



— 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, January 18, 2024

Agenda

1. Introductions
2. Announcements
3. Housekeeping
 - a. Meeting will be recorded for notetaking purposes
4. Presentation: Dissolved Oxygen (DO), Joe Merz, Cramer Fish Sciences
5. Fisheries Update
 - a. CDFW
 - b. CFS
 - c. PSMFC
6. Operations Forecast
 - a. SMUD
 - b. PCWA
7. Central Valley Operations
8. Discussion
 - a. Annual Report Update
 - b. Potential updates to the LAR temperature plot on SacPAS
 - c. Upcoming in-person meetings (?)
9. Next Meetings:
 - a. Thursday, February 15th, 1:30-3:30pm

Provisional Data Subject to Revision

FALL-RUN CHINOOK SALMON CARCASS SURVEY

Presented by Jenny O’Brien, CDFW, 916-282-8710, Jennifer.obrien@wildlife.ca.gov

Surveys commenced on October 16, 2023

Table 1. Preliminary count of Chinook Salmon carcasses processed during the 2023 lower American River escapement survey.

Survey Period	Dates	Nimbus Basin	Section 1A	Section 1B	Section 2	Section 3	Total Carcasses Processed
1	Oct 16-19	6	35	8	1	0	50
2	Oct 23-26	16	55	11	7	0	89
3	Oct 30-Nov 2	11	102	35	15	2	165
4	Nov 6-9	15	172	118	58	4	367
5	Nov 13-16	56	329	273	220	3	881
6	Nov 20-22	71	786	545	266	Not Surveyed	1668
7	Nov 27-30	121	1189	1020	703	267	3300
8	Dec 4-7	196	1433	1009	1209	273	4120
9	Dec 11-15	129	1398	778	1058	663	4026
10	Dec 18-22	98	862	449	332	177	1918
11	Dec 27-29	88	444	101	181	Not Surveyed	814
12	Jan 2-5	48	326	127	76	36	613
13	Jan 8-11	38	323	111	38	45	555
N/A	Totals	893	7454	4585	4164	1470	18566

Table 2. Preliminary count of female Chinook Salmon carcasses assessed for spawning conditions during the 2023 lower American River escapement survey.

Survey Period	Dates	Unspawned	Partial	Spawned	Total
1	Oct 16-19	10	3	0	13
2	Oct 23-26	19	4	2	25
3	Oct 30-Nov 2	21	3	13	37
4	Nov 6-9	21	11	57	89
5	Nov 13-16	28	4	95	127
6	Nov 20-22	32	15	177	224
7	Nov 27-30	64	23	219	306
8	Dec 4-7	67	20	198	285
9	Dec 11-15	26	7	151	184
10	Dec 18-22	13	8	100	121
11	Dec 27-29	3	3	32	38
12	Jan 2-5	2	1	32	35

Survey Period	Dates	Unspawned	Partial	Spawned	Total
13	Jan 8-11	3	1	22	26
N/A	Total	309	103	1098	1510
N/A	%	20.5%	6.8%	72.7%	100.0%

Provisional Data Subject to Revision

LOWER AMERICAN RIVER REDD SURVEYS

Presented by Duane Linander, CDFW, 916-516-2473, duane.linander@wildlife.ca.gov

Surveys commenced on October 24, 20023

Table 3. Preliminary count of redds surveyed during the 2023/2024 fall-run Chinook Salmon redd survey season.

Survey Period	Dates	Nimbus Basin	Section 1A	Section 1B	Section 2	Section 3	Total Carcasses Processed
1	Oct 24-27	10	3	2	2	0	17
2	Oct 31-Nov 3	8	36	15	1	0	60
3	Nov 7-Nov 11	12	55	15	5	0	87
4	Nov 13-Nov 17	117	235	97	25	7	481
5	Nov 20-Nov 22	28	65	82	11	14	200
6	Nov 30-Dec 2	49	98	84	Not Surveyed	Not Surveyed	231
7	Dec 4-Dec 6	175	508	19	227	176	1105
8	Dec 11-Dec 14	28	36	31	22	Not Surveyed	117
9	Dec 21-Dec 22	56	42	Not Surveyed	49	9	156
10	Dec 27-Dec 28	8	16	3	Not Surveyed	Not Surveyed	27
11	Jan 2	Not Surveyed	Not Surveyed	6	Not Surveyed	1	7
12	Jan 10	4	Not Surveyed	Not Surveyed	Not Surveyed	Not Surveyed	4
N/A	Total	495	1094	354	342	207	2492

Provisional Data Subject to Revision

NIMBUS FISH HATCHERY

Presented by Emily Fisher, CDFW, 916-272-4113, emily.fisher@wildlife.ca.gov

- Steelhead spawning commenced on December 19, 2023.
 - 93 females spawned.
 - 623,109 eggs collected by 1/16/2024.

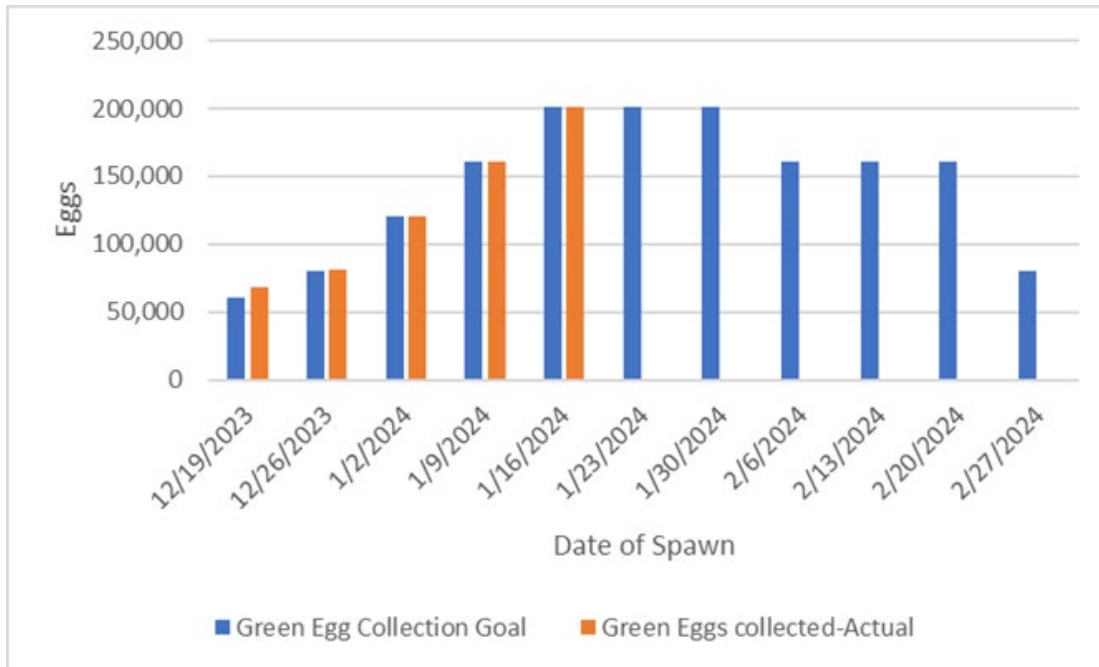


Figure 1. BY 2024 steelhead trout green egg collection goal compared to the number of green eggs collected at Nimbus.

Figure 1 is a bar graph comparing BY 2024 weekly green egg collection goals against actual weekly green eggs collected.

Lower American River 2024 Steelhead Spawning Survey Summary

Spawning

Table 4. Steelhead and Chinook salmon redd counts during 2024 steelhead spawning surveys.

