



— 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, February 16th, 2023

Agenda

1. Introductions
2. Announcements
3. Housekeeping
 - a. Meeting will be recorded for notetaking purposes
4. Fisheries Update
 - a. CDFW
 - b. CFS
 - c. PSMFC
5. Operations Forecast
 - a. SMUD
 - b. PCWA
6. Central Valley Operations
7. Discussion
8. Next Meetings:
 - a. Thursday, March 16th, 1:30-3:30pm

Provisional Data Subject to Revision

NIMBUS FISH HATCHERY

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

- Steelhead spawning began 12/20/2022
- 1,326,600 steelhead eggs collected thus far

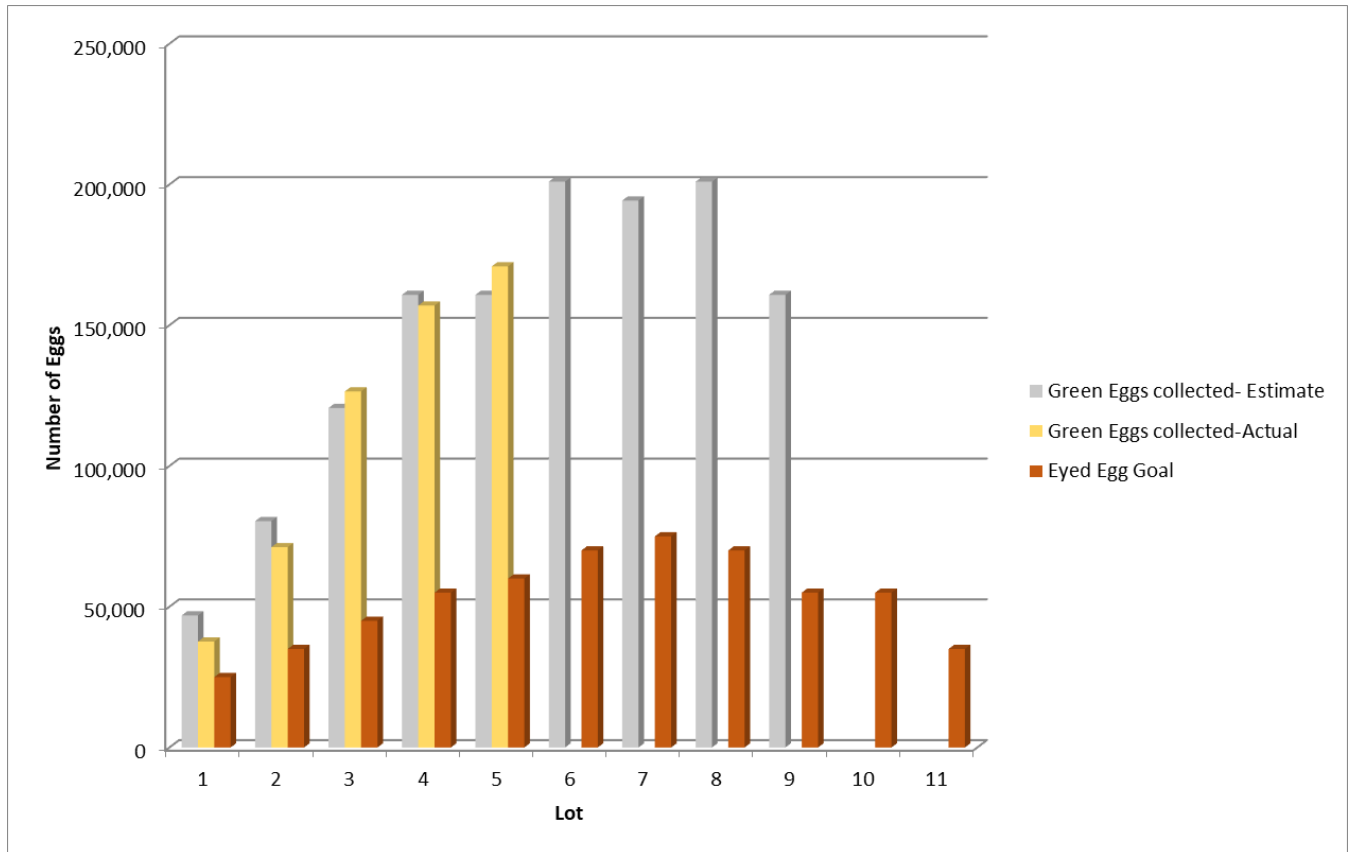


Figure 1. Steelhead trout egg collection goals and eggs collected per spawning at Nimbus Fish Hatchery



LOWER AMERICAN RIVER 2023 STEELHEAD SPAWNING AND STRANDING SURVEY SUMMARY

Spawning

Table 1. Steelhead, Chinook salmon, unknown, and test redd counts during 2023 spawning surveys.

Dates	Steelhead	Chinook	Unknown ¹	Test	Total
Feb 8-10	7	0	2	0	9

¹ Redd(s) not measured due to angler presence and/or undefined redd features, therefore species not classified using DFA

Spawning surveys are occurring next week (22-24 Feb).

