

Meeting Summary
FLOW WORK GROUP
Wednesday December 20, 2023
USFWS Office Arcata/MS Teams

Wednesday, December 20, 2023: 9:00 AM

Participants

Core members: Galen Anderson (USFS), Todd Buxton (USBR/TRRP), Kyle De Juilio (YTFFP), Patrick Flynn (Trinity Co.), Ken Lindke (CDFW, coordinator), Trevor Morgan (CDWR), Bill Pinnix (USFWS)

Other participants: Kiana Abel (USBR/TRRP), John Bair (McBain Assoc.), Emily Cooper-Hertel (YTFFP), Mike Dixon (USBR/TRRP), Jenny Hutchinson (USFWS), Chris Laskodi (USBR/YTFFP/TRRP), James Lee (USBR/TRRP), Joe Polos (public), Trent Tuthill (public/Trinity Co.), Ty Wallin (USFWS)

Action Items Derived During the Meeting

Action Item 1: Ken will develop a task list of analyses to be extracted from the winter variable flow EA/final report and authors to do the extracting.

Meeting Summary

The next TMC meeting is January 18th. We want to develop a package that will be ready a week prior – targeted to deliver Thursday Jan 11th. Want actual hydrographs for modeling and need to assign the modeling. DSS needs to be done, will assess that ask from the County. Some parts of DSS are not relevant to winter flows. May be relevant assessments outside of DSS.

Ken, Kyle, and Seth met with Patrick and Trent Tuthill on Monday to get an understanding of the bounds from the County. At TMC last week, directive was not to exceed 1,200 cfs mid-Feb to mid-March period. Some exceedances could be fine but not prolonged. Fishing is fine up to 800 cfs (Liam's guidance). Tuthill's guidance: mid-March to mid-April not to exceed 2,000 cfs. Lindke will present his thoughts to discuss with this group. The 60K acre-feet (AF) component that was proposed to TMC this year and last year has its highest peak at 1,000 cfs and baseflows are 600-800 cfs over the two-month period. The County's letter expressed interest in having hydrographs scaled to water year type. Joe Polos (worked for USFWS and with TRRP but is retired, flow study author) has been working with the County and Tom Stokely for the past year. Need to fill in the gaps from the county's proposal. EA will be pushed forward in 2024 to FONSI signing. Today's proposal needs to be within those bounds.

Patrick mentions that Trent will be on the call in the afternoon. Liam has asked to listen in – the group thinks that's great.

Monitoring is important from the County's perspective. De Juilio thinks it's important to move the puck forward regarding monitoring. The County's reservations for WVF implementation are focused on impacts to fishing opportunity, not monitoring or ecological benefits. So, we need to be clear on what

we can expect from any limited action. There were no DSS results provided in advance of either proposal WY23 or WY24 in part because uncertainties regarding the volume and shape of the spring release are too high. Analyses from the draft EA/final report were provided as justification. Naman noted that the DSS hasn't been applied in this way prior. More of a comparison from year to year. Need to pick a few metrics and go from there. Lindke: the extent of the DSS' effectiveness is known by the scientists; it is not a great tool to discern among proposed hydrographs of the same water year type, not sensitive enough. The Program is reevaluating that whole thing right now. Lindke questioned whether TMC, the County or Polos are aware of scientists recent concerns about the utility of the DSS.

Lindke asked if anyone else had conceptual hydrographs or ideas? Naman did. 60K AF from Feb 15 – Apr 15, a couple of days over 1,200 cfs with a scale, then we could scale Mar 15- Apr 15 components to 2,000 cfs. Objectives based discussion proceeded. De Julio said baseflow period objectives are warming in spring to increase growth and wetted width expansion in winter. Buxton asked where does the 60K AF volume come from. De Julio responded that volumes by water year type were derived from a sensitivity analysis identifying the minimum volume needed to be moved from spring releases to provide benefit to fish growth: 60k AF Critically Dry and Dry, 120k AF Normal, 180k AF Wet, and 220k AF Extremely Wet.

