



— BUREAU OF —
RECLAMATION

American River Group

1:30 PM – 3:30 PM

Conference Line: 1.415.594.5500 Access Code: 490-125-520#

WebEx: <https://join.me/kearnswest>

Thursday, April 15, 2020

Agenda

1. Introductions
2. Presentation: Lower American River drought water management and flow reduction monitoring (Kirsten Sellheim, CFS)
3. Fisheries Update
 - a. CDFW
 - b. CFS
 - c. PSMFC
4. Operations Forecast
 - a. SMUD
 - b. PCWA
 - c. Central Valley Operations
5. Central Valley Operations
 - a. Temperature Management
 - b. Exceedance Forecast
6. Discussion
 - a. Proposed Pulse Flows
7. Next Meeting: Thursday, May 21, 2020, 1:30-3:30pm

California Department of Fish and Wildlife



North Central Region

For questions, contact Jeanine Phillips, Jeanine.phillips@wildlife.ca.gov, or 916.215.2152

Nimbus Hatchery Chinook Releases

Group 1 experimental release:

<u>Date</u>	<u>Location</u>	<u>CWT Code or mark</u>	<u>Fish/lb.</u>	<u>Fork length (mm)</u>	<u>With Mark</u>	<u>Total Fish</u>
3/30/2020	Sunrise Boat Ramp	Ad Clip 06/20/57	110	79	200,000	200,000

Group 2 proposed release:

May 5, 2020 San Pablo Bay Net Pens
~ 2 million salmon, 25% marked

Group 3 proposed release:

May 2020 American River
~ 1.6 million, 25% marked

All salmon are healthy and growing quickly.

Lower American River 2020 Steelhead Spawning Survey Summary

Spawning

Steelhead, Chinook salmon, Lamprey, unknown, and test redd counts during 2020 spawning surveys.

Dates	Steelhead	Chinook	Lamprey	Unknown	Test	Total
Jan 8-10	8	2	0	1	0	11
Jan 21-23	12	1	0	0	1	14
Feb 4-6	24	1	0	0	0	25
Feb 18-20	3	0	0	0	0	3
Mar 3-5	5	0	0	0	0	0
Mar 16-18	0	0	2	1	0	3
Mar 31-Apr 2	0	0	7	0	0	7

**Italics indicate that this is draft information; these data have not been post-processed.*

- Spawning surveys occurred this week (April 14-16). We anticipate this will be the final spawning survey unless we observe steelhead spawning.

Stranding

Isolated pool data for 2020 standing surveys.

Survey data

Data from stranding surveys conducted 3/16-3/18. Fish counts included here are estimates from a combination of seining, dip-netting, and visual observation.

Location	Species		Total Pool Area (m ²)	Density (# fish/m ²)	Average Temperature (°C)	Average DO (mg/L)	Average Turbidity (NTU)
	Chinook	Steelhead					
Upper Sunrise, Above Side Channel (21)	~4,763	18	48.5	98.6	10.3	10.3	1.0
Lower Sunrise side channel (19)	20	0	4.1	4.9	11.3	6.8	0.5
Lower Riverbend side channel, Arden Rapids (13)*	present	unknown	56.8	NA	9.7	10.6	7.3
Below Riverbend side channel (14)**	2	0	0.7	2.8	12.4	9.41	18.0
TOTAL	~4,785	18	110.1				

* denotes pool label as "Lower Riverbend Side Channel 1" during the fish rescue event

** this pool was very small (~1m²) and no fish were observed during subsequent water quality check.

Rescue data

Data from water quality check in stranded areas on 3/25 and fish rescue event on 3/26. Fish were rescued from four stranding pools, three identified during the surveys on 3/16-3/18 and an additional pool located at Arden Rapids/Riverbend which had disconnected since the stranding survey.

Date	Stranding Pool	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
25 March	Upper Sunrise Above Side Channel	17.2	9.8	1.4
	Lower Sunrise Side Channel	14.8	6.6	0.3
	Lower Riverbend Side Channel, Arden Rapids 1	14.4	10.7	6.9
	Below Riverbend Side Channel*	17.1	11.0	2.0
26 March	Upper Sunrise Above Side Channel	12.6	9.6	--
	Lower Sunrise Side Channel	17.6	8.8	--
	Lower Riverbend Side Channel 1	14.8	10.6	--
	Lower Riverbend Side Channel 2**	18.4	11.8	--

* Very small pool; did not contain salmonids.

** Pool had shallow connection to main channel during initial stranding survey but was disconnected on 26 March when the rescue was conducted.

Species	Upper Sunrise Above Side Channel	Lower Sunrise Side Channel	Lower Riverbend Side Channel 1	Lower Riverbend Side Channel 2	Total
Chinook Salmon	3574	201	508	2117	6400
<i>O. mykiss</i>	23	3	5	0	31
Cyprinid	104	110	615	1055	1884
Sacramento Sucker	11	70	7	11	99
Three-spine Stickleback	27	37	11	15	90
Tule Perch	0	2	0	0	2
Lamprey Ammocoete	0	0	1	0	1
Black Bass*	4	0	1	0	5

