



— 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 19th, 2023

Agenda

- Introductions
- Announcements
 - USBR, New MRR will be able to be calculated January 9th
- Housekeeping
 - Meeting will be recorded for notetaking purposes
- Fisheries Update
 - CDFW
 - CFS
 - PSMFC
- Operations Forecast
 - SMUD
 - PCWA
- Central Valley Operations
- Discussion
 - MRR check in
 - Review of Fall 2022 Folsom Power Bypass
- Next Meetings:
 - Thursday, February 16th, 1:30-3:30pm

Provisional Data Subject to Revision

FALL-RUN CHINOOK CARCASS SURVEY

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

- Survey began 10/17/2022
- Surveys concluded on 12/29/2022

Table 1. Preliminary count of Chinook Salmon carcasses processed during the 2022 lower American River escapement survey.

Survey period	Dates	Nimbus Basin	Section 1A	Section 1B	Section 2	Section 3	Total Carcasses Processed
1	Oct 17-20	2	11	2	11	5	31
2	Oct 24-27	1	8	3	3	1	16
3	Oct 31-Nov 4	4	22	4	6	2	38
4	Nov 7-10	9	26	12	3	3	53
5	Nov 14-18	22	158	81	9	12	282
6	Nov 21-25	52	551	311	NR	NR	914
7	Nov 28 – Dec 2	159	1095	671	348	NR	2273
8	Dec 5-9	124	1217	643	NR	NR	1984
9	Dec 12-16	171	813	391	234	6	1615
10	Dec 19-22	147	988	321	151	18	1625
11	Dec 27-29	79	587	211	NR	NR	877
N/A	Total	770	5476	2650	765	47	9708

Provisional Data Subject to Revision

Table 2. Preliminary count of female Chinook Salmon carcasses assessed for spawning condition during the 2022 lower American River escapement survey.

Date	Survey period	Unspawned	Partial	Spawned	Total
Oct 17-20	1	2	1	1	4
Oct 24-27	2	2	0	0	2
Oct 31- Nov 4	3	2	1	0	3
Nov 7-10	4	18	3	4	25
Nov 14-18	5	14	14	45	73
Nov 21-25	6	25	22	146	193
Nov 28 – Dec 2	7	49	22	196	267
Dec 5-9	8	6	10	76	92
Dec 12-16	9	4	7	69	80
Dec 19-22	10	5	5	58	68
Dec 27-29	11	5	7	29	41
N/A	Total	132	92	624	848
N/A	%	15.6	10.8	73.6	N/A

Data and annual reports available on CalFish:

<https://www.calfish.org/ProgramsData/ConservationandManagement/CentralValleyMonitoring/SacramentoValleyTributaryMonitoring/LowerAmericanRiver.aspx>

Provisional Data Subject to Revision

LOWER AMERICAN RIVER REDD SURVEY

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

- Survey began 10/21/2022
- Survey concluded 12/29/2022

Table 3. Preliminary count of Chinook Salmon redds measured during the 2022 lower American River redd survey.

Survey period	Dates	Nimbus Basin	Section 1A	Section 1B	Section 2	Section 3	Total Redds
1	Oct 17-21	0	0	0	0	0	0
2	Oct 24-28	0	0	0	0	0	0
3	Oct 31-Nov 4	2	8	1	0	0	11
4	Nov 7-11	3	15	30	4	N/A	52
5	Nov 14-18	50	124	N/A	N/A	2	176
6	Nov 21-23	N/A	N/A	123	31	N/A	154
7	Nov 28- Dec 02	51	104	12	0	N/A	167
8	Dec 05-09	13	129	22	41	*	205
9	Dec 12-16	N/A	32	11	8	0	51
10	Dec 19-22	7	27	9	2	0	45
11	Dec 27-29	5	1	N/A	N/A	N/A	6
N/A	Total	131	440	208	86	2	867

Provisional Data Subject to Revision

NIMBUS FISH HATCHERY

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

- Fall-run Chinook Salmon spawning began 11/1/2022
- Last day of Chinook Salmon spawning was 12/15/2022
- 11,879,718 Chinook Salmon eggs collected

