



# WATER SUPPLY UPDATE

Feb 7, 2018

**NOTE:** Six ALERT items, on pages 2 and 4-5.

Data current as of February 5, 2018, unless otherwise noted.

## Meteorology, Climate, and Hydrology

### Water Year 2018 Precipitation (Oct 2017 – Sep 2018)

- **Sacramento Valley:** 67% of normal for this week (Link: [HERE](#))
- **San Joaquin Valley:** 42% normal for this week (Link: [HERE](#))
- **Tulare Lake Region:** 29% of normal for this week (Link: [HERE](#))

### WY2018 Snow Accumulation (Link: [HERE](#))

Data below are as of February 4:

- North Sierra: 15% of Apr 1 average; 22% of normal for this week
- Central Sierra: 20% of Apr 1 average; 30% of normal for this week
- South Sierra: 13% of Apr 1 average; 21% of normal for this week
  
- DWR's second manual snow survey of 2018 was conducted on February 1 at Phillips Station in the Sierra Nevada east of Sacramento, and confirmed the low snowpack estimates above, registering 14% of the average snow water equivalent for this date.
- DWR snow course measurements indicate that snowpack is roughly on par with 2015, which was a Critical Water Year in both the Sacramento and San Joaquin basins.

### Looking forward:

- No precipitation is forecast for the next week due to a strong high-pressure ridge over the Pacific. Dry conditions are projected to last for at least 10 days and possibly 2-3 weeks, according to an authoritative California climate and meteorology blog (Link: [HERE](#)).
- See maps of the 6-day precipitation forecast (Link: [HERE](#) for Sacramento Basin and Eastside streams; [HERE](#) for San Joaquin Valley) and maps of the medium-term precipitation forecast, which are below normal (Link for 6- to 10-day: [HERE](#); Link for 8- to 14-day: [HERE](#)).
- Freezing levels of 10,000 ft or above are projected later this week for much of the Sierra Nevada, which will hasten melting of existing snowpack.
- February 1 **Water Supply Index Forecasts** and the first **Bulletin 120 Report** of 2018 should be released in the next week.
- Forecasted inflows are available which can be used to assess the probability of Shasta and Feather River Critical Water Years.
  - In the January 1 **Bulletin 120** forecast (Link: [HERE](#)), Shasta inflows at the 99% exceedance probability for Oct 2017-Sept 2018 are 3,209 taf, which is just above the threshold for a Shasta Critical Water Year (3,200 taf). Oroville inflows at the 99% exceedance probability for April-July 2018 are 670 taf, which is above the threshold for a Feather Critical Water Year (600 taf).

- CNRFC inflow forecasts as of February 6 at the 90% exceedance probability are 2,938 taf for Oct 2017-Sep 2018 inflow into Shasta, and 344 taf for April-July 2018 inflow into Oroville. These are both below the Critical Water Year thresholds.
- The initial determination of a Shasta Critical Water Year will be made by Reclamation using the February 1 forecast of inflow into Shasta, on or before February 15.

#### Other resources:

- Interactive, real-time meteorology updates available at Ventusky (Link: [HERE](#)).
- Weather updates from the National Weather Service Sacramento office are available (Link: [HERE](#))

### NASA Airborne Snow Observatory

- **ALERT:** The February NASA Airborne Snow Observatory flight for the San Joaquin has been delayed from its scheduled February 1 date because of logistical problems. If it is unable to occur in the next week, the first survey will be significantly out of phase from manual surveys and will be delayed until the beginning of March.

#### Looking forward:

- Four surveys are scheduled at the begin-of-month, February through May 2018, with two optional flights.

### North of Delta Reservoirs

- **CVP reservoirs:** all are fuller than normal with a total storage of 5,723 TAF. Trinity, Shasta, and Folsom are at 118%, 117%, and 131% of their 15-year average storages for this week, respectively.
- **Oroville:** storage is well below normal in response to limitations on operations resulting from the condition of the spillway.
- Storage levels have increased modestly in the last week. Storage increased by 28 TAF in CVP reservoirs and by 38 TAF in Oroville, compared to the prior week.
- Reclamation's daily CVP water supply report (Link: [HERE](#)).

#### Looking forward:

- Reservoir storages will likely stabilize this week due to decreasing inflows from dry conditions.
- Under DWR's 2017-2018 Winter Operations Plan, Oroville storage is projected to reach about 1900 TAF at the end of April under a 90% exceedance forecast and about 2550 TAF under a 50% exceedance forecast (Link: [HERE](#)).

### Delta/South of Delta Operations

*Flow values in this section are rounded to the nearest 100 cfs.*

- **Controlling Factor(s) in the Delta:** OMR (-5000 cfs) (per [DWR Delta Ops report](#)).
  - NMFS RPA Action IV.2.3 for OMR flow management. This began on January 1. This RPA requires that Delta exports be managed to provide for an Old and Middle River flow which is no more negative than -5,000 cfs, measured as a tidally-filtered 14-day average. The flow limit can also be more restrictive under certain conditions. The purpose is to protect juvenile salmonids from entrainment at the export facilities.
  - FWS OMR Actions. The Smelt Working Group met on January 29 and concluded that no recommendations for implementation of the FWS OMR RPA Actions 1 or 2 were necessary to protect Delta Smelt. The Group met again on February 5 to re-evaluate conditions, but results from that meeting are not available yet. However the three-station temperature threshold of 12 °C for triggering Action 3 was met on February 4. Action 3 has a standard of between -1,250 and -5,000 cfs, so if triggered it is unlikely that this would have any additional effect on operations.