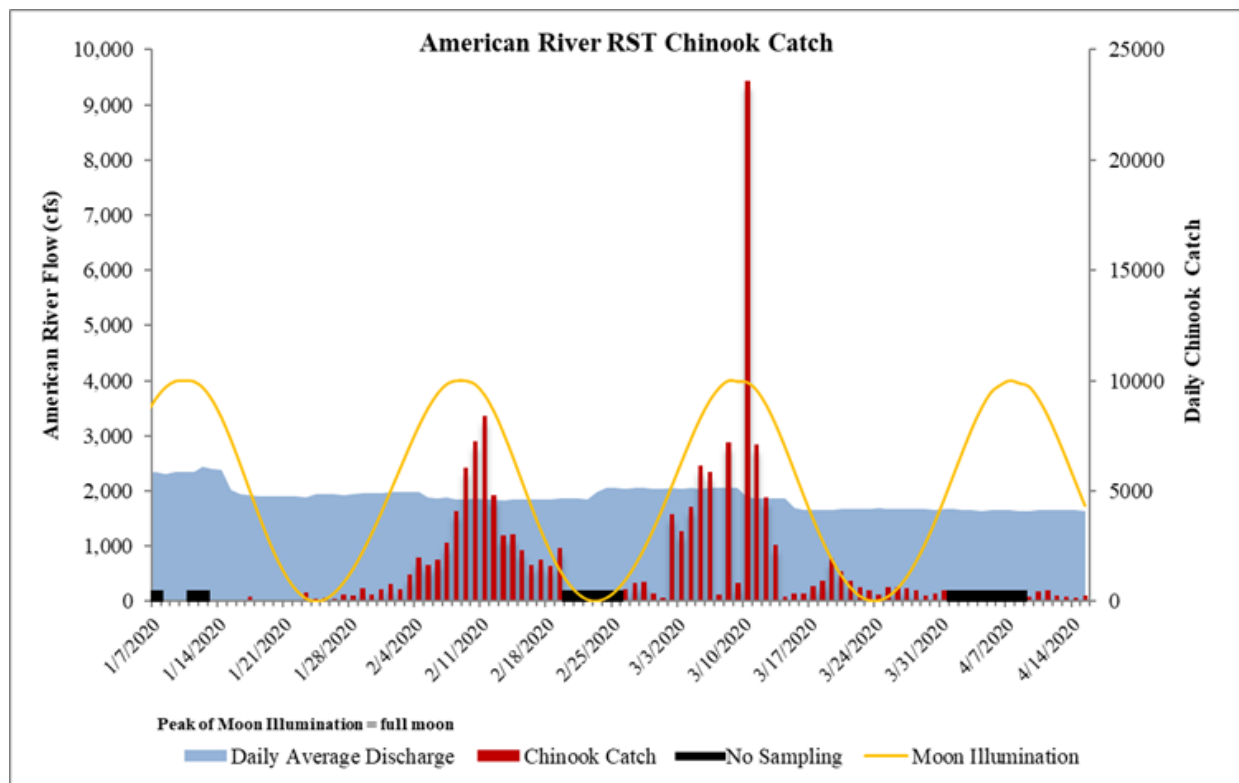
* denotes fish that are non-native

From: [Terra Alpaugh](#)
To: [Terra Alpaugh](#)
Subject: RE: Request for ARG Handouts by 4/14
Date: Wednesday, April 15, 2020 4:56:40 PM
Attachments: [image001.png](#)

Attached is the American River catch summary that the figure below pulls its data from. Over the past couple weeks, catch has been relatively low at the traps for salmon, lamprey, and steelhead. Both traps were offline for 8 days to let the hatchery fish pass the trap, to submit an SCP amendment that accounts for greater catch, and to make minor repairs to the trap. The first VIE mark-recapture trial was started today although the release group was smaller than we'd typically like (~250) due to the hatcheries being shut down for fish requests.

With the shortened staff, I will be in the field more often including tomorrow so I may or may-not be able to call in for the meeting tomorrow. Hopefully this information will suffice as an update for the group if I am unable to call in.

Thank you,



Cory Starr

Fisheries Biologist
Pacific States Marine Fisheries Commission
Sacramento Rotary Screw Trap Project
cell: 503-828-2366
office: 916-272-2060

Please note, I am out of the office most Mondays and Tuesdays.

SMUD Upper American River Project Update

Conditions – 14 April 2020:

April precipitation through 4/14/2020 7:00:00 AM is 4.26 in., which is 88% of the April average of 4.84". Precip for the water year to date is 30.95" which is 62% of average to date (49.68") and 54% of the entire water year average of 57.32". Expected precip between now and 4/26 is 0.5".

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

- 239,624 acre feet
- 63% capacity
- 72% historical average (14 April historical average: 274,413 AF / 72%)
- 3% increase in storage since last week
- Note: Ice House is still fairly empty, about half of what it usually is

Individual reservoir storage:

- Loon Lake: 41,958 AF
- Ice House: 15,149 AF
- Union Valley: 182,518 AF

Last year today, storage was at 75% (284,164 AF).

**Total WINTER capacity of the three reservoirs is 329,210 acre feet.*

March 2020 releases:

- 563 cfs average flows below Chili Bar
- 34,639 total AF released below Chili Bar

April releases (April 1-13):

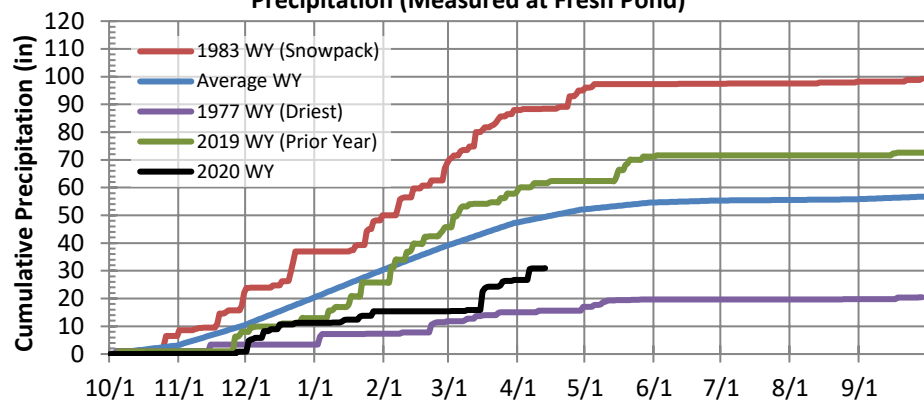
- 1,398 cfs average flows below Chili Bar
- 36,038 total AF released below Chili Bar
- On 4/13, Chili Bar was releasing an average of 1,761 cfs

Runoff into the storage reservoir basins is 59% of median to date through Apr 13. The snowpack is 44% of average at selected snow sensors.

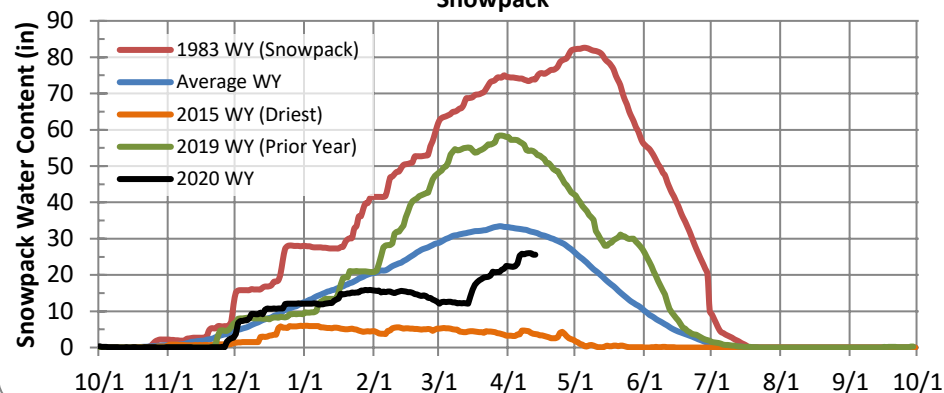
Runoff Forecast (in cfs, daily average forecast)

<i>BASIN</i>	Fri 4/17	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr
SFA above Slab	715.8	612.3	617.8	760.9	654.0	664.8
Slab Creek	324.8	318.5	316.1	341.5	333.0	318.8
Combined South Fork	1041	931	934	1102	987	984

Precipitation (Measured at Fresh Pond)



Snowpack



Fresh Pond Precipitation

Month	Current WY	Hist. avg.	% of avg.
Oct	0.02	3.30	1%
Nov	0.90	6.87	13%
Dec	10.36	9.14	113%
Jan	4.14	9.55	43%
Feb	0.01	9.50	0%
Mar	11.26	9.06	124%
Apr	4.26	4.84	88%
May		2.97	
Jun		0.79	
Jul		0.08	
Aug		0.20	
Sep		1.02	
Total	30.95	57.32	54%

FRESH POND PRECIPITATION

April precipitation through 04/13/20 07:00 is 4.26 in., which is 88% of the April average of 4.84". Precip for the water year to date is 30.95" which is 63% of average to date (49.52) and 54% of the entire water year average of 57.32".