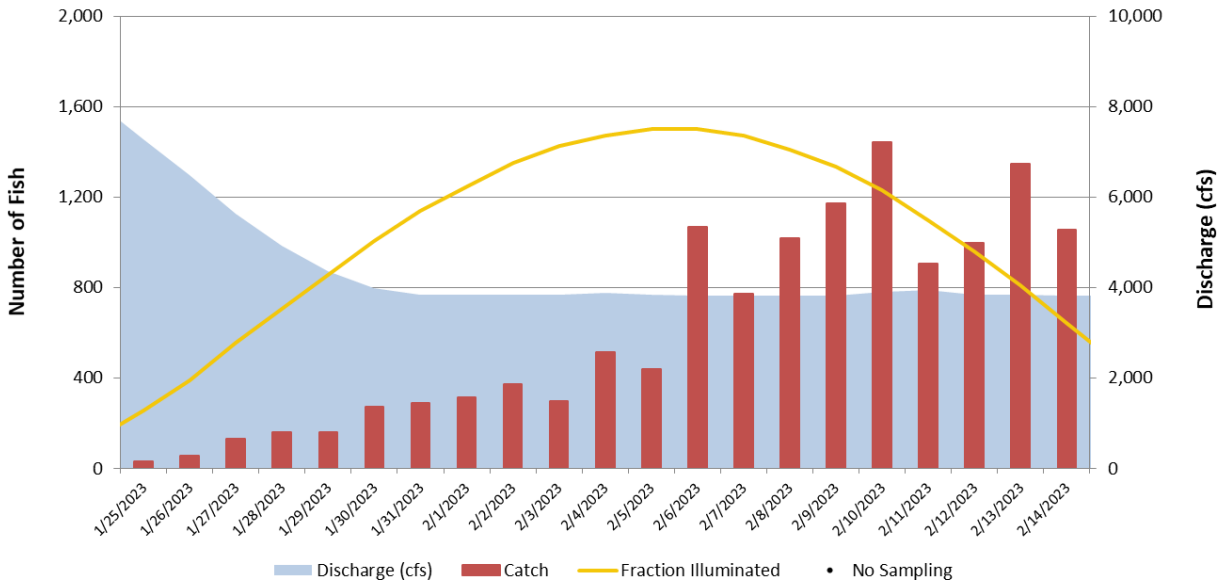
UPDATED 2/14/23

UNMARKED JUVENILE CHINOOK SALMON (LENGTH-AT-DATE): Unmarked Juvenile Chinook Salmon (length-at-date):

Fall	Late Fall	Spring	Winter
12, 778	0	11	15

Lower American River at Watt Ave (RSTs):

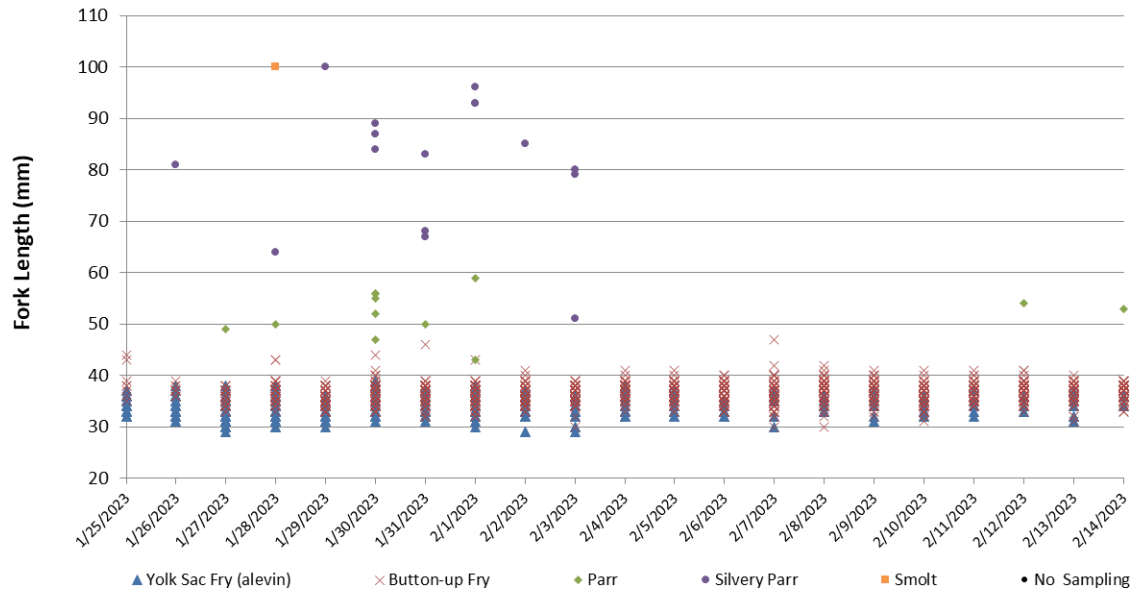
Daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2023 Lower American River rotary screw trap survey season.



Lower American River at Watt Ave (RSTs) – Daily catch of unmarked Chinook Salmon and daily average discharge at Fair Oaks during the 2023 Lower American River rotary screw trap survey season

Lower American River at Watt Ave (RSTs):

Daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2023 Lower American River rotary screw trap survey season.



Lower American River at Watt Ave (RSTs) – Daily fork length distribution by life stage of unmarked Chinook Salmon measured during the 2023 Lower American River rotary screw trap survey season.

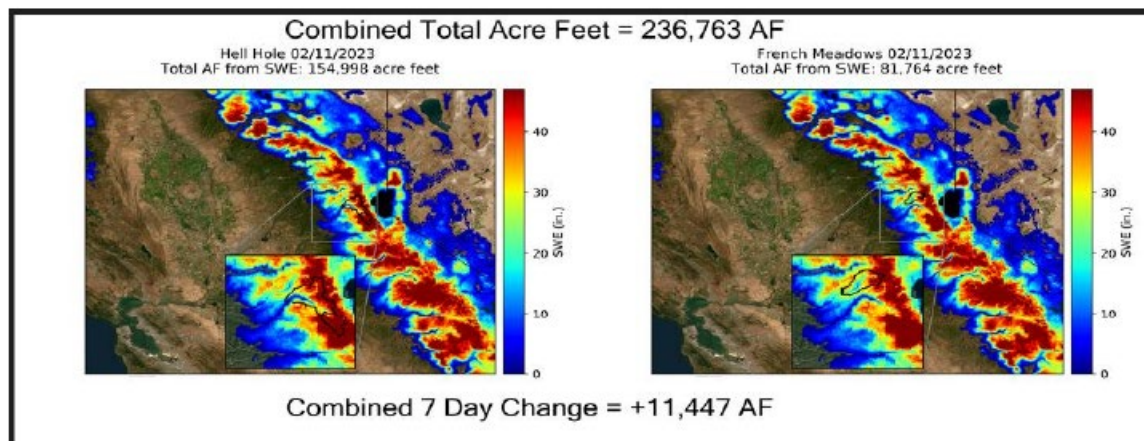
Lower American River RST CalFish Webpage:

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

PCWA MFP OPERATIONS OVERVIEW for American River Operations Group

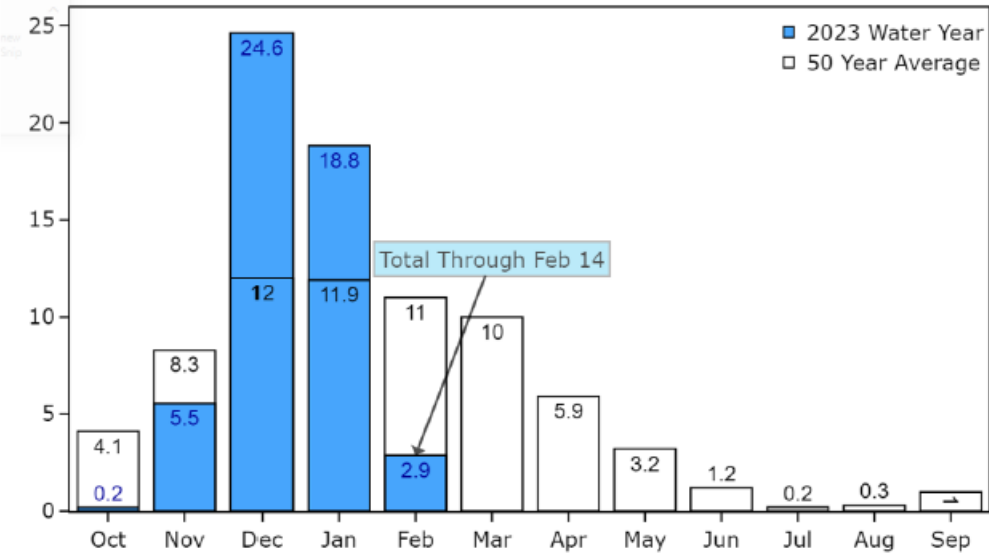
(Real Time Data as of February 15, 2023)

- French Meadows Storage = 97,000 AF of 136,405 AF = 71% Capacity
 - MFAR above FM Inflow (R24) = 7-day AVG ~85 cfs
- Hell Hole Storage = 147,000 AF of 207,590 AF = 70% Capacity
 - Five Lakes Inflow (R23) = 7-day AVG ~47 cfs
 - Rubicon Inflow (R22) = 7-day AVG ~85 cfs
- Combined Storage (FM+HH) = 245,000 AF/342,590 AF = 72% Capacity; 145% of AVG YTD
 - 7 Day Change = -10,000 AF
- MFAR @_R11: 7-day AVG 2,150
- NFAR @ ARPS: 7-day AVG 2,850 cfs

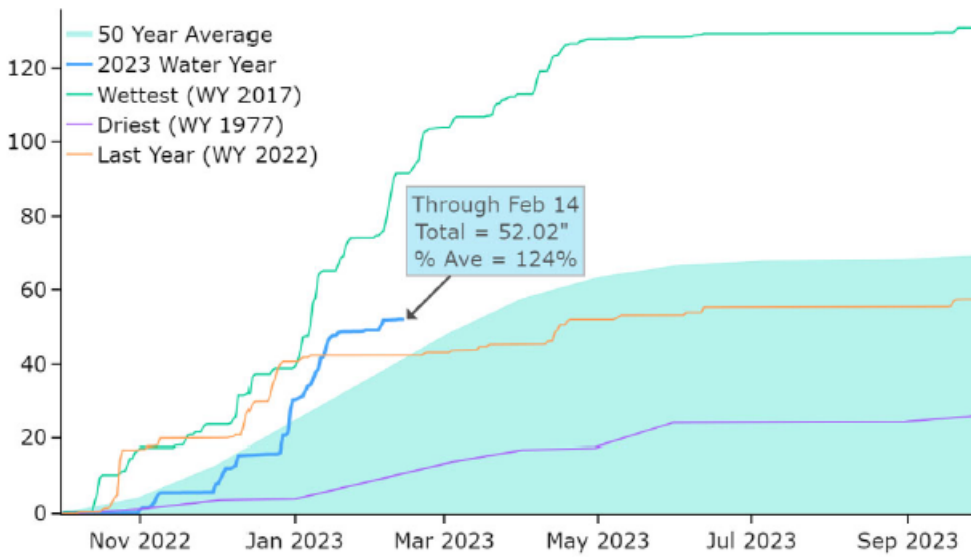


Maps showing Hell Hole 02/11/2023 and French Meadows 02/11/2023; Combined Total Acre-Feet = 236,753 AF, Combined 7-Day Change = 11, 447 AF.

