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American River Group

Monthly Meeting Notes 4/16/20

1) Action Items

- Peggy Manza will send NMFS (Barb Byrne), CDFW (Duane Linander), and USFWS (representative TBD) the proposed change order to confirm she understood the details of the final proposal for mini-pulses: *a day at 1000 cfs, two days at 1500 cfs, another day at 1000 cfs, followed by a return to 1250 cfs. This would start the third day after the hatchery release (Saturday April 25 after dark).*
- Peggy will also ask Todd Plain to coordinate with Duane and the fish agencies on a coordinated press release about the mini-pulse and its purpose.

2) Introductions

- **USBR:** Carolyn Bragg, Towns Burgess, Matt Di Loreto, Zarela Guerrero, John Hannon, Levi Johnson, Peggy Manza, Spencer Marshall, Sarah Perrin, Ian Smith, Derya Sumer, Justin Thompson, Mike Wright, Todd Plain
- **Water Forum:** Lilly Allen, Rod Hall, Chris Hammersmark, Clyde MacDonald
- **SMUD:** Ansel Lundberg
- **PCWA:** Ben Barker
- **PSMFC:** Cory Starr
- **WAPA:** Mike Prowatzke
- **CDFW:** Mike Healey, Morgan Kilgour, Duane Linander, Jeanine Phillips, Tanya Sheya, Rob Titus, Jonathan Williams
- **NMFS:** Barb Byrne
- **USFWS:** Craig Anderson, Paul Cadrett
- **SWRCB:** Michael Macon, Julianna Specter
- **EBMUD:** I-Pei Hsiu
- **Cramer Fish Sciences:** Avery Scherer, Kirsten Sellheim
- **CSUS:** DeDe Birch
- **City of Roseville:** Sean Bigley
- **City of Folsom:** Marcus Yasutake
- **City of Sacramento:** Brian Sanders
- **Kearns & West:** Terra Alpaugh

3) Presentation: Lower American River drought water management and flow reduction monitoring – Kirsten Sellheim

Reviewed the adaptive management framework used in decision-making around flow reductions and the need for pulse flows and/or fish rescues during the 2014 drought. Included detailed explanation of the development and refinement of decision trees for risk to different life stages (e.g., embryo



— BUREAU OF —
RECLAMATION

emergence, stranded fry). Generated a standardized approach to addressing risk during dry/critically dry years.

Key conclusion: Monitoring the effectiveness of flow management decisions in terms of salmonid impacts can allow resource managers to refine thresholds and their decision making process over time to better balance salmon requirements with human water needs. Potential applications for flow reduction decision-making in 2020.

4) Fisheries Update

a. CDFW

Approximately 200,000 adipose-clipped chinook (CH) released from Nimbus Hatchery at Sunrise Boat Ramp on March 30. 100 percent marked for experimental purposes.

Preparing to release 800,000 fall-run CH salmon on April 22 in-river at the Sunrise boat launch (25 percent marked); 2 million CH from the San Pablo Bay net pens on May 5 (25 percent marked); and another 600,000 CH in the American River in early May (25 percent marked).

b. CFS

Steelhead (SH) redds peaked in February, and no new have been seen since mid-March. Four CH redds were identified early in the season but no new redds since the first week of February. Recent surveys have identified several lamprey redds, which are typical for this time of the year. The last spawning survey was done this week (April 14-16); only lamprey redds were seen.

The observations in this year's spawning surveys are low but are comparable to the past five to six years, all of which have been low compared to historic numbers.

Conducted a stranding survey March 16 to 18 after the most recent flow reduction. Based on that survey, monitored water quality and recorded temperatures of above 17 degrees Celsius in some of the pools on March 24 and 25, which precipitated a rescue of stranded fish that included 6400 CH, 31 *O. mykiss*, and 1,884 cyprinids. Significant mortality was not observed, though the fish were not tagged for ongoing monitoring.

Rescues in past years done at an isolation pool on the north side of the river just below Sunrise Bridge encountered high mortality. Since then, excavation work was done to keep the area better connected to the channel. The levels of mortality seen there could have been due to the stress caused by moving the fish from the relatively warm water in the pool to the cooler water in the river.

c. PSMFC

Over the last month, daily Chinook catch in the rotary screw traps has been decreasing as expected. Over the past two weeks, catch has been relatively low at the traps for CH,



— BUREAU OF —
RECLAMATION

lamprey, and SH. For SH, two unclipped smolts, 82 young-of-the-year fry, and 509 clipped smolts were captured. Predator barriers continue to be used to prevent the SH from eating the CH fry. Capture efficiencies are very high thus far (~15-16 percent efficiency).

