BUREAU OF RECLAMATION

American River Group Notes

Conference Line: +1 (321) 209-6143; Access Code: 985 598 947#
Webinar: Join Microsoft Teams Meeting
Thursday, August 15, 2024

Action Items

Kearns & West

1. Distribute ad hoc meeting calendar invitation for 9/5/2024 at 1:30 p.m. (DONE)
2. Post the Temperature Modeling presentation to the ARG Teams site.

Water Forum

1. Follow up with USBR regarding the request for spilling data from the Nimbus Dam gates.

USBR

1. Include DO levels in upcoming meeting packets.
2. Share the 9/3/2024 profile/forecast with the ARG
3. Target 67°F at Watt Ave

Cramer Fish Sciences

1. Download and share weekly DO data from loggers.

Introductions

1. USBR: Drew Loney, Mechele Pacheco, Spencer Marshall, Thuy Washburn, Zarela Guerrero, Todd Plain
2. NMFS: Barb Byrne, Rachael Alcala
3. USFWS: Paul Cadrett
4. CDFW: Crystal Rigby, Drew Gaan, Duane Linander, Emily Fisher, Erica Meyers, Jason Julienne, Mike Healey, Molly Shea, Nick Bauer, Travis Apgar

5. DWR: John Ford
6. SWRCB: Claudia Bucheli, Nathalie Niepagen
7. California State Parks : Steve Hilton
8. EBMUD: I-Pei Hsiu, Max Fefer
9. City of Sacramento: Anne Sanger, Ryan Palmer
10. Sacramento County: Bryan Holm, Gary Bardini
11. Environmental Council of Sacramento: N/A
12. City of Folsom: Marcus Yasutake
13. City of Roseville: Sean Bigley
14. Cramer Fish Sciences: Kirsten Sellheim, Maeghen Wedgeworth, Mollie Ogaz
15. PCWA: Ben Barker
16. PSMFC: Hunter Morris, Logan Day
17. SMUD: Megan Peers
18. USACE: Casey Nyquist
19. cbec Eco Engineering: Chris Hammersmark
20. Water Forum: Ashlee Casey, Erica Bishop
21. Water Districts: Greg Zlotnick, Paul Helliker, Tom Boardman
22. Regional Water Authority (RWA): N/A
23. Shingle Springs Band of Miwok Indians: N/A
24. CSUS: Dede Birch
25. Kleinschmidt Group: Vanessa Martinez
26. WAPA: N/A

Announcements

- N/A

Housekeeping

- N/A

Fisheries Update

CDFW Updates

1. Carcass Surveys
    a. N/A
2. Chinook spawning
    a. N/A
3. Redd surveys
    a. N/A
4. Nimbus Hatchery Operations Update
    a. The hatchery has been rearing steelhead over the summer and is starting to see some columnaris outbreaks (which is common when water temperatures increase). Mortality is still low at this point.

Questions and Comments

1. N/A

Cramer Fish Sciences Updates

1. Dissolved Oxygen (DO)
    a. DO is starting to approach the 6.5 mg/l level, which is where fish start to struggle for oxygen.
    b. On occasions when the dam gates are spilling, the water becomes more aerated and DO starts to increase.
    c. Watt Ave. has more diurnal fluctuation (i.e., more variance between morning and evening patterns). DO is still at a healthy level at this location.
    d. Cramer will resume downloading logger data the week of 8/19/2024.

Questions and Comments

1. NMFS asked if there is any information about the DO levels at Folsom in relation to reservoir releases. A reservoir profile was done last year that examined DO.

a. Cramer responded that they just installed the logger yesterday, so there is no data available yet but it will be downloaded in early September. The logger is positioned next to Folsom State Prison, so collecting data can require additional effort, but will be performed at the same time as data collection from the other two loggers. If DO levels begin to look concerning, Cramer will commence weekly data downloads.

b. The Water Forum noted that the existing logger is below the restored site and they've added loggers below the two gates that are spilling and near the powerhouse till.

c. CDFW asked whether the drop in flows at the Fair Oaks gauge is related to the increase in DO from late July to early August?

    i. Cramer responded that there is not a clear correlation between DO and flow - it's typically the gate changes that seem to affect DO rather than releases.

2. The Water Forum shared that they have requested data from USBR regarding the timing of the spilling as well as which and how many gates are spilling. This could help inform the discussion on DO and allow the researchers to tailor their monitoring to the most effective locations.

3. NMFS asked about the power market in relation to spilling levels at Lake Natoma. What is the potential for continuing some level of spill [to protect against] the low DO levels we are likely to see for the next two months? Why is USBR currently spilling 1,000 cfs at Nimbus Dam?

    a. USBR has not heard any updates on the negative power issue and doesn't see a necessity for a spill related to negative power pricing. As for the current spill rate at Nimbus Dam, there is always maintenance work happening at the dam and Lake Natoma, which could be the reason for the current spilling.

