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American River Group

Monthly Meeting Notes 7/16/20

1) Action Items

- ARG members to provide comments on the Draft Framework for CVP Power Bypasses for Species Mitigation document to Peggy Manza by COB 7/24.

2) Introductions

- **USBR:** Carolyn Bragg, Matt Di Loreto, Zarela Guerrero, Levi Johnson, Peggy Manza, Spencer Marshall, Sarah Perrin, Todd Plain, Jonny Rogado, Ian Smith, Mike Wright
- **Water Forum:** Lilly Allen, Chris Hammersmark
- **SMUD:** Ansel Lundberg
- **PCWA:**
- **PSMFC:** Cory Starr
- **SJWD:** Paul Heillker, Greg Zlotnik
- **WAPA:** Gerry Robbins
- **CDFW:** Mike Healey, Morgan Kilgour, Duane Linander, Jeanine Phillips
- **NMFS:** Barb Byrne
- **USFWS:** Craig Anderson, Paul Cadrett
- **EBMUD:** I-Pei Hsiu
- **Westlands:** Tom Boardman
- **City of Sacramento:** Brian Sanders, Anne Sanger
- **Member of the Public:** Rod Hall
- **Kearns & West:** Terra Alpaugh

3) Fisheries Update: CDFW, CFS, PSMFC

With spawning and juvenile salmonid outmigration season over, CDFW, CFS, and PSMFC did not provide updates at the July ARG meeting.

4) Operations Forecast

a. SMUD

For details on the upper American River SMUD Operations, including precipitation, reservoir storage, releases, and runoff forecast, see page two of the handout packet.

b. PCWA

PCWA did not provide a verbal update at the July ARG meeting. For details on PCWA operations, including reservoir and snowpack storage, power production, and recreation



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flows, see pages three and four of the handout packet.

c. Central Valley Operations

For details on June CVO operations, including releases, storage, inflow, accumulated precipitation, and temperature management measures, see pages five and six of the handout packet.

CVO staff noted that as of July 14, the reservoir storage was 92 percent of average for this time of year: while peak reservoir levels were lower this year compared to some wetter water years, operators released water more slowly in June so reservoir levels are slightly below average.

In-stream temperatures were rising in mid/late June due to hot days. Operators raised the upper shutter on Unit 1 on June 23rd in an effort to not exceed the 68° Fahrenheit (F) temperature objective at Watt Ave Bridge. The raised shutter drove temperatures at Watt down a degree and a half by the end of the month.

5) Central Valley Operations

a. Temperature Management

CVO staff referred to pages seven through twelve in the handouts in discussing temperature management. After the upper shutter was raised in late June, the Lower American River daily average water temperatures at Watt Ave. hovered between 65 and 66° F for about a week before rising again; for the last week, they have been fluctuating between 66.5 and 67.5° F depending on the air temperature. CVO staff noted that water temperature out of Folsom is 63° F; in general, when that temperature rises to 63.5° F, CVO operators add more cool water to the system.

Like last month, the six profile locations in the reservoir have very similar temperatures except in the top twenty feet of the lake where the sites show temperature differences up to four degrees F, likely due to variation in shading or overall depth at each location. Between June 30th and July 14th, the warmest temperature measured at a profile location increased from 79 to 81° F and the reservoir elevation at which the coldest temperatures start decreased from 365 feet to 360 feet.

The isothermobath diagram on page 11 reveals that the top of the lake has continued to warm considerably but the bottom of the lake remains cold. 226.58 thousand acre feet (TAF) of the reservoir is still less than 58° F, and the temperature at the penstock is now 52.3° F. The decreasing volume of cold water and increasing temperatures in the upper reservoir are all typical for this time of year.



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b. **Exceedance Forecasts**

For the 90 and 50 percent exceedance forecasts and associated temperature schedules, refer to pages 13 through 15 of the handouts.

CVO staff said that current conditions are better reflected by the 90 percent outlook in terms of storage and by the 50 percent outlook in terms of releases. The need for increased releases are being driven by higher depletions on the mainstem Sacramento.

90 percent runoff exceedance outlook: CVO staff noted that the average monthly river releases may end up slightly higher than the forecasted 3,706 cfs; the final average will depend on how long Delta needs mandate releases of 4,000 cfs. CVO staff also pointed out an error in the values in the handout: October, November, and December releases will not fall below the MRR of 725 cfs.

The 90 percent outlook results in the use of Temperature Schedule 40, as opposed to the Schedule 36 projected a month ago. The new schedule targets 68° F from July through the end of September, 67 for October, and 59 for November and December. The most significant difference is the warmer targets for October.

CVO has sent the new forecast to Chris Hammersmark, Water Forum, to review as well. CVO staff shared their understanding of why the 90 percent outlook temperature forecast continues to degrade: there have been higher releases over the past month and changes in Folsom's temperature profile due to a very warm July. As a result, the forecast projects high releases through the summer and then an abrupt drop to MRR in October; the MRR flows are too low and slow to bring temperatures down; and the remaining cold water is saved to reduce temperatures to 59° F in November. CVO staff reminded the ARG that biologists purposefully designed the Temperature Schedules to prioritize lower November temperatures over October temperatures. Chris Hammersmark agreed with the CVO assessment, saying that reduction in flow in October is driving the increase in temperature; there will not be enough volume of water to resist warming driven by air temperatures.