Traps were offline for eight days to let the hatchery fish pass, submit a scientific collecting permit (SCP) amendment that accounts for greater catch, and make minor repairs to the traps. The traps have caught a lot more bycatch (primarily sculpin and stickleback) this year. They will also raise the cones for a three day period for the next two Nimbus hatchery releases in late April and early May.

5) Operations Forecast

a. SMUD

April started with heavy precipitation: 4.26 inches through April 14 (88 percent of the average for the entire month), but precipitation for the water year to date is 62 percent of average. An additional 0.5 inch expected by April 26.

Combined reservoir storage (Loon Lake, Ice House, and Union Valley) is 239, 624 acre feet, 63 percent capacity, 72 percent of the historical average. There was a 3 percent increase in storage since last week. Ice House reservoir is relatively low, because it is only being used for flow requirements while work is being done on Union Valley.

March releases: 563 cubic feet per second (cfs) average flows below Chili Bar; total 34,639 acre feet (AF) released. April 1-13 releases are higher: 1,398 cfs average flows below Chili Bar; total 36,038 AF released. On April 13, Chili Bar was releasing an average of 1,761 cfs.

Runoff into the storage reservoir basins is 59 percent of median to date through April. Snowpack 44 percent of average.

Forecasts project a 70 percent likelihood that it will be a dry year; there is a 20 percent chance it will end up as below normal.

Anticipate a drop in power load (8 percent reduction) over the rest of the spring due to people sheltering in place and working from home.

b. PCWA

Data as of April 14: French Meadows Storage: 65 thousand acre feet (TAF) (48 percent capacity); 150 cfs inflows to Middle Fork.

Hell Hole Storage: 106 TAF (51 percent capacity); inflows of ~100 cfs from Five Lakes ~150 cfs from Rubicon. The Hell Hole project will be complete by the end of the summer, and the project will return to normal operations.

Combined storage for both reservoirs: 171 TAF (50 percent capacity, 82 percent of average)



— BUREAU OF —
RECLAMATION

Power production is limited.

4.54 inches precipitation in April (58 percent average). Diurnal fluctuation is resulting in

1500 AF per day of melt from snowpack, resulting in lots of inflow to the reservoirs. The Dolly Creek snow pillow lost half its snow over the last ten days. The reservoir water combined with the remaining snowpack represent almost 300 TAF of stored water.

Between May 25 and September 25, PCWA will implement recreation flows as outlined in their FERC license. Those 3000 cfs flows for boaters will occur 7 days a week, between 9am and 12pm and will incorporate a 2 hour ramp up and a 2 hour ramp down per the FERC requirements. There has not been any discussion of what activities will be able to adapt to continued social distancing mandates; at this point, both rafting and kayaking groups plan to be on the river this summer.

c. Central Valley Operations

There was a precipitation event at the end of March and an even larger one in early April. Folsom reservoir is now above 600 TAF (607 TAF as of April 16 and gaining 4 TAF each day), allowing the upper shutters to be installed next week. Current accumulated inflow to Folsom is 797 TAF; expected total once the final snowpack melts is 1.1 to 1.3 million AF. Because the flood control rule is not activated, all the current inflows can be captured in the reservoir.

Releases continue at 1,500 cfs. CVO would like to discuss the possibility of cutting to 1,250 cfs now that the majority of steelhead redds have emerged; proposal to combine that cut with two water-neutral mini pulses to move hatchery fish downstream once they have been released, as well as support outmigration of natural-origin fish. (See below #7 for discussion)

6) Central Valley Operations

a. Temperature Management

The LAR temperatures are rising -- from 55.7 to 57.2 degrees Fahrenheit (F) at Watt this month -- reflecting longer days and increased ambient temperatures. However, average daily water temperatures still have room before hitting the 65 degree F target for the summer. Temperature of the water being released from Folsom is approximately 53 degrees F.

Most of the reservoir (503 TAF) is less than 58 degrees F, but the latest temperature profiles reveal the start of stratification, especially in the shallow areas. The bottom of the reservoir remains isothermal. Expect warming at the surface and upper third of the reservoir over the next month.



