BUREAU OF RECLAMATION

American River Group

1:30 PM – 3:30 PM
Conference Line: +1 (321) 209-6143; Access Code: 985 598 947#
In-Person: 3310 El Camino Ave., Rm. 302, Sacramento, CA 95821
Webinar: Join Microsoft Teams Meeting

Thursday, August 15, 2024

Agenda

1. Introductions
2. Announcements
3. Housekeeping
    a. Meeting will be recorded for notetaking purposes
4. Fisheries Update
    a. CDFW
    b. CFS
5. Operations Forecast
    a. SMUD
    b. PCWA
6. Central Valley Operations
7. Discussion
    a. Presentations: Temperature Modeling Results
8. Next Meetings:
    a. Thursday, September 19, 1:30-3:30pm

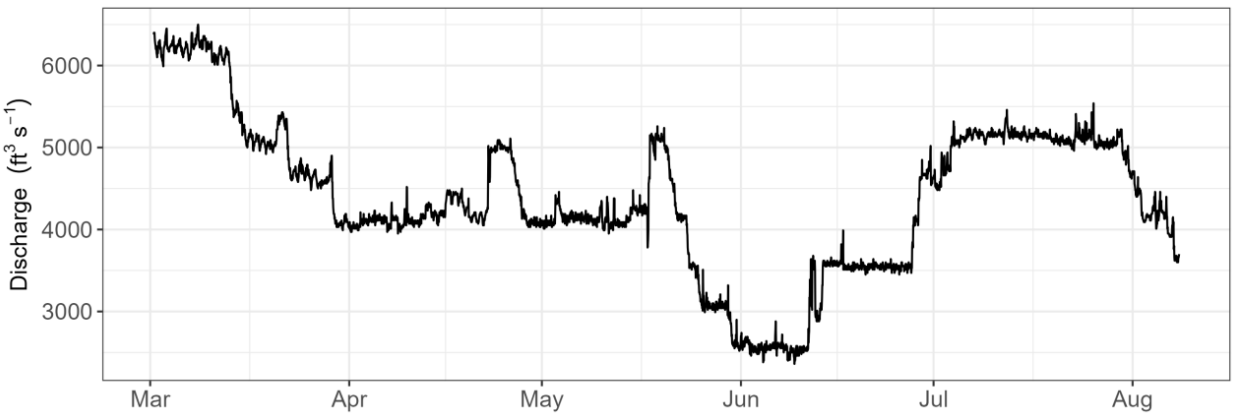

Figure 1. LAR at Fair Oaks Gage

Figure 1 is a bar graph tracking discharge in cubic feet per second from March through August.

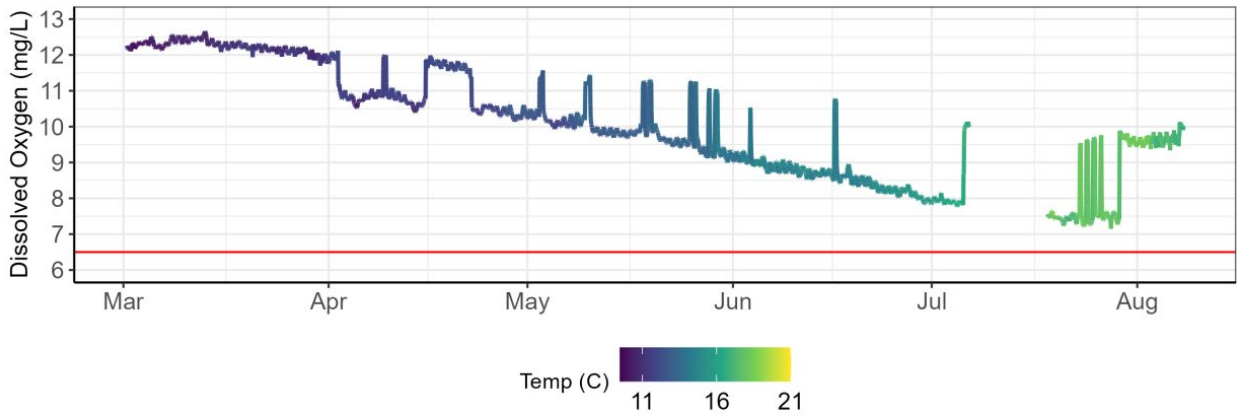

Figure 2. Nimbus Basin Logger

Figure 2 is a line graph of the Nimbus Basin logger. The logger shows levels of dissolved oxygen and temperature in the basin beginning in March. The logger was last downloaded on August 8.

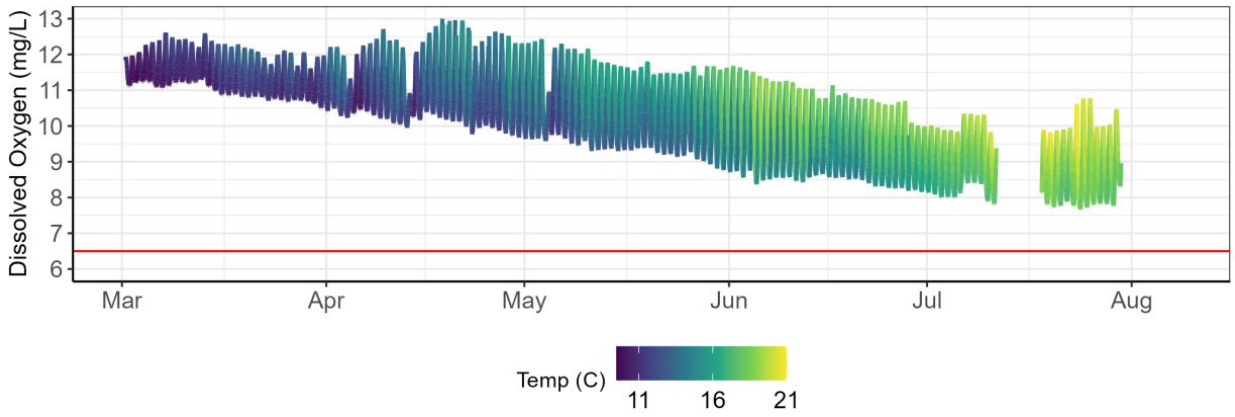

Figure 3. Watt Ave Bridge Logger

Figure 3 is a line graph of the Watt Ave logger. The logger shows levels of dissolved oxygen and temperature in the basin beginning in Marck. The logger was last downloaded in late July.

SMUD Upper American River Project Update 07/15/2024

Fresh Pond Precipitation

August precipitation through 8/12/2024 is 0.00 inches, which is 0.0% of the August average of 0.20 inches. Precipitation for the water year to date is 49.05 inches which is 87.3% of average to date (56.18 inches) and 85.6% of the entire water year average of 57.32 inches.

Runoff and Snowpack Water Content

Runoff into the storage reservoir basins is 101.7% of median to date through 8/12/2024. The snowpack is 0.0% of average at selected snow sensors: Robbs PH, Robbs Saddle, Van Vleck, Alpha, and Schneider

Table 1. Fresh Pond Precipitation

Month	Current Water Year	Historical Average	% of Average
October	1.37	3.30	42%
November	3.47	6.87	51%
December	4.86	9.14	53%
January	11.48	9.55	120%
February	9.83	9.50	103%
March	13.62	9.06	150%
April	2.20	4.84	45%
May	2.22	2.97	75%
June	0.00	0.79	0%
July	0.00	0.08	0%
August	0.00	0.20	0%
September	0.00	1.02	0%
Total	49.05	57.32	86%

* Month to date total, full month historical average.

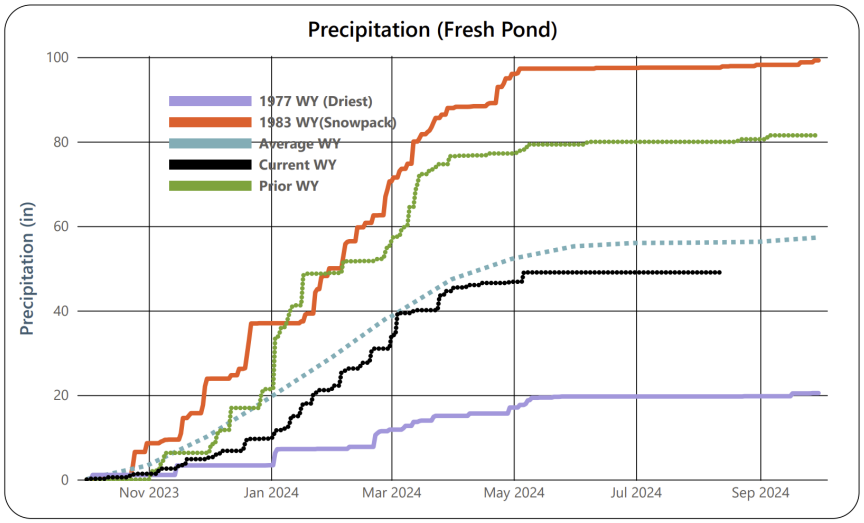

Figure 4. Fresh Pond Precipitation

Figure 4 is a line graph of fresh pond precipitation in inches for November 2023 to September 2024. It includes precipitation data from the driest water year (1977), 1983's water year snowpack, average, current, and prior water year. August's precipitation through 8/12/2024 is 0.0 inches, which is 0.0% of the August average of 0.20 inches.

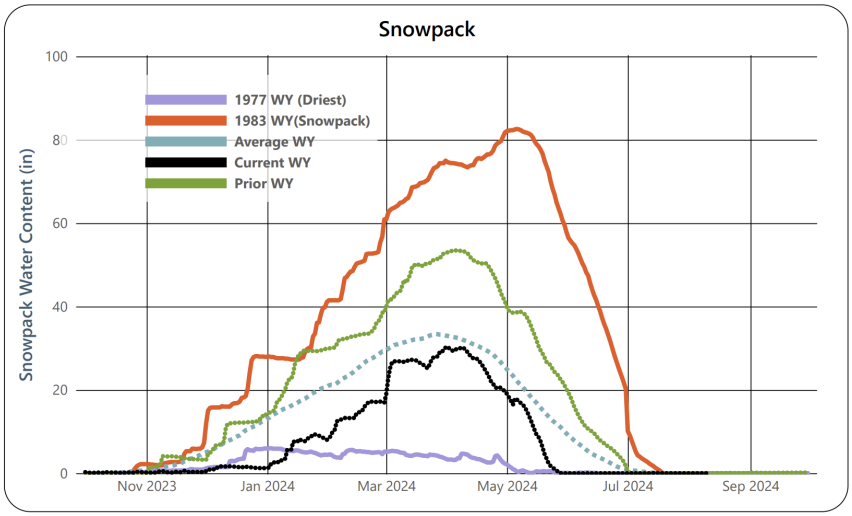

Figure 5. August 12, 2024 Snowpack

Figure 5 is a line graph of snowpack water content in inches for November 2023 to September 2024. It includes data from the driest water year (1977), 1983's water year snowpack, average, current, and prior water year. Runoff into the storage reservoir basins is 101.7% of median to date through 8/12/2024.

