

American River Group

Ad-Hoc Meeting Notes 1/28/2021

1. Action Items

- a. Chris Hammersmark prepare a summary on dewatering for Chinook versus steelhead.
- b. Water Forum identify the shallowest redds based on model so that field teams can do a targeted dewatering check.
- c. Thuy Washburn provide an update regarding Reclamation's final decision on February releases.

2. Introductions

- a. USBR: John Hannon, Levi Johnson, Spencer Marshall, Sarah Perrin, Ian Smith, Thuy Washburn, Zarela Guerrero, Carolyn Bragg, Liz Kiteck, Leeyan Mao
- b. Water Forum: Chris Hammersmark, Katherine Perkins, Jessica Law
- c. SMUD: Ansel Lundberg
- d. PCWA: Ben Barker
- e. CDFW: Morgan Kilgour, Tracy Grimes, Gary Novak, Duane Linander, Ken Kundargi, Mike Healey, Jason Julienne, Jeanine Phillips
- f. NMFS: Barb Byrne
- g. USFWS: Paul Cadrett, Craig Anderson
- h. SWRCB: Michael Macon, Reza Ghasemiszadeh
- i. EBMUD: I-Pei Hsiu

- j. WAPA: Mike Prowatzke
- k. City of Sacramento: Brian Sanders, Anne Sanger, Brett Ewart
- 1. Cramer Fish Sciences: Kirsten Sellheim, Jamie Sweeney
- m. Kearns & West: Kai Walcott, Rafi Silberblatt
- n. Independent: Rod Hall
- o. Westlands Water District: Tom Boardman
- p. San Juan Water District: Paul Helliker
- q. RWA: Jim Peifer

3. CVO Update

- a. CVO provided an update regarding the current hydrology and re-stated that they are inclined to decrease releases to 850 cfs as soon as possible in order to begin conserving storage but that they would like to hear from ARG members before making a final decision. The last few storms have increased precipitation to 5.5 inches thus far in January (up from 2.0 inches the week prior); however, precipitation is still lower than the monthly average (after being well short the previous three months). There is one more small storm anticipated after which there aren't any more on the horizon. CVO is trying to balance concerns regarding dewatering redds with the water quality and temperature implications associated with a potential Critical water-year.
- b. Questions/Comments
 - i. Moving between Critical and Dry year types, the threshold increases significantly which could negatively impact water supply. Would being above the index create more challenges than being just below it?
 - 1. Yes.
 - ii. How much less inflow is there because more snow is being observed than precipitation?
 - 1. The storm has provided precipitation in the form of snow, but it's hard to determine the impact until the February B120 reports are available. After receiving those reports, additional reports will be run to see February conditions.
 - iii. There has been accretion coming into the Delta from other sources. Is there a need to keep the American River at 850 cfs or is there a need to reduce releases?

- 1. Even with the accretion, only one pump is being used and this hasn't increased.
 - a. Regarding accretion, will these storms have any benefit on the Lower American River?
 - b. The Lower American River doesn't have many tributaries that provide significant flow.
- iv. Based on the outflow releases in 2014 (which seems similar to this year), in early January releases were dropped to 750 cfs, which is higher than current releases. After that, did releases stay there or did they decrease?
 - 1. Releases were reduced after that.
- v. What were October, November, and December flows before then?
 - 1. Don't have that information on hand.
- c. Would prefer lower flows in the fall if it ensures that higher flows can be maintained later in the season. Interested in having a conversation about keeping flows consistent for fall-run next fall.
 - i. This is known and is what CVO tries to do but the hydrology cannot be predicted — December and January are the months that should receive half of the precipitation for the year.
 - 1. Maybe one year flows should start out low and if conditions are good, be increased, and if they aren't, they remain.
 - a. That could raise other potential problems (e.g., related to water temperature and salmon spawning). As far as Folsom is concerned for Dry and Critical years, it recharges well into the year.
 - i. That was the hope but, unfortunately, that hasn't happened as yet.
- d. Is it anticipated that Delta needs will increase in February causing releases to go back up?
 - i. Don't know. Today's weather briefing mentioned that it looks dry after the upcoming storm. Usually, there's another event on the horizon, but its dry.
 - ii. There's a fairly high outflow requirement, EC daily average or 14 day running average, to meet and in drier years it's difficult to achieve. Just an export cap won't do; releases would have to be increased from

somewhere. If February is dry, increasing releases somewhere can't be ruled out, and will most likely be at Folsom.

