



# Sacramento River Temperature Task Group

## Spring Pulse Flow Planning Subgroup Meeting Summary

April 11, 2023

### Participants

Agency	Attendees
CDFW	Crystal Rigby, Tracy Grimes, Erica Meyers
DWR	Kevin Reece
NMFS	Stephen Maurano, Garwin Yip
Reclamation	Elissa Buttermore, Tom Patton, Emily Van Seeters
SWFSC	Cyril Michel, Flora Cordoleani, Miles Daniels
Hoopa Tribe	N/A
SRSC	Yuen Lenh, Anne Williams
USFWS	Jim Earley, Bill Poytress, Matt Brown
Kearns & West	Mia Schiappi, Terra Alpaugh

### Action Items

#### Preparation of proposal:

- **Elissa/Tom** will update the Spring Pulse Operations Plan based on the M4 scenario for distribution to the SRTTG late Wednesday or early Thursday
- **Stephen Maurano** to send the figures he made to Elissa to add as an attachment to the Spring Pulse Operations Plan
- **K&W** will notify the SRTTG to expect the spring pulse proposal Thursday AM and to make a recommendation at Thursday's meeting
- **Erica Meyers** to coordinate with SPG representatives for a meeting on Friday or early Monday to discuss the Spring Pulse Recommendation

#### Pulse Implementation and Operations Preparations:

- **Tom** will coordinate with ACID
- **Cyril** to coordinate with staff to prepare for acoustic tagging
- **Anne Williams** will reach out to the Settlement Contractors to discuss getting spot measurements for turbidity where possible.
- **Tom** will reach out to Reclamation staff about turbidity sensors

- **All** coordinate with contacts on the river to ensure the screw traps are on the water and any other data collection resources are deployed
- **K&W** will include an ask during the SRTTG meeting for the availability of turbidity sensors to use during the Spring Pulse
- **K&W** to schedule a meeting to discuss details of the proposed second pulse on April 27, 28 or May 1

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

### Meeting Objectives

1. Review Operations Update and May storage projections.
2. Review pulse scenarios
3. Review Pulse Flow Operations Plan
4. Review past TDM analysis
5. Determine next step needed to make recommendation to SRTTG.

### *Fisheries Update*

USFWS provided a brief update on fish passage at the Red Bluff Diversion Dam (RBDD).

- While one of the primary objectives of the pulse flow is to assist the movement of the winter run in the uppermost part of the river, there is not reliable data on those fish due to this year's turbidity.
- During the mid-April to mid-May period, cumulative passage at RBDD goes from 80 to 100 percent. This is consistently when the final fish are moving through, whereas the numbers vary widely during the January to March period.
- There are roughly 1 million fish that could move during the latter half of April.
- None of the data presented captures the out-migrants from Butte, Mill, and Deer Creek, which are fish that fall into the primary objectives for the Spring Pulse.

### *Operations Update*

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

- Current storage in Shasta is just above 4 MAF with releases at 3,250 cfs and no plans to change this week.
- There is the potential for precipitation next week that could produce a significant amount of runoff.
- It is likely that releases will need to increase during the last half of April for storage control.

- ACID has installed most of the structure and will be installing flashboards this week. Reclamation is keeping flows down during installation.
- Reclamation suggests shaping a pulse during the last week of April with the water that is being released for storage management purposes.
- Reclamation noted that diversions will increase around the same time they are considering a pulse flow, so coordination will be necessary so that increased flows at Keswick are not diverted before they reach Wilkins Slough.

Perspectives and questions shared by subgroup members included:

- Question (Q) (NMFS): Some of the Wilkins scenarios envision flows lower than current flows. Would this mean that if flows decrease at Wilkins the pulse would look more like a holding of flows rather than a change or a pulse up? How likely is it that Wilkins flows will decrease all the way down to 11,000 cfs or lower?
  - Reclamation explained that Wilkins is currently at 15,000 cfs and it is forecasted to drop below 11,000 cfs this weekend.
- Comment (C) (NMFS): Piggy backing a spring pulse with flood control releases and/or a precipitation event may be obligatory.
- (C) (USFWS): Because of the higher rate of filling and that room needs to be made in Shasta, the potential pulse flow may be water neutral?
  - Reclamation explained they would consult with the group and discuss what the best shaping of the release could be. If there is a storm, then it will depend on the magnitude.