Dates	Steelhead	Chinook	Total
Jan 9 – 11	20	3	23

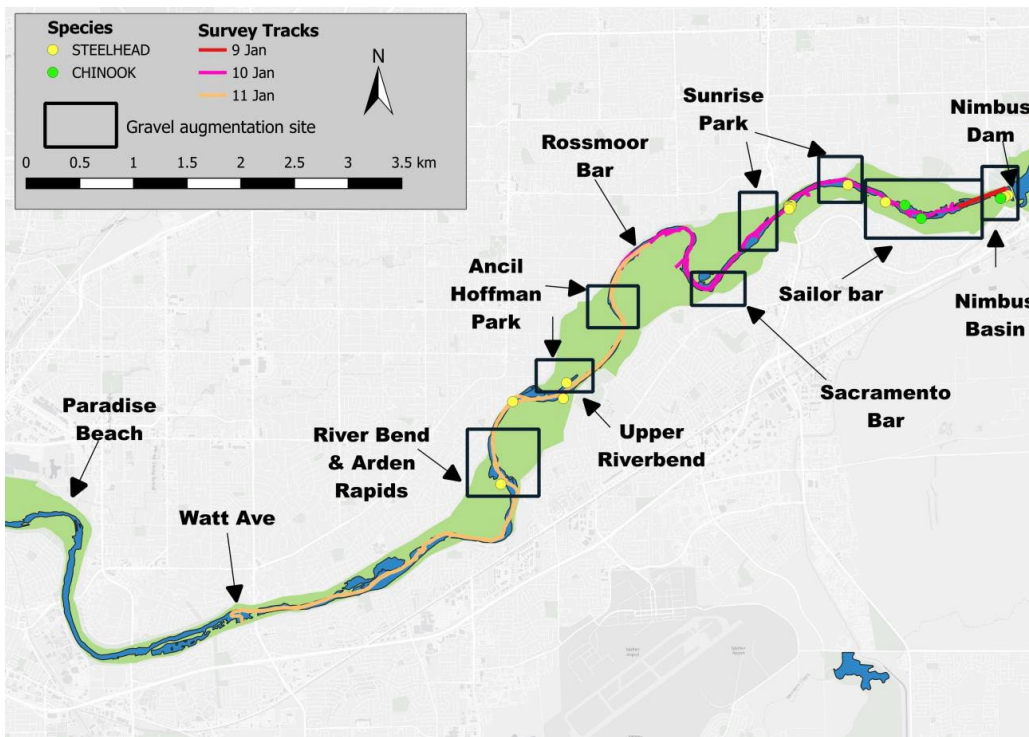


Figure 2. Locations of new redds identified during the 9-11 January 2024 steelhead spawning surveys along the Lower American River. The gravel augmentation boxes represent general areas where gravel augmentation has occurred.

Figure 2 is a map showing the distribution of steelhead redds on the Lower American River between January 9 and January 11.

Spawning surveys are occurring next week (Jan 24-26).

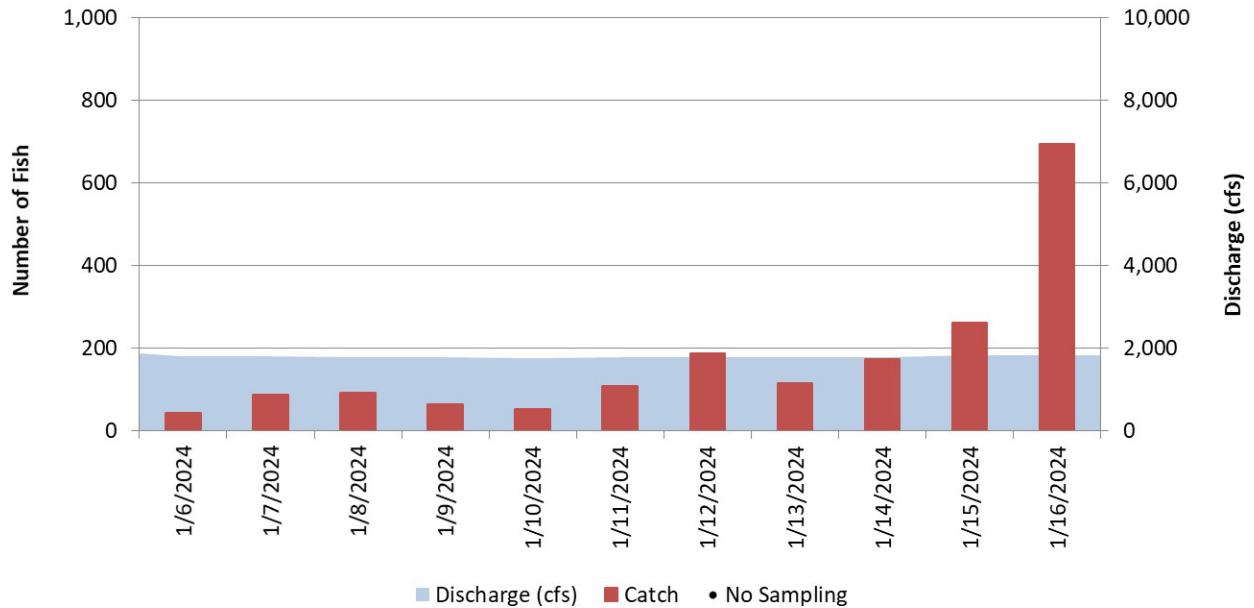
UPDATED 1/16/24

Table 5. Unmarked Juvenile Chinook Salmon (length-at-date):

Fall	Late Fall	Spring	Winter
1,870	0	0	5

Lower American River RSTs at Watt Avenue:

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



Lower American River at Watt Ave (RSTs) – Daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2024 Lower American River rotary screw trap sampling season.

More detailed information can be found at the Caswell RST CalFish webpage, which includes catch spreadsheets, annual reports, and other project information: [CalFish Stanislaus River \(Caswell\) – RST Monitoring](#)

SMUD Hydroelectric Facilities – Upper American River Project

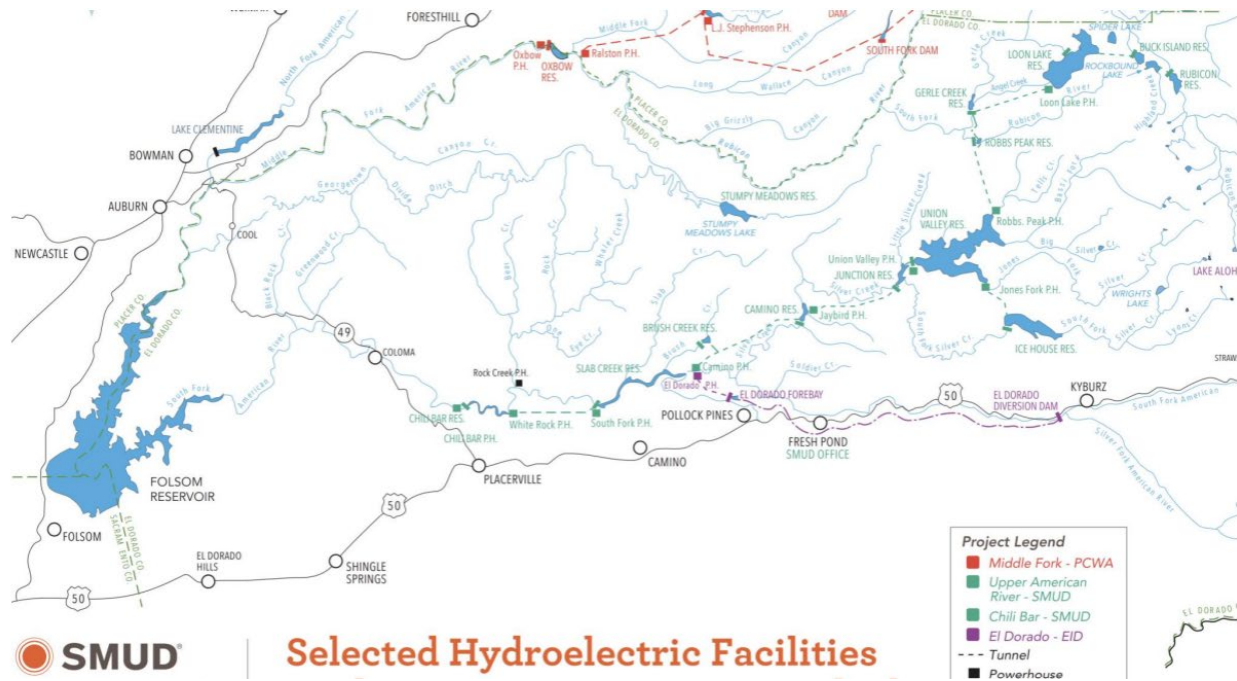


Figure 3. Sacramento Municipal Utility District (SMUD) Hydroelectric Facilities – Upper American River Project

Figure 3 is a map of the SMUD Upper American River Project hydroelectric facilities. It notes downs, major roadways, and SMUD projects on the Upper American River, and Chili Bar, including tunnels, and powerhouses. The Placer County Water Agency Middle Fork Project and El Dorado Irrigation District El Dorado Project are also pictured.

SMUD Upper American River Project Update 1/18/24

Fresh Pond Precipitation

January precipitation through 1/16/2024 is 7.38 inches, which is 77.3% of the January average of 9.55 inches. Precipitation for the water year to date is 17.08 inches which is 70.5% of average to date (24.24 inches) and 29.8% of the entire water year average of 57.32 inches.

Runoff and Snowpack Water Content

Runoff into storage reservoir basins is 92.5% of median to date through 1/16/2024. The snowpack is 42.3% of average at selected snow sensors: Robbs PH, Robbs Saddle, Van Vleck, Alpha, and Schneider.

