BUREAU OF RECLAMATION

American River Group

1:30 PM – 3:30 PM

Conference Line: +1 (321) 209-6143; Access Code: 780 506 355#

Webinar: Join Microsoft Teams Meeting

Thursday, September 16, 2021

Notes

1. Action Items
    a. Barb Byrne – circulate table summarizing revised bypass scenarios to ARG.
    b. Water Forum/Cardno - model 4 additional power bypass scenarios by 9/21/21.
    c. Ansel Lundberg - find and share details regarding frequency response reserve – aka no-load requirement - and share with ARG.
    d. Vanessa Martinez - send Barb daily average water temperatures at Nimbus and Watt from existing and new model runs.
    e. Barb Byrne - conduct SacPAS runs on temperature and egg mortality for presentation at Ad Hoc ARG meeting.
    f. Morgan Kilgour - share bypass cost estimate with the ARG using CDFW energy cost calculator.
    g. Thuy Washburn – once the fisheries agencies have a recommended bypass proposal, get a cost estimate for comparison to the one CDFW will generate.
    h. Spencer Marshall - send around the WY 21 Summary of Activities schedule and outline for comments.
2. Introductions:
    a. USBR: Spencer Marshall, Brad Hubbard, Ian Smith, Liz Kiteck, Sarah Perrin, Thuy Washburn, John Hannon, Carolyn Bragg, Lee Mao, Gary Pitzer, Zarela Guerrero
    b. NMFS: Barb Byrne
    c. USFWS: Craig Anderson, Paul Cadrett

d. CDFW: Morgan Kilgour, Duane Linander, Mike Healey, Jason Julienne, Ken Kundargi, Gary Novak, Tracy Grimes, Joel Craven

e. SWRCB: Michael Macon, Reza Ghasemizadeh, Lauren Beaudin

f. PCWA: Ben Barker, Darin Reintjes

g. City of Sacramento: Brian Sanders, Brett Ewart

h. City of Folsom: Marcus Yasutake

i. SMUD: Ansel Lundberg

j. SJWD: Paul Helliker

k. EBMUD: I-Pei Hsiu, Max Fefer

l. WAPA: Mike Prowatzke, Ammon Danielson

m. Water Forum: Erica Bishop, Chris Hammersmark, Jessica Law

n. SARA: Clyde Macdonald

o. PSMFC: Cory Starr, Logan Day

p. Cramer Fish Sciences: Kirsten Sellheim

q. Sacramento State Aquatic Center: DeDe Birch

r. HDR: Amanda Ransom

s. Cardno: Craig Addley, Vanessa Martinez

t. BKS Law Firm: Jennifer Buckman

u. Kearns & West: Terra Alpaugh, Susan Ellsworth

3. Housekeeping & Announcements

    a. NMFS recently issued an ESA Letter of Concurrence on potential additional releases on the Stanislaus, some of which would be exchanged in lieu of the PCWA transfer previously discussed. Contact Barb Byrne for additional details.

4. Fisheries Update

    a. CDFW noted that its juvenile seining surveys are ongoing on the American but haven't detected any salmonids since June. Fall-run carcass and redd surveys on the Lower American begin in October.

    b. CDFW noted that steelhead are still at the Mokelumne River Hatchery and they will be coordinating with the Nimbus Hatchery's technical team to finalize when the fish can be returned to the Nimbus Hatchery.

    <u>Questions/Comments</u>

    - The Water Forum noted that it has been working with Cramer Fish Sciences, CDFW and NMFS regarding temperature, video monitoring and eDNA. Results still coming in and the Water Forum should have an update at the next ARG meeting.

5. Operations Forecast

    a. SMUD provided an update on its operations. See handout for details. The elevation maximum for boat ramp maintenance at Union Valley was increased by 5' which slightly

reduced the need for associated releases. An updated forecast has been shared with USBR.

b. PCWA provided an update on its operations. See handout for details.

- Regarding the 20 TAF water transfer currently underway, there was an issue at Ralston Powerhouse resulting in a forced outage for three days followed by several days of reduced capacity and reduced releases. Downstream water temperatures increased in connection with reduced flows but are now dropping again in light of increased flows.
- 14 TAF have been released as of 9/16/21, and it is anticipated that all 20 TAF will be released by 9/20/21.

6. Central Valley Operations (CVO)

a. USBR provided an operations update. See handout for details.

- As of 9/16/21, current releases out of Nimbus were 550 cfs.
- Folsom storage is currently 234 TAF. Including the PCWA transfer, inflows to Folsom have been about 1,000 cfs for last three weeks, but dropped in the last several days to 600-700 cfs given the unplanned outage at Ralston Powerhouse.

b. Temperature Management

- Average water temperature for September 1 through September 13 at Hazel is 70.2°. Blending is still occurring with Unit 1 providing the coldest water, followed by Unit 2, then Unit 3. If needed, the next action would be to raise the lower shutters on Unit 3.
- Temperature profiles and Folsom Dam cross sections were taken on 9/1/21 and 9/7/21 and show that the amount of cold water is decreasing somewhat.
- USBR noted that column heading "AHZ" within the daily temperature summary tables in the handouts was changed to "AFO" per request from NMFS.

<u>Questions/Comments:</u>

- NMFS asked if the reduction in cold water availability through the TCD will impact the power bypass.
  - USBR indicated no, because the power bypass will utilize the lower outlets which still access cold water.
- NMFS asked if PCWA transfer-related inflows have affected temperature stratification.
  - The Water Forum noted that recent plots show the contribution to cooler water layers of the transfer-related inflows. Inflow water temperatures were at 70° before the transfer, then dropped to 64°. The forced outage resulted in a temporary increase in temperatures, but they are dropping again as the rate of inflows return to pre-outage levels. Due to the density of the cold water, it drops down and augments the size of the cold-water pool as opposed to sitting on top.
- SJWD asked if there was any inflow from the .08" of rain last week.
  - USBR indicated that there was no resulting inflow.

c. Power Bypass Scenarios.