RUNOFF and SNOWPACK WATER CONTENT

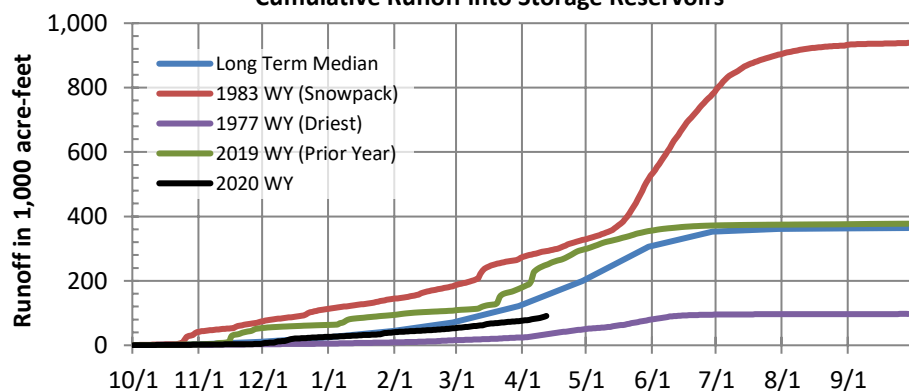
Runoff into the storage reservoir basins is 58% of median to date through Apr 12. The snowpack is 81% of average at selected snow sensors.

SMUD STORAGE RESERVOIRS

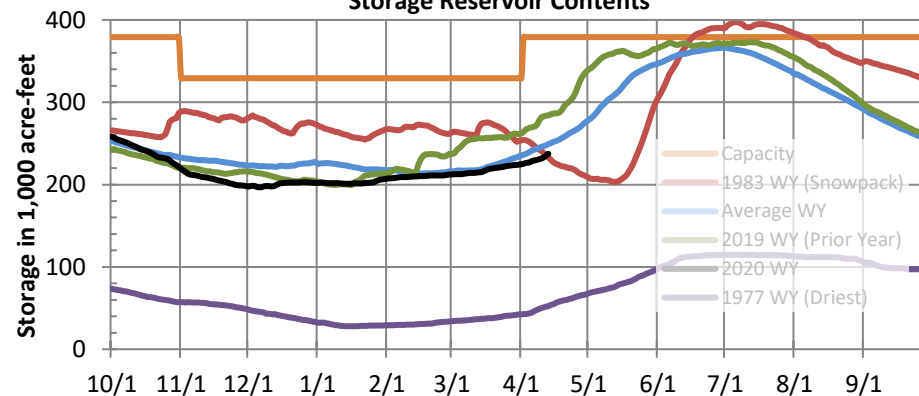
	Historical average		Now (2020)		1 year prior		Capacity ¹	Winter
	acre-feet	% full	acre-feet	% full	acre-feet	% full		
Loon Lake Reservoir	40,932	59%	41,524	60%	34,297	50%	69,309	69,309
Ice House Reservoir	28,854	66%	15,001	34%	24,280	56%	43,496	34,855
Union Valley Reservoir	203,303	76%	180,839	68%	225,072	85%	266,369	225,046
Total Reservoir Storage	273,089	72%	237,364	63%	283,649	75%	379,174	329,210

¹ 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

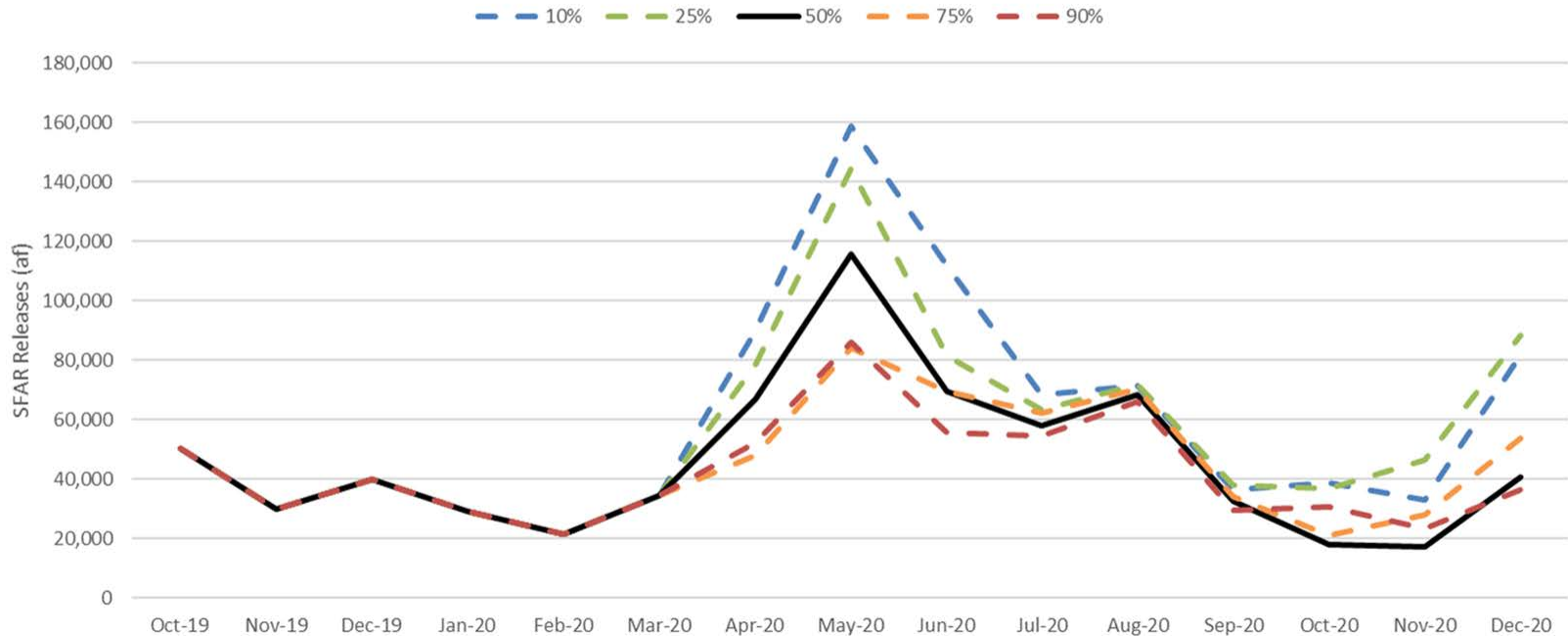
Cumulative Runoff into Storage Reservoirs