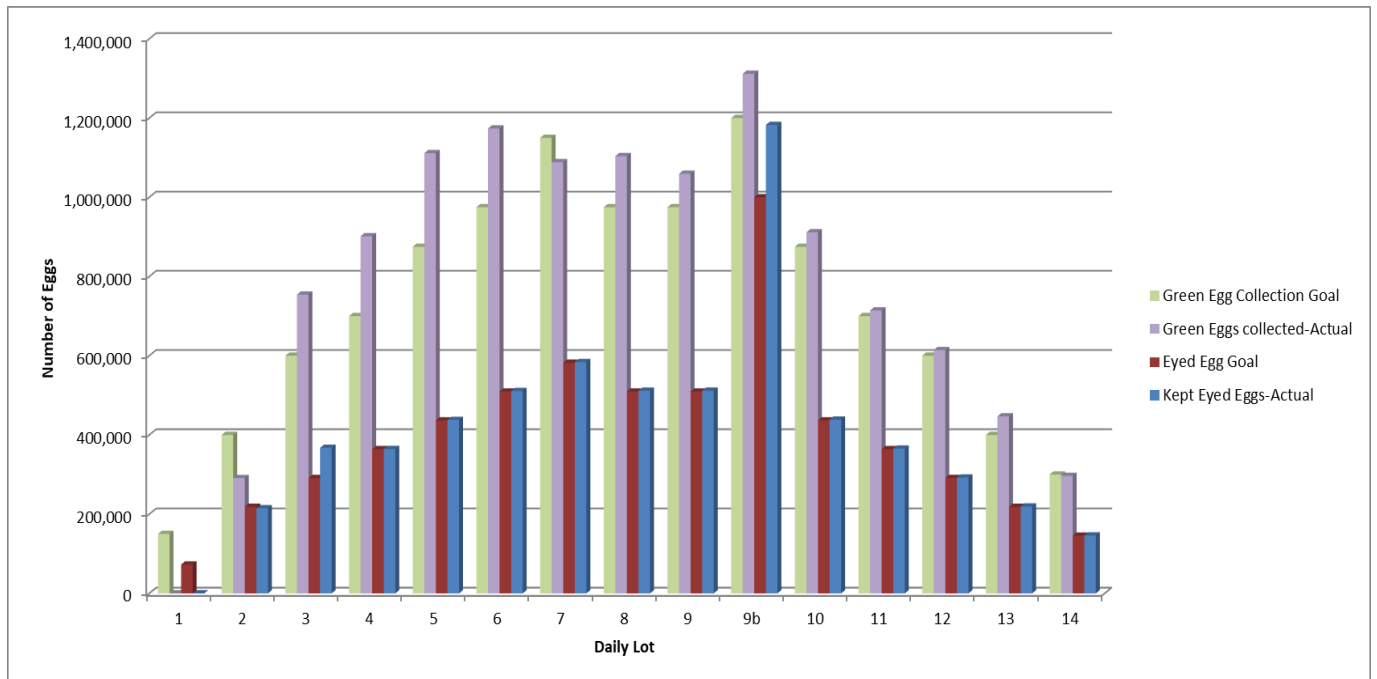


Figure 1. Fall-run Chinook Salmon egg collection goals and eggs collected per spawning at Nimbus Fish Hatchery

Provisional Data Subject to Revision

- Steelhead spawning began 12/20/2022
- 569,499 steelhead eggs collected thus far
- Broodyear 2022 steelhead released beginning on 1/18/2023

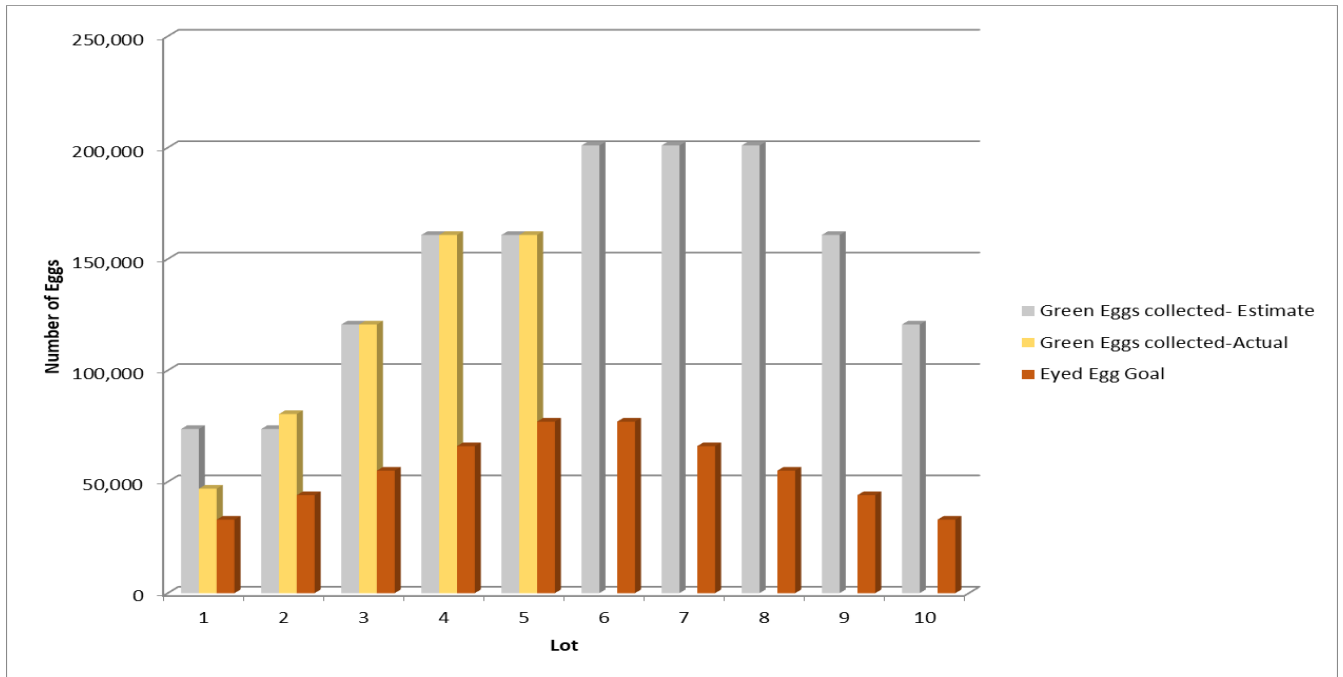


Figure 2. Steelhead trout egg collection goals and eggs collected per spawning at Nimbus Fish Hatchery

Lower American River 2023 Steelhead Spawning and Stranding Survey Summary

Initiation of steelhead spawning surveys has been delayed due to high flows and excessively turbid conditions. Flow reductions have stabilized so stranding surveys will occur January 18-19.

SMUD Upper American River Project Update

Conditions – Tuesday 17 January 2022

January precip (through 1/16) is 27". This is 282% of the January average of 9.55". Precip for water year to date is 48.38 inches, which is 195% of average year to date, and 84.4% of the total water year average. Runoff is 331.8% of median to date, and snowpack is 154.7% of average at Crystal Basin sensors.

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

- 282,160 acre feet (13 December was 236,421 acre feet)
- 74.4% full
- 119% of historical average (Jan 17 historical average: 236,384 AF)

Individual Reservoir Storage

- Loon Lake: 52,509 AF
- Ice House: 29,145 AF
- Union Valley: 200,507 AF

Last year (on January 17, 2022), total storage was at 65% (246,961 AF). *Total capacity: 329,210 AF.

