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**From:** Fujitani, Paul [<mailto:pfujitani@usbr.gov>]

**Sent:** Monday, September 28, 2015 1:29 PM

**To:** Grober, Les@Waterboards; Riddle, Diane@Waterboards; Satkowski, Rich@Waterboards

**Cc:** Pettit, Tracy@DWR; [ekiteck@usbr.gov](mailto:ekiteck@usbr.gov); Chu, Andy@DWR

**Subject:** Monthly Water Balance Information

Attached is the Monthly Water Balance information for September 2015. This includes projected hydrology for the current year and 2015 observed conditions February through August. The projected data is based on project operation forecasts and information prepared in September.

Reclamation did not prepare a 99% exceedence forecast for September, but we have included data prepared by DWR for a 99%.

I have also included a copy of a 90% and 50% exceedence forecast summary prepared by the Central Valley Operations Office in September and the corresponding input data on a separate Excel spreadsheet for your use.

Thanks  
Paul

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(916) 979-2197

## Observed 2015 Hydrological Data

### Accretions / Depletions

Values in TAF

Sacramento Valley

Net Delta Consumptive Use

February	March	April	May	June	July	August	September
714	188	55	262	292	346	223	
24	70	41	148	211	268	234	

### Deliveries

Values in TAF

SWP - North of Delta M&I Contract Deliveries

SWP - North of Delta Agricultural Contract Deliveries

SWP - South of Delta Contract Deliveries

CVP - Sacramento River Deliveries

CVP - Tehama-Colusa Canal Deliveries

CVP - Contra Costa Canal

CVP - San Joaquin and Mendota Pool

CVP - Exchange Contractors - Pool Delivery

CVP - Refuges - Pool Delivery

CVP - Delta Mendota Canal Delivery

CVP - Refuges - DMC

CVP - San Luis Canal Delivery

CVP - San Felipe Division

CVP - Friant Kern Canal Delivery

CVP - Madera Canal Delivery

CVP - Millerton Lake Delivery

CVP - Folsom South Canal

CVP - Folsom Pumping Plant

Coordinated Operations Account Monthly Balance(4)

February	March	April	May	June	July	August	September
0	0	0	3.4	3	2	4	
0	12	23	115	110	122	84	
39	66	76	93	109	149	59	
NA	NA	77	253	245	261	178	
1.3	6	11	18	17	17	12	
2	15 est.	7	4	5	7	7	
3	3	2	5	13	9	7	
18	36	26	36	68	73	49	
15	3	2	1	<1	1	3	
2	6	7	15	27	37	20	
1	1	1	<1	1	1	3	
12	17	25	35	48	44	25	
3	4	7	8	8	7	<1	
1	5	6	9	16	21	20	
<1	<1	<1	<1	3	4	2	
<1	<1	<1	<1	<1	<1	<1	
1	1	1	2	2	2	1	
3	5	6	6	8	8	9	
6	-8	-28	-83	-35	-70	21	

### Delta Flows

Delta Inflow at Freeport (cfs)

Net Delta Outflow Index (cfs)

SJR at Vernalis Flow (cfs)

CVP Export (TAF)

SWP Export (TAF)

February	March	April	May	June	July	August	September
18,000	8042	6281	7088	6685	7532	7523	
15,800	4980	5360	5165	3849	3424	3030	
870	636	845	399	192	133	165	
58	120	63	30	26	25	41	
221	71	30	24	18	17	41	

### Transfers (5)

Values in TAF

NOD to SOD

February	March	April	May	June	July	August	September

### Reservoir Inflow

Values in TAF

Trinity

Whiskeytown

Shasta

Folsom

New Melones

Oroville

February	March	April	May	June	July	August	September
289	66	55	39	18	9	9	
63	9	7	4	1	1	1	
720	262	221	185	164	151	137	
168	65	50	52	52	44	54	
55	19	17	24	19	20	22	
338	123	83	56	67	63	95	

### Reservoir Releases

Values in TAF

Trinity

Whiskeytown

Shasta

Folsom

New Melones

Oroville

Carr Powerplant Release

February	March	April	May	June	July	August	September
15	20	59	195	107	110	150	
62	14	12	20	62	82	95	
106	180	240	434	358	347	329	
51	56	43	91	147	192	142	
12	69	77	59	67	75	69	
53	50	74	165	137	191	117	
1	3	37	21	62	83	94	

### Reservoir End of Month Storage

Values in TAF

Trinity

Whiskeytown

Shasta

Folsom

New Melones

Oroville

February	March	April	May	June	July	August	September
1147	1191	1184	1024	930	825	680	
207	205	236	239	238	238	237	
2613	2689	2662	2404	2198	1990	1789	
564	572	576	535	438	286	195	
606	554	491	453	401	344	295	
1736	1794	1782	1565	1395	1162	1072	

