



WATER SUPPLY UPDATE

January 10, 2018

NOTE: Six ALERT items, on pages 3-5.

Data current as of January 8, 2018, unless otherwise noted.

Meteorology, Climate, and Hydrology

Recent Precipitation Events

- The first big winter storm reached the Central Valley Monday and Tuesday, January 8-9. Precipitation totals in the Valley were 1-4 inches, with snow falling above 7000-8000 ft. The precipitation and snow accumulation totals below include most but not all of the impacts of this storm.

Water Year 2018 Precipitation (Oct 2017 – Sep 2018)

- **Sacramento Valley:** 74% percent of normal for this week (Link: [HERE](#))
- **San Joaquin Valley:** 51% percent of normal for this week (Link: [HERE](#))
- **Tulare Lake Region:** 30% percent of normal for this week (Link: [HERE](#))

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

- North Sierra: 8% percent of Apr 1 average; 18% of normal for this week
- Central Sierra: 13% percent of Apr 1 average; 30% of normal for this week
- South Sierra: 10% percent of Apr 1 average; 26% of normal for this week

Looking forward:

- After the storm early this week, no significant precipitation is forecast for the Central Valley through this weekend. See maps of the 6-day precipitation forecast (Link: [HERE](#) for Sacramento Basin and Eastside streams; [HERE](#) for San Joaquin Valley).
- The 6 to 10-day and 8- to 14-day outlooks for precipitation are above normal for the Central Valley (Link for 6- to 10-day: [HERE](#); Link for 8- to 14-day: [HERE](#)).
- December 1 **Water Supply Index Forecasts** were released on December 8 (Link: [HERE](#))
 - Sacramento River Unimpaired Runoff Forecast: 50% exceedance is 19.6 (110% of average)
 - Sacramento Valley Water Year Type Index (40-30-30): 50% exceedance is 9.3 (Wet)
 - San Joaquin Valley Water Year Type Index (60-20-20): 75% exceedance is 2.8 (Below Normal)
 - The 50% exceedance for the Sacramento and 75% exceedance for the San Joaquin are the values used to make the final water year determination under D-1641.

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](#))
- Authoritative California climate and meteorology blog (Link: [HERE](#)).

NASA Airborne Snow Observatory

- No updates expected until the first survey, scheduled for the beginning of February.

Looking forward:

- Four surveys 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 5,524 TAF. Trinity, Shasta, and Folsom are at 122%, 122%, and 136% of their 15-year average storages for this week, respectively.
- **Oroville:** storage is well below normal in response to meeting Fall X2 requirements during September-December and limitations on operations resulting from the condition of the spillway.
- Storage levels stabilized and then increased slightly in the last week, due to precipitation which led to an increase in inflows late last week through Monday. Storage increased by 33 TAF in CVP reservoirs and by 26 TAF in Oroville, compared to the prior week.
- Reclamation's daily CVP water supply report (Link: [HERE](#)).

Looking forward:

- Reservoir storages should continue to increase this week due increased reservoir inflows from the recent storm.
- Shasta's flood curve has been increased in the last 3 weeks, which will allow for additional storage of inflows. Shasta storage is currently > 200 TAF below the flood curve.

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 has begun as of 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. More information on this RPA is available (Link: [HERE](#)).
 - Delta outflow is 11,200 cfs, up from 7,600 cfs last week. This is in excess of the Minimum Required Delta Outflow under D-1641 for January, which is 4,500 cfs. There is excess outflow because the CVP and SWP are not currently able to export to full capacity due to export restrictions under NMFS RPA Action IV.2.3.
 - The Delta is currently in Excess conditions, so COA accounting is suspended.
 - Current X2 location: >81 km
- Delta inflow is 16,700 cfs, up slightly from 16,500 cfs last week. Inflow is 13,900 cfs on the Sacramento River at Hood and 1,800 cfs on the San Joaquin River at Vernalis. Flow decreased on the San Joaquin River from 2,800 cfs last week due to reduced releases from New Melones Reservoir.
- Jones pumping is 3,500 cfs, after increasing to a 4-unit operation on January 8. Pumping is being controlled by compliance with NMFS RPA Action IV.2.3 for OMR flow management (described above). This is up from last week's 3-unit operation of 2,700 cfs.
- Banks pumping is 2,600 cfs. Pumping has increased slightly in the last week compared to the prior week, with average weekly pumping increasing from 3,300 to 3,500 cfs. 0 cfs pumping at Banks for the Cross Valley Canal.
- CVP San Luis storage is 923 TAF, increasing in the last week by 17 TAF. This is 96% of capacity and 155% of its 15-year average. SWP San Luis storage has also increased in the last week to 743 TAF.
- 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.
- Salinities at compliance locations in the Delta are all well below applicable standards (Link: [HERE](#)).

