

American River Group

Thursday July 17, 2017 1:30 PM
Central Valley Operation Office, Room 302
3310 El Camino Ave.
Sacramento, CA 95821

1. Fisheries Updates

2. Operations Forecast

3. Temperature Management

4. Other Activities

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

- Seasonal American River seasonal temperature performance, Folsom EOM September storage

Storage/Release Management Conditions:

- Management Challenge: filling reservoir without fluctuating releases excessively
- Projected storage conditions: Good storage conditions projected going into the fall

Temperature Management:

- Management Challenge: summer water temperature control. iCPMM modelling suggests schedule 19, with a Watt Ave target of 64 degrees, with a 1 degree buffer to 65 degrees.
- Due to modeling limitations, manage fall temperatures based on cold-water-pool volumes and conditions at the time
- Continue exercising real-time management capabilities

DAILY CVP WATER SUPPLY REPORT

JULY 19, 2017

RUN DATE: July 20, 2017

RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2016	WY 2017	15 YR MEDIAN
TRINITY	LEWISTON	985	1,167	628
SACRAMENTO	KESWICK	10,090	9,873	12,935
FEATHER	OROVILLE (SWP)	9,000	4,500	5,500
AMERICAN	NIMBUS	5,065	3,850	3,530
STANISLAUS	GOODWIN	281	1,505	372
SAN JOAQUIN	FRIANT	486	518	349

STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET

RESERVOIR	CAPACITY	15 YR AVG	WY 2016	WY 2017	% OF 15 YR AVG
TRINITY	2,448	1,732	1,185	2,064	119
SHASTA	4,552	3,191	3,693	4,064	127
FOLSOM	977	671	578	924	138
NEW MELONES	2,420	1,433	604	2,176	152
FED. SAN LUIS	966	339	49	860	254
TOTAL NORTH CVP	11,363	7,365	6,109	10,088	137
MILLERTON	520	387	412	520	135
OROVILLE (SWP)	3,538	2,423	2,562	2,254	93

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

RESERVOIR	CURRENT WY 2017	DRIEST WY 1977	WETTEST WY 1983	15 YR AVG	% OF 15 YR AVG
TRINITY	2,185	194	2,719	1,269	172
SHASTA	9,313	2,126	10,088	4,962	188
FOLSOM	7,175	298	6,107	2,443	294
NEW MELONES	2,711	0	2,557	953	284
MILLERTON	3,899	241	4,042	1,424	274

ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES

RESERVOIR	CURRENT WY 2017	DRIEST WY 1977	WETTEST WY 1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	43.88	13.70	55.02	31.62 (55)	139	0.00
SACRAMENTO AT SHASTA DAM	99.17	17.28	112.56	61.38 (60)	162	0.00
AMERICAN AT BLUE CANYON	134.41	15.70	103.88	65.84 (42)	204	0.00
STANISLAUS AT NEW MELONES	49.97	0.00	45.33	27.14 (39)	184	0.00
SAN JOAQUIN AT HUNTINGTON LK	78.88	17.20	81.40	41.47 (42)	190	0.00