- e. Is Oroville having similar flow challenges on the Feather River or might they be able to assist with Delta needs?
 - i. The federal reservoirs supply most of the water. Releases are 1250cfs on the Feather River and it's unlikely that they would increase beyond that.
 - ii. SWP has concerns about Oroville storage this year. When the forecast was being done, there were problems with how much can be pulled from the water pools. That's not to say that if water is needed here, they wouldn't put in water, but it would require a lot of coordination.
- f. On the new CCOA, what's the split in Dry and Critical years in basin needs between state and federal reservoirs?
 - i. It's 65:35 if we're in balanced conditions.

4. Data Sharing

- a. Technical Memorandum on Redd Dewatering Estimates
 - i. Water Forum shared the Technical Memorandum on Redd Dewater Estimates. See the handout packet for details.
- b. Questions/Comments
 - i. Is that a 3.6% loss in redds from the 1250 cfs we started with?
 - 1. Yes, but 950 cfs hasn't dewatered anything in the field.
 - 2. Last week there were no dewatered redds. However, there were shallow areas that could potentially cause problems later.
 - ii. The USGS gauge site at Hazel is showing 1100 cfs right now.
 - 1. The NAT gauge is reading 965 cfs. Releases were decreased to 950 cfs on January 20th, so the NAT gauge is correct.
 - iii. Is the count of 2000 redds for the whole season?
 - 1. No, it's for all that were visible on December 29th.
 - iv. To what extent do early redds become non-visible? Do most of these active redds have eggs or alevins in them?

- There is often super imposition— redds on top of redds. The survey on the December 29th gives a good idea. There are a lot of overlapping redds. There isn't a big spatial distribution of redds missing with this analysis.
- v. Is Table 1 referring to the NAT or USGS gauge?
 - Neither. The table shows the amount of flow that is put into the model and the resulting inundation. In the fall, we noted that there were differences between NAT and AFO gauges. CVO said the NAT stocks had been calibrated and Reclamation believes they're the most accurate depiction of flow in the river.
- vi. Is the 900 cfs in Table 1 correct?
 - 1. Yes. NAT tends to report lower flows than AFO. Reclamation is operating to the NAT gauge as opposed to the AFO gauge.
 - 2. That's correct. NAT is being used for flow reading. At that spot, it's a little higher than what Water Forum's equipment is showing.
- vii. Given the spatial distribution of redds, is there a way to use the historical redd distribution but also check-in with people in the field to make adjustments?
 - It comes down to the age of the information and the model. As was mentioned before, using the most recent information available is helpful. The estimates shared in December's ARG meeting used a different approach than this version. December's used an older model, but the most recent version uses a 2D model with 2019 data. The trends observed here may be more common. The 2D model picks up more side channel data, which may be where most dewatering occurs. The two models a quite close but there are some differences.
- viii. This model uses primarily Chinook redds. Now that steelhead has started to spawn, would it be helpful to break out steelhead versus Chinook? They spawn in slightly different locations, have different substrate requirements and different velocities. A higher percentage of steelhead might be dewatered by flow reduction.
 - 1. Water Forum is happy to work up that summary. Of the 17steelhead redds, none of them were dewatered until 700 cfs and 2 more were dewatered at 600 cfs. They seem to be deep enough so that they're okay.

- 2. In the future, counts might be faster if information is already georeferenced.
- c. Actions
 - i. Chris Hammersmark, Water Forum, will prepare a summary on dewatering for Chinook versus steelhead.