Notes: 1. CVP Sacramento River Deliveries not reported November through March

2. CVP deliveries represent total turnout delivery regardless of source

3. Additional details on CVP deliveries may be found on : <http://www.usbr.gov/mp/cvo/deliv.html>

4. Positive COA represents account in Reclamation favor, numbers not adjusted for transfers or non-project wate

5. Observed water transfer accounting data is not available at this time. Water program transfer data may be found at the following link:

<http://www.water.ca.gov/watertransfers/activity.cfm>

**90% Exceedence Forecast - Input Data**

**Inflows (TAF)**

	Trinity	Whiskeytown	Shasta	Folsom	New Melones (1)	Oroville	Millerton
Oct	9	2	200	24	11	74	10
Nov	14	2	230	32	10	83	7
Dec	22	4	260	60	11	110	13
2016 Jan							
Feb							
Mar							
Apr							
May							
Jun							
Jul							
Aug							
2015 Sep	9	2	1	109	39	78	57

**River Releases**

	Trinity (cfs)	Clear Creek (cfs)	Goodwin (cfs)	Oroville (cfs)
Oct	373	175	577	1200
Nov	300	175	200	950
Dec	300	175	206	950
2016 Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
2015 Sep	795	150	150	1200

**Hydrology**

	Wilkin's Target (cfs)	Kes-Wilkin's Acc/Dep (cfs)	SJR Above Stan (TAF)	Sac Gross Acc/Dep (TAF)	Freeport Treatment Plant (TAF)	East Side Streams (cfs)	Misc. Creeks (TAF)	Yolo Bypass (TAF)	Transfer Inflow (TAF)	Delta Consumptive Use (TAF)	Delta Outflow (TAF)	X-Channel Gate
Oct	3500	-771	12	40	13.3	210	29	0	0	-118	258	0
Nov	3500	-73	12	90	14	260	19	0	0	-55	303	0
Dec	3500	741	20	160	13.2	160	11.1	0	0	-2	307	1
2016 Jan												
Feb												
Mar												
Apr												
May												
Jun												
Jul												
Aug												
2015 Sep	3800	-1397	6	-26	12.4	160	2	0	0	-174	179	0

**Demands (TAF)**

	Folsom Pumping	Folsom South Canal	OID/SSJID	New Melones CVP Contractors	FRSA Demands	CCWD	SWP NOD Contractors	Delta Mendota Canal	Federal Dos Amigos	San Felipe	SWP SOD Contractors	San Joaquin Riparian	Friant Div. Ag/M&I
Oct	11	1.7	0.0	0	81	9.5	0	76	24	0.5	38	10	12
Nov	5	1.5	0.0	0	76	4.3	0	62	15	0.5	27	10	1
Dec	5	1.5	0.0	0	51	4.7	0	30	12	0.5	44	9	1
2016 Jan													
Feb													
Mar													
Apr													
May													
Jun													
Jul													
Aug													
2015 Sep	12	2.0	36.0	0	50	9.2	0	58	37	2.7	52	12	15

NOTE: 1) New Melones Reservoir inflow adapted from OID/SSJID data  
 2) Forecast input data includes water assumed to be made available for transfer by the Sacramento River Settlement Contractors in May, June, and July

**50% Exceedence Forecast - Input Data**

**Inflows (TAF)**

	Trinity	Whiskeytown	Shasta	Folsom	New Melones	Oroville	Millerton
Oct	14	3	240	39	35	120	20
Nov	32	7	300	74	35	170	18
Dec	58	16	380	120	40	220	35
2016 Jan							
Feb							
Mar							
Apr							
May							
Jun							
Jul							
Aug							
2015 Sep	3	2	136	44	16	78	57

**River Releases**

	Trinity (cfs)	Clear Creek (cfs)	Goodwin (cfs)	Oroville (cfs)
Oct	373	200	577	1125
Nov	300	200	200	950
Dec	300	175	206	950
2016 Jan				
Feb				
Mar				
Apr				
May				
Jun				
Jul				
Aug				
2015 Sep	795	150	150	1200