### ***Pulse Flow Scenarios***

SWFSC develop scenarios by looking at variation of pulses of 2, 3, or 4 day at full flow; one or two pulses; and implementation timing across the months of April and May. SWFSC evaluated the projected number of survivors above baseline conditions and calculated the additional water needed over baseline.

- NMFS provided graphs that included the different scenarios proposed by SWFSC with flows at Keswick. M4 assumed the following:
  - The graphs assumed a 6,000 cfs base flow at Keswick with flows increasing up to 8,000 – 9,000 cfs.
  - At Wilkins the flow would be in the 9,000 cfs base flow range increasing to 11,000 cfs.
- The hydrology for this WY is unique because it is a wet year; however, Shasta has not spilled. For the above normal years represented, Shasta did spill which likely triggered many fish in the Upper Sacramento River to move, which may occur this year.
- When looking at passage for all years the best scenario is M2 which has the highest water cost but still below the 150 TAF that is allocated for a spring pulse flow.

- The data is similar for normal fish passage. M4 has the benefit of not being the most expensive for water cost.

Perspectives and questions shared by subgroup members included:

- (Q) (CDFW): How does this situation affect SWFSCs implementation of the fish monitoring plan?
  - SWFSC responded that they are ready for implementation. In the past, the group has discussed the plan based on a single pulse, but this year it looks like there will be the opportunity for two pulses. If there is one pulse the team is prepared to do acoustic tag releases before, during, and after the pulse. If there are two pulses, they will have to revisit sample sizes. They have 1,150 tags available for the study and they don't want to split them into groups that are too small. There could be a situation in which releases would occur before, during, and after the first pulse, and then during the second pulse. Releases at the later end of the study window rely on the Coleman Fish Hatchery: They are holding about 1,400 fish for this study and would prefer to get the fish out earlier than later. When we know the tentative date, Cyril will coordinate with the hatchery.
- (Q) (USFWS): Are we asking Reclamation to shape a spill with the same rationale as the pulse flow or are we asking for water to implement the plan?
  - Reclamation responded that from their perspective they are working to manage the reservoir and doing what is best for Shasta and the fish. There has been concern about releasing on weekends, but is something that can be worked out. It is more based on whether the group wants to shape the flood release at the end of April. They are not "bean counting" in regard to where the water comes from. CVO is flexible on the plan.
- (Q) (SWFSC): Historically when Shasta releases for flood control, they are large releases close to 20,000 cfs. When Reclamation says the group will be able to help shape the releases, do they have a ballpark number for how high the releases need to be for flood control. Or is there a volume of water that is predicted to be released? If releases are as high as 20,000 cfs, they will be shaping the timing of the flow?
  - Reclamation responded that this depends on whether there is precipitation the next week. Even if there is no rain, based on the volume forecast, releases may have to increase. They could hold flows lower longer and do a pulse later in May. At this point, they are not looking at anything as large as 20,000 cfs. They will also need to begin ramping up for diversions as well, and if there is no rain in April that will need to be planned for.
- Q (SWFSC): Is there any chance that the flow will go down to 6,000 cfs?
  - Reclamation explained that is unlikely that flows will go down that low in May, but if a pulse of 12,000 cfs occurred, they could probably get down to base flows as low as 8-9,000 cfs before and after.

