BUREAU OF RECLAMATION

American River Group

1:30 PM – 3:30 PM
Conference Line: +1 (321) 209-6143; Access Code: 985 598 947#
Webinar: Join Microsoft Teams Meeting

Thursday, April 18, 2024

Agenda

1. Introductions
2. Announcements
3. Housekeeping
    a. Meeting will be recorded for notetaking purposes
    b. Potential in person meeting in June
4. Fisheries Update
    a. CDFW
        i. Nimbus Hatchery Operations Update
    b. CFS
        i. Close-Kin Mark-Recapture Study
    c. PSMFC
5. Operations Forecast
    a. SMUD
    b. PCWA
6. Central Valley Operations
7. Discussion
8. Next Meetings:
    a. Thursday, May 16, 1:30-3:30pm

Lower American River 2024 Steelhead Spawning Survey Summary

Table 1. Steelhead and Chinook salmon redd counts during 2024 steelhead spawning surveys.

Dates	Steelhead	Chinook	Lamprey	Total
Jan 9 – 11	20	3	0	23
Jan 24 – 26	7	0	0	7
Feb 7 – 9	13	0	0	13
Feb 21 – 23	14	0	0	14
Mar 6 – 8	6	0	0	6
Mar 21 – 22	1	0	1	2
Apr 1 – 3	1	0	3	4
Total	62	3	4	69

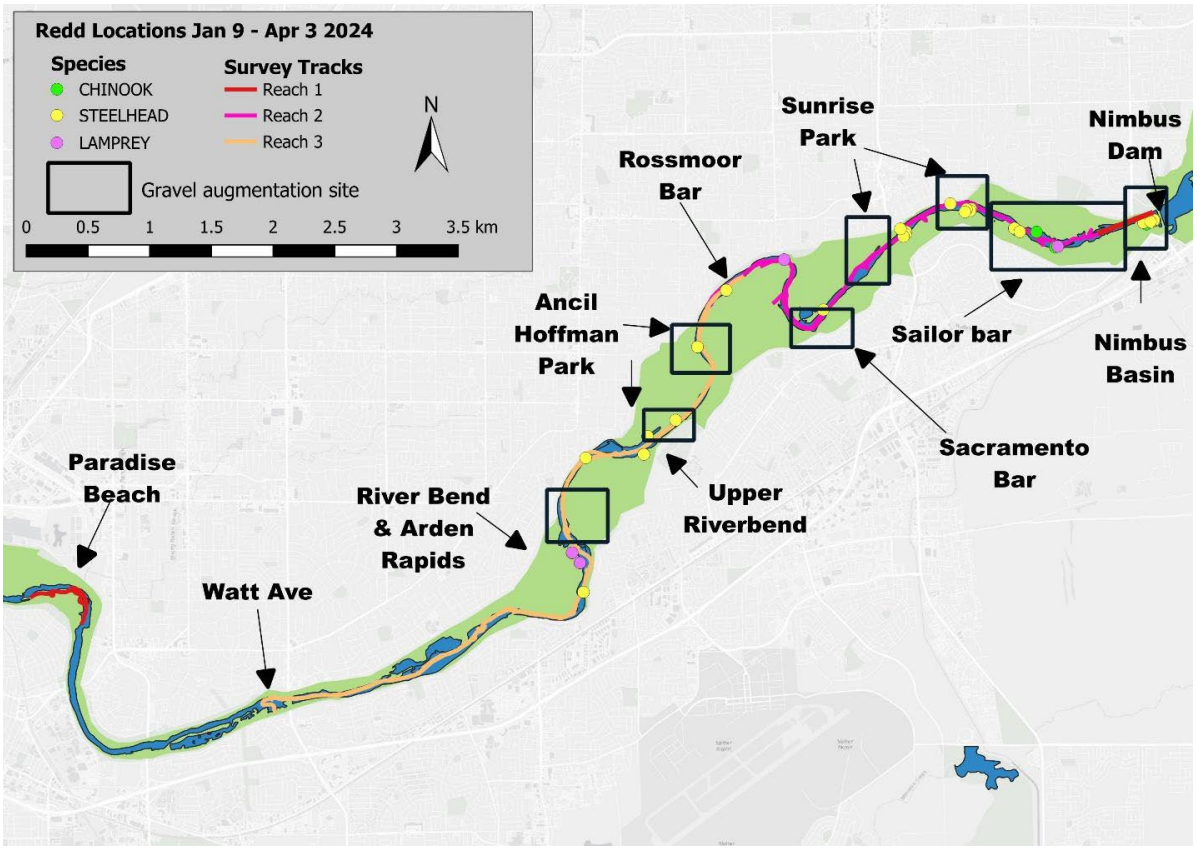

Figure 1. Locations of redds identified during the 2024 steelhead spawning surveys along the Lower American River through April 3 2024. The black boxes represent areas where gravel augmentation has occurred.

Figure 1 is a map of redds identified during the 2024 steelhead spawning surveys along the Lower American River through April 3 2024. The redds are identified along three survey tracks and belong to two species, Chinook and Steelhead. The black boxes at River Bend & Arden Rapids, Upper Riverbend, Ancil Hoffman Park, Sacramento Bar, Sunrise Park, Sailor Bar, and Nimbus Basin represent areas where gravel augmentation has occurred.

The final spawning surveys for the 2024 season are occurring this week (16 - 17 Apr).

Lower American River 2024 Stranding Survey Summary

A total of five stranding pools containing juvenile salmonids were observed during the 20-21 March survey. Of those five, one was revisited at Paradise Beach on 25 March, when reduced flows had lowered pool depth and created three separate isolated pools. These are noted with an asterisk in Table 2. Based on a combination of seining, dip-netting, and visual observation, the crew estimated that a total of approximately 6,706 juvenile Chinook Salmon were stranded in the isolated pools, which had a combined total area of approximately 2,550 m² (Table 2). The stranding pools at Upper Sailor Bar and Ancil Hoffman could not be seined due to thick trees and brush, which also made precise quantification of observed stranded juvenile salmonids challenging. All juvenile salmonids able to be captured were rescued and returned to the river.

Table 2. Salmonids and environmental conditions in isolated pools during the 20-21 and 25 March 2025 stranding surveys. Pools with an asterisk denote those from the original pool surveyed on 21 March that were revisited on 25 March where more fish were observed and rescued.

Location (river mile)	Date	Species - Chinook	Species - Steelhead	Special – Unidentified Salmonids	Total Pool Area (m^2)	Densityu (#fish/ m^2)	Temperature (°C)	DO (mg/L)
Upper Sailor Bar, Hatchery to boat ramp (22)	3/20/2024	0	0	0	5	24.4	13.0	13.4
Below River Bend (12)	3/21/2024	0	0	0	12	0.02	13.7	2.1
Below Rossmoor/Ancil Hoffman top (16)	3/21/2024	0	0	0	23	2.6	14.9	13.6
Paradise Beach (5)	3/21/2024	0	0	0	1604	1.6	17.8	9.1
Paradise Beach (5)	3/25/2024	0	0	0	280	12.2	16.0	7.6
Paradise Beach (5)*	3/25/2024	0	0	0	173	1.3	18.6	10.7
Paradise Beach (5)*	3/25/2024	0	0	0	17	0.2	20.5	11.3
Paradise Beach (5)*	3/25/2024	195	0	0	436	0.4	19.6	12.1
TOTAL	N/A	6706	0	0	2550	N/A	N/A	N/A

Updated 4/15/24

Table 3: Unmarked Juvenile Chinook Salmon (length-at-date):

Fall	Late Fall	Spring	Winter
81,285	49	28	12

Additionally, the RSTs captured 1 adipose clipped Chinook Salmon at 77 mm on 1/26. Currently, it is suspected that this fish was a hatchery-origin winter-run from the Livingston Stone/Coleman release on the Sacramento River near Shasta Dam.

Table 4: Unmarked Juvenile O. mykiss (lifestage):

Fry	Parr	Smolt	Adult
100	1	0	0

Lower American River RSTs at Watt Avenue:

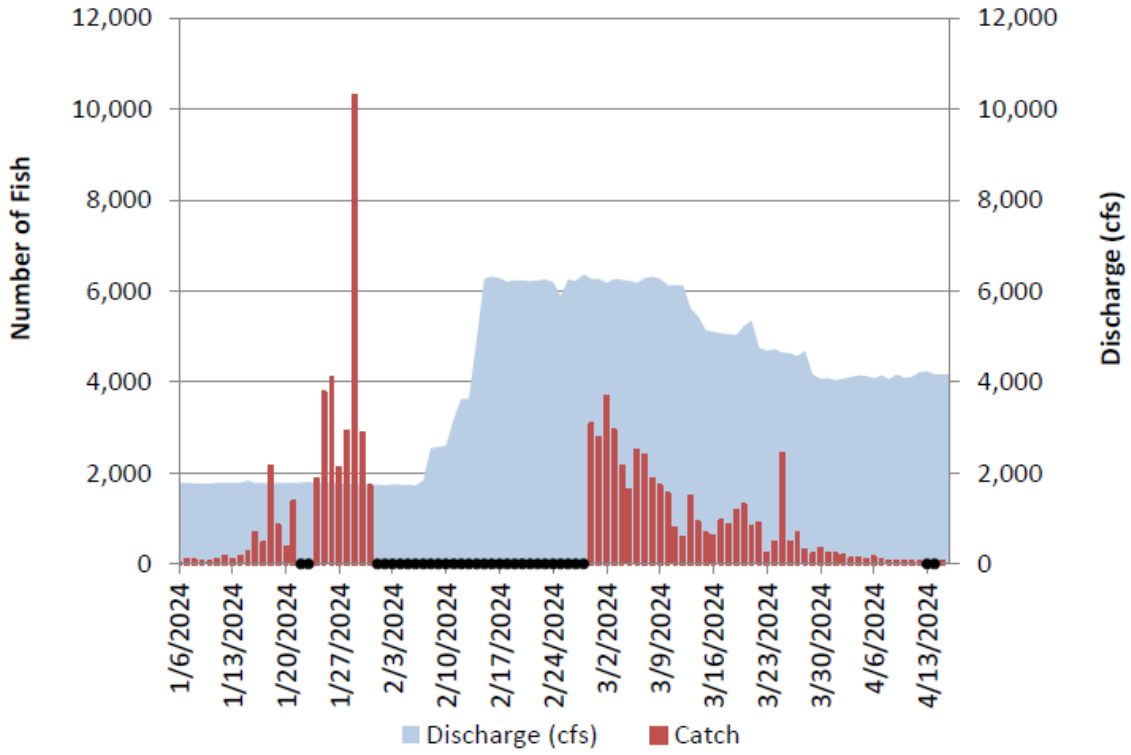

Figure 2: Daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2024 Lower American River rotary screw trap sampling season.