Storage Reservoir Contents



SMUD Projections SFAR Releases Below Chili Bar



PCWA MFP OPERATIONS OVERVIEW for American River Operations Group (Real Time Data as of April 14, 2020)

- ❖ **French Meadows Storage = 65,000 AF of 136,405 AF = ~48% Capacity**
 - MFAR above FM Inflow (R24) = ~150 cfs
- ❖ **Hell Hole Storage = 106,000 AF of 207,590 AF = ~51% Capacity**
 - Five Lakes Inflow (R23) = ~100 cfs
 - Rubicon Inflow (R22) = ~150 cfs
- ❖ **Combined Storage (FM+HH) = 171,000 AF/342,590 AF = ~50% Capacity = ~82% of AVG**
 - **1975-2016 AVERAGE for April 14th = 208,000 AF**
- ❖ **POWER PRODUCTION** – Minimal power production; conservation of storage operations.
- ❖ **MFAR @ R11:** Last 8 days AVG= 1,900 cfs

2020 Water Year Dashboard

Updated through: April 14, 2020

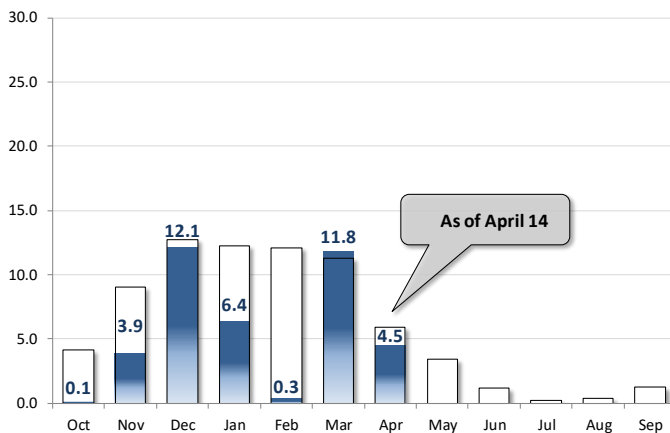


Lake Spaulding Precipitation

Monthly Totals (values in inches of precipitation):

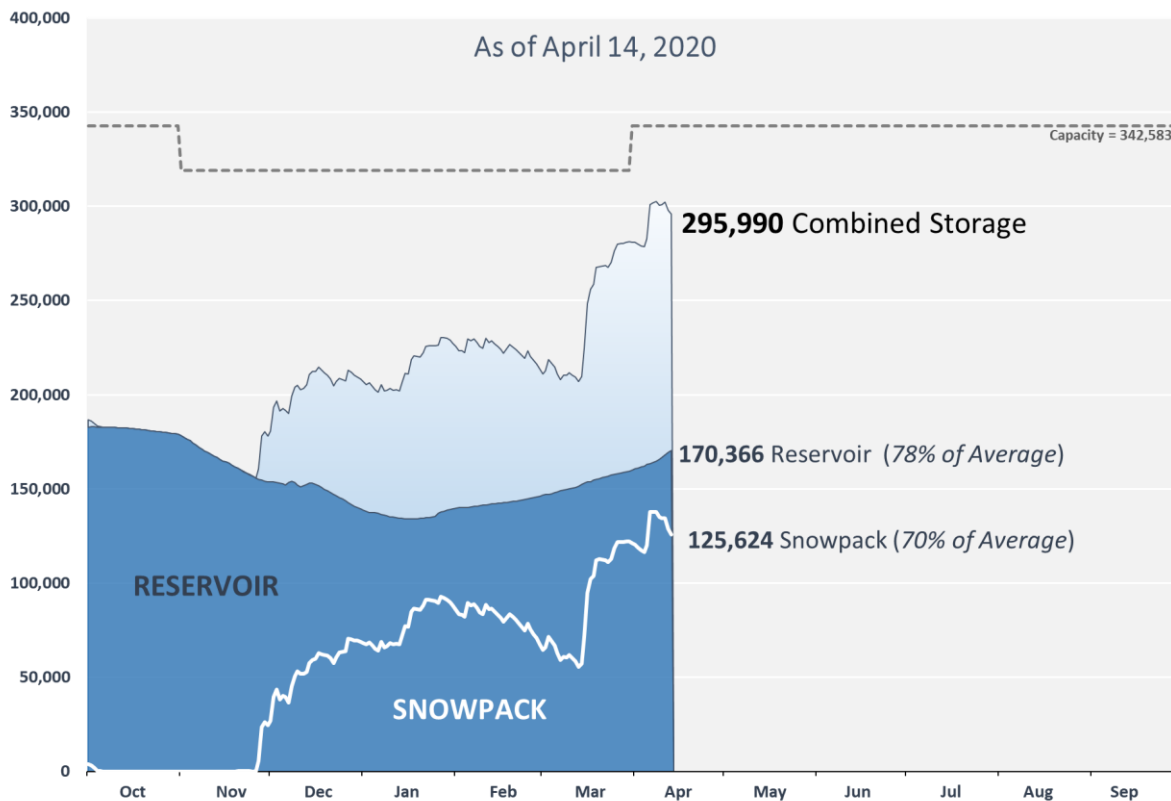
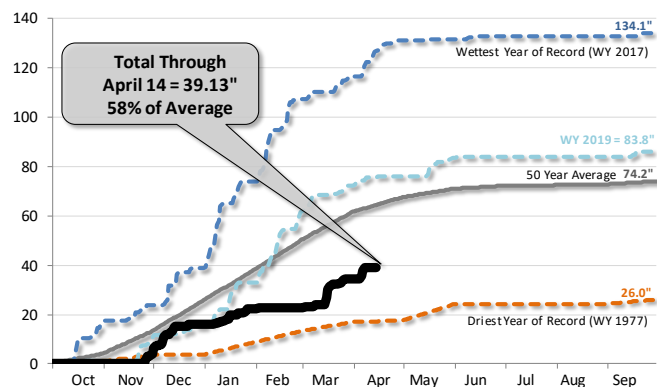
	Historical Average ^{2/}	Actual This Year	Percent of Average
October	4.17	0.13	3%
November	9.07	3.85	42%
December	12.70	12.11	95%
January	12.26	6.36	52%
February	12.11	0.32	3%
March	11.31	11.82	104%
April	5.94	4.54	76%
May	3.41	--	--
June	1.18	--	--
July	0.25	--	--
August	0.37	--	--
September	1.23	--	--
October			

39.13 inches



Cumulative Totals (values in inches of precipitation):

Through Month of:	Historical Cumulative Average	Accumulation to Date	% of Average to Date
October	4.17	0.13	3%
November	13.24	3.98	30%
December	25.94	16.09	62%
January	38.20	22.45	59%
February	50.32	22.77	45%
March	61.63	34.59	56%
April	67.57	39.13	58%
May	70.99	through April 14 = 61%	
June	72.16	--	--
July	72.42	--	--
August	72.79	--	--
September	74.02	--	--



American River Summary Conditions – Apr (On-going):

- Had one good precipitation event in March.
- Just had a good precipitation event in April, Folsom storage is now over 600 TAF.