— BUREAU OF —
RECLAMATION

b. Exceedance Forecasts

These April Runoff Exceedance Outlooks remain drafts as USBR coordinates with the State to confirm they are considering the same variables in their forecasts.

90 percent runoff exceedance outlook: Folsom storage peaks in mid-May and begins to drop by the end of May when storage is forecasted to be 642 TAF. The next DWR Bulletin 120 could be higher due to snowpack gains in early April, which would push peak storage even higher in the May forecast. By the end of September, the 90 percent outlook forecasts 311 TAF in Folsom, an amount that leaves some water for fall instream flows and temperature control. Those September numbers are only feasible because the outlook does not predict heavy reliance on Folsom for Delta needs during the summer.

The outlook predicts river releases of 1,500 cfs in April, 1,800 cfs for May and June, 3,088 cfs for July, 2,752 cfs for August, and 1,561 cfs for September. With the exception of September, those releases are much higher than the MRRs for those months. September will be the only month that will target the MRR.

The 90 percent outlook results in the use of Temperature Schedule 41, which targets 68 degrees at Watt May-October and 59 degrees in November.

50 percent runoff exceedance outlook: The 50 percent outlook does not differ widely from the 90 percent. It shows that Folsom peaks in May with about 50 TAF more in storage and ends in September with 351 TAF. The monthly river releases are slightly higher in May through July.

The 50 percent outlook results in the use of Temperature Schedule 32, which targets 67 degrees in the summer. It differs from Schedule 41 in that it has one “shoulder” targeting 66 degrees in May and two more “shoulders” in the fall targeting 65 degrees in October and 59 in November. The 59 degree targets for fall in both schedules represent water temperatures unsuitably high for the fall-run Chinook expected to be spawning in the fall.

These forecasts incorporate the ability to better manage water temperature with the upper shutters installed. They use the average meteorology. It is too early to discuss power bypass but it will likely come up given how warm the fall water temperatures are predicted to be.

7) Discussion: Flow Reduction

CVO proposes cutting releases by 250 cfs (from the current 1,500 cfs down to 1,250 cfs), which if maintained for four weeks will generate an additional estimated 15 TAF in storage. The cut would be implemented next Thursday or Friday (4/23 or 4/24) and coordinated with available support to perform stranding surveys after the cut. Flows would remain at 1,250 cfs, likely until additional flow is needed in the Delta.

Fish agency representatives proposed implementing a water neutral mini-pulse in combination with the flow reduction: one night, flows would be reduced to 1,000 cfs, increased to 1,500 cfs at



— BUREAU OF —
RECLAMATION

daylight, dropped again at dark, increased again at daybreak, and returned to 1,250 cfs that night. Ideally, this would act as a signal to induce wild and hatchery fish to move downstream. The group discussed doing one mini-pulse next week during the hatchery release and another the first week of May to coincide with another hatchery release. [NOTE: CalOES has requested that flow changes occur during the day so that people on the river can observe the changes in flow for safety reasons; any changes proposed to occur at night may require their approval.]

Recent data from the rotary screw traps show a strong correlation between the lunar cycle and fish catch – higher catch is observed on the full moon. One of the hatchery release (and associated mini-pulse, at a several day lag) is scheduled for a new moon (April 22) and one for a full moon period (May 7).

Suggestion: reduce flows to 1,000 cfs for two days, followed by two days at 1,500 cfs, thereby making the pulse seem larger. *Suggestion amended to a day at 1,000 cfs, two days at 1,500 cfs, another day at 1,000 cfs, followed by a return to 1,250 cfs. This would start the third day after the hatchery release (Saturday after dark).* CVO committed to confirm this proposal with management.

Interest in analyzing the results of the late April mini-pulse and then proposing any adjustments to the early May approach. Tentative agreement to follow the same approach unless there is a clear reason to modify it. In order to change it to coincide with the hatchery release, ARG would need to notify CVO by Friday, May 1st at 10 AM; other adjustments (outside an earlier start date) would be needed by May 5.

Peggy Manza will send NMFS (Barb Byrne), CDFW (Duane Linander), and USFWS (representative TBD) the proposed change order to confirm she understood the details of the final proposal.

Peggy will also ask Todd Plain to coordinate with Duane and the fish agencies on a coordinated press release about the test and its purpose.

8) **Next Meeting:** Thursday, May 21, 2020 from 1:30 PM – 3:30 PM