Table 6. Fresh Pond Precipitation

Month	Current Water Year	Historical Average	% of Historical Average
October	1.37	3.30	42%
November	3.47	6.87	51%
December	2.07	9.14	23%
January	7.38	9.55	77%
February	0.00	9.50	0%
March	0.00	9.06	0%
April	0.00	4.84	0%
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	17.08	57.32	30%

* Month to date total, full month historical average.

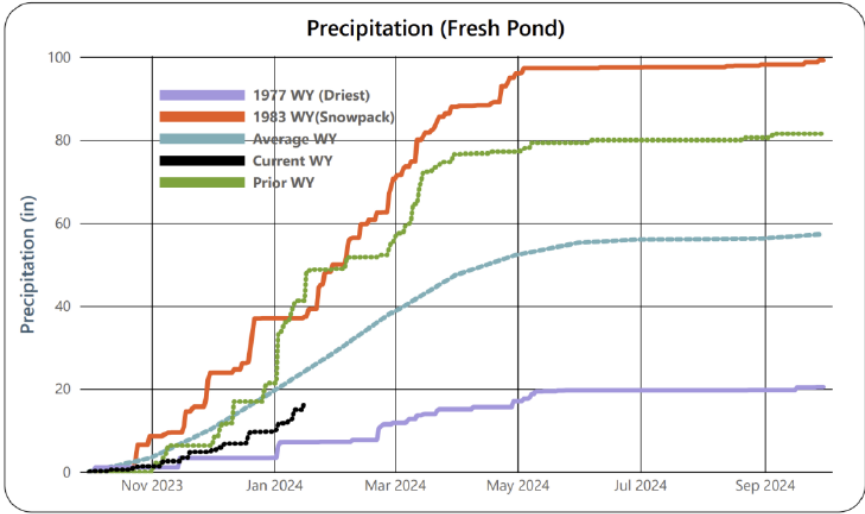


Figure 3. Fresh Pond Precipitation

Figure 3 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.

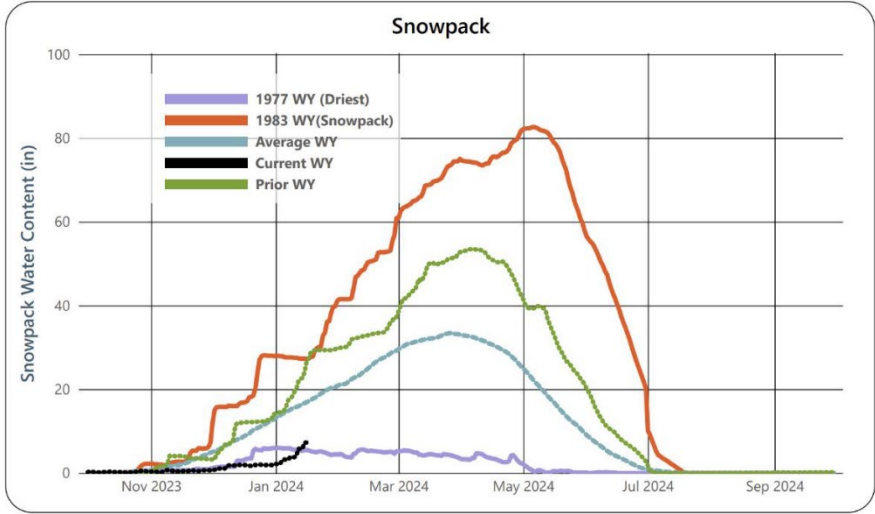


Figure 4. September 18, 2024 Snowpack

Figure 4 is a line graph of snowpack water content in inches for November 2023 to September 2024. It includes data from the driest water year (2015), 1983's water year snowpack, average, current, and prior water year. Runoff into the storage reservoir basins is 192.1% of median to date through 9/18/2024.

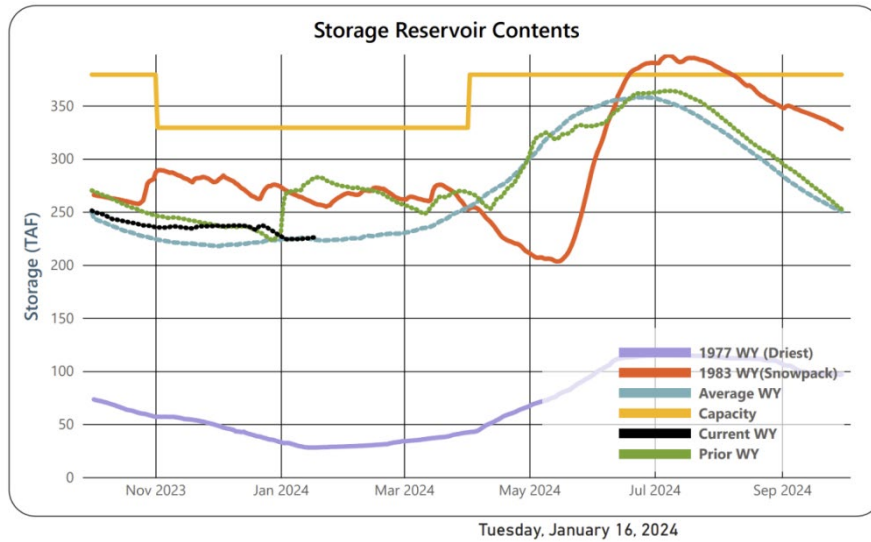


Figure 5. Storage Reservoir Contents

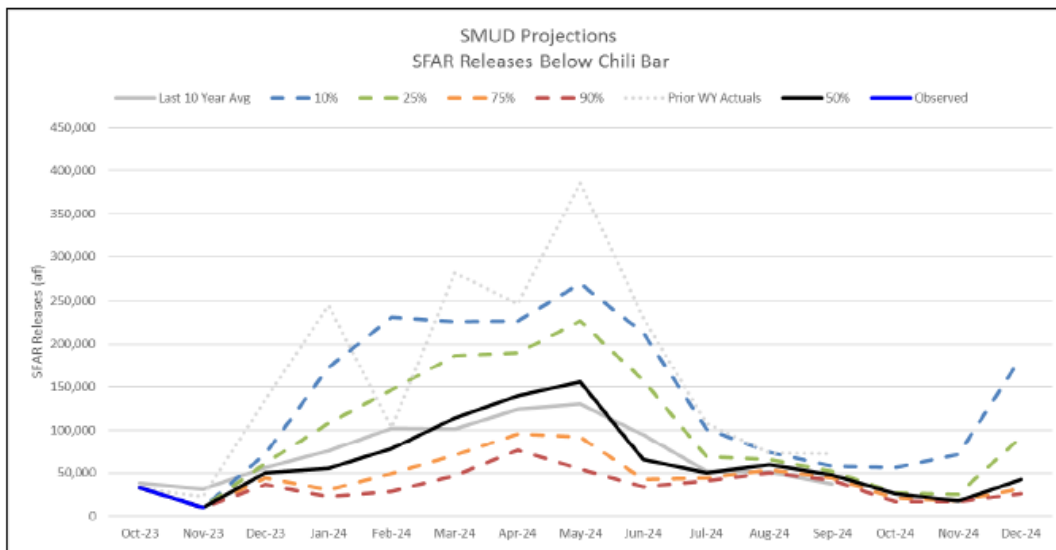
Figure 5 is a line graph of SMUD storage reservoir contents for November 2023 to September 2024. It includes data from the driest water year (1977), 1983's water year snowpack, average, current, and prior water year. The total capacity of the reservoir network is also shown.

Table 7. 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	27,322	63%	29,317	67.4%	29,642	68%	43,500	34,855
Union Valley	166,689	63%	151,085	56.7%	198,954	75%	266,370	255,046
Loon Lake	41,048	59%	45,611	65.8%	52,546	76%	69,310	69,310
Total Reservoir Storage	235,059	62%	226,012	59.6%	281,142	74%	379,180	329,211

Data listed here are always % of maximum capacity with gates closed As of today, Union Valley gates are OPEN, Ice House gates are OPEN, Robbs Peak gates are OPEN.

Chili Bar Releases into the South Fork American River



*based on forecast from 12/18/2023

Figure 6. Chili Bar releases into the South Fork American River. Projections based on forecast from September 11, 2023.

Figure 6 is a line graph of observed and projected releases below Chili Bar from October 2022 to December 2024. The graph includes a last 10-year average, actual prior water year data, and projections of 90%, 75%, 50%, 25%, and 10% likelihood.

* Based on forecast from 12/18/2023.