5. Estimated Emergence Timing

- a. USBR shared a table on estimated emergence timing.
- b. Questions/Comments
 - i. What date will the shallow redds emerge?
 - 1. Don't have anyone marking shallow redds. Cramer Fish Sciences is marking for steelheads, but there is no one marking for Chinook.
 - ii. If flows remained at 950 cfs until February 10th then roughly 10-11% of eggs could emerge, and another 15% if flows remained the same for another 15^{1/2} days. Could flows be held for a little bit to get an extra 10% of fry emerged?
 - 1. That's a hard question. CVO is looking at conserving storage and will have to go back and talk this through.
 - iii. Were the first 4 weeks where there was 100% pre-spawned mortality removed?
 - 1. No, everything is included. It was 0.7% over first 4 weeks, so it would take ~1% off if it were removed.
- c. Distribution of Pre-Spawning Mortality
 - i. CDFW shared a spreadsheet on the distribution of pre-spawning mortality, noting that most of the spawning occurred in Nimbus Basin, section 1, downstream of where the weir is typically located.
 - ii. CDFW also shared the Lower American River Rotary Screw Trap data, stating that the highest number of fish caught was 49, which is low relative to prior years.
- d. South Fork Forecast
 - i. SMUD shared the South Fork Forecast. SMUD staff noted that Union Valley will be lowered by August, so there will be more releases in the early part of the summer.
- e. Questions/Comments
 - i. Where does that water go when those releases are made?

1. The water is stored at Folsom. For February, that's 90% or 7,000 acre-feet.

6. Discussion

- a. The ARG discussed the possibility of delaying flow reduction to 850 cfs until February 10th or later considering the information provided during the meeting. CDFW staff stated that their recommendation is to stay at 950 cfs. NMFS expressed concern regarding the reduction but indicated that they were leaning toward a decrease to 850 cfs. CVO will provide a final decision once they've discussed the information presented during the call.
- b. Is it possible to delay the flow reduction to February 10th?
 - i. The forecast looks catastrophic. While the hope is to have rain in late February/early March, the outlook doesn't look that wet. For the benefit of all the uses of water, Reclamation will have to take a hard look at tradeoffs.
- c. Haven't heard discussion about making up for the lost water if it's delayed. That is reducing flows later in the spring and holding them for a couple of weeks.
 - i. There's no payback. If releases are reduced now, that's where it'll be. It's not possible to make up for it later.
- d. Based on the outlook, 850 cfs seems sustainable until April, for the spring outflow. Is there any chance that flows might drop to less than 850 cfs?
 - i. As was mentioned before, it is not yet known what the year type is going to be on February 1st. If the year type or Delta criteria change, there will be a shift to the next tier for meeting water quality, which would require more water. Based on today, flows should be able to stay at 850 cfs through March.
- e. Is there any information that will come out on February 8th that could change anything?
 - i. Would be able to take the data and determine the MRR and look at the 12-month Outlook to see the storage fall out. This one storm won't improve much in storage. By July, Folsom will probably be under 200,000 acre-feet. Reclamation would still like to drop to 850 cfs.
 - ii. Does it make sense to push this decision to February 8th?
 - 1. No, it will not be a game changer.