- The February X2 requirement under D-1641 is now active, requiring that X2 be west of Chipps Island for the entire month (< 74 km), unless 3-day average Delta outflow is > 11,400 cfs. Currently 3-day average outflow is just above 11,400 cfs and dropping, so it is likely that X2 will begin controlling sometime this week. This could lead to reductions in pumping or additional releases from North of Delta reservoirs.
- The Delta is currently in Excess conditions, so COA accounting is suspended. There may be a shift to Balanced conditions in the near future however, due to X2 control.
- Exports are currently 29% of Delta inflow, based on a 14-day average, which is below the D-1641 standard for February of 35%.
- Current X2 location: 73 km
- Daily Delta outflow is 11,400 cfs, down from 15,400 cfs last week.
- Delta inflow is 18,500 cfs, down from 22,400 cfs last week. Inflow is 15,500 cfs on the Sacramento River at Hood and 1,700 cfs on the San Joaquin River at Vernalis.
- Jones pumping is 2,700 cfs, continuing the 3-unit operation from last week. Pumping is being controlled by compliance with NMFS RPA Action IV.2.3 for OMR flow management (described above).
- Banks pumping is 3,100 cfs. Average pumping over the last was 3,300 cfs vs 2,800 cfs during the prior week. 0 cfs pumping at Banks for the Cross Valley Canal.
- CVP San Luis is now slightly encroached into the SWP share of San Luis, at 972 TAF vs a capacity of 966 TAF. This is 143% of its 15-year average. Despite the minor encroachment, it is unlikely that Reclamation will be able to store a significant volume of CVP supplies through encroaching into the SWP side of San Luis, and with dry conditions persisting the expected operation is to keep CVP San Luis full and meet all demands through pumping at Jones.
- Reclamation has solicited assistance in finding facilities to store additional water pumped under the WIIN Act now that CVP San Luis has filled. Anyone with suggestions about where to store this water should contact Jeff Rieker at Reclamation CVO ([jrieker@usbr.gov](mailto:jrieker@usbr.gov)).
- Rescheduled water for CVP contractors in San Luis for 2018 will be capped at 150 TAF and could be reduced if the CVP storage is full and pumping in the Delta is foregone during the winter. Recapture supplies would also be evacuated from storage if this occurs.
- SWP San Luis storage is 759 TAF, decreasing from 765 TAF last week.
- On January 29 DWR increased the allocation for the vast majority of SWP contractors to 20%, from the initial December allocation which was 15%.
- Salinities at compliance locations in the Delta are all well below applicable standards (Link: [HERE](#)).
- Delta Cross Channel gates have been closed since November 24 under NMFS RPA IV.1.2, to facilitate salmon migration in the Sacramento River.
- Reclamation South of Delta daily operations report is available (Link: [HERE](#)).

### Looking forward:

- No change orders for Jones pumping have been issued as of Tuesday, February 6, so pumping should remain at a 3-unit operation (2,700 cfs) for the near future.
- NMFS RPA Action IV.2.3 for OMR flow management (to protect juvenile salmonids) is in effect and will continue through June 15, 2018.

## Friant Division Operations

*Allocations in this section reported by Reclamation SCCAO, per January 12 water supply meeting*

- Friant Water Supply Allocation and use for WY 2017-18 as of 1/11/18:
  - Class 1                      100%
  - Class 2                      3% (residual)
  - Class 2                      29.7% (Uncontrolled Season)
  - RWA 16(b)                  196 TAF
  - URF                            342 TAF
  - Section 215                  0.1 TAF

- (Note: total of Class 2 plus RWA 16(b), URF and Section 215 is the equivalent of 71% Class 2)
- Millerton Lake daily operations report (Link: [HERE](#)), CDEC information (Link: [HERE](#)), and Water Year accumulation plot (Link: [HERE](#))
  - SCCAO has received delegated authority to issue Section 215 Contracts for up to 100 TAF per contract, which is the full authority of the Commissioner of Reclamation. This improves upon the 10 TAF authority that limited contracts in 2017. Contracts for 2018 can be prepared by SCCAO at the request of contractors

### Looking forward:

- 51 TAF is expected to carry over into 2018
- Storage in Millerton is projected to be 353 TAF on March 1, the beginning of the 2018 contract year. Spill of carry-over supplies is not considered to be a high risk.
- Inflow forecasts for Millerton are available from CNRFC (Link: [HERE](#)) and Bulletin 120 (Link: [HERE](#))
- Friant is working with Reclamation and SCE to clarify the potential risk of upstream operations to deliveries from Friant Dam. A previous alert on inflow impacts to Millerton Reservoir has been removed until a better substantiated risk is identified.
- **ALERT:** 2018 Unreleased Restoration Flow (URF) Agreements were distributed by SCCAO on January 19. Friant Contractors are encouraged to get their Board approvals and signatures in place prior to March 1, 2018. Contact George Bushard ([gbushard@usbr.gov](mailto:gbushard@usbr.gov)) or Chad Moore ([cmoore@usbr.gov](mailto:cmoore@usbr.gov)) for any questions.