Table 8. 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	536	32,976
Actuals	Nov-23	453	26,961
Actuals	Dec-23	903	55,546
Forecast	Jan-24	1,022	62,819
Forecast	Feb-24	1,458	83,860
Forecast	Mar-24	2,234	137,354
Forecast	Apr-24	2,756	163,991
Forecast	May-24	2,658	163,425
Forecast	Jun-24	1,300	77,341

Type (Actual or Forecast)	Date	Daily Mean Release Rate (cfs)	Monthly Total Release (acre-ft)
Forecast	Jul-24	840	51,631
Forecast	Aug-24	934	57,425
Forecast	Sep-24	888	52,858
Forecast	Oct-24	426	26,193
Forecast	Nov-24	300	17,851
Forecast	Dec-24	620	38,147

PCWA MFP Operations Overview for American River Operations Group (Real Time Data as of January 17, 2023)

- French Meadows Storage = 67,000 AF of 136,405 AF = 49% Capacity
 - MFAR above FM Inflow (R24) = 7-day AVG ~50 cfs
- Hell Hole Storage = 64,000 AF of 207,590 AF = 31% Capacity
 - Five Lakes Inflow (R23) = 7-day AVG ~50 cfs
 - Rubicon Inflow (R22) = 7-day AVG ~30 cfs
- Combined Storage (FM+HH) = 131,000 AF/342,590 AF = 38% Capacity; 89% of AVG YTD
 - 7 Day Change = -7,000 AF
- MFAR @ R11: 7-day AVG ~1,250 cfs
- NFAR @ ARPS: 7-day AVG ~1,700 cfs
- MFP in conservation of storage mode – minimal generation until jet stream shifts.

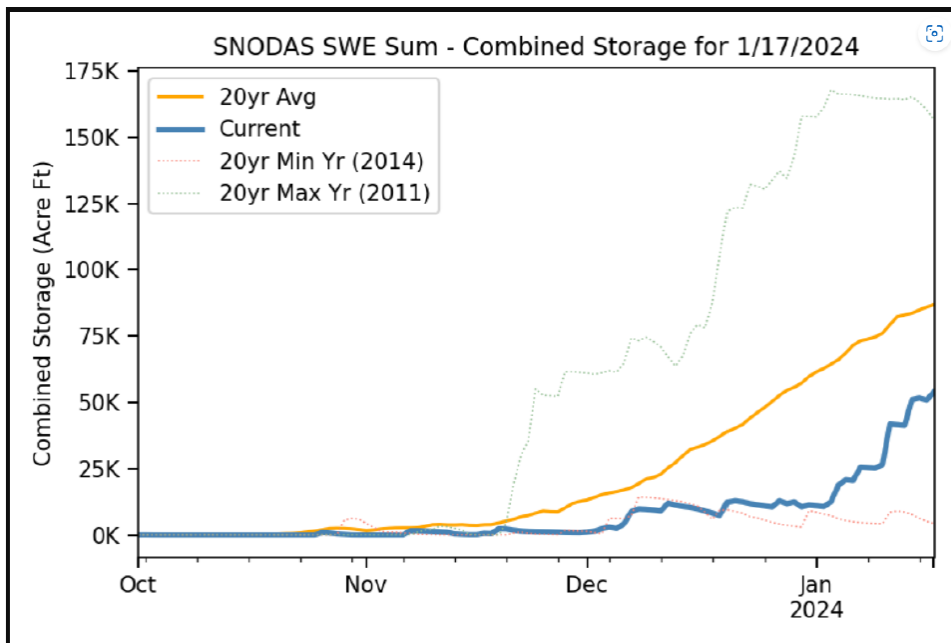
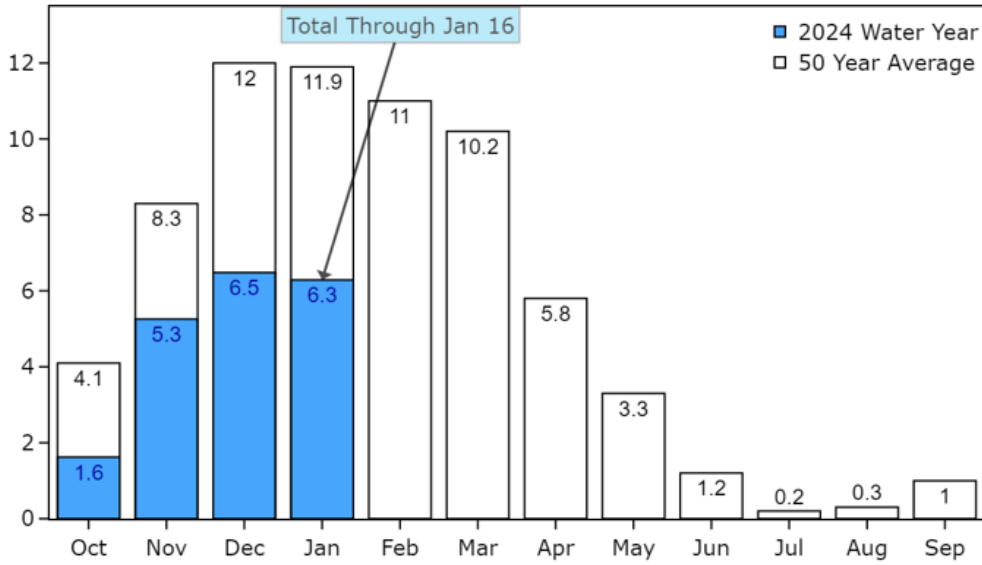


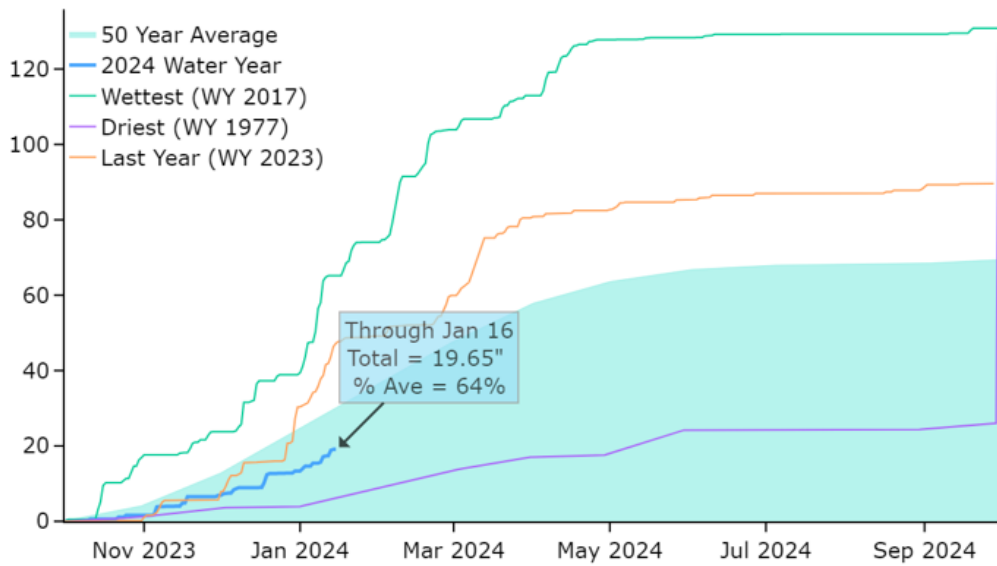
Figure 7. SNODAS SWE Sum – Combined Storage for 1/15/2024.

Figure 7 is a line graph of combined storage (Acre-ft) from October 2023 to January 2024. The graph compares the current storage of 10,000 Acre-ft to the 20 year average of 40,000 Acre-ft.

Lake Spaulding Precipitation: Water Year 2024



Lake Spaulding Precipitation: Water Year 2024



Lake Spaulding Precipitation: Water Year 2024 – Total through January 16 are 6.3 with a 50-year average of 11.9.