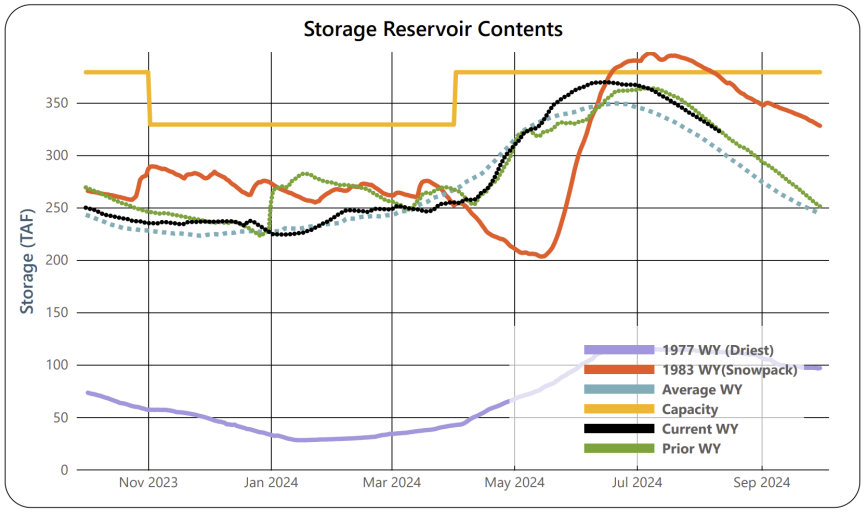

Figure 6. Storage Reservoir Contents

Figure 6 is a line graph of SMUD storage reservoir contents for November 2023 to September 2024. It includes data from the driest water year (1977), 1983's water year snowpack, average, current, and prior water year. The total capacity of the reservoir network is also shown.

Table 2. SMUD Storage Reservoirs

Reservoir	Hist. Avg (Acre-ft)	Hist. Avg (% full)	Current Acre-ft	Current % Full	Prior Year Acre-ft	Prior Year % Full	Capacity Acre-ft	Winter Acre-ft
Ice House	35,263	81%	36,764	84.5%	38,516	89%	43,500	34,855
Union Valley	213,593	80%	229,047	86.0%	226,178	85%	266,370	225,046
Loon Lake	54,277	78%	54,807	79.1%	58,425	84%	69,310	69,310
Total Reservoir Storage	303,134	80%	320,618	84.6%	323,119	85%	379,180	329,211

Chili Bar releases into the South Fork American River

Table 3. Chili Bar releases into the South Fork American River

Observation	Year	Month	Daily Mean Release Rate (cfs)	Monthly Total Release (ac-ft)	Monthly Total Release (90% Exceedance)	Monthly Total Release (10% Exceedance)
Actual	2023	October	540	33,119	33,119	33,119
Actual	2023	November	456	27,114	27,114	27,114
Actual	2023	December	908	55,725	55,725	55,725
Actual	2024	January	848	52,057	52,057	52,057
Actual	2024	February	1,621	93,091	93,091	93,091
Actual	2024	March	2,397	147,142	147,142	147,142
Actual	2024	April	2,755	163,624	163,624	163,624
Actual	2024	May	2,863	175,706	175,706	175,706
Actual	2024	June	1,280	76,028	76,028	76,028
Actual	2024	July	787	48,304	48,304	48,304
Forecast	2024	August	956	53,666	55,391	65,189
Forecast	2024	September	479	28,457	28,281	48,623
Forecast	2024	October	427	26,193	26,193	27,188
Forecast	2024	November	392	23,307	17,471	96,730
Forecast	2024	December	1,091	66,950	43,991	181,897

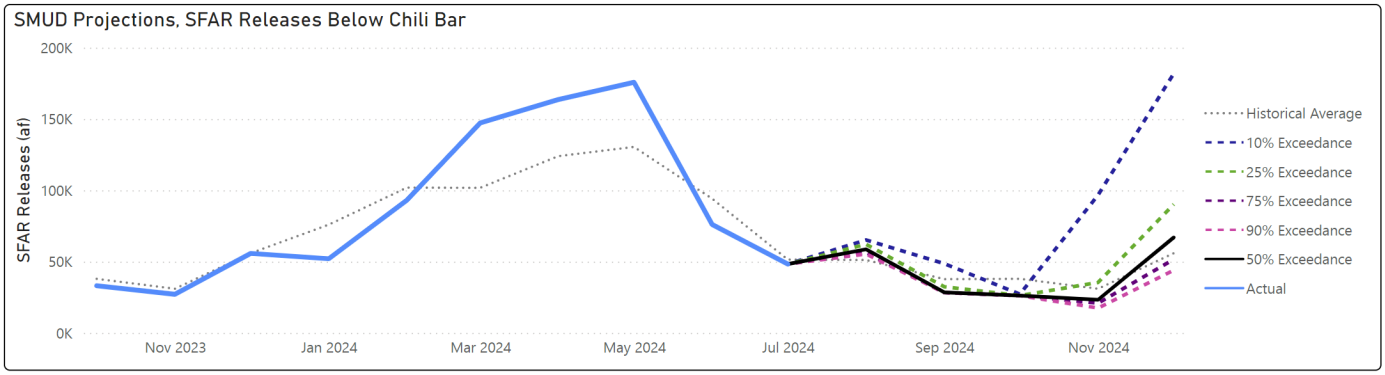

Figure 7. Chili Bar releases into the South Fork American River. Projections based on forecast from 8/12/24.

Figure 7 is a line graph of observed and projected releases below Chili Bar from November 2023 to November 2024. The graph includes a last 10-year average, actual prior water year data, and projections of 90%, 75%, 50%, 25%, and 10% likelihood.

PCWA MFP Operations Overview for American River Operations Group (Real Time Data as of August 15, 2024)

- French Meadows Storage = 96,000 AF of 136,405 AF = 71% Capacity
    - MFAR above FM Inflow (R24) =7-day AVG ~2 cfs
- Hell Hole Storage = 136,000 AF of 207,590 AF = 65% Capacity
    - Five Lakes Inflow (R23) = 7-day AVG ~5 cfs
    - Rubicon Inflow (R22) = 7-day AVG ~5 cfs
- Combined Storage (FM+HH) = 232,000 AF/342,590 AF = 68% Capacity; ~89% of 15 YR AVG
- MFAR @ R11: 7-day daily average ~825 cfs
- NFAR @ ARPS: 7-day daily average ~900 cfs
- 2024 MFP Annual Maintenance Outage [October 1st through October 31st] – Middle Fork/Ralston Powerhouses offline – the FERC minimum streamflow for the Middle Fork American River below Oxbow Powerhouse will be maintained at or above 165 cfs for the duration of outage.

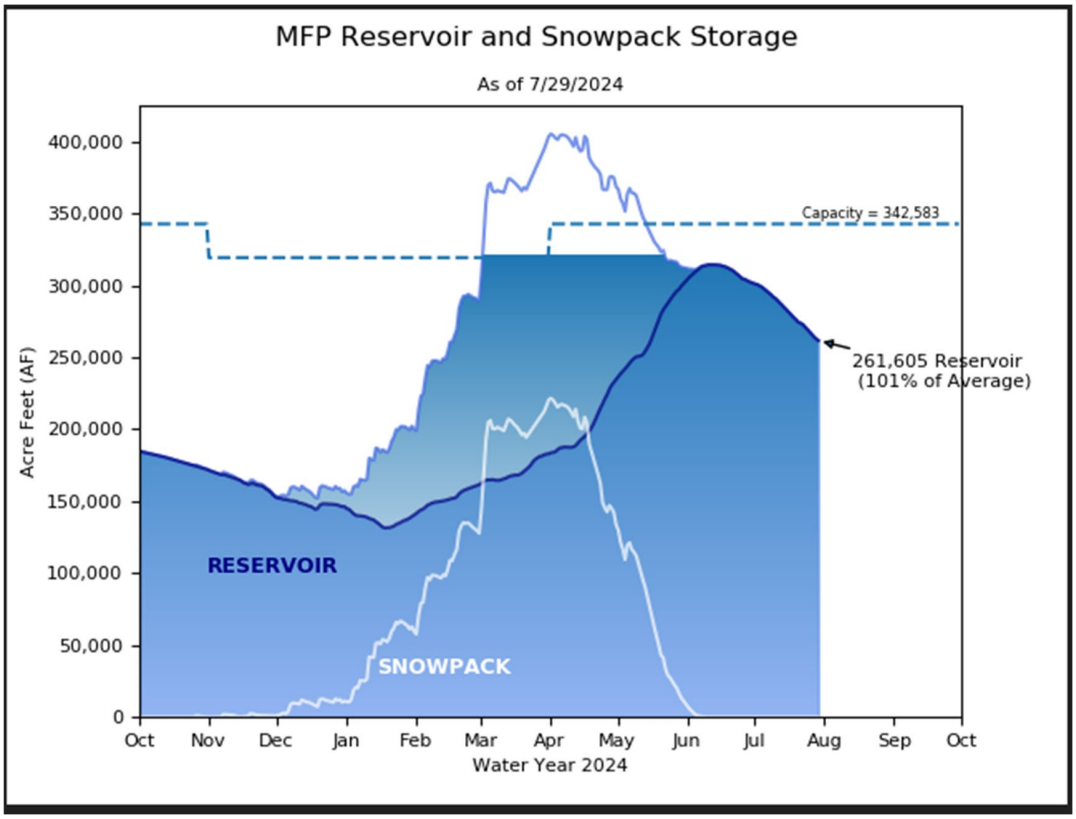

Figure 8. MFP Reservoir and Snowpack Storage

Figure 8 is a line graph that shows the MFP Reservoir and Snowpack Storage from October 2023 to October 2024. As of July 29, 2024, the reservoir holds 261,605 acre feet which is 101% of the average.

