

# Water Report

February 13, 2018

- Weather Forecast
- Status of Watershed
- CCSF Reservoir Storage and Operations
- Don Pedro Reservoir Storage and Operations



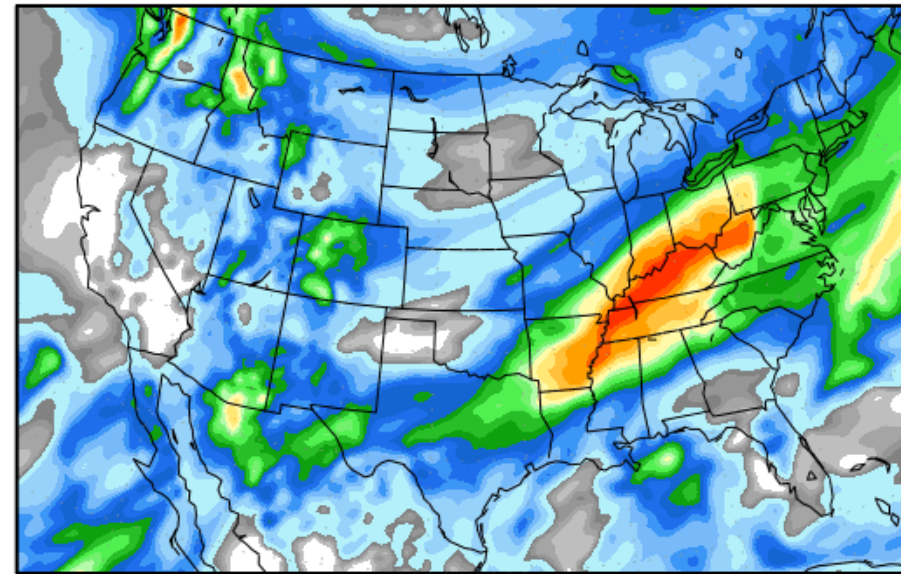
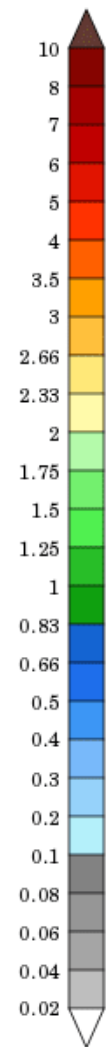
# Precipitation Forecasts

Precipitation (in)  
during the period:

Mon, 12 FEB 2018 at 12Z

-to-

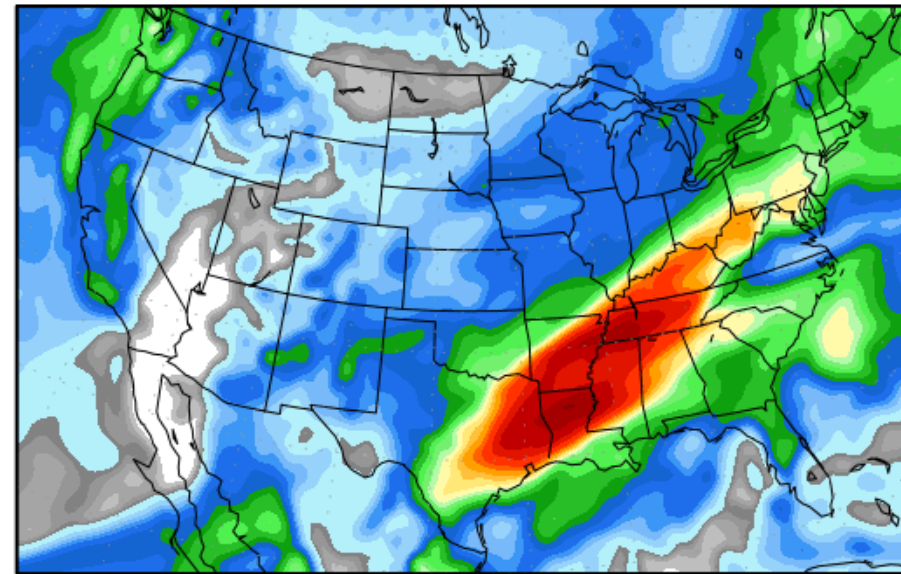
Tue, 20 FEB 2018 at 12Z



Tue, 20 FEB 2018 at 12Z

-to-

Wed, 28 FEB 2018 at 12Z

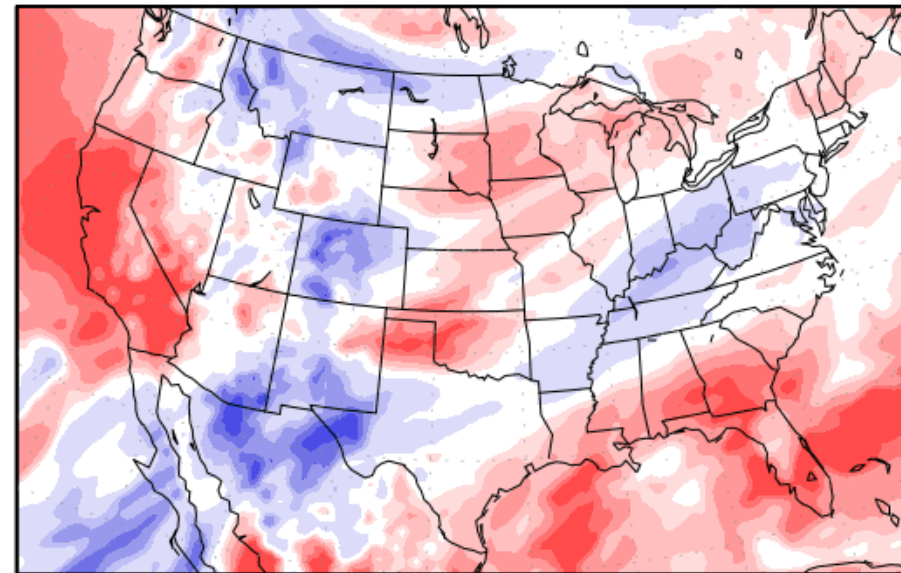
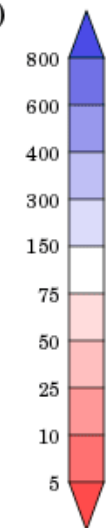


Precipitation (% of normal)  
during the first period:

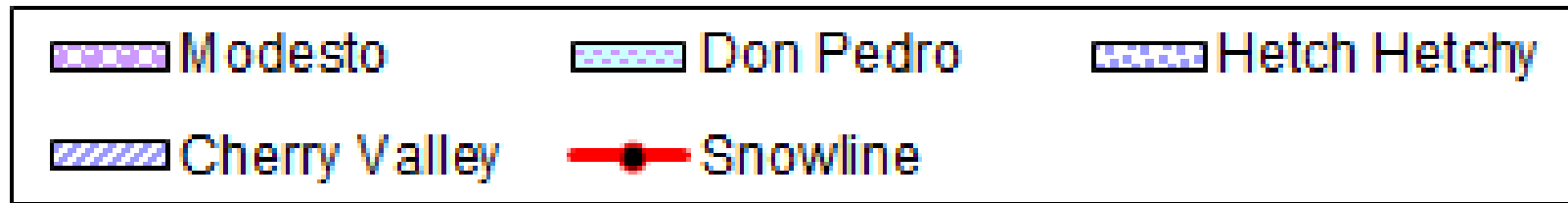
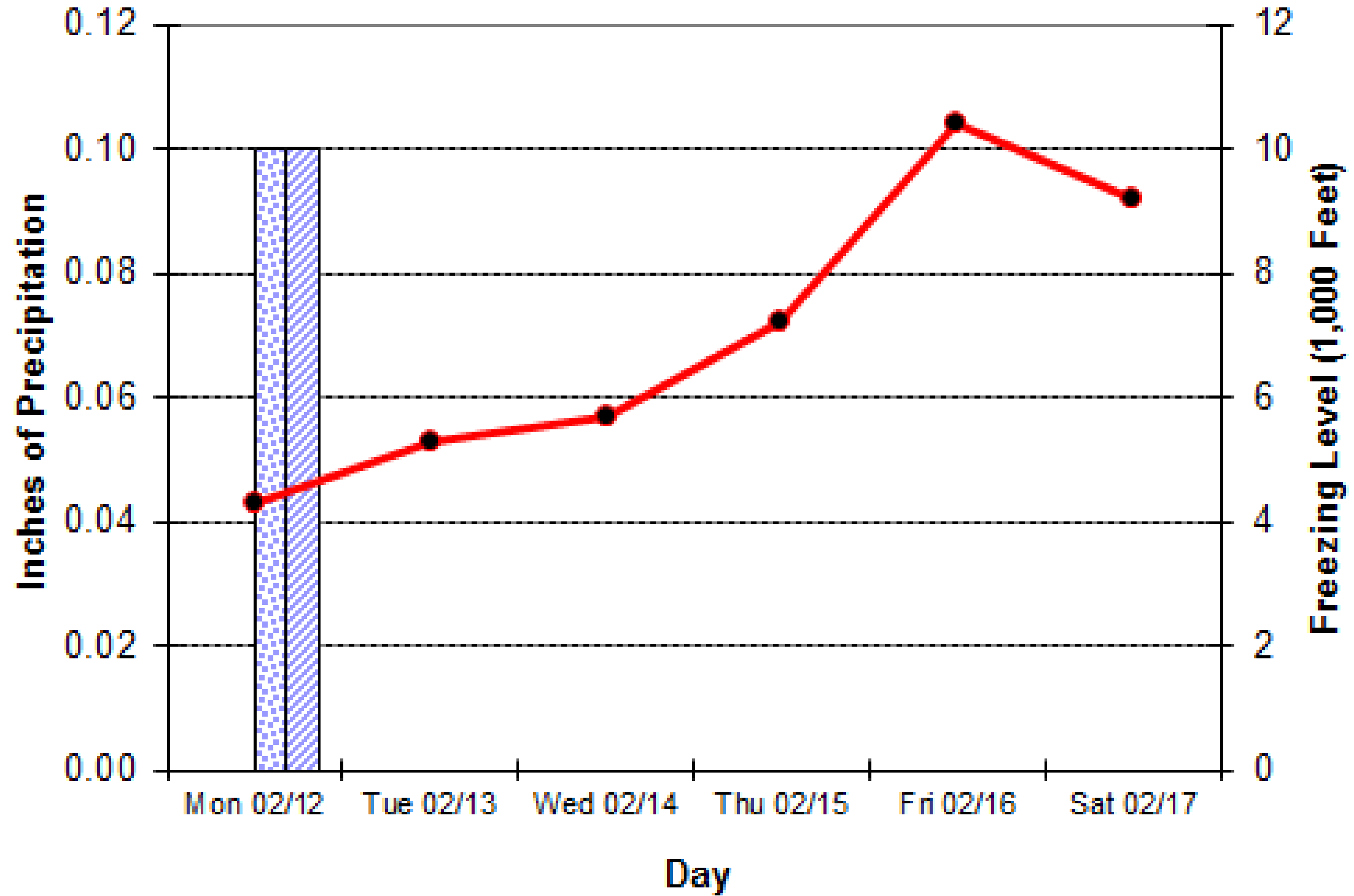
Mon, 12 FEB 2018 at 12Z