Lake Spaulding Precipitation: Water Year 2023



Lake Spaulding Precipitation: Water Year 2023



Lake Spaulding Precipitation: Water Year 2023 – Total through Feb 14 are 2.9 with a 50-Year average of 11

Reservoir Releases in Cubic Feet/Second

Reservoir	Dam	WY 2022	WY 2023	15 Yr Median
Trinity	Lewiston	311	295	306
Sacramento	Keswick	3,284	3,297	3,307
Feather	Oroville (SWP)	3,500	950	1,750
American	Nimbus	2,007	4,011	2,007
Stanislaus	Goodwin	903	202	353
San Joaquin	Friant	387	0	387

Storage in Major Reservoirs in Thousands of Acre-Feet

Reservoir	Capacity	15 Yr Avg	WY 2022	WY 2023	% of 15 Yr Avg
Trinity	2,448	1,397	778	788	56
Shasta	4,552	2,827	1,664	2,659	94
Folsom	977	475	532	520	109
New Melones	2,420	1,369	984	1,045	76
Fed. San Luis	966	606	332	596	98
Total North CVP	11,363	6,673	4,290	5,608	84
Millerton	521	289	269	0	0
Oroville (SWP)	3,538	1,931	1,650	2,443	127

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

Reservoir	Current WY 2023	WY 1977	WY 1983	15 Yr Avg	% of 15 Yr Avg
Trinity	317	171	786	304	104
Shasta	1,874	1,300	3,632	1,788	105
Folsom	1,408	493	1,948	838	168
New Melones	522	N/A	451	295	177
Millerton	544	313	446	300	181

Accumulated Precipitation for Water Year to Date in Inches

Reservoir	Current WY 2023	WY 1977	WY 1983	Average (N Years)	% of Average	Last 24 Hours
Trinity at Fish Hatchery	23.88	12.18	29.33	19.67 (63)	121	0.00
Sacramento at Shasta Dam	35.73	15.23	54.69	36.52 (68)	98	0.00
American at Blue Canyon	52.33	N/A	70.94	38.79 (49)	135	0.00

Reservoir	Current WY 2023	WY 1977	WY 1983	Average (N Years)	% of Average	Last 24 Hours
Stanislaus at New Melones	30.30	N/A	20.48	16.23 (46)	187	0.00
San Joaquin at Huntington Lk	34.08	11.50	33.40	23.20 (50)	147	0.00

February 2023 | Folsom Lake Daily Operations | Run Date: 2/15/2023

Day	Elev	Storage (1000 Acre-Feet) in Lake	Storage (1000 Acre-Feet) Change	Computed* 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
		500.5									
1	416.58	500.4	-0.1	4,038	4,009	0	0	56	13	0.05	0.00
2	416.57	500.3	-0.1	3,988	3,956	7	0	52	13	0.05	0.00
3	416.47	499.5	-0.8	3,800	4,144	0	0	51	5	0.02	0.01
4	416.27	498.0	-1.6	3,542	4,282	0	0	60	0	0.00	0.43
5	416.54	500.1	2.1	5,260	4,120	0	0	58	3	0.01	0.03
6	417.06	504.2	4.1	5,868	3,703	0	0	63	21	0.08	0.00
7	417.24	505.7	1.4	4,838	4,038	0	0	58	16	0.06	0.00
8	417.43	507.2	1.5	4,838	4,008	0	0	47	16	0.06	0.00
9	417.71	509.4	2.2	5,417	4,222	0	0	49	16	0.06	0.00
10	417.93	511.2	1.8	5,270	4,298	0	0	57	27	0.10	0.00
11	418.26	513.9	2.7	5,561	4,138	0	0	59	22	0.08	0.00
12	418.51	515.9	2.0	5,273	4,166	0	0	62	27	0.10	0.00
13	418.78	518.1	2.2	5,236	4,038	3	0	62	33	0.12	0.00
14	419.07	520.4	2.3	5,279	3,985	10	0	59	41	0.15	0.00
Totals			19.7	68,208	57,107	20	0	793	253	0.94	0.47
Acre-Feet			19,700	138,291	113,272	40	0	1,573	502		

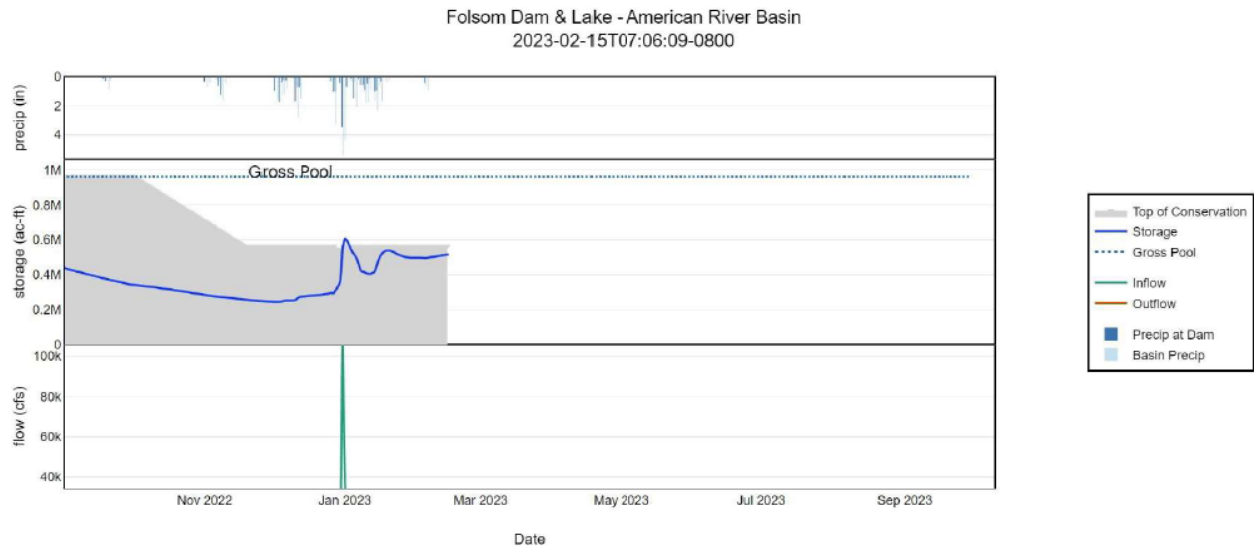
* Computed inflow is the sum of change in storage, releases, pumping, and evaporation