Figure 2 is a bar graph of the daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2024 Lower American River rotary screw trap sampling season from 1/6/24 to 4/13/24. Discharge is measured in cubic feet per second and the number the daily catch reached its high point on 1/29 at a count of over 10,000.

Lower American River RSTs at Watt Avenue:

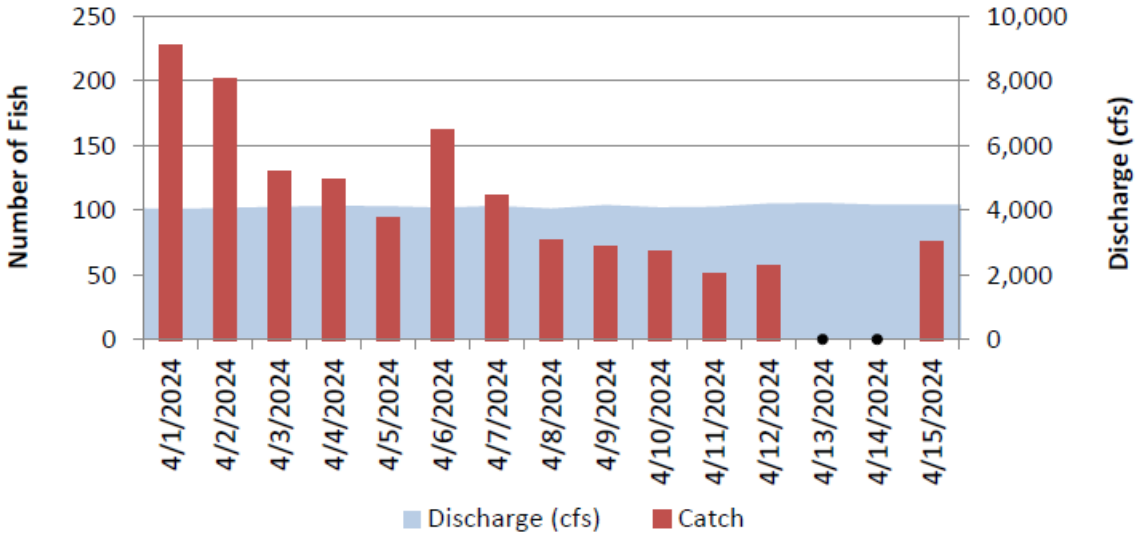

Figure 3. Daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2024 Lower American rotary screw trap sampling season.

Figure 3 is a bar graph of the daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2024 Lower American River rotary screw trap sampling season from 4/1/24 to 4/15/24. Discharge is measured in cubic feet per second and the number the daily catch reached its high point on 4/1 at a count of over 225.

Lower American River RSTs at Watt Avenue:

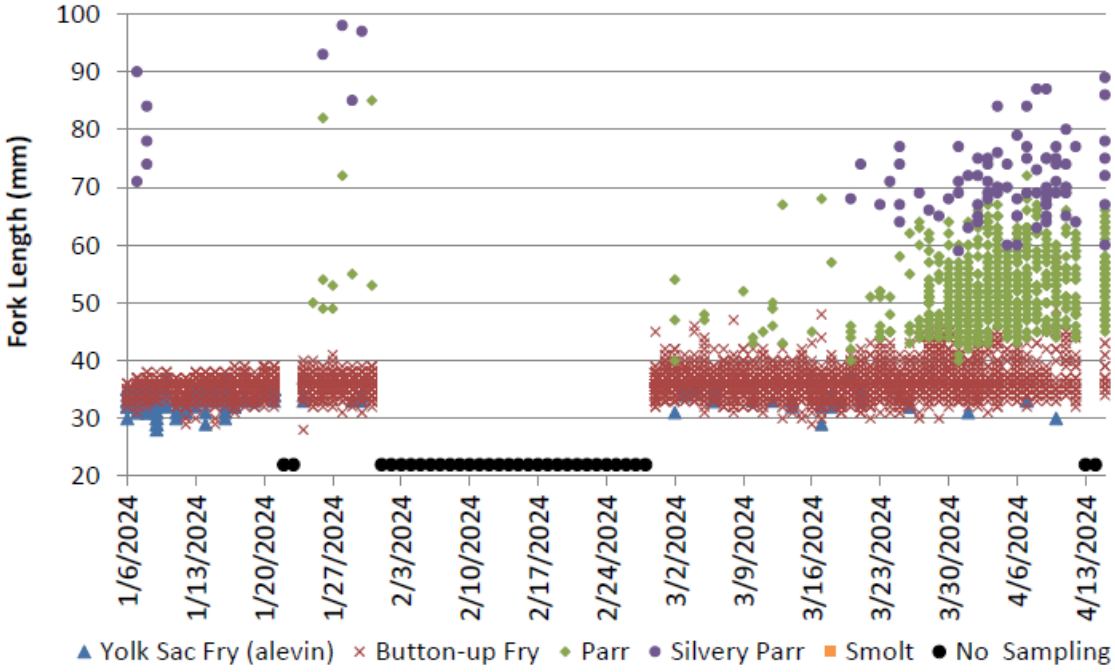

Figure 4: Daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2024 Lower American River rotary screw trap sampling season.

Figure 4 is a boxplot of the daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2024 Lower American River rotary screw trap sampling season from 1/6/24 to 4/13/24. Fork length is measured in millimeters from 20 to 100, and the life stages observed include the Yolk Sac Fry (alevin), Button-up Fry, Parr, Silvery Parr, and Smolt.

Lower American River RST CalFish Webpage: [CalFish Lower American River – RST Monitoring]

SMUD Upper American River Project Update 04/16/2024

Fresh Pond Precipitation

April precipitation through 4/16/2024 is 1.92 inches, which is 39.7% of the April average of 4.84 inches. Precipitation for the water year to date is 46.55 inches which is 93.1% of average to date (50.00 inches) and 81.2% of the entire water year average of 57.32 inches.

Runoff and Snowpack Water Content

Runoff into the storage reservoir basins is 93.6% of median to date through 4/16/2024. The snowpack is 86.7% of average at selected snow sensors: Robbs PH, Robbs Saddle, Van Vleck, Alpha, and Schneider.

Table 5. 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	1.92	4.84	40%
May	0.00	2.97	0%
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	46.55	57.32	81%

* Month to date total, full month historical average.

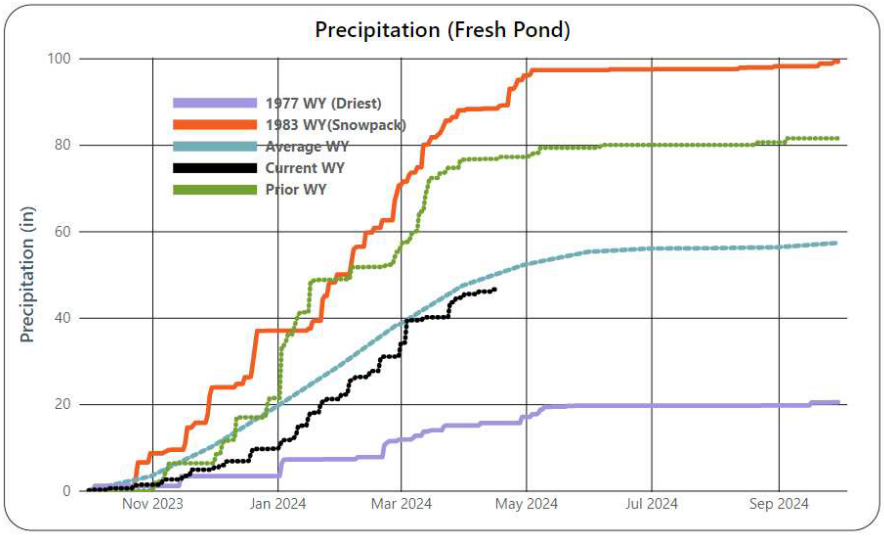

Figure 5. Fresh Pond Precipitation

Figure 5 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. April's precipitation through 04/16/2024 is 1.92 inches, which is 39.7% of the April average of 4.84 inches.