## San Joaquin River Settlement Implementation

### Restoration Flow Releases

- On December 21, 2017, the Restoration Administrator (RA) recommended increases in flows at Gravelly Ford and Sack Dam between then and the end of February. The current targets at Gravelly Ford and Sack Dam are 260 cfs and 160 cfs, respectively.
- Based on the December 21 RA recommendation, Restoration Flow releases from Friant Dam are expected to increase approximately every two weeks to achieve increasing targets at Gravelly Ford and Sack Dam until the beginning of spring pulse flow operations.
- **ALERT:** On February 1, the RA made recommendations for pulse flows to facilitate testing of rotary screw trap capture efficiencies. Pulses are scheduled for February 3-5 and February 20-22 which will increase flows at Gravelly Ford by 60-70 cfs.. The February 3-5 pulse may be recaptured at Mendota Pool.
- Total Restoration Flow releases scheduled for WY 2017-18: 198.4 TAF

### Recapture/Recirculation

- **@ Mendota Pool:** As of Jan 1, 2018, 8,929 acre-feet will have been recaptured at Mendota Pool in the 2017 Restoration Year, which runs March 2017-February 2018. A spreadsheet was distributed to all Friant contractors with recaptured water in San Luis Reservoir through Dec 1, 2017, and the water is available for immediate use or transfer. Recapture amounts at Mendota Pool will likely be less than 1000 acre-feet per month, unless unexpected seepage constraints are encountered.
- **@ Patterson ID and Banta Carbona ID:** The 100 cfs currently available for recapture is all being picked up by PID and BCID. Total recapture at PID and BCID for October through December was 6,634 AF, which has been allocated to the eight districts that executed the Repayment Agreement by December 15. Projected Restoration Flows available for recapture at PID and BCID for January and February are 5,640 AF and 5,554 AF, respectively.
- **Current Recaptured Supplies in San Luis Reservoir:** Each contractors' supplies were most recently updated by Reclamation and emailed on December 11. Monthly projections of recapture at PID and BCID were also included. December recapture and January projected recapture in this report were

subsequently updated based on information from PID and BCID. Recapture volumes appear on pages 6-7, as Tables 1 and 2.

- **ALERT:** Districts that want a share of the water recaptured at PID and BCID need to either return a signed Repayment Agreement signature sheet or notify Steve Ottemoeller of your intent to do so. Water recaptured by PID and BCID in October through December has been allocated to those districts that submitted signatures by January 15. Anyone wishing to receive a share of future recapture can still execute the Repayment Agreement. The next available block will be January recapture and that will be distributed to districts that have executed the Repayment Agreement by February 16. The amounts available for allocation may be limited depending on participating districts individual arrangements to take simultaneous deliveries now that the federal share of SLR filled.

### River Settlement, Restoration Area Conditions:

- The following conditions have been reported by California DFW for aquatic habitat conditions along the San Joaquin River within the Restoration Area (Friant Dam to the Merced River Confluence). For near maximum daily water temperatures observed Sunday, February 5, Friant Dam release temperatures remain Optimal for all relevant Chinook life stages for the month of February (i.e. Incubation/Emergence, In-river & Floodplain Juvenile Rearing, and Outmigration). In general, maximum daily temperatures increase downstream from Friant Dam. These temperatures, where flow is observed, relate to SJRRP objectives for spring-run and fall-run Chinook salmon as follows:
  - Incubation/Emergence (Reach 1) – temperatures are observed as Optimal within Reach 1A, and Optimal to above Optimal in Reach 1B.
  - In-River & Floodplain Juvenile Rearing (Reaches 1-5) – temperatures are observed as Optimal within Reaches 1, 2, 3, 4, 5, and the Eastside Bypass.
  - Outmigration – temperatures are observed as Optimal within Reaches 1, 2, 3, 4, 5, and the Eastside Bypass.
- Based on preliminary estimates, the San Joaquin River Restoration Program has captured 399 juvenile young-of-year spring-run and 7 yearling fall-run Chinook salmon at three rotary screw traps (RSTs) installed in Reach 1, as of February 4. The juveniles are from 55 adult females and 60 adult males that were released into the river this summer as extra brood stock fish from the fish conservation facility at Friant Dam.

### Looking forward:

#### 2018 Restoration Allocation

- **ALERT:** The RA issued a recommendation for the 2018 Restoration Allocation and Default Hydrograph on February 1. This initial allocation shows a Dry water year type based on the 75% exceedance forecast and an allocation of approximately 172 TAF for Restoration Flows measured at Gravelly Ford. Subsequent updates will adjust the volume, which may change substantially between now and when the Restoration Allocation is finalized on June 30. The RA's recommendation cited the distinct possibility of a lower Allocation if dry conditions continue, possibly dropping to a Critical-High water year type

#### Recapture supplies in San Luis Reservoir:

- Recapture at PID and BCID will likely continue at an estimated 5554 AF in February, subject to room in the reservoir or conveyance opportunities.
- **ALERT:** Recaptured supplies held in San Luis Reservoir are subject to loss at the end of February (subject to Reclamation's rescheduling guidelines for San Luis Reservoir). Storage capacity is no longer available for recaptured water in San Luis Reservoir because the federal share is full. Any future recapture will require a simultaneous destination. Due to the 150 TAF limit on Rescheduling in SLR, there may be little or no room for Recaptured Water to be rescheduled past February 28.