-to-

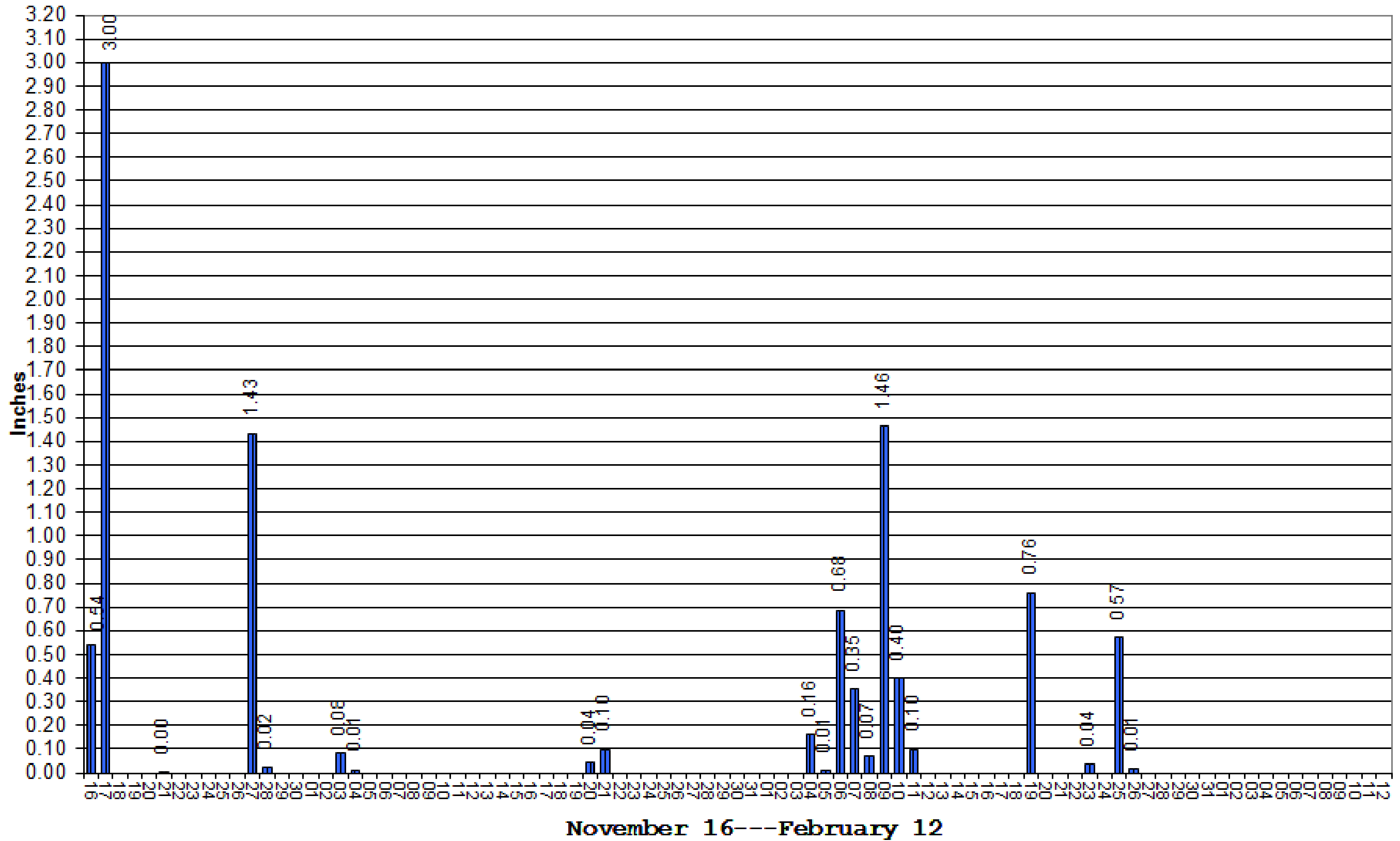
Tue, 20 FEB 2018 at 12Z



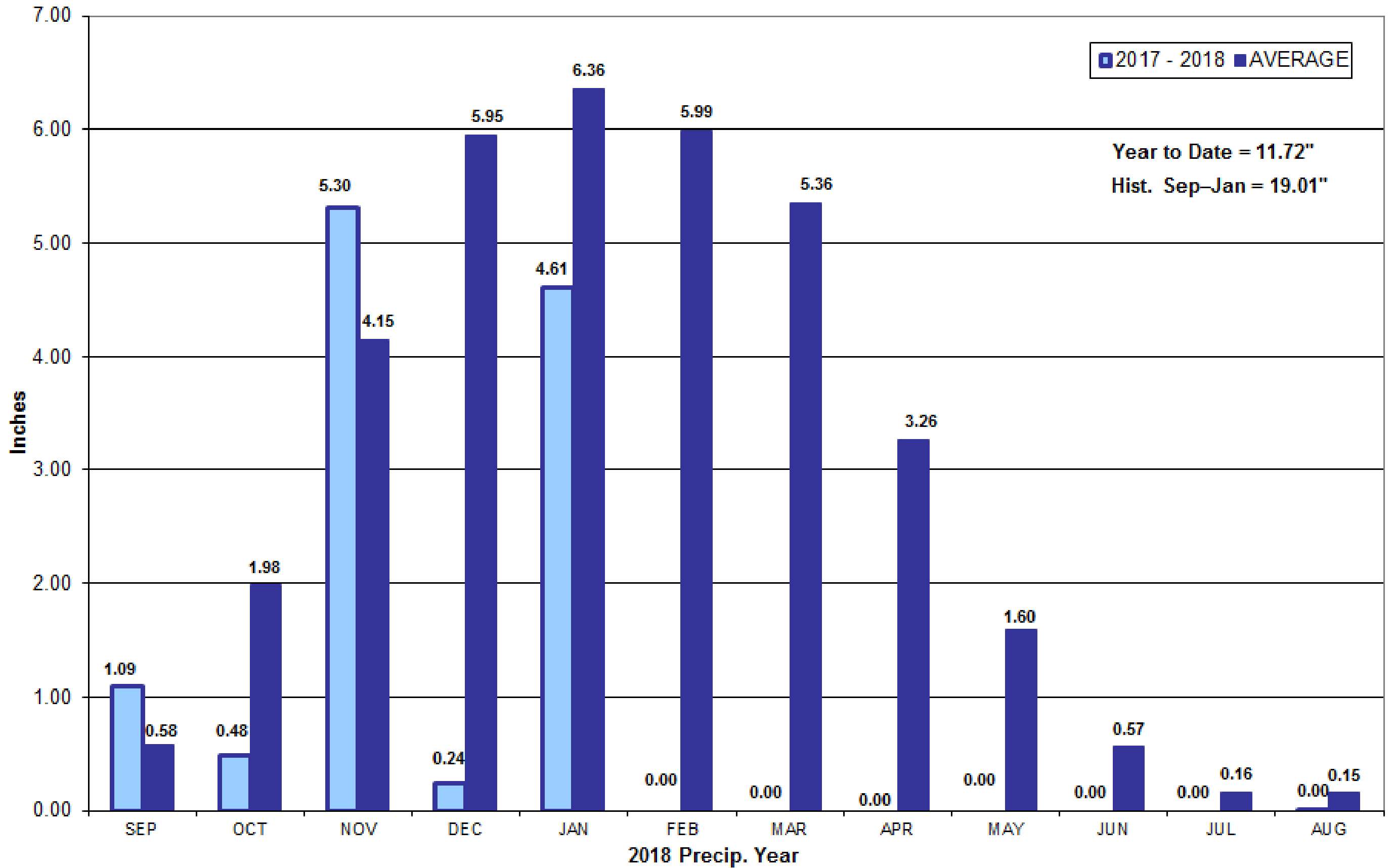
Precipitation forecasts from the National Centers for Environmental Prediction.  
Normal rainfall derived from Xie-Arkin (CMAP) Monthly Climatology for 1979-2003.  
Forecast Initialization Time: 12Z12FEB2018