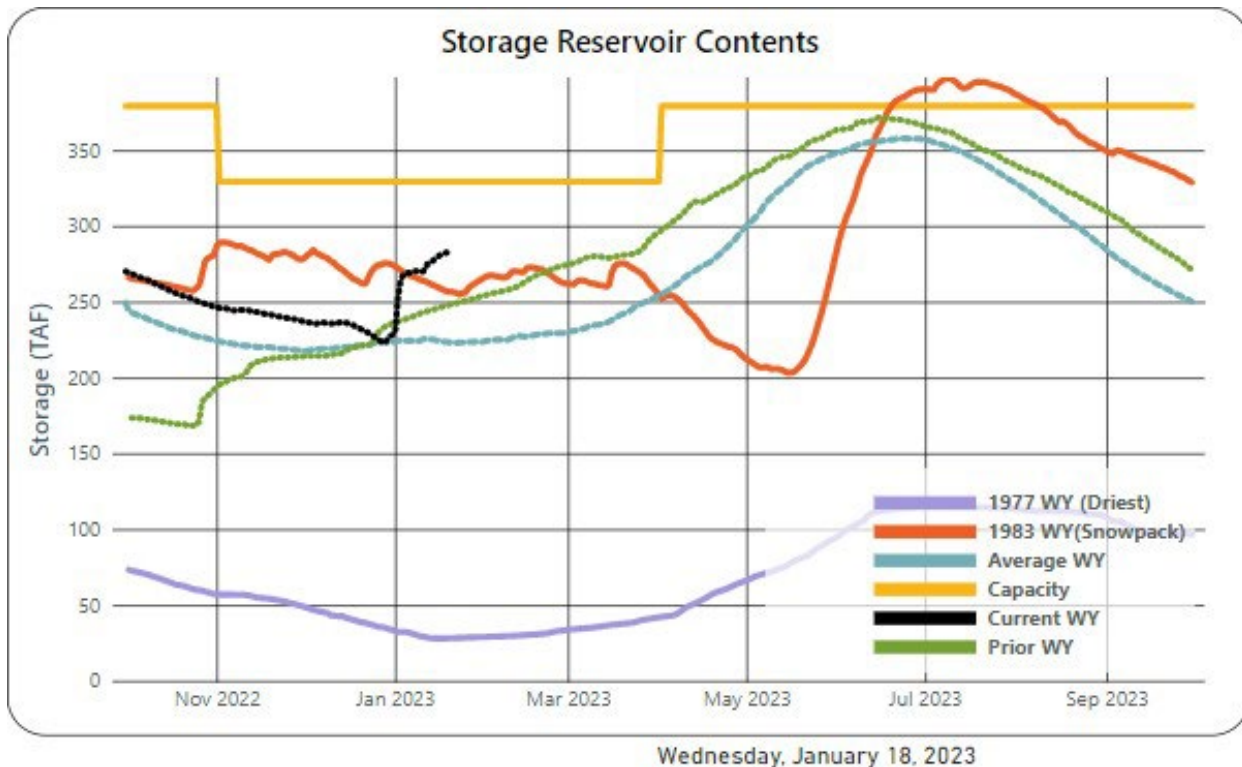


Figure 1. January 17, 2023 reservoir storage.

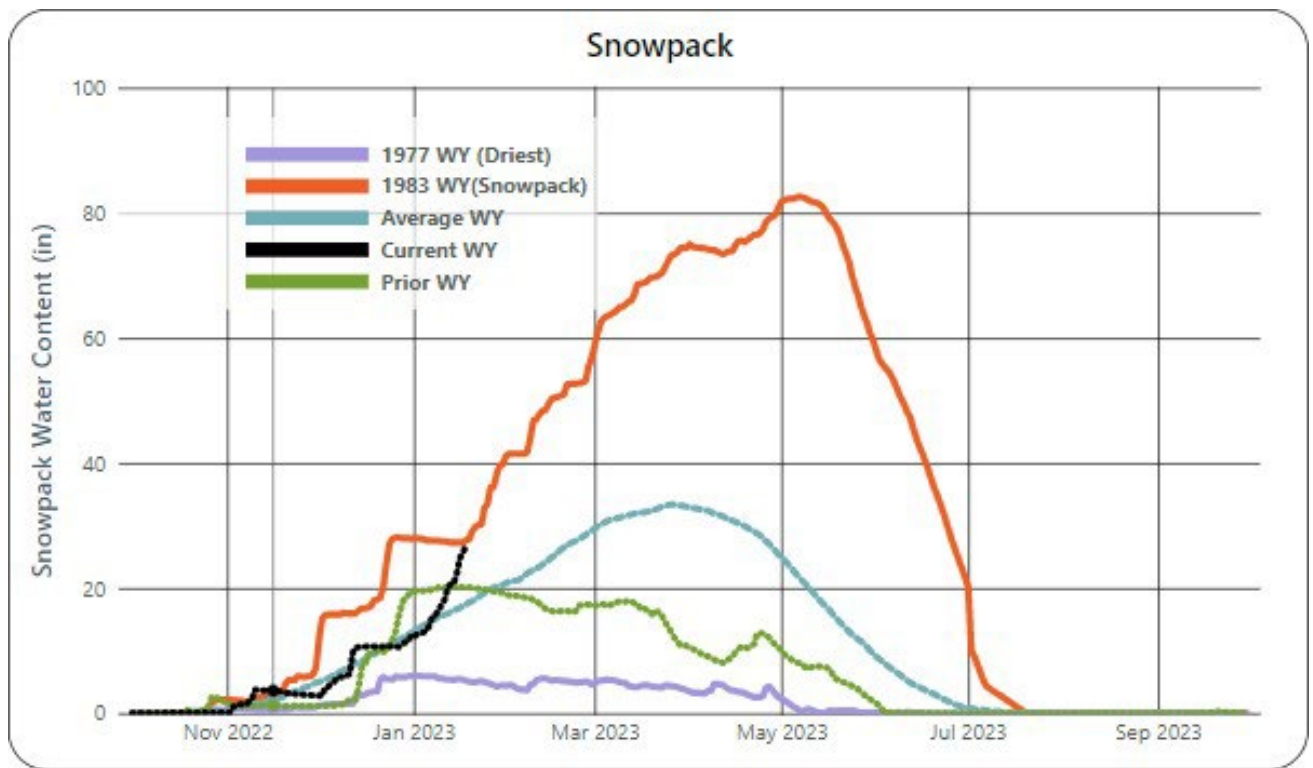


Figure 2. January 17, 2023 snowpack.

