BUREAU OF RECLAMATION

American River Group Notes

Conference Line: +1 (321) 209-6143; Access Code: 985 598 947#
Webinar: Join Microsoft Teams Meeting
Friday, September 6, 2024
Ad hoc Meeting

Action Items

Kleinschmidt Group

1. Model the scenarios detailed in the Water Temperature Modeling discussion section below.

Introductions

1. USBR: Drew Loney, Mechele Pacheco, Spencer Marshall, Thuy Washburn, John Hannon, Carolyn Bragg, Karissa Bridges
2. NMFS: Barb Byrne, Rachael Alcala, Sam Pyros
3. USFWS: Paul Cadrett
4. CDFW: Crystal Rigby, Emily Fisher, Jason Julienne, Nick Bauer, Gary Novak
5. DWR: John Ford
6. SWRCB: Claudia Bucheli, Nathalie Niepagen
7. California State Parks: N/A
8. EBMUD: N/A
9. City of Sacramento: Ryan Palmer
10. Sacramento County: N/A
11. Environmental Council of Sacramento: N/A
12. City of Folsom: Marcus Yasutake
13. City of Roseville: N/A
14. Cramer Fish Sciences: Kirsten Sellheim
15. PCWA: Darin Reintjes

16. PSMFC: Hunter Morris
17. SMUD: N/A
18. USACE: N/A
19. CBEC Eco Engineering: N/A
20. Water Forum: Ashlee Casey, Erica Bishop
21. Water Districts: Deanna Sereno
22. Regional Water Authority (RWA): Michelle Banonis
23. Shingle Springs Band of Miwok Indians: N/A
24. CSUS: N/A
25. Kleinschmidt Group: Vanessa Martinez
26. WAPA: N/A
27. Other: Clyde MacDonald, Rod Hall

Announcements

- N/A

Housekeeping

- N/A

Dissolved Oxygen (DO) / Temperature Profile Updates

Cramer Fish Sciences

1. Crews downloaded the most recent logger data on 9/4.
2. DO is decreasing below Nimbus Basin and has reached stressful levels.
    a. Since the logger below Folsom Dam was installed in late August, DO has been below 6 mg/l and has been stable at approximately 4.5 mg/l beginning on 8/28/2024.
    b. In Nimbus Basin, DO has been at or below 6.5 mg/l on the north bank below the powerhouse outflow since late August and is slowly decreasing. On the south bank of the Basin, DO was high (~9.5mg/l) prior to 8/29/2024. On that date, spilling through the radial gates stopped and DO decreased quickly to 5.5-6mg/l.
    c. DO levels at Watt Ave. are currently stable due to aeration in that section of the river.

CDFW

1. CDFW is seeing DO levels in the mid-5's (mg/l) at the Nimbus and American River Trial hatcheries. As activities such as feeding or pond cleaning are occurring, we're seeing drops in DO in the raceways due to increased fish activity. DO levels in the round tanks are dropping as low as the mid-to-low 3's (mg/l) and we're observing some mortality due to the low levels. Hatchery staff are moving fish around in an effort to prevent further mortalities.

USBR

1. USBR made a 4,000 cfs bypass at Nimbus Dam on gate 18 on 9/5/2024 in response to the temperature profile taken in early September as well as the DO levels reported by the hatcheries.

Discussion

1. NMFS asked if the major drop in DO in August that occurred when USBR pulled one of the shutters was due to concerns with downstream water temperatures.
    a. USBR confirmed that the action taken on 9/5/2024 was related to this issue.
2. NMFS commented that there appear to be two primary dynamics contributing to lower DO below Nimbus Dam:
    a. The water coming from Folsom Lake is lower in DO than it was previously because it is being drawn from deeper in the reservoir;
    b. Aeration of the water decreases as spilling is halted or decreased.
    c. USBR added that aquatic weed growth (accelerated by recent warm temperatures) may be contributing to declining DO in Lake Natoma.
3. USBR is releasing 400 cfs out of Gate 18 to improve hatchery and the downstream conditions.
    a. CDFW asked about the duration of the 400 cfs releases and if DO conditions could go back to critical levels if releases are halted.
        i. The 400 cfs release will continue while DO remains under 6 mg/l. USBR will monitor releases in an attempt to increase and maintain levels to 7 mg/l or higher.
4. Cramer and the Water Forum reiterated that the immediate effect of the spilling on DO is a localized response; DO increases due to water turbulence as it flows downstream. Cramer warned that a level of 6.5 mg/l is concerning as spawning season approaches and embryos are in the gravel. DO tends to be higher at the surface of the water than within the gravel.
    a. The Water Forum added that additional loggers were installed to closely examine the DO-level dynamics. The tailwater coming out of Nimbus powerhouse seems

to be generating DO levels similar to what is upstream at Lake Natoma. What comes out of the powerhouse goes right over the recently restored spawning riffle, which is concerning for the eggs in the gravel in Nimbus Basin.