4. NMFS shared that the Regional Water Quality Control Plan has a DO standard for cold bodies of water such as the American River of 7 mg/l (as opposed to the previously mentioned threshold of 6.5 mg/l).

    a. Cramer added that the USEPA threshold for California salmon is 8 mg/l. The 6.5 mg/l threshold is where physical effects on fish have been observed in previous studies, so it would be best to stay above that for maintaining fish health. Also, inter-gravel DO tends to be a little lower than ambient DO, so levels in the water column should

be kept a safe distance from the 6.5 mg/l measurement to reduce embryo mortality.

5. The Water Forum shared that the recently installed logger in upper Lake Natoma has registered DO levels of approximately 6 mg/l. They are keeping close watch on it and acknowledged that there will likely be upcoming discussion on this topic.
    a. CDFW asked if it's possible to anticipate DO conditions downstream of Lake Natoma by looking at upstream conditions?
        i. Cramer responded that they have data from last year that was taken from the logger at the upstream end of Lake Natoma, as well as the [newly installed] logger downstream from the dam. However, it's not a "clean" measurement of what's happening only at Lake Natoma, because you're measuring the DO levels after the water comes through the dam. We see diurnal fluctuation in the upper logger just below Folsom, which is due to power production. The Water Forum added that with the additional loggers in place, they'll be able to compare DO right below the Folsom logger with DO at the logger below the tailwater at the Nimbus Dam powerhouse. That water is not getting aerated and is not affected by the spilling.
        ii. CDFW shared that they collect DO data at both Nimbus Dam and the American River Hatchery. Last year, once the DO issue was identified, they were collecting data twice daily. CDFW is conducting continuous monitoring and has an in-pond monitor in the head box of the raceways which is capturing water coming directly out of their intake before its oxygenated into the hatchery. ARG members can contact Jason Julienne or Emily Fisher at CDFW to request that data.

PSMFC Updates

1. N/A

Operations Forecast

SMUD

1. Precipitation totals (49 inches) are approximately 87% of the entire water year average as of 8/12/2024.

2. Runoff into the storage reservoir basin is 102% of the median as of 8/12/2024.
3. Total reservoir storage is nearly 85% full at approximately 320 TAF.
4. Chili Bar daily average releases are forecasted at the following flow rates:
    a. August: 956 cfs
    b. September: 479 cfs
    c. October: 427 cfs

Questions and Comments

1. N/A

PCWA

1. Storage at French Meadows is currently 96 TAF, or 71% capacity.
2. Storage at Hell Hole is currently 136 TAF, or 65% capacity.
3. Combined storage totals 232 TAF, or 65% capacity. This represents 89% of the 15-year average.
4. Inflows coming into the reservoirs are minimal.
5. Middle Fork American River (MFAR) daily average releases are approximately 825 cfs.
6. North Fork American River at the pump station below the confluence is releasing a daily average of 900 cfs.
7. Total precipitation for Lake Spaulding during WY 2024 is 58.4 inches, or 85% of average, as of 8/15/2024.
8. Annual maintenance outage is scheduled for 10/1 – 10/31/2024. Minimum flows during this time are scheduled to be 165 cfs.

Questions and Comments

1. N/A

Central Valley Operations

USBR

1. Folsom Reservoir releases are at 3,500 cfs as of 8/13/2024, with the possibility of decreasing to 3,000 cfs the week of 8/19/2024.
2. Folsom storage levels are decreasing in preparation for the next water year. As of 8/14/2024, storage levels are approximately 550 TAF.
3. Minimum Release Requirements (MRR) are set at 1,750 cfs for August.
4. Temperatures remained under the 66°F threshold for most of July until flows were decreased at the end of July.
5. Folsom Dam water temperatures have decreased from 62.5°F on 7/16/2024 to 60.5°F on 8/6/2024.
6. Upper shutters were all pulled on 8/2/2024. One of the middle sets of shutters was pulled on 8/15/2024, which should provide some relief beginning on 8/16/2024. Pulling these shutters is a standard practice at this time of year.
7. In the 50% exceedance operations forecast, the monthly American River release levels are anticipated to be 3,770 cfs for August, 2,300 for September and 2,000 cfs for October.

Questions and Comments

1. NMFS asked if USBR is still targeting 66°F at Watt Ave.; the displayed graph lists a maximum target temperature of 67°F.
    a. USBR confirmed 66°F is still correct; the 67°F listed on the map is merely a range.
2. The San Juan Water District asked for clarification on compliance with the threshold of 66°F at Watt Ave. being tied to the daily average rather than a peak temperature day.
    a. USBR responded that the table lists the daily average Watt Ave. temperatures and confirmed that the threshold is 66°F.