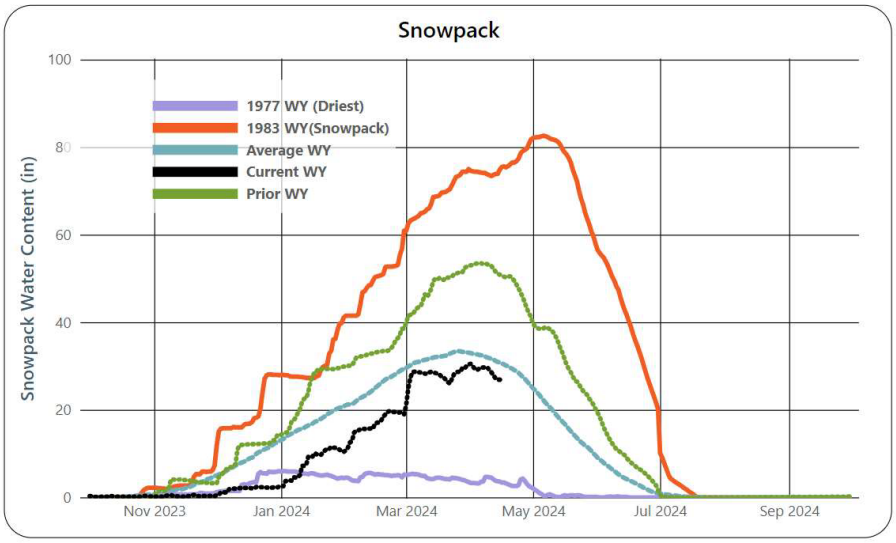

Figure 6. April 16, 2024 Snowpack

Figure 6 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 93.6% of median to date through 4/16/2024.

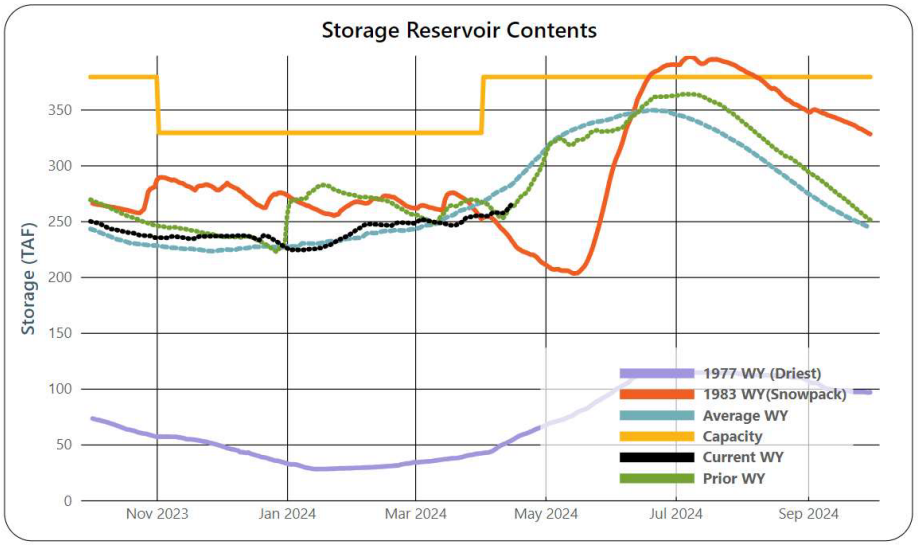

Figure 7. Storage Reservoir Contents

Figure 7 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 6. 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
Union Valley	201,111	79%	196,225	73.7%	211,221	79%	266,370	225,046
Ice House	30,309	70%	29,479	67.8%	24,530	56%	43,500	34,855
Loon Lake	43,790	63%	40,157	57.9%	27,158	39%	69,310	69,310
Total Reservoir Storage	284,210	75%	265,861	70.1%	262,908	69%	379,180	329,211

Chili Bar releases into the South Fork American River

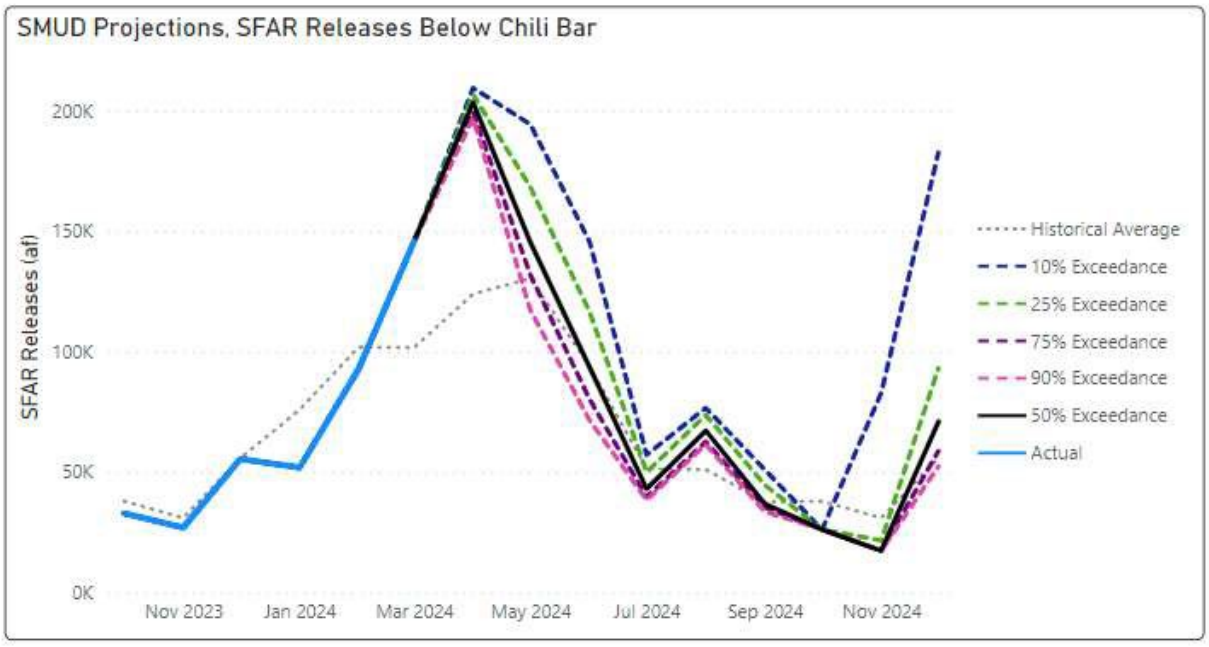

Figure 8. Chili Bar releases into the South Fork American River. Projections based on forecast from 4/16/24.

Figure 8 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.

*from 4/16 forecast

Table 7. Chili Bar releases into the South Fork American River

Type (Actual or Forecast	Date	Daily Mean Release Rate (cfs)	Monthly Total Release (acre-ft)
Actuals	Oct-23	537	32,977
Actuals	Nov-23	454	26,994
Actuals	Dec-23	905	55,544
Actuals	Jan-24	846	51,913
Actuals	Feb-24	1,618	92,878
Actuals	Mar-24	2,373	145,636
Forecast	Apr-24	3,425	203,467
Forecast	May-24	2,371	145,520
Forecast	Jun-24	1,577	93,697
Forecast	Jul-24	703	43,165
Forecast	Aug-24	1,095	67,209
Forecast	Sep-24	621	36,886
Forecast	Oct-24	427	26,193
Forecast	Nov-24	294	17,471

Type (Actual or Forecast	Date	Daily Mean Release Rate (cfs)	Monthly Total Release (acre-ft)
Forecast	Dec-24	1,157	71,020

PCWA MFP Operations Overview for American River Operations Group (Real Time Data as of April 17, 2024)

- French Meadows Storage = 99,000 AF of 136,405 AF = 73% Capacity
    - MFAR above FM Inflow (R24) =7-day AVG ~275 cfs
- Hell Hole Storage = 100,000 AF of 207,590 AF = 48% Capacity
    - Five Lakes Inflow (R23) = 7-day AVG ~215 cfs
    - Rubicon Inflow (R22) = 7-day AVG ~360 cfs
- Combined Storage (FM+HH) = 199,000 AF/342,590 AF = 58% Capacity; ~99% of 15 AVG YTD
- MFAR @ R11: 7-day AVG 2,100 cfs
- NFAR @ ARPS: 7-day AVG 3,750 cfs
- MFP is operating under conservation of storage mode.
- PCWA's FERC license requires Pulse Flows in Above Normal and Wet years as determined by the April B120 runoff forecast. This year PCWA will be required to implement pulse flows below French Meadows Reservoir May 7th through May 22nd - and bypass those flows at Middle Fork Interbay May 7th through May 17th - bypass shall continue until the daily flow drops below 155cfs at Middle Fork Interbay.
- May 1st B120 will determine Water Year Type and set flow requirements for the entire MFP for the period June 1st through October 31st.
- Observing the initiation of snowmelt in the MFP basin.