Summary: Release (acre-feet)

Power	113,272
Spill	40
Outlet	0
Pumping Plant	1,573
Total Releases	114,884

Summary: Precipitation (Month/Inches)

This month	0.47
October 1, 2022 to date	23.19



Folsom Dam & Lake – American River Basin
2023-02-15T07:06:09-0800

Isobath 01/1–01/31 (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	43.9	43.1	49.9	50.8	50.2	50.1	45.5	288				
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	!	52.5	24871	521	B 33	B 34	B 33
01/06	47.2	46.3	48.0	48.8	48.4	!	51.8	24972	501	B 33	B 33	B 33
01/07	47.0	45.2	47.8	48.5	48.1	!	53.0	29301	462	B 32	B 34	B 34
01/08	47.4	45.2	47.9	48.6	48.2	!	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	!	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	!	49.4	48.6	9942	502	B 33	B 33	B 34
01/16	47.1	46.8	48.0	48.6	!	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
01/18	45.8	44.4	48.0	48.6	48.1	48.8	45.8	9997	541	B 33	B 33	B 33
01/19	45.8	44.6	47.8	48.5	48.1	47.9	46.5	10020	542	B 33	B 33	B 34
01/20	44.7	42.7	47.6	48.2	47.6	!	44.1	9954	539	B 34	B 32	B 35
01/21	43.8	42.1	47.4	48.0	47.5	!	42.9	9986	534	B 33	B 33	B 34
01/22	43.6	41.8	47.2	47.7	47.3	!	45.8	10045	527	B 33	B 33	B 34
01/23	43.2	41.3	47.2	47.7	47.1	!	49.2	9440	520	B 33	B 33	B 34
01/24	42.8	41.0	46.8	47.6	47.1	48.0	45.7	8086	515	B 34	B 34	B 33
01/25	43.2	41.1	46.7	47.3	47.0	47.9	49.0	7374	510	B 33	B 34	B 33
01/26	43.7	!	46.4	47.3	46.9	47.9	49.1	6640	506	B 33	B 33	B 34
01/27	43.9	#	46.2	47.1	46.8	47.0	48.9	5757	503	B 34	B 33	B 33
01/28	43.8	!	45.9	46.9	46.6	46.9	46.8	5060	501	B 32	B 32	B 36
01/29	43.5	40.4	45.7	46.6	46.2	46.4	45.0	4521	500	B 39	B 35	B 27

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
01/30	42.9	40.3	45.7	46.2	45.6	45.7	42.9	4110	501	B 15	B 44	B 41
01/31	41.7	40.0	45.5	46.2	45.6	45.7	42.4	3984	501	B 34	B 34	B 32
Jan	45.5	44.6	47.4	48.2	47.7	48.3	48.8	502				
Total AF								864501				

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

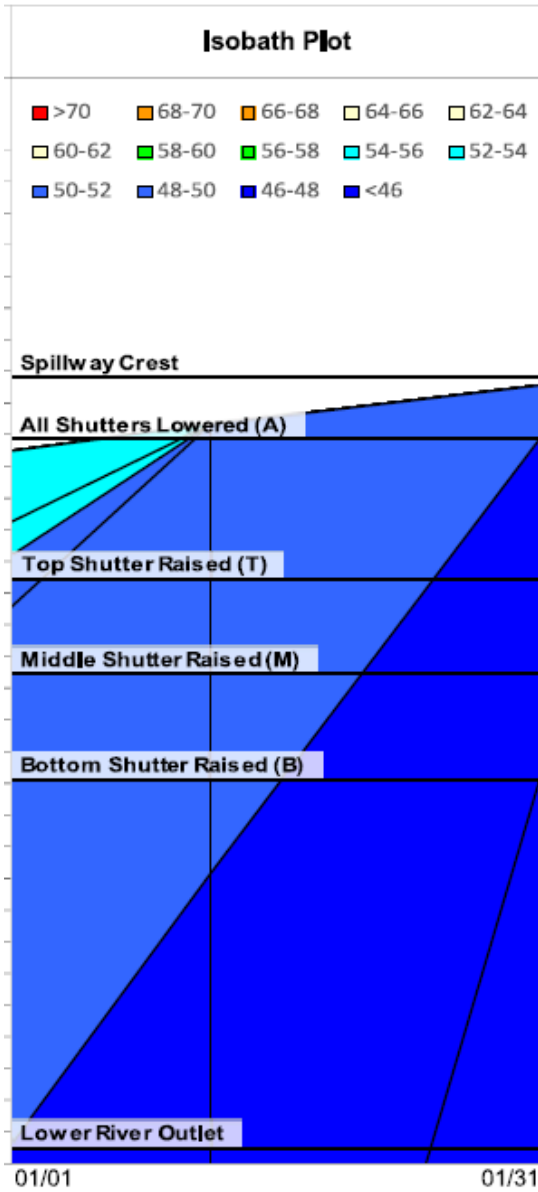
M = Middle Shutter Raised

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 01/01-10/31 (Showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet)