- (C) (SWFSC) This is going to be a learning experience. Maximizing the difference between the base flow and the pulse flow will increase the ability to learn. There is also what is good for the fish in this particular year. Sometimes those two things are not the same. Another thing to consider is that the potential for flood control flows may be higher than 11,000 cfs at Wilkins. There is also value in have a pulse flow that is about 11,000 cfs at Wilkins for information for future years, which will not occur if the flows are at 15,000 cfs or 20,000 cfs. Suggest aiming for two pulses, one as a shaped flood control release and one as a classic pulse flow. If possible, timing the second pulse with snowmelt events might allow for synching the pulse with snowmelt events.
- (C)(NMFS): M4 was the better of the multiple scenarios. They graphed out the flow at Keswick as 6,000 cfs. M4 looks good and it might be that they learn more in some ways by having two very different types of pulse flows.
  - (C) (Reclamation): If using M4, it would need to start on the 24th rather than the 23rd to avoid any operational issues.
- (Q) (NMFS): What is the comfort level of being proactive with the flood management and releasing water regardless of additional storms?
  - Reclamation responded that there is enough room in the reservoir, but with the storm potential on the horizon in April and May they are confident that they will fill the reservoir. This will allow for a pulse flow and meeting demands downstream.
- (Q) (Reclamation): What is the total water usage for the M4 proposal?
  - With the two pulse the water usage would be 80 TAF. The cost of the first pulse would be 0, so only the May pulse would have a cost.
- (Q) (USFWS): How many days do the tagged fish need to be in the system before the pulse plow begins?
  - SWFSC responded that there is no magic number, but typically fall-run migrate within a span of four to five days. If the fish are released on Tuesday or Wednesday, they should have exited the river system by Monday. If a second pulse begins on that Monday at Keswick, the water will take approximately 10 hours to get to Red Bluff. Therefore, it would be good to begin tagging fish starting on Monday or Tuesday of next week. Additionally, because the acoustic tagging allows us to know each fish's experience, if there are some "before" fish that are straggling and end up benefiting from the pulse flow we can adjust the analysis if needed. They will need to get the pulse flow approved as early as possible after the SRTTG meeting so that that the monitoring team can begin tagging.
- (C) (SRSC) This pulse flow will be a special event and needs to be monitored as much as possible with all the tools available. They suggest putting a call out via Twitter and other forums to get the word out to other researchers downstream and into the Delta to make sure their schedules align in order to capture data on the effects of the pulse flow.

- SWFSC commented it would be ideal to have all rotary screw traps in water.
- (C) (Reclamation): They would prefer to start the second pulse on May 8th, rather than May 5th as notated in the spreadsheet, in order to reduce impacts on power generation.
  - SWFSC responded that in order to support the fish being released from the Coleman Fish Hatchery, it would best to start the pulse earlier. However, if the pulses are spread out, it may be easier to disentangle the impacts of each individual pulse.
  - Reclamation acknowledged that if the pulse gets pushed later into May, it will compete more with diversion needs.
- (Q) (Reclamation): How quickly should they ramp up flows?
  - SWFSC responded it would be best to ramp flows up quickly because that is what would be more typical of what a river would do during a storm event.

## Next Steps

### *Process for SRTTG recommendation and SPG approval*

- Reclamation will update the Spring Pulse Operations Plan and distribute to the SRTTG before the next SRTTG meeting on 4/13/23.
- Reclamation will present the Spring Pulse Operations Plan during the SRTTG meeting.
- The SRTTG will discuss and decide on a recommendation to be elevated to the Shasta Planning Group (SPG).

### Perspective and questions shared by group members:

- (C) (CDFW): The next SPG meeting is scheduled to meet on Tuesday, 4/18/23.
- (C) (NMFS): Would like to see an expedited process and for the SPG to meet as soon as possible. There is now so much flow in the system that the group is now leaning towards a single multiple pulse proposal, so it makes the most sense to only propose one best scenario rather than two. They would like to see an SPG meeting on Friday, Monday, or Tuesday.
- (C)(USFWS): The proposal/recommendation should include that there will be a multiple pulse represented by scenario M4 and that flood releases are being utilized and shaped in the first pulse; it should also state that in the absence of flood releases, M4 would still be the recommendation for the pulse flow. It is important to write down the recommendation based on the current condition.
  - Reclamation responded that they are planning on including this detail in the proposal.

### *Recommendation for SRTTG*

There was a unanimous vote amongst the stakeholders present to use scenario M4 in their proposal to the SRTTG. Agencies present to vote included:

- CDFW
- USFWS
- Reclamation
- DWR
- SRSC
- SWFSC
- NMFS