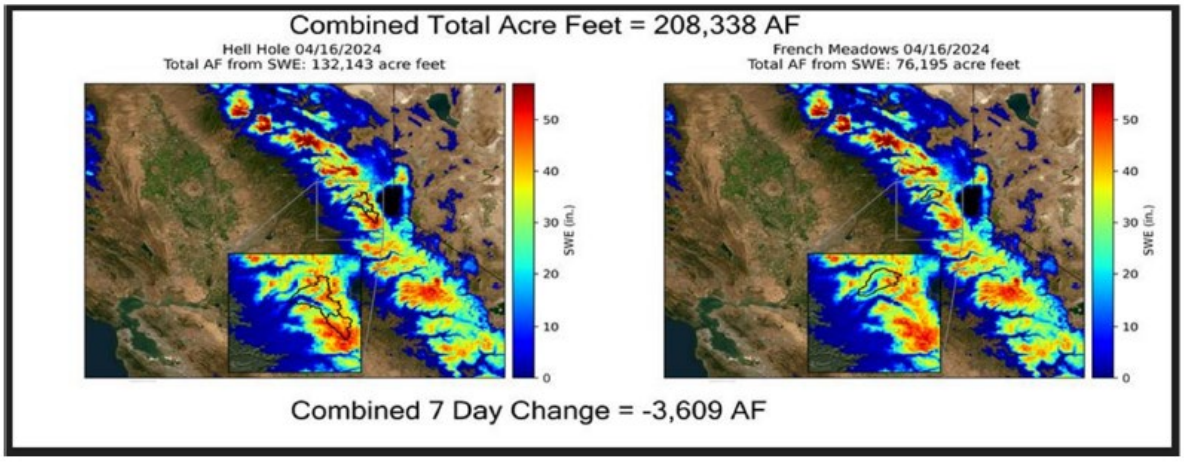

Figure 9. Combined 7 Day Storage Change

Figure 9 is an image of two heat maps. They show the combined total storage at Hell Hole (132,143) and French Meadows (76,195) in acre-feet from SWE at 208,338. The total combined seven-day change is -3,609 acre-feet.

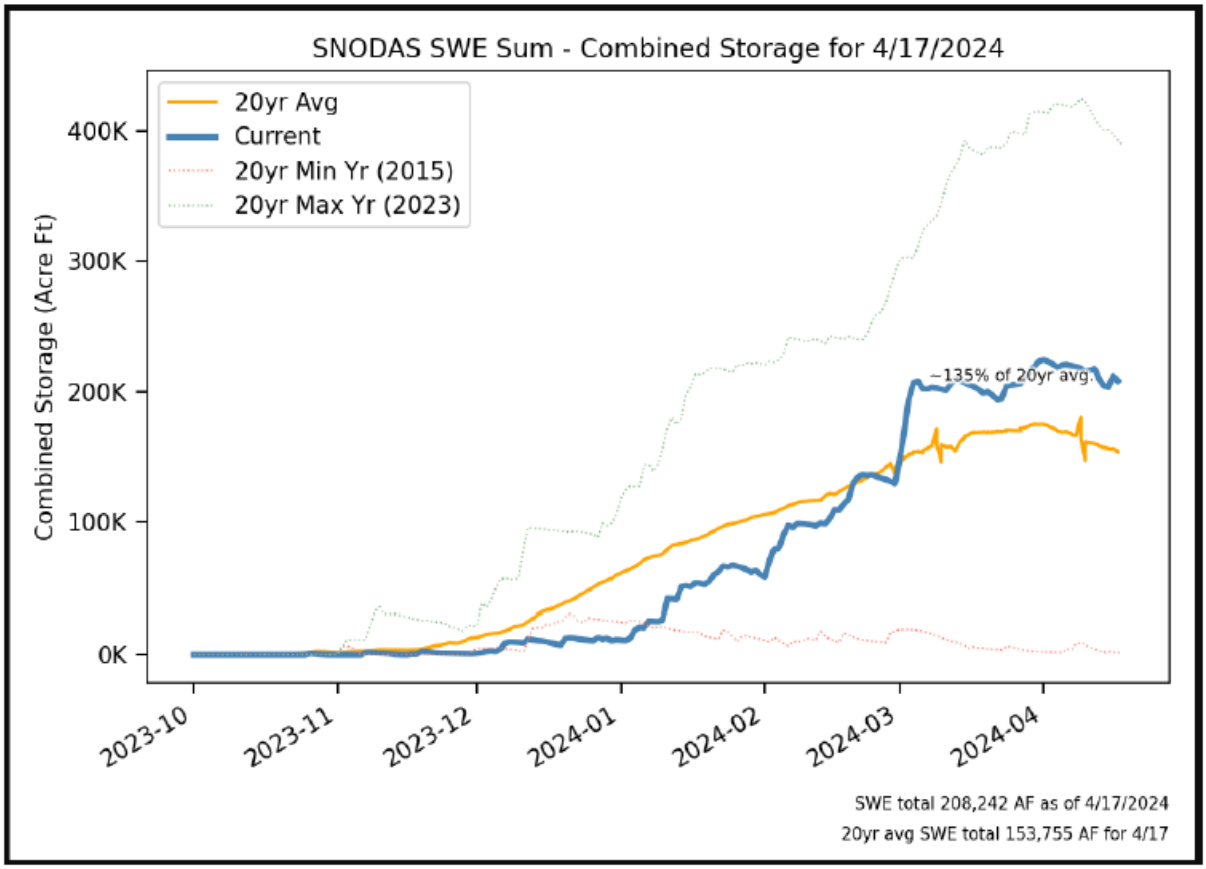

Figure 10. Snow Data Assimilation System Snow Water Equivalent combined storage for 4/17/2024.

Figure 10 is a line graph of the combined storage in acre feet of the Snow Data Assimilation System's Snow Water Equivalent for 4/17/24. The graph includes the last 20-year average, the 20 year minimum (2015), the 20 year maximum (2023), and current combined storage.

2.a.

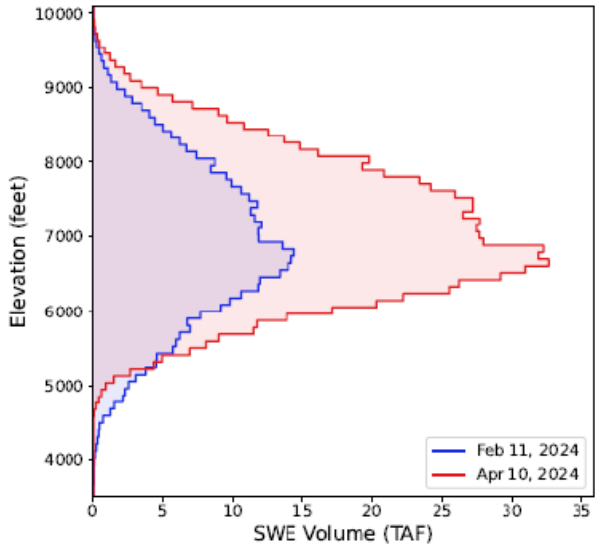

Figure 11. Distribution of SWE volume (TAF) by elevation for the April 10 survey. Red represents the April 10 survey, blue represents the February 11-12 survey.

Figure 11 is a graph that shows snow water equivalent by elevation for the April 10, 2024 survey and the February 11-12, 2024 survey.

2.b.

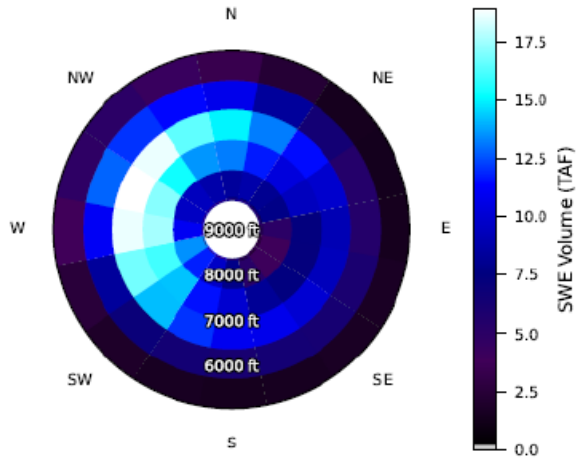

Figure 12. Distribution of SWE volume (TAF) by aspect and elevation for the April 10 survey. See Figure 7 and Figure 8 for more descriptive plots.

Figure 12 is a graph that shows snow water equivalent by aspect and elevation for the April 10, 2024 survey.