Isobath 12/1–12/13 (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
Jan	45.5	44.6	47.4	48.2	47.7	48.3	48.8	502				
02/01	41.7	40.2?	45.6	46.2	45.8	46.0	43.6	3972	500	B 23	B 41	B 36
02/02	42.0	40.0	45.4	46.3	45.7	45.9	44.6	3962	500	B 16	B 52	B 32
02/03	42.7	40.0	45.3	46.2	45.8	46.2	49.1	4012	500	B 27	B 51	B 22
02/04	43.4	40.2	!	46.1	45.8	46.1	49.3	4066	498	B 47	B 32	B 21
02/05	44.6	42.3	!	46.4	46.3	46.7	50.6?	4065	500	B 0	B 50	B 50
02/06	44.3	41.5	45.2?	46.1	45.8	46.3	47.6	4063	504	B 9	B 49	B 42
02/07	43.5	41.3	45.1	46.1	45.8	46.2	47.7	4063	506	B 0	B 52	B 48
02/08	43.5	41.9	45.0	46.2	46.0	46.4	47.9	4058	507	B 1	B 54	B 45
02/09	43.5	42.2	44.8	46.2	46.1	46.6	50.7	4072	509	B 1	B 48	B 51
02/10	44.0	42.2	44.9	46.1	45.9	46.5	50.6	4019	511	B 1	B 49	B 50
02/11	44.1	41.8	45.0	46.2	45.9	46.4	48.2	4032	514	B 1	B 49	B 49
02/12	43.8	41.8	45.1	46.2	45.9	46.4	52.9	4019	516	B 1	B 50	B 49
02/13	43.9	42.1	45.0	46.4	46.3	46.8	51.8	4017	518	B 1	B 49	B 49
02/14	43.5	42.3	45.1	46.1	45.7	46.1	47.4	4011	520	B 1	B 50	B 49
02/15										B	B	B
02/16										B	B	B
02/17										B	B	B
02/18										B	B	B
02/19										B	B	B
02/20										B	B	B
02/21										B	B	B
02/22										B	B	B
02/23										B	B	B
02/24										B	B	B
02/25										B	B	B
02/26										B	B	B
02/27										B	B	B
02/28										B	B	B
								Total AF	34310			

Legend:

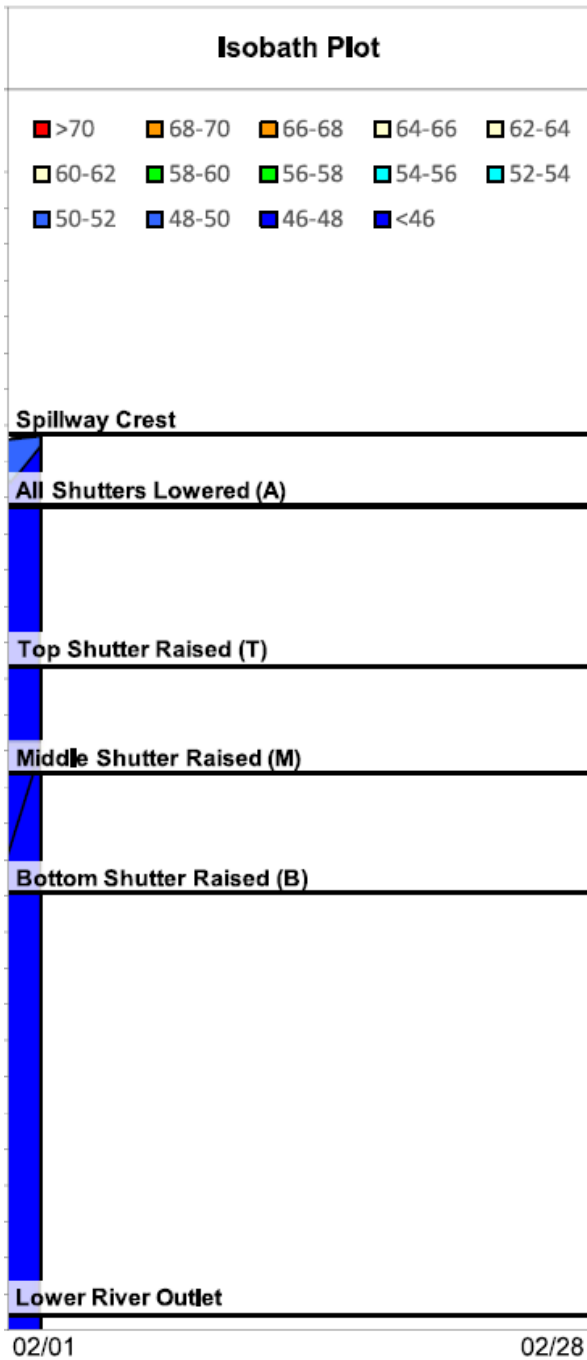
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November Monthly Averages

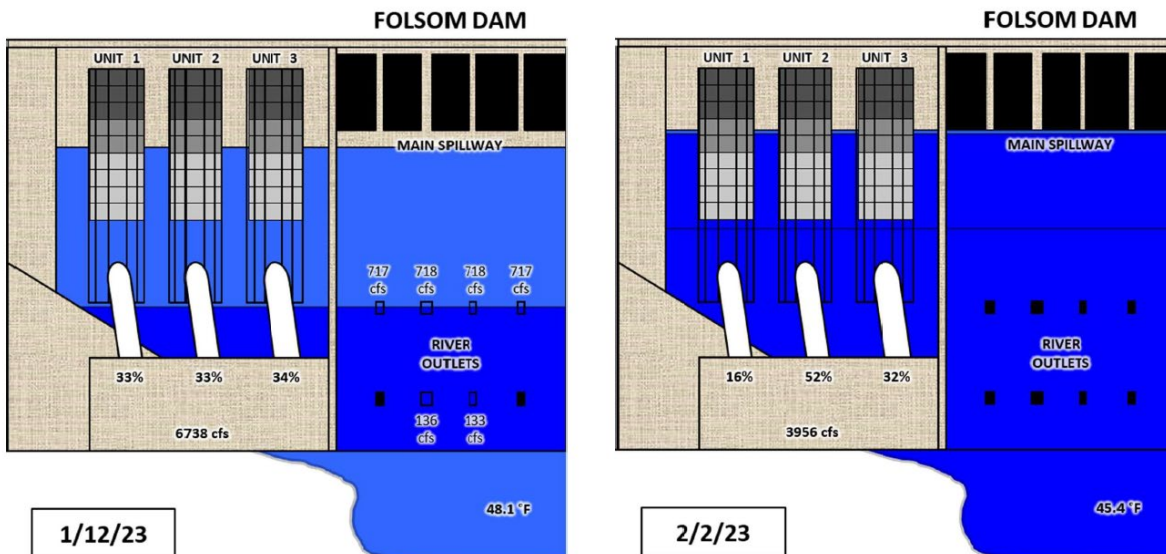
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- O = Unit Outage