Chili Bar releases into the South Fork American River

(Previous month) December 2022 releases:

- Daily average flow: 2,207 cfs
- Total releases: 135,729 AF

(Current month) January 2023 releases (January 1-16)

- Daily average flow so far: 5,279 cfs
- Total releases so far: 167,539 AF

Basin	20- Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
SFA above Slab	1,073	994	920	851	786	724
Slab Creek Reservoir	1,985	1,692	1,473	1,304	1,171	1,066
Combined South Fork	3,058	2,686	2,393	2,155	1,957	1,790

United States Department of the Interior
 U.S. Bureau of Reclamation–Central Valley Project–California
 Daily CVP Water Supply Report

Run Date: January 16, 2023; Reservoir Releases in Cubic Feet/Second

Reservoir	Dam	WY 2022	WY 2023	15-Year Median
Trinity	Lewiston	305	296	304
Sacramento	Keswick	3,250	4,254	3,499
Feather	Oroville (SWP)	950	950	1,350
American	Nimbus	3,999	9,990	1,773
Stanislaus	Goodwin	202	1,900	277
San Joaquin	Friant	648	5,504	395

Storage in Major Reservoirs in Thousands of Acre-Feet

Reservoir	Capacity	15-Yr Average	WY 2022	WY 2023	% OI 15-Year Average
Trinity	2,448	1,291	738	727	56
Shasta	4,552	2,483	1,552	2,358	95
Folsom	977	402	552	524	130
New Melones	2,420	1,300	972	903	69
Fed. San Luis	966	523	210	388	74
Total North CVP	11,363	5,999	4,024	4,900	82
Millerton	521	286	299	435	152
Oroville (SWP)	3,538	1,689	1,552	2,027	120

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

Reservoir	Current WY 2023	WY 1977	WY 1983	15-Yr Avg	% OI 15-Year Average
Trinity	239	35	294	178	134
Shasta	1,459	818	1,700	1,174	124
Folsom	1,056	131	1,235	541	195
New Melones	370	N/A	433	199	186
Millerton	396	76	607	210	188

Accumulated Precipitation for Water Year to Date in Inches

Reservoir	Current WY 2023	WY 1977	WY 1983	Avg (In Years)	% of Average	Last 24 Hours
Trinity at Fish Hatchery	22.30	4.40	19.60	31.61 (61)	71	0.04

Reservoir	Current WY 2023	WY 1977	WY 1983	Avg (In Years)	% of Average	Last 24 Hours
Sacramento at Shasta Dam	33.20	5.34	30.44	61.20 (66)	54	0.05
American at Blue Canyon	51.00	7.61	40.78	65.95 (47)	77	0.60
Stanislaus at New Melones	28.84	N/A	14.73	27.91 (44)	103	2.14
San Joaquin at Huntington LK	33.60	4.80	29.60	42.02 (48)	80	1.40



January 2023

Day	Elev	Storage 1000-ACRE- FEET In Lake	Storage 1000-ACRE- FEET CHANGE	Computed* Inflow C.F.S.	Release C.F.S. Power	Release C.F.S. Spill	Release C.F.S. Outlet	Pumping Plant	EVAP. C.F.S.	EVAP. Inches	PRECIP. Inches
N/A	N/A	558.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	430.06	614.2	55.5	38,869	6,515	3,870	395	55	36	0.12	0
2	428.1	596.8	-17.4	12,622	7,277	7,491	6,561	53	0	0	0.69
3	424.94	569.4	-27.4	7,824	7,006	7,432	7,142	54	20	0.07	0.01
4	421.2	537.9	-31.5	5,773	7,015	7,221	7,358	62	0	0	0.13
5	419.12	520.8	-17.1	13,893	7,062	8,083	7,293	59	0	0	1.5
6	416.64	500.9	-19.9	14,070	6,422	9,388	8,228	64	8	0.03	0
7	411.64	462.1	-38.8	8,723	6,917	11,332	9,954	64	0	0	0.16
8	406.23	422.3	-39.8	7,954	7,102	11,509	9,340	69	0	0	0.54
9	404.9	412.9	-9.4	17,715	7,107	8,894	6,396	66	5	0.02	0.9
10	404.41	409.5	-3.4	18,344	6,901	8,813	4,288	62	9	0.04	0.47
11	404.18	407.9	-1.6	15,044	6,986	7,519	1,294	57	0	0	0.12
12	404.88	412.8	4.9	16,264	6,738	3,853	3,139	57	7	0.03	0
13	405.97	420.5	7.7	16,743	6,949	0	5,850	58	0	0	0.99
14	411.82	463.5	43	31,965	6,532	0	3,681	61	3	0.01	0.92
15	416.74	501.7	38.2	29,215	6,566	0	3,331	61	0	0	0.12
16	419.5	523.9	22.2	21,464	6,471	0	3,714	68	8	0.03	0.31
Totals	N/A	N/A	-34.8	276,482	109,566	95,405	87,964	970	96	0.35	6.86
Acre-Feet	N/A	N/A	-34,800	548,402	217,324	189,236	174,477	1,924	190	N/A	N/A

*Computed Inflow is the sum of change in storage, release, pumping, and evaporation.