- f. From a steelhead perspective, dropping now is neutral to better because spawning continues, and the dewatering concern seems limited. NMFS is leaning to 850 cfs.
- g. It's premature to reduce releases right now. CDFW would not like to decrease flows at this point.
 - i. Would CDFW like to escalate to WOMT?
 - It's ultimately Reclamation's decision. Looking at the data, everyone acknowledges that reducing flows would dewater redds, roughly ~ 70,050 thousand eggs could be dewatered. Don't understand why a decision can't be held until there is more information. Looking at what happens at 850 cfs, there was no dewatering until flows got to 600/700 cfs. If the shallow waters aren't conducive to spawning steelhead, don't see them getting impacted. 950 cfs is probably where flows should be to protect Chinook that are waiting to emerge. Trying to prevent desiccating Chinook redds.
- h. CDFW has been saying that flows should be kept as low as conditions warrant. A lot of the flows from last year weren't necessarily for fall run but to address water quality issues in the Delta.
- i. Consider a change in 100 cfs between 850 cfs and 950 cfs. A 100 cfs difference for a 30-day period is 3000 cfs which is 6,000-acre-feet. For every 2 weeks that flows stay at 950 cfs rather than 850 cfs, that's a 3000-acre-foot cost. Could potentially buy 10% emergence with 3000-acre feet. For 9000-acre feet, could buy 70% more emergence. 3000-acre feet won't make or break temperature management. Do others have thoughts on the volume change being discussed, in terms of dropping 100 cfs when?
 - i. Reclamation's job is to ensure balance. Understand there is a to save the redds, but Reclamation has an outlook and a bigger picture. Have to be careful of what is done today that can affect other parties, including public health and safety and other conditions, not just fish. It's for the whole picture of the CVP; Reclamation is looking at more than one issue.
 - ii. 9000-acre-feet and what that can do for M&I contracts is something to be considered.
- j. Based on last week's discussion, 950 cfs didn't dewater certain redds. What is the condition for the lowest redd right now?
 - i. That information was based on the redds that were measured in the first week of January. Steelhead redds were remeasured last week and three of them had a tail spill of around 4 cm, most of which were in

riffle areas. That's not necessarily the shallowest redd but is based on the 27 redds Cramer Fish Sciences measured.

- k. Could the Water Forum identify the ten shallowest redds using the location digitization and model to do a targeted dewatering check?
 - i. Yes. The redd depth could be synthetically estimated based on 2017 ground and water surface to identify the shallowest for the field team to monitor. The subsample could be targeted to the ones that are most likely to get dewatered. If the team goes out and they aren't dewatered, it might be a way to ground truth efficiently.
 - ii. That seems reasonable to do. To pull out the shape file and check those spots, its within budget for a subsample, at least.
 - iii. If CVO had that data today it would help with the decision. The sooner this data is available, the better.
 - iv. It helps to understand where the river might have changed. Whatever decisions are made, there will be significant impacts. Maybe the expectations, modelling results, and ground truthing should be documented in today's notes and the Annual Report. It won't help with today's decision, but it will help impact assessment and use for next year.
- 1. Didn't a crew try to save the redds that would be dewatered in 2014/2015?
 - i. No, that was a documentation effort; dewatered redds at the surface, but that had subsurface connection, were monitored to see how the dewatering was affecting water quality. Fairly good water quality was observed in those redds. A pulse flow was also done to reconnect disconnected side channels.
- m. Is there a benefit to rewetting redds that are dry at the surface?
 - i. That was the purpose of one of the pulses in 2014. A few were monitored but there isn't excellent data. There is good data on the stranding components for the juveniles i.e., to reconnect stranding pools, but there's a question of whether the pulse helped.
 - ii. That was mentioned on past calls with mixed responses.
- n. Does Cramer Fish Sciences have plans to complete the circuit and do an embryo emergence study? That would be very valuable data. Until that data is available, CDFW wouldn't urge the use of that as a dewatering tool.

- i. Cramer Fish Sciences doesn't have a contract in place for that because there were permitting issues. That's a piece that was missing from the study.
- ii. Don't have data but I'm pretty positive that if the fish are there, under the gravel, it doesn't take them much to come out, so a one-hour pulse should be fine. The window for this would probably not be the entire 30 days but closer to emergence time.
- iii. This would have to be studied more before it can be used as a management tool for mitigation.
- o. CDFW's recommendation is to stay at 950 cfs. Based on the CVP for Reclamation, there are a lot of things that need to be balanced, and one is fish and wildlife. CDFW is limited in what it can do, say, and incorporate into the recommendations. Ultimately, Reclamation will needs to make a decision on balancing their objectives.
- p. When will Reclamation notify the ARG of their decision?
 - i. CVO will send an update through the facilitator, who will send to the group.
- q. Actions
 - i. CVO will provide an update on Reclamation's final decision regarding February releases.
 - ii. Water Forum will identify the shallowest redds using their model for the field teams to do a targeted dewatering check.