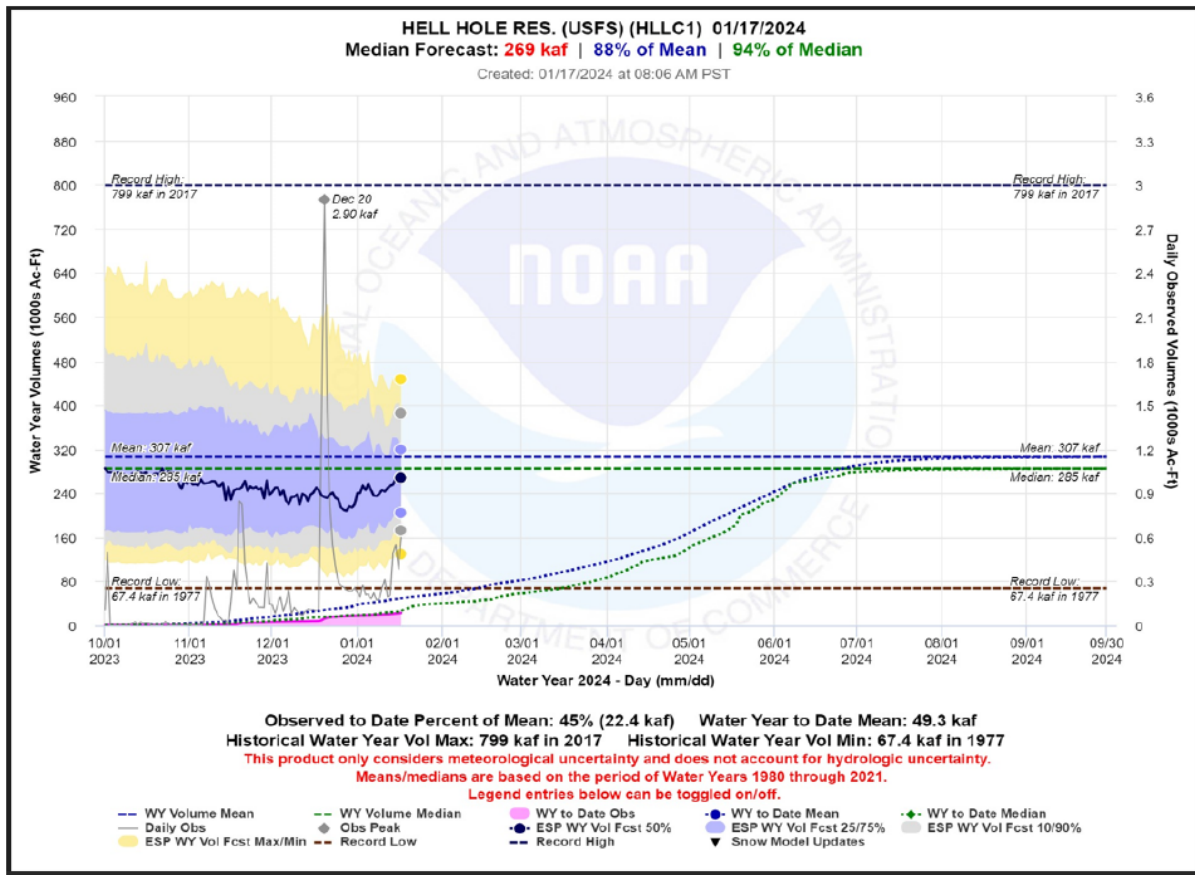


Figure 8. WY 2024 trend plot for Hell Hole Reservoir beginning on October 1, 2023.

Figure 8 is a WY 2024 trend plot for Hell Hole Reservoir beginning on October 1, 2023 and continuing until September 30, 2024. The trend plot shows the record low, median, mean, and record high volumes.

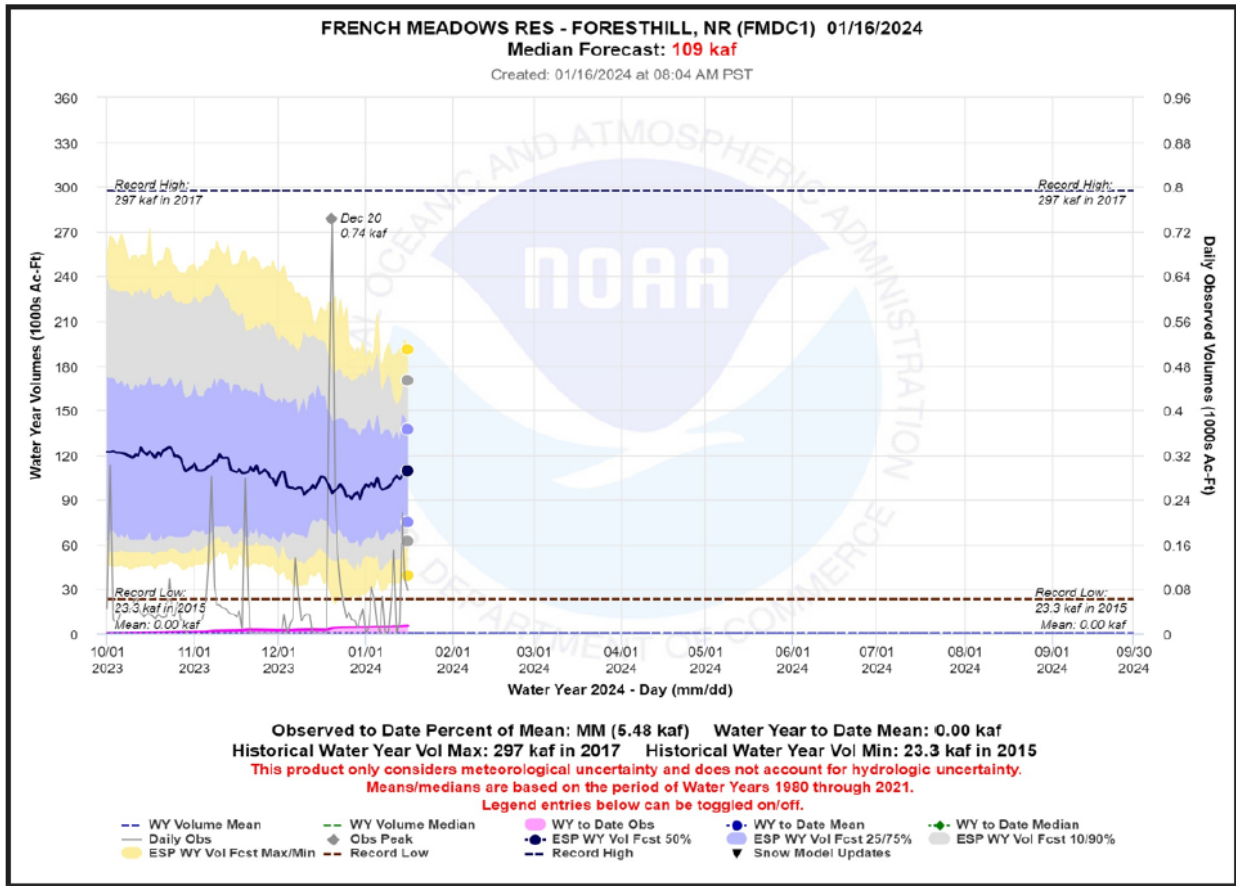


Figure 9. WY 2024 trend plot for French Meadows Reservoir beginning on October 1, 2024.

Figure 9 is a WY 2024 trend plot for French Meadows Reservoir beginning on October 1, 2023 and continuing until September 30 2024. The trend plot shows the record low, median, mean, and record high volumes.

Reservoir Releases in Cubic Feet/Second

Reservoir	Dam	WY 2023	WY 2024	15 Yr Median
Trinity	Lewiston	296	314	304
Sacramento	Keswick	4,254	5,059	3,538
Feather	Oroville (SWP)	950	1,750	1,750
American	Nimbus	9,990	1,777	1,777
Stanislaus	Goodwin	1,900	1,007	281
San Joaquin	Friant	5,504	427	397

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	1,314	727	1,331	101
Shasta	4,552	2,602	2,358	3,176	122
Folsom	977	420	524	476	113
New Melones	2,420	1,356	903	1,983	146
Fed. San Luis	966	558	388	820	147
Total North CVP	11,363	6,250	4,900	7,786	125
Millerton	521	290	435	265	91
Oroville (SWP)	3,538	1,789	2,027	2,474	138

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	184	145	683	184	100
Shasta	915	1,060	3,043	1,181	78
Folsom	296	33	1,567	547	54
New Melones	187	N/A	345	204	91
Millerton	358	268	309	228	157

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	13.45	11.72	25.09	14.90 (64)	90	0.00

Reservoir	Current WY 2024	WY 1977	WY 1983	Average (N Years)	% of Average	Last 24 Hours
Sacramento at Shasta Dam	20.25	14.90	47.60	26.65 (68)	76	0.00
American at Blue Canyon	11.61	N/A	61.98	28.78 (49)	40	0.60
Stanislaus at New Melones	7.50	N/A	17.83	11.48 (47)	65	0.00
San Joaquin at Huntington Lk	4.84	11.50	26.40	16.38 (51)	30	0.00