**Table 1. Monthly Actual and Projected Recapture Volume during July 2017-February 2018 for Friant Contractors in acre-feet. Recapture supplies are held in San Luis Reservoir unless otherwise scheduled for delivery by individual contractors. (Source: e-mail to Friant Contractors, December 11, 2017, PID, and BCID)**

Month	at MP, AF	at Lower SJR, AF	Total
July	4,983	0	4,983
August	1,232	0	1,232
September	1,061	0	1,061
October	0	62	62
November	727	2,463	3,190
December	926	4,109	5,035
January Projected	0	5,640	5,640
February Projected	0	5,554	5,554
Total Actual	8,929	6,634	15,563
Total Actual + Projected	8,929	17,828	26,757

**Table 2. Recapture Volume during July-November 2017 by Friant Contractors in acre-feet. Recapture supplies are held in San Luis Reservoir unless otherwise scheduled for delivery by individual contractors. (Source: e-mail to Friant Contractors, December 11, 2017)**

<b>Contractor</b>	<b>MP Recapture</b>
Arvin-Edison WSD	2,135
Chowchilla WD	1,096
City of Fresno	-
City of Lindsay	-
City of Orange Cove	-
County of Madera	-
Delano-Earlimart ID	511
Exeter ID	130
Fresno Co. WW #18	-
Fresno ID	39
Garfield WD	-
Gravelly Ford WD	7
Hills Valley WD	-
International ID	-
Ivanhoe ID	3
Kaweah Delta WCD	51
Kern-Tulare WD	35
Lewis Creek WD	-
Lindmore ID	11
Lindsay-Strathmore ID	-
Lower Tule River ID	1,629
Madera ID	1,273
Orange Cove ID	-
Porterville ID	206
Saucelito ID	225
Shafter-Wasco ID	272
So San Joaquin MUD	308
Stone Corral ID	-
Teapot Dome WD	-
Tri-Valley WD	-
Tulare ID	73
<b>TOTAL</b>	<b>8,003</b>

# WEDNESDAY WATER DATA REPORT

AS OF DATE February 7, 2018



**FRIANT WATER AUTHORITY  
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA**

		THIS YEAR 02/07/18	LAST WEEK	LAST YEAR 02/08/17
<b>RESERVOIR STORAGE (A.F.)</b>	<b>CAPACITY</b>	<b>STORAGE</b>		
<b>Southern California Edison:</b>				
Vermillion (Edison)	125,000	41,356	41,268	41,099
Florence	64,400	1,077	1,079	9,442
Huntington	89,000	37,749	42,653	48,049
Shaver	<u>135,300</u>	<u>59,780</u>	<u>58,595</u>	<u>86,549</u>
Sub-total (Big Creek)	413,700	139,962	143,595	185,139
Mammoth Pool	122,000	14,943	13,821	122,502
Redinger	<u>26,100</u>	<u>21,949</u>	<u>22,302</u>	<u>19,736</u>
Sub-total Southern California Edison	<u>561,800</u>	<u>176,854</u>	<u>179,718</u>	<u>327,377</u>
<b>Pacific Gas &amp; Electric:</b>				
Crane Valley (Bass Lake)	45,400	24,379	24,138	36,964
Kerckhoff	<u>4,200</u>	<u>3,961</u>	<u>3,552</u>	<u>3,251</u>
Sub-total P G & E	<u>49,600</u>	<u>28,340</u>	<u>27,690</u>	<u>40,215</u>
<b>TOTAL UPSTREAM STORAGE</b>	<b>611,400</b>	<b>205,194</b>	<b>207,408</b>	<b>367,592</b>
<b>MILLERTON LAKE</b>	<b><u>520,500</u></b>	<b><u>367,068</u></b>	<b><u>371,051</u></b>	<b><u>375,223</u></b>
<b>TOTAL STORAGE</b>	<b>1,131,900</b>	<b>572,262</b>	<b>578,459</b>	<b>742,815</b>
<b>INFLOW &amp; RELEASE DATA (C.F.S.)</b>				
<b>Millerton Releases:</b>				
Madera Canal		0	0	911
Friant-Kern Canal		1,014	284	1,763
San Joaquin River		475	406	5,704
Spillway		<u>0</u>	<u>0</u>	<u>0</u>
Total Millerton Releases		1,489	690	8,378
Actual Millerton Inflow		551	903	19,051
Computed Natural River (@Friant)		816	648	26,488
<b>SAN JOAQUIN RIVER (A.F.)</b>				
<b>This Month:</b>				
Actual to-date		7,613	43,294	487,701
Forecasted DWR 50% forecasts.		47,500	47,500	30,600
<b>April/July Period:</b>				
Actual to-date		N.A.	N.A.	N.A.
Forecasted DWR 50% forecasts.		N.A.	N.A.	N.A.
Last Year Actual				2,641,089
<b>Water Year:</b>				
Actual to-date		137,893	129,384	700,406
Forecasted DWR 50% forecasts.		N.A.	N.A.	N.A.
Last Year Actual				4,395,400
<b>ESTIMATED WATER YET TO BE DELIVERED (A.F.)</b>				
<b>Contract Year Ending February 28</b>		<b>109,414*</b>	<b>118,834*</b>	

\*Figure is based on Final Water Supply forecast for Contract Year 2017 minus District usage.