SUMMARY

Release	Acre-Feet
Power	217,324
Spill	189,236
Outlet	174,477
Pumping Plant	1,924
Total	582,961

Time	Precipitation (Inches)
This month	6.86
October 1, 2022 to date	22.71

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

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)	Storage (TAF)	USP/LP Unit 1	USP/LP Unit 2	USP/LP Unit 3
NOV	53.0	46.5	56.7	56.6	55.8	55.5	48.8	1352	N/A	N/A	N/A	N/A
12/01	44.3	43.4	53.5	54.0	52.9	52.6	46.5	1340	247	B 3	B 52	B 34
12/02	44.6	42.9	53.4	53.5	52.4	51.8	40.2	1334	246	B 3	B 29	B 67
12/03	44.5	42.9	53.1	53.0	51.9	51.6	41.9	1329	247	B 3	B 62	B 36
12/04	46.3	45.6	52.8	52.9	52.1	51.8	47.9	1343	250	B 3	B 36	B 61
12/05	46.7	45.0	52.6	53.0	52.6	52.6	51.1	1331	253	B 4	B 59	B 37
12/06	N/A	44.8	52.3	53.1	52.6	52.7	48.5	1324	254	B 3	B 31	B 66
12/07	N/A	43.7	51.9	53.0	52.3	52.1	44.8	1327	254	B 2	B 67	B 31
12/08	N/A	42.8	51.6	52.7	51.8	51.6	47.0	1331	254	B 1	B 30	B 68
12/09	N/A	43.5	51.4	52.6	52.2	52.2	50.0	1329	255	B 2	B 68	B 30
12/10	N/A	44.1	51.0	52.3	51.9	52.0	51.8	1330	258	B 45	B 26	B 29
12/11	N/A	45.2	51.2	52.1	51.6	51.6	47.5	1329	271	B 14	B 67	B 19
12/12	44.8	44.4	51.1	52.0	51.3	51.4	45.7	1325	276	B 42	B 57	B 1
12/13	43.8	43.0	50.3	51.5	50.5	50.3	41.2	1326	277	B 49	B 50	B 1
12/14	42.7	41.4	50.0	51.1	50.1	49.9	41.5	1328	278	B 21	B 2	B 78
12/15	42.7	41.4	50.0	51.1	50.1	49.9	41.5	1328	278	B 21	B 2	B 78
12/16	41.8	40.9	49.6	50.5	49.6	49.4	41.4	1326	280	B 35	B 2	B 63
12/17	41.4	40.3	49.4	50.2	49.3	49.1	40.9	1326	282	B 60	B 2	B 38
12/18	40.9	39.9	48.9	49.5	48.3	48.1	36.8	1327	283	B 15	B 2	B 83
12/19	41.2	40.2	48.7	49.4	48.6	48.4	41.9	1333	284	B 14	B 3	B 83
12/20	41.7	40.8	48.5	49.3	48.7	48.7	44.2	1326	286	B 29	B 3	B 68
12/21	42.1	41.1	48.2	49.0	48.2	48.2	41.5	1328	286	B 46	B 3	B 52
12/22	42.7	41.8	48.1	49.0	48.4	48.4	44.1	1321	288	B 39	B 2	B 59
12/23	43.5	41.9	48.0	48.9	48.6	48.7	45.7	1325	290	B 65	B 1	B 34
12/24	43.6	41.7	47.8	48.8	48.2	48.3	44.7	1328	292	B 38	B 1	B 61
12/25	43.7	42.1	47.6	48.7	48.1	48.2	42.8	1332	293	B 59	B 1	B 40
12/26	44.0	42.7	47.4	48.8	48.3	48.4	45.3	1278	293	B 27	B 1	B 71
12/27	45.3	45.1	47.8	48.9	49.0	49.4	51.3	1280	293	B 65	B 2	B 32
12/28	46.1	44.5	48.0	48.9	48.5	48.7	46.3	1284	328	B 30	B 2	B 68
12/29	45.2	43.2	47.6	49.1	48.7	49.1	49.0	3151	335	B 26	B 37	B 36
12/30	46.3	46.8	47.5	48.7	48.5	48.9	54.2	9379	362	B 33	B 33	B 34
12/31	46.8	49.0	48.2	49.9	49.5	49.7	53.9	10182	559	B 30	B 35	B 35
DEC	43.9	43.1	49.9	50.8	50.2	50.1	45.5	288	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)	Storage (TAF)	USP/LP Unit 1	USP/LP Unit 2	USP/LP Unit 3
N/A	N/A	N/A	N/A	N/A	N/A	Total	AF	118571	N/A	N/A	N/A	N/A
01/01	46.6	47.7	48.4	49.5	49.3	49.7	51.4	13767	614	B 33	B 35	B 32
01/02	45.3	44.8	48.1	48.9	48.3	48.5	43.0	24723	597	B 33	B 34	B 33
01/03	44.8	44.7	48.2	49.0	48.5	48.7	44.5	24894	569	B 33	B 34	B 34
01/04	45.4	43.8	47.9	48.9	48.5	48.7	52.2	24794	538	B 33	B 33	B 33
01/05	46.8	46.1	48.0	48.8	48.5	N/A	52.5	24871	521	B 33	B 34	B 33
01/06	47.2	46.3	48.0	48.8	48.4	N/A	51.8	24972	501	B 33	B 33	B 33
01/07	47.0	45.2	47.8	48.5	48.1	N/A	53.0	29301	462	B 32	B 34	B 34
01/08	47.4	45.2	47.9	48.6	48.2	N/A	54.3	30638	422	B 33	B 33	B 34
01/09	48.2	47.5	48.1	48.9	48.5	49.4	54.5	25052	413	B 33	B 34	B 34
01/10	47.4	47.7	48.1	48.8	48.4	N/A	51.6	22545	409	B 34	B 33	B 33
01/11	46.6	47.0	48.1	48.8	48.4	49.1	52.0	18273	408	B 33	B 33	B 34
01/12	47.5	47.0	48.1	49.0	48.6	49.5	57.7	14543	413	B 33	B 33	B 34
01/13	48.2	46.8	48.0	48.8	48.4	49.3	56.2	12160	420	B 33	B 33	B 34
01/14	48.0	48.6	48.0	49.1	48.7	49.6	53.3	10477	463	B 33	B 33	B 34
01/15	47.4	48.1	47.9	48.9	N/A	49.4	48.6	9942	502	B 33	B 33	B 34
01/16	47.1	46.8	48.0	48.6	N/A	49.1	48.7	9990	524	B 33	B 33	B 34
01/17	46.3	46.1	48.0	48.7	48.2	49.1	45.0	9939	536	B 33	B 34	B 34
JAN	46.9	46.4	48.0	48.9	48.5	49.2	51.2	489	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	Total	AF	656289	N/A	N/A	N/A	N/A

