BUREAU OF RECLAMATION

American River Group Notes

Conference Line: +1 (321) 209-6143; Access Code: 985 598 947#
Webinar: Join Microsoft Teams Meeting
Thursday, July 18, 2024

Action Items

Kearns & West

1. Revise the agenda to reflect the cancellation of the temperature modeling presentation. (Complete)
2. Check with Barb Byrne, NMFS, about presenting the power bypass report at an upcoming meeting.

The Water Forum, Kleinschmidt Group, and USBR

1. Coordinate forecasts and run the three modeling scenarios (described in the Discussion section below).
    a. Modeling results to be shared with the ARG by 8/13/2024.

Introductions

1. USBR: John Hannon, Karissa Bridges, Mechele Pacheco, Spencer Marshall, Thuy Washburn, Zarela Guerrero, Liz Kiteck, Todd Plain
2. NMFS: Sam Pyros, Robert Sheffer
3. USFWS: Craig Anderson, Paul Cadrett
4. CDFW: Crystal Rigby, Drew Gaan, Duane Linander, Emily Fisher, Jason Julienne, Jennifer O'Brien, Mike Healey, Molly Shea, Nick Bauer, Tracy Grimes, Joel Craven, Elaine Jeu
5. DWR: John Ford, Kevin Reece
6. SWRCB: Claudia Bucheli, Nathalie Niepagen
7. EBMUD: I-Pei Hsiu
8. City of Sacramento: Brian Sanders, Madison Malicki, Ryan Palmer
9. Sacramento County: N/A
10. Environmental Council of Sacramento: N/A

11. City of Folsom: N/A
12. City of Roseville: Sean Bigley
13. Cramer Fish Sciences: Jamie Sweeney, Kirsten Sellheim, Maeghen Wedgeworth, Mollie Ogaz
14. PCWA: Ben Barker, Darin Reintjes
15. PSMFC: Hunter Morris, Logan Day
16. SMUD: Tyler Belarde
17. USACE: N/A
18. CBEC Eco Engineering: Chris Hammersmark
19. Water Forum: Ashlee Casey, Erica Bishop
20. Water Districts: Greg Zlotnick, Paul Helliker, Michelle Banonis
21. Regional Water Authority (RWA): N/A
22. Shingle Springs Band of Miwok Indians: N/A
23. CSUS: N/A
24. Kleinschmidt Group: Vanessa Martinez
25. WAPA: Vanessa Armentrout
26. Other: Jennifer Buckman, Rod Hall, Ted Rauh, DeDe Birch

Announcements

1. Temperature modeling results will be presented in August rather than July.
2. Paula Hoover retired. Gary Novak is moving to Manager Level II at Nimbus fish hatchery. Drew Gaan is now filling Gary's role at Nimbus Fish Hatchery as Manager Level I.
3. The Water Forum shared an update on this year's restoration project: Project work is scheduled to begin at Riverbend by mid-August. Work crews are currently making gravel at Mississippi Bar.

Housekeeping

1. Reminder to resubmit edited materials for June

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. N/A
5. Questions and Comments
    a. N/A

Cramer Fish Sciences Updates

1. Cramer shared that the stranding survey data and steelhead redd data will be uploaded into the EDI data portal – a public data repository. Once it's ready to review, Cramer will share an access link with the ARG.
2. Presentation on Dissolved Oxygen (DO) monitoring in the Lower American River (LAR)
    a. The EPA recommends DO levels of at least 8 mg/l in California's salmon-bearing streams. The 2019 Water Board's Basin Plan requires DO levels of at least 7 mg/l from Folsom Lake to the Sacramento River to protect beneficial uses for freshwater habitat, migration, and spawning. At 6.5 mg/l, adult Chinook salmon begin to demonstrate physiological stress.
    b. When air temperatures are high, the lake is stratified, creating a warm temperature layer on the top of the lake, and a cooler layer of water at the bottom. This temperature layering allows for power bypasses to be conducted to control river water temperatures by pumping the cooler water into the river. However, it can also create low dissolved oxygen conditions in the deep part of the lake due to limited primary productivity and decomposition.
        i. Folsom Lake is currently stratified.
    c. Folsom Lake is stratified at the time that salmon immigrate into the river for spawning. Spawning generally occurs from October to January. Sometime in November as air temperatures cool, the upper and lower portions of the lake mix, creating a more uniform water temperature and DO throughout the lake.
    d. Colder water temperatures usually correlate with increased DO levels as well as better conditions for eggs and gravel because colder water can hold more oxygen. The 2009 Sailor Bar gravel enhancement project documented

lower temperature and higher DO in restored relative to unrestored spawning riffles.