**FRIANT WATER AUTHORITY  
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA**

**PRECIPITATION DATA**

REPORTING STATIONS:		THIS YEAR 02/07/18		LAST YEAR 02/08/17	
	AVERAGE (INCHES)	ACCUMULATIVE TO DATE (INCHES/PERCENT AVG)			
<b>HUNTINGTON</b>					
This Month	7.06	0.00 /	0	29.73 /	421
Seasonal Average*	29.49	10.50 /	36	47.05 /	160
Annual Average	42.65	10.50 /	25	47.05 /	110
<b>CRANE VALLEY</b>					
This Month	7.23	0.00 /	0	30.91 /	428
Seasonal Average*	27.94	7.37 /	26	45.66 /	163
Annual Average	40.54	7.37 /	18	45.66 /	113
<b>FRIANT</b>					
This Month	2.58	0.00 /	0	7.83 /	303
Seasonal Average*	10.09	2.97 /	29	14.28 /	142
Annual Average	14.49	2.97 /	20	14.28 /	99

\* Seasonal Average (July - June) is through the current month

\*\* SCE updated Huntington Precipitation

MISC RIVER/RESERVOIR	CAPACITY (A.F.)	STORAGE (A.F.)	RELEASE (C.F.S.)	INFLOW (C.F.S.)
Chowchilla/Buchanan	150,000	88,408	2	19
Fresno/Hidden	90,000	20,433	0	28
Kings/Pine Flat	1,000,000	520,552	283	502
Kaweah/Terminus	185,000	267,976	8	69
Tule/Success	82,314	14,396	0	51
Kern/Isabella	570,000	168,448	109	435

FRIANT WATER AUTHORITY  
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA

CVP/SWP SAN LUIS OPERATIONS

		THIS YEAR 02/07/18	LAST WEEK FLOWRATE (C.F.S.)	LAST YEAR 02/08/17 Average
MAX. FLOWRATE (C.F.S.)				
PUMPING				
INSTANTANEOUS				
Tracy P.P.	4,600	2,728	3,546	4,080
Banks P.P.	10,000	3,176	2,887	9,971
MONTH TO DATE				
Tracy P.P.		32,348	199,438	56,044
Banks P.P.		38,865	178,290	141,684
SEASON TO DATE (Since October 1)				
Tracy P.P.		937,412	899,668	898,851
Banks P.P.		827,777	781,800	1,384,799
SAN LUIS RESERVOIR CAPACITY (A.F.)			(A.F.)	
Federal	980,000	971,508	972,959	748,003
State	1,060,000	763,906	762,215	1,045,407
Total	2,040,000	1,735,414	1,735,174	1,793,410
SAN LUIS RESERVOIR				
Federal		(383)	4,041	7,589
State		3,632	(4,041)	9,551

SACRAMENTO-SAN JOAQUIN DELTA FLOW INDICES

	FLOWRATE (C.F.S.)
Delta Outflow Index	10,886
Sacramento River @ Freeport	15,535
San Joaquin River @ Vernalis	1,710
Total Delta Inflow	18,071

FRIANT WATER AUTHORITY  
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA

SIERRA SNOW SENSOR DATA

02/07/18

REPORTING STATION	ELEVATION (FT.)	WATER CONTENT (IN.)	APRIL 1st AVERAGE (IN.)	PERCENT OF APRIL 1st AVERAGE
<b>San Joaquin River</b>				
Kaiser Pass	9,200	N.A.	37.8	N.A.
Green Mountain	7,900	0.0	30.8	0%
Tamarack	7,600	0.0	30.5	0%
Chilkoot Meadow	7,150	1.1	38.0	3%
Huntington Lake	7,000	1.2	20.1	6%
Graveyard Meadow	6,900	0.0	18.8	0%
Poison Ridge	6,900	0.2	28.9	1%
Mammoth Pass	9,300	10.9	42.4	26%
San Joaquin River Average		1.9	30.9	6%
San Joaquin River Areal * Weighted Average		2.0	30.7	6%
<b>Kings River</b>				
Charlotte Lake	10,400	1.2	27.5	4%
State Lakes	10,400	4.1	29.0	14%
Mitchell Meadow	9,900	9.7	32.9	29%
Upper Burnt Corral	9,700	6.1	34.6	18%
W. Woodchuck Mdw.	9,100	1.6	32.8	5%
Big Meadows	7,600	N.A.	25.9	N.A.
Kings River Average		4.5	30.5	14%
<b>Kaweah River</b>				
Farewell Gap	9,500	N.A.	34.5	N.A.
Giant Forest	6,650	0.5	10.0	5%
Kaweah River Average		0.3	22.3	5%
<b>Tule River</b>				
Quaking Aspen	7,200	0.8	21.0	4%
<b>Kern River</b>				
Upper Tyndall Crk	11,450	2.8	27.7	10%
Crabtree	10,700	N.A.	19.8	N.A.
Chagoopa Plateau	10,300	7.6	21.8	35%
Pascoes	9,150	1.4	24.9	6%
Tunnel	8,950	N.A.	15.6	N.A.
Wet Meadow	8,950	1.5	30.3	5%
Beach Meadow	7,650	0.0	11.0	0%
Kern River Average		2.2	21.6	11%

\* Reporting stations weighted using Thiessen Polygon Method to account for representative watershed area.