- The Water Forum provided an update on scenario modeling for a proposed power bypass. Models were run by Cardno using CE-QUAL-W2 with air temperature data from 2014. Cardno noted that it conducted dozens of runs that ran out of cold water and presented four scenarios which best utilize available cold water under different timing constraints. The modeled scenarios were as follows:
    i. Bypass begins 10/7/21, running at 500 cfs – resulted in running out of water before the reservoir turns over.
    ii. Bypass begins 10/7/21, running at approximately 200 cfs through October, then up to 350 cfs through November.
    iii. Bypass begins 10/14, with some fluctuation in releases between 200 and 350 cfs; nearly full 350 cfs releases for November.
    iv. Bypass begins 10/21 with some fluctuation in releases between 200 and 350 cfs; nearly full 350 cfs releases for November.
- Water Forum noted that while it ran the 500 cfs scenario, this is not implementable this year. Based on expected total Folsom releases (550 cfs) and grid demands, Reclamation will not bypass more than 350 in fall 2021.
- CE-QUAL-W2 modeling utilizes different flow rates to achieve optimal temperature results as opposed to ICPMM which uses a static flow rate.
- Initial results suggest that the start date of the power bypass (all bypass scenarios begin during October, and are bypassing the same 350 cfs by November 1) doesn't significantly impact temperatures in November. Temperatures don't drop down to 58° until mid-November regardless, which is primarily a reflection of the flow rate being released and travel time of the water in Lake Natoma.
- Water Forum noted that one reason for the big observed drop in water temperature in November is a drop in air temperature. 2014 air temperatures were very warm, which means there is a chance that actual temperatures will be cooler, thereby improving outcomes.

<u>Questions/Comments:</u>

- NMFS asked if any of the models included a 6-week bypass.
    - Water Forum noted that the power bypasses were run until the reservoir turned over (around the end of November) or the cold water pool ran out.
- CDFW noted that the blending of different flow rates in the different scenarios makes it difficult to apply them in reality and asked if USBR could bypass at multiple flow rates.
    - USBR indicated that it could potentially accommodate 2 flow rates.
- CDFW asked if a scenario was run showing no bypass.
    - Cardno indicated that it was not but that it can be.
- ARG members requested that the Water Forum/Cardno run the following four additional scenarios to inform a power bypass proposal.
    - No power bypass

- Bypass A: 10/18 – start at 150 cfs then increase to 350 cfs on 10/25 and run until reservoir turns over or cold water runs out.
- Bypass B: 10/18 – start at 350 cfs and continue at 350 cfs until reservoir turns over or cold water runs out.
- Bypass C: 10/11 – start at 150 cfs and increase to 350 cfs on 10/18 and run until reservoir turns over or cold water runs out.
    - **[Action Item]:** NMFS to send around table summarizing scenarios.
    - **[Action Item]:** Water Forum/Cardno to model 4 additional scenarios early in the week of 9/20.

- USBR noted that it is going to be a difficult year to bypass because Oroville can't contribute to the grid. As such, USBR management has requested that bypassing be minimized as much as possible. October bypasses will have more impact on the grid than November when energy demands are less.
    - **[Action Item]:** Ansel to find and share details regarding the frequency response reserve requirement, which is what is driving the 350 cfs cap on the bypass, and share with ARG.

- SWRCB asked what benefit is seen from temperatures at 62° versus something higher, noting that in the Sacramento, 62° is understood to mean 100% egg mortality.
    - NMFS noted that there is potential for serious egg mortality and pre-spawn mortality in October due to elevated water temperatures and that a bypass would reduce that risk. The egg mortality associated with water temperatures can be modeled using the egg growth tool on SacPAS and those results will be included with the bypass proposal. The egg growth tool on SacPAS does not account for pre-spawn mortality.
    - **[Action Item]:** NMFS will conduct SacPAS runs for ARG Ad Hoc meeting to show the egg mortality implications of the various bypass scenarios.
    - **[Action Item]**: Vanessa Martinez to send Barb daily average water temperatures at Nimbus and Watt for the current and new model runs.

- NMFS noted that CDFW will use its energy-cost calculator to estimate the cost of the bypass.
    - USBR indicated that it will also have its internal team estimate the cost of the selected scenario.
    - **[Action Item]:** CDFW to share bypass cost estimate with the ARG.

- CDFW asked if CE-QUAL-W2 is an approved modeling tool for the purposes of a bypass proposal.
    - USBR confirmed that it should be fine.

- CDFW noted that the present October temperatures, as modeled, are not good for fish survival. There is a need to get water temperatures as cool as possible as quickly as possible.

- CDFW noted that it needs a temp of 56° or cooler to incubate fall-run Chinook eggs at the hatchery. In addition to cooling provided by chillers, temperatures need to be within 5° of 56° by November - i.e., no higher than 60-61°.

7. Discussion
    a. NMFS and CDFW provided a brief update on the LTO Guidance Document revision process, noting that there have been some revisions which can be circulated to the ARG once complete, for discussion at a future meeting.
    b. USBR noted that it has generated a schedule and outline for the WY 21 Summary of Activities.
        - **[Action Item]:** Spencer to send around the WY 21 Summary of Activities schedule and outline for comments.
8. Next Meeting:
    a. Ad Hoc Mtg: September 24, 1:30-3:30pm
    b. Regular ARG: October 21, 1:30-3:30

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Agenda

1. Introductions
2. Housekeeping
3. Fisheries Update
4. Operations Forecast
    a. SMUD
    b. PCWA
5. Central Valley Operations
    a. Temperature management
    b. Exceedance forecast & temperature schedules
    c. Power Bypass Scenarios
6. Discussion
    a. LTO Guidance Doc Review Update
    b. Annual reporting
7. Next Meetings:
    a. Friday, September 24, 1:30-3:30pm
    b. Thursday, October 21, 1:30-3:30pm

SMUD Upper American River Project Update

Conditions – 14 September 2021

- No precipitation of note in September (0.04" at Fresh Pond).