# Watershed Daily Precipitation

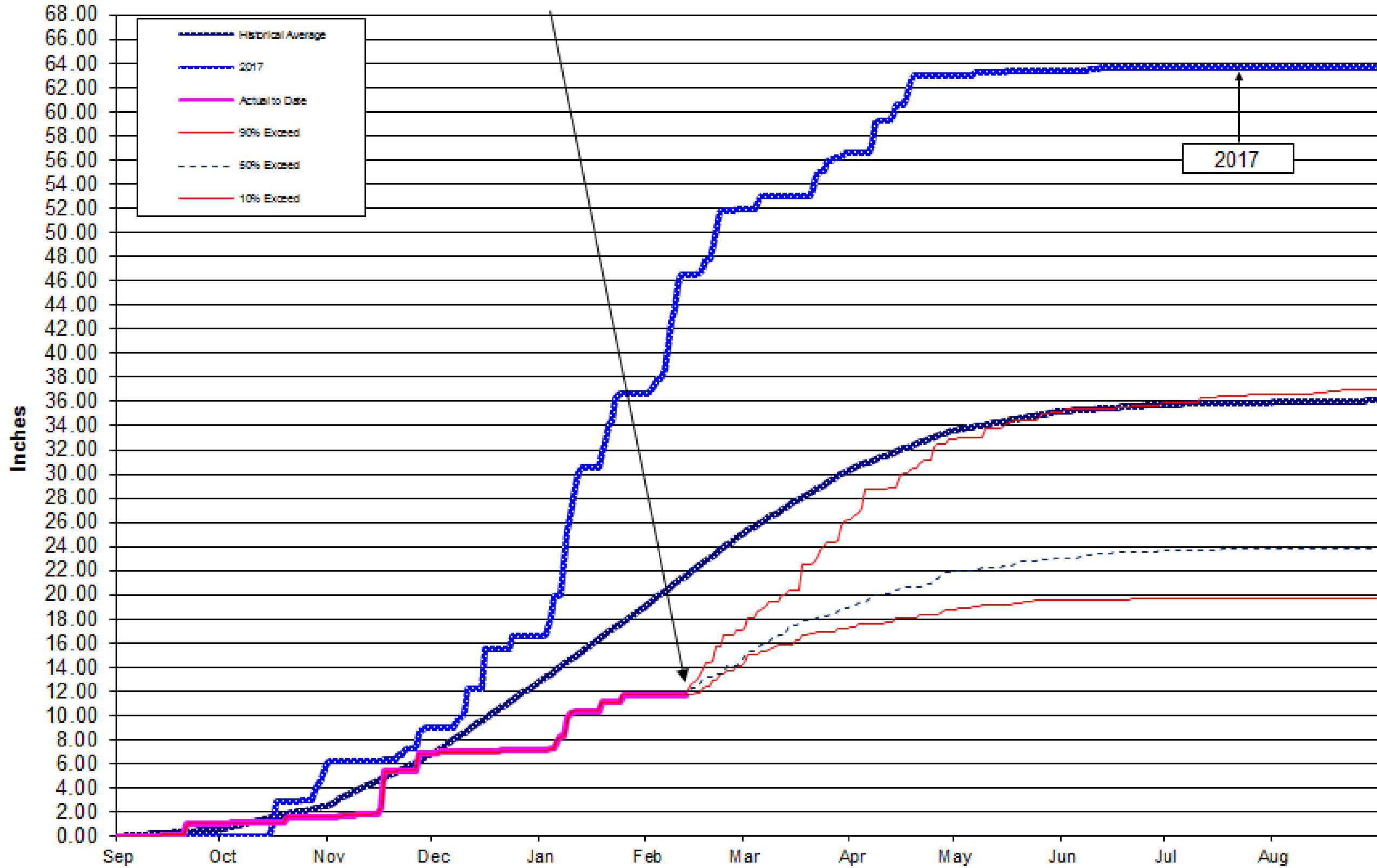


# Tuolumne River Watershed Monthly Accumulation of Precipitation



# Tuolumne River Watershed Accumulated Precipitation

11.72 Inches or 54.3% for this date



DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER

SNOW WATER EQUIVALENTS (IN INCHES) ---

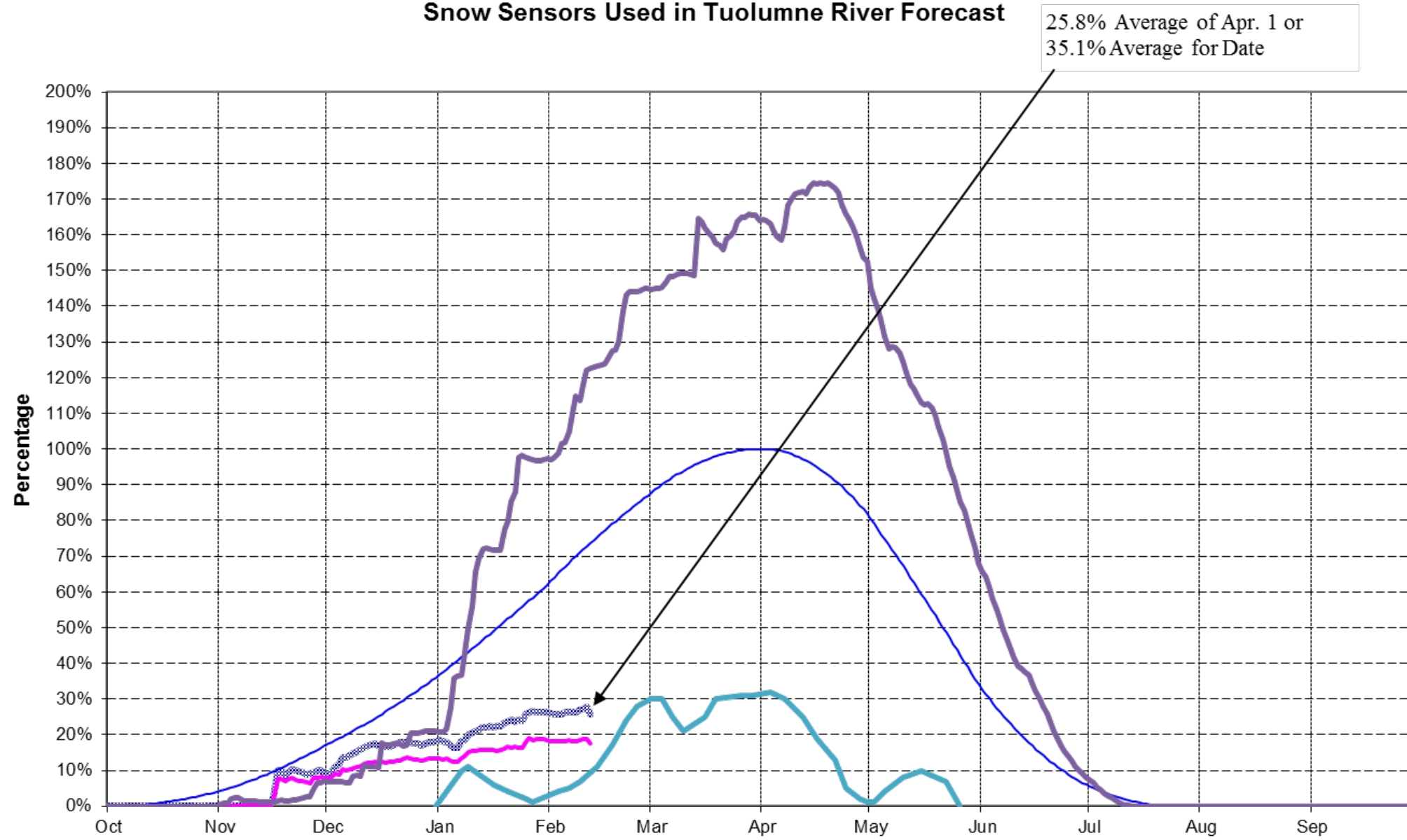
As of 02/12/18

BASIN NAME STATION NAME	COOPERATIVE AGENCY	ELEV FEET	APR 1 AVG	TODAY	PERCENT OF APR 1	LAST WEEK	DIFF. FROM LAST WEEK
TUOLUMNE							
* DANA MEADOWS	DWR	9800	<b>27.70</b>	7.81	28.19%	8.26	-0.45
* SLIDE CANYON	DWR	9200	<b>41.10</b>	13.94	33.92%	14.49	-0.55
* TUOLUMNE MEADOWS	DWR	8600	<b>22.60</b>	8.58	37.96%	7.44	1.14
* HORSE MEADOW	DWR	8400	<b>48.60</b>	17.99	37.02%	19.38	-1.39
* PARADISE	DWR	7650	<b>41.30</b>	7.41	17.94%	7.89	-0.48
* LOWER KIBBIE	DWR	6600	<b>27.40</b>	0.00	0.00%	0.00	0.00
				AVERAGE	25.84%	AVERAGE	-0.29
MERCED							
TENAYA LAKE <sup>2</sup>	DWR	8150	<b>33.10</b>	6.69	20.21%	7.31	-0.62
OSTRANDER LAKE	DWR	8200	<b>34.80</b>				0.00
* GIN FLAT	DWR	7050	<b>34.20</b>	0.54	1.58%	1.44	-0.90
				AVERAGE	10.90%	AVERAGE	-0.51
MONO LAKE							
GEM PASS	LADWP	10750	<b>31.70</b>	7.07	22.30%	7.03	0.04
STANISLAUS							
DEADMAN CREEK	USBR	9250	<b>37.20</b>	9.12	24.52%	8.88	0.24
* GIANELLI MEADOW	USBR	8350	<b>55.50</b>				0.00
* LOWER RELIEF	DWR	8100	<b>41.20</b>				
STANISLAUS MEADOW	USBR	7750	<b>47.50</b>	6.94	14.61%	8.98	-2.04
BLOODS CREEK	USBR	7200	<b>35.50</b>	1.87	5.27%	1.87	0.00
BLACK SPRINGS	USBR	6500	<b>32.00</b>	0.12	0.38%	1.08	-0.96
				AVERAGE	11.19%	AVERAGE	-0.55
WALKER							
* VIRGINIA LAKES RIDGE	SCS	9200	<b>20.30</b>	3.30	16.26%	3.80	-0.50
LOBDELL LAKE	SCS	9200	<b>17.30</b>	5.00	28.90%	5.00	0.00
* SONORA PASS	SCS	8750	<b>26.00</b>	4.50	17.31%	3.90	0.60
LEAVITT MEADOWS	SCS	7200	<b>8.00</b>	0.00	0.00%	0.00	0.00
				AVERAGE	15.62%	AVERAGE	0.03

\*

Snow sensors that are used for the D.W.R. Tuolumne River Forecast.

