

Upper Sacramento Scheduling Team

Spring Pulse Flow Planning Subgroup

Wednesday, March 31, 2021, 9:00-10:30 a.m.

Meeting Summary

Participants

Agency	Attendees
Reclamation	Elissa Buttermore, Suzanne Manugian, Tom Patton, Josh Israel
USFWS	Bill Poytress, Charlie Chamberlain
NMFS	Cyril Michel, Flora Cordoleani, Miles Daniels
CDFW	
DWR	
SWRCB	
SRSC	
Kearns & West	Terra Alpaugh, Alyson Scurlock

Action Items

- Suzanne to distribute PDF of presentation for April 7 USST meeting and consider including the following to the “next steps” portion:
 - USST will report back again on the feasibility of implementing a pulse flow at the April 22 SRTTG meeting.
 - USST will continue to update/further refine the Study Plan.
- Cyril to act as liaison between SWFSC and USST for adding ability to model pulse flows to CVTemp website’s TDM model for 2022.
- Reclamation to look at the pulse flow scenarios ran with the 2018 data and identify how many scenarios would be above the 15,000 cfs flow threshold.
- USST to agendize further discussion of the following for resolution and potential inclusion in the **Spring Flows Study Plan**:
 - More information on coordinating spring pulse flows with ACID dam diversions and where there is flexibility.
 - Refine the timeline for all the modeling and inputs to the spring pulse flow development and decision making process; also confirm the decision-making process (e.g., SRTTG and WOMT’s role).
 - Add information about the modeling uncertainty and caveats.
 - Clarify the language around change in temperature tiers in Reclamation’s Proposed Action and NMFS BiOp.
- Kearns & West to confirm meeting biweekly with the full-group USST through April and May at next USST meeting.

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

Meeting Objectives

1. Determine how to evaluate temperature and TDM impacts of spring pulse flow scenarios
2. Determine what additional scenario planning and assessment work the USST wants to complete in April/May
3. Share Operations update

Evaluating Temperature and Winter-Run TDM Impacts of Spring Pulse Flow Scenarios

The subgroup discussed options for evaluating temperature and winter-run TDM impacts of the spring pulse flow scenarios with SWFSC.

Perspectives and questions shared by subgroup members included:

- NMFS asked if the volume for the pulse flow scenarios was from Shasta or Keswick.
 - Reclamation said the pulse flow volume would be the release from Keswick and would be assumed to have come from Shasta. Trinity River diversions would not be increased to increase the pulse flow.
- NMFS indicated that it was a busy time of the year for SWFSC, but they are interested in incorporating flexibility into the modeling.
 - Reclamation said that a lot of the approach for the pulse flow scenarios was determined using 2018 data since a pulse flow is unlikely this year. Reclamation suggested that NMFS could start thinking about the modeling framework for adding pulse flow information to the SWFSC's CVTemp model and then revisit it when they have more availability. It would be helpful to understand the SWFSC's modeling process and give feedback.
- NMFS said they analyzed pulse flow information in late 2018 and noted that there were a lot of unknowns, especially information about accretions and depletions.
 - NMFS said the accretions and depletions are currently set at a monthly timestep, which has pretty coarse resolution.
 - Reclamation suggested that the monthly timestep would be sufficient for this exercise, but if it were a year where a pulse flow could actually be implemented, the group would need finer resolution that accounts for meteorological events that could be taken advantage of.
 - Reclamation said the strategy is to start with forecasted values for accretions and depletions and to replace it with more real-time information as it becomes available (e.g., irrigators' demand forecasts, storm events, Clear Creek inflows, etc.). The process would be similar to what is being done this year except a pulse flow will not likely be implemented this year.
 - NMFS said that the pulse flow scenarios are currently being considered on a monthly basis and suggested that the exact day would also need to be set in the future.
- The group looked at the previous plots developed by SWFSC that showed pulse flow effects for different water years.
 - NMFS provided the caveat that the TCD gate operations were kept identical in the scenarios and gates were not switched to adjust temperature management later in the season.
 - Reclamation asked if NMFS remembered what size pulse they were considering.
 - NMFS said that they calculated the temperature increases from Shasta and the volumes of cold water pool that would drain; most of the pulses were under 50 TAF.
- NMFS asked at what point SWFSC could start making predictions in the calendar year.

