

# Upper Sacramento Scheduling Team

## Spring Pulse Flow Planning Subgroup

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

### Meeting Summary

#### Participants

Agency	Attendees
Reclamation	Elissa Buttermore, Suzanne Manugian, Tom Patton, Josh Israel
USFWS	Jim Earley, Charlie Chamberlain
NMFS	Flora Cordoleani, Cyril Michel, Stephen Maurano
CDFW	Matt Johnson
DWR	Kevin Reece
SWRCB	Michael Macon
SRSC	Anne Williams
Kearns & West	Terra Alpaugh, Alyson Scurlock

#### Action Items

- **Draft Presentation to SRTTG**
  - Suzanne to share the draft presentation slides for the SRTTG for feedback and revise before next subgroup meeting.
  - All to provide feedback on draft presentation slides and Operations Plan by Monday, March 15.
- **Draft Operations Plan**
  - Suzanne to share the draft Operations Plan for feedback and revise before next subgroup meeting.
  - Tom to update Operations Plan with temperature thresholds.
- **Operations**
  - Tom to communicate any relevant operations updates to the USST and convene a full-group meeting if needed.
  - K&W to circulate weekly Fish and Operations Outlook to the USST and SRTTG.
  - Tom to update Keswick release and Shasta storage figures with the March forecast numbers and review with the subgroup (once available).
  - Tom to let NMFS know what is driving regulatory flow requirements of 3,250 cfs for March through the summer period.
- **Modeling Exercise**
  - Suzanne to share the back-calculated Keswick flows with NMFS for model exercise.
  - NMFS to run the 2018 fish input data and back-calculated Keswick flows through survival model for comparison.
- **TDM Estimates**
  - Elissa to talk with Mike Wright about Reclamation's TDM model.
  - Flora to talk with Miles Daniels about SWFSC's TDM model.

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

### *Meeting Objectives*

1. Review updated pulse flow scenarios
2. Solicit feedback on presentation to SRTTG

### *Operations Update*

Reclamation provided an update on operations.

- Keswick releases are currently at 3,500 cfs, and there has not been much inflow to the system due to the lack of storm events.
- Reclamation increased flows slightly because downstream conditions were very dry, although Reclamation is unsure if the water made it to the Delta due to some diverters increasing their water take from the river. Conditions seem to be getting better.
- Nimbus releases also went up for Delta water quality needs and are currently higher than Keswick. Reclamation is considering pulse flow to meet Delta needs, increasing at Nimbus and keeping Keswick the same.
- ACID will be installing their diversion structures starting on March 22 and are proposing a two-week period. Diversions will then start the first or second week of April.
- Reclamation received the new runoff forecast from DWR and the National Weather Service on March 8 and is starting to update the March forecast which is expected to be completed the week of March 15.

Perspectives and questions shared by subgroup members included:

- NMFS asked if flows would need to stay at 3,500 cfs during the ACID installation.
  - Reclamation said flows need to be less than 5,000 cfs and the lower the better. Flows may increase from the current volume, but they would remain below 5,000 cfs.
- NMFS suggested that the group could continue to discuss operations at the weekly subgroup meetings until the full-group USST convenes on April 7 since the forecast is dynamic. March and April are key months for setting up summer conditions.
  - Reclamation noted that the USST might not be the venue to discuss information other than how current operations impact a potential spring pulse flow and suggested discussing at the SRTTG meetings. Reclamation also suggested that NMFS could bring this up at the LTO coordination group, since they are looking at revising the guidance document, and that the weekly Fish and Operations Outlook could be distributed to the USST and SRTTG to provide information on the anticipated range of operations at the different dams.
  - Reclamation will communicate any relevant operations updates to the USST and will convene a full-group meeting if needed.
  - K&W to circulate weekly Fish and Operations Outlook to the USST and SRTTG.