DATE	Mean Daily Temperatures (°F)							Release (CFS)	Storage (TAF)	Unit Shutter Position / Load Percentage						Isobath Plot		
	Water					Air				Nimbus	Folsom	Unit 1		Unit 2				Unit 3
	NFA	ARP	AFD ¹	AHZ	AWP	AWB	CSU					Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
May	54.6	52.9	54.8	-	56.6	57.1	67.0	9593	-	-	-	-	-	-	-	-		
06/01	57.4	55.4	54.9	58.4	59.3	59.9	? 68.8	6302	946	T	47	T	53	O	0			
06/02	58.3	55.1	? 55.0	58.2	59.5	60.4	72.8	6307	952	T	50	T	50	O	0			
06/03	58.4	55.1	56.1	57.0	57.7	58.3	? 69.3	9841	951	T	50	T	50	O	0			
06/04	58.2	55.6	57.1	57.7	58.3	58.7	69.5	11713	947	T	50	T	50	O	0			
06/05	57.9	55.3	57.8	58.6	59.1	59.4	? 72.3	11772	944	T	50	T	50	O	0			
06/06	58.3	55.1	57.3	58.6	59.3	59.8	72.8	11898	938	T	50	T	50	O	0			
06/07	!	-	55.0	56.8	57.8	58.3	58.8	66.1	11833	932	T	49	T	48	T	3	Spillway Crest	
06/08	!	-	54.2	56.3	57.6	57.9	58.2	? 62.3	10880	928	T	35	T	34	T	31	All Shutters Lowered (A)	
06/09	!	-	54.2	54.9	56.5	57.4	58.1	? 66.5	9229	927	T	33	T	34	T	34		
06/10	!	-	53.6	55.3	56.0	56.6	57.1	62.1	7991	927	T	33	T	33	T	34		
06/11	!	-	52.3	55.2	56.0	56.8	57.2	57.5	7167	927	T	35	T	31	T	34		
06/12	!	-	51.7	55.1	56.1	56.7	57.0	60.8	7086	927	T	32	T	34	T	34	Top Shutter Raised (T)	
06/13	!	-	51.6	55.1	56.2	57.0	57.6	68.2	7084	927	T	32	T	32	T	36		
06/14	!	-	51.8	55.0	56.3	57.4	58.2	73.4	7059	927	T	33	T	33	T	34		
06/15	?	58.5	53.3	55.0	56.5	57.6	58.5	76.0	6337	927	T	35	T	29	T	37	Middle Shutter Raised (M)	
06/16		59.9	55.1	55.0	56.7	58.0	59.0	82.8	6366	927	T	28	T	35	T	36		
06/17		61.8	56.8	55.2	57.0	58.3	59.4	86.3	6333	927	T	35	T	28	T	37		
06/18		62.6	57.5	55.4	57.0	58.3	59.4	89.9	6326	926	T	27	T	37	T	36		
06/19		63.9	58.2	55.4	56.8	58.3	59.4	88.5	6338	916	T	32	T	32	T	35	Bottom Shutter Raised (B)	
06/20		64.7	59.0	55.5	57.3	58.6	59.7	86.3	6240	920	T	32	T	29	T	39		
06/21		65.0	59.6	55.7	57.5	58.9	60.0	84.4	5501	923	T	27	T	37	T	36		
06/22		65.4	59.8	56.6	57.7	59.3	60.5	? 89.7	4987	927	T	37	T	31	T	33		
06/23		65.6	59.5	56.0	57.9	59.5	60.8	? 81.9	4731	933	T	18	T	35	T	47		
06/24		65.9	60.3	56.0	58.3	60.0	61.2	? 75.6	4270	940	T	48	T	14	T	38		
06/25		66.2	60.9	56.2	58.5	60.1	61.4	72.0	4124	944	T	44	T	40	T	16		
06/26		65.5	61.0	56.2	58.6	60.1	61.1	68.5	4096	948	T	47	T	35	T	18		
06/27		64.9	61.2	56.3	58.6	60.1	61.2	69.4	4334	951	T	11	T	36	T	53		
06/28		64.1	61.2	56.5	? 58.6	60.1	61.2	70.7	4120	952	T	0	T	42	T	58		
06/29		63.8	59.9	56.6	58.7	60.2	61.3	72.1	4138	954	T	0	T	41	T	59		
06/30		63.8	59.9	56.6	58.7	60.3	61.4	71.7	4363	953	T	10	T	41	T	48	Lower River Outlet	
Jun	62.3	56.6	55.9	57.5	58.6	59.5	73.6	6959										
								Total AF	414079									