Combined reservoir storage for Loon Lake, Union Valley and Ice House Reservoirs

- 181,033 acre feet (Storage this time last month: 199,984 acre feet)
- 48% full
- 68% of historical average (14 September historical average: 265,175 AF / 70%)
- 2% decrease in storage since last week

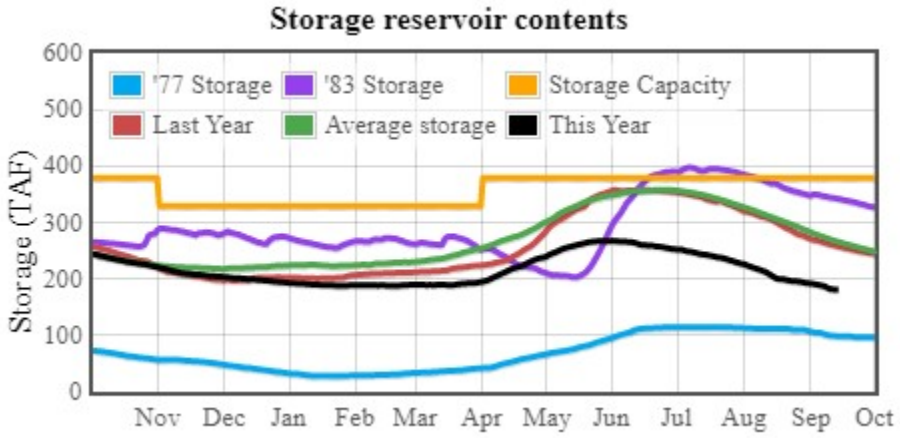

Figure 1. September 14, 2021 reservoir storage

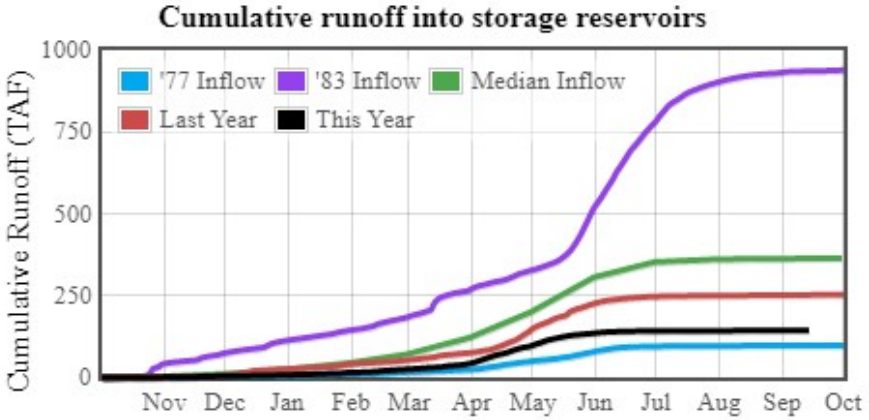

Figure 2. September 14, 2021 runoff

Individual Reservoir Storage

- Loon Lake: 54,757 AF
- Ice House: 28,405 AF
- Union Valley: 97,871 AF (37% of avg)

Last year (on September 14, 2020), storage was at 68% (256,561AF). **Total capacity: 379,174 AF.*

Chili Bar releases into the South Fork American River

- August 2021 releases:
    - Daily average flow: 665 cfs
    - Total releases: 40,859 AF
- September 2021 releases (September 1-13)
    - Daily average flow so far: 484 cfs
    - Total releases so far: 12,479 AF

Table 1. South Fork American River Natural Runoff Forecast (in cfs, daily average forecasted flow, forecast 2021-9-14)

BASIN	Fri Sep 17	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep
SFA above Slab	33.4	33.3	33.2	32.9	32.8	32.6
Slab Creek Reservoir	71.1	70.0	69.0	67.6	66.3	65.2
Combined South Fork	105	103	102	101	99	98

PCWA MFP OPERATIONS OVERVIEW for American River Operations Group (Real Time Data as of September 15, 2021)

- French Meadows Storage = 54,000 AF of 136,405 AF = 40% Capacity
    - MFAR above FM Inflow (R24) =7-day AVG ~2 cfs
- Hell Hole Storage = 65,000 AF of 207,590 AF = 31% Capacity
    - Five Lakes Inflow (R23) = 7-day AVG ~1 cfs
    - Rubicon Inflow (R22) = 7-day AVG ~1 cfs
- Combined Storage (FM+HH) = 119,000 AF/342,590 AF = 35% Capacity; ~60% of AVG
    - 7 Day Change = -5,000 AF
- MFAR @ R11: 7-day daily average 330 cfs
- Tahoe National Forest - Reopened with restrictions at 12:00 today
    - No dispersed camping
    - No campfires
- Recreational Releases - Saturday 8/18 and Saturday 8/25 (830-1130 am) 1,000 cfs @ OXBPH
- MFP Annual Maintenance Outage – The entire MFP will be offline October 1st – October 31st
    - Minimum Flows during outage are 125 cfs at R11
- Transfer Update