January 2024 | Folsom Lake Daily Operations | Run Date: 1/17/2024

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
		465.1									
1	412.03	465.1	0.8	1,379	1,795	0	0	74	10	0.04	0.00
2	412.04	465.2	0.1	2,017	1,907	0	0	72	0	0.00	0.60
3	412.08	465.5	0.3	2,313	2,090	0	0	69	0	0.00	0.07
4	412.06	465.3	-0.2	2,021	2,025	0	0	68	5	0.02	0.00
5	411.98	464.7	-0.6	1,628	1,859	0	0	71	5	0.02	0.00
6	411.871	463.9	-0.8	1,604	1,963	0	0	57	3	0.01	0.00
7	411.83	463.6	-0.3	1,629	1,712	0	0	67	3	0.01	0.00
8	411.74	462.9	-0.7	1,319	1,591	0	0	68	3	0.01	0.00
9	411.61	461.9	-1.0	1,395	1,823	0	0	67	0	0.00	0.04
10	411.55	461.5	-0.5	1,601	1,761	0	0	68	0	0.00	0.09
11	411.75	463.0	1.5	2,542	1,714	0	0	66	0	0.00	0.09
12	411.81	463.4	0.5	2,142	1,850	0	0	64	0	0.00	0.00
13	411.96	464.6	1.1	2,360	1,723	0	0	65	0	0.00	0.50
14	412.56	469.1	4.6	4,125	1,755	0	0	63	0	0.00	0.50
15	413.05	472.9	3.7	3,669	1,718	0	0	64	0	0.00	0.00
16	413.48	476.2	3.3	3,529	1,786	0	0	73	0	0.00	0.28
Totals			11.0	35,773	29,072	0	0	1,076	29	0.11	2.17
Acre- Feet			11,000	70,956	57,664	0	0	2,134	58		

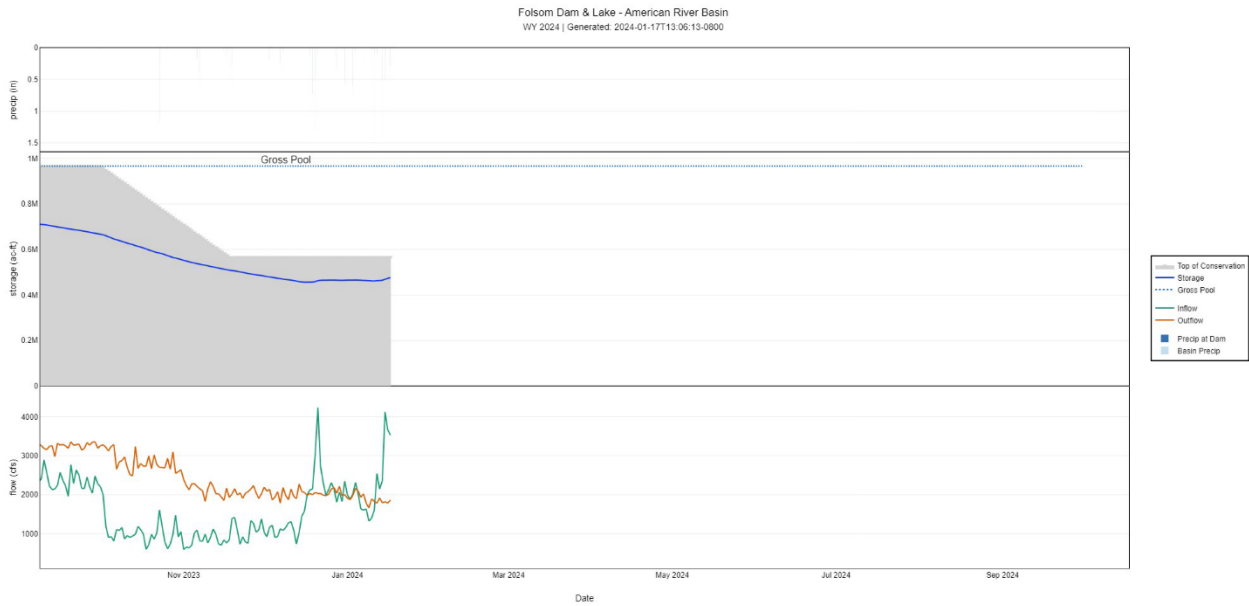
* Computed inflow is the sum of change in storage, releases, pumping, and evaporation

Summary: Release (acre-feet)

Power	57,664
Spill	0
Outlet	0
Pumping Plant	.134
Total Releases	59,799

Summary: Precipitation (Month/Inches)

This month	2.17
October 1, 2022 to date	7.11



Folsom Dam & Lake – American River Basin
WY 2024 2024-01-17T13:06: 13-0800

Isobath 11/01–11/30 (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
Nov	51.1	50.5	58.6	58.5	58.3	57.8	54.4	514		T	B	B
12/01	49.6	45.8	56.6	56.5	56.2	55.6	50.0	2018	481	T 0	B 28	B 71
12/02	49.7	46.7	56.3	56.6	56.5	56.1	54.2	2050	479	T 0	B 25	B 75
12/03	50.7	47.2	56.2	56.6	56.9	56.5	57.3	2051	478	T 1	B 29	B 71
12/04	50.7	46.8	56.1	56.5	56.4	56.0	53.4	2047	476	T 1	B 27	B 72
12/05	49.6	46.4	56.0	56.3	56.3	55.8	53.4	2048	473	T 1	B 26	B 73
12/06	49.0	45.6	55.8	55.9	55.6	55.1	52.1	2046	472	T 1	B 36	B 63
12/07	49.3	46.2	55.8	55.5	55.3	54.6	49.2	2046	470	T 0	B 72	B 28
12/08	48.3	45.2	55.8	55.0	54.7	54.0	46.9	2045	468	T 0	B 35	B 64
12/09	46.7	43.9	55.7	54.7	54.1	53.3	46.4	2050	467	T 0	B 37	B 63
12/10	45.9	43.9	55.8	54.6	54.0	53.2	44.0	2050	465	T 0.4	B 57.1	B 43
12/11	45.7	43.7	55.6	54.6	54.1	53.3	44.3	2047	463	T 0.4	B 74.1	B 26
12/12	45.4	43.2	55.3	54.7	54.2	53.4	45.8	2052	461	T 0.4	B 46.2	B 53
12/13	45.2	42.7	55.1	54.7	54.2	53.4	46.2	2083	459	T 0.3	B 78.3	B 21
12/14	44.8	42.9	54.9	54.5	54.0	53.3	46.5	2071	457	T 0.4	B 25.0	B 75
12/15	45.2	42.8	54.6	54.4	54.0	53.3	47.3	2076	456	T 0.4	B 71.2	B 28
12/16	45.2	42.7	54.3	54.2	53.9	53.2	47.6	2076	456	T 0.4	B 42.1	B 57
12/17	45.6	42.5	54.1	54.0	53.6	52.9	47.5	2075	456	T 0.4	B 56.5	B 43
12/18	47.5	43.9	53.5	53.9	53.9	53.4	52.3	2079	457	T 0.4	B 42.0	B 58
12/19	48.7	45.2	53.3	54.2	54.8	54.6	59.5	2085	459	T 0.4	B 61.3	B 38
12/20	48.4	45.5	53.3	54.2	54.6	54.4	56.2	2100	463	T 0.4	B 45.0	B 55
12/21	48.8	45.8	53.0	54.0	54.3	54.0	52.9	2095	464	T 0.4	B 59.6	B 40
12/22	48.3	45.6	52.6	53.7	54.1	54.0	52.5	2085	465	T 0.9	B 50.2	B 49
12/23	47.4	45.4	52.4	53.2	53.3	52.8	47.5	1995	465	T 2.1	B 68.5	B 29
12/24	47.0	45.6	52.3	52.7	52.7	52.2	46.9	1988	465	T 2.5	B 38.3	B 59
12/25	47.0	46.2	52.2	52.4	52.6	52.2	48.3	1985	465	T 2.2	B 54.7	B 43
12/26	47.2	46.3	52.0	52.3	52.4	52.0	49.3	1990	465	T 1.9	B 44.2	B 54
12/27	47.2	46.3	51.9	52.2	52.3	51.8	50.3	1989	465	T 1.9	B 44.2	B 54
12/28	47.2	46.3	51.9	52.2	52.3	51.8	50.3	1989	465	T 1.9	B 44.2	B 54
12/29	48.2	47.1	51.8	52.3	52.7	52.5	55.6	1984	464	T 1.9	B 44.2	B 54

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
12/30	48.6	47.2	51.8	52.5	53.0	52.9	53.8	1986	465	T 0.8	B 21.1	B 78
12/31	48.6	46.9	51.7	52.4	52.7	52.5	52.8	1987	465	T 0.8	B 21.5	B 78
Dec	47.6	45.2	54.1	54.2	54.2	53.7	50.3	514				
Total AF								125489				