Notes:

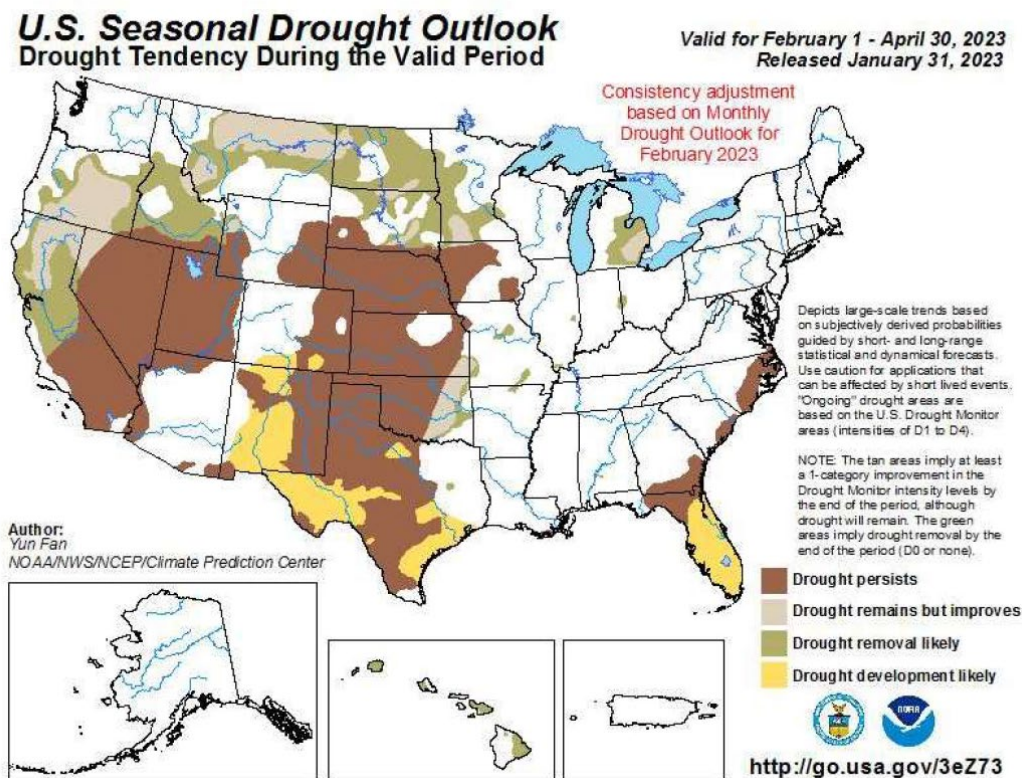
¹ AFD is a weighted average based on hourly flow values, including generation, bypass and spill



Isobath Plot 02/01-02/28. Showing Spillway Crest, All Shutters Lowered (A), Top Shutter Raised (T), Middle Shutter Raised (M), Bottom Shutter Raised (B), and Lower River Outlet



Graphic showing Folsom Dam on 1/12/23 with a temperature of 48.1 °F and 02/02/23 with a temperature of 45.4 °F



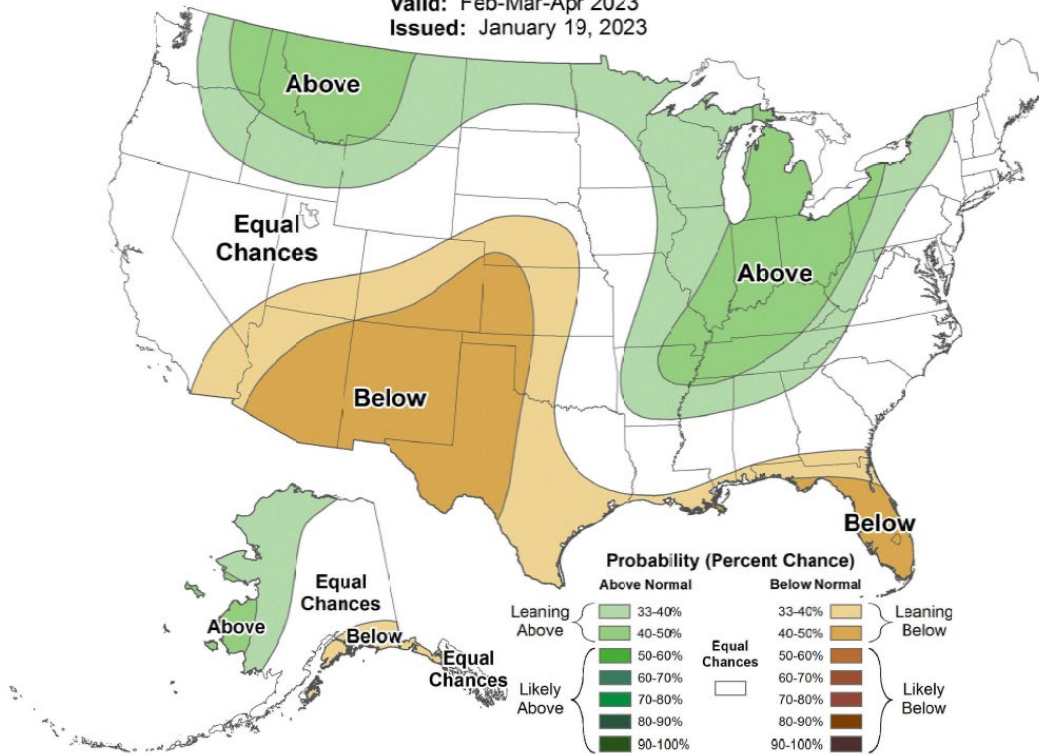
Map – U.S. Seasonal Drought Outlook, Drought Tendency During the Valid Period, Valid for February 1, 2023 – April 30, 2023; Released January 21, 2023