3. NMFS noted the variation between the MRR of 1,750 cfs and the forecasted flows of 2,000 cfs and greater during the fall months and asked about the probability of dropping to 1,750 in the fall.
    a. USBR said they can't predict what's going to happen with the Delta but hopefully it will be close to what they're currently forecasting, notwithstanding any emergencies. They noted that the decrease from 5,000 cfs to 3,500 cfs brought about a very rapid change in water temperature but USBR was able to get back into compliance within three days.

Discussion

Water Temperature Modeling

1. The Kleinschmidt Group presented their most recent water temperature modeling results.
    a. Summer and Fall Temperatures
        i. July and August were both record breaking months for temperatures in the Sacramento Area. These trends are reflected in the most recent temperature modeling in that the current temperature profiles are a result of the exceptionally hot weather.
            1. July 2024 was the hottest month on record for the Sacramento area, with the average maximum daily temperature measuring over 100°F.
            2. 2020 was the hottest August on record.
        ii. Modeling was conducted using meteorological data from both 2020 (a historically warm summer/fall) as well 2017 (which was a cooler).
        iii. Baseline runs presented did not include Power Bypass.
        iv. If meteorology going forward looks similar to that of 2017, it would likely be okay to continue with the 66°F temperature target at Watt Ave.
        v. If meteorology is closer to the hotter 2020 conditions (warm Aug/Sep/Oct), continuing to manage to 66°F will likely result

in a loss of temperature control. These results which suggest managing to a higher temperature (e.g., 67°F) to reduce the impacts of that loss down the line.

1. Without a bypass, under these conditions, Watt Ave. would be estimated at 62°F at the beginning of November.

b. Power Bypass Scenarios

i. No bypass

ii. Bypass 10/18 – 11/1/2024 at 250 cfs and then 11/1 – 11/14/2024 at 500 cfs

iii. Bypass 11/1 – 11/21/2024 at 500 cfs

iv. These scenarios reflect the same volume of cold water being bypassed through the lower river gates.

Questions and Comments

1. NMFS asked if this type of regression analysis is driven by the thermal loading of the water in the river, or if it's more determined by the daily average temperature that takes into effect the hot days and cool nights.
    a. Kleinschmidt Group responded that there could be a very small difference between those two scenarios. This particular analysis was only looked at from a daily average perspective.
2. Regarding the fall 2024 temperature modeling that used 2017 meteorology, NMFS asked about temperature targets that seem to be cooler than necessary. Are the releases so high that they're maintaining a cooler-than-required temperature?
    a. Kleinschmidt Group responded that in this case, the shutters would have been removed. Even though the water is cooler than it needs to be, warmer water cannot be released due to the physical constraints of the shutter.
3. NMFS acknowledged the risk of having hot temperatures past the end of summer while holding at the 66°F target. If we checked conditions and modeled again in three weeks, would it be too late at that point to make an informed decision?

    a. Kleinschmidt Group said it would likely result in something intermediate; it would not be an all or nothing situation. However, the longer the warm water releases are delayed, the condition on the other end will be warmer.

4. USBR noted that higher releases of 5,000 cfs for Delta needs helped mitigate the extreme heat in July but also required pulling the middle shutters. Higher flow rates provide more thermal mass and a shorter residence that helps resists warming in Lake Natoma and the LAR, but it also uses more cold water than a lower release would.
5. NMFS noted that a temperature of 69°F in October would create poor conditions for fall-run Chinook salmon and steelhead. NMFS' preference would be to target 67°F at Watt Ave (65-66°F at Hazel Ave).
    a. CDFW supports shifting the target to 67°F.
    b. USBR agreed to target 67°F at Watt Ave. There was no objection to this from ARG members.
6. Ad hoc Meeting and Materials
    a. USBR will have new forecasts to share on 9/3/2024 and 9/17/2024.
        i. The ARG agreed to hold an ad hoc meeting on 9/5 to determine what additional scenarios to model based on the 9/3 profile. The subsequent modeling will be run by 9/13 so that it can be discussed at the 9/19 meeting.
    b. The Water Forum reiterated the need for timely communication regarding anticipated shutter pulls going into the ad hoc and regular ARG meetings, so that the most up-to-date condition can be accurately modeled, since there are limited funds available for this critical modeling.

Next Meetings

The next meeting (ad hoc) will be held on Thursday, September 5. The meeting will be virtual.

The next regularly scheduled ARG meeting is on Thursday, September 19. The meeting will be virtual.