Legend:

12/01 NFA 44.3: 1-9 hours of data missing
12/02 NFA 44.6: 1-9 hours of data missing
12/03 NFA 44.5: 1-9 hours of data missing
12/04 NFA 46.3: 1-9 hours of data missing
12/05 NFA 46.7: 1-9 hours of data missing
12/06 NFA N/A: 1-9 hours of data missing
12/07 NFA N/A: 1-9 hours of data missing
12/08 NFA N/A: 1-9 hours of data missing
12/09 NFA N/A: 1-9 hours of data missing
12/10 NFA N/A: 1-9 hours of data missing
12/11 NFA N/A: 1-9 hours of data missing
12/12 NFA N/A: 1-9 hours of data missing
01/03 AWB 48.7: 1-9 hours of data missing
01/04 AWB 48.7: 1-9 hours of data missing
01/11 AWB 49.1: 1-9 hours of data missing
12/19 NFA 41.2: 10 or more hours of data missing
12/20 NFA 41.7: 10 or more hours of data missing
12/21 NFA 42.1: 10 or more hours of data missing

01/05 AWB N/A: 10 or more hours of data missing
 01/06 AWB N/A: 10 or more hours of data missing
 01/07 AWB N/A: 10 or more hours of data missing
 01/08 AWB N/A: 10 or more hours of data missing
 01/10 AWB N/A: 10 or more hours of data missing
 01/15 AWP N/A: 10 or more hours of data missing
 11/16 AWP N/A: 10 or more hours of data missing

= Station out of service (none)

Dec/Jan: Monthly Averages

A = All Shutters Lowered

T = Top Shutter Raised

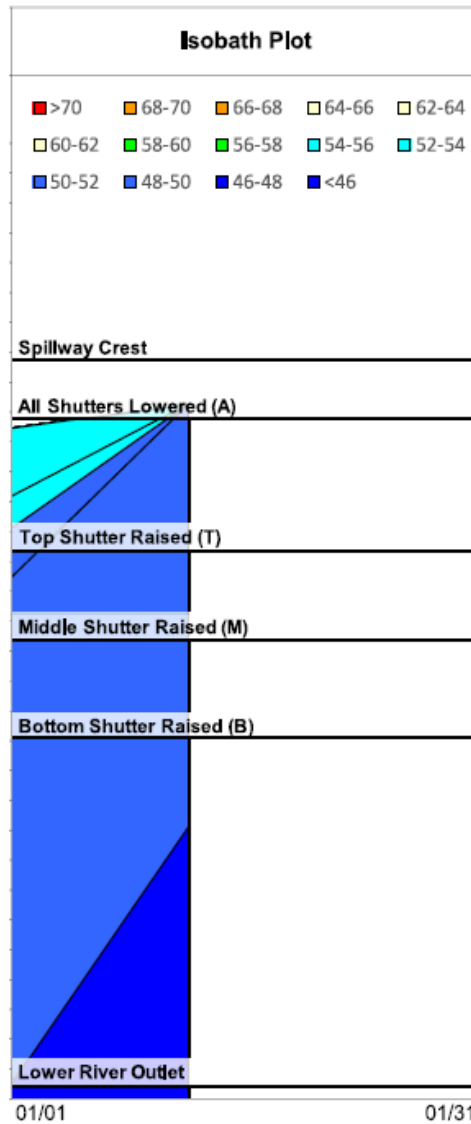
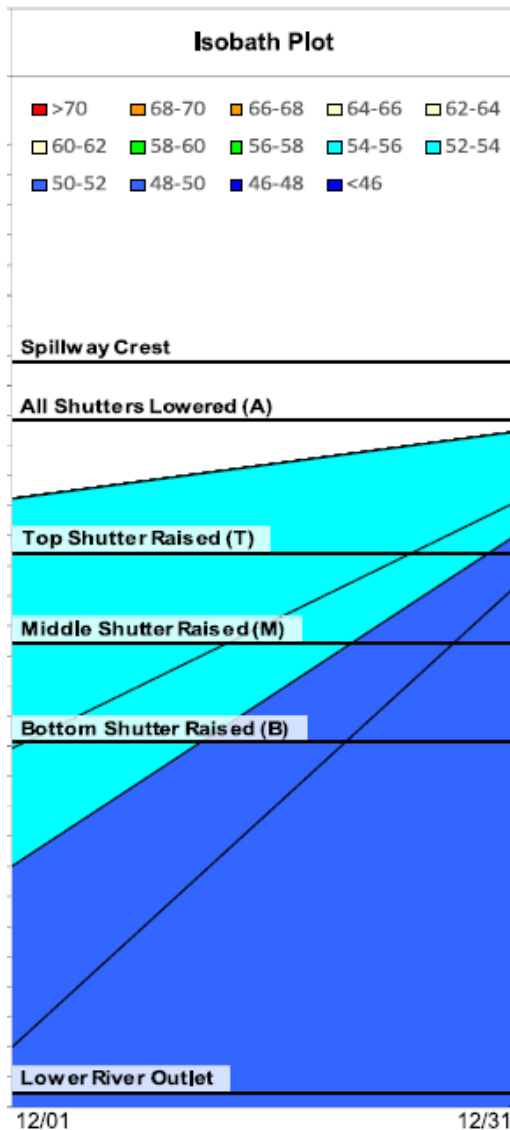
M = Middle Shutter Raised