- Reclamation said that they start forecasting in February, but they do not have exact data for irrigators' water use patterns since they do not know what their allocation will be. There is only one monthly value estimated for accretions and depletions in February and March; Reclamation revises the forecasts with real-time data as the month progresses.
- Kearns & West asked if the subgroup would want TDM predictions early on (based on rough estimates) or as part of the final evaluation of scenarios when there is better information available for accretions and depletions.
- Reclamation said that there are a lot of unknowns earlier in the year; any estimate generated early on will have more uncertainty.
- Reclamation asked NMFS if running through the scenarios would be time intensive.
 - NMFS said building the scenarios into the CVTemp website would take more work upfront. Once the scenarios are integrated, NMFS can generate summary scripts and make plots easily.
 - Kearns & West asked if NMFS would be able to build the pulse flow scenarios into the CVTemp website before next February or if they would need to wait until they had information from the February forecast.
 - NMFS can work with others to set the CVTemp website up so it is relatively easy to plug in information during March and April. At that point, the critical inputs they will need are when to start a pulse and how much water to release from Shasta.
- Reclamation reported out on what volume difference is required to result in a meaningful temperature run comparison and suggested that the group should be cautious about making model runs and providing people with TDM estimates. There is a lot of uncertainty in the modeling and fish distributions and some of the pulse volumes may not be significant (smallest pulse scenario is 38 TAF).
 - Reclamation said that the top performing pulse flow scenarios for travel time and survival were all above 100 TAF.
 - Reclamation said that after implementing a spring pulse flow, it would be hard to look back and state what a scenario would have been without the pulse and try to identify what benefits or impacts the spring pulse flow may have had. There are a lot of assumptions in normal scenarios without a spring pulse flow at that point and there would need to be a lot of qualifiers to identify exact benefits.
 - NMFS said that if there is a 2% difference in TDM between doing a pulse flow scenario and non-pulse flow scenario, the model resolution and relevance of the results would need to be clearly communicated. NMFS said SWFSC can make that work to make that clearer.
 - Kearns & West suggested that the group could add information about the modeling uncertainty and caveats into the Spring Pulse Flow Study Plan when the group revises it.

April Operations Plan Development

The subgroup discussed what should be included in the Sacramento River 2021 Spring Pulse Flow Operations Plan.

Perspectives and questions shared by subgroup members included:

- Reclamation asked the group for feedback on what should be presented at the April 22 SRTTG meeting and suggested it would depend on the April 90% forecast.
 - Reclamation said that the April 90% forecast should be finalized the week of April 15.
 - Kearns & West suggested that Reclamation delivers a similar document as the one Reclamation delivered at the March 25 SRTTG meeting and that the group keeps the USST meeting on the calendar that week.

Spring Pulse Flow Study Plan Revisions and Next Steps

Kearns & West asked what else the group wants to accomplish this season in terms of answering outstanding questions about the spring pulse flow design and evaluation process and preparing for a pulse flow in future years. There had been discussion in the last meeting about potentially running the scenarios with 2021 data to step through the decision-making process in real time; KW asked whether the group still wanted to pursue that approach.

Perspectives and questions shared by subgroup members included:

- Reclamation suggested that running the pulse flow scenarios with 2021 data would not be the most efficient use of time since a pulse flow will likely not be implemented this year.
- NMFS said that they are concerned the group will arrive at the point where a pulse flow is possible in future years but may not have thought through all of the steps to make it happen. NMFS agreed that running the pulse flow scenarios with the 2021 data may not be the best use of time this year, but they hope the group is prepared and able to make a quick decision when a pulse flow is possible.
- NMFS suggested that the group needs to better understand the decision process that would be followed in a year where a spring pulse flow could be implemented (if SRTTG or WOMT makes the final decision and what back and forth is required to get there).
- NMFS suggested that there is not resolution for how to deal with the ACID diversions. ACID needs flows less than 5,000 cfs during their diversion dam installation which ranges from late March to late April and then once it is installed, flows must be less than 15,000 cfs. NMFS said that, depending on conditions, Keswick flows may need to be in excess of 15,000 cfs to achieve the 11,000 cfs pulse flow target at Wilkins Slough.
 - Reclamation noted that the ACID's installation this year was in late March.
 - NMFS noted that a pulse flow will not happen in dry years when ACID usually installs their diversion structures early. In years where a pulse flow could occur, ACID would install their diversion structures later.
 - Reclamation said that ACID's diversion structures would likely be installed already if a pulse occurred in late April.
 - NMFS noted that there have been years when Keswick flows were above 15,000 cfs while ACID's diversion dam was in place and suggested someone needs to talk to ACID about how much wiggle room exists.
 - Kearns & West noted that SRSC said ACID may be able to pull their boards to allow flows to be higher than 15,000 cfs.