WVF hydrograph components approved for WY23 and rejected for WY24 were displayed. Naman suggested scaling peaks for the 60k AF component up to 1,200 during Feb-Apr, and scaling the peaks Mar-Apr up to 2,000 but also by water year type. Lindke noted that the WY23 approved 60k AF component only hits 1,050 cfs once through mid-March and baseflows are 600-800 cfs. Looks like steady rise with three peaks, then scale later peaks (other components added on) up or down based on water year. Naman: keep it simple and propose that. Patrick agrees. Kyle noted that in Wet or Extremely Wet years we should not expect a measurable biological response. Laskodi: we could release up to 120K AF total – preference is to take out high peaks, wouldn't work with Extremely Wet B120 February forecast – but that hasn't happened in the last 20 years. Should be able to fit within the ruleset. The timing of peaks could change to days of the week that are least used (using data from the steelhead report card) to minimize the fishing impact, e.g., weekdays. Lindke: let's keep it below 1,200 cfs – this is a strong ask from the County. Naman: may need to bend that a bit. Lindke: Chris, is your proposal is for Normal-Wet? Laskodi: yes. Let's keep it as close as we can to the WVF. De Julio: we need a synchronized flow to remain within the County's constraints and still move enough water to meet objectives in Wet or Ex. Wet years. Lindke: let's make sure they know that is the case for next year. Benefits will be compromised, so the results will also be compromised – key communications point. Laskodi: would two days above the 1,200 cfs be acceptable to the county especially if they are on low use days? Lindke: don't want to propose over 1,200. Laskodi: 120K AF is the highest volume we can use and remain within the bounds of the County's ask. De Julio: is this realistic? Laskodi: normal is 22% on the Feb B120. 60K AF 72% of the time. Then we fit within the County's criteria. Lindke: we need to move more water in the wetter years, and 1,000 cfs for a whole month may not appeal to the County because baseflow does not go down to 600 cfs in the wetter years. Buxton: sync is off the table for the County? De Julio: Yes for this year. Patrick: static number from Feb-Apr (Tuthill). Big question is if we can meet the objectives somehow in Normal and wetter years. Is 1,222 cfs okay or is 1,200 cfs a hard line? Flynn: yes, one day is probably okay. Dixon noted that gate control could be an issue regarding small changes in flow day-to-day. De Julio suggested that no matter what the water year forecast is, we start a Feb-Apr 60K AF release on Feb 15. Naman: March 15, 20K is a good starting place. De Julio: scaling to water year reduces the objectives in dryer years.

Buxton: should we be looking to release more water? Naman: only a few peaks – but are you suggesting we depart from the County’s ask? Buxton: keep the peak in place but scale up the baseflow. Flynn: 60K AF scheduled (Feb-April), then March Dry B120 would be additional 20K? De Julio: Yes. After March 15, will limit fishing – this is the max push. Naman: this is clearly in the EA and already analyzed. Flynn: proposal regardless of water year? De Julio: if Critically Dry, only 60K AF Feb-Mar. Dry and higher would move to +20K AF. Need to preserve the action in its entirety to keep the potential to measure it. Flynn: if the proposal doesn’t include ramping the allocation down, need to be prepared to talk about that. Lower with water year type. Dixon: don’t have the resolution to monitor. Flynn: mimic 2 graphs, highest in extremely wet, as the water went lower peaks went lower. Naman: 60K AF is the low end and will stay there unless more water comes in (i.e., Dry or wetter March B120). De Julio: original WVF action was designed to be the smallest to yield a measurable result. In scenarios where the original action is preserved (i.e., same volume moved as WVF), we maintain ability to measure the effect. Otherwise we shouldn’t expect a measurable effect. Flynn: need to make it clear to the County the differences between Joe’s proposal and this proposal. Polos: consider having lumping the Dry/Crit. Dry as one action, then another action for more water. Naman: adding 20K AF in March meets the needs of the County as they’ve outlined. Buxton asks Joe: how does this make it a better proposal? Polos: dryer less during the period, using two categories. De Julio: analysis, moving 80K AF in March for a dry year means we’ll likely have a normal year because the forecast is conservative. Flynn: setting the table for more variation in the future based on results. Onramp to more variation with the water year type. Desire from County to have non-scientific ramp up’s based on water year type, and seeing that there’s no reason to do that. Is releasing less than 60K AF less effective? Naman: we analyzed how the volume of water moved from spring to winter affects the days of optimal juvenile growth. The wetter the year without moving enough volume, temperature suppression is worse and reduces benefits to small fish. Need to move more water to the winter to keep temps down based on water year. Habitat, macroinvertebrates (food), and temperature benefits all rely on the volume moved. 8-9% habitat increase with winter flow. Less water goes to 2-3%. Less area is wet to produce bugs. Flynn: Joe received the actual numbers – how did those measure out. Tuthill wants what Joe is proposing. Naman: those proposals are not covered within the draft EA and would need to be analyzed. De Julio: we are trying to meet what Joe has proposed however within the bounds that we have. Polos: compare the graph I did, and explain why they are different, constraints the program has, metrics. De Julio: only bullet we’re not meeting is the scalability by WY need to explain that it compromises the measurability. Naman: and that we need to fit within the bounds of what was analyzed.