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

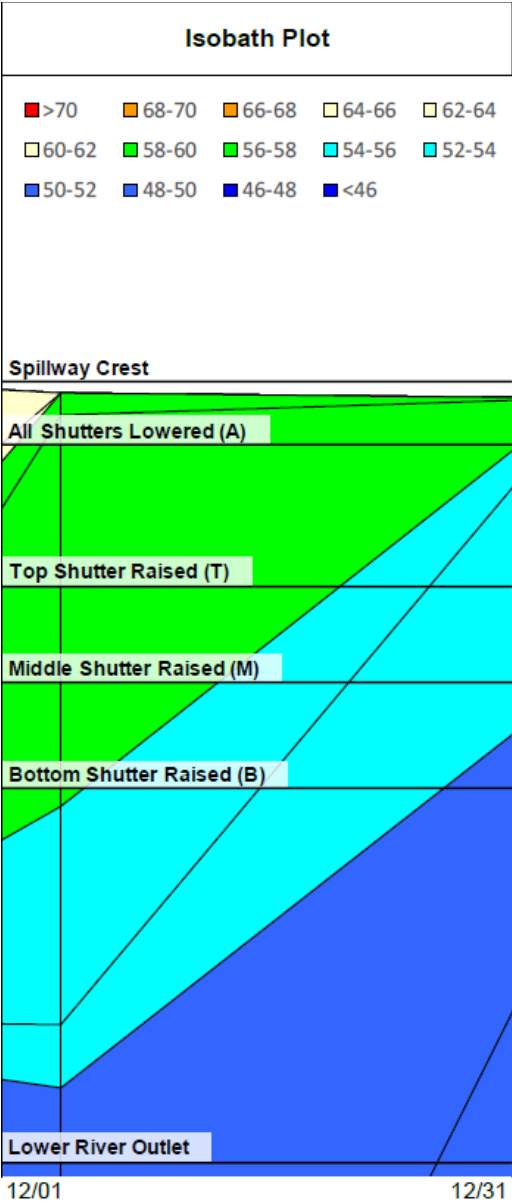
M = Middle Shutter Raised

B = Bottom Shutter Raised

O = Unit Outage

Notes:

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



Isobath Plot 12/01-12/31 (Showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet)

Isobath 1/01–1/31 (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
Dec	47.6	45.2	54.1	54.2	54.2	53.7	50.3	465				
01/01	47.6	46.6	51.6	52.2	52.6	52.3	49.6	1984	465	T 1	B 23	B 76
01/02	46.5	45.7	51.9	51.9	51.9	51.4	47.3	1944	465	T 25	B 1	B 74
01/03	47.0	46.7	52.6	51.7	51.8	51.4	47.5	2020	465	T 71	B 1	B 27
01/04	46.1	46.0	52.8	51.5	51.4	50.9	46.8	1982	465	T 79	B 2	B 20
01/05	45.9	45.6	52.6	52.1	52.0	51.3	48.7	1770	465	T 75	B 2	B 23
01/06	44.7	44.6	52.1	51.9	51.3	50.6	44.3	1728	464	T 69	B 2	B 29
01/07	43.6	43.7	51.3	51.5	51.2	50.4	41.5	1734	464	T 18	B 2	B 79
01/08	42.5	42.8	51.0	51.1	50.8	50.0	43.2	1727	463	T 1	B 2	B 97
01/09	43.2	43.5	51.2	50.8	50.8	50.3	46.8	1731	462	T 39	B 2	B 59
01/10	44.0	44.4	50.9	50.7	50.6	50.1	46.5	1730	461	T 36.2	B 1.7	B 62
01/11	44.0	43.5	51.1	50.4	50.2	49.4	43.8	1744	463	T 59.9	B 2.0	B 38
01/12	43.1	42.4	51.0	50.2	49.9	49.2	43.8	1764	463	T 35.7	B 1.9	B 62
01/13	43.5	43.2	50.5	50.2	50.1	49.5	45.9	1772	465	T 28.5	B 1.8	B 70
01/14	44.8	44.8	50.4	50.6	50.9	50.5	50.2	1770	469	T 27.0	B 1.5	B 71
01/15	44.8	45.3	50.6	50.7	51.0	50.8	49.8	1823	473	T 56.8	B 1.5	B 42
01/16	44.9	44.6	50.0	50.7	50.9	50.5	50.1	1777	476	T 27.0	B 1.4	B 72
01/17	45.6	45.4	49.9	50.9	51.6	51.5	53.4	1779	479	T 41.1	B 1.8	B 57
01/18	45.2	43.8	50.3	50.7	50.9	50.6	49.5	1780	483	T 63.6	B 2.5	B 34
01/19	45.7	44.1	50.2	50.6	51.1	50.9	51.9	1781	485	T 68.4	B 1.9	B 30
01/20	46.6	45.7	49.8	50.8	51.5	51.5	55.7	1780	487	T 60.7	B 2.0	B 37
01/21	47.1	47.4	49.7	51.2	51.9	51.8	56.1	1786	494	T 44.4	B 2.6	B 53
01/22	47.5	46.6	49.5	51.3	52.0	52.0	55.8	1781	504	T 34.0	B 2.6	B 63
01/23	47.6	45.9	49.6	51.1	51.9	52.0	56.3	1779	510	T 24.4	B 1.5	B 74
01/24	47.4	45.1	50.1	50.8	51.5	51.5	54.0	1776	516	T 73.0	B 1.1	B 26
01/25	47.6	46.8	50.1	50.6	51.4	51.5	52.9	1782	520	T 74.3	B 1.4	B 24
01/26	47.7	46.7	50.3	51.0	51.4	51.2	53.8	1770	524	T 71.2	B 1.5	B 27
01/27	47.8	46.9	50.1	51.0	51.4	51.3	54.7	1757	527	T 64.9	B 1.4	B 34
01/28	48.5	47.3	50.0	51.1	52.0	51.9	57.2	1757	529	T 62.6	B 1.2	B 36
01/29	48.9	46.9	49.7	51.1	51.9	52.0	57.0	1759	532	T 32.1	B 1.0	B 67
01/30	49.1	46.9	50.0	51.1	52.2	52.3	58.0	1739	534	T 60.4	B 1.2	B 38
01/31	48.8	46.3	49.5	51.0	51.2	51.4	56.2	1736	538	T 37.7	B 1.1	B 61
Jan	46.0	45.3	50.7	51.0	51.3	51.0	50.6	487				
							Total AF	110165				

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

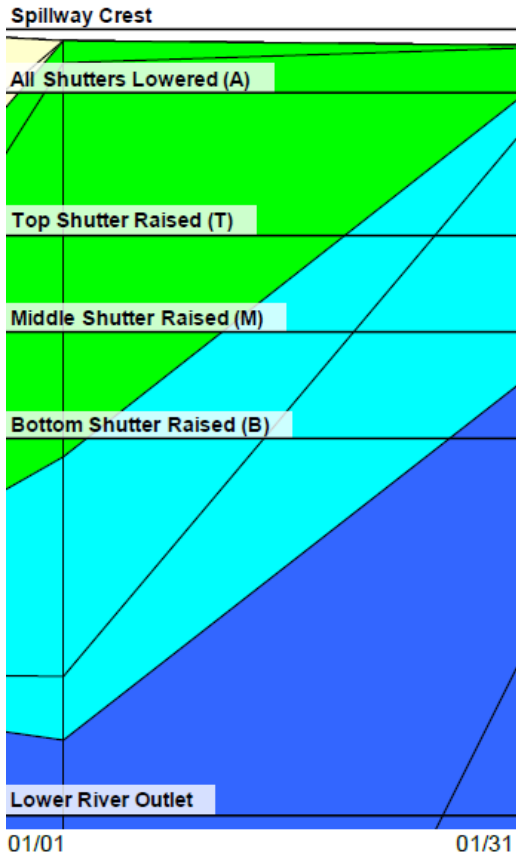
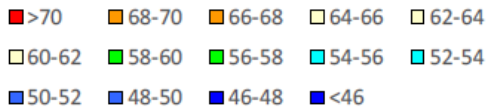
B = Bottom Shutter Raised

O = Unit Outage

Notes:

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

Isobath Plot

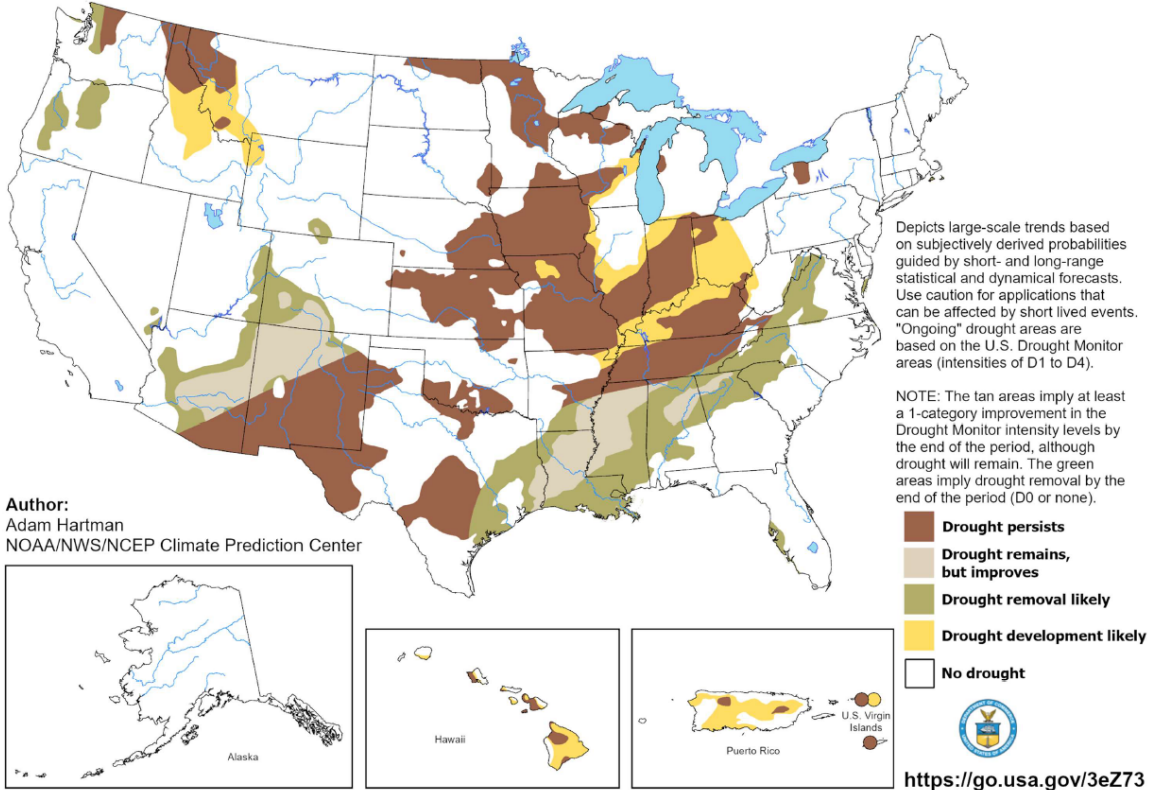


Isobath Plot 1/01-1/31. Showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for December 21, 2023 - March 31, 2024
Released December 21, 2023



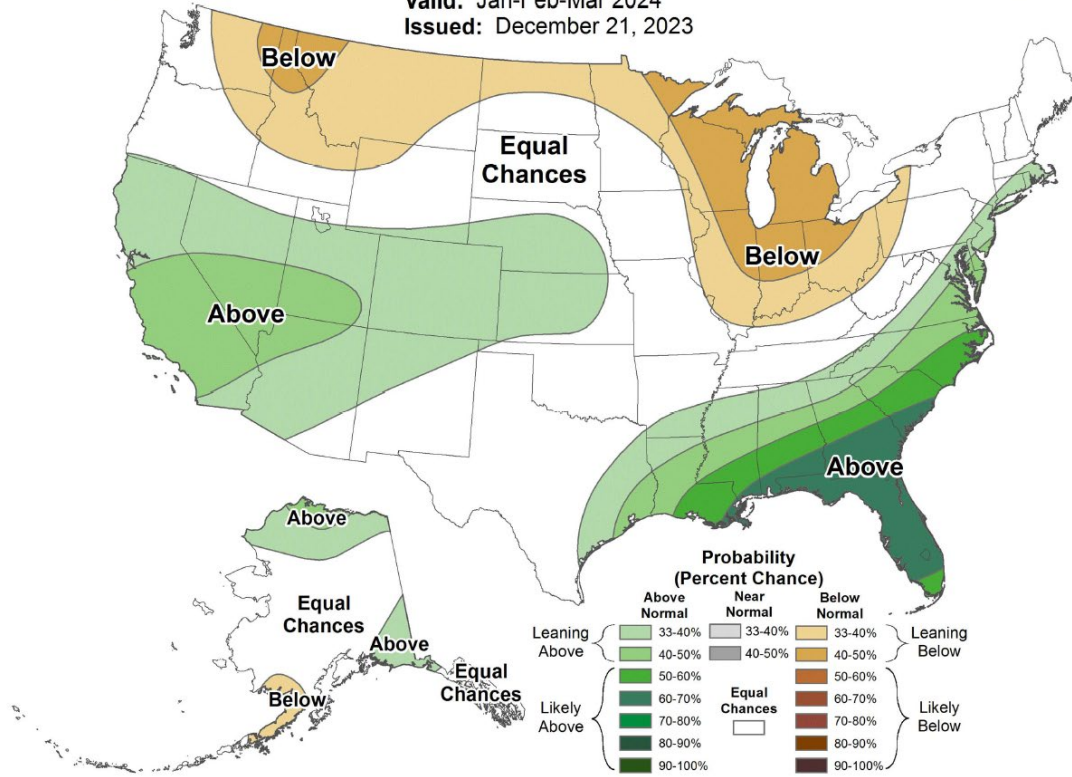
Map – U.S Seasonal Drought Outlook; Valid December 21, 2023 – March 31, 2024;
Released December 21, 2023



Seasonal Precipitation Outlook

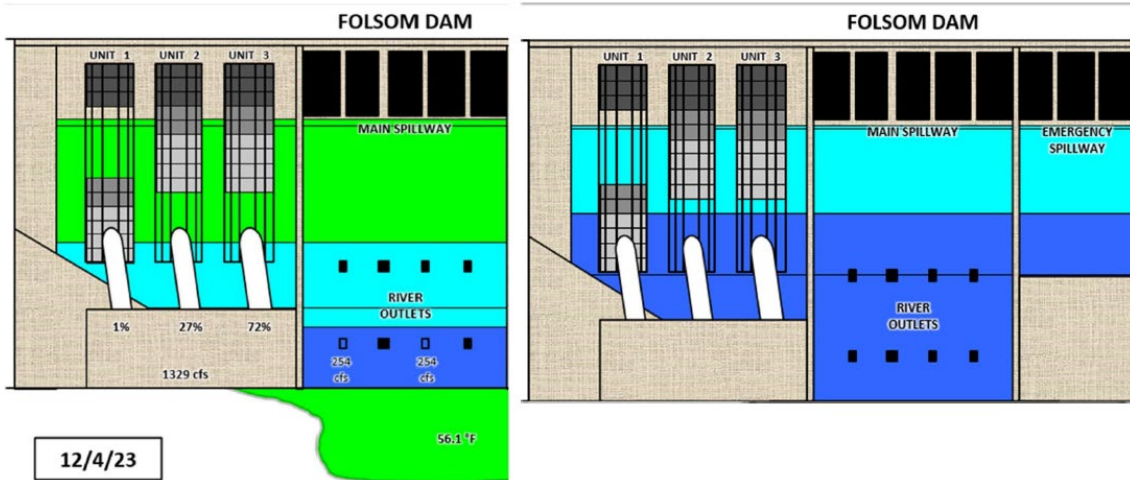


Valid: Jan-Feb-Mar 2024
Issued: December 21, 2023



Map – U.S Seasonal Precipitation Outlook; Valid Jan-Feb-Mar 2024; Issued December 21, 2023

American River Daily Average Water and Air Temperatures



Graphic showing Folsom Dam on 12/4/23 with a water temperature of 56.1°F

American River Summary Conditions – January (On-going)

Release Management Conditions

- Releases are currently at 1,750 cfs

Temperature Management

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

Middle Shutters: Units 1- lowered, and 2 and 3 –raised

Bottom Shutters: Units 1 – lowered, and 2 and 3 – raised

Folsom Shutter Configuration and Changes

Next change will be lowering and closing all shutters in February/March

American River 90% Outlook

January 90% Exceedance

Storages

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

Facility	Jan	Feb	Mar	Apr	May	Jun
Folsom Storage	463	501	614	636	635	548
Folsom Elevation	412	417	430	433	432	422

Monthly River Release (TAF/cfs)

Facility	Jan	Feb	Mar	Apr	May	Jun
American TAF	108	92	77	160	156	164
American cfs	1750	1650	1250	2683	2541	2749

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	1,326 cfs	Not applicable	1,400 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 through December of the next water year unless there is an update to the ARI after May.