**Hydrology**

	Wilkin's Target (cfs)	Kes-Wilkin's Acc/Dep (cfs)	SJR Above Stan (TAF)	Sac Gross Acc/Dep (TAF)	Freeport Treatment Plant (TAF)	East Side Streams (cfs)	Misc. Creeks (TAF)	Yolo Bypass (TAF)	Transfer Inflow (TAF)	Delta Consumptive Use (TAF)	Delta Outflow (TAF)	X-Channel Gate
Oct	3500	-771	47	40	13.3	210	29	0	0	-118	246	0
Nov	3500	-73	48	90	14	260	19	0	0	-55	268	1
Dec	4000	741	48	160	13.2	160	11.1	0	0	-2	277	1
2016 Jan												
Feb												
Mar												
Apr												
May												
Jun												
Jul												
Aug												
2015 Sep	3800	-1305	9	-30	12.4	336	2	0	0	-174	179	0

**Demands (TAF)**

	Folsom Pumping	Folsom South Canal	OID/SSJID	New Melones CVP Contractors	FRSA Demand	CCWD	SWP NOD Demand	Delta Mendota Canal	Federal Dos Amigos	San Felipe	SWP SOD Contractors	San Joaquin Riparian	Friant Div. Ag/M&I
Oct	10	2.4	10.0	0	81	8.4	4.6	73	22	3	38	10	13
Nov	8	1.8	0.0	0	131	9.2	3.1	59	14	2	27	10	3
Dec	6	1.2	0.0	0	96	9.2	2.9	31	11	2	44	9	1
2016 Jan													
Feb													
Mar													
Apr													
May													
Jun													
Jul													
Aug													
2015 Sep	10	3.6	36.0	0	50	12.5	5.5	56	34	3	52	12	15

NOTE: 1) New Melones Reservoir inflow adapted from OID/SSJID data  
 2) Forecast input data includes water assumed to be made available for transfer by the Sacramento River Settlement Contractors in May, June, and July

99% Exceedence Forecast - Input Data

Inflows (TAF)

	Trinity	Whiskeytown	Shasta	Folsom	New Melones	Oroville	Millerton
Oct				170	20	74	8
Nov				180	20	65	5
Dec				190	20	62	7
2016 Jan							
Feb							
Mar							
Apr							
May							
Jun							
2015 Jul							
Aug							
Sep				95	30	78	57

River Releases

	Trinity (cfs)	Clear Creek (cfs)	Goodwin (cfs)	Oroville (cfs)
Oct				1200
Nov				950
Dec				950
2016 Jan				
Feb				
Mar				
Apr				
May				
2015 Jun				
Jul				
Aug				
Sep				1200

Hydrology

	Wilkin's Target (cfs)	Kes-Wilkin's Acc/Dep (cfs)	SJR Above Stan (TAF)	Sac Gross Acc/Dep (TAF)	Freeport Treatment Plant (TAF)	East Side Streams (cfs)	Misc. Creeks (TAF)	Yolo Bypass (TAF)	Transfer Inflow (TAF)	Delta Consumptive Use (TAF)	Delta Outflow (cfs)	X-Channel Gate
Oct				-25		10					4200	
Nov				88		15					5500	
Dec				137		10					5000	
2016 Jan												
Feb												
Mar												
Apr												
May												
2015 Jun												
Jul												
Aug												
Sep				-30		20					3000	

Demands (TAF)

	Folsom Pumping	Folsom South Canal	OID/SSJID	New Melones CVP Contractors	FRSA Demand	CCWD	SWP NOD Demand	Delta Mendota Canal	Federal Dos Amigos	San Felipe	SWP SOD Contractors	San Joaquin Riparian	Friant Div. Ag/M&I
Oct							0				38	10	13
Nov							0				27	10	3
Dec							0				44	9	1
2016 Jan													
Feb													
Mar													
Apr													
2015 May													
Jun													
Jul													
Aug													
Sep					69		0				52	12	5

**Storages**

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

		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Trinity		680	570	519	513	552							
	Elev.	2197	2188	2187	2194								
Whiskeytown		237	230	230	225	206							
	Elev.	1207	1207	1205	1199								
Shasta		1789	1547	1450	1559	1747							
	Elev.	929	922	929	942								
Folsom		195	175	170	204	285							
	Elev.	361	359	368	385								
New Melones		295	264	259	282	309							
	Elev.	797	796	803	811								
San Luis		52	37	49	68	104							
	Elev.	376	376	371	389								
<b>Total</b>		2823	2677	2851	3203								

**State End of the Month Reservoir Storage (TAF)**

Oroville		1072	1042	1010	991	1056							
	Elev.	670	666	663	673								
San Luis		357	307	300	245	332							
<b>Total San Luis (TAF)</b>		409	344	349	313	436							