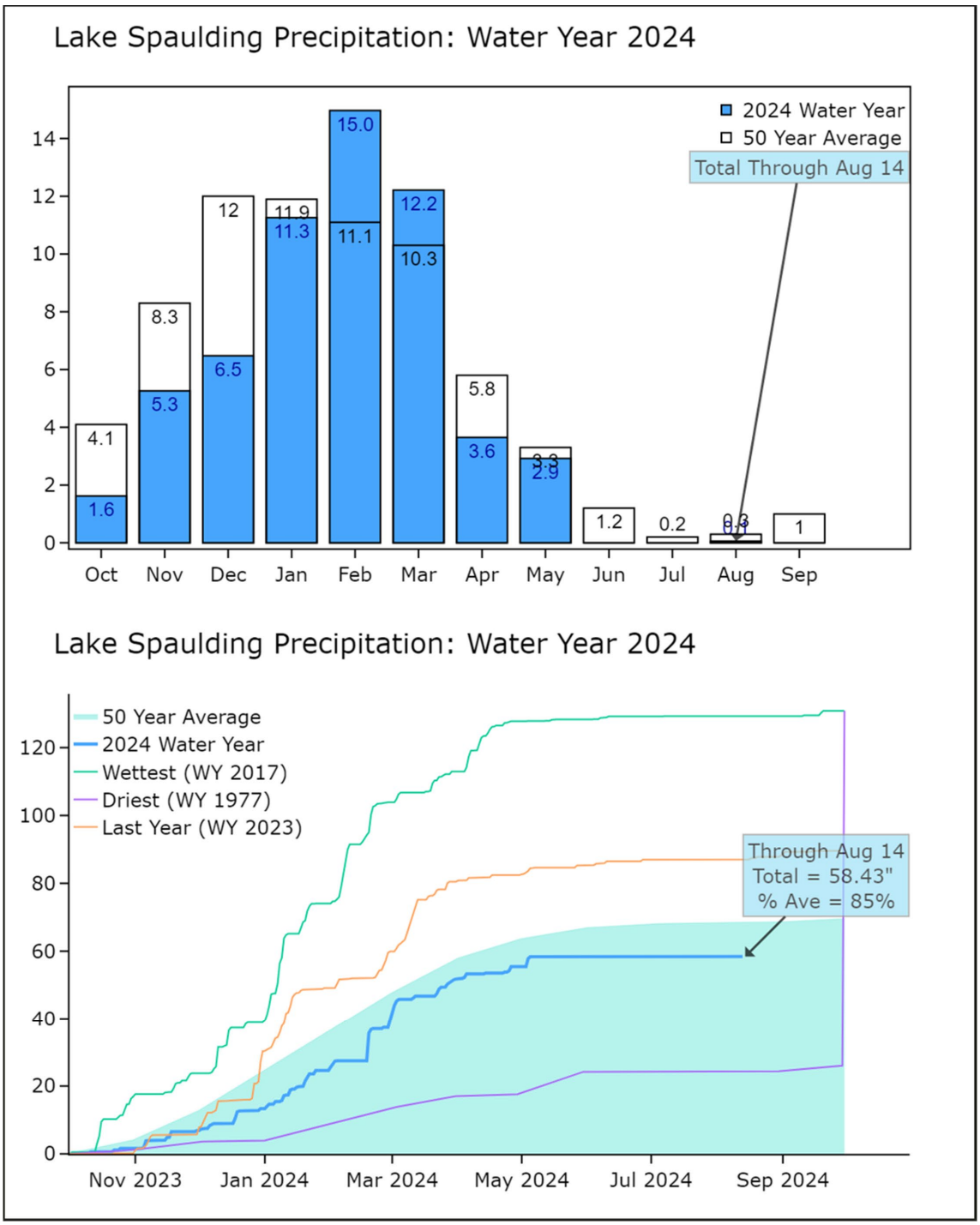

Figure 9. Lake Spaulding Precipitation: Water Year 2024

Figure 9 consists of two graphs that show the precipitation levels in Lake Spaulding from bar graph and a line graph showing precipitation levels in Lake Spaulding during Water Year 2024. The first graph is a bar graph showing the precipitation totals and the 50 year average in percent from October 2023 to September 2024. The total through August 14 is 0.3 with a 50-year average of 0.1. The second graph is a line graph showing the precipitation totals and the 50-year average from November 2023 to September 2024. The total through August 14 is 58.43 inches which is 85% of the 50-year average.

Reservoir Releases in Cubic Feet/Second

Reservoir	Dam	WY 2023	WY 2024	15 Yr Median
Trinity	Lewiston	445	440	452
Sacramento	Keswick	10,241	12,074	10,241
Feather	Oroville (SWP)	5,500	8,000	5,500
American	Nimbus	4,026	3,440	3,340
Stanislaus	Goodwin	937	302	290
San Joaquin	Friant	353	440	354

Storage in Major Reservoirs in Thousands of Acre-Feet

Reservoir	Capacity	15 Yr Avg	WY 2023	WY 2024	% of 15 Yr Avg
Trinity	2,448	1,495	1,382	1,887	126
Shasta	4,552	2,843	3,723	3,244	114
Folsom	977	565	800	562	99
New Melones	2,420	1,395	1,984	1,905	137
Fed. San Luis	966	325	827	441	136
Total North CVP	11,363	6,623	8,716	8,039	121
Millerton	521	321	428	278	87
Oroville (SWP)	3,538	2,048	3,059	2,560	125

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

Reservoir	Current WY 2024	WY 1977	WY 1983	15 Yr Avg	% of 15 Yr Avg
Trinity	1,521	670	1,978	1,092	139
Shasta	5,345	3,237	8,643	4,557	117
Folsom	2,191	1,026	5,878	2,538	86
New Melones	902	N/A	2,093	1,020	88
Millerton	1,736	687	2,840	1,590	109

Accumulated Precipitation for Water Year to Date in Inches

Reservoir	Current WY 2024	WY 1977	WY 1983	Average (N Years)	% of Average	Last 24 Hours
Trinity at Fish Hatchery	35.28	22.68	40.07	30.12 (64)	117	0.00
Sacramento at Shasta Dam	63.62	33.37	86.50	58.74 (69)	108	0.00
American at Blue Canyon	50.63	0.01	113.32	63.79 (50)	79	0.00
Stanislaus at New Melones	28.92	N/A	36.75	26.81 (47)	108	0.00
San Joaquin at Huntington Lk	32.28	11.50	67.10	39.96 (51)	81	0.00

August 2024 | Folsom Lake Daily Operations | Run Date: 08/14/2024

Day	Elev	Storage (1000 Acre-Feet) in Lake	Storage (1000 Acre-Feet) Change	Compu-ted* Inflow C.F.S.	Release - C.F.S. River Power	Release - C.F.S. River Spill	Release - C.F.S. River Outlet	Pump-ing Plant	Evap. - C.F.S.	Evap. - Inches	Precip Inches
N/A	N/A	626.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	430.70	619.9	-6.2	1,608	4,369	0	0	255	117	0.39	0.00
2	430.10	614.5	-5.4	1,986	4,335	0	0	277	86	0.29	0.00
3	429.68	610.8	-3.7	2,595	4,082	0	0	291	110	0.37	0.00
4	429.05	605.2	-5.6	1,683	4,097	0	0	290	121	0.41	0.00
5	428.37	599.2	-6.0	1,612	4,235	0	0	292	112	0.38	0.00
6	427.77	593.9	-5.3	1,679	3,956	0	0	279	105	0.36	0.00
7	427.18	588.8	-5.2	1,336	3,516	0	0	289	134	0.46	0.00
8	426.68	584.4	-4.4	1,560	3,352	0	0	280	122	0.42	0.00
9	426.09	579.3	-5.1	1,414	3,596	0	0	284	116	0.40	0.00
10	425.60	575.1	-4.2	1,818	3,561	0	0	289	98	0.34	0.00
11	425.14	571.1	-4.0	1,890	3,489	0	0	285	112	0.39	0.00
12	424.66	567.0	-4.1	1,794	3,490	0	0	271	103	0.36	0.00
13	424.10	562.2	-4.8	1,738	3,793	0	0	266	88	0.31	0.00
Totals	N/A	N/A	-64.0	22,713	49,871	0	0	3,648	1,424	4.88	0.00
Acre-Feet	N/A	N/A	64,400	45,051	98,919	0	0	7,236	2,825	N/A	N/A

* Computed inflow is the sum of change in storage, releases, pumping, and evaporation

Summary: Release (acre-feet)

Power	98,919
Spill	0
Outlet	0
Pumping Plant	7,236
Total Releases	106,155

Summary: Precipitation (Month/Inches)

This month	0.00
October 1, 2023 to date	20.57

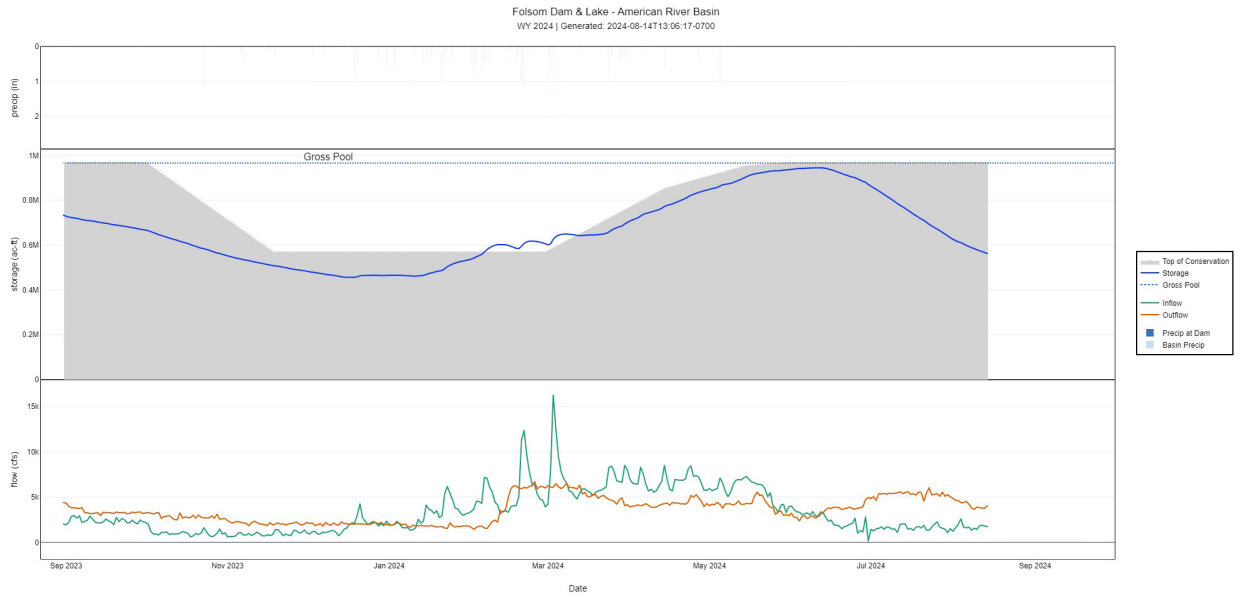

Figure 10. Folsom Dam & Lake – American River Basin WY 2024

Figure 10 is a graph that compares the flow, storage, and precipitation over time for the American River Basin.

Isobath 07/01–07/31 (Mean Daily Temperature, Release, Storage, Unit Shutter Position/Load Percentage