### Snow Sensors Used in Tuolumne River Forecast



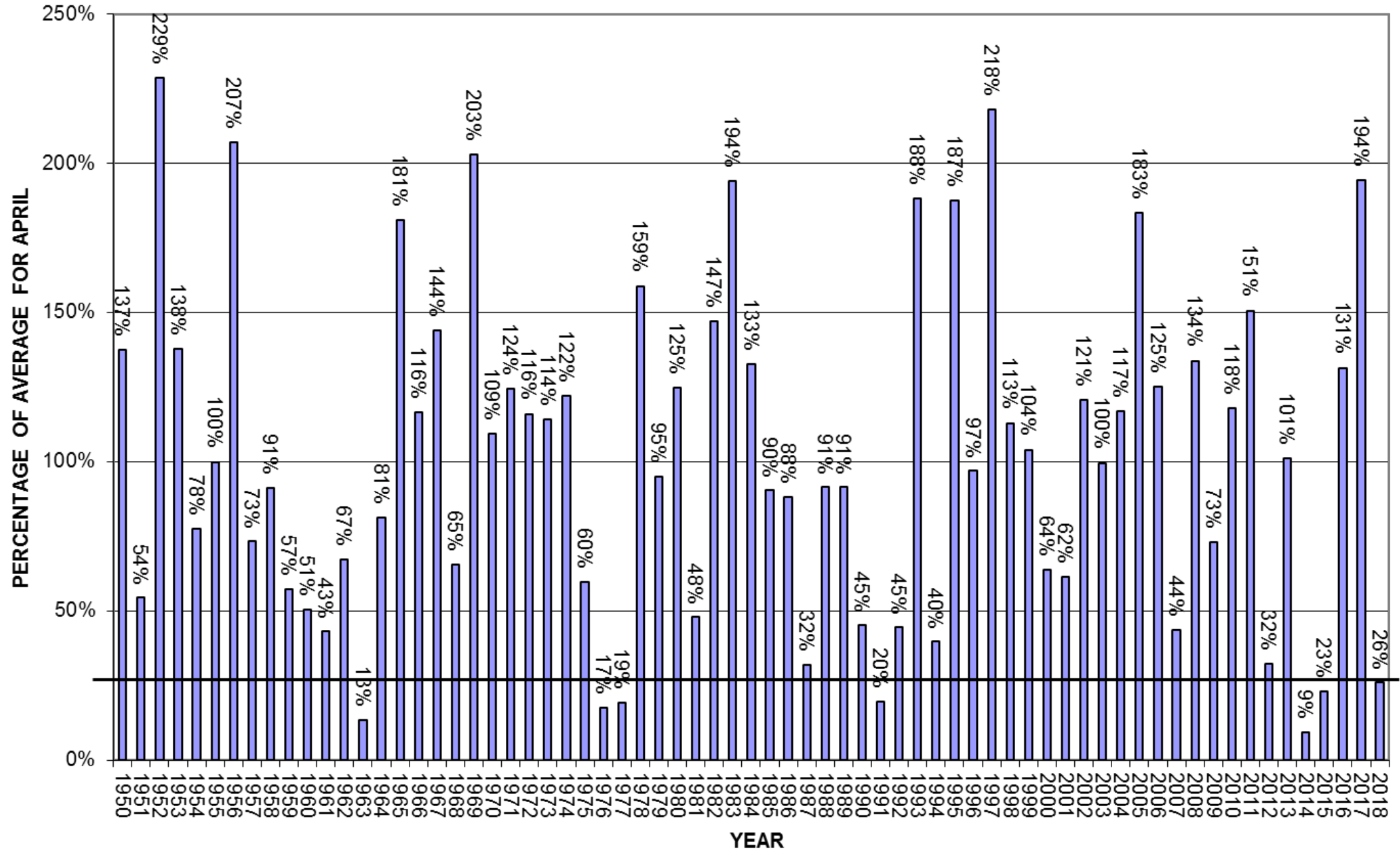
     Tuolumne 2017-2018  
      D.W.R. Average  
      All Courses 2017-2018  
      2016-2017 All Courses  
      1977



Feb 2018 SNOW COURSE READINGS									
TUOLUMNE BASIN SNOW COURSE SURVEY DATA									
Snow Course	Number	Elevation	Ave. W. C.		Depth	W. C.	Density	% of	% of
			on 01APR	Date				01APR	01Feb
DANA MEADOWS	157	9,800	30.1	27-Jan	33.0	7.5	23%	25%	39%
RAFFERTY MEADOWS	158	9,400	32.5	26-Jan	36.5	9.5	26%	29%	46%
BOND PASS	159	9,300	43.7	26-Jan	49.0	15.5	32%	35%	63%
NEW GRACE MEADOW	368	8,900	46.6	31-Jan	45.5	15.5	34%	33%	52%
TUOLUMNE MEADOWS	161	8,600	22.3	25-Jan	17.0	3.5	21%	16%	23%
HORSE MEADOW	162	8,400	45.8	27-Jan	40.0	14.0	35%	31%	55%
WILMER LAKE	163	8,000	42.9						
SACHSE SPRINGS	165	7,900	36.7	26-Jan	11.0	2.0	18%	5%	9%
HUCKLEBERRY LAKE	166	7,800	40.4	29-Jan	22.5	7.0	31%	17%	31%
SPOTTED FAWN	164	7,800	44.8	29-Jan	19.5	5.5	28%	12%	21%
PARADISE MEADOW	167	7,650	38.6						
KERRICK CORRAL	348	7,000	23.0	1-Feb	9.0	2.0	22%	9%	12%
UPPER KIBBIE RIDGE	168	6,700	17.8	26-Jan	5.5	1.0	18%	6%	8%
VERNON LAKE	169	6,700	21.6	27-Jan	10.0	1.5	15%	7%	10%
LOWER KIBBIE RIDGE	173	6,700	24.2	26-Jan	6.0	1.0	17%	4%	6%
BELL MEADOW	172	6,500	14.8	1-Feb	2.0	0.5	25%	3%	4%
BEEHIVE MEADOW	171	6,500	22.2	26-Jan	12.0	1.5	12%	7%	9%
Average	17 TOT.	7,862			21.2	5.8	23.8%	16%	26.0%
MERCED BASIN SNOW COURSE SURVEY DATA									
Snow Course	Number	Elevation	Ave. W. C.		Depth	W. C.	Density	% of	
			on 01APR	Date				01APR Ave.	
SNOW FLAT	176	8,700	44.2	29-Jan	27.5	8.5	31%	19%	33%
OSTRANDER LAKE	177	8,200	33.6	3-Feb	15.5	4.5	29%	13%	22%
LAKE TENAYA	178	8,150	31.8	30-Jan	13.5	3.0	22%	9%	16%
GIN FLAT	179	7,000	31.1	27-Jan	8.5	1.5	18%	5%	8%
PEREGOY MEADOWS	180	7,000	27.7	1-Feb	4.0	1.0	25%	4%	6%
Average	5 TOT.	7,810			13.8	3.7	25.0%	10%	17%
STANISLAUS BASIN SNOW COURSE SURVEY DATA									
Snow Course	Number	Elevation	Ave. W. C.		Depth	W. C.	Density	% of	
			on 01APR	Date				01APR Ave.	
DEADMAN CREEK	345	9,250	34.1	30-Jan	36.5	13.0	36%	38%	67%
CLARK FORK MEADOW	344	8,900	38.8	30-Jan	40.0	14.0	35%	36%	62%
GIANELLI MEADOW	427	8,400	46.9	31-Jan	39.0	14.0	36%	30%	49%
LOWER RELIEF VALLEY	138	8,100	39.4	30-Jan	19.5	7.5	38%	19%	31%
SODA CREEK FLAT	139	7,800	21.4	30-Jan	6.0	1.5	25%	7%	12%
STANISLAUS MEADOW	384	7,750	43.9	29-Jan	18.5	7.0	38%	16%	26%
EAGLE MEADOW	140	7,500	23.1	30-Jan	6.0	1.5	25%	6%	10%
HERRING CREEK	142	7,300	27.1	30-Jan	8.0	2.0	25%	7%	12%
RELIEF DAM	143	7,250	19.4	30-Jan	5.0	1.0	20%	5%	8%
BLOODS CREEK	416	7,200	30.9	1-Feb	8.0	2.0	25%	6%	10%
CORRAL MEADOW	430	6,650	17.3						0%
HELLS KITCHEN	373	6,550	19.8	1-Feb	3.5	1.5	43%	8%	11%
NIAGARA FLAT	145	6,500	18.7	30-Jan	7.5	2.0	27%	11%	15%
BLACK SPRINGS	386	6,500	21.5	1-Feb	5.5	1.5	27%	7%	10%
Average	13 TOT.	7,546			15.6	5.3	30.8%	15%	23%