Storage/Release Management Conditions

- Releases continue at 1500 cfs.
- Discuss additional release cut to 1250 cfs to conserve storage.
- Discuss potential of within day mini-pulses to move hatchery fish out.

Temperature Management:

- Upper shutters to be installed Tuesday April 21, 2020.

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

DAILY CVP WATER SUPPLY REPORT

APRIL 14, 2020

RUN DATE: April 15, 2020

RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2019	WY 2020	15 YR MEDIAN
TRINITY	LEWISTON	435	1,028	313
SACRAMENTO	KESWICK	34,602	4,982	4,982
FEATHER	OROVILLE (SWP)	10,000	1,550	1,900
AMERICAN	NIMBUS	9,122	1,481	1,768
STANISLAUS	GOODWIN	4,017	959	1,250
SAN JOAQUIN	FRIANT	460	290	350

STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET

RESERVOIR	CAPACITY	15 YR AVG	WY 2019	WY 2020	% OF 15 YR AVG
TRINITY	2,448	1,819	2,145	1,961	108
SHASTA	4,552	3,707	4,090	3,733	101
FOLSOM	977	680	804	595	87
NEW MELONES	2,420	1,574	1,955	1,909	121
FED. SAN LUIS	966	731	953	594	81
TOTAL NORTH CVP	11,363	8,513	9,947	8,792	103
MILLERTON	520	314	287	287	91
OROVILLE (SWP)	3,538	2,563	2,997	2,399	94

ACCUMULATED INFLOW FOR WATER YEAR TO DATE IN THOUSANDS OF ACRE-FEET

RESERVOIR	CURRENT WY 2020	WY 1977	WY 1983	15 YR AVG	% OF 15 YR AVG
TRINITY	269	94	1,336	676	40
SHASTA	2,089	1,492	7,589	3,535	59
FOLSOM	797	209	3,828	1,622	49
NEW MELONES	339	----	1,214	532	64
MILLERTON	353	115	1,763	553	64

ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES

RESERVOIR	CURRENT WY 2020	WY 1977	WY 1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	16.66	9.27	50.70	28.09 (58)	59	0.00
SACRAMENTO AT SHASTA DAM	28.59	11.04	103.04	55.20 (63)	52	0.00
AMERICAN AT BLUE CANYON	34.30	15.64	94.96	59.07 (45)	58	0.00
STANISLAUS AT NEW MELONES	21.20	----	41.62	24.83 (42)	85	0.00
SAN JOAQUIN AT HUNTINGTON LK	25.23	11.50	74.10	36.83 (45)	68	0.04

D A T E	Mean Daily Temperatures (°F)							Release (CFS)	Storage (TAF)	Unit Shuter Position / Load Percentage						Isobath Plot				
	Water						Air			Percentage										
	NFA	ARP	AFD ¹	AHZ	AWP	AWB	CSU			Nimbus	Folsom	Unit 1		Unit 2		Unit 3				
Feb	46.0	45.9	50.1	49.7	50.5	50.3	53.3	1823								>70 68-70 66-68 64-66 62-64 60-62 58-60 56-58 54-56 52-54 50-52 48-50 46-48 <46				
03/01	50.3	48.8	52.4	51.9	52.6	52.4	52.8	1999	446	B	26	M	26	M	48					
03/02	49.3	46.9	52.8	51.5	52.3	51.9	59.1	2000	444	B	44	M	36	M	20					
03/03	49.7	48.3	52.3	51.3	52.5	52.4	59.3	2001	442	B	32	M	54	M	15					
03/04	50.7	49.3	52.4	52.3	53.6	53.5	60.7	2005	439	B	30	M	20	M	49					
03/05	51.4	50.6	52.4	52.5	53.9	54.0	58.5	1999	437	B	58	M	20	M	22					
03/06	51.7	51.0	52.0	52.6	53.8	53.7	54.3	2004	434	B	15	M	25	M	60					
03/07	51.3	49.8	51.9	52.5	53.0	52.8	50.8	2004	433	B	18	M	52	M	30					
03/08	51.0	48.8	52.5	52.1	53.0	52.7	51.8	2002	433	B	58	M	19	M	23					
03/09	51.4	49.3	52.7	51.9	53.3	53.3	57.0	1995	431	B	32	M	32	M	36					
03/10	51.7	50.4	? 53.1	52.3	53.7	53.6	58.2	1773	429	B	24	M	46	M	30					
03/11	52.6	51.9	53.4	53.0	54.7	54.9	61.4	1744	428	B	24	M	29	M	46					
03/12	53.5	53.5	53.5	53.3	55.0	55.2	62.1	1747	426	B	24	M	35	M	41					
03/13	53.8	53.5	52.6	53.7	55.2	? 55.6	56.1	1754	425	B	32	M	29	M	39					
03/14	52.4	51.7	52.5	53.8	54.0	53.6	50.3	1752	425	B	27	M	71	M	2					
03/15	49.5	49.2	52.6	52.8	53.4	52.9	48.6	1530	434	B	23	M	67	M	10					
03/16	46.3	47.2	53.4	51.8	51.8	? 51.2	43.4	1497	447	B	16	M	57	M	27					
03/17	45.2	46.9	52.7	51.3	52.1	51.5	46.8	1499	454	B	35	M	31	M	34					
03/18	45.1	47.4	52.7	51.4	52.0	51.7	48.6	1505	457	B	31	M	31	M	38					
03/19	45.7	47.6	52.7	51.8	53.1	52.6	49.0	1500	459	B	32	M	42	M	26					
03/20	46.9	49.0	52.8	52.2	53.6	53.6	52.6	1506	461	B	29	M	36	M	35					
03/21	47.8	49.7	52.7	52.8	54.3	54.3	53.3	1509	463	B	26	M	38	M	36					
03/22	48.7	50.5	53.1	53.1	54.4	54.4	55.3	1508	464	B	27	M	40	M	32					
03/23	49.0	50.4	52.0	53.3	54.8	54.8	54.3	1505	465	B	35	M	35	M	30					
03/24	48.3	49.5	52.3	53.4	54.2	54.2	51.9	1516	466	B	10	M	35	M	54					
03/25	48.0	49.2	52.9	52.8	53.9	53.7	49.0	1505	469	B	41	M	31	M	28					
03/26	47.3	47.8	53.0	52.3	53.4	53.2	48.3	1510	470	B	34	M	33	M	33					
03/27	47.5	48.0	52.5	52.4	53.7	53.5	49.6	1507	472	B	36	M	26	M	38					
03/28	47.5	48.6	52.6	52.7	53.4	53.2	50.7	1508	472	B	37	M	32	M	31					
03/29	48.1	49.2	52.9	52.8	54.5	54.6	55.1	1506	474	B	33	M	31	M	35					
03/30	48.7	49.5	52.8	52.6	54.5	54.7	56.7	1498	475	B	33	M	33	M	33					
03/31	50.0	51.4	52.8	53.1	55.1	55.3	58.0	1504	476	B	29	M	35	M	35					
Mar	49.4	49.5	52.7	52.5	53.6	53.5	53.7	1690								03/01	03/31			
Total AF							103917													