MDT = Mean Daily Temperature (°F)
USP/LP = Unit Shutter Position/Load Percentage

Date	MDT, Water, NFA	MDT, Water, ARP	MDT, Water, AFD[1]	MDT, Water, AFO	MDT, Water, AWP	MDT, Water, AWB	MDT, Air, CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP/LP Unit 1	USP/LP Unit 2	USP/LP Unit 3
June	65.9	65.1	56.3	58.8	60.7	61.6	75.2	922	N/A	A	A	A
07/01	69.0	70.8	59.0	60.9	62.2	62.8	82.7	4386	856	A 42	A 16	A 42
07/02	69.9	70.9	59.3	61.3	62.6	63.2	87.6	4579	849	A 51	A 30	A 19
07/03	70.1	70.9	59.6	61.5	62.7	63.4	89.2	4775	841	A 43	A 43	A 14
07/04	68.5	72.8	59.9	61.5	62.9	63.6	86.9	4910	834	A 40	A 19	A 40
07/05	66.4	73.6	60.3	61.9	63.2	63.8	86.4	4936	826	A 40	A 20	A 40
07/06	66.7	73.5	60.5	62.1	63.5	64.1	89.2	4950	818	A 40	A 20	A 40
07/07	66.8	73.6	60.8	62.3	63.7	64.4	84.8	4961	810	A 39	A 23	A 38
07/08	66.3	74.0	61.2	62.7	64.1	64.6	80.1	4912	802	A 38	A 25	A 37
07/09	65.6	73.3	61.6	63.1	64.2	64.7	75.5	4956	794	A 39	A 23	A 38
07/10	65.6	74.1	59.6	63.6	64.7	65.1	81.8	4960	785	A 39.6	A 21.5	A 39
07/11	64.5	73.1	61.3	63.8	65.0	65.5	90.5	4982	778	A 37.7	T 24.7	A 38
07/12	63.7	70.8	60.8	62.9	64.5	65.3	89.1	5011	771	A 39.2	T 25.9	A 35
07/13	62.4	68.9	61.1	62.4	63.4	63.9	80.0	4961	764	A 38.7	T 25.7	A 36
07/14	62.7	68.3	61.6	62.5	63.3	63.6	77.5	4957	755	A 37.8	T 24.6	A 38
07/15	60.9	68.6	61.4	62.8	63.8	64.1	73.1	4956	747	A 37.3	T 25.6	A 37
07/16	63.3	70.7	62.5	63.2	64.0	64.3	71.1	4961	739	A 41.3	T 17.5	A 41
07/17	61.4	68.5	62.9	64.1	64.7	64.8	72.2	4955	732	A 41.1	T 18.5	A 40
07/18	61.8	68.6	63.2	64.4	65.3	65.8	80.5	4968	724	A 39.9	T 20.1	A 40
07/19	62.3	69.2	62.3	65.2	66.1	66.4	85.0	4962	716	A 36.0	T 30.1	A 34
07/20	63.4	67.9	60.7	63.5	65.1	65.9	83.4	4963	710	A 45.2	T 47.8	A 7
07/21	66.6	68.3	61.1	62.8	64.2	64.9	77.0	4962	702	A 51.1	T 48.6	A 0
07/22	67.2	69.2	63.3	63.2	64.3	64.8	83.2	4976	693	A 44.5	T 32.4	A 23
07/23	65.2	70.3	62.2	64.9	65.9	66.2	89.6	5055	685	A 34.3	T 43.2	A 22
07/24	64.9	67.5	62.2	64.1	65.4	66.0	87.9	5048	678	A 31.9	T 44.9	A 23
07/25	63.4	66.4	62.8	64.2	65.3	65.7	83.8	4998	672	A 33.7	T 41.3	A 25
07/26	62.0	66.0	62.9	64.3	65.4	65.8	79.8	4962	665	A 42.4	T 42.6	A 15
07/27	61.2	66.9	63.0	64.3	65.0	65.1	64.1	4962	657	A 31.6	T 42.4	A 26
07/28	60.8	66.2	63.1	64.1	64.8	64.9	68.2	4961	649	A 33.3	T 44.3	A 22
07/29	61.8	66.7	63.6	64.2	65.1	65.3	69.7	4976	641	A 35.8	T 39.9	A 24
07/30	62.2	67.1	63.5	64.8	65.8	66.1	73.0	4719	634	A 34.2	T 44.1	A 22

Date	MDT, Water, NFA	MDT, Water, ARP	MDT, Water, AFD[1]	MDT, Water, AFO	MDT, Water, AWP	MDT, Water, AWB	MDT, Air, CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP/LP Unit 1	USP/LP Unit 2	USP/LP Unit 3
07/31	61.7	69.0	63.1	64.8	66.1	66.5	76.4	4484	626	A 34.6	A 50.5	A 15
July	**64.5**	**69.9**	**61.6**	**63.3**	**64.4**	**64.9**	**80.6**	**740**	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	Total	AF	301692	N/A	N/A	N/A	N/A

Legend

? = 1-9 hours of data missing
! = 10 or more hours of data missing
= Station out of service

Monthly Averages

A = All Shutters Lowered
T = Top Shutter Raised
M = Middle Shutter Raised
B = Bottom Shutter Raised
O = Unit Outage

Notes:
[1] AFD is a weighted average based on hourly flow values, including generation, bypass and spill

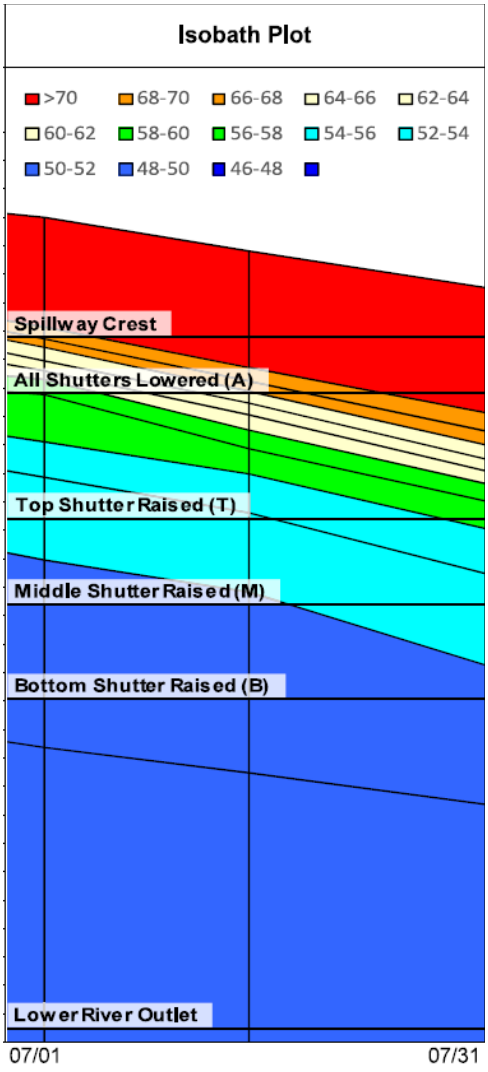

Figure 11. Isobath Plot 7/01-7/31

Figure 11 is an Isobath Plot for the month of July showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet.

Isobath 08/01–08/31 (Mean Daily Temperature, Release, Storage, Unit Shutter Position/Load Percentage

MDT = Mean Daily Temperature (°F)
USP/LP = Unit Shutter Position/Load Percentage

Date	MDT, Water, NFA	MDT, Water, ARP	MDT, Water, AFD[1]	MDT, Water, AFO	MDT, Water, AWP	MDT, Water, AWB	MDT, Air, CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP/LP Unit 1	USP/LP Unit 2	USP/LP Unit 3
July	64.5	69.9	61.6	63.3	64.0	64.9	80.6	740	N/A	A	A	A
08/01	61.2	69.9	63.2	64.7	66.1	66.7	81.0	4260	620	A 34	A 55	A 11
08/02	59.7	66.2	61.3	64.8	65.6	65.9	80.6	3962	615	T 27	T 58	T 16
08/03	60.0	64.5	61.3	63.3	65.3	66.2	86.3	3970	611	T 20	T 49	T 31
08/04	61.6	66.7	61.3	63.1	64.3	65.0	80.0	3947	605	T 20	T 51	T 29
08/05	61.7	67.5	60.2	63.2	64.5	65.1	74.6	3993	599	T 19	T 50	T 31
08/06	61.4	67.7	60.5	62.6	64.3	65.1	79.2	3761	594	T 23	T 51	T 26
08/07	61.0	69.0	60.9	62.3	64.0	64.8	82.8	3477	589	T 49	T 34	T 17
08/08	61.1	69.9	61.4	62.8	64.2	64.8	76.4	3455	584	T 53	T 24	T 23
08/09	61.6	68.6	61.6	63.1	64.6	65.2	75.0	3444	579	T 56	T 15	T 29
08/10	61.1	67.3	62.0	63.4	64.9	65.4	75.0	3448	575	T 54.4	T 28.7	T 17
08/11	60.8	65.9	62.3	63.7	64.9	65.4	74.1	3443	571	T 54.8	T 16.8	T 28
08/12	61.1	64.3	62.4	63.7	64.9	65.1	69.9	3436	567	T 45.7	T 45.3	T 9
08/13	61.4	63.8	62.8	63.9	65.1	65.5	73.2	3440	562	T 45.3	T 45.3	T 11
08/14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
08/30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Date	MDT, Water, NFA	MDT, Water, ARP	MDT, Water, AFD[1]	MDT, Water, AFO	MDT, Water, AWP	MDT, Water, AWB	MDT, Air, CSU	Release (CFS) Nimbus	Storage (TAF) Folsom	USP/LP Unit 1	USP/LP Unit 2	USP/LP Unit 3
08/31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aug	**61.1**	**67.0**	**61.6**	**63.4**	**64.8**	**65.4**	**77.5**	**590**	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	Total	AF	95277	N/A	N/A	N/A	N/A

Legend

? = 1-9 hours of data missing
! = 10 or more hours of data missing
= Station out of service

Monthly Averages

A = All Shutters Lowered
T = Top Shutter Raised
M = Middle Shutter Raised
B = Bottom Shutter Raised
O = Unit Outage

Notes:
[1] AFD is a weighted average based on hourly flow values, including generation, bypass and spill

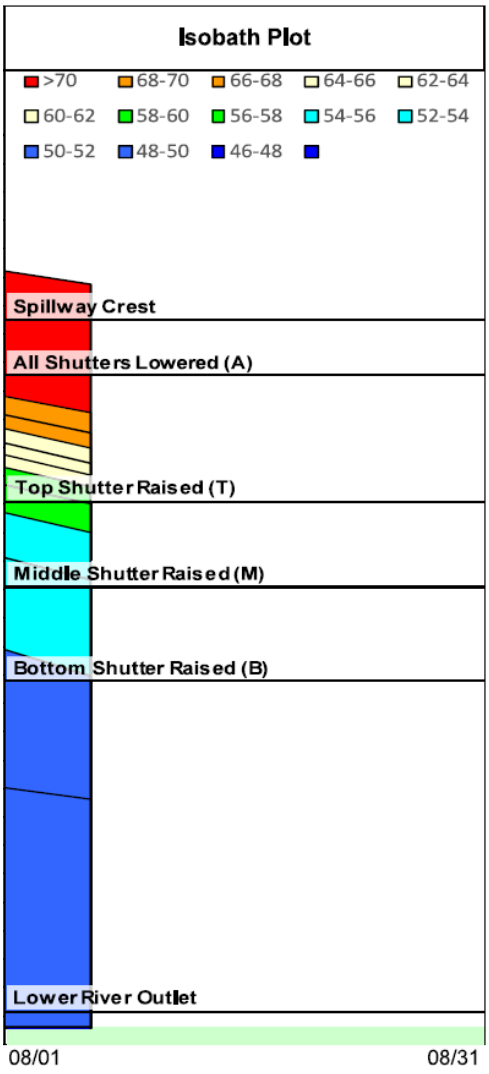

Figure 12. Isobath Plot 8/01-8/31

Figure 12 is an Isobath Plot for the month of August showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet.