5. NMFS asked whether the hatcheries have a preference for which gate is opened?
    a. USBR said this was discussed with the hatchery. It was decided to start with opening Gate 18, and if no improvement is seen at the hatchery, then USBR will switch to gate 1.
        i. DO readings were requested from below Nimbus for comparison.
        ii. CDFW noted that the hatchery intake is a little bit to the south, and right after the radial gate, next to Gate 18. DO levels as of the morning of 9/6/2024 were 5.2 mg/l; releases from Gate 18 don't appear to be improving DO levels. No fish will be collected in the next six weeks or so, therefore the gate choice is of little consequence. Gates 1-8 are remotely operated, which could be easier for USBR. By spawning season, Gate 18 may be preferable.
        iii. USBR noted since there is no improvement seen via Gate 18 releases, they will switch operations to Gate 1 on 9/9/2024.
        iv. Cramer asked when the ARG would like to see updated logger data after the gate change is made.
        v. CDFW asked about the existence of a plan to achieve better DO levels in Lake Natoma with the water coming from Folsom Lake.
            1. USBR responded that the only way to improve DO in Lake Natoma is to bypass at Folsom, which would use the existing cold water resources. If the ARG wants to resort to doing some level of bypass now, there will be less water later in the fall to use for a bypass. Also, if the bypass occurs now, we'll have to tap the cold-water stores that are not really needed right now.
        vi. NMFS asked if it is possible to aerate without using up cold water.
            1. USBR responded that they reviewed multiple options. The reasons they didn't want to use the radial gates at Folsom are because the water is quite hot, and because those gates are used only for emergencies. USBR doesn't believe that this potential action would be approved. The JFP auxiliary spillway is intended for flood control use.
            2. The Water Forum suggested that a future presentation covering these types of operational nuances would help educate new ARG members.

vii. NMFS asked if installing bubblers right below Folsom Dam would help improve DO levels at the top of Lake Natoma. A longer-term solution would be to consider aerating the water within the power plant; the Water Forum added that this is done on the Mokelumne River.

Discussion: Scenarios to Model for 9/19/2024

Water Temperature Modeling

1. NMFS asked the Kleinschmidt Group: After viewing the 9/3/2024 temperature profile shared by USBR, are the modeling runs examined in August still within our options right now?

    a. The Kleinschmidt Group replied that since it's only been about a month, the modeling runs won't result in dramatic differences.

    b. NMFS suggested including a power bypass of 500 cfs for the first couple of weeks in November since observations show that peak spawning has shifted to December to coincide with the more optimal temperatures at that time.

    c. CDFW noted that a power bypass was conducted last year and it took about a week for that water to reach the hatchery. Starting a power bypass on 11/1 may not provide sufficient oxygen for the large numbers of fish trying to get up the fish ladder. Consider an earlier water release to coincide with the earlier, traditional spawning period of November. Last year, a benefit was observed once releases increased to 500 cfs. Ideally, consider starting a power bypass at least one week ahead of when we want to bring fish up the ladder.

    d. CDFW reminded the group that 10/31 is the planned spawn day for the hatcheries. They are planning to turn water onto the fish ladder on 10/28 to facilitate spawning on 10/31. At the current, low DO level, CDFW has reservations about turning water onto the fish ladder.

    e. CDFW proposed modeling a power bypass scenario with a targeted temperature (as opposed to a targeted release amount).

        i. NMFS agreed that it could be helpful to model scenarios based on both target volumes and temperatures.

        ii. CDFW requested modeling DO alongside temperature.

            1. Kleinschmidt Group added that in the future this modeling can be done using the same tool, as long as it's funded. Currently, only the temperature feature has been fully developed and calibrated.

        iii. Rod Hall suggested aerating the water going into the hatchery and the penstocks at Nimbus without having to use up the cold water in Folsom or intervene in Folsom operations.

1. CDFW clarified that they are observing drops in DO along the raceways at the hatcheries during periods of increased fish activity.

f. CDFW noted that this marks the second year of a fishery closure due to forecasted abundance in the ocean. They expect a good return of fish because of that closure. Decreasing pre-spawn mortalities and increasing survival of early spawning fish that are building redds in late October will be critical. CDFW is trying to protect natural spawning areas and ensure successful hatchery operations.

g. The ARG agreed on modeling the following scenarios:

   i. 250 cfs for the last two weeks of October (starting 10/17), + 500 cfs bypass first two weeks of November (until 56˚F is reached or the power bypass is no longer providing benefits)

   ii. 500 cfs starting 10/24 + 500 cfs for the first two weeks in November (until 56 ˚F is reached or the power bypass is no longer providing benefits)

   iii. Targeting 58˚F at Hazel Ave. by 10/15 and 56˚F by 11/1

   iv. Targeting 60˚F at Hazel Ave. by 10/15, and 58˚F by 11/1

   v. A baseline scenario *without* a power bypass (targeting 67˚F at Watt Ave. for September and 64˚F for October)

h. NMFS asked if modeling warmer/cooler conditions with these scenarios would be worthwhile.

   i. CDFW suggests modeling just warm years, as it's probably safe to assume that 2024 is going to end up being categorized as a warm year (and cool meteorological data may not be representative).

   ii. Kleinschmidt Group will still model two different year types because there is no major increase in effort to model both warmer and cooler years. This will help provide a range of potential scenarios.

Next Meetings

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