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 using hourly flow values
- 2
- 3
- 4
- 5
- 6

D A T E	Mean Daily Temperatures (°F)							Release (CFS)	Storage (TAF)	Unit Shuter Position / Load Percentage						Isobath Plot				
	Water						Air			Percentage										
	NFA	ARP	AFD ¹	AHZ	AWP	AWB	CSU			Nimbus	Folsom	Unit 1		Unit 2		Unit 3				
Mar	49.4	49.5	52.7	52.5	53.6	53.5	53.7	1690								>70 68-70 66-68 64-66 62-64 60-62 58-60 56-58 54-56 52-54 50-52 48-50 46-48 <46				
04/01	50.8	53.0	53.3	53.5	55.3	55.7	? 54.2	1501	477	B	26	M	37	M	37					
04/02	50.1	50.0	53.6	53.8	55.2	55.2	54.8	1495	480	B	20	M	66	M	14					
04/03	49.6	49.9	53.5	53.8	55.5	55.6	53.1	1488	483	B	38	M	32	M	30					
04/04	48.7	49.4	53.1	53.5	53.9	54.0	50.4	1482	486	B	33	M	39	M	28					
04/05	47.9	49.7	53.1	53.5	53.9	53.4	51.0	1486	505	B	47	M	26	M	27					
04/06	46.4	48.8	53.8	53.2	53.9	53.3	48.1	1487	526	B	20	M	45	M	35					
04/07	47.5	49.2	53.0	!	-	55.0	55.0	54.7	1490	537	B	41	M	41	M	18				
04/08	48.6	49.0	52.6	54.7	54.2	54.4	55.5	1484	546	B	21	M	50	M	29					
04/09	49.5	49.0	52.4	54.7	54.7	54.8	56.3	1476	554	B	42	M	30	M	28					
04/10	50.4	50.1	52.6	54.9	55.6	55.9	59.0	1482	561	B	38	M	44	M	18					
04/11	51.5	50.8	52.4	55.1	55.5	56.0	56.8	1484	569	B	28	M	32	M	40					
04/12	52.5	49.2	52.6	55.3	55.8	56.2	58.8	1481	578	B	26	M	38	M	36					
04/13	52.5	49.2	52.7	54.7	56.4	57.0	61.1	1491	588	B	29	M	34	M	37					
04/14	51.6	49.5	52.9	55.6	56.8	57.2	64.4	1481	595	B	32	M	36	M	32					
04/15																				
04/16																				
04/17																				
04/18																				
04/19																				
04/20																				
04/21																				
04/22																				
04/23																				
04/24																				
04/25																				
04/26																				
04/27																				
04/28																				
04/29																				
04/30																				
-																				
Apr	49.8	49.8	53.0	54.3	55.1	55.3	55.6	1486								04/01				
							Total AF	41272								04/30				

Legend

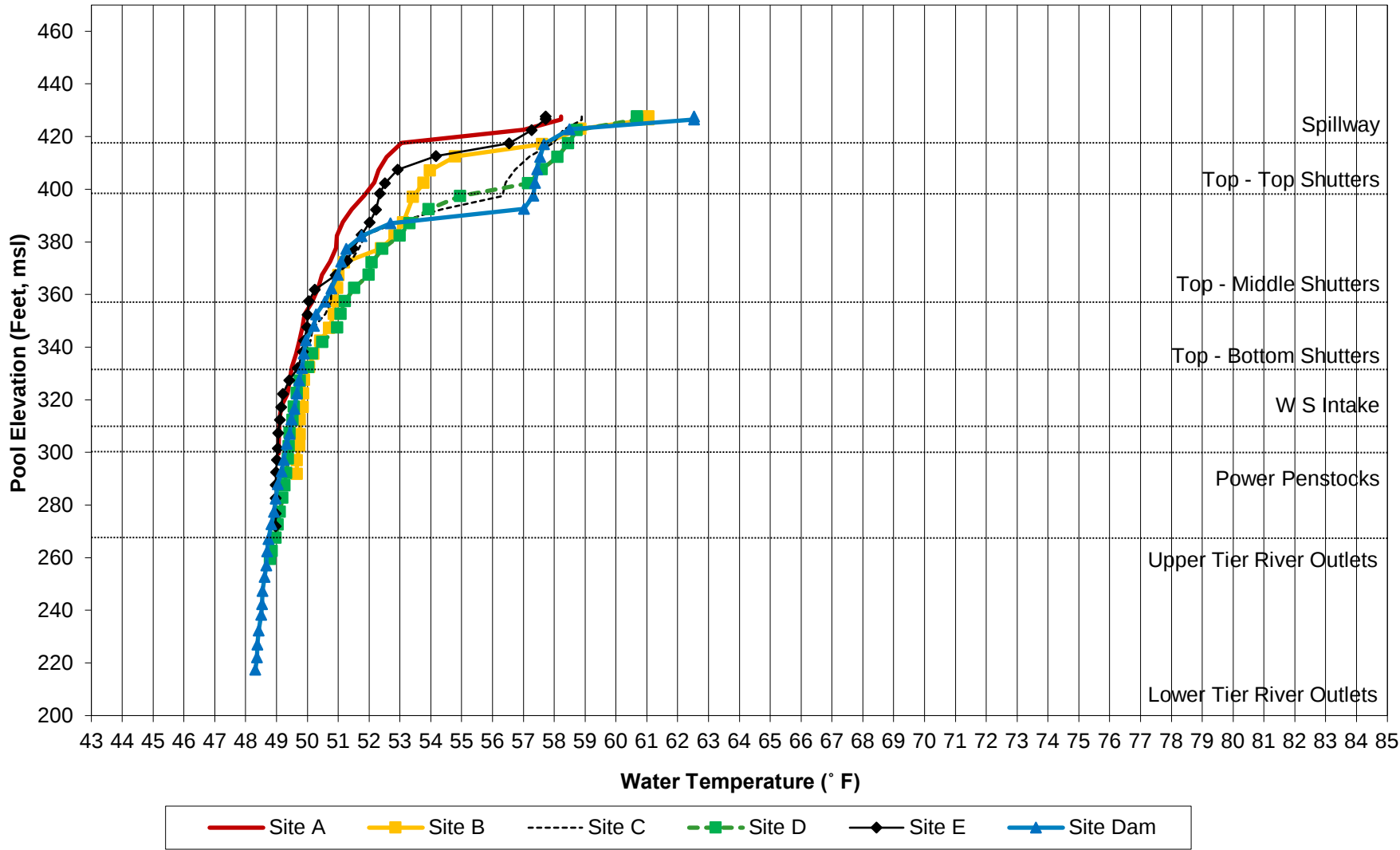
- ? = 1-9 hours of data missing
- ! = 10 or more hours of data missing
- # = Station out of service
- = Monthly Averages