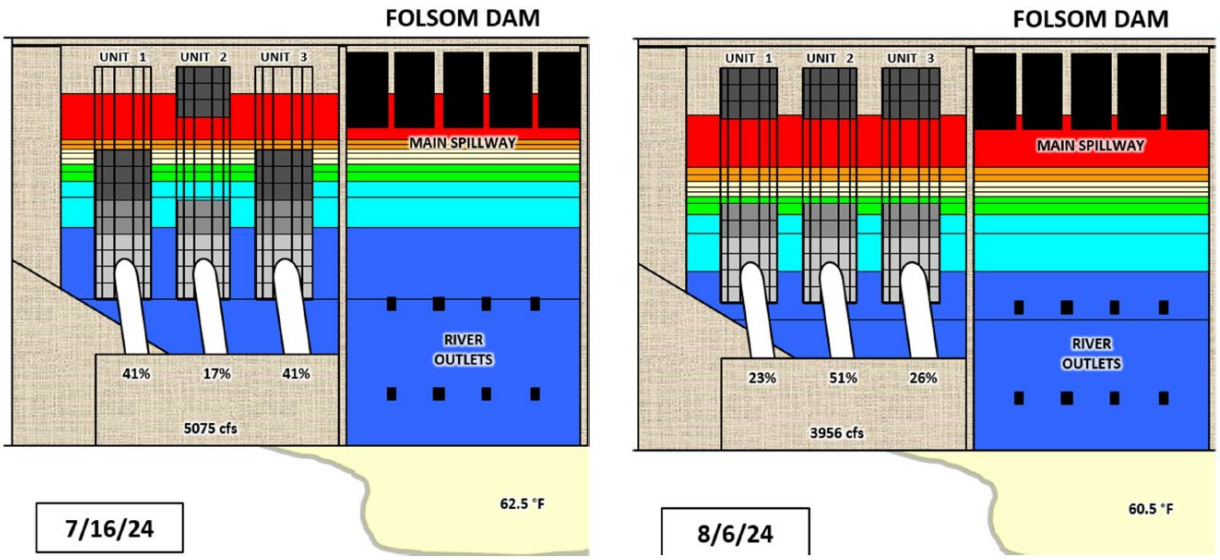

Figure 13. Folsom Dam Daily Average Water and Air Temperatures

Figure 13 is a graphic showing the Folsom Dam on 7/16/24 with a temperature of of 62.5 ˚F and 8/6/24 with a temperature of 60.5 ˚F.

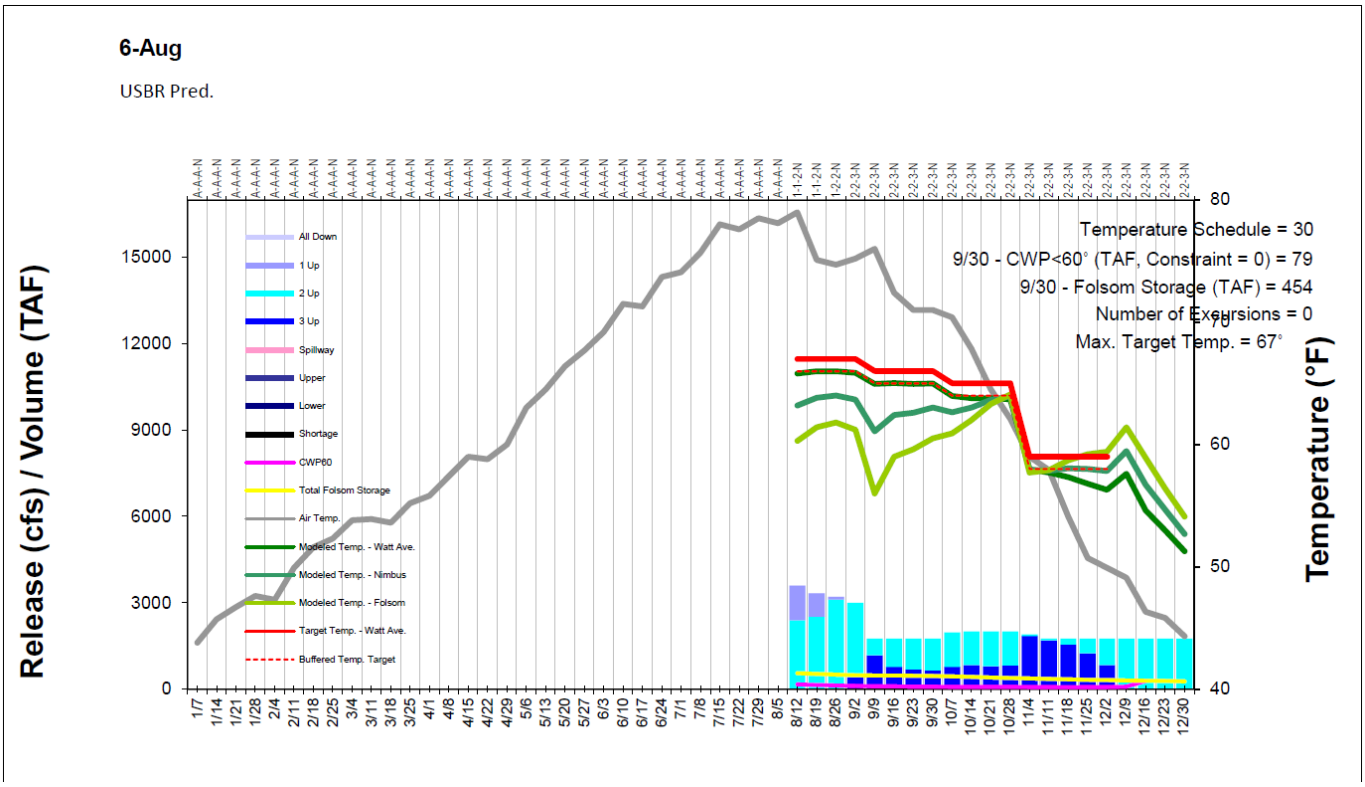

Figure 14. Temperature schedule at Watt Avenue

Figure 14 is a line graph of a temperature schedule showing release in cfs and volume in taf by temperature from 1/7/2024 until 12/30/2024.

American River Summary Conditions – July (On-going)

Release Management Conditions

- Releases are currently at 3,500 cfs

Temperature Management

Top Shutters: Units 1, 2, and 3 – raised

Middle Shutters: Units 1, 2, – lowered, Unit 3 – raised

Bottom Shutters: Units 1, 2, & 3 – lowered

Folsom Shutter Configuration and Changes

Unit 3 Middle Shutters were raised/opened on August 15th

Storages

August 50% Exceedance

Federal End of the Month Storage/Elevation (TAF/Feet)

Facility	Aug	Sep	Oct	Nov	Dec
Folsom Storage	490	438	396	369	360
Folsom Elevation	415	408	402	398	397

Monthly River Releases (TAF/cfs)

Facility	Aug	Sep	Oct	Nov	Dec
American	232	137	123	119	123
cfs	3769	2305	2000	2007	2000

American River Baseflow Table

Month	Index Used for Index-based MRR	Index Based MRR	RDPB-based MRR for fall-run Chinook salmon (applicable in Jun and Feb)	RDPB-based MRR for steelhead (applicable Feb to May)	Controlling MRR	Actual Average Monthly Nimbus releases[1]
October	May ARI[2] (50% exceedance)	1,500 cfs	Not applicable	Not applicable	1,500 cfs	2,574 cfs
November	May ARI[2] {50% exceedance)	2,000 cfs	Not applicable	Not applicable	2,000 cfs	2,062 cfs
December	May ARI[2] {50% exceedance)	2,000 cfs	Not applicable	Not applicable	2,000 cfs	2,041 cfs
January	January SRI {75% exceedance)	1,390 cfs	1,400 cfs	Not applicable	1,400 cfs	1,792 cfs
February	February ARI (50% exceedance)	1,750 cfs	1,400 cfs	1,750 cfs	1,750 cfs	4,278 cfs
March	March ARI (50% exceedance)	1,750 cfs	1,750 cfs	1,750 cfs	1,750 cfs	5,188 cfs
April	April ARI (50% exceedance)	1,150 cfs	Not applicable	1,500 cfs	1,500 cfs	4,145 cfs
May	April ARI (90% exceedance)	1,500 cfs	Not applicable	1,500 cfs	1,500 cfs	3,799 cfs
June	May ARI[2] (50% exceedance)	1,500 cfs	Not applicable	Not applicable	1,500 cfs	3,168 cfs
July	May ARI[2] (50% exceedance)	1,700 cfs	Not applicable	Not applicable	1,750 cfs	4,907 cfs
August	May ARI[2] (50% exceedance)	1,700 cfs	Not applicable	Not applicable	1,750 cfs	N/A

Water Temperature Modeling – Folsom Reservoir and the LAR

Record Heat – July 2024

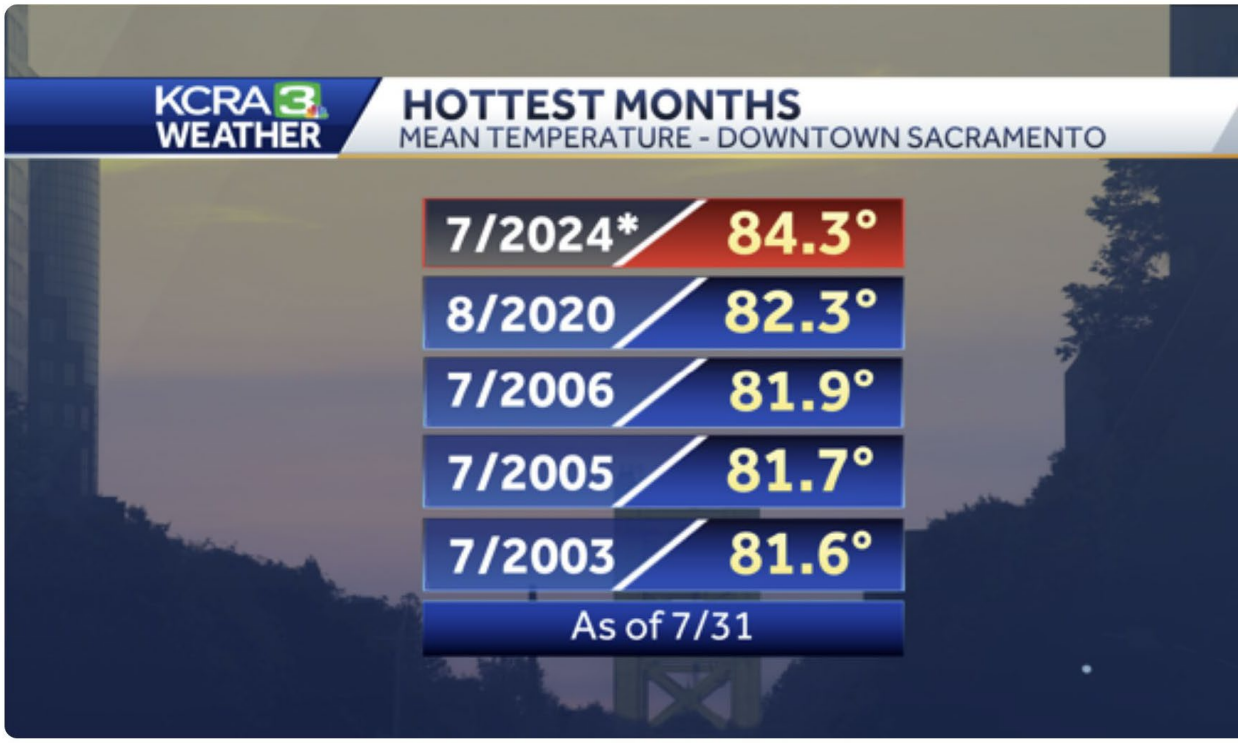

Figure 14. July 2024 Record Heat

Figure 14 is a screenshot of a KCRA 3 news broadcast comparing the historic mean temperature of the hottest recorded months in downtown Sacramento. The mean temperature for July 2024 is 84.3 degrees.