### *Historical Releases and Storage Figures*

Reclamation reviewed the following figures updated with the February forecast numbers: 1) Keswick Historical Monthly Average Release and WY2021 for Critical Water Year Types and 2) Historical Shasta Storage and WY2021 for Critical Water Year Type. Reclamation noted that according to their records, Keswick flows have not gone below 3,250 cfs in the past; there was a discrepancy with the data used for certain years that show lower flows.

Perspectives and questions shared by subgroup members included:

- NMFS asked Reclamation if they thought the red line on the figures (90% forecasted data for 2021) was expected to change based on the March forecast.
  - Reclamation said that a lot depends on the accretions and depletions forecast Reclamation receives from DWR. Reclamation will update the figures when the March forecast is completed and review with the subgroup.
- NMFS asked if there was a way to provide corrected data for the years that appear to have gone below 3,250 cfs. NMFS is trying to understand what drives the flow targets and what flexibility exists.
  - Reclamation said that the data appears to have been lost. There are flow requirements of 3,250 cfs through February under D1641, and Reclamation operates to that same number as its lowest flow year-round. Reclamation will confirm which regulation is driving flow requirements for March through the summer period.

### ***Pulse Flow Scenarios Update, March 25 SRTTG Meeting Presentation, and Sacramento River 2021 Spring Pulse Operations Plan***

Reclamation presented the draft USST presentation for the March 25 SRTTG meeting and noted that the flow magnitude for all pulse scenarios was adjusted to 11,000 cfs. Reclamation presented the draft Sacramento River 2021 Spring Pulse Operations Plan.

Perspectives and questions shared by subgroup members included:

- SRSC asked how Reclamation calculated the flow needed at Keswick to achieve 11,000 cfs at Wilkins. Is the changing shape of the river built in?
  - Reclamation said it is just simple math using the net accretion/depletion forecast, and no routing effects are included. In reality, they will split out the accretion and depletions for a more precise flow.
- NMFS asked if Reclamation had reviewed each scenario and their results in more detail yet and requested that Reclamation share the draft presentation with the group. NMFS also requested details on travel time and survival if possible so they could start thinking more about what the model predicts for each scenario and why.
  - Reclamation presented summary statistics by reach in the presentation and noted that they may need help to get more granular data from the model. Reclamation will share the draft presentation slides with subgroup members for feedback.
- NMFS said that they have run similar simulations with their survival model and their survival estimates predicted more benefits to survival from the pulse flow than the estimates Reclamation presented. However, the relative differences in survival between scenarios are

likely very similar, and those relative differences are what should be used to determine which scenarios have the highest impact – and should be prioritized for a pulse flow.

- Reclamation will share the back-calculated Keswick flows with NMFS, and NMFS will run the 2018 fish input data and back-calculated Keswick flows through their survival model for comparison with Reclamation's estimate.
- USFWS said they have been interested in looking at piggybacking a spring pulse flow off a storm event to increase pulse flow opportunities and asked what kind of information would be needed to add this element into the modeling.
  - Reclamation said storm impacts would be added on the input side; right now, they are just lumping together the accretions and depletions, but in advance of pulse flows, Reclamation will separate the accretions and depletions and will be able to better fine-tune conditions. Reclamation can also add if there is a pulse on Clear Creek and could consider catch data.
  - USFWS noted that a lot of the data shows most fish move out on the descending limb of the hydrograph. USFWS wants to make sure opportunities to capitalize on those fish movements are included in the plan. If they could use catch data to provide information on fish movement paired with Reclamation's modeling and forecasts on hydrologic conditions, there could be opportunities to expand the number of pulse flow opportunities.
  - NMFS agreed that there is a huge opportunity to get more benefits from a pulse flow when it is synced with fish passage, but the lead time on operations needs and the lead time on natural events may not align. Unless there is a way to shorten the two weeks required notice by Reclamation's operations (as stated in the Guidance Document), it might be hard to sync pulse flows with natural events.
  - Reclamation said that the two-week window is optimal but could be shortened. The power side should be able to accommodate a 2-3 day lead time unless it is around a holiday.
- K&W asked how the group would select and reduce the scenarios and incorporate the other criteria from the Study Plan if the USST was bringing spring pulse flow recommendations to the SRTTG in a year where a pulse flow was possible.
  - Reclamation suggested that the group needs to discuss how the other non-fisheries variables should be considered and how they would be weighed.
  - K&W suggested including other variables such as water costs and TDM estimates at a high-level in the presentation to the SRTTG.
  - Reclamation suggested that they could include slides that show the group is weighing decisions based on volume costs at Shasta and a slide at the beginning of the presentation describing how the group will aim to piggyback off of storm events to minimize water costs.
- NMFS pointed out that there was trouble bringing a proposal from the USST to the SRTTG last year because it required modeling to see if the proposal would change the temperature tier. NMFS suggested that the group should have a conversation before going into the SRTTG meeting since the Proposed Action says the USST needs to provide information to the SRTTG to evaluate the effects on the system and determine if the proposal causes a change in temperature tier management.