e. To document spatial and temporal DO patterns in the river, the Water Forum began a continuous DO-monitoring pilot study in 2022 to better understand the seasonal DO/temperature dynamic in the LAR.

    i. Loggers were initially installed at Nimbus Basin and Watt Ave., and in fall 2023 a third logger was installed below Folsom Dam to discern power bypass effects.

f. Cramer summarized their findings:

    i. LAR DO reduction and temperature issues tend to occur at the time when spawning Chinook salmon are immigrating into the river.

    ii. Low DO appears to be a bigger issue in dry years (2021 and 2022) but can drop below healthy levels even in wetter years (2023).

    iii. Nimbus Dam spilling can be an effective management tool for maintaining healthy DO levels in the LAR. It should be noted that previous management of DO via spill also coincided with a power bypass at Nimbus powerplant, and more information is needed regarding localized spatial variation in DO within Nimbus Basin.

    iv. The Folsom power bypass improves water temperatures and does not detrimentally impact DO substantially based on previous years' observations.

g. DO Conditions as of July 2024

    i. DO levels are healthy but are trending down as temperatures increase.

    ii. DO issues will likely be seen in late August.

    iii. The logger will be installed in upper Lake Natoma in mid-August.

3. Questions and Comments

    a. CDFW recalled a period in which juvenile Chinook salmon were experiencing gas embolisms that coincided with spilling at Nimbus Dam and asked if there is a threshold for the amount of water to spill at Nimbus.

        i. Cramer responded that varying the rate of spill could be an interesting experiment. Most of the gates were open last year, allowing for a large amount of spill. Also, mapping the DO levels in various locations in the basin could be worth investigating.

    b. CDFW asked for clarification on how adding enhanced gravel can lower water temperature since the addition of gravel seemingly makes the water shallower and therefore warmer.

i. The Water Forum responded that the particular study mentioned was looking at inter-gravel water quality. Over time, through natural processes, gravel may become compacted, the particle size may coarsen, and its quality can be reduced due to accumulation of organic debris or fine sediment in the gravels. The enhanced gravel from projects helps to "reset" this cycle, by placing gravel that is of a suitable size distribution and has been cleaned of debris. This, among other design features, improves hyporheic flow through it, which oxygenates the water and helps cool it.

PSMFC Updates

1. Sampling concluded on 6/26/2024.
2. As of 6/26/24, the following unmarked juvenile LAD Chinook salmon have been caught:
    a. 83,072 fall-run
    b. 84 late-fall-run
    c. 41 spring-run
    d. 12 winter-run
    e. 163 O. mykiss
3. PSMFC is currently working to clean the 2024 data and develop reports.
4. Sampling will start again in January 2025. The PSMFC hatchery request is expected to be completed by the end of the month.
5. Questions and Comments
    a. CDFW asked if PSMFC anticipates requesting additional hatchery fish for 2025 compared to requests from the previous several years.
        i. PSMFC responded that their request will be exactly the same as in previous years.

Operations Forecast

SMUD

1. Precipitation totals are approximately 86% of the entire water year average (56 inches) as of 7/15/2024.
2. Total reservoir storage is 93% full at 354 TAF.
3. Chili Bar daily average releases are forecasted at the following flow rates:
    a. July: 2,100 cfs

i. SMUD noted that these releases are higher than previously forecasted in order to meet recreational flow requirements below Chili Bar.

ii. Releases have to be balanced with FERC commitments.

b. August: 879 cfs

c. September: 455 cfs

4. Questions and Comments

a. N/A

PCWA

1. Storage at French Meadows is currently 110 TAF, or 81% capacity.
2. Storage at Hell Hole is currently 167 TAF, or 80% capacity.
3. Combined storage totals 278 TAF, or 81% capacity. This represents 109% of the 15-year average.
4. Inflows from all tributaries are currently at 1,500 cfs.
5. Middle Fork American River (MFAR) daily average releases are approximately 900 cfs.
6. Recreation releases are occurring every day except for Mondays.
7. North Fork American River at the pump station below the confluence is releasing a daily average of 975 cfs.
8. Total precipitation for Lake Spaulding during WY 2024 is 58.37 inches, or 85% of average, as of 7/17/2024.
9. PCWA reminded the group that 7/20/2024 will be a Special Event Early Release Day for the Tevis Cup.
10. Questions and Comments

a. SMUD asked where the Tevis Cup crosses the American River.

i. PCWA responded that the race crosses at Poverty Bar, just below Drivers Flat and Ruck-a-Chucky. PCWA will keep flows as low as possible while still meeting FERC requirements.

