pulse flow, whereas the earlier forecasts had indicated that conditions were too dry.

- NMFS stated that they have found a pulse flow to have maximum benefits in the years 2016 and 2018 when analyzing the last 10 years and suggested they would be good years to review in the spreadsheet for implementing a spring pulse flow.
- Reclamation will update the flow spreadsheet with 2018 forecast values and send out to the group.
- NMFS reminded the group that the Guidance Document allows the USST to consider implementing a pulse flow even if the forecast does not meet the 4 MAF criteria; they suggested that years with storage under 4 MAF should still be considered for a pulse flow, rather than immediately ruled out.
 - Reclamation agreed that the group should discuss considering years with storage slightly under 4 MAF, such as 2010.
 - NMFS observed that there could be a difference of 700 TAF in storage between the March and April forecasts so it is important to plan accordingly and have a spring flow ready to implement because of how rapid conditions can change.
- SRSC asked what the storage number was that corresponds with the elevation to use the upper gates and if the current storage thresholds would be above that.
 - Reclamation said it is around 3.6 MAF; there will likely not be enough storage this year to use the upper gates.
- NMFS asked if the group should still come up with a suite of scenarios and test them even if a spring pulse flow is not likely to happen this year so that there would be a process in place for a year where a spring pulse flow could happen.
 - Reclamation suggested that the group should run through the process and be ready just in case. This year can be a work in progress that can be improved upon.
- NMFS suggested that some of the alternatives in the spreadsheet have Keswick flows that may not be realistic. The ACID diversion would preclude a pulse out of Keswick of 15,000 cfs unless something has changed.
 - Reclamation said it is not limited to 15,000 cfs, but there are a lot of issues associated with pulses above 15,000 cfs. Once the ACID boards go in for the season, flows would need to ramp back down to about 5,000 cfs to remove the boards in order for flows at Keswick to exceed 15,000 cfs.
 - NMFS suggested that getting down to 5,000 cfs after a pulse in early or late May might not be possible while still maintaining flows at Wilkins Slough.
 - Reclamation suggested that it depends on the levels of accretions. In drier years, the timing could be bad for lowering flows on the river.
 - SRSC said the timing of the ACID dam install is somewhat flexible, though they usually install it in early to mid-April. With planning, a pulse could possibly be implemented without having significant fluctuations before and after.
 - NMFS observed that Clear Creek also does pulse flows in May and that there could be an opportunity to synchronize flows at Keswick with Clear Creek to help maintain flows at Wilkins Slough.

- USFWS said that Clear Creek pulses are capped at 900 cfs. The creek would normally be flowing at 200 cfs during that time of year, so there is only about a 700 cfs net gain.
- NMFS shared that when they were analyzing scenarios last year, flows were coming up short only by about 700-800 cfs so a 700 cfs net gain could possibly make a difference.
- Reclamation will add a column to the spreadsheet for Clear Creek flows to see if a pulse from Keswick can coincide with a pulse at Clear Creek.

Pulse Flow Scenarios

Reclamation presented the draft pulse flow scenarios and proposed parameters.

Perspectives and questions shared by subgroup members included:

- NMFS clarified that the pulse flow magnitude is what is measured at Wilkins Slough and not the measured pulse out of Keswick.
- NMFS suggested adding a 4-day pulse duration as an additional option. Four days seem to be a good balance for the amount of time it takes fish to transit the river.
 - Reclamation will add a 4-day pulse duration option.
 - Reclamation asked NMFS if the goal of the 4-day pulse flow was to have four consecutive days of that flow over 10,800 cfs at Wilkins Slough.
 - NMFS confirmed; they will share a slide in the future that plots the time it takes a group of fish to move through the Sacramento River to help visualize what the timing should be if you want fish to experience higher flows for their entire journey downstream.
- Reclamation noted that Propose Action describes a pulse flow of 10,000 cfs but indicates that the USST or SRTTG can decide to adjust some of the pulse flow parameters if it is justifiable based on the best available science.
 - NMFS suggested that the pulse magnitude could be a parameter that could be adjusted since SWFSC modeling identifies a pulse magnitude of 10,800 cfs as optimal.

Next Steps

- Suzanne will continue to work on the draft pulse flow scenarios.
- Suzanne and Cyril will run an exercise with historical flow data that would have hit the threshold for a spring pulse flow to see what travel times might exist.
- Tom will continue to update the flow spreadsheet.

Next Meeting

Wednesday, February 24, 11:00 a.m.-12:00 p.m.