- Reclamation said that it is a Tier 4 year and suggested the group needs to brainstorm what specific data should be presented to the SRTTG to help them make their decision.
- NMFS suggested that the group should go through the steps and treat this year as an actual pulse flow year by still running all of the simulations. The group could still propose a package to the SRTTG and say a pulse flow will likely not be advisable this year.
- NMFS asked if the group should incorporate the comparison between SacPAS and NMFS' survival model in the presentation.
  - Reclamation suggested that if there are a lot of differences between the models, they would not want to provide more information than needed to the SRTTG to provide confusion.
  - NMFS said that they are hoping the prioritization of each scenario will be the same when they do the modeling exercise and, in that case, only one set of estimates should be presented to the SRTTG.
- NMFS asked when the group would need to come up with recommended pulse flow scenarios and suggested that presenting the scenarios at the April SRTTG meeting would be too late in a year where a pulse flow could be implemented.
  - NMFS said that the decision would be ultimately made at the WOMT meeting. The guidance document also specifies how pulse flow recommendations would be based on the March forecast which would leave very little turnaround time to have recommendations ready for the March SRTTG meeting.
  - K&W said that language was included in the Study Plan describing how ad-hoc SRTTG meetings would need to be called in a year where the USSF would want to recommend a pulse flow.
- K&W asked what the group would be ready to share at the March SRTTG meeting and suggested presenting two iterations of the Operations Plan to the SRTTG. In March, the group could lay out the storage predictions with a caveat that conditions might change and in April, the group could bring back recommendations.
  - NMFS said that the process sounded realistic for this year and expressed concern over how the process may fall short in a year where you could implement an April pulse flow based on the current guidance document. There are the weekly WOMT meeting at least.
  - Suzanne will distribute the Operations Plan to the group for feedback.
- NMFS pointed out that the impacts of a pulse flow on egg-to-fry survival have not been mentioned and asked for the group's thoughts on how to evaluate that. Last year, the SWFSC assisted with that.
  - Reclamation asked NMFS if SWFSC thought the modeling was refined enough to provide information for pulse and non-pulse scenarios for TDM.
  - NMFS said that SWFSC had some caveats on how egg-to-fry survival was predicted because they did not have all of the information they needed.
  - Reclamation said they need to talk internally to determine whether their model could be used because it may not be sensitive enough to see a difference.

- Reclamation will talk internally about using Reclamation's TDM models, and NMFS to reach out to SWFSC to talk about the feasibility of incorporating TDM modeling into the spring pulse flow process.
- NMFS asked Reclamation if they had any input on the temperature prediction forecast and what would be feasible for the temperature side of things.
- Reclamation suggested that more details on temperature thresholds could be included in the Operations Plan.

***Next Steps***

- Reclamation will distribute the draft SRTTG presentation and draft Operations Plan to subgroup members for feedback and revise before the next subgroup meeting.
- NMFS will run an exercise using their survival model to compare to Reclamation's survival model estimates.
- Reclamation and NMFS will inquire about how to incorporate TDM estimates into the spring pulse flow process.

***Next Meeting:*** Wednesday, March 17, 9:30-11:00 a.m.