Central Valley Operations

USBR

1. Folsom storage levels continue to decrease.

2. Accumulated inflow into Folsom is 2,100 TAF as of 7/16/2024, or 86% of the 15-year average. Average inflow is 1,900 TAF.
3. As of 7/16/2024, Folsom storage is 739 TAF, or 108% of the 15-year average.
4. Releases from Nimbus Dam are 4,960 cfs as of 7/16/2024.
5. Minimum Release Requirements (MRR) are set at 1,750 cfs for July.
6. The average water temperature at Watt Ave. was 61.6° F for the month of June. The average water temperature for July has been 64.1°F to date. The first set of shutters on Unit 2 were opened on 7/11/2024.
7. Air temperatures are forecasted to be 40-50% Above Normal for the summer.
8. Folsom Dam water temperatures have risen from 59.3°F on 7/2/2024 to 62.5°F on 7/16/2024.
9. iCPMM model results show that water in Folsom Reservoir is still on track to not exceed the maximum target temperature of 66°F for the summer.
10. In the 90% exceedance operations forecast, the monthly release levels are anticipated to be 5,000 cfs for July; and 4,400 cfs for August, and 1,500 for September.
11. Questions and Comments
    a. NMFS noted that we are already halfway through July and usually Watt Ave. is above 65°F by now. Does there need to be an adjustment to the temperature plan for October, or will we be able to stay with the plan to not exceed 66°F through October?
        i. USBR responded that the plan to not exceed 66°F at Watt Ave. is still plausible and we are currently on track to meet that target.
        ii. CDFW noted that they would have preferred to see temperature modeling data earlier in the season – specifically, they would have preferred to see a non-bypass modeling run before shutter position changes were made to better understand the potential impact of operating to a higher temperature over the summer to achieve suitable spawning temperatures in the fall.
12. USBR asked for clarification regarding whether ARG members are requesting a warmer target.
    a. CDFW responded that it's probably too early to make that official request.
    b. USBR noted that meeting cooler temperatures at Watt Ave. is largely driven by ambient air temperature.
13. CBEC noted that future modeling will a) show temperatures with and without a power bypass, and b) explore different start dates for the potential bypass. The

longer we wait, the more accurately these scenarios can be modeled because there will be fewer hypotheticals.

a. NMFS asked about Schedule 29, which had the July temperature at 67°F. Would the ARG want to consider easing up for the last two weeks of July in order to hit the 65°F mark in October?

14. CBEC confirmed USBR's proposal is on the right path.

15. USBR does not see a possibility of exceeding 66°F during July.

    a. The Water Forum noted that in the 90% exceedance forecast, the listed flows for September, November, and December are below the MRR of 2,000 cfs. Currently, they are listed as 1,500 cfs.

        i. USBR responded that a flow of 2,000 cfs will be good for water temperatures but will deplete Folsom storage faster in case that is a concern.

        ii. The Water Forum suggested that adjustments be made to other months (months when the forecasted flows are shown to be well above the MRRs) to allow for the MRRs to be met in all months without depleting storage.

Discussion

1. The ARG walked through the temperature modeling runs to be reviewed in August.

    a. CBEC outlined three different runs:

        i. A base run without a power bypass;

        ii. A bypass of 500 cfs for around three weeks starting at the beginning of November;

        iii. A bypass of 250 cfs for the last two weeks of October before shifting to 500 cfs for November.

    b. CDFW confirmed that these proposed runs seem consistent with their expectations and noted that hatcheries may have some target release levels in mind, but it may be best to consult with them after the modeling is run and reviewed by the ARG.

    c. The Water Forum flagged a potentially confusing modeling run that was previously shared with the ARG that appeared to include a bypass. They clarified that this is how the model behaves without additional guidance or input. Once we get the new modeling, it will be important to not compare the results to those of the previous modeling runs.

        i. CBEC assured that runs such as that will not be presented in the future.

ii. CDFW asked that the modeling results to be viewed in August will include the remainder of hot July conditions.

2. The ARG discussed the timing and availability of the upcoming modeling results.
    a. The timing will depend on when the Water Forum and Kleinschmidt Group receive the forecast profiles from USBR. These are taken the 1st and 15th of the month.
        i. USBR noted that the current 90% exceedance can be used in conjunction with bumping the MRR from 1,500 cfs to 1,750 cfs for September and then to 2,000 cfs October through December.
        ii. The August 1 profile would need to be used since the next ARG meeting falls on 8/15/2024.
        iii. The Water Forum and the Kleinschmidt Group will aim to share the modeling data with the ARG on 8/13/2024.
        iv. USBR can also work on the 50% forecast and share that with the Kleinschmidt Group and the Water Forum.

Next Meetings

The next regularly scheduled ARG meeting is on Thursday, August 15. The meeting will be virtual.