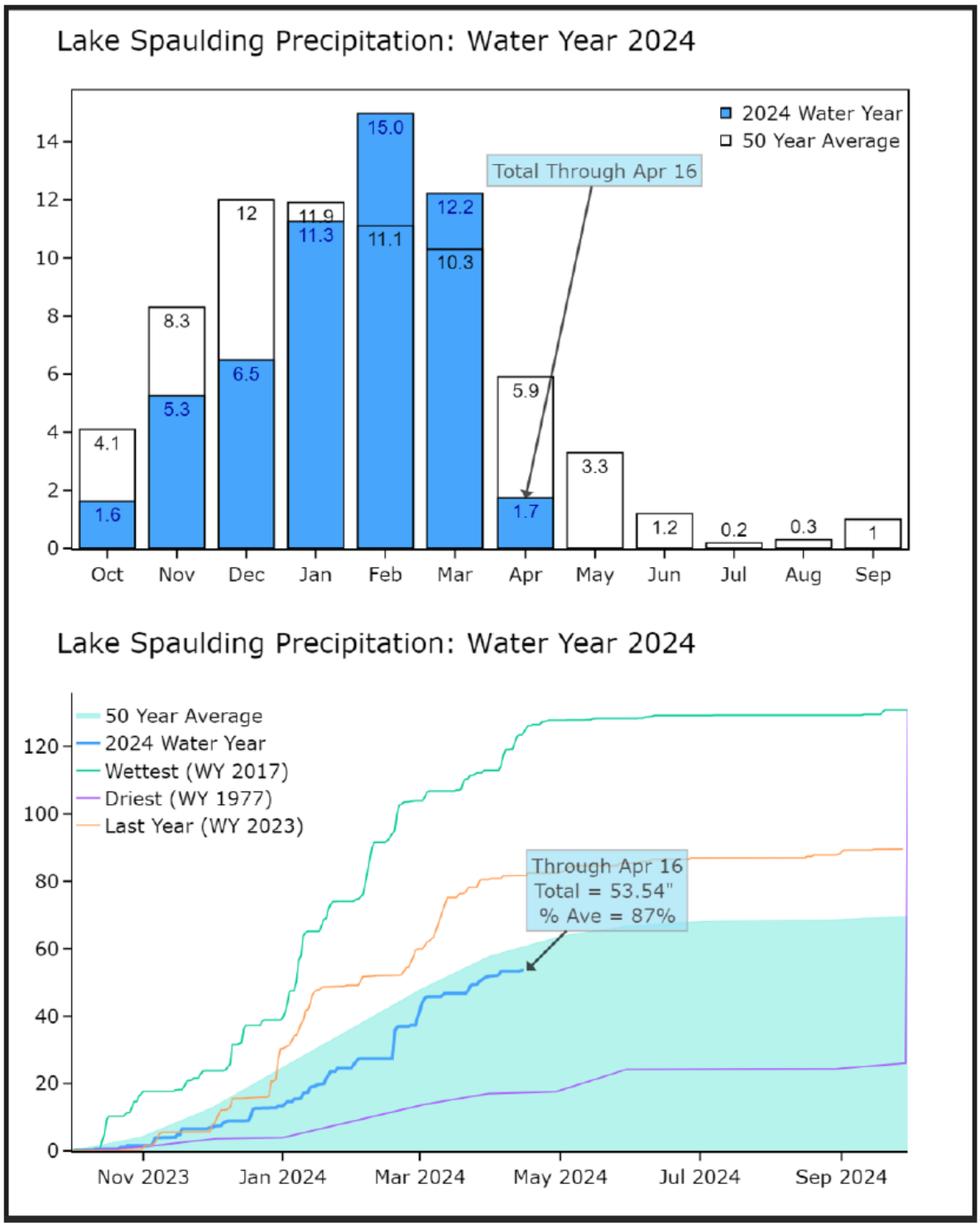

Figure 13. Lake Spaulding Precipitation: Water Year 2024 – Total through April 16 is 1.7 with a 50-year average of 5.9.

Figure 13 has two graphs. The first is a bar graph showing total precipitation over time. The second is a line graph comparing the total precipitation with the 50-year average, the 2024 water year, the wettest water year, the driest water year, and the last water year. Totals through April 16 are 1.7 with a 50-year average of 53.54 inches.

Reservoir Releases in Cubic Feet/Second

Reservoir	Dam	WY 2023	WY 2024	15 Yr Median
Trinity	Lewiston	6,710	638	330
Sacramento	Keswick	3,310	8,046	4,644
Feather	Oroville (SWP)	15,000	5,000	1,700
American	Nimbus	7,036	4,163	2,038
Stanislaus	Goodwin	1,100	332	1,100
San Joaquin	Friant	9,046	0	460

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	1,688	919	2,070	123
Shasta	4,552	3,638	4,204	4,356	120
Folsom	977	676	719	783	116
New Melones	2,420	1,509	1,444	2,035	135
Fed. San Luis	966	718	963	942	131
Total North CVP	11,363	8,230	8,249	10,186	124
Millerton	521	286	185	0	0
Oroville (SWP)	3,538	2,556	3,128	3,220	126

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	973	355	1,325	657	148
Shasta	4,086	2,242	6,681	3,353	122
Folsom	1,367	762	4,022	1,621	84
New Melones	501	N/A	1,139	547	92
Millerton	751	456	1,076	618	122

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	34.94	21.65	37.91	27.18 (64)	129	0.00

Reservoir	Current WY 2024	WY 1977	WY 1983	Average (N Years)	% of Average	Last 24 Hours
Sacramento at Shasta Dam	63.08	32.83	83.60	53.39 (69)	118	0.00
American at Blue Canyon	46.10	N/A	112.06	57.68 (50)	80	0.00
Stanislaus at New Melones	26.98	N/A	36.55	24.54 (47)	110	0.00
San Joaquin at Huntington Lk	29.67	11.50	65.00	35.92 (51)	83	0.00

April 2024 | Folsom Lake Daily Operations | Run Date: 04/17/2024

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	707.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	440.64	712.5	5.0	6,535	3,920	0	0	76	13	0.04	0.01
2	441.12	717.2	4.6	6,442	3,955	0	0	80	71	0.22	0.01
3	441.58	721.6	4.5	6,451	4,050	0	0	81	71	0.22	0.01
4	442.45	730.1	58.5	8,299	3,923	10	22	77	0	0.00	0.01
5	443.15	736.9	16.8	7,565	4,037	0	0	80	0	0.00	0.00
6	443.58	741.1	4.2	6,416	4,200	0	0	77	10	0.03	0.01
7	443.88	744.1	2.9	5,661	4,011	0	0	80	85	0.26	0.00
8	444.28	748.0	3.9	5,867	3,787	0	0	81	10	0.03	0.00
9	444.61	751.3	3.3	5,542	3,447	351	0	83	16	0.05	0.00
10	444.96	754.8	3.5	5,707	3,811	0	0	86	66	0.20	0.00
11	445.39	759.0	4.3	6,249	3,990	0	0	91	13	0.04	0.00
12	445.88	763.9	4.9	6,732	4,116	0	0	89	70	0.21	0.65
13	446.71	772.2	8.3	8,498	4,188	0	0	82	43	0.13	0.00
14	447.23	777.4	5.2	6,991	4,275	0	0	77	7	0.02	0.00
15	447.57	780.9	3.4	5,851	3,617	408	N/A	79	20	0.06	0.00
16	447.82	783.4	2.5	5,681	3,868	452	N/A	81	10	0.03	0.00
Totals	N/A	N/A	75.8	104,487	63,195	1,221	22	1,300	505	1.54	0.72
Acre-Feet	N/A	N/A	75,800	207,250	125,347	2,422	44	2,579	1,002	N/A	N/A

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

Summary: Release (acre-feet)

Power	125,347
Spill	2,422
Outlet	44
Pumping Plant	2579
Total Releases	130391

Summary: Precipitation (Month/Inches)

This month	0.72
October 1, 2022 to date	19.30

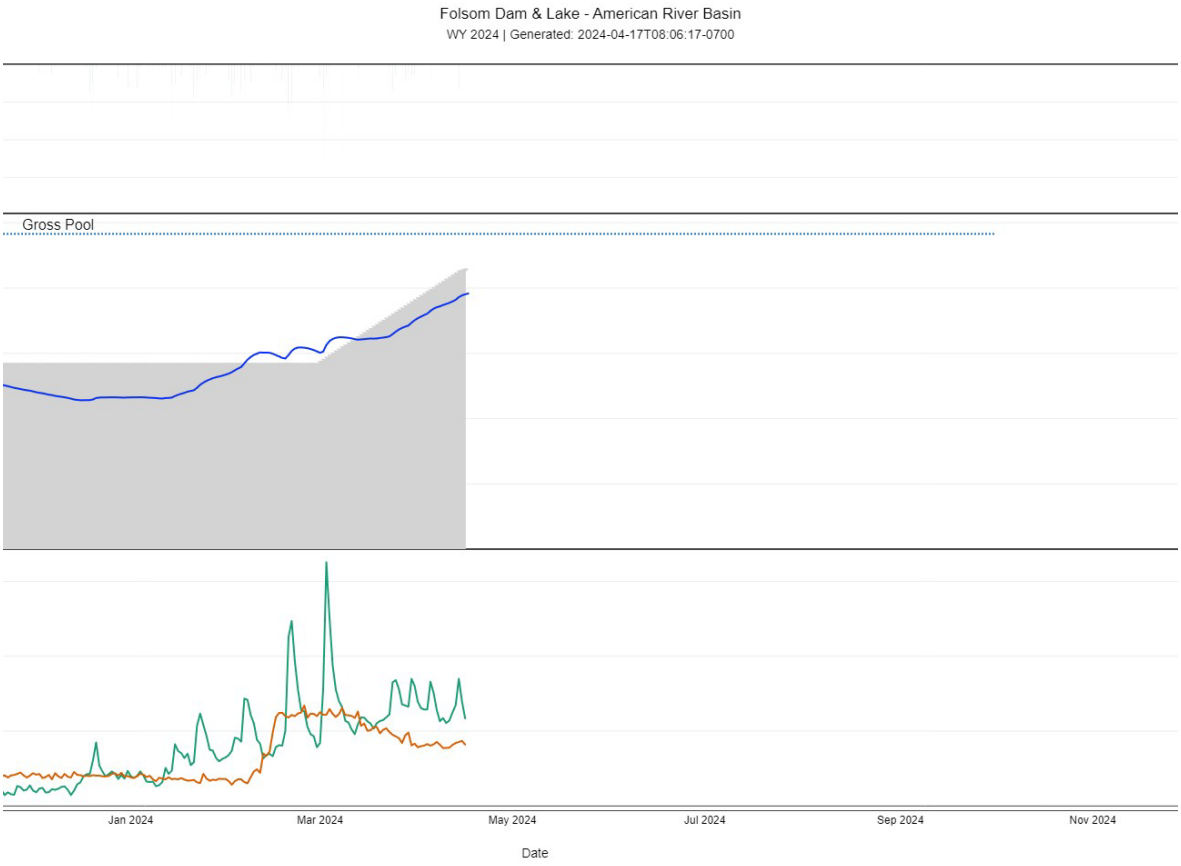

Figure 14. Folsom Dam & Lake – American River Basin WY 2024.

Figure 14 is a graph that compares the flow, storage, and precipitation over time for the American River Basin.