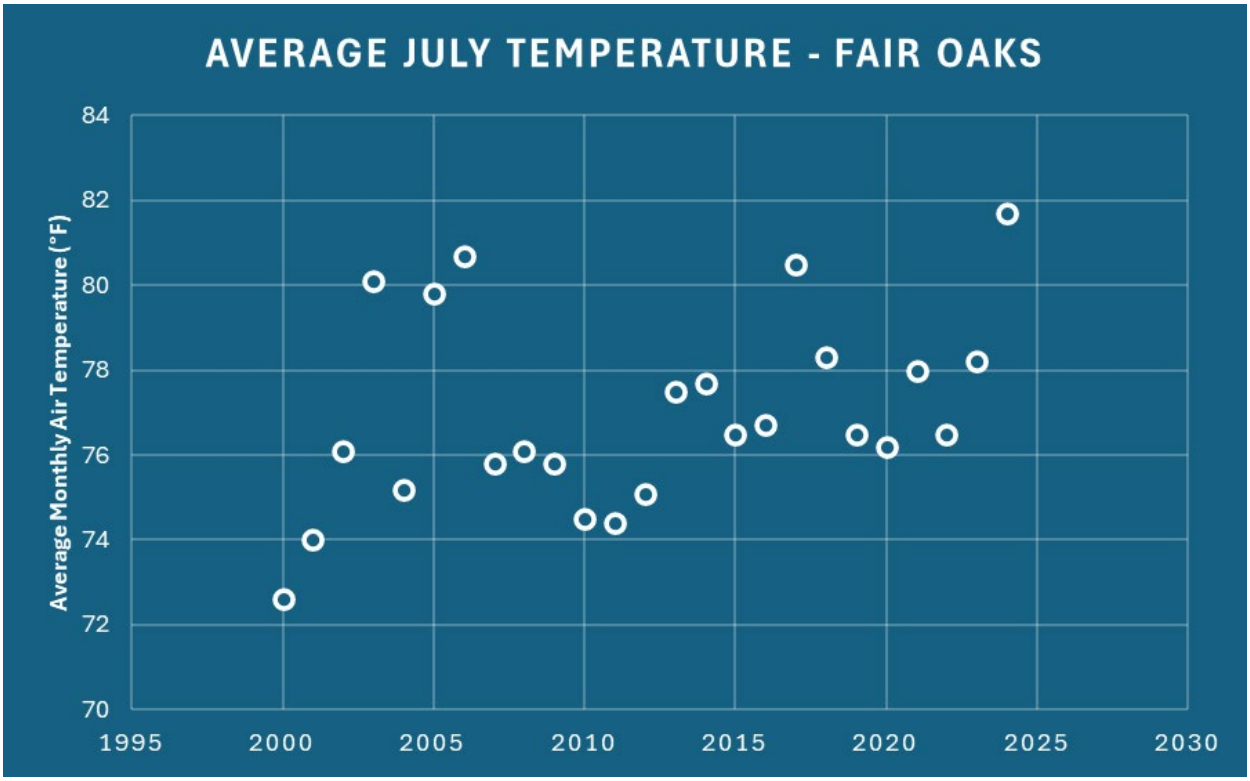

Figure 15. Average July Temperature in Fair Oaks

Figure 15 is a scatter plot of the average air temperature in the month of July from 2000 until 2024.

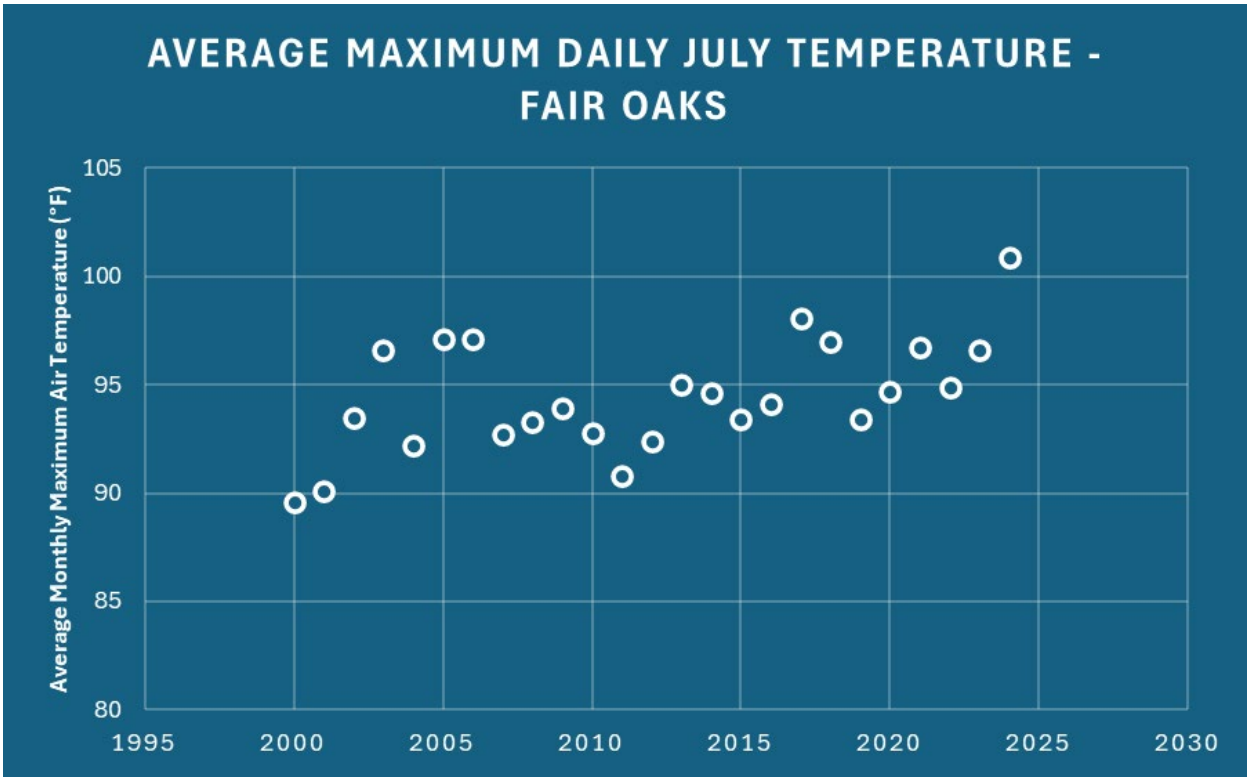

Figure 16. Average Maximum Daily July Temperature in Fair Oaks

Figure 16 is a scatter plot of the average maximum daily air temperature in the month of July from 2000 until 2024.

2024 Met Data

- 2020 had warmest August on record
- Ran 3 target temperatures at Watt Ave: 66°F, 67°F, 68°F
- No Bypass

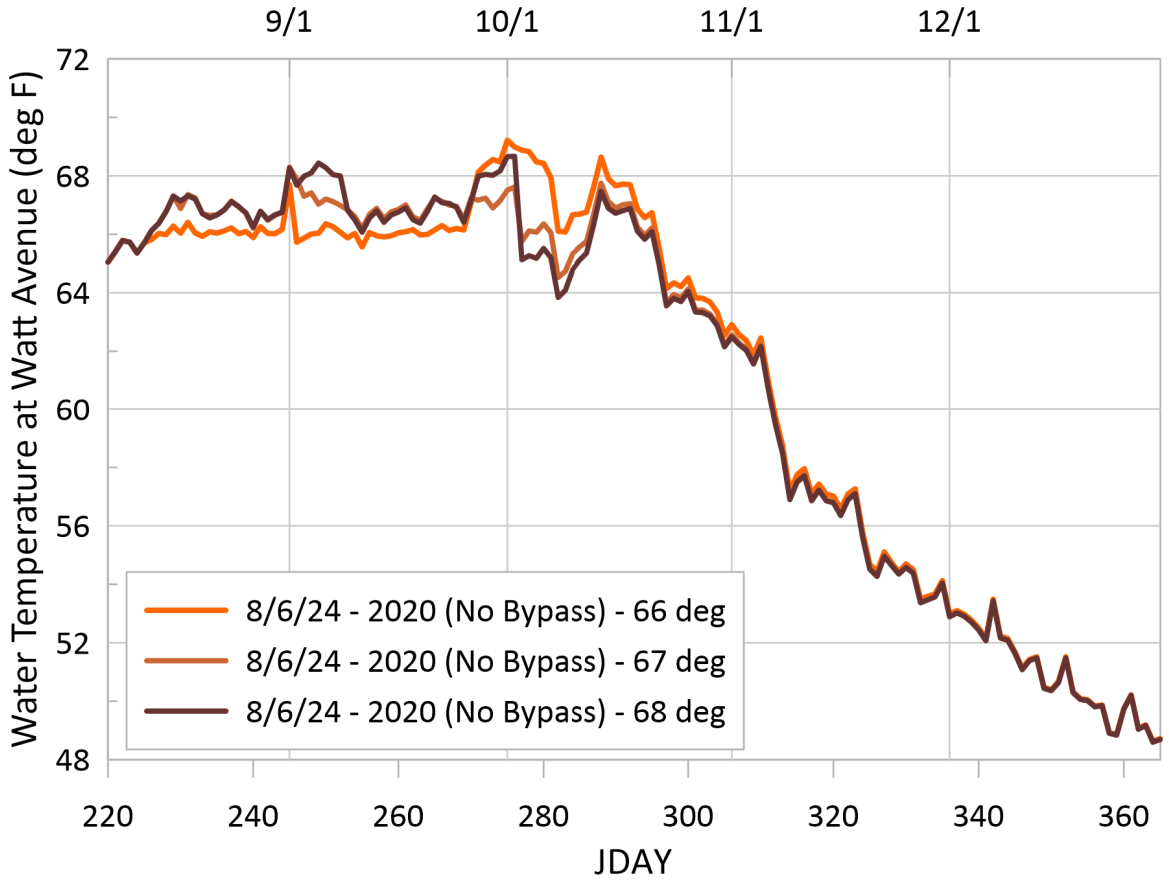

Figure 17. 2024 Water Temperature Modeling LAR – Multiple Targets at Watt Avenue

Figure 17 is a line graph that shows average water temperature at Watt Avenue with no bypass beginning on August 8 2020 until December 31 2020.