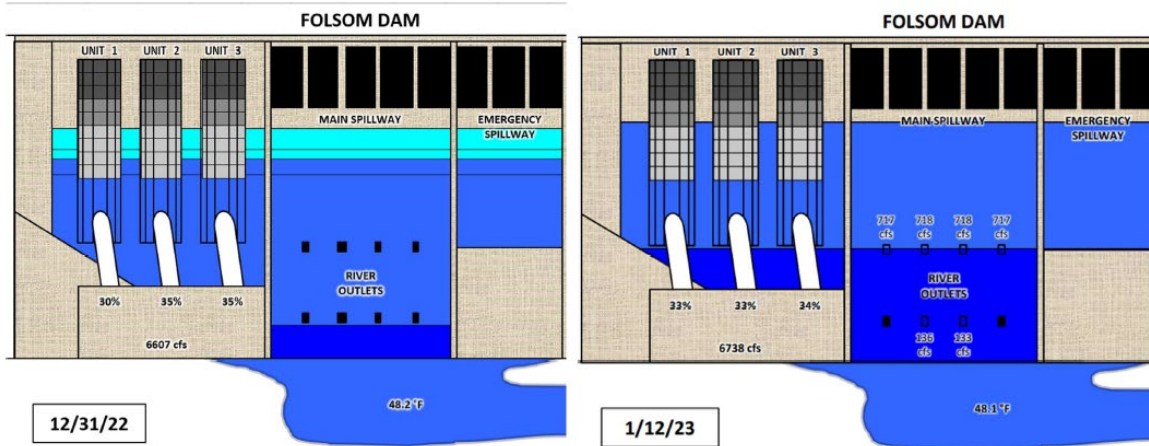
B = Bottom Shutter Raised

O = Unit Outage

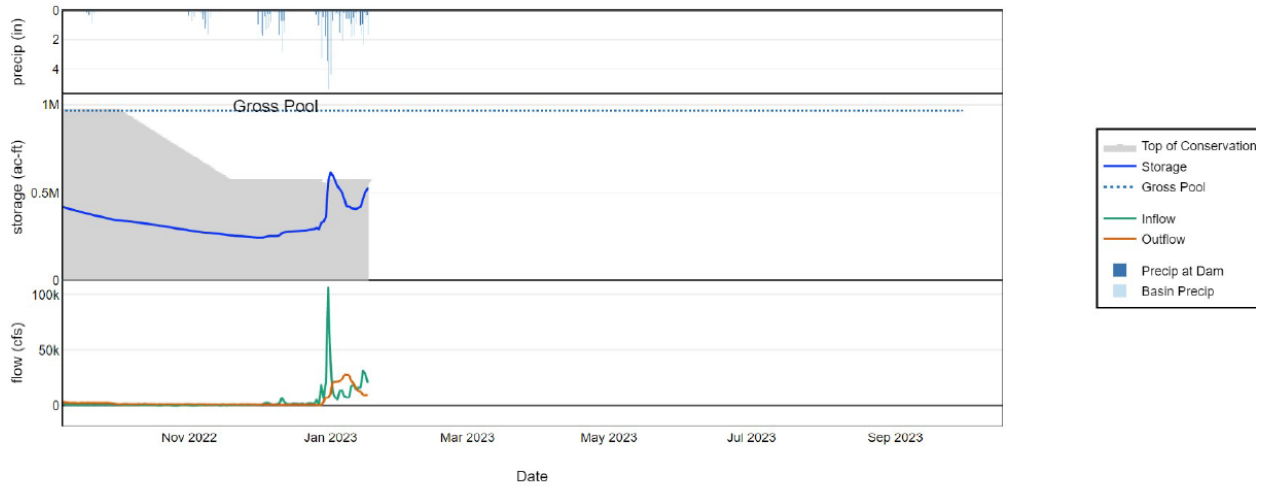
Notes:

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





Folsom Dam & Lake - American River Basin
2023-01-17T18:06:12-0800

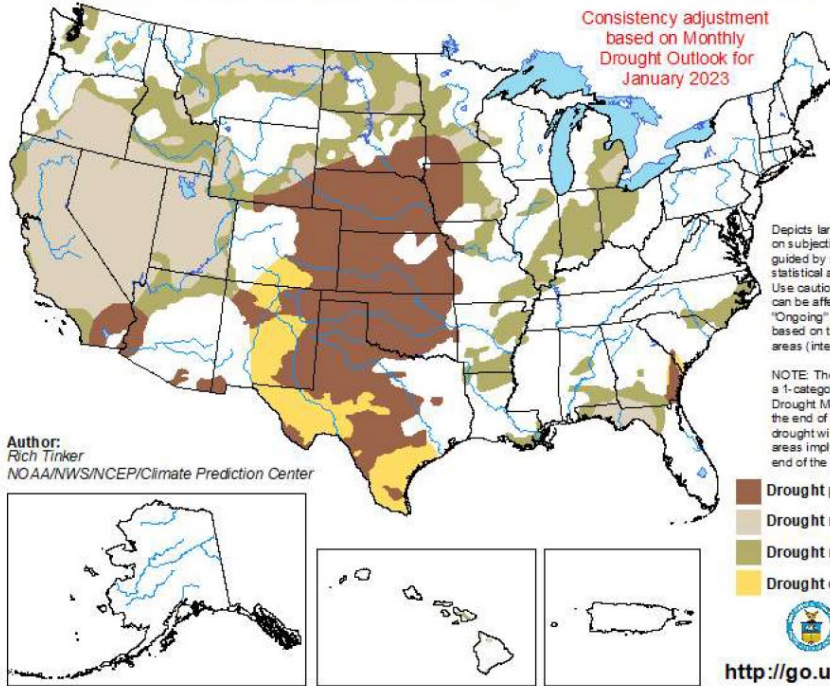


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for January 1 - March 31, 2023
Released December 31, 2022