Legend

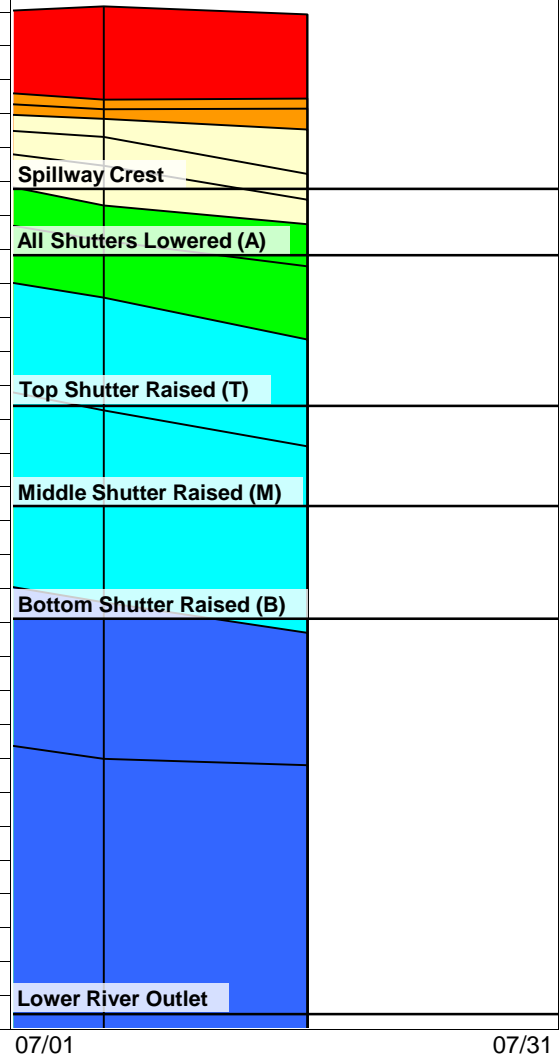
- ? = 1-9 hours of data missing
- ! = 10 or more hours of data missing
- # = Station out of service
- ☐ = Monthly Averages

- 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

DATE	Mean Daily Temperatures (°F)							Release (CFS)	Storage (TAF)	Unit Shutter Position / Load Percentage						Isobath Plot		
	Water						Air			Nimbus	Folsom	Unit 1		Unit 2			Unit 3	
	NFA	ARP	AFD ¹	AHZ	AWP	AWB	CSU					Unit 1	Unit 2	Unit 3	Unit 4		Unit 5	Unit 6
Jun	62.3	56.6	55.9	57.5	58.6	59.5	73.6	6959	-	-	-	-	-	-	-	-		
07/01	63.9	59.7	56.7	58.8	60.3	61.4	? 71.4	4245	953	T	13	T	36	T	51			
07/02	64.1	59.9	56.7	58.7	60.5	61.7	73.0	4230	954	T	14	T	34	T	52			
07/03	64.1	59.8	56.8	59.0	60.6	61.8	? 74.2	3858	955	T	14	T	32	T	54			
07/04	63.9	59.9	56.9	59.1	60.8	62.0	75.8	3845	955	T	13	T	33	T	54			
07/05	63.6	59.6	57.1	59.1	60.6	61.7	? 73.8	3852	956	T	22	T	14	T	63			
07/06	63.7	60.8	57.2	59.4	61.1	62.2	? 79.8	3848	956	T	37	T	30	T	33			
07/07	64.1	61.8	57.2	59.8	61.5	62.8	? 86.2	3849	955	T	13	T	34	T	53			
07/08	64.0	61.7	57.3	59.7	61.5	62.9	86.0	3849	954	T	30	T	14	T	57			
07/09	63.8	63.3	57.4	59.7	61.3	62.6	81.9	3850	952	T	11	T	33	T	56			
07/10	63.6	62.7	57.5	59.8	61.5	62.8	? 79.5	3849	950	T	35	T	35	T	30			
07/11	63.3	64.0	57.6	59.9	61.6	62.8	? 75.8	3847	947	T	13	T	31	T	56			
07/12	62.9	63.0	57.7	60.1	61.7	62.9	? 75.8	3802	945	T	13	T	33	T	54			
07/13	62.9	64.0	57.8	60.1	61.7	62.9	? 76.7	3846	943	T	13	T	33	T	54			
07/14	62.9	66.5	57.9	60.1	61.7	62.9	77.6	3853	939	T	33	T	14	T	53			
07/15	62.7	65.6	58.1	60.3	61.8	63.0	? 81.5	3851	937	T	11	T	31	T	58			
07/16	63.0	65.7	58.2	60.5	62.1	63.5	? 86.9	3852	934	T	30	T	17	T	53			
07/17	62.9	65.8	58.3	60.4	62.1	63.4	83.2	3853	932	T	17	T	42	T	42			
07/18	62.2	66.9	58.4	60.5	62.0	63.1	75.5	3847	927	T	14	T	35	T	51			
07/19	61.3	66.4	58.5	60.7	62.2	63.2	? 74.2	3850	924	T	43	T	19	T	38			
07/20																		
07/21																		
07/22																		
07/23																		
07/24																		
07/25																		
07/26																		
07/27																		
07/28																		
07/29																		
07/30																		
07/31																		
Jul	63.3	63.0	57.5	59.8	61.4	62.6	78.4	3888										
								Total AF	146530									