2017 Met Data

- 2017 had cooler August/Fall
- Ran 3 target temperatures at Watt Ave: 66°F, 67°F, 68°F
- No Bypass

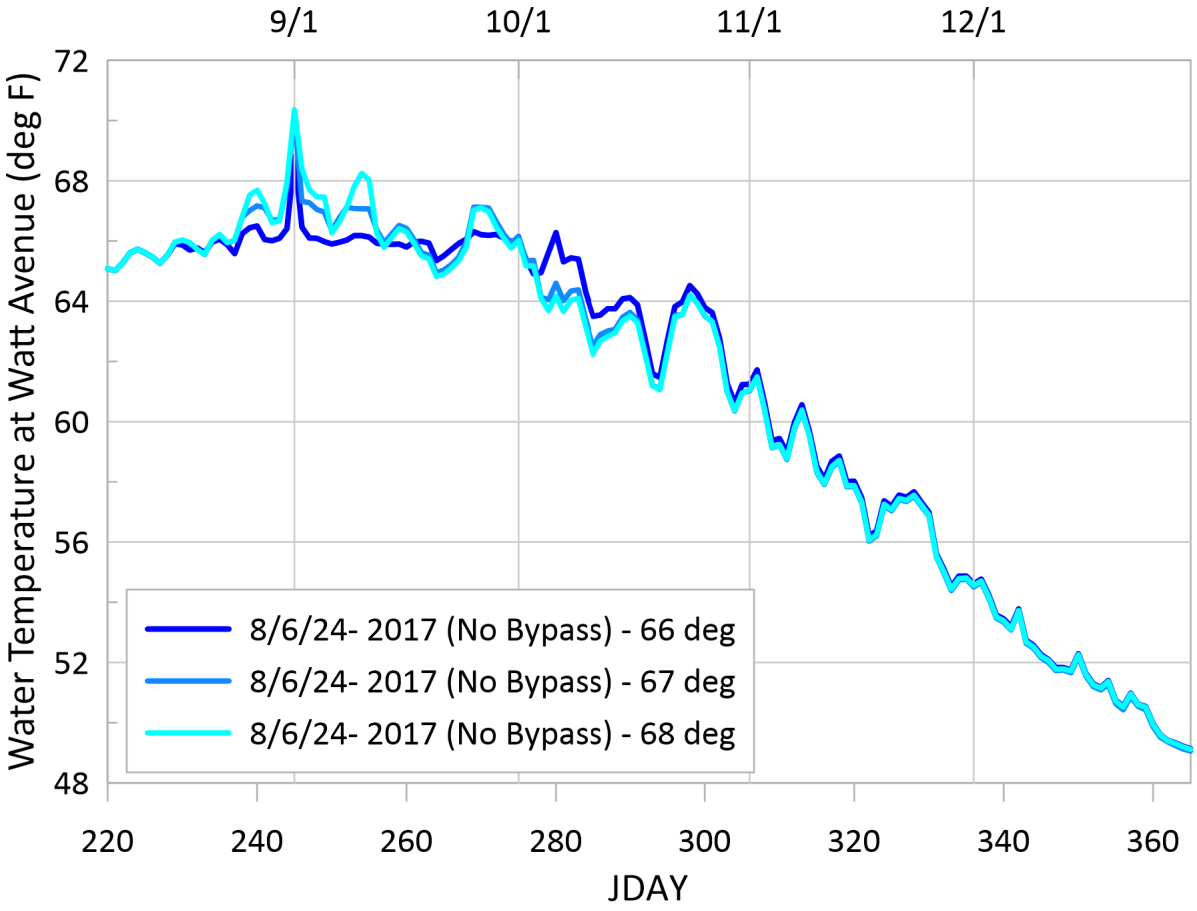

Figure 18. 2024 Water Temperature Modeling LAR – Multiple Targets at Watt Avenue

Figure 18 is a line graph that shows average water temperature at Watt Avenue with no bypass beginning on August 8, 2017 until December 31, 2017.

2020 Met Data

- 67°F target
- No Bypass
- Bypass starting 10/18
- Bypass starting 11/1

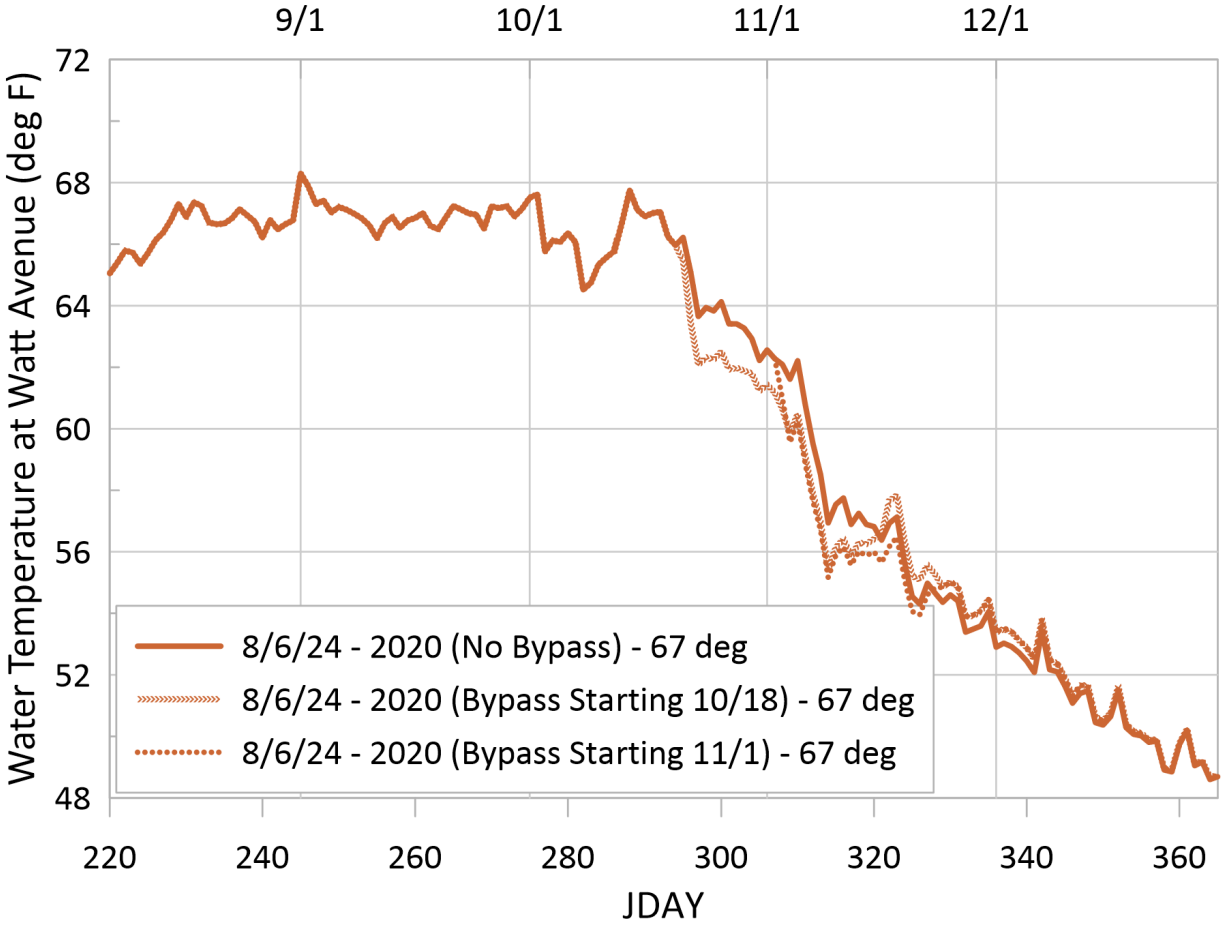

Figure 19. 2024 Water Temperature Modeling LAR – Multiple Bypass Scenarios at Watt Avenue

Figure 19 is a line graph that shows average water temperature at Watt Avenue beginning on August 8, 2020, until December 31, 2020. Bypass starting on October 18 and November 11 are shown.

2017 Met Data

- 67°F target
- No Bypass
- Bypass starting 10/18
- Bypass starting 11/1

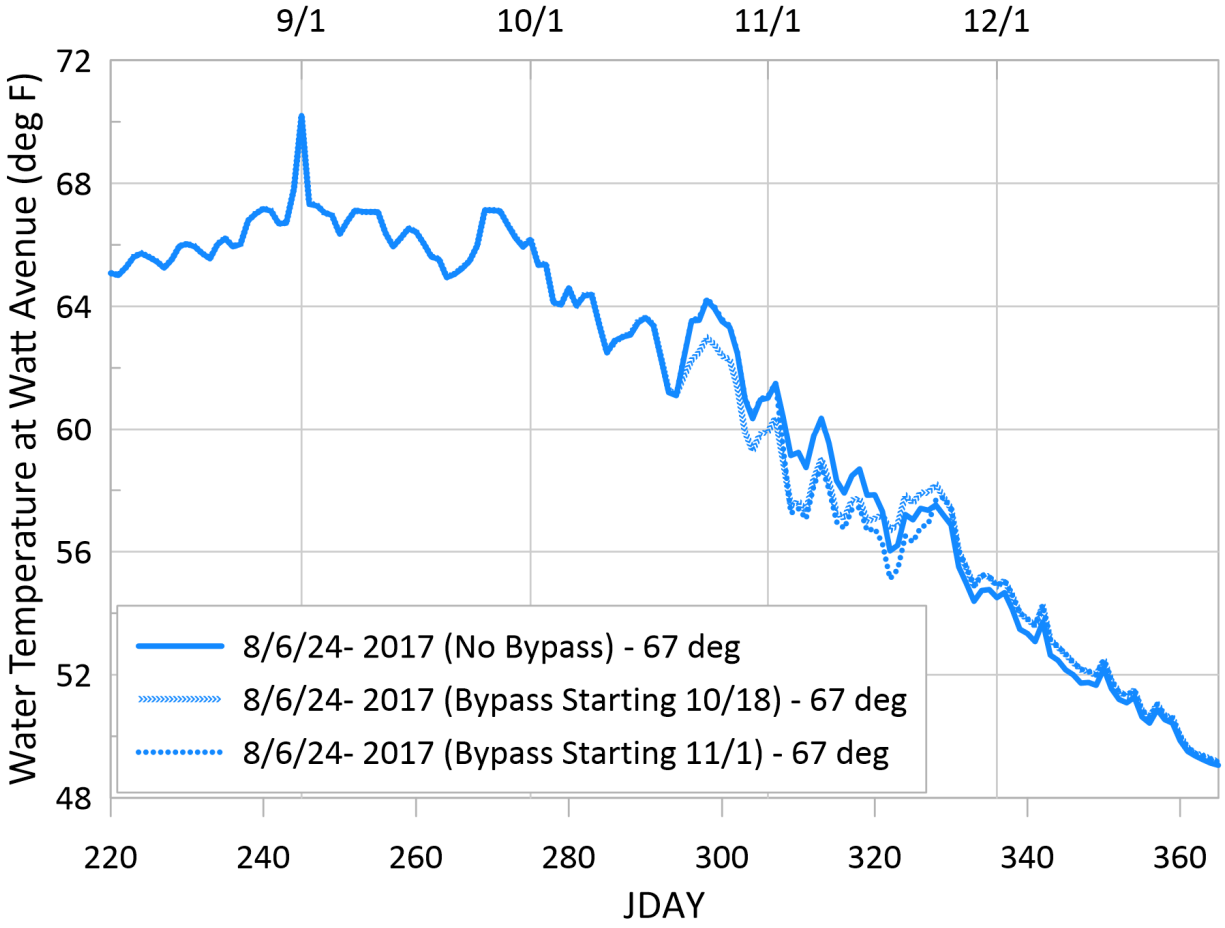

Figure 20. 2024 Water Temperature Modeling LAR – Multiple Bypass Scenarios at Watt Avenue

Figure 20 is a line graph that shows average water temperature at Watt Avenue beginning on August 8, 2017, until December 31 2017. Bypass starting on October 18 and November 11 are shown.