Consistency adjustment
based on Monthly
Drought Outlook for
January 2023



Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

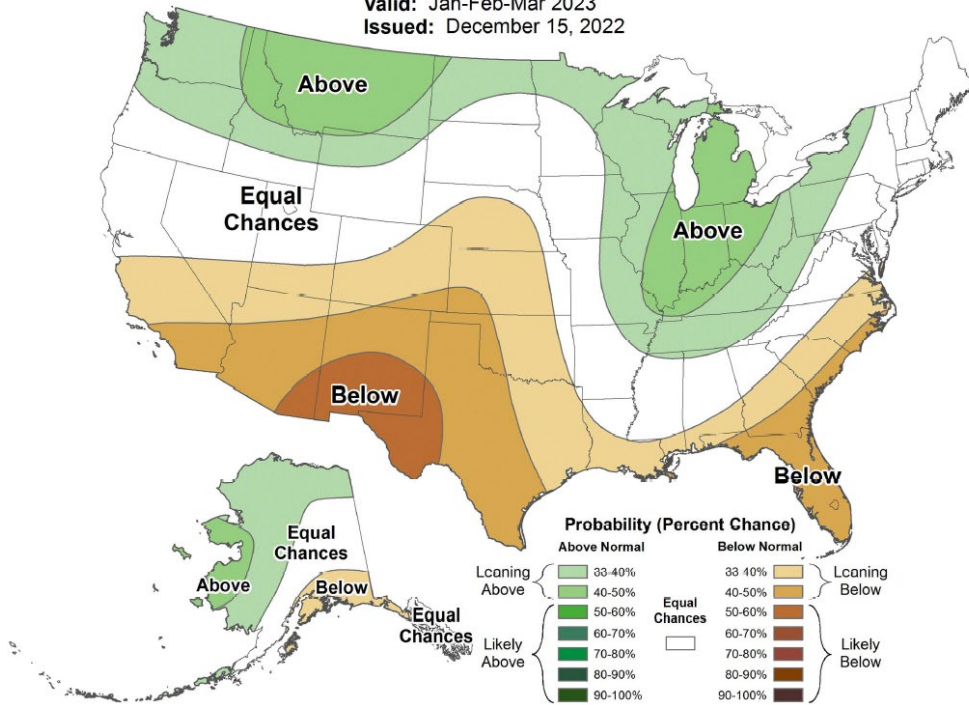

<http://go.usa.gov/3e273>



Seasonal Precipitation Outlook



Valid: Jan-Feb-Mar 2023
Issued: December 15, 2022



Probability (Percent Chance)

Above Normal		Below Normal	
33-40%	Lightening Above	33-40%	Lightening Below
40-50%		40-50%	
50-60%		50-60%	
60-70%		60-70%	
70-80%	Likely Above	70-80%	Likely Below
80-90%		80-90%	
90-100%		90-100%	
Equal Chances		Equal Chances	

American River Summary Conditions – January (On-going)

Releases are currently at 10,000 cfs

- November 9, 2022, from 1,400 cfs to 1,300 cfs
- December 29, 2022, from 1,300 cfs to 8,000 cfs
- December 30, 2022 from 8,000 cfs to 10,000 cfs
- January 1, 2023, from 10,000 cfs to 25,000 cfs
- January 7, 2023, from 25,000 cfs to 35,000 cfs
- January 8, 2023, from 35,000 cfs to 25,000 cfs
- January 10, 2023, from 25,000 cfs to 20,000 cfs
- January 11, 2023, from 20,000 cfs to 16,000 cfs
- January 12, 2023, from 16,000 cfs to 13,000 cfs
- January 13, 2023, from 13,000 cfs to 11,000 cfs
- January 14, 2023, from 11,000 cfs to 10,000 cfs

Temperature Management:

- Top Shutters: Units 1, 2, and 3 -- raised
- Middle Shutters: Units 1, 2, and 3 -- raised
- Bottom Shutters: Units 1, 2, and 3 -- raised

Folsom Shutter Configuration and Changes:

Scheduled to lower the bottoms and middle Shutters in late January to early February

American River 90% Outlook:

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

Reservoir	Jan	Feb	Mar	Apr	May
Folsom Storage	552	563	749	863	949
Folsom Elevation	423	424	444	456	469

January – Monthly River Releases (TAF/cfs)

Reservoir	Jan	Feb	Mar	Apr	May
American TAF	799	250	184	208	246
American cfs	13000	4500	3000	35000	4000

American River Base Flow Table

Month	Index used for Index- based MMR	Index-Base MMR	RDPB- based MRR for fall run Chinook Salmon (applicable in June & Feb)	RDPB- based MMR for steelhead (applicable Feb & May)	Controlling MMR	Actual average monthly Nimbus release ¹
Oct	May ARI ² (50% exceedance)	1,326 cfs	N/A	N/A	1,326 cfs	1,462 cfs
Nov	May ARI ² (50% exceedance)	1,326 cfs	N/A	N/A	1,326 cfs	1,352 cfs
Dec	May ARI ² (50% exceedance)	1,326 cfs	N/A	N/A	1,326 cfs	1,928 cfs
Jan	January SRI (75% exceedance)	1,750 cfs	515 cfs	N/A	1,750 cfs	3,787 cfs

Legend

MMR = Minimum Release Requirement

RDPA = Redd Dewatering Protective Adjustment

ARI = American River Index

SRI = Sacramento River Index

¹ Average of daily releases 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

³ Due to the critical CVP system wide ops, MRR 90% exceedance was considered and implemented.