

## **American River Group**

Thursday September 21, 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

**DAILY CVP WATER SUPPLY REPORT**

SEPTEMBER 20, 2017

RUN DATE: September 21, 2017

RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2016	WY 2017	15 YR MEDIAN
TRINITY	LEWISTON	1,026	452	467
SACRAMENTO	KESWICK	8,003	8,404	7,608
FEATHER	OROVILLE (SWP)	4,500	7,500	3,500
AMERICAN	NIMBUS	1,631	3,471	1,547
STANISLAUS	GOODWIN	152	403	203
SAN JOAQUIN	FRIANT	418	350	277

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	1,465	999	1,814	124
SHASTA	4,552	2,503	2,896	3,470	139
FOLSOM	977	483	322	703	146
NEW MELONES	2,420	1,294	533	2,027	157
FED. SAN LUIS	966	271	79	727	268
TOTAL NORTH CVP	11,363	6,016	4,829	8,741	145
MILLERTON	520	261	237	364	140
OROVILLE (SWP)	3,538	1,860	1,670	1,448	78

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	2,211	216	2,878	1,293	171
SHASTA	9,753	2,535	10,698	5,354	182
FOLSOM	7,468	349	6,489	2,638	283
NEW MELONES	2,884	0	2,731	1,054	274
MILLERTON	4,289	362	4,633	1,662	258

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	44.20	15.43	56.67	32.29 ( 55 )	137	0.00
SACRAMENTO AT SHASTA DAM	99.63	24.23	114.50	62.58 ( 60 )	159	0.00
AMERICAN AT BLUE CANYON	134.41	17.57	104.10	66.67 ( 42 )	202	0.00
STANISLAUS AT NEW MELONES	49.97	0.00	46.38	27.41 ( 39 )	182	0.00
SAN JOAQUIN AT HUNTINGTON LK	79.20	17.60	83.20	42.23 ( 42 )	188	0.00

## **American River Summary Conditions – September (On-going):**

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

## **Storage/Release Management Conditions:**

- Projected storage conditions: Good storage conditions projected going into the fall

## **Temperature Management:**

- Management Challenge: summer water temperature control. iCPMM modelling suggests schedule 21, with a Watt Ave target of 65 degrees changing to 64 degrees the first week of October, then changing to 58 degrees beginning the first week of November.
- Due to modeling limitations, manage fall temperatures based on cold-water-pool volumes and conditions at the time
- Continue exercising real-time management capabilities