Tuolumne Snow Courses

February, 2018 Snow Course Readings



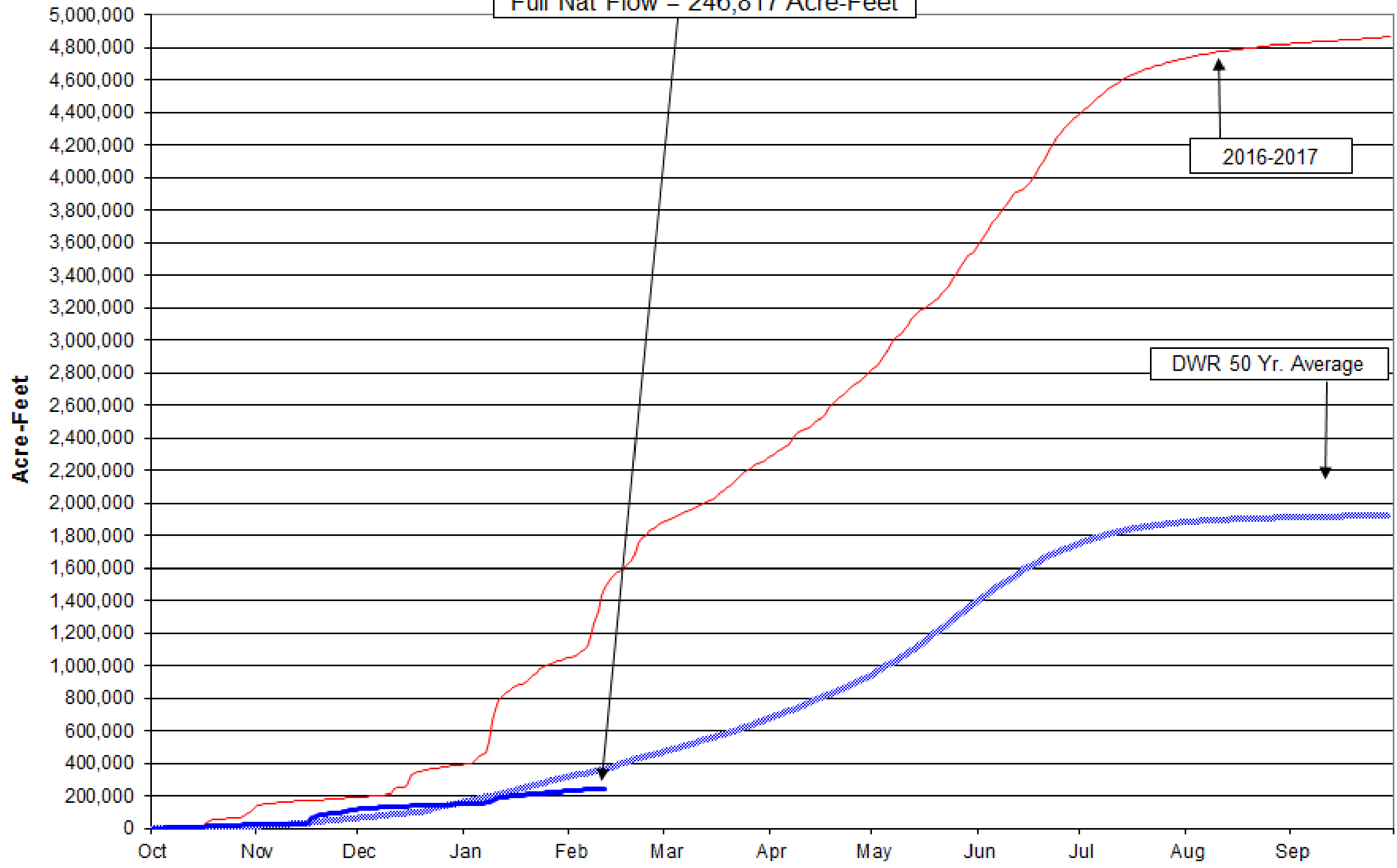
February 1, 2018 FORECAST																						
OF UNIMPAIRED RUNOFF																						
(in thousands of acre-feet)																						
April-July Forecast																						
										April	Percent	80%										
										thru	of	Probability										
										July	Average	Range										
-----																						
NORTH COAST																						
Trinity River at Lewiston Lake										300	47%	200 - 420										
Scott River near Fort Jones										65	38%											
SACRAMENTO RIVER																						
Sacramento River above Shasta Lake										165	56%											
McCloud River above Shasta Lake										340	88%											
Pit River above Shasta Lake										910	89%											
Total inflow to Shasta Lake										1440	82%	1160 - 1750										
Sacramento River above Bend Bridge										1720	71%	1340 - 2130										
Feather River at Oroville										880	52%	600 - 1180										
Yuba River at Smartsville										580	60%	410 - 810										
American River below Folsom Lake										670	56%	460 - 950										
SAN JOAQUIN RIVER																						
Cosumnes River at Michigan Bar										60	48%	40 - 100										
Mokelumne River inflow to Pardee										270	59%	210 - 370										
Stanislaus River below Goodwin Res.										370	54%	300 - 490										
Tuolumne River below La Grange										720	60%	590 - 940										
Merced River below Merced Falls										330	53%	270 - 430										
San Joaquin River inflow to Millerton Lk										680	55%	520 - 860										
TULARE LAKE																						
Kings River below Pine Flat Res.										640	53%	470 - 810										
Kaweah River below Terminus Res.										120	42%	90 - 160										
Tule River below Lake Success										18	29%	11 - 30										
Kern River inflow to Lake Isabella										220	48%	150 - 300										
NORTH LAHONTAN																						
Truckee River, Tahoe to Farad accretions										130	52%											
Lake Tahoe Rise, in feet										0.9	67%											
West Carson River at Woodfords										35	67%											
East Carson River near Gardnerville										120	66%											
West Walker River below Little Walker										95	62%											
East Walker River near Bridgeport										34	56%											
Water-Year (WY) Forecast and Monthly Distribution																						
										Oct					Water		80%		WY			
										thru	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Year	Probability	%	
										Jan										Range	Avg	
-----																						
Trinity, Lewiston										135	100	151	125	120	45	10	3	1	690	500 -	920	51
Inflow to Shasta										1156	540	684	530	420	270	220	185	185	4190	3590 -	4850	72
Sacramento, Bend										1582	760	968	645	490	335	250	235	235	5500	4630 -	6440	64
Feather, Oroville										843	405	552	360	290	140	90	75	65	2820	2190 -	3500	64
Yuba, Smartsville										488	210	289	245	240	75	20	12	11	1590	1260 -	2030	70
American, Folsom										502	230	340	290	280	85	15	4	4	1750	1350 -	2280	67
Cosumnes, Mich.Bar										43	35	57	33	20	6	1	0	0	195	140 -	300	51
Mokelumne, Pardee										106	45	67	100	130	35	5	1	1	490	400 -	640	66
Stanislaus, Gdw.										154	65	114	145	160	55	10	4	3	710	600 -	890	62
Tuolumne, LaGrange										229	95	163	220	330	150	20	8	5	1220	1040 -	1530	64
Merced, McClure										73	45	77	115	150	55	10	4	1	530	440 -	670	53
San Joaquin, Mil.										130	60	118	180	280	170	50	14	8	1010	800 -	1250	56
Kings, Pine Flat										116	45	95	170	285	145	40	15	9	920	700 -	1140	54
Kaweah, Terminus										28	14	30	40	55	20	5	2	1	195	150 -	260	43
Tule, Success										13	5	9	9	7	2	0	0	0	45	30 -	70	31
Kern, Isabella										103	25	35	55	80	60	25	13	9	405	300 -	520	56

WY2018 Computed Natural Flow

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT
DAY	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS
1	(55)	169	1,540	357	854							
2	593	675	481	423	1,225							
3	672	114	897	(181)	518							
4	91	145	955	376	593							
5	742	162	658	403	1,235							
6	113	524	715	1,250	520							
7	471	(153)	358	2,202	1,182							
8	180	343	663	1,614	493							
9	363	(201)	980	7,105	617							
10	1,008	299	381	4,356	997							
11	19	346	248	2,227	560							
12	373	333	364	1,333								
13	717	(203)	1,017	1,304								
14	(145)	447	370	1,123								
15	936	(270)	558	1,043								
16	422	2,379	330	1,125								
17	429	17,549	315	625								
18	(23)	4,632	541	583								
19	444	2,329	(133)	1,736								
20	1,110	727	1,018	1,265								
21	545	1,657	432	405								
22	338	1,500	409	714								
23	257	1,151	(154)	1,176								
24	620	1,286	358	382								
25	339	1,343	966	1,247								
26	424	1,612	(146)	720								
27	384	2,851	510	655								
28	765	2,399	403	750								
29	164	1,478	432	768								
30	488	1,377	363	1,333								
31	612		350	649								
Average C.F.S.	432	1,567	522	1,260	799							
Total Monthly A.F.	26,569	93,223	32,088	77,496	17,441							
DWR 50 YR Average A.F.	22,000	50,000	88,000	149,000	146,000	214,000	268,000	444,000	345,000	136,000	32,000	16,000
<b>Total October-September Computed Natural Flow=</b>				<b>246,817</b>	<b>A.F.</b>				<b>APR-JLY =</b>	<b>0</b>	<b>A.F.</b>	
			<b>Remaining =</b>	<b>1,663,183</b>					<b>Remaining =</b>	<b>1,193,000</b>		