Buxton: what does the county want? Should we come up with two proposals? Flynn: yes. Naman: Let’s look at what to propose (non-scaleable/scaleable), look at the options. De Julio: Let’s protect February for the County and scale the March period.

Ty Starts Taking Notes:

Chris: ~70% likelihood (2004-2019) that the Feb 90% B120 forecast is Dry or Critically Dry.

Naman: Base flow + 60K AF peaks at 2,469 cfs on March 20th. Not many people fishing that time of year. Dixon: Let’s not say it in those words, there are a subset of people who may be fishing. Buxton: Suggests not presenting these as our two options. Present as solutions to meet their requests with one that is our preference. Flynn: Trent feels the same, more change can happen later. Naman: Want to get the town used to it? Flynn: Yes. So what about an action that we keep proposal one but proposal two is to release

more water but peaks at 2,000 cfs. De Julio: We can do that where we increase the baseflows and reduce peaks. Least impactful for fishing is high peaks for a short duration. Moves high volume of water with least impact. When you limit the peaks you limit the most expedient tool to move water. Limiting peaks forces longer implementation of higher baseflows in between to achieve the same volume. Like Todd said, let's explore how we can manipulate this to reduce peaks. Naman: We could change 2,400 cfs peak to a 2,000 cfs bench. We have different discussion points in March depending on how wet the March forecast is. We can then scale and adjust to 2,000 cfs. De Julio: and we can move those peaks to be on Mon-Tues or Mon-Thurs to reduce impacts to fishing.

Buxton: So we have two scenarios, we need to come up with a third.

Polos: making adjustments to accommodate fishing based on the day of the week would be a good PR move. Pointing out how these fine tunings are made would be helpful in presentation to the public. As you develop the presentation, make bullet points of what accommodations were made to meet the County needs and reduce impacts on fishing effort.

Buxton: Do we need to make any assignments to be prepared for this TMC meeting? De Julio: I think we need to go through the winter flow analysis and pull out pieces to highlight how we are still achieving goals. I know a lot of this is focused on the County, but other TMC reps are going to be focused on whether we are achieving our goals.

Buxton: We need to determine who is preparing the presentation? De Julio: I think we should switch to the diurnal flow discussion. Buxton: I think we got most of our work done. Naman: Do we need to summarize and be sure we have the proposals ready to present to Trent?

Team: Developed figure for 60K, 80K, and 120K between 2/15 and 4/15.

Polos: My proposal extended until 4/28, so discrepancies in volume should be addressed that I put a lot of volume in the latter part of April.

De Julio: Proposal 1 and 2 are identical using the 60K flows from 2/15-3/15. Either proposal limits impacts to fishing 2/15-3/15.

Flynn: Is fits what Liam said at TMC because fishermen have other options after 3/15. Naman: I propose you (Flynn) lead a presentation to Trent this afternoon. Flynn: Yes, I agree. I can lead that presentation.

De Julio: Proposal 1 and 2 are both good options that fit the goals of the program over the past few years. Naman: Memo or TMC material should be made for TMC and for website to memorialize this compromise.

Buxton: Diurnals is no different than what we have done in the past. I have a presentation if you'd like refreshed on what we have done in the past. We had a discussion at the end of a Flow WG meeting. No decision sent to IDT. Donnie called Buxton and asked if we want to implement. Buxton explained that it had not been decided or passed through IDT, but Donnie said let's do it. Dixon: We got that gate fixed and he was excited to use it. Buxton: That was my impression. Rather than being rushed and forced into something this group might not approve of. It would be nice for this group to present a proposal.

De Julio: There has been an observation by the public and others that during operations the water released from the dam has very low temperatures. Naman: What time of year: De Julio: Like February-

April. If you look at Ken's presentation you can see it was colder than normal. I think it is important that we understand that there was a change in operations in flow, timing, and release point. Naman: That just goes to show that we need/should be shifting more water to earlier. Unimpaired flow (no dam) in Jan/Feb would be 4° C.

Break for Lunch

Schedules: Blue (previous) red is + 20 kaf, green is normal wet + 60 kaf. De Julio: Buxton: two options, scaled by water year or follow these criteria option. Naman: proposal that has these components, then the discussion. County doesn't like adding the cfs, then we can scale back. Lindke: we should present it as one proposal, 60K AF starts on Feb 15 regardless of Feb B120, depending on the March B120 there is either no change or we add +20K AF (Dry March B120) or +60K AF (Normal March B120) decision tree. +60K AF goes above counties threshold in March. How many days does it exceed: 8 days. +20K AF there is only one day above the County's threshold.