Isobath 03/01–03/31 (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
Feb	47.0	46.2	49.9	50.5	50.8	50.6	51.9	594	N/A	A	A	A
03/01	47.7	47.6	49.6	50.0	50.4	50.3	52.1	6037	605	A 38	A 38	A 23
03/02	46.0	47.9	49.7	49.8	50.0	49.7	47.3	5949	626	A 38	A 23	A 39
03/03	44.9	47.2	50.0	49.8	50.0	49.6	46.7	6055	638	A 35	A 35	A 30
03/04	45.0	46.1	50.3	50.0	50.1	49.8	48.3	6022	644	A 34	A 34	A 32
03/05	45.7	45.7	50.1	50.6	50.8	50.5	53.1	5976	648	A 35	A 27	A 38
03/06	46.8	45.7	50.6	50.5	50.9	50.7	54.3	5904	649	A 38	A 38	A 25
03/07	47.0	45.2	50.6	50.6	51.1	50.9	53.5	6022	649	A 35	A 30	A 35
03/08	47.4	45.7	50.6	51.2	51.5	51.4	54.0	6036	649	A 33	A 34	A 33
03/09	47.9	45.7	50.4	51.1	51.5	51.3	53.5	5999	648	A 34	A 33	A 33
03/10	48.1	45.8	50.5	50.9	51.3	51.2	54.1	5873	646	A 33.7	A 32.1	A 34
03/11	48.5	46.4	50.9	51.2	51.6	51.5	55.9	5864	644	A 49.4	A 0.6	A 50
03/12	48.7	46.4	50.5	51.3	51.7	51.5	54.6	5866	642	A 43.7	A 13.0	A 43
03/13	48.5	46.4	50.7	51.0	51.5	51.4	53.9	5390	643	A 38.5	A 36.5	A 25
03/14	48.0	46.4	51.0	51.2	51.6	51.4	57.4	5260	643	A 33.9	A 29.2	A 37
03/15	47.9	46.8	51.1	51.7	52.3	52.2	62.3	4945	645	A 45.2	A 27.5	A 27
03/16	48.3	46.9	51.0	51.9	52.6	52.7	59.0	4918	645	A 38.4	A 36.1	A 26
03/17	49.0	47.2	51.1	51.9	52.7	52.9	58.8	4941	645	A 35.9	A 34.9	A 29
03/18	50.2	47.5	51.3	52.1	52.9	53.0	61.0	4976	646	A 38.1	A 24.2	A 38
03/19	51.1	48.0	51.4	52.5	53.2	53.3	61.3	5004	647	A 36.6	A 24.7	A 39
03/20	51.5	48.8	50.9	52.5	53.2	53.4	59.5	5035	648	A 36.0	A 25.7	A 38
03/21	51.3	48.9	51.0	52.0	52.8	53.0	58.3	5061	650	A 38.3	A 36.4	A 25
03/22	50.7	48.8	51.2	52.0	52.6	52.6	57.6	4517	652	A 47.1	A 26.5	A 26
03/23	49.6	48.5	50.8	52.0	52.6	52.4	51.9	4477	659	A 45.9	A 27.1	A 27
03/24	47.6	49.1	51.1	51.5	52.2	52.3	54.5	4530	666	A 35.4	A 38.0	A 27
03/25	47.5	47.8	52.0	51.8	52.3	52.2	53.5	4524	673	A 46.1	A 27.0	A 27
03/26	48.5	47.5	51.2	52.7	53.4	53.4	54.8	4509	678	A 40.2	A 41.0	A 19
03/27	48.7	46.3	51.2	52.1	52.4	52.2	52.9	4469	682	A 50.0	A 49.5	A 0

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
03/28	48.2	48.0	50.8	51.7	52.4	52.5	54.5	4583	685	A 44.1	A 46.1	A 10
03/29	47.5	47.2	51.5	51.4	51.6	51.3	49.5	4105	694	A 56.0	A 32.6	A 11
03/30	46.9	47.1	51.6	51.7	52.1	51.8	51.9	3979	702	A 55.5	A 34.9	A 10
03/31	47.6	47.6	52.0	52.4	53.0	53.0	55.0	4001	708	A 51.3	A 37.1	A 12
Mar Avg.	**48.1**	**47.1**	**50.9**	**51.4**	**51.9**	**51.8**	**54.7**	**655**	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	Total	AF	318994	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

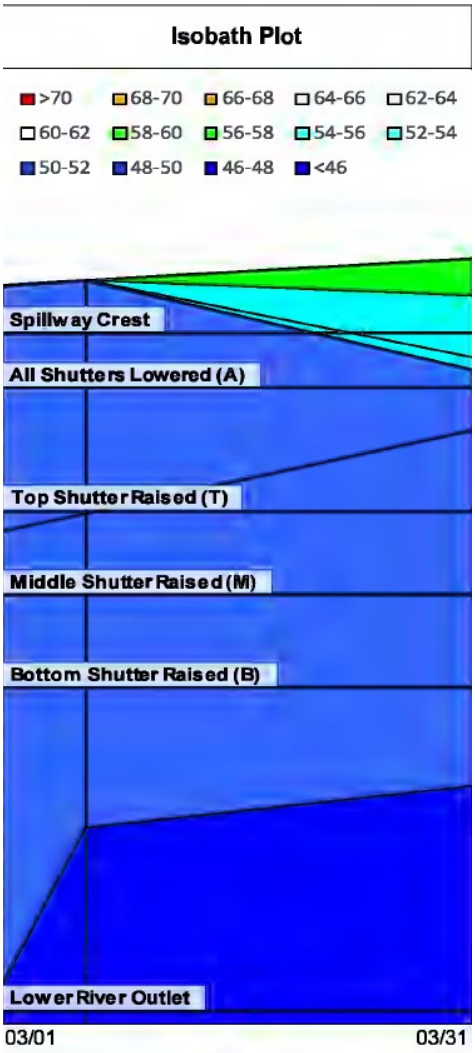

Figure 15. Isobath Plot 03/01 – 03/31

Figure 15 Isobath Plot 03/01-03/31 (Showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet)

Isobath 4/01–4/30 (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
Mar	48.1	47.1	50.9	51.4	51.9	51.8	54.7	655	N/A	N/A	N/A	N/A
04/01	48.6	47.7	52.0	53.1	53.9	54.0	58.3	4036	713	A 50	A 40	A 10
04/02	50.0	47.9	51.6	53.4	54.4	54.7	61.9	4034	717	A 56	A 33	A 11
04/03	51.8	48.6	51.0	53.3	54.3	54.7	57.9	4029	722	A 57	A 34	A 10
04/04	51.1	47.3	50.5	52.5	52.7	52.4	44.8	4072	730	A 56	A 32	A 13
04/05	46.7	47.4	51.5	50.6	51.0	50.9	45.5	4066	737	A 34	A 12	A 54
04/06	46.0	47.2	51.4	51.9	52.3	52.0	49.1	4018	741	A 50	A 36	A 14
04/07	46.7	47.2	51.7	52.5	53.0	53.0	52.1	4057	744	A 34	B 54	A 12
04/08	47.7	47.3	52.0	52.9	53.5	53.4	58.6	3983	748	A 51	A 33	A 16
04/09	48.9	47.7	N/A	53.2	54.2	54.4	61.2	3889	751	A 48	A 40	A 12
04/10	50.7	48.6	51.9	53.7	54.6	55.0	65.2	3944	755	A 34.8	A 56.2	A 9
04/11	52.4	49.7	51.9	53.6	54.9	55.5	68.8	3955	759	A 48.6	A 51.8	A 0
04/12	52.8	50.4	51.3	53.6	54.5	55.0	60.4	4066	764	A 56.8	A 34.2	A 9
04/13	51.3	49.4	52.0	52.7	53.0	50.2	49.2	4098	772	A 58.0	A 33.0	A 9
04/14	48.8	49.3	51.9	52.0	52.3	52.1	51.4	4020	777	A 57.6	A 34.0	A 8
04/15	49.0	49.9	52.1	53.0	53.9	54.0	58.2	4082	781	A 51.8	A 37.6	A 11
04/16	51.0	50.3	52.2	53.5	54.5	54.8	61.7	4163	783	A 48.8	A 41.4	A 10
04/17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
04/30	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
Apr Avg.	**49.6**	**48.5**	**51.7**	**52.8**	**53.6**	**53.7**	**56.5**	**750**	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	Total	AF	127957	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

November 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

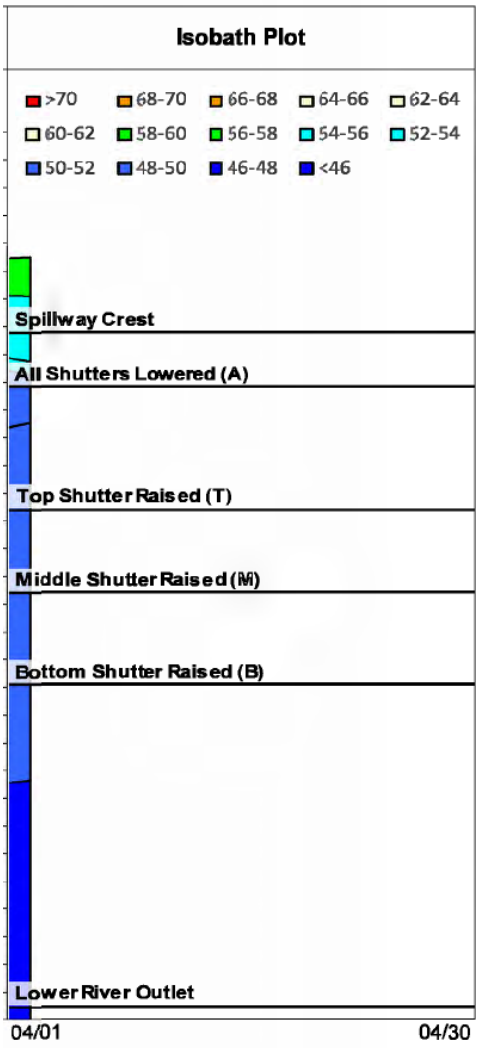

Figure 16. Isobath Plot 04/01-04/30

Figure 16 Isobath Plot 04/01-04/31 (Showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet)