Based on the forecast, the last shutter would be pulled the week of September 2, allowing operators to pull water from the lowest elevations throughout September. The model forecasts a temperature bottleneck the week of October 7 in which operators will be pulling all the cold water possible and barely meeting the 67 degree temperature target.

50 percent runoff exceedance outlook: The 50 percent outlook shows slightly better conditions: the end-of-the-month storage throughout the fall stays around 400 TAF rather than 300 TAF in the 90 percent outlook. Forecasted releases are similar to the 90 percent outlook in July, lower in August and September, and then higher in October, November, and December. The 50 percent outlook results in the Schedule 30, the same as was forecasted last month.



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CVO staff also shared that there is now tentative agreement on a planning minimum of 300 TAF at the end of December. Staff stressed that the minimum is a target, not a requirement but that they will try to manage to that number as they make decisions throughout the year. The minimum is intended to ensure enough storage for water supply and temperature management needs in the case that there is little or no precipitation in the first part of the rainy season.

6) Discussion

What happens in the event that temperature targets cannot be achieved using the shutters?

CVO staff explained that a situation in which temperatures cannot be maintained even with all the shutters raised is referred to as “being out of control.” If that is the case, USBR convenes the ARG to discuss conditions in the reservoir and potential options to address the in-stream temperatures. A power bypass does not occur automatically. The preferred option will depend on which month this situation occurs in. For instance, if it is as early as September, a bypass would result in running out of cold water far before the end of October. Bypasses are much more effective later in the year, particularly when the water starts to cool at night.

CVO staff acknowledged that it is likely the ARG will want to discuss a power bypass at some point this year. The challenge will be in deciding which alternatives to evaluate in terms of the volume and timing of the bypass. They encouraged the fisheries agencies to begin compiling supporting materials/references but suggested that they wait to do modeling until the September profiles are available, at which point the ARG will know how much cold water is still available and what releases are being made. USBR will likely need the fisheries agencies’ bypass request one to two weeks prior to the proposed start date of the bypass.

NMFS agreed that they should hold off on modeling until the September profiles are available but suggested that following the August CDFW presentation on temperature impacts to salmonids, the group begin to share the various models they would like to use to evaluate the range of potential impacts.

Chris Hammersmark also shared that the Water Forum will be releasing a temperature white paper that includes look-up tables and charts that allow the user to estimate mortality based on a starting temperature paired with the number of days the model projects that temperature can be reduced via some management action (e.g., a power bypass). The paper will provide multiple temperature-mortality relationships, so the user can decide which to rely on.

Review of Draft Framework for CVP Power Bypasses for Species Mitigation

CVO shared a draft framework for how USBR plans to evaluate requests for power bypasses. In the USBR Commissioner’s 2019 power initiatives memorandum, she asked for the “best available science” to be used in evaluating the efficacy of power bypasses. Last year, USBR decided not to implement a bypass and fisheries agencies asked for more



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guidance on how Reclamation makes decisions about power bypass requests. This document, while draft, is intended to provide guidelines for the factors USBR is taking into account. CVO staff noted that the document may need revisions throughout the rest of this year as the fish agencies and USBR refine the process. While the document's details focus on Folsom, the logic is intended to be applicable to other CVP facilities. The draft includes redline comments from WAPA and NMFS; CVO staff requested comments from other ARG members by COB 7/24.

CVO staff walked through the document to explain their thinking and respond to the comments provided thus far. They also stressed that the compilation of materials should be an ARG-wide effort, not solely the responsibility of the fisheries agencies. USBR will also provide information (e.g. current and forecasted cold water pool).

SMUD asked whether the CCAO power operators have weighed in on the criteria and how they impact operations. CVO staff said they have not yet weighed in but agreed that their input will be important; in particular, power operators will need to ensure that any release ranges are suitable for the units. There can be limits on what blending can be done, especially if releases are close to the MRR. Those details do not necessarily need to be part of the policy document but any proposed bypass will need to be evaluated with those sideboards in mind.

NMFS asked whether there is the ability to turn a bypass on and off within a day in order to allow Folsom to provide power during peak periods and minimize lost revenue. Folsom releases get blended in Natoma, so the ARG would not have to worry about the impacts of fluctuating temperatures. CVO staff thanked NMFS staff for their creative thinking. Folsom operators shared that the outlets are manual, so opening and closing the gates multiple times a day would require a labor component but there are not restrictions on it.

WAPA's representative stated that they are very supportive of this document and its effort to outline what the bypass consideration process looks like. They would like to better understand what temperatures would give the group the most benefit for their water/power investment in terms of fish survival.

NMFS suggested that the ARG set up biweekly "bypass package" meetings to discuss the pros and cons of tools, models, and resources to evaluate impacts of a given bypass proposal. These meetings would ensure that everyone is aware of where supporting materials originated. CVO endorsed that approach and suggested they discuss scheduling starting at the August ARG meeting.

CVO staff reminded the ARG that USBR is required to operate consistent with the BA and BiOp and that all alternatives must enable them to meet their regulatory requirements, but that within those constraints, ARG input will be weighed heavily in the consideration. ARG members are strongly encouraged to participate regularly in any discussions about the bypass and to defend their assertions.



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7) **Next Meeting:** Thursday, August 20, 2020 from 1:30 PM – 3:30 PM