**Monthly River Releases (TAF/cfs)**

Trinity	TAF	47	23	18	18								
	cfs	795	373	300	300								
Clear Creek	TAF	9	12	12	11								
	cfs	150	200	200	175								
Sacramento	TAF	428	363	208	215								
	cfs	7200	5900	3500	3500								
American	TAF	48	31	30	31								
	cfs	800	500	500	503								
Stanislaus	TAF	9	35	12	13								
	cfs	150	577	200	206								
Feather	TAF	71	69	57	58								
	cfs	1200	1122	950	950								

**Trinity Diversions (TAF)**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Carr PP	62	40	19	1								
Spring Crk. PP	60	30	19	25								

**Delta Summary (TAF)**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Tracy	80	131	115	121								
USBR Banks	0	0	0	0								
Contra Costa	12.5	8.4	9.2	9.15								
<b>Total USBR</b>	93	139	124	130								
State Export	101	144	54	158								
<b>Total Export</b>	194	283	178	288								
COA Balance	-182	-118	-207	-254								
Old/Middle R. std.												
Old/Middle R. calc.	-2,959	-3,536	-2,443	-3,755								
Computed DOI	3463	4002	4505	4506								
Excess Outflow	454	0	0	0								
% Export/Inflow	32%	45%	35%	50%								
% Export/Inflow std.	65%	65%	65%	65%								

**Hydrology**

	Trinity	Shasta	Folsom	New Melones
Water Year Inflow (TAF)	889	3,595	881	322
Year to Date + Forecasted % of mean	74%	65%	32%	30%

CVP actual operations do not follow any forecasted operation or outlook; actual operations are based on real-time conditions.  
 CVP operational forecasts or outlooks represent general system-wide dynamics and do not necessarily address specific watershed/tributary details.  
 CVP releases or export values represent monthly averages.  
 CVP Operations are updated monthly as new hydrology information is made available December through May.

Estimated CVP Operations Sep 90% Exceedance

**Storages**

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

		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Trinity		680	568	537	505	489							
	Elev.	2197	2191	2186	2183								
Whiskeytown		237	230	206	206	206							
	Elev.	1207	1199	1199	1199	1199							
Shasta		1789	1526	1389	1428	1484							
	Elev.	927	917	920	924	924							
Folsom		195	170	149	144	166							
	Elev.	359	353	351	358	358							
New Melones		295	265	246	244	242							
	Elev.	798	792	791	790	790							
San Luis		52	32	90	49	55							
	Elev.	378	379	378	396	396							
<b>Total</b>		2791	2618	2575	2641								

**State End of the Month Reservoir Storage (TAF)**

Oroville		1072	1025	957	906	906							
	Elev.	668	657	649	649	649							
San Luis		357	327	277	311	434							
<b>Total San Luis (TAF)</b>		409	359	367	360	489							

**Monthly River Releases (TAF/cfs)**

Trinity	TAF	47	23	18	18								
	cfs	795	373	300	300								
Clear Creek	TAF	9	11	10	11								
	cfs	150	175	175	175								
Sacramento	TAF	422	363	208	215								
	cfs	7100	5900	3500	3500								
American	TAF	48	31	30	31								
	cfs	800	500	500	500								
Stanislaus	TAF	9	35	12	13								
	cfs	150	577	200	206								
Feather	TAF	71	69	57	58								
	cfs	1200	1122	950	950								

**Trinity Diversions (TAF)**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Carr PP	63	15	28	19								
Spring Crk. PP	60	30	19	12								

**Delta Summary (TAF)**

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Tracy	80	180	57	89								
USBR Banks	0	0	0	0								
Contra Costa	9.2	9.5	4.3	4.7								
<b>Total USBR</b>	89	190	61	94								
State Export	75	50	48	139								
<b>Total Export</b>	164	240	109	233								
COA Balance	-182	-194	-226	-219								
Old/Middle River Std.												
Old/Middle R. calc.	-2,603	-3,243	-1,823	-3,265								
Computed DOI	3782	4197	5093	4994								
Excess Outflow	773	0	0	0								
% Export/Inflow	28%	39%	23%	43%								
% Export/Inflow std.	65%	65%	65%	65%								

**Hydrology**

<b>Water Year Inflow (TAF)</b>	Trinity	888	Shasta	3,568	Folsom	876	New Melones	323
Year to Date + Forecasted % of mean	74%	64%	32%	31%				





Inflows

	Trinity	Whiskeyto	Shasta	Folsom	New Melor	Oroville	
Oct	10	14	3	240	39	35	120
Nov	11	32	7	300	74	35	170
Dec	12	58	16	380	120	40	220
Jan	1	85	35	590	160	50	320
Feb	2	130	45	730	270	80	450
Mar	3	150	38	810	320	105	450
Apr	4	210	25	620	440	160	530
May	5	220	16	480	480	250	420
Jun	6	103	8	300	240	150	240
Jul	7	28	3	230	140	45	150
Aug	8	11	2	210	120	17	130
Start Mont Sep	9	3	2	136	44	16	95

