



# Upper Sacramento Scheduling Team

## Spring Pulse Flow Planning Subgroup

Monday, March 25, 2024, 12:30–2:00 p.m.

### Members Attending

- CDFW: Travis Apgar, Tracy Grimes, Matt Johnson
- DWR: Ryon Kurth
- NMFS:
- Reclamation: Karissa Bridges, Derek Rupert, Lisa Elliot, Tom Patton, Shay Richardson
- SWFSC: Cyril Michel, Flora Cordoleani, Miles Daniels
- SWRCB:
- Hoopa Tribe:
- SRSC: Anne Williams
- USFWS: Bill Poytress, Craig Flemming, Matt Brown, Craig Anderson
- Kearns & West: Terra Alpaugh, Eva Spiegel

### Topics/Actions

- Reclamation (Tom Patton) to update the scenarios spreadsheet's Clear Creek tab to include the planned pulse flow in May on Clear Creek
- Reclamation (Tom Patton) to provide Cyril with updated operations forecast, which will include higher April baseflows and lower late April/May flows (by Tuesday)
- SWFSC (Cyril Michel) to run survival and water cost estimates for every combo of 2, 3, and 4 days pulses across April and first three weeks of May (for SRTTG meeting Thursday)
- SWFSC (Miles Daniels) to work with Tom to see if he can generate TDM estimates reflecting impacts of pulse flows (will aim for something Thursday)
- USST to convene at 12:30pm on Thursday to discuss:
  - Which scenarios look the most promising
  - What the most recent preferred timing for a Coleman release would be

- Whether to recommend a single scenario or a handful of potential scenarios to the SRTTG (and subsequently SPG) for approval
- The process by which the USST would ultimately select a scenario if they asked for pre-approval of several options

### **Meeting Objectives**

- Review draft scenarios & survival estimates
- Refine scenarios based on analysis and timing/magnitude considerations
- Establish next steps

### **Operations Update**

Reclamation provided a brief update on the current conditions and operations with a focus on the parameters for planning a pulse flow.

- Shasta is currently at 4-million-acre feet (MAF), and they are ramping down Keswick releases from 4,800 cfs to 4,000 cfs for ACID dam installation.
- There is work that needs to be done on the Balls Ferry stream gage, so they will hold flows at 4,000 cfs; however, upcoming storms may make that impossible.
- Looks like higher flows may be required in Delta; in that case, Reclamation may need to increase Keswick releases to 7,000-10,000 cfs as early as next week. Increased releases could continue into the second half of April.
- Clear Creek is in the midst of a pulse (840 cfs), which combined with rainfall resulted in 1,200 cfs at IGO. That pulse will ramp down next week; another pulse is scheduled for May.
- They are starting early to fill Whiskeytown using natural flow from Clear Creek resulting from the storm and expect to fill by mid-April. There will probably be a Trinity wet year ROD pulse flow beginning in mid-April.

### **Fishery Monitoring Update**

- USFWS shared discussions about early April releases of fall-run.
- Reclamation reminded the group that Coleman Hatchery was unable to meet its total production goals from Battle Creek and had to supplement with eggs from other hatcheries. Those non-Battle Creek fish will be trucked downriver for release. The 9 million Battle Creek Coleman fish will all be released by mid-April, hopefully in conjunction with a storm event to benefit from increased turbidity. Reclamation and USFWS stressed that getting those fish out to the ocean safely is a priority and should be considered in selecting pulse flow dates.

### **Pulse Flow Scenarios & Considerations for Timing**

Reclamation walked through the pulse flow scenarios spreadsheet, identifying where average flow data is currently being used and more specific daily flows can be updated as they get closer

to the pulse flow dates. SWFSC then walked through the survival and water cost analysis run for the proposed pulse scenarios. They provided a few reminders about the approach:

- The analysis shows what additional proportion of outmigrants would survive above baseline survival under each flow scenario (e.g., 1.01 reflects a 1% increase in survival over baseline flows).
- The analysis relies on the historic (2006-2019) mean daily passage of wild fish at Red Bluff Diversion Dam screw traps; hatchery fish are removed from the data to the extent possible.
- SWFSC provided survival/water cost estimates using data from all years and just from above normal and wet hydrologic years. In above normal/wet years, there appears to be a slightly earlier migration of fish, which impacts which scenarios rank most highly for survival.
- The water cost of each pulse largely depends on how many days of pulses are proposed in that scenario and what base flows are assumed for that period.

SWFSC highlighted key unanswered questions for selecting a preferred pulse flow scenario: (1) Is the all year or above normal/wet year passage data most analogous to this year and which should the group use? (2) What will base flows be in April and May?

- Reclamation noted that thus far, this year is not as wet as last year. For instance, the Delta is drying up and may need increased flows. Last year, they kept flows low as long as they could until they increased for flood control reasons.
- Reclamation stressed that increased flows for Delta needs in April were not part of the pulse flow scenarios analyzed today; today's scenarios assume more flexibility than may exist. However, in the event of higher flows for Delta needs, they might be able to ramp down somewhat prior to a pulse if that pulse were later in April.
- If storms and associated runoff continue, increased April flows may not be necessary, and Reclamation would likely wait until late April/early May to increase releases.

Participants shared thoughts on considerations for selecting a pulse flow scenario:

- If May base flows are lower than April, then May pulses are likely to have more of an impact on survival.
- However, more fish may migrate in April, so a pulse then might impact more fish.
- Coordinating a pulse in May can also be tricky because irrigators are starting to increase use at that time.
- SWFSC has 950 acoustic tags this year; they will be developing a proposal for release groups (last year they had five, but they also had more tags). They need about a week's notice to tag the fish.
- The maximum threshold for flows is 15,000 cfs, because of what can be safely passed by the ACID Diversion Dam with flashboards; that maximum would increase to 18-20,000 cfs if the flashboards were removed, but that also takes time to arrange. If Reclamation

increases flows for the Delta in early April to ~10,000 cfs at Keswick, a pulse would need to be small to stay below the 15,000 cfs at ACID. SWFSC acknowledged that the benefit of such a smaller volume pulse would be less, but any pulse would likely result in survival benefits.

- The Coleman fish are likely to need to be released in the first two weeks of April. USFWS voiced interest in considering the feasibility of a pulse during that period to support those fish. They acknowledged that it could be challenging to get the necessary support from SRTTG and SPG to accomplish that. One approach might be to present several scenarios to those groups with the request that they be advanced for Reclamation consideration with the understanding that the USST will ultimately advise Reclamation to implement the one that ends up coinciding with fish readiness and if possible, a storm event, while also meeting Reclamation's Delta requirements.
- To schedule flow changes for the week of April 1, a change order would need to be submitted Thursday, March 28 for an April 2 implementation or Monday, April 1 for a April 3 implementation.
- SRTTG members will likely be interested in any impacts the different pulse scenarios have on ability to meet temperature requirements later in the season and the resulting temperature dependent mortality. SWFSC will work on this question with the aim of having something specific to this year and the proposed scenarios to share this Thursday at SRTTG. Reclamation noted that this year will most likely be a Tier 1 year, operating to 53.5 degrees F at CCR.

### **Next Steps**

- Reclamation will provide an updated operations forecast, which will include higher April baseflows and lower late April/May flows.
- SWFSC will run survival and water cost estimates for every combo of 2, 3, and 4 days pulses across April and first three weeks of May.
- The USST Spring Pulse Flows group will meet on Thursday before SRTTG to decide whether they want to recommend a pulse flow scenario for implementation in early to mid-April, and if so, if they want to recommend a single scenario or ask for approval of several potential scenarios.