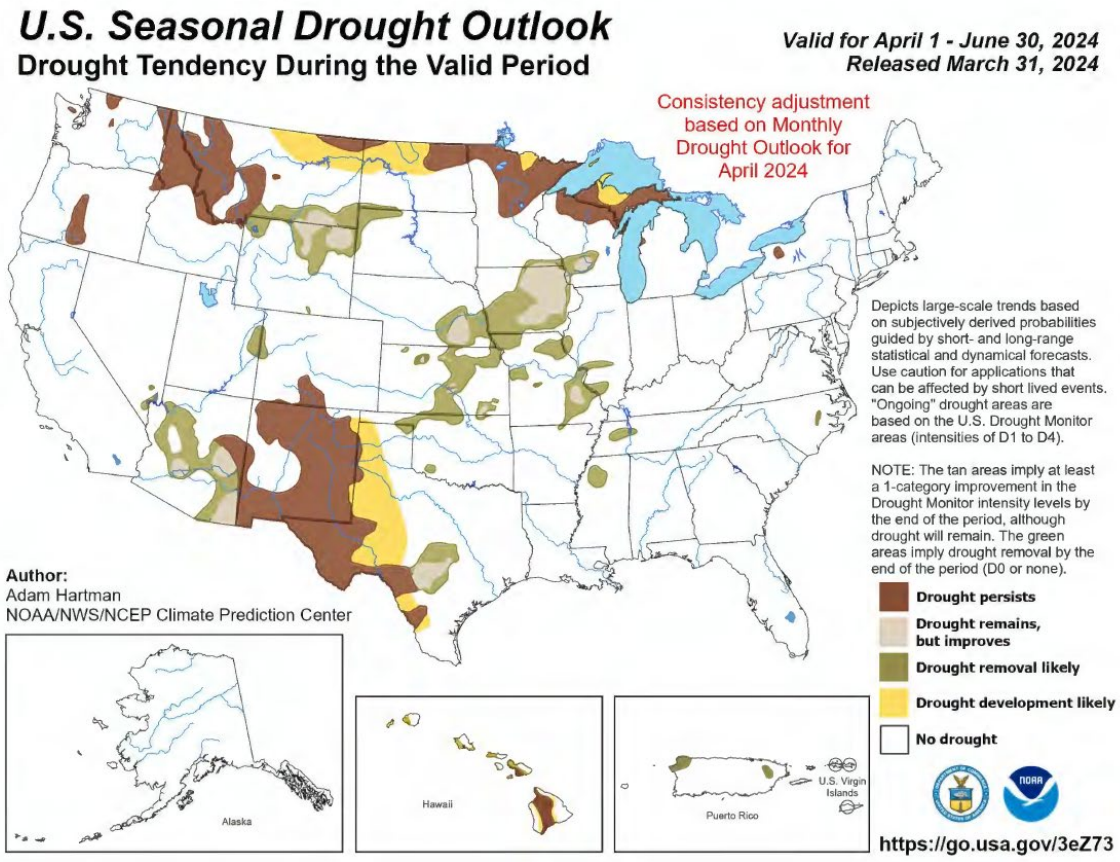

Figure 17. U.S Seasonal Drought Outlook

Figure 17 is a map of the United States showing the seasonal drought outlook during the time period from April 1, 2023, to June 30, 2024. The map was issued on March 31, 2024.

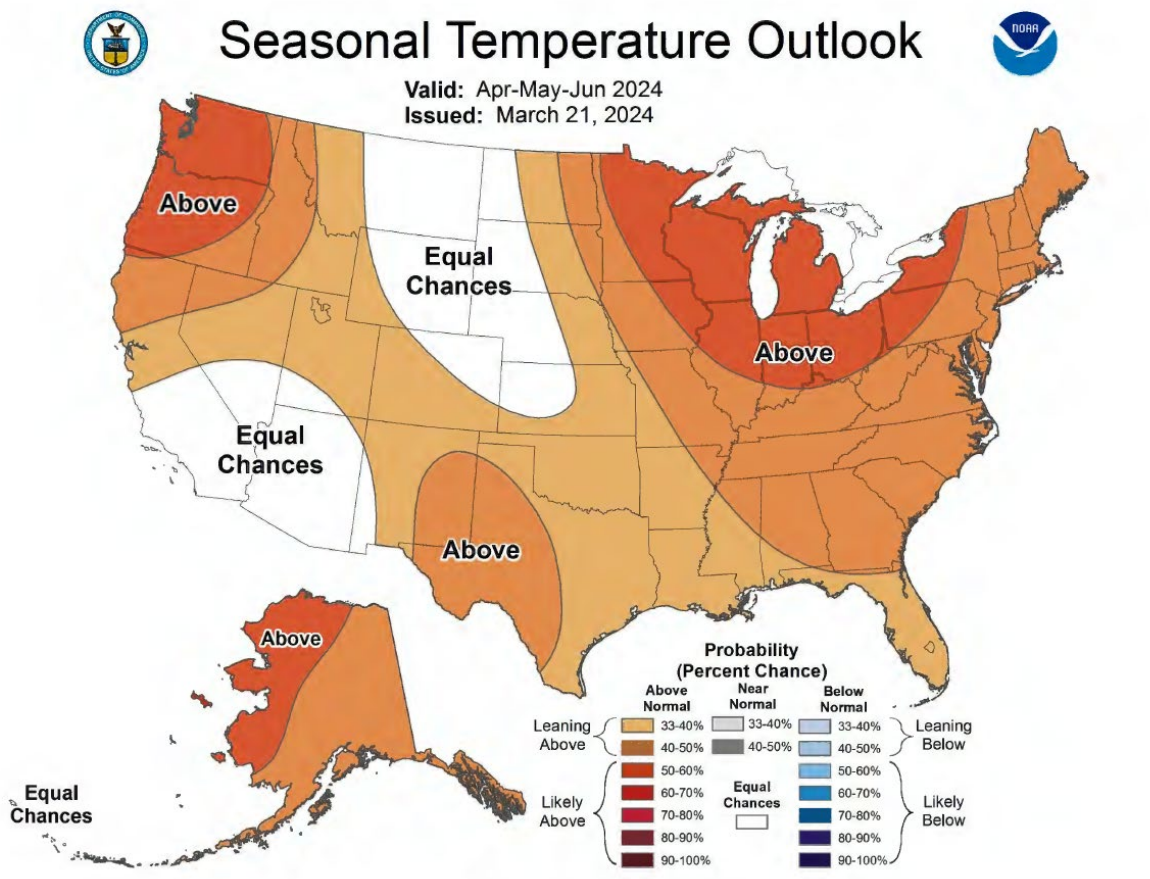

Figure 18. U.S. Seasonal Temperature Outlook

Figure 18 is a map of the United States showing the seasonal temperature outlook during the time period from April 2024 to June 2024. The map was issued on March 21, 2024.