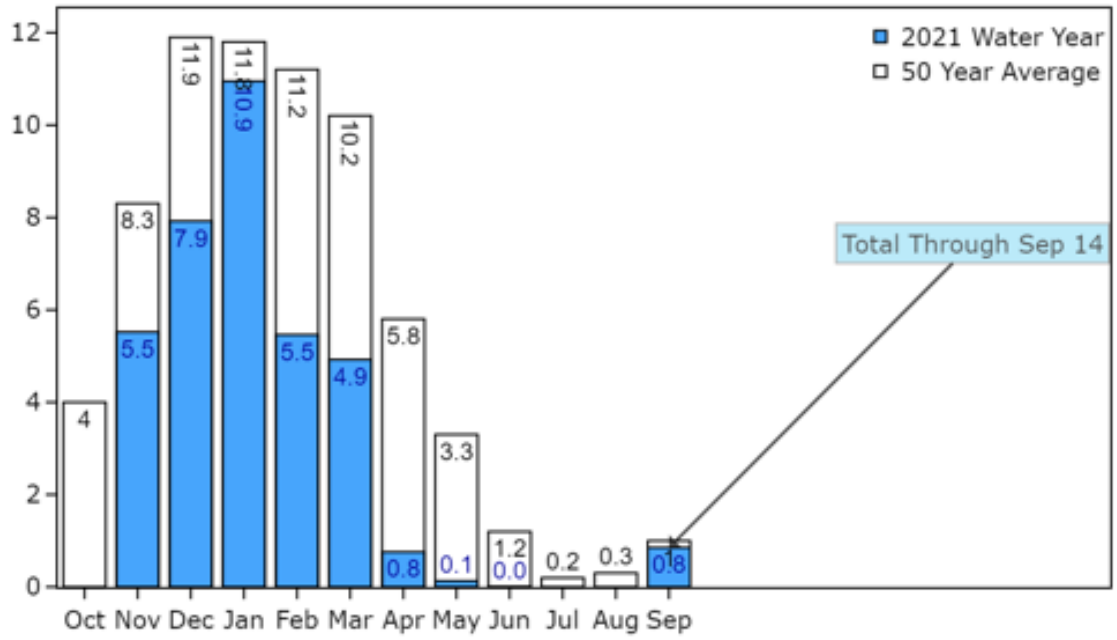

Figure 3. Lake Spaulding Precipitation Bar Graph: Water Year 2021 (as of 9/14/21)

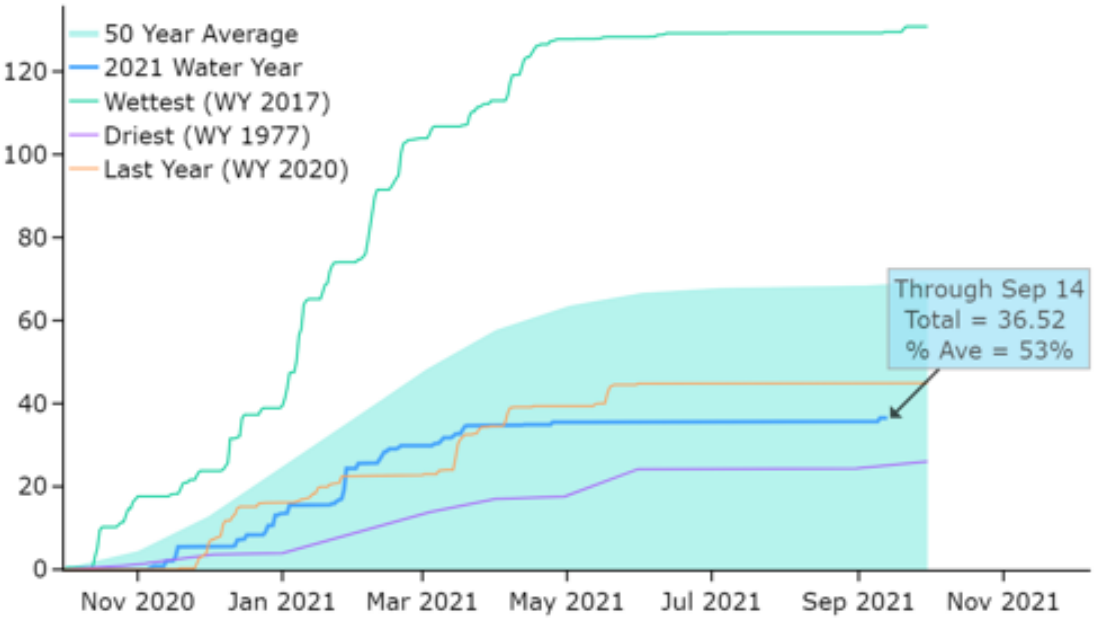

Figure 4. Lake Spaulding Precipitation Line Graph: Water Year 2021 (as of 9/14/21)

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA
DAILY CVP WATER SUPPLY REPORT

September 13, 2021
RUN DATE: September 14, 2021

Table 2. Reservoir Releases in Cubic Feet/Second

RESERVOIR	DAM	WY 2020	WY 2021	15 YR MEDIAN
TRINITY	LEWISTON	1,073	464	467
SACRAMENTO	KESWICK	7,073	6,818	7,601
FEATHER	OROVILLE (SWP)	2,100	1,250	4,500
AMERICAN	NIMBUS	2,014	579	1,792
STANISLAUS	GOODWIN	202	350	207
SAN JOAQUIN	FRIANT	401	255	348

Table 3. Storage in Major Reservoirs in Thousands of Acre-Feet

RESERVOIR	CAPACITY	15 YR AVG	WY 2020	WY 2021	% O 15 YR AVG
TRINITY	2,448	1,384	1,443	792	57
SHASTA	4,552	2,387	2,275	1,152	48
FOLSOM	977	459	453	234	51
NEW MELONES	2,420	1,291	1,548	872	68
FED. SAN LUIS	966	261	298	0	0
TOTAL NORTH CVP	11,363	5,782	6,017	3,050	53
MILLERTON	520	274	194	251	92
OROVILLE (SWP)	3,538	1,653	1,676	791	48

Table 4. Accumulated Inflow for Water Year to Date in Thousands of Acre-Feet

RESERVOIR	CURRENTWY 2021	WY 1977	WY 1983	15 YRAVG	% O 15 YR AVG
TRINITY	334	211	2,873	1,020	33
SHASTA	2,374	2,471	10,627	4,621	51
FOLSOM	828	345	6,453	2,365	35
NEW MELONES	341	n/a	2,719	944	36
MILLERTON	610	348	4,583	1,454	42