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

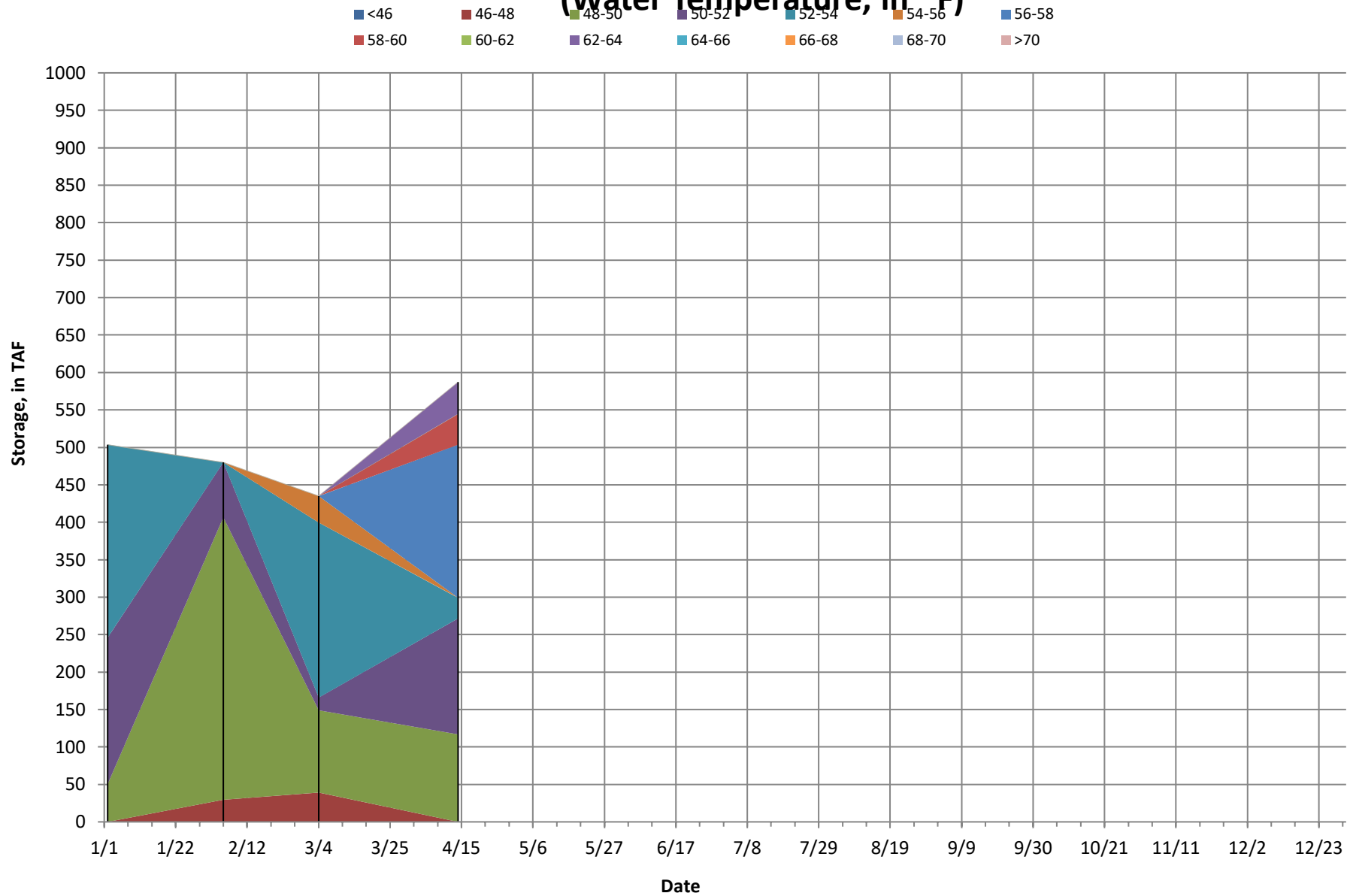
Notes

- ¹ AFD is a weighted average using hourly flow values
- ²
- ³
- ⁴
- ⁵
- ⁶

Folsom Lake Temperature Profiles: 14-Apr-2020



(Water Temperature, in ° F)



Folsom Cold Water Pool

Folsom Reservoir: Cold Water Volume

Profile Date	Volume less than 58°F (TAF)
4/14/20	503

Penstock Elevation (ft)	Volume (TAF)	Approximate Max. Temp (F)
327	83	49.7

Proposed Power Generation Bypass/Lower River Outlet for Temperature Management

Date	Bypass/Lower River Outlet (cfs)	Temperature not to exceed downstream of Nimbus Dam (°F)	Cumulative Use of Cold Water Pool Volume (TAF)

DRAFT April 2020

90% Runoff Exceedance Outlook:

Inflow based on 90% historical average runoff for all months.

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

		Apr	May	June	July	Aug	Sep
Folsom	476	635	642	598	462	351	311
Elev.		432	433	428	412	396	389

Monthly River Releases (cfs)

American	1500	1800	1806	3088	2752	1561
MRR	965	965	965	1528	1528	1528

50% Runoff Exceedance Outlook:

Inflow based on 50% historical average runoff for all months.

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

		Apr	May	June	July	Aug	Sep
Folsom	476	630	696	625	471	378	348
Elev.		432	439	431	413	400	395

Monthly River Releases (cfs)

American	1500	2113	2720	3500	2537	1538
MRR	965	965	965	1528	1528	1528

Please note:

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.

CVP operational forecasts or outlooks consider general system-wide dynamics and do not necessarily address specific watershed/tributary details.

CVP releases represent monthly averages.