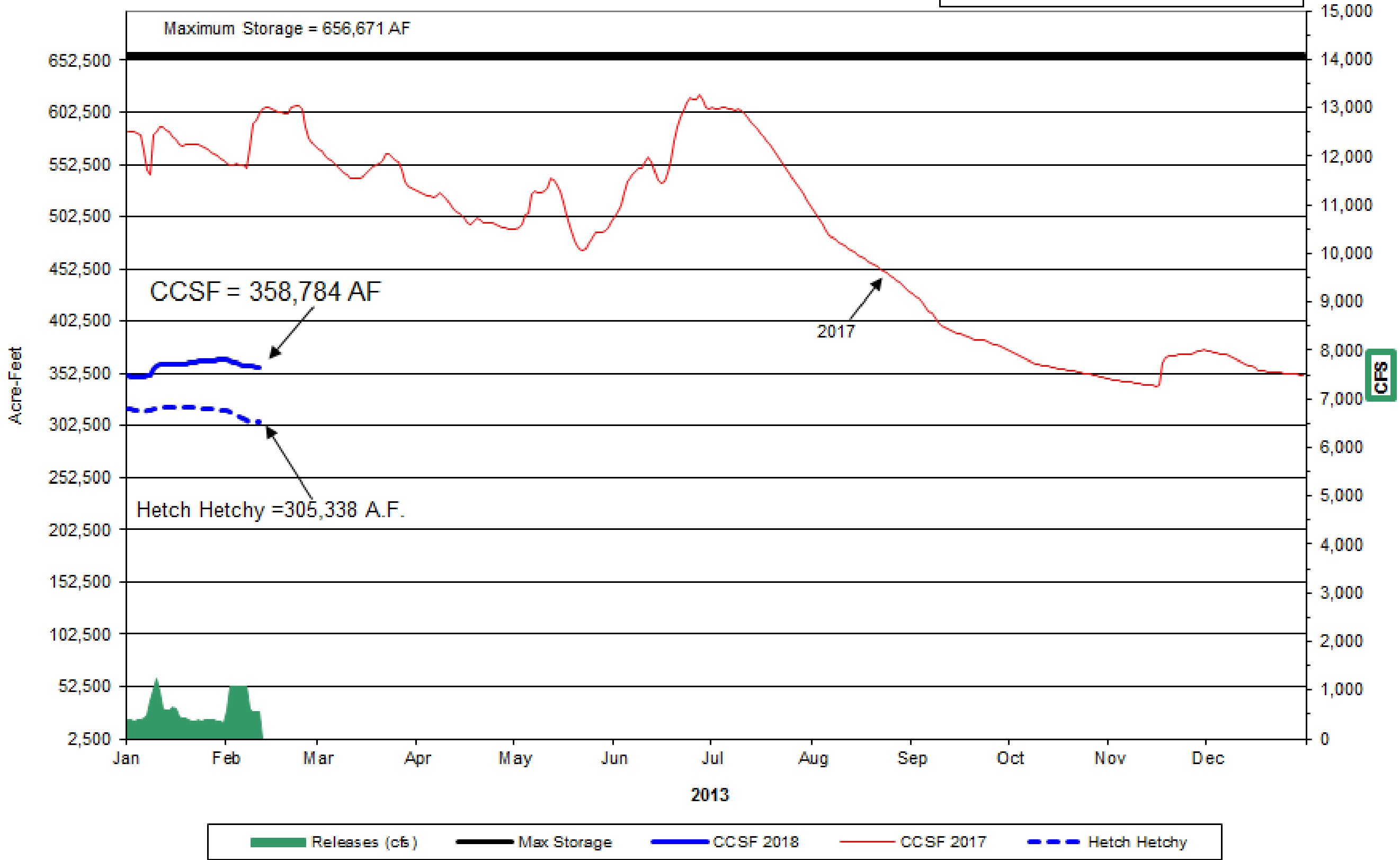
# Full Natural Flow

Full Nat Flow = 246,817 Acre-Feet

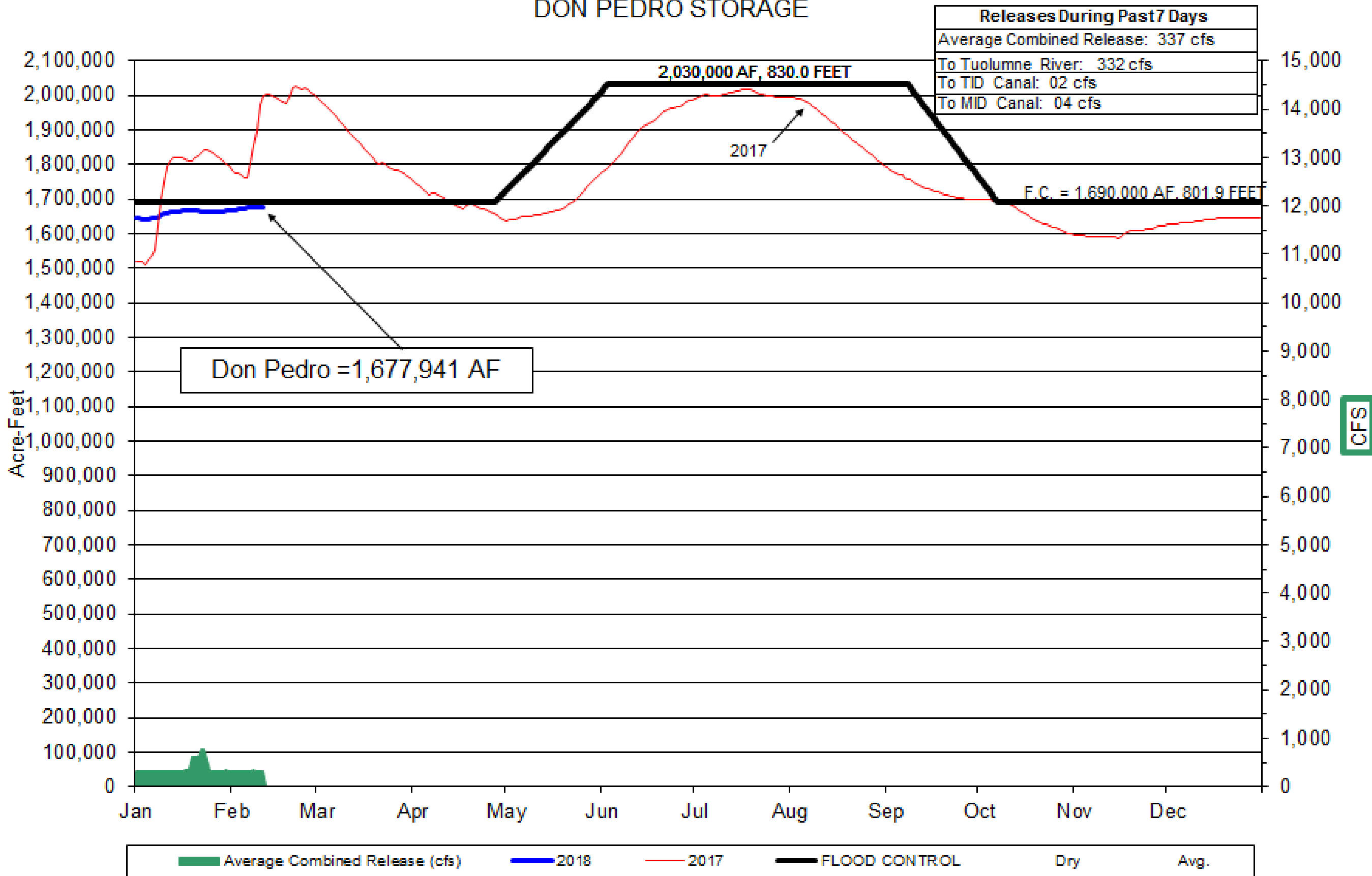


# CCSF Total Storage

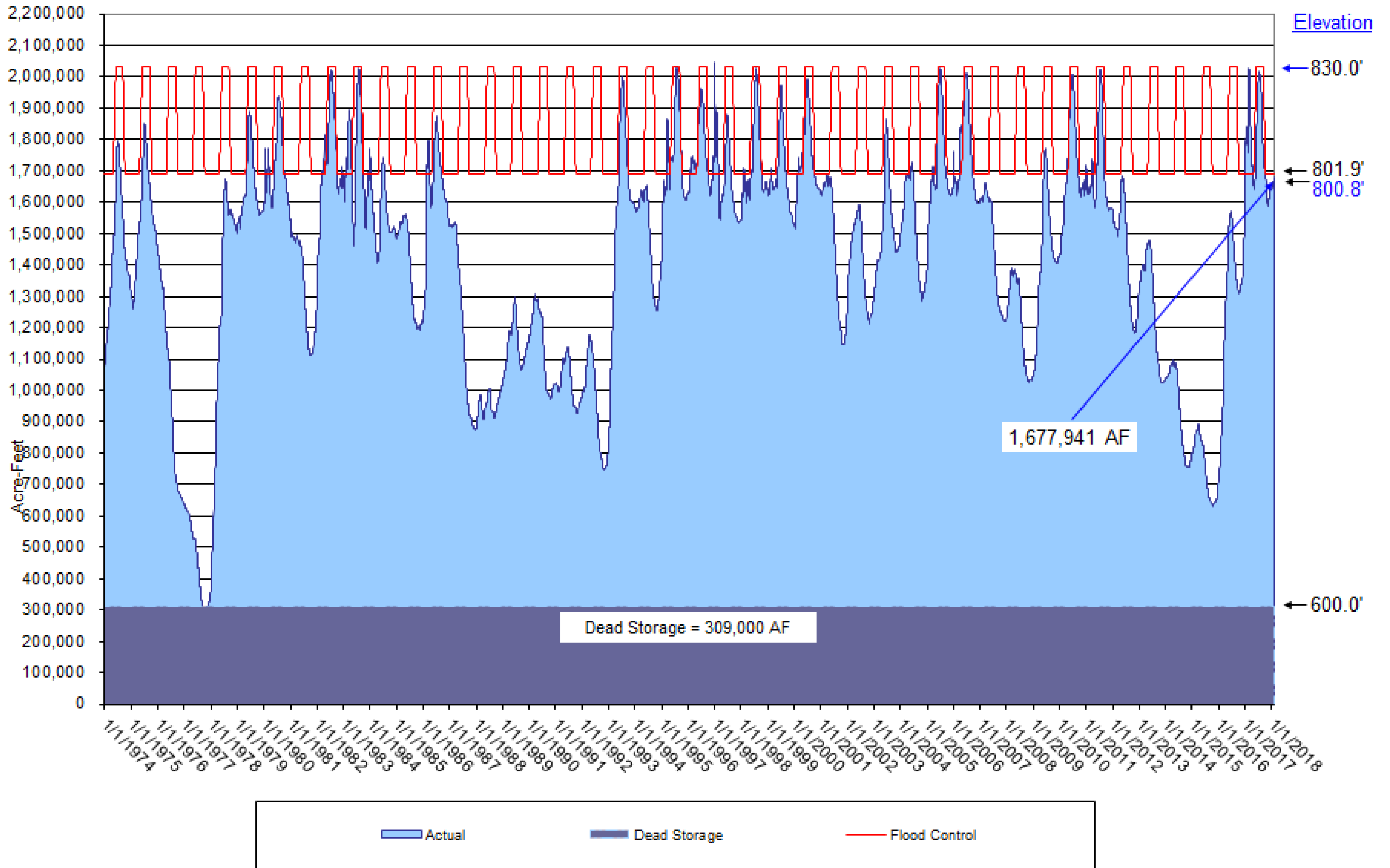
7-Day Average Release: 782 cfs  