- NMFS said that Keswick flows would have to drop to very low levels for ACID to pull their boards and put them back in, which would negate a pulse flow.
- Reclamation will look at the pulse flow scenarios ran with the 2018 data and identify how many scenarios would be above the 15,000 cfs flow threshold. Reclamation suggested that a buffer could be built in to provide an estimate of days to avoid.
- NMFS noted that the ACID installation was an issue in 2020 when a pulse flow over 15,000 cfs was being considered last-minute.
- NMFS suggested there is still some lack of clarity on the pulse flow criteria. The Proposed Action indicates 4 MAF, but there is language that suggests 4 MAF might not be the limit in some years. They asked whether there should be a hard cutoff somewhere below 4 MAF.
 - Reclamation said that they think the 4 MAF will be a moving target based on current conditions.
 - Reclamation said that the Proposed Action also indicates that operations cannot drop into a Tier 4 year and suggested that 4 MAF is a good reference point to make sure not operations do not drop into a Tier 4 year. Reclamation suggested that there may be more analyses that can be done to look into that.
 - Kearns & West said that the Proposed Action specifies a Tier 4 year while the NMFS BiOp says that a pulse flow cannot cause a change between tiers and suggested that clarity is needed on if there is flexibility in the NMFS BiOp.

KW confirmed that, pending any input from the State agencies, the subgroup will not pursue running the scenarios with the 2021 data and will instead spend their time confirming the process and resolving the outstanding questions identified above.

April 7 USST Meeting and Presentation

Reclamation discussed the plan to present the subgroup’s pulse flow scenarios analysis in more detail at the full-group USST meeting on April 7. Reclamation will distribute a copy of the presentation for subgroup members to review.

Perspectives and questions shared by subgroup members included:

- Kearns & West suggested that Reclamation add the following to the “next steps” portion of the presentation: the USST will report back again on the feasibility of implementing a pulse flow at the April 22 SRTTG meeting with an updated Pulse Flow Operations Plan, and the USST will continue to update/further refine the Study Plan throughout April and May.
- Kearns & West asked for feedback on the frequency and who should be involved in future USST meetings (full-group vs. subgroup) given that a pulse is not likely to be implemented.
 - Reclamation suggested meeting biweekly with the full-group USST through April and May; unresolved discussion points can be discussed with the larger group.
 - NMFS agreed that it would be good to start meeting with the full-group to get feedback.
 - Kearns & West to add frequency of meetings topic to next USST meeting agenda to confirm biweekly meetings are okay with the larger group.

Operations Update

Reclamation provided an update on operations.

- Keswick releases are scheduled to increase to 4,000 cfs on April 2 because of extremely dry conditions; Reclamation is starting to cycle one unit of pumping and flows have gone up on the American River at Nimbus so additional water was needed.
- Reclamation anticipates there to be additional Keswick releases the week of April 5; more water is needed in the Delta to meet minimum requirements.

Perspectives and questions shared by subgroup members included:

- NMFS asked what the minimum requirements in the Delta are that govern operations during this time of year.
 - Reclamation said that State Water Board Decision 1641 governs operations and is tied to water permits at Shasta. There are different ways to meet the requirements such as having a minimum outflow of 7,100 cfs or meeting water quality standards. In April, there may be more stringent standards for several days, but Reclamation will not know until DWR releases their hydrology data the first week of April; the amount of runoff in the system in March affects the extra requirement days that Reclamation will have to meet in April.

Next Steps

- Cyril will meet with Miles in July to start working on the process for integrating the pulse flow scenarios into the CVTemp website; Cyril will act as the liaison between the USST and SWFSC and will let the group know how they can support the process.
- The group will move forward with the pulse flow scenarios using the 2018 data (instead of using 2021 data) for the next update at the April 22 SRTTG meeting.
- Suzanne will present the pulse flow scenarios analysis at the full-group USST meeting on April 7.

Next Meeting: Wednesday, April 7, 9:00-10:30 a.m.