Table 5. Accumulated Precipitation for Water Year to Date in Inches

RESERVOIR	CURRENT WY 2021	WY 1977	WY1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	16.67	12.52	56.67	31.44 (59)	53	0.00
SACRAMENTO AT SHASTA DAM	24.62	17.69	114.50	61.11 (64)	40	0.00
AMERICAN AT BLUE CANYON	32.42	16.90	104.10	65.61 (46)	49	0.00
STANISLAUS AT NEW MELONES	16.82	n/a	46.38	27.17 (43)	62	0.00
SAN JOAQUIN AT HUNTINGTON LK	17.68	17.50	83.20	41.26 (46)	43	0.00

Table 6. Isobath Plot 8/1-8/31

Mean Daily Temperatures (°F) = MDT, Unit Shutter Position =USP, Load Percentage = LP

Date	MDT Water NFA	MDT Water ARP	MDT Water AFD	MDT Water AHZ	MDT Water AWP	MDT Water AWB	MDT Air CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP Unit 1	LP Unit 1	USP Unit 2	LP Unit 2	USP Unit 3	LP Unit 3
Jul	72.3	71.7	66.1	70.0	72.4	73.9	76.3	1016	n/a	n/a	n/a	n/a	n/a	n/a	n/a
08/01	69.7	67.5	65.7	69.4	72.0	72.9	74.6	1016	243	B	23	B1	47	M	30
08/02	69.6	67.9	66.0	69.6	72.0	72.9	74.0	1017	242	B	22	B1	47	M	30
08/03	71.5	68.3	66.2	69.7	72.6	73.7	77.0	1013	240	B	22	B1	49	M	28
08/04	73.1	68.6	67.0	69.4	72.5	73.8	73.7	1014	239	B	21	B1	50	M	29
08/05	71.3	66.9	67.1	69.1	71.5	72.5	69.5	1016	238	B	22	B1	47	M	31
08/06	69.4	63.0	66.8	69.8	71.4	72.1	74.8	1016	237	B	26	B1	48	M	27
08/07	67.0	61.7	65.8	69.3	71.7	72.5	78.0	1018	237	B	30	B1	47	M	23
08/08	66.8	63.6	66.3	69.2	72.0	72.9	75.7	1016	236	B	28	B1	52	M	20
08/09	67.6	64.4	67.1	69.1	72.3	73.5	76.0	1016	235	B	24	B1	56	M	20
08/10	70.0	64.2	66.5	69.4	72.3	73.6	79.9	1013	235	B	30	B1	48	M	22
08/11	72.0	61.9	66.5	69.4	72.7	74.2	81.3	1018	235	B	28	B1	53	M	20
08/12	70.8	61.2	66.3	69.2	71.9	73.0	75.5	1013	235	B	31	B1	54	M	16
08/13	70.6	60.6	67.0	69.1	71.6	72.4	74.4	1015	235	B	30	B1	57	M	13
08/14	69.2	60.2	66.9	69.5	72.6	73.6	79.4	1004	236	B	30	B1	57	M	13
08/15	68.7	58.4	66.5	69.3	72.0	73.4	78.1	1008	237	B	32	B1	56	M	12
08/16	67.2	60.7	66.7	69.2	72.1	73.4	79.3	1005	236	B	30	B1	57	M	14
08/17	67.1	62.6	67.3	68.7	71.1	72.2	73.6	1003	235	B	30	B1	58	M	12
08/18	64.5	65.1	64.7	69.1	70.2	70.6	70.7	1003	234	B	63	B1	2	M	36
08/19	62.2	45.6	67.3	68.9	70.5	70.7	70.4	905	233	B	-	B1	-	M	-
08/20	62.4	59.4	67.3	67.9	69.8	70.6	69.8	902	232	B	-	B1	-	M	-
08/21	59.7	60.6	67.3	67.8	69.4	69.8	65.8	901	232	B	-	B1	-	M	-
08/22	60.2	61.1	67.3	68.4	70.2	70.9	67.7	794	233	B	-	B1	-	M	-
08/23	60.4	61.2	65.9	68.1	70.9	71.7	68.0	796	232	B	49	B1	1	M	50
08/24	60.0	61.8	67.2	68.1	70.4	71.2	68.3	786	232	B	32	B1	16	M	53
08/25	59.8	64.8	67.9	68.0	70.5	71.4	69.8	691	232	B	24	B1	31	M	45
08/26	59.4	65.1	67.4	68.7	71.0	72.1	74.3	691	232	B	31	B1	25	M	45
08/27	59.0	62.5	67.3	69.1	71.7	72.7	77.8	694	232	B	33	B1	25	M	43
08/28	58.7	61.2	67.3	68.8	71.9	73.2	80.7	692	233	B	32	B1	24	M	44
08/29	58.6	61.4	67.3	68.9	72.1	73.7	81.9	698	233	B	30	B1	27	M	43
08/30	59.2	62.1	67.8	69.2	72.4	74.0	79.7	695	234	B	23	B1	35	M	42
08/31	60.0	63.1	68.1	69.5	72.2	73.5	73.0	605	234	B	17	B1	38	M	44
Aug	65.3	62.5	66.8	69.0	71.5	72.5	74.6	906	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	Total AF	55705	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 7. Isobath Plot 9/1-9/30

Mean Daily Temperatures (°F) = MDT, Unit Shutter Position =USP, Load Percentage = LP