\*\* April 1st averages are based on measurements made during years 1951-2000 implemented Feb 2002.

**FRIANT WATER AUTHORITY  
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA**

**CIMIS EVAPOTRANSPIRATION RATES**

REPORTING STATION #	REPORTING STATION	YESTERDAY 2/6/2018 (Inches)	TOTAL PAST 7 DAYS (Inches)	NORMAL PAST 7 DAYS (Inches)	VARIANCE FROM NORMAL (%)	NORMAL NEXT 7 DAYS* (Inches)
5	Shafter	0.09	0.58	0.44	32	0.50
15	Stratford	0.06	0.43	0.40	7	0.48
39	Parlier	0.08	0.45	0.36	25	0.42
80	Fresno State	0.09	0.56	0.36	56	0.43
86	Lindcove	0.08	0.52	0.35	49	0.40
125	Arvin-Edison	0.10	0.59	0.47	26	0.54
142	Orange Cove	0.09	0.59	0.39	51	0.44
148	Merced	0.08	0.51	0.39	2	0.44
169	Porterville	0.08	0.50	0.39	28	0.46
182	Delano	0.08	0.54	0.40	35	0.47
188	Madera II	0.08	0.50	0.36	39	0.43

FRIANT WATER AUTHORITY  
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA

CROP COEFFICIENTS

7-Feb-18

Crop (Description)	Today	Avg. Prev. 7 Days	Avg. Next 7 Days
Alfalfa (average)	0.95	0.95	0.95
Almonds (Feb. 20 leafout, Nov. 15 leafdrop)	0.00	0.00	0.00
Almonds (Mar. 1 leafout, Nov. 15 leafdrop)	0.00	0.00	0.00
Beans (Apr. 1 plant date, Aug. 1 harvest)	0.00	0.00	0.00
Beans (May 1 plant date, Aug. 15 harvest)	0.00	0.00	0.00
Beans (Jun. 1 plant date, Sep. 15 harvest)	0.00	0.00	0.00
Citrus (year round)	0.65	0.65	0.65
Corn (Apr. 15 plant date, Sep. 15 harvest)	0.00	0.00	0.00
Cotton (Apr. 1 plant date, Sep. 20 defoliate)	0.00	0.00	0.00
Cotton (Apr. 15 plant date, Oct. 1 defoliate)	0.00	0.00	0.00
Cotton (May 1 plant date, Oct. 1 defoliate)	0.00	0.00	0.00
Wheat, Oats, Barley (Dec. 1 plant date, Jun. 1 harvest)	0.66	0.58	0.73
Grapes, Raisin (Mar. 15 leafout, Oct. 15 leafdrop)	0.00	0.00	0.00
Grapes, Table (Mar. 15 leafout, Oct. 15 leafdrop)	0.00	0.00	0.00
Kiwi (Mar. 15 leafout, Nov. 1 leafdrop)	0.00	0.00	0.00
Melons (Apr. 1 plant date, Jul. 15 harvest)	0.00	0.00	0.00
Melons (May 1 plant date, Aug. 15 harvest)	0.00	0.00	0.00
Melons (Jun. 1 plant date, Sep. 20 harvest)	0.00	0.00	0.00
Melons (Jul. 1 plant date, Oct. 10 harvest)	0.00	0.00	0.00
Olives (year round)	0.75	0.75	0.75
Pasture Grass	0.62	0.61	0.63
Pistachio (Apr. 1 leafout, Nov. 15 leafdrop)	0.00	0.00	0.00
Safflower (Mar. 1 plant date, Aug. 1 harvest)	0.00	0.00	0.00
Low Chilling Stone Fruit (Feb. 15 leafout, Dec. 1 leafdrop)	0.00	0.00	0.00
Stone Fruit (Mar.1 leafout, Nov. 15 leafdrop)			
[Peach, Nectarine, Plum, Apricot]	0.00	0.00	0.00
Late Stone Fruit (Mar. 16 leafout, Nov. 1 leafdrop)	0.00	0.00	0.00
Soft Fruit (Apr. 1 leafout, Nov. 15 leafdrop)			
[Apple, Pear]	0.00	0.00	0.00
Tomato (Mar. 1 plant date, Jul. 20 harvest)	0.00	0.00	0.00
Tomato (Apr. 1 plant date, July 30 harvest)	0.00	0.00	0.00
Walnut, Early (Mar. 15 leafout, Nov. 1 leafdrop)	0.00	0.00	0.00
Walnut, Late (Apr. 1 leafout, Nov. 1 leafdrop)	0.00	0.00	0.00