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 <sup>1</sup>	AHZ	AWP	AWB	CSU					Unit 1	Unit 2	Unit 3	Unit 4		Unit 5	Unit 6
Jul	62.7	64.3	58.2	60.4	61.9	63.1	78.2	3872	-	-	-	-	-	-	-	-	-	
08/01	62.3	68.4	58.7	61.7	63.3	64.6	? 81.5	3848	880	T	33	A	26	A	41			
08/02	62.8	65.4	59.7	61.1	62.6	63.9	? 83.9	3849	878	T	10	A	50	A	40			
08/03	62.9	64.7	59.9	61.8	63.3	64.3	? 83.7	3925	875	T	9	A	49	A	41			
08/04	62.1	65.1	59.9	61.8	63.2	64.2	81.3	3810	872	T	11	A	49	A	39			
08/05	60.9	65.7	59.6	61.9	63.4	64.3	? 76.7	3802	867	T	18	A	44	A	37			
08/06	62.7	64.1	59.7	61.6	63.1	64.2	? 72.0	3802	863	T	20	A	39	A	41			
08/07	61.4	65.7	59.9	61.8	63.2	64.1	71.9	3803	860	T	21	A	40	A	40			
08/08	61.4	66.3	60.0	62.0	63.4	64.4	? 73.0	3810	856	T	20	A	37	A	44			
08/09	62.0	66.1	60.1	62.0	63.5	64.5	71.1	3804	852	T	23	A	36	A	40			
08/10	62.6	64.2	59.7	62.1	63.5	64.5	73.0	3805	848	T	31	A	36	A	33			
08/11	62.8	64.4	59.7	61.9	63.4	64.6	75.6	4688	845	T	35	A	23	A	42			
08/12	62.0	64.3	59.8	61.9	63.3	64.4	75.6	3762	842	T	34	A	23	A	43			
08/13	63.3	63.9	59.8	62.0	63.4	64.3	? 72.1	3655	838	T	36	A	24	A	40			
08/14	64.6	64.1	59.9	61.9	63.4	64.3	68.6	3616	833	T	38	A	16	A	46			
08/15	64.6	64.9	60.3	61.8	63.3	64.1	? 67.5	3647	828	T	36	A	38	A	26			
08/16	64.3	65.5	60.2	61.9	63.5	64.3	? 70.0	3655	824	T	37	A	22	A	41			
08/17	64.6	65.8	60.5	62.3	63.9	64.8	74.1	3652	820	T	36	A	16	A	48			
08/18	64.5	63.8	60.5	62.3	63.8	64.8	74.1	3648	817	T	37	A	16	A	47			
08/19	64.0	64.8	59.7	62.5	64.0	65.0	72.8	3650	813	T	58	A	16	A	26			
08/20	64.5	62.9	59.9	62.0	63.5	64.6	71.2	3653	811	T	57	A	15	A	27			
08/21	64.0	62.8	59.2	61.9	63.2	64.0	70.1	3650	807	T	57	T	17	A	26			
08/22	62.7	64.0	59.6	61.5	63.2	64.2	? 73.8	3659	804	T	49	T	22	A	30			
08/23	62.7	62.9	59.8	61.4	63.1	64.2	? 76.0	3655	802	T	50	T	15	A	34			
08/24	62.1	62.1	60.1	61.8	63.2	64.2	72.5	3654	799	T	52	T	13	A	35			
08/25	62.1	63.0	60.1	62.0	63.4	64.2	75.1	3656	796	T	33	T	32	A	35			
08/26	61.6	62.0	60.2	62.2	63.7	64.6	81.8	3652	794	T	50	T	16	A	33			
08/27	61.6	61.9	60.3	62.2	63.8	64.9	86.3	3652	791	T	35	T	32	A	33			
08/28	62.2	61.8	60.0	62.4	64.0	65.1	87.5	3657	788	T	38	T	36	A	25			
08/29	62.0	61.3	59.0	62.0	63.7	64.9	? 79.5	3654	785	T	45	M	28	T	27			
08/30	61.6	63.7	58.6	61.5	63.3	64.4	? 76.0	3704	781	T	46	M	26	T	28			
08/31	60.9	63.3	59.0	60.6	62.2	63.2	78.0	3643	778	T	41	M	14	T	45			
Aug	62.7	64.2	59.8	61.9	63.4	64.4	75.7	3746										
							Total AF	230319										

08/01 08/31

**Legend**

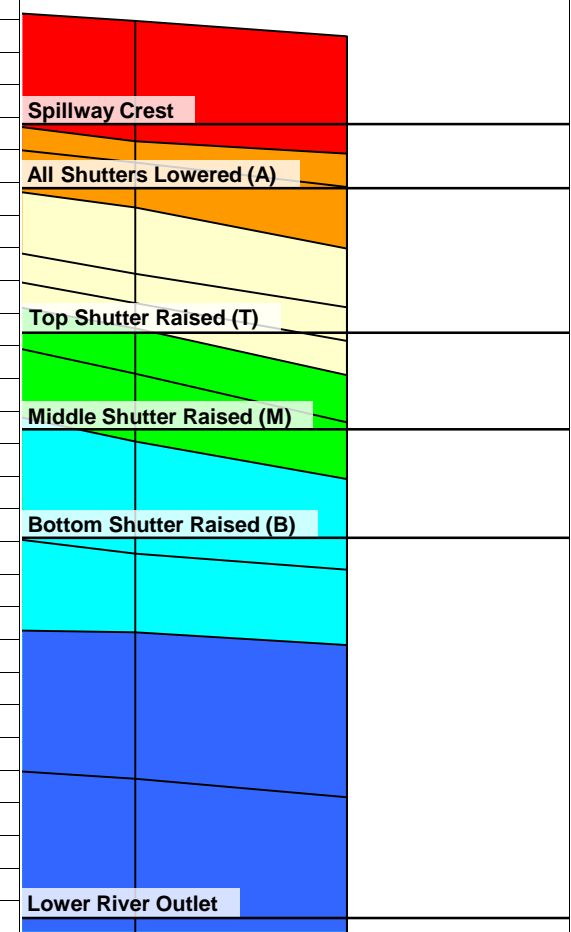
- ? = 1-9 hours of data missing
- I = 10 or more hours of data missing
- # = Station out of service
- ☐ = Monthly Averages