Date	MDT Water NFA	MDT Water ARP	MDT Water AFD	MDT Water AFO	MDT Water AWP	MDT Water AWB	MDT Air CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP Unit 1	LP Unit 1	USP Unit 2	LP Unit 2	USP Unit 3	LP Unit 3
Aug	765.3	62.5	66.8	69.0	71.5	72.5	74.6	906	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/01	59.6	65.4	68.5	69.4	71.0	71.4	64.8	599	234	B	13	B1	41	M	46
09/02	59.3	65.2	68.3	69.9	71.0	71.1	65.4	599	234	B	17	B1	32	M	52
09/03	59.3	62.3	68.5	69.9	72.0	72.4	69.5	596	235	B	16	B1	31	M	53
09/04	59.4	61.6	68.2	70.1	72.3	73.3	74.3	606	235	B	17	B1	35	M	48
09/05	60.5	62.3	68.3	70.2	72.6	73.9	78.3	599	236	B	17	B1	35	M	48
09/06	60.8	62.9	68.2	70.2	73.0	74.5	80.8	610	236	B	15	B1	33	M	52
09/07	61.8	63.6	67.9	70.1	73.7	75.3	83.6	604	236	B	20	B1	31	M	49
09/08	65.5	63.1	68.1	70.2	73.8	75.7	84.1	592	235	B	17	B1	33	M	50
09/09	67.7	63.9	68.2	70.1	73.8	75.3	80.3	566	235	B	11	B1	41	M	49
09/10	69.1	62.7	68.3	70.3	73.2	74.4	74.0	571	235	B	11	B1	43	M	47
09/11	69.7	64.0	68.3	70.5	73.0	74.3	75.0	574	235	B	11	B1	42	M	46
09/12	69.9	63.9	68.3	70.6	73.7	74.9	78.9	574	234	B	11	B1	42	M	46
09/13	66.6	64.0	68.4	70.6	73.7	75.3	79.8	579	234	B	11	B1	43	M	46
09/14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/17	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/18	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/19	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/21	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/22	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/23	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/24	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/25	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/26	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/27	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/28	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/29	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
09/30	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sept	63.8	63.5	8.3	70.2	72.8	74.0	76.0	590	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Total AF	15211	n/a	n/a	n/a	n/a	n/a	n/a