Seasonal Precipitation Outlook



Valid: Feb-Mar-Apr 2023
Issued: January 19, 2023



Map – Seasonal Precipitation Outlook; Valid Feb-Mar-Apr 2023; Issued January 19, 2023

American River Summary Conditions - February (On-going)

Releases are currently at 4,000 cfs

- January 14, 2023, from 11,000 cfs to 10,000 cfs
- January 23, 2023, from 10,000 cfs to 8,500 cfs
- January 24, 2023, from 8,500 cfs to 7,700 cfs
- January 25, 2023, from 7,700 cfs to 7,000 cfs
- January 26, 2023, from 7,000 cfs to 6,100 cfs
- January 27, 2023, from 6,100 cfs to 5,350 cfs
- January 28, 2023, from 5,350 cfs to 4,700 cfs
- January 29, 2023, from 4,700 cfs to 4,400 cfs
- January 30, 2023, from 4,400 cfs to 4,000 cfs

Temperature Management:

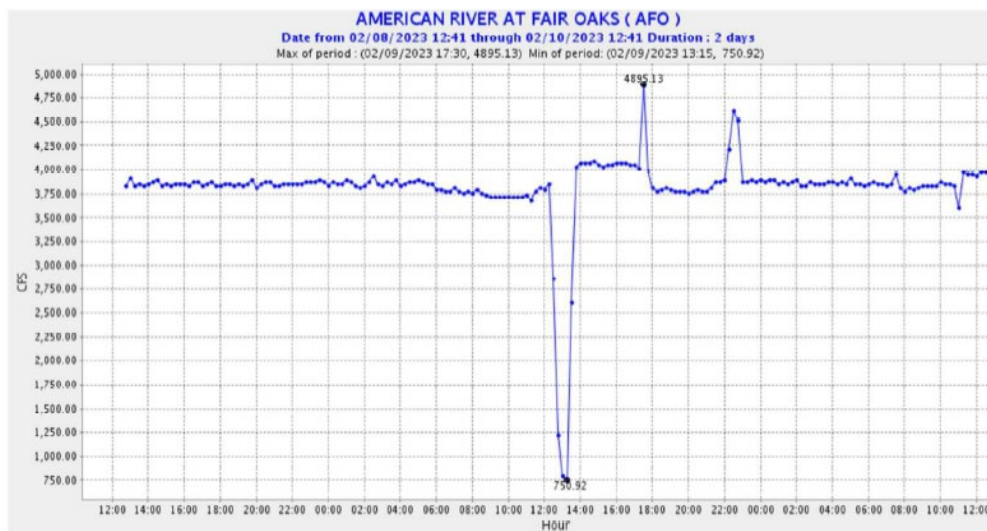
- Top Shutters: Units 1, 2, and 3 -- raised
- Middle Shutters: Units 1, 2, and 3 -- raised
- Bottom Shutters: Units 1, 2, and 3 -- raised

Folsom Shutter Configuration and Changes:

Scheduled to lower the bottoms and middle Shutters today, February 16,2023.

February 9, 2023 incident:

On February 9th the flows into the America River dropped to 750 cfs for a short period of time. The issue began with Debris clearing that day. There were large debris that was causing issues in front of the Nimbus gates. The large debris where from the large multiple storm events earlier in the month. During this process of cleaning the debris, the boom broke and resulted with gate issues. Due to the maintenance work that had to be done to fix the issue, the flows into the American River dropped to 750 cfs for approximately one hour before flows began to ramp back up to 4,000 cfs.



American River 90% Outlook:
January 90% Exceedance

Storages

Federal End of the Month Storage/Elevation

Facility	Jan	Feb	Mar	Apr	May
Folsom Storage	552	563	749	863	949
Folsom Elevation	423	424	444	456	463

Monthly River Release (TAF/cfs)

Facility	Jan	Feb	Mar	Apr	May
American TAF	799	250	184	208	246
Folsom Elevation	13000	4500	3000	3500	4000

February 90% Exceedance

Storages

Federal End of the Month Storage/Elevation

Facility	Feb	Mar	Apr	May	Jun	Jul	Aug
Folsom Storage	539	746	889	941	859	666	562
Folsom Elevation	421	444	458	463	455	436	424

Monthly River Release (TAF/cfs)

Facility	Feb	Mar	Apr	May	Jun	Jul	Aug
American TAF	222	154	178	277	239	292	193
Folsom Elevation	4000	2500	3000	4500	4020	4742	3142

American River Base Flow Table

Month	Index used for Index-based MRR	Index - base MRR	RDPA-based MRR for fall-run Chinook Salmon (applicable in Jan & Feb)	RDPA-based MRR for steelhead (applicable Feb to May)	Controlling MRR	Actual average monthly releases ¹
Oct	May ARI2 (50% exceedance)	1,326 cfs	Not applicable	Not applicable	1,326 cfs	1,462 cfs
Nov	May ARI2 (50% exceedance)	1,326 cfs	Not applicable	Nat applicable	1,326 cfs	1,352 cfs
Dec	May ARI2 (50% exceedance)	1,326 cfs	Not applicable	Nat applicable	1,326 cfs	1,928 cfs
Jan	January SRI (75% exceedance)	1,750 cfs	1,326 cfs	Not applicable	1,750 cfs	14,060 cfs
Feb	February ARI (50% exceedance)	1,750 cfs	1,750 cfs	1,750 cfs	1,750 cfs	

MRR = 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 unless

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