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

**Notes**

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

DATE	Mean Daily Temperatures (°F)							Release (CFS)	Storage (TAF)	Unit Shuter Position / Load Percentage						Isobath Plot			
	Water						Air			Nimbus	Folsom	Unit 1		Unit 2			Unit 3		
	NFA	ARP	AFD <sup>1</sup>	AHZ	AWP	AWB	CSU	Unit 1	Unit 2			Unit 3	Unit 4	Unit 5	Unit 6		Unit 7		
Aug																			
09/01	61.0	63.0	58.4	60.6	62.3	63.4	85.1	3634	774	T	37	M	49	T	14				
09/02	61.1	63.6	59.3	60.3	61.8	63.0	86.6	3631	770	T	35	M	20	T	45				
09/03	61.3	62.9	59.5	60.7	62.2	63.0	86.3	3628	767	T	43	M	14	T	43				
09/04	61.3	63.7	59.7	60.8	62.2	63.1	81.5	3631	764	T	44	M	15	T	41				
09/05	61.2	63.4	59.2	61.3	62.8	63.6	79.8	3630	759	T	0	M	32	T	68				
09/06	62.7	63.5	59.4	61.0	62.8	64.0	78.2	3627	755	T	0	M	30	T	70				
09/07	61.9	64.4	59.4	61.0	62.3	63.1	? 70.6	3632	751	T	0	M	37	T	63				
09/08	61.2	64.6	59.6	60.9	62.5	63.2	73.0	3536	748	T	0	M	33	T	67				
09/09	61.1	66.0	59.9	61.2	62.5	63.4	75.0	3475	744	T	0	M	31	T	69				
09/10	61.6	66.1	60.1	61.6	63.0	63.9	80.1	3474	741	T	0	M	30	T	70				
09/11	62.1	65.9	60.0	61.6	63.2	64.2	82.5	3498	737	T	0	M	37	T	62				
09/12	61.9	65.5	60.2	61.5	63.3	64.2	? 79.4	3552	733	T	0	M	38	T	62				
09/13	61.8	65.6	60.6	61.6	63.2	64.1	70.1	3546	730	T	0	M	29	T	71				
09/14	61.4	64.4	60.8	61.8	62.9	63.4	67.7	3544	727	T	0	M	25	T	74				
09/15	61.4	63.7	60.7	61.7	63.0	63.6	68.7	3553	723	T	0	M	32	T	68				
09/16	60.7	63.6	61.0	61.7	63.0	63.6	70.3	3551	719	T	0	M	30	T	70				
09/17	60.5	63.2	61.2	61.7	63.0	63.6	? 69.3	3555	715	T	0	M	28	T	72				
09/18	61.3	62.5	61.2	61.9	63.2	63.7	? 68.0	3551	711	T	0	M	30	T	70				
09/19	59.4	61.7	61.5	62.2	63.1	63.5	65.1	3536	707	T	0	M	29	T	70				
09/20	59.1	60.7	61.6	61.9	62.9	63.3	65.4	3471	703	T	0	M	28	T	72				
09/21																			
09/22																			
09/23																			
09/24																			
09/25																			
09/26																			
09/27																			
09/28																			
09/29																			
09/30																			
-																			
09/01	61.2	63.9	60.2	61.4	62.8	63.5	75.1	3563											
							Total AF	141331											



**Legend**

- ? = 1-9 hours of data missing
- I = 10 or more hours of data missing
- # = Station out of service
- Light Blue Box = 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





# DRAFT September 2017

## 90% Runoff Exceedance Outlook:

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

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

		Sep	Oct	Nov			
Folsom	778	660	557	477			
	Elev.	435	423	414			

### Monthly River Releases (cfs)

American	3500	2250	2008			
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)

		Sep	Oct	Nov			
Folsom	778	670	591	531			
	Elev.	436	427	420			

### Monthly River Releases (cfs)

American	3500	2506	2500			
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.