Legend

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= Unit Outage

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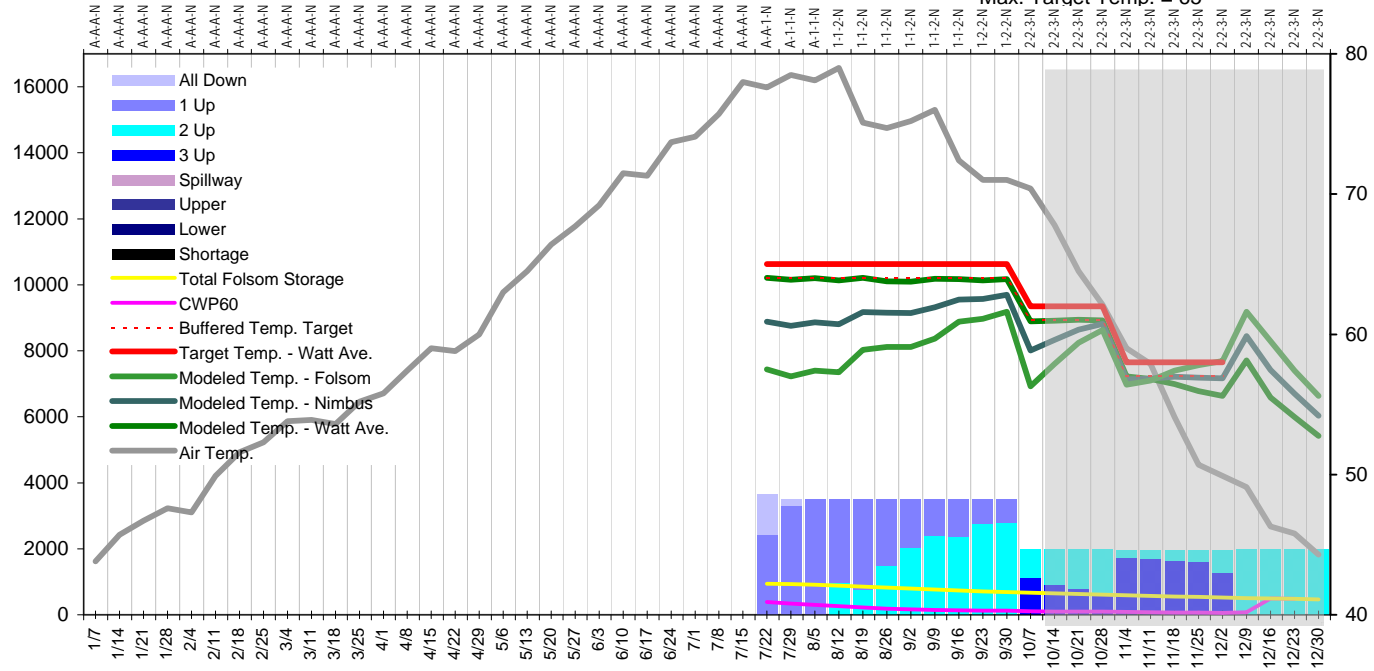
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July 2017 90%-Exceedance Outlook

USBR Pred.

Temperature Schedule = 19
 9/30 - CWP<60° (TAF, Constraint = 0) = 130
 9/30 - Folsom Storage (TAF) = 685
 Number of Excursions = 0
 Max. Target Temp. = 65°

Release (cfs) / Volume (TAF)



Date

Temperature (°F)

DRAFT July 2017

90% Runoff Exceedance Outlook:

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

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

		Jul	Aug	Sep			
Folsom	953	925	788	670			
	Elev.	461	448	436			

Monthly River Releases (cfs)

American	3500	3500	3500			
MRR	1750	1750	1750			

50% Runoff Exceedance Outlook:

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

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

		Jul	Aug	Sep			
Folsom	953	925	798	691			
	Elev.	461	449	438			

Monthly River Releases (cfs)

American	3500	3500	3500			
MRR	1750	1750	1750			

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.