River Releases

	Trinity (cfs)	Clear Creek	Goodwin (cfs)	
Oct	10	372.5806	200	577
Nov	11	300	200	200
Dec	12	300	175	206
Jan	1	300	175	261
Feb	2	300	175	309
Mar	3	300	175	280
Apr	4	476.6667	218	500
May	5	4189.226	216	150
Jun	6	2119.967	150	150
Jul	7	1102.419	120	150
Aug	8	450	120	150
Start Mont Sep	9	795	150	150

Hydrology

	Wilkin's Target (cfs)	Kes-		Freeport										X-channel gate			
		Wilkin's Acc/Dep (cfs)	SJR Above Stan (TAF)	Sac Gross Acc/Dep (TAF)	Treatment Plant (TAF)	East Side Streams (cfs)	Misc. Creeks (TAF)	Yolo Bypass (TAF)	Transfer Inflow (TAF)	Delta Consumptive Use (TAF)	Delta Outflow (TAF)	X-Channel Gate	Feather Minimum		Feather Target		
Oct	10	3500	-771	47	40	13.3	210	29	0	0	-118	246	0	0	0	4000.748	0 is open
Nov	11	3500	-73	48	90	14	260	19	0	0	-55	268	1	0	0	4503.823	1 is closed
Dec	12	4000	741	48	160	13.2	160	11.1	0	0	-2	277	1	0	0	4504.907	
Jan	1	4000	4309	52	700	13.8	2716	0.8	0	0	56	369	1	0	0	6001.122	
Feb	2	0	4213	63	880	12	1422	0.9	0	0	37	633	1	0	0	11397.6	
Mar	3	0	6473	69	970	12.1	7611	1.2	0	0	10	701	1	0	0	11400.51	
Apr	4	4000	-21	55	310	11.5	2890	1.8	0	0	-63	678	1	0	0	11394	
May	5	4000	-4122	60	-50	12.2	1888	2	0	0	-121	701	1	0	0	11400.51	
Jun	6	4000	-5244	30	-185	12.5	1254	2	0	0	-191	559	0	0	0	9394.169	
Jul	7	4000	-6233	26	-250	12.3	563	2	0	0	-268	492	0	0	0	8001.496	
Aug	8	2000	-3745	9	-270	12.4	325	2	0	0	-252	172	0	0	0	2797.271	
Start Mont Sep	9	3800	-1305	9	-30	12.4	336	2	0	0	-174	179	0	0	0	3008.151	

Demands (TAF)

	Folsom Pumping	Folsom South Canal	South Canal	OID/SSIID	New Melones CVP Contracto rs	Thermolite Demand	CCWD	Barker Slough	F. Banks On-Peak	F. Banks Off-Peak	North Bay Aqueduct	Delta Mendota Canal	Federal Dos Amigos	Fed O'N to D.A.	San Felipe	Cross Valley Canal	Fed Exchange Oneil	Fed Exchange San Luis	South Bay/San Jose	State Dos Amigos	Spring Creek Tunnel
Nov	11	7.5	1.8	0	0	131	9.2	3.1	0	0	0	59	14	0	2	0	20	0	5	103	60
Dec	12	6.25	1.2	0	0	96	9.15	2.9	0	0	0	31	11	0	2	0	40	0	5	66	10
Jan	1	6.25	1.2	0	0	0	7	2	0	0	0	10	12	0	2	0	0	0	1	71	28
Feb	2	6.25	1.2	0	0	0	7	1.5	0	0	0	40	15	0	2	0	0	0	1	41	40
Mar	3	6.25	1.5	20	0	12	6.35	1.4	0	0	0	50	32	0	3	0	0	0	2	65	30
Apr	4	12.5	1.8	55	0	23	11.85	1.9	0	0	0	70	43	0	3	0	0	0	3	88	0
May	5	12.5	2.7	65	0	122	11.85	3.9	0	0	0	110	66	0	4	0	0	0	2	87	30
Jun	6	13.75	3.6	70.2	0	128	10.4	5.2	0	0	0	160	93	0	3	0	0	0	11	164	60
Jul	7	15	4.5	70.2	0	129	11.05	6.6	0	0	0	170	123	0	3	0	0	0	8	167	80
Aug	8	18.6	4.5	63	0	95	11.85	6.9	0	0	0	64	39	0	3	0	0	0	6	173	50
Start Mont Sep	9	9.9	3.6	36	0	50	12.5	5.5	0	0	0	56	34	0	3	0	0	0	6	142	30