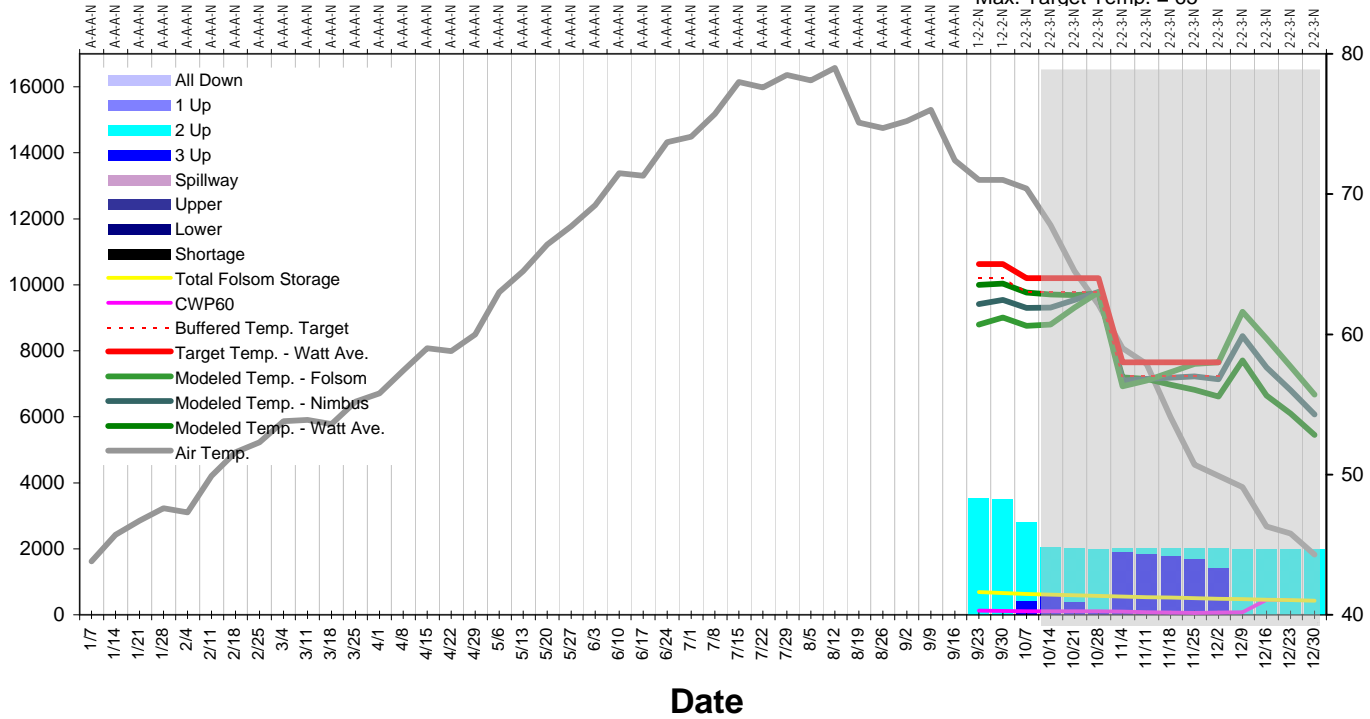


**September 2017 90%-Exceedance Outlook**

Temperature Schedule = 21  
 9/30 - CWP<60° (TAF, Constraint = 0) = 119  
 9/30 - Folsom Storage (TAF) = 663  
 Number of Excursions = 0  
 Max. Target Temp. = 65°

USBR Pred.

Release (cfs) / Volume (TAF)



Temperature (°F)

## Folsom Cold Water Pool

Folsom Reservoir: Cold Water Volume

<b>Profile Date</b>	<b>Volume less than 56°F (TAF)</b>
09/18/17	70

Last year there was a 6 TAF decrease of Cold Water Pool <60°F between mid-Sept and early-Oct

Proposed Power Generation Bypass/Lower River Outlet for Temperature Management

<b>Date</b>	<b>Bypass/Lower River Outlet (cfs)</b>	<b>Temperature not to exceed downstream of Nimbus Dam (°F)</b>	<b>Cumulative Use of Cold Water Pool Volume (TAF)</b>
N/A at this time			

Assumes Monthly average flows: November 2,000 cfs