Schedule around weekends or holidays

2004-2022, March 90% was only Normal or wetter 7/19 years (~37%). Present scaling by water year type as proposed by the County. Laskodi: can we get to the desired numbers while staying. 60K AF came from the WVF report – ability to measure increased growth in a Critically Dry year in the spring. Why in this proposal have we moved to +20K AF? These particular hydrographs are shaped to meet objectives for invertebrate scour and recolonization. The 2nd components (+20K or +60K AF) need to stay within the bounds of what reclamation analyzed. Volumes are consistent with the WVF report/analyses for Normal or drier years and lead to temperature and growth benefits in the spring.

Transition to DSS and analysis to do before Jan 11. De Julio: most of this is done in the WVF report. DSS is not the best tool because it is geared to post April 15 flow management. What is applicable from the WVF report? Laskodi: pull years with situations that we can't accomplish. Synchronization complicates things. S3 wasn't used in the EA because it ignores food (a deliberate purpose) also only goes to Pear Tree. Grow a fish faster, exit the system earlier, look like they are smaller but the action affects the whole river. Monitoring below Pear Tree in May is where the temperature suppression happens. Use S3 at Weitchpec? Polos: big selling point is shifting water earlier to help with growth. Model was intended to look at differences in scenarios. Effects of what you might have done to the action. Hesitancy to use the model. Clarify why we're not using it better. Provide habitat in the winter, not targeting physical habitat in space reducing dependance. Real benefit is increased food production, the DSS does not get to that at all. Isolating the winter period and looking at those effects is missing the main intended benefit of that period and of improving temperatures later in the year. We modeled the important components from S3 independently because we knew the food benefit was missing. Temperature benefits in the spring were modeled with a fish growth model alone. Increases in physical habitat availability was modeled with Capacity-duration curves. Naman: simple ways to analyze wetted area? Lindke: yes, TMC presentation showed that wetted width follows the hydrograph, flow goes up you get more wetted width. Overall, no novel analysis with this action. Let's pull out what we can from WVF due to the timeline. Lindke: yeah, we've done a lot of work already. EA analyses are more extensive than annual DSS analyses anyway. What we've already done does a better job than running S3 plus the practical limitation on a very short timeline over the holidays. Analyses in the WVF EA/report, public scoping, SAB review, and public and TMC presentations have been on the table for a long time already. Polos: available habitat is important. Lindke: there's no tool or model. De Julio: maybe we go through

S3, do we have time for it? 8 years that would apply to this action, we did run those, so we could look. Decline in fry, increase in par (Pear Tree). Large increase smolt abundance, decrease in fry (Weitchpec). 3% increase in fish mass (growth).

What additionally can we do? Other models: temperature and inundation (wetted area, temperature, and habitat capacity). Riparian scour and recruitment are not applicable this time of year. DSS is focused on effects of flows in the spring. 8 of the 17 years analyzed in the EA/report are relevant to our action, let's use those. Table 4-5 WVF report. Assign from here. Due Jan 11. Dave, Emily, Chris (Kyle will organize). Lindke: will work this week to organize and come up with a task list.

Patrick will present the constraints and the newly proposed action to Trent Tutthill. Based on our call earlier this week and what we worked out with the County's constraints. One proposal, scaled by water year type. Use the B120 as was used in the WVF report because it was analyzed by Reclamation. Flow volumes are standardized, already included in the EA and allows for easy decisions for this group. Feb 15 to Mar 15, 60K AF release happens regardless of water year type. March B120 Dry, +20K AF March 15-April 15, meets the County's constraints for 2,000 cfs peak constraint. March B120 Normal, +60K AF. 8 days above 2,000 cfs – most effective for the science and there is less fishing in Mar-Apr anyway. Schedule peaks around weekends or holidays. Dixon: 60K AF is the minimum amount to move to measure a response in a Critically Dry WY. If we move less water, we might not see a difference. Flynn: adds that the constraints are being met, even with the extra that goes over the constraints. Tutthill: questions the 60K AF. Naman: 60K AF meets the minimum objectives in a Critically Dry year only. Lindke: we're proposing an action that offers a measurable change with the constraints. Buxton: is the violation in later March (8 days) a deal breaker? Tutthill: length of time to reduce has been a concern. Suggests making peaks higher for shorter duration so that lower flows between peaks can be longer. De Juilio: modify the +60K AF to have bigger peaks and reduce the baseflow. Tutthill: multiple days that are fishable plus a schedule would be helpful. De Juilio: can someone work with this for the proposal? More planned fishable days while maintaining the water volume. Tutthill: all positive in his opinion. Lindke: value in keeping the duration between peaks the same or similar. Shifting off the weekends. Schedule is important. Buxton: make sure to follow the ramp rates. Laskodi: April 1 fly opener, down to a fishable flow of 1,000 or 1,200 cfs.

1:10 PM Adjourn