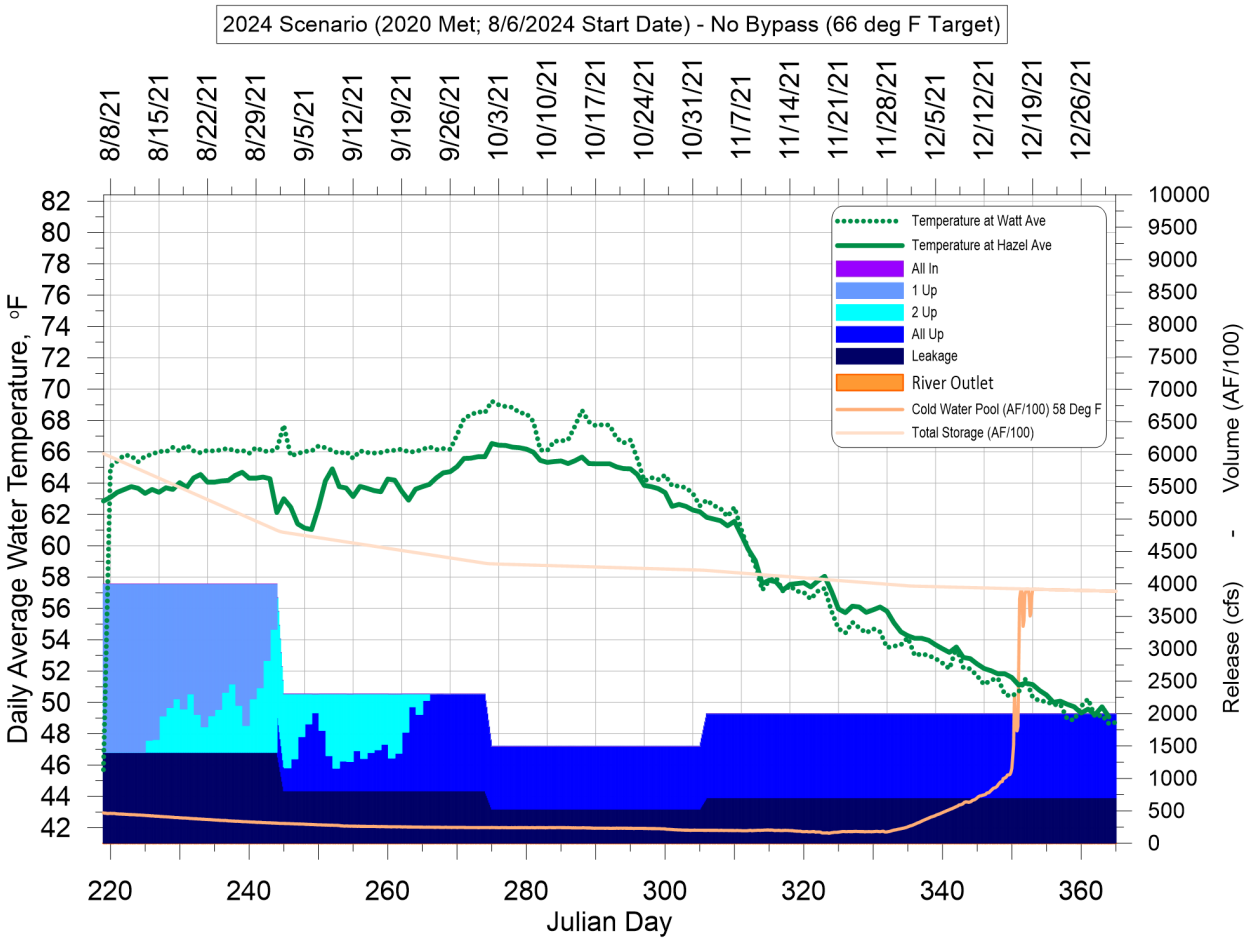

Figure 21. 2024 Scenario – No Bypass

Figure 21 is a line graph of the 2024 scenario that shows average water temperature, release, and volume beginning on August 8, 2021, through December 31, 2021, with no bypass and a target of 66 degrees.

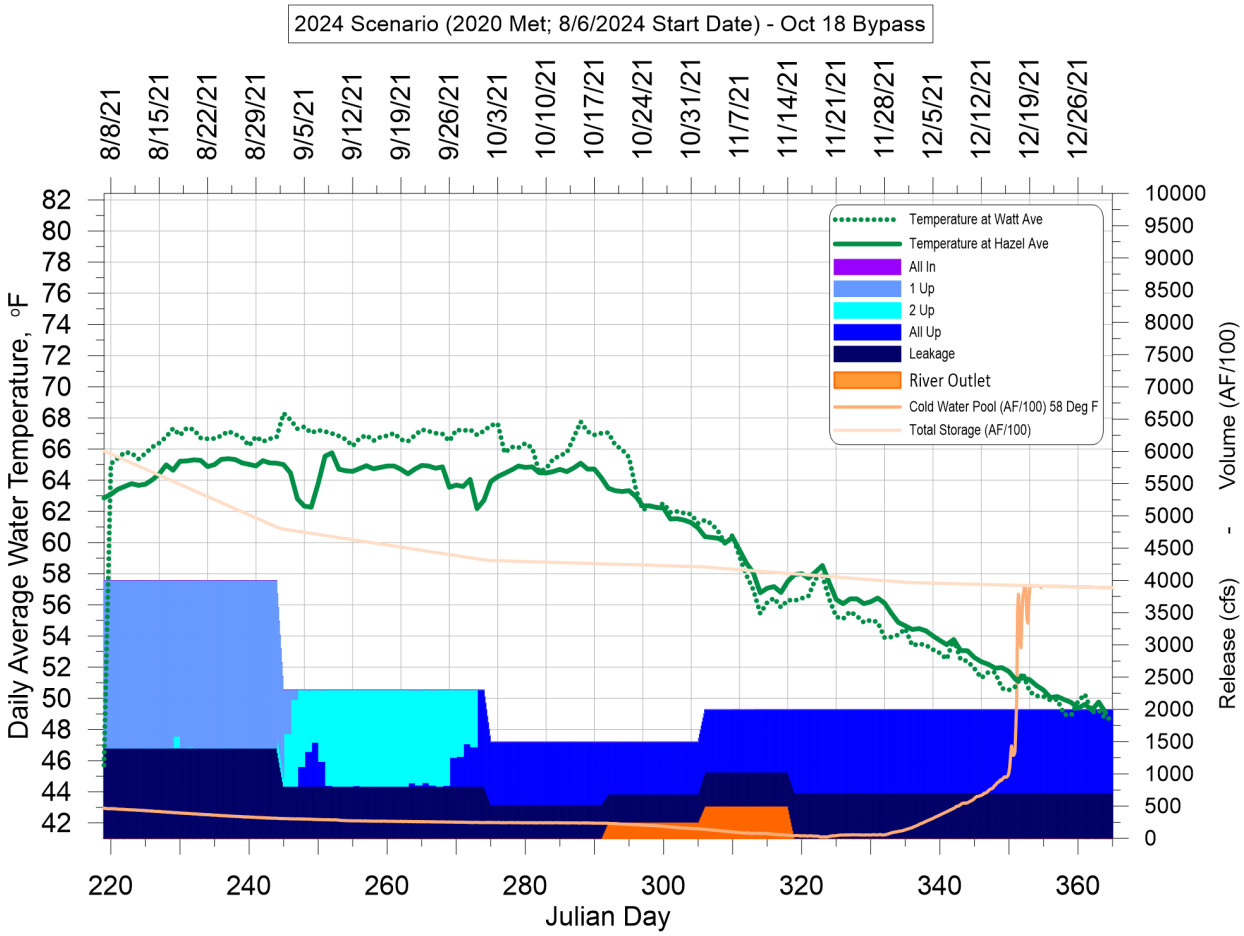

Figure 22. 2024 Scenario – October 18 Bypass

Figure 22 is a line graph of the 2024 scenario that shows average water temperature, release, and volume beginning on August 8, 2021 through December 31, 2021 with bypass on October 18, 2021.

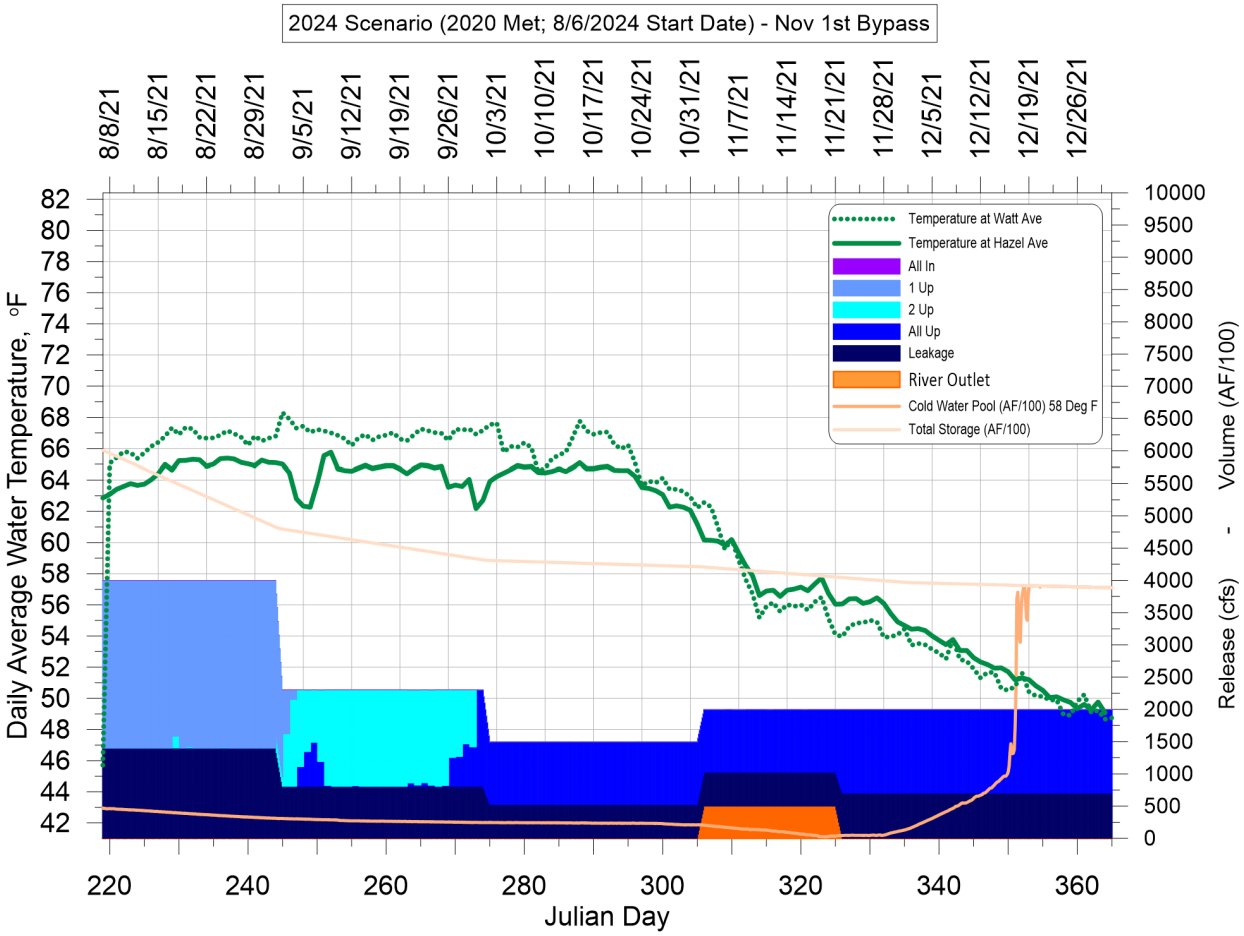

Figure 22. September 2024 – November 1 Bypass

Figure 22 is a line graph of the 2024 scenario that shows average water temperature, release, and volume beginning on August 8, 2021 through December 31, 2021 with bypass on November 1, 2021.