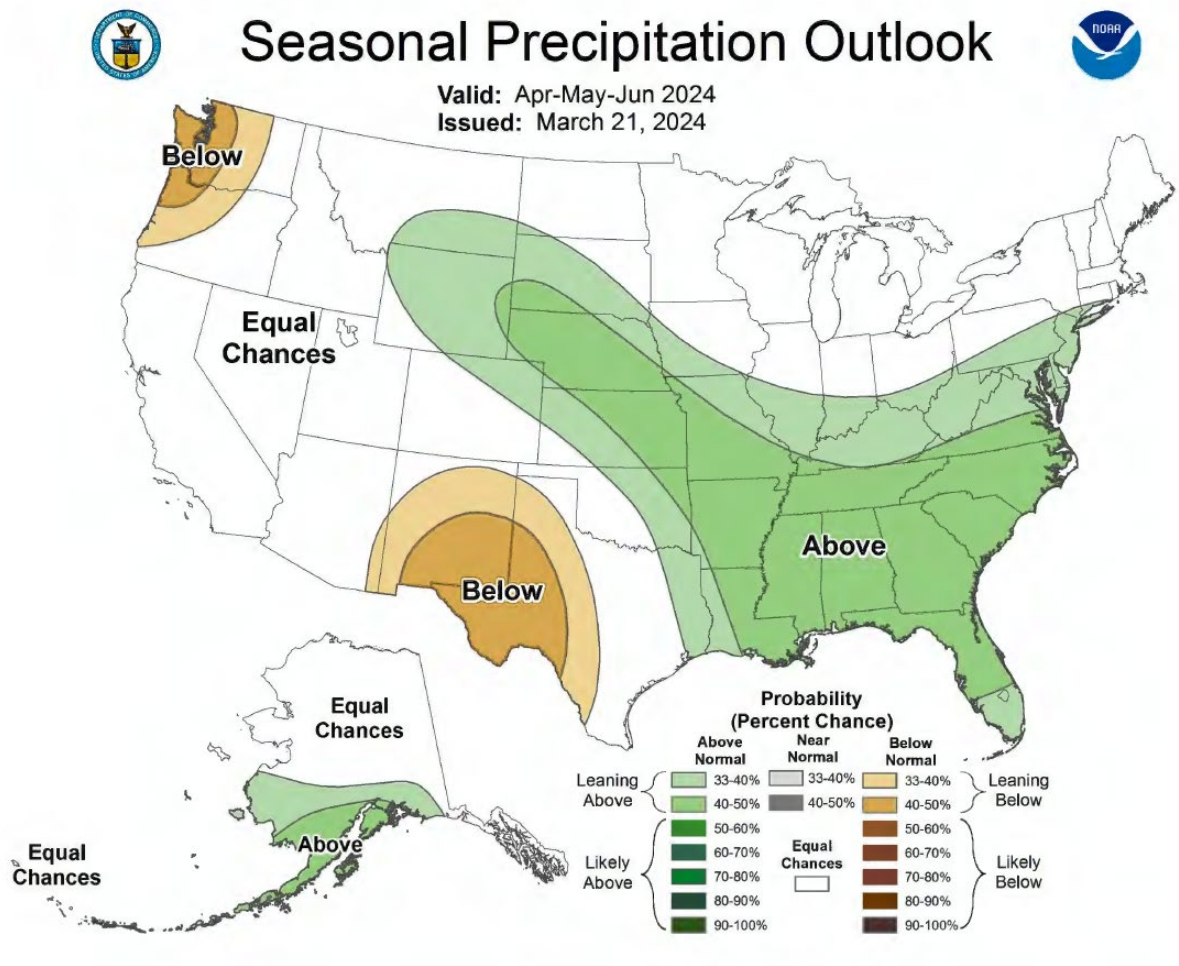

Figure 19. Seasonal Precipitation Outlook

Figure 19 is a map of the United States showing the seasonal precipitation during the time period from April 2024 to June 2024. The map was issued March 21, 2024.

American River Daily Average Water and Air Temperatures

<=58=715 TAF
<=56=601 TAF
<=54=436 TAF

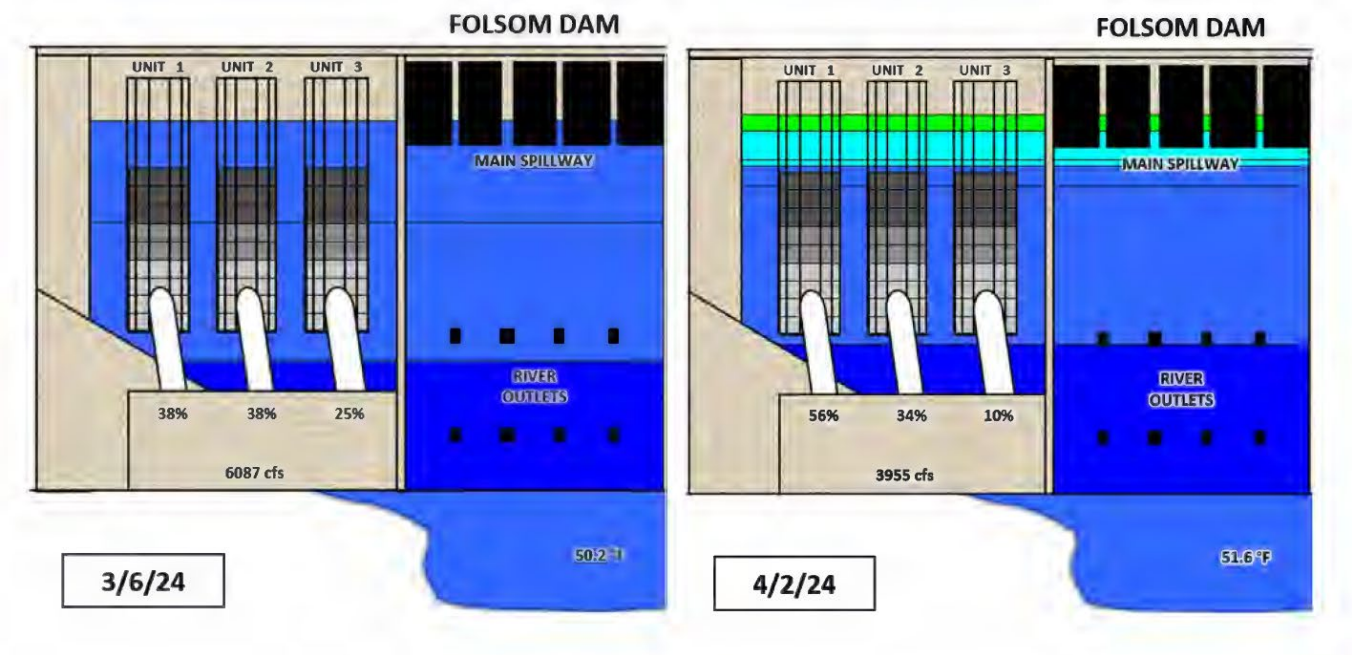

Figure 20. American River Daily Average Water and Air Temperatures

Figure 20 is a graphic showing Folsom Dam on March 6, 2024 with a temperature of 50.2 ˚F and April 02, 2024 with a temperature of 51.6 ˚F.

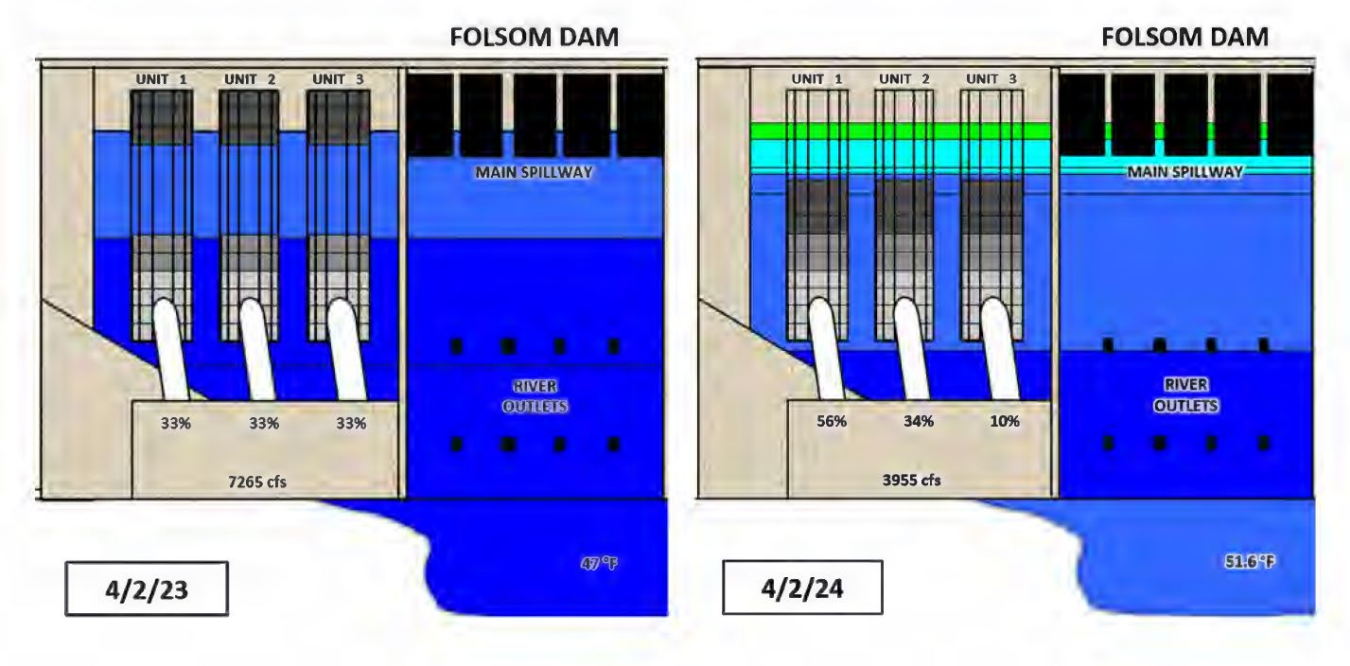

Figure 21 American River Daily Average Water and Air Temperatures

Figure 21 is a graphic comparing the Folsom Dam on April 02, 2023 with a temperature of 47 ˚F and April 02, 2024 with a temperature of 51.6 ˚F.

American River Summary Conditions – April (On-going)

Release Management Conditions

- Releases are currently at 4,000 cfs

Temperature Management

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

Middle Shutters: Units 1, 2 – lowered

Bottom Shutters: Units 1, 2 – lowered

Folsom Shutter Configuration and Changes

Next change will be for temperature management

American River 90% Outlook

April 90% Exceedance

Storages

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

Facility	Apr	May	Jun	Jul	Aug
Folsom Storage	830	944	914	666	475
Folsom Elevation	452	463	460	436	413

Monthly River Release (TAF/cfs)

Facility	Apr	May	Jun	Jul	Aug
American TAF	238	184	178	338	277
American cfs	4000	3000	3000	5500	4500

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
March	March ARI (90% exceedance)	1,750 cfs	1,750 cfs	1,750 cfs	1,750 cfs	5,188 cfs
April	April ARI (50% exceedance)	1,750 cfs	Not applicable	1,750 cfs	1,750 cfs	N/A
April	April ARI (90% exceedance)	1,500 cfs	Not applicable	1,750 cfs	1,750 cfs	N/A

MRR= Minimum Release Requirements; RDPA= Redd Dewatering Protective Adjustment; ARI= American River Index; SRI= Sacramento River Index

[1] Average of daily release over the month from NAT station on CDEC.
[2] Since new forecasts are usually provided January through May, the May ARI would also be used for June–September of the current water year and October–December of the next water year unless there is an update to the ARI after May.