 7-Day Average Diversion: 240 cfs



# DON PEDRO STORAGE



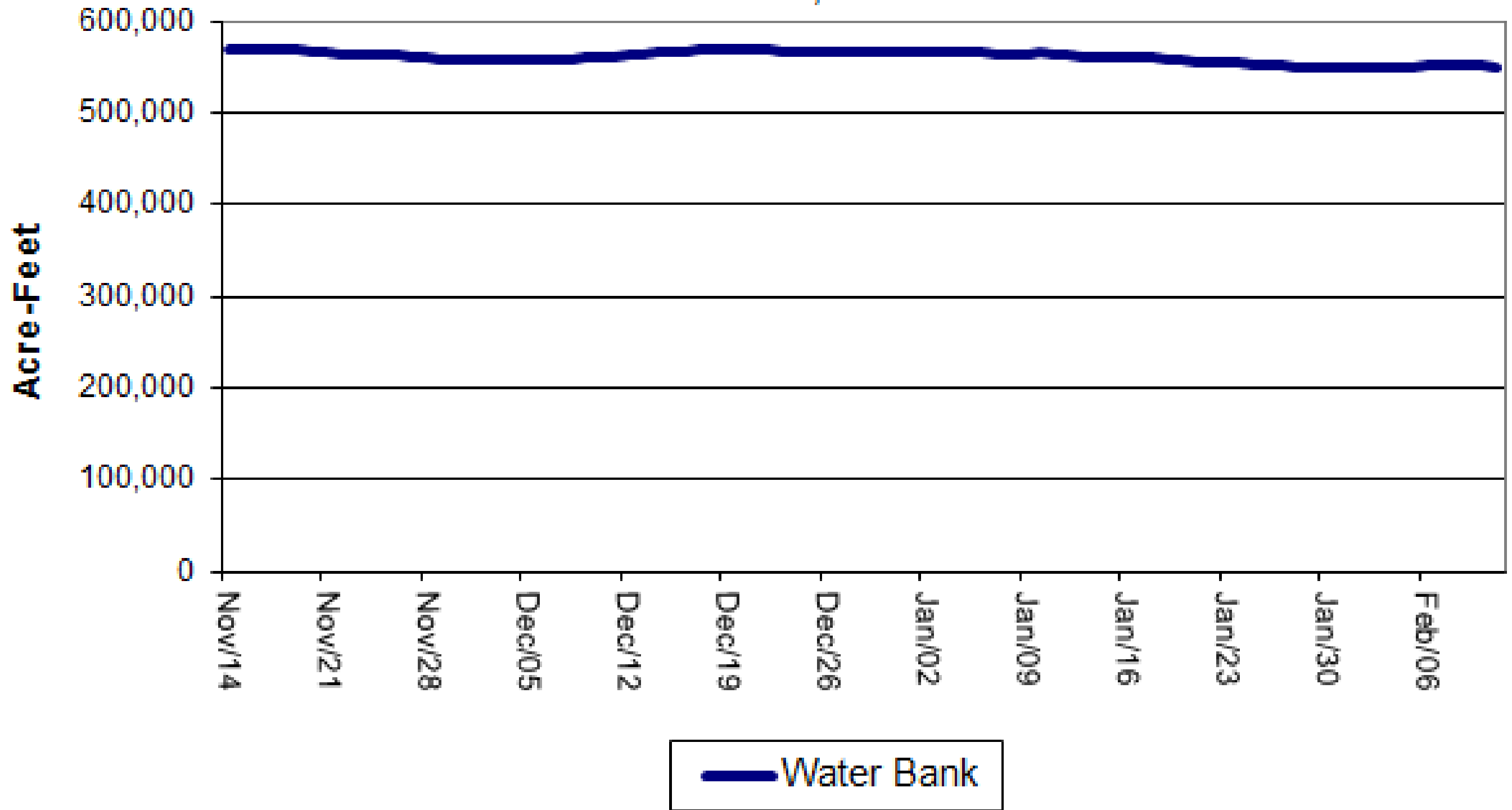
# HISTORIC DON PEDRO STORAGE





# Don Pedro Water Bank

Water Bank = 550,176 Acre-Feet



# Turlock Lake Storage