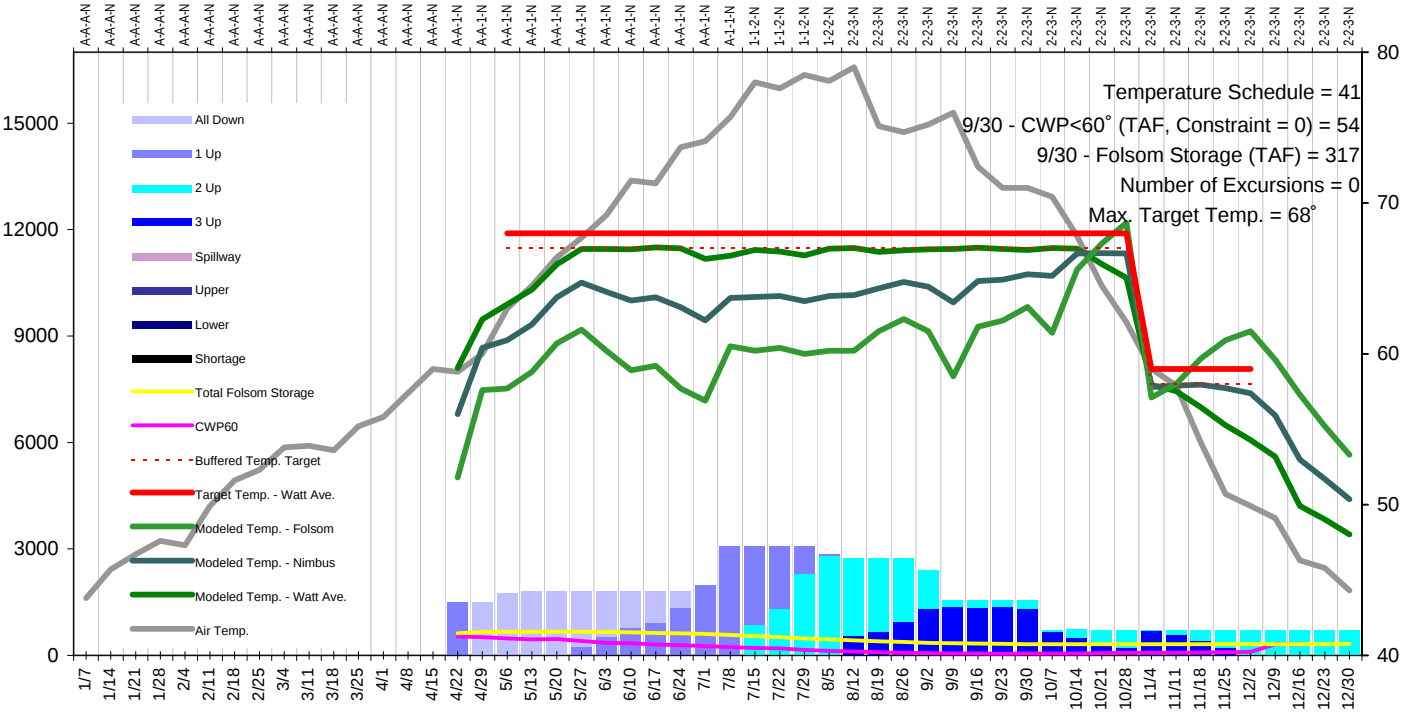
CVP operations are updated monthly as new hydrology information is made available December through May.

Shaded area represents less confident hydrologic inputs of the future water year.

Apr 2020 Updated Apr Inflow 90%-Exceedance Outlook

USBR Pred.

Release (cfs) / Volume (TAF)



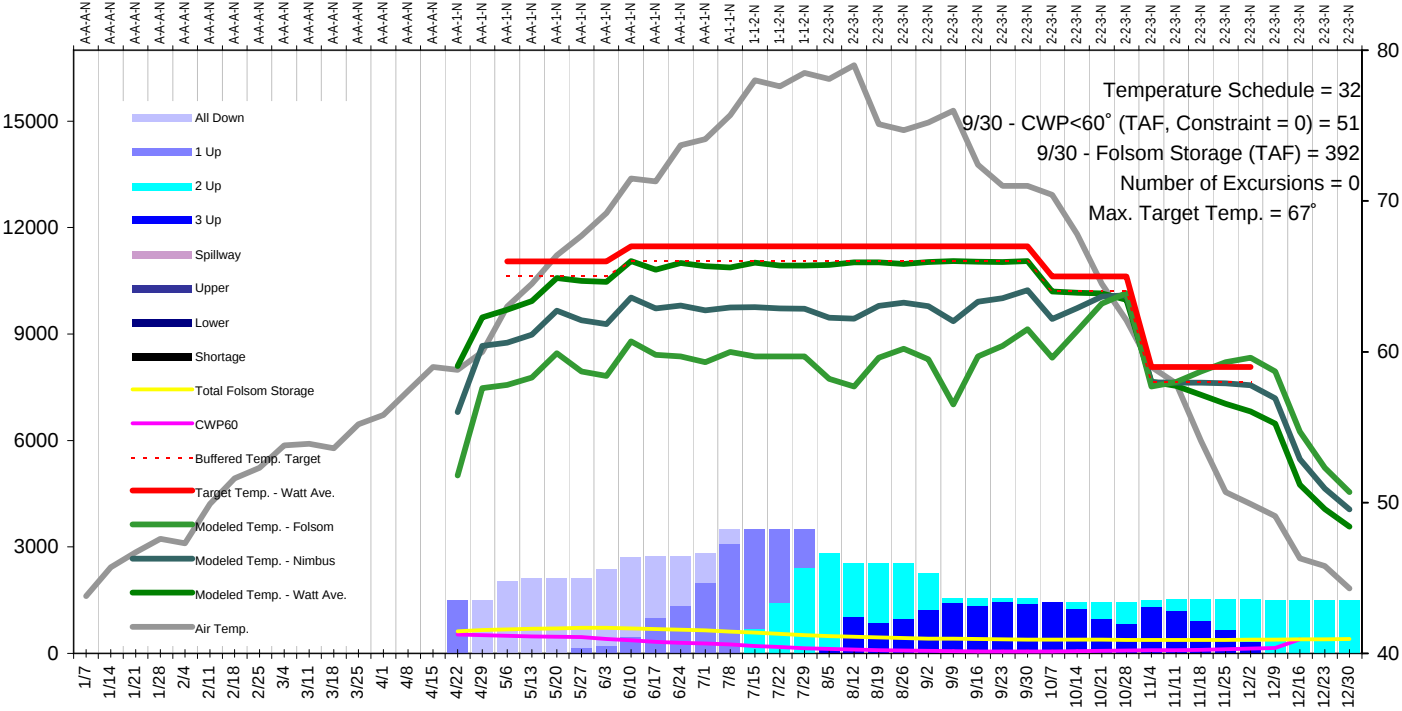
Temperature (°F)

Release (cfs) / Volume (TAF)

Apr 2020 Updated Apr Inflow 50%-Exceedance Outlook

USBR Pred.

Release (cfs) / Volume (TAF)



Temperature (°F)

Release (cfs) / Volume (TAF)