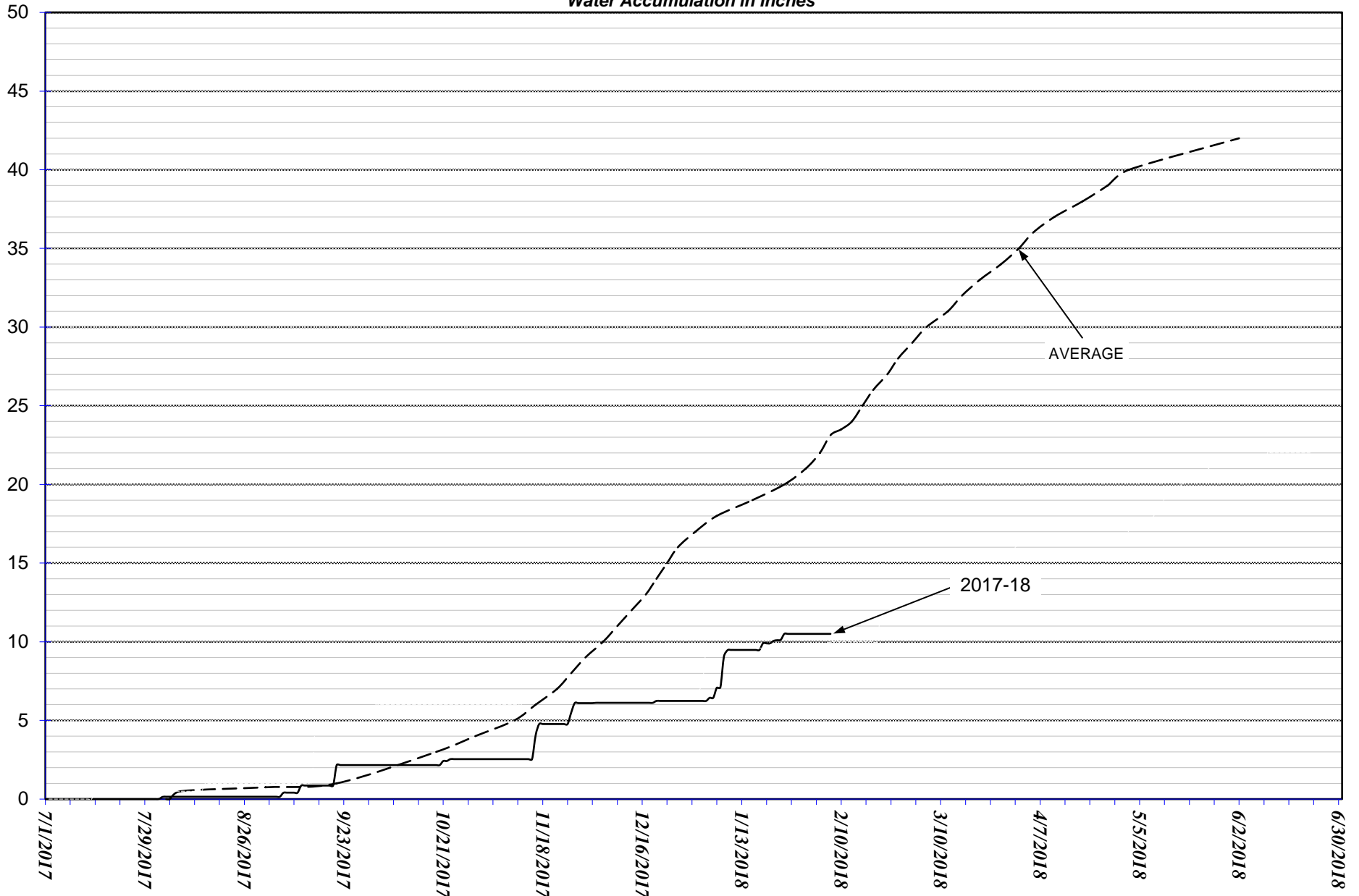
*NOTE: This information is a reproduction of information compiled by Kings River Conservation District.  
This information is provided as a general guideline and may not exactly be reflective of all  
locations or varieties.*

FRIANT WATER AUTHORITY  
SAN JOAQUIN SNOW COURSE MEASUREMENTS

STATION NUMBER	REPORTING STATION	ELEVATION (FT.)	DATE MEASURED	DEPTH RECORDED (IN.)	WATER CONTENT (IN.)	DENSITY	APRIL 1 <sup>st</sup> AVERAGE (IN.)	APRIL 1 <sup>st</sup> AVERAGE (%)
182	Mono Pass	11,450	23-Jan	19.5	6.0	31%	30.6	20%
183	Piute Pass	11,300	1-Feb	33.0	4.0	12%	36.6	11%
276	Pioneer Basin	10,400	23-Jan	30.0	8.0	27%	33.3	24%
185	Heart Lake	10,100	23-Jan	19.0	5.0	26%	27.0	19%
187	Rose Marie	10,000	23-Jan	24.5	7.0	29%	28.7	24%
189	Agnew Pass	9,450	31-Jan	40.0	8.5	21%	31.9	27%
190	Kaiser Pass	9,100	23-Jan	23.0	7.5	33%	37.5	20%
191	Dutch Lake	9,100	23-Jan	16.0	4.5	28%	27.4	16%
193	Cora Lakes	8,400	30-Jan	20.0	6.0	30%	37.5	16%
346	Badger Flat	8,300	23-Jan	9.0	2.5	28%	29.6	8%
194	Nellie Lake	8,000	23-Jan	5.5	1.5	27%	36.4	4%
324	Lake Thomas A Edison	7,800	23-Jan	0.0	0.0		14.4	0%
440	Devil's Postpile	7,569	30-Jan	3.0	1.0	33%		
196	Chilkoot Lake	7,450	29-Jan	5.0	1.0	20%	35.9	3%
347	Tamarack Creek	7,250	23-Jan	2.5	0.5	20%	24.2	2%
198	Florence Lake	7,200	23-Jan	0.0	0.0		7.2	0%
197	Chilkoot Meadow	7,150	30-Jan	7.5	2.0	27%	37.0	5%
199	Huntington Lake	7,000	25-Jan	7.9	1.0	13%	19.7	5%
200	Clover Meadow	7,000	31-Jan	2.0	0.5	25%	23.0	2%
201	Jackass Meadow	6,950	29-Jan	2.0	0.5	25%	25.3	2%
202	Chiquito Creek	6,800	30-Jan	2.0	0.5	25%	22.0	2%
204	Poison Meadow	6,800	30-Jan	3.5	1.0	29%	24.9	4%
Basin Average Percent of April 1st::							<b>10%</b>	
February 1st:							<b>16%</b>	