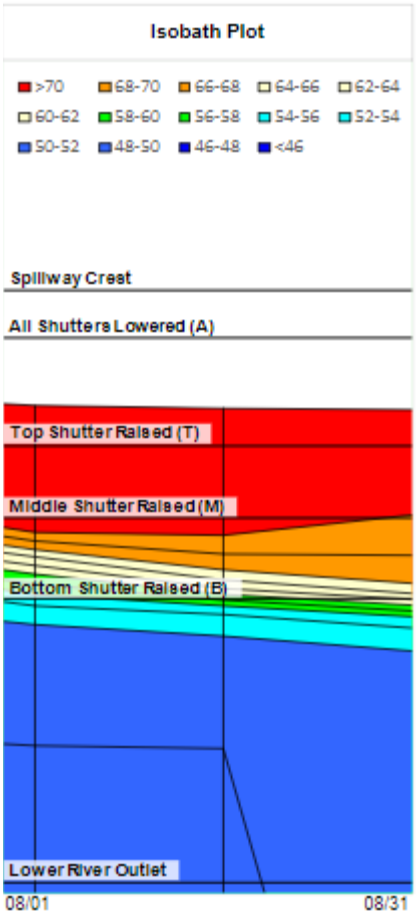

Figure 5. Isobath Plot 8/1/21-8/31/21

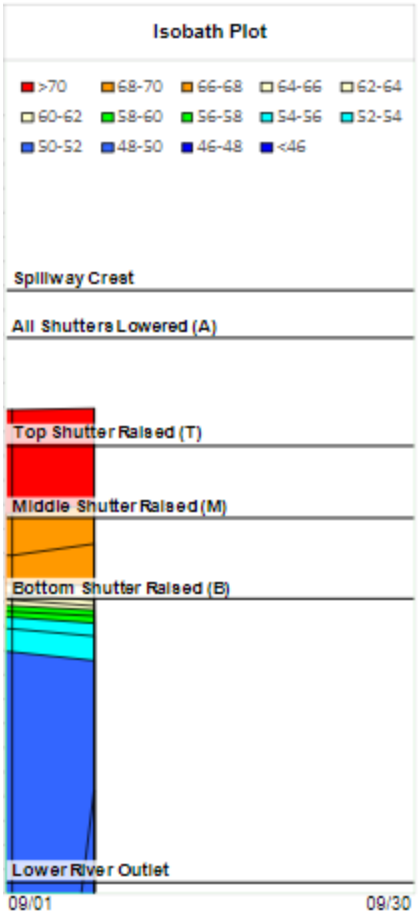

Figure 6. Isobath Plot 9/1/21-9/30/21

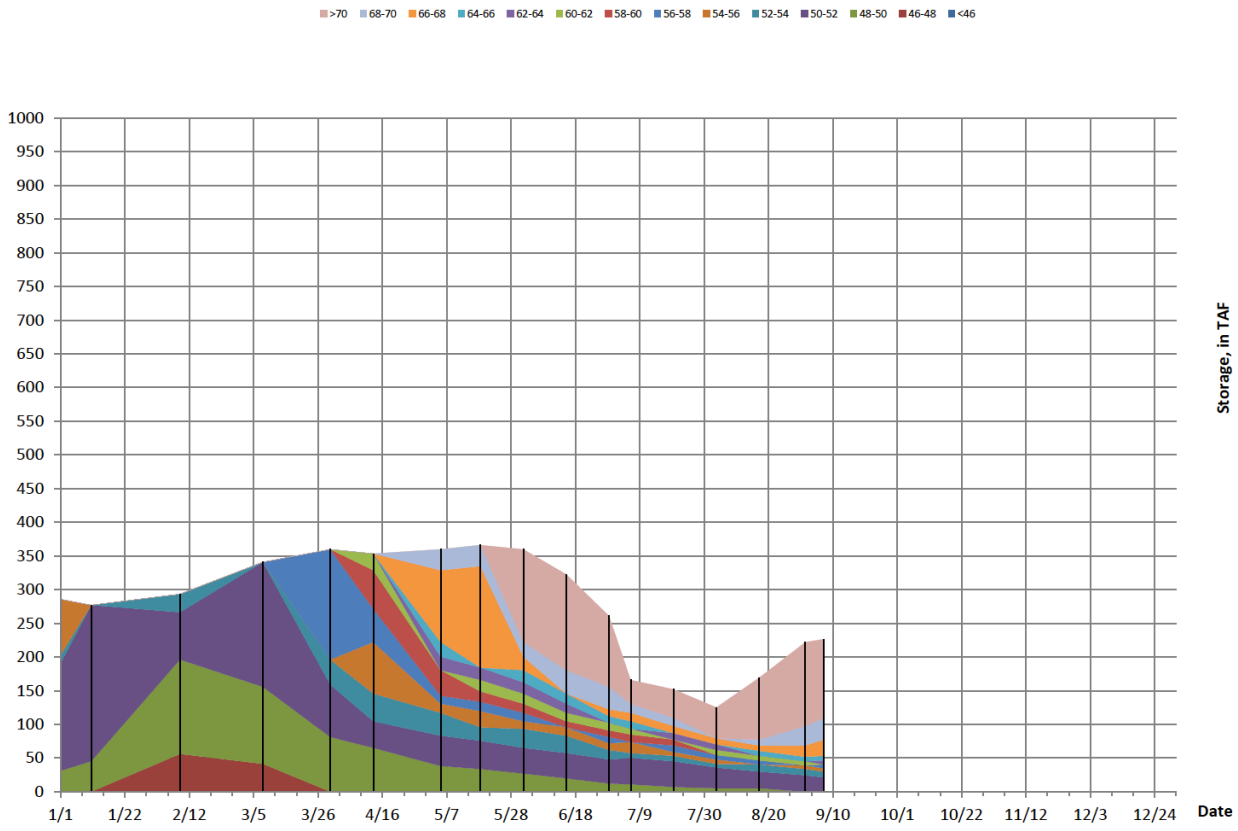

Figure 7. Folsom Lake Isothermobaths -2021 (Water temperature in ° F)