# HUNTINGTON PRECIPITATION

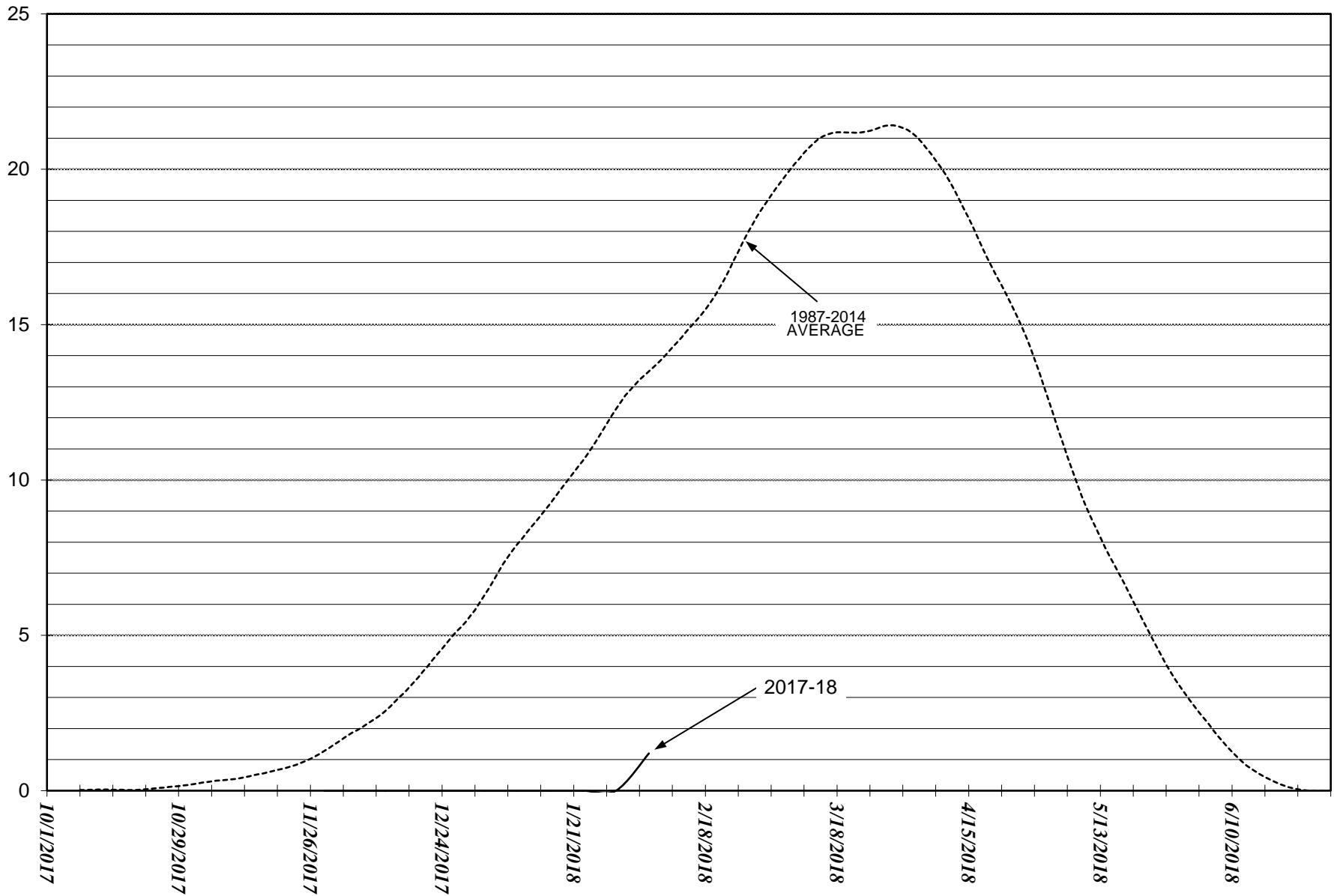
Water Accumulation in Inches





# HUNTINGTON SNOW DATA

Water Content in Inches



# SAN JOAQUIN BASIN

Water Content in Percent of April 1st Average