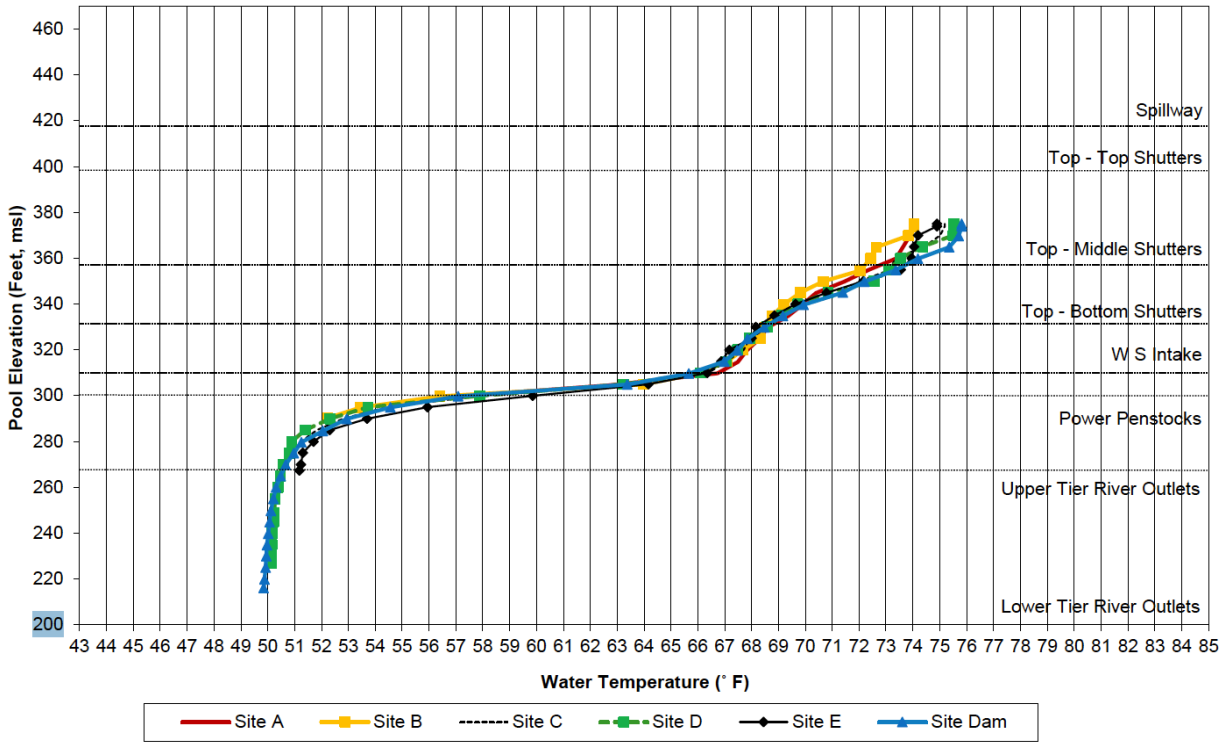

Figure 8. Folsom Lake Temperature Profiles: 9/7/2021

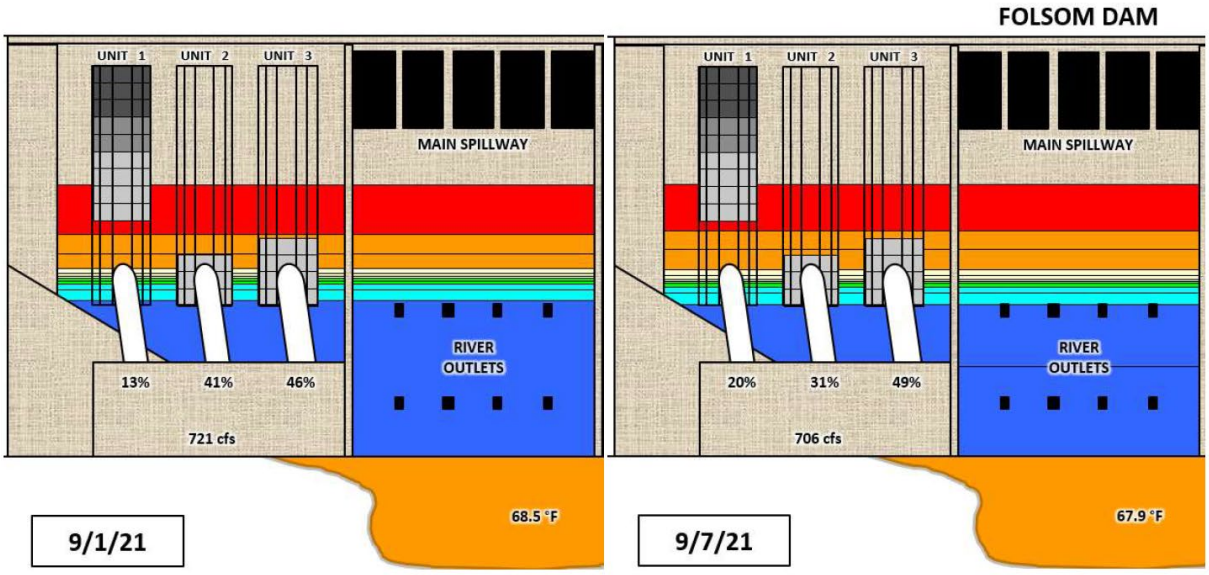

Figure 9. Folsom Dam Temperature Conditions [9/1/21] and [9/7/21]

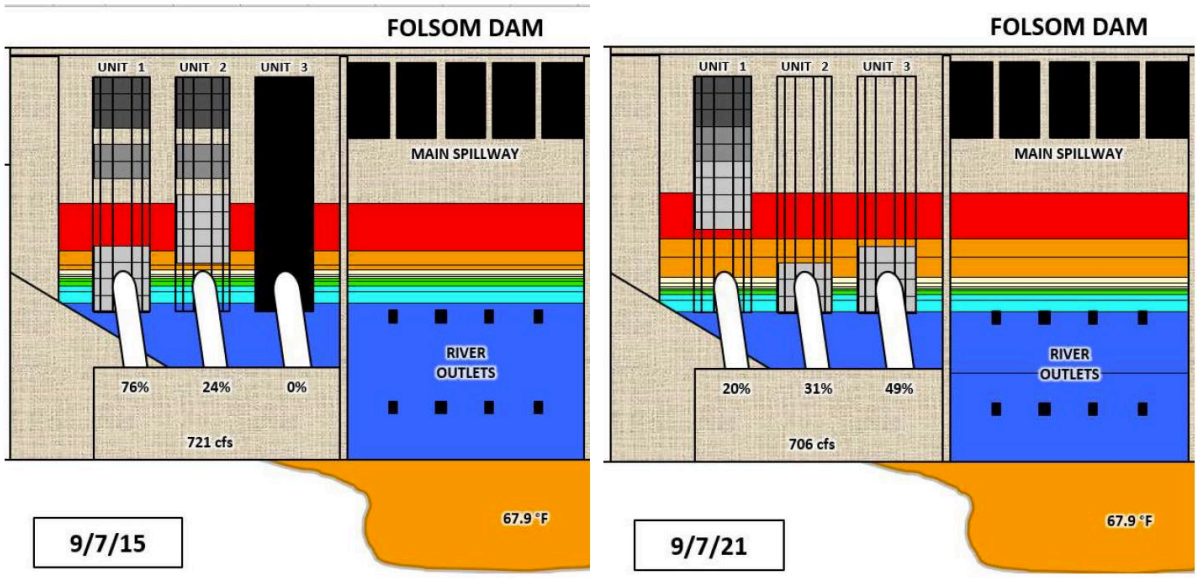

Figure 10. Folsom Dam Temperature Conditions [9/7/15] and [9/7/21]

American River Summary Conditions – September (On-going)

Storage/Release Management Conditions

- Releases are currently at 550 cfs to conserve storage
    - Decrease releases on September 19 2021 from 600 to 550 cfs to conserve storage
    - Decrease releases on August 31, 2021 from 700 to 600 cfs to conserve storage
    - Decrease releases on August 25, 2021 from 800 to 700 cfs to conserve storage
    - Decrease releases on August 22, 2021 from 900 to 800 cfs to conserve storage

Temperature Management:

- Top Shutters: Units 1, 2, & 3 – raised
- Middle Shutters: Units 1, 2 and 3 -- raised
- Bottom Shutters: Units 1 – raised, Unit 3 lowered, Unit 2 (Deganged): 1 top panel up, 3 lower panels down

Folsom Shutter Configuration and Changes:

*Next action – raise unit 3 Bottom Shutters

American River Release Outlook for August:

Table 8. Federal End of the Month Storage/Elevation (TAF/feet)

Month	n/a	Aug	Sept	Oct	Nov	Dec	Jan
Folsom	244	214	198	176	157	146	176
n/a	Elev.	370	367	361	355	352	361

Table 9. Monthly River Releases (TAF/cfs)

Month	n/a	Aug	Sept	Oct	Nov	Dec	Jan
American	TAF	61	33	34	33	34	34
n/a	cfs	1000	554	550	550	550	550

American River Release Outlook for September:

Table 10. Federal End of the Month Storage/Elevation (TAF/feet)

Month	n/a	Sept	Oct	Nov	Dec	Jan
Folsom	244	248	226	207	196	225
n/a	Elev.	377	373	369	366	373

Table 11. Monthly River Releases (TAF/cfs)

Month	n/a	Sept	Oct	Nov	Dec	Jan
American	TAF	33	34	33	34	34
n/a	cfs	550	550	550	550	550