- Delta Cross Channel gates have been closed since November 27 under NMFS RPA IV.1.2, to facilitate salmon migration in the Sacramento River.
- The Smelt Working Group met on January 4. It concluded that no recommendation for implementation of the FWS OMR RPA Action 1 was necessary to protect Delta Smelt, and that it was unlikely that Action 1 would be triggered during that week due to dry conditions. Action 1 will be triggered when there is a large storm event which elevates turbidity levels and provides a migration cue for Delta Smelt.
- 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, January 9, so pumping should remain at a 4-unit operation (3,500 cfs) for the near future.
- CVP San Luis is still expected to fill (to 966 TAF), most likely in January, or February at the latest, based on current rates of demand and fill.
- **ALERT:** Reclamation has solicited assistance in finding facilities to store additional water pumped under the WIIN Act once CVP San Luis has filled. Anyone with suggestions about where to store this water should contact Jeff Rieker at Reclamation CVO (jrieker@usbr.gov)
- 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 December 4 water supply meeting

- Friant Water Supply Allocation and use for WY 2017-18 as of 12/1/17:
 - 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
- Millerton Lake daily operations report (Link: [HERE](#)), CDEC information (Link: [HERE](#)), and Water Year accumulation plot (Link: [HERE](#))
- **ALERT:** 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:

- 55 TAF is expected to carry over into 2018
- Storage in Millerton is projected to be 277 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 from CNRFC (Link: [HERE](#)) and Bulletin 120 (Link: [HERE](#))
- **ALERT:** Notice to contractors with carry-over at Friant Dam: Southern California Edison plans maintenance in February and March that will draw down reservoirs in the upper San Joaquin River basin, increasing expected inflow to Millerton Lake by 236 TAF.
- **ALERT:** 2018 Unreleased Restoration Flow (URF) Sales Contractors will be distributed shortly by SCCAO. The upcoming URF program has few changes as compared to last year - most of the changes were for clarification. Friant Contractors are encouraged to get their Board approvals and signatures in place prior to March 1, 2018. Contact George Bushard (gbushard@usbr.gov) or Chad Moore (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 now and the end of February. The current targets at Gravelly Ford and Sack Dam are 240 cfs and 150 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.
- 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 70 cfs currently available for recapture is all being picked up by PID and BCID. As flows from Sack Dam are increased, additional lower SJR recapture will be available, perhaps as much as 100 cfs through January, and possibly higher in February. Total recapture at PID and BCID for October and November was 2,525 AF, which has been allocated to the eight districts that executed the Repayment Agreement by December 15. PID and BCID have provided preliminary accounting for water conveyed in December at 2,034 and 2,075 AF, respectively, for a total recapture of 4,109 AF pending final accounting of daily discharges to the DMC by SLDMWA. Projected Restoration Flows available for recapture at PID and BCID for January is 5,500 AF.
- **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 5-6, 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 and November has been allocated to those districts that submitted signatures by December 15. Anyone wishing to receive a share of December and future recapture can still execute the Repayment Agreement. The next available block will be December recapture and that will be distributed to districts that have executed the Repayment Agreement by January 12.

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, January 4, Friant Dam release temperatures remain Optimal for all relevant Chinook life stages for the month of January (i.e. Spawning, Incubation/Emergence, and In-river Juvenile Rearing). 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:
 - Spawning (Reach 1) – temperatures are observed as Optimal within Reach 1.
 - Incubation/Emergence (Reach 1) – temperatures are observed as Optimal within Reach 1.
 - In-River & Floodplain Juvenile Rearing (Reaches 1-5) – 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 392 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 January 8. 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:

Recapture supplies in San Luis Reservoir:

- Recapture at PID and BCID will likely continue at a combined 3,500 to 6,400 acre-feet per month through January, subject to room in the reservoir or conveyance opportunities. Reclamation recently estimated that approximately 5,500 AF will be available for recapture at PID and BCID in January
- **ALERT:** Recaptured supplies held in San Luis Reservoir are subject to loss when San Luis Reservoir fills, which is anticipated to occur sometime in January or February as noted above (subject to Reclamation’s rescheduling guidelines for San Luis Reservoir). Storage capacity will be available for recaptured water in San Luis Reservoir until it fills, after which time stored supplies will need to be evacuated before San Luis Reservoir reaches “sustained drawdown.” Once San Luis Reservoir has filled, 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 Rescheduling Recaptured Water.

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	5,500	5,500
February Projected	0	5,821	5,821
Total Actual	8,929	6,634	15,563
Total Actual + Projected	8,929	17,955	26,884

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)

Contractor	MP Recapture
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
TOTAL	8,003

WEDNESDAY WATER DATA REPORT

AS OF DATE January 10, 2018

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

		THIS YEAR 01/10/18	LAST WEEK	LAST YEAR 01/11/17
RESERVOIR STORAGE (A.F.) CAPACITY				
Southern California Edison:				
Vermillion (Edison)	125,000	42,001	43,067	46,025
Florence	64,400	1,157	974	9,030
Huntington	89,000	53,763	54,727	50,012
Shaver	<u>135,300</u>	<u>56,112</u>	<u>57,225</u>	<u>100,429</u>
Sub-total (Big Creek)	413,700	153,033	155,993	205,496
Mammoth Pool	122,000	18,074	12,618	122,458
Redinger	<u>26,100</u>	<u>21,961</u>	<u>21,206</u>	<u>22,100</u>
Sub-total Southern California Edison	<u>561,800</u>	<u>193,068</u>	<u>189,817</u>	<u>350,054</u>
Pacific Gas & Electric:				
Crane Valley (Bass Lake)	45,400	23,045	22,229	36,187
Kerckhoff	<u>4,200</u>	<u>3,602</u>	<u>3,547</u>	<u>3,803</u>
Sub-total P G & E	<u>49,600</u>	<u>26,647</u>	<u>25,776</u>	<u>39,990</u>
TOTAL UPSTREAM STORAGE	611,400	219,715	215,593	390,044
MILLERTON LAKE	<u>520,500</u>	<u>355,746</u>	<u>354,842</u>	<u>407,651</u>
TOTAL STORAGE	1,131,900	575,461	570,435	797,695
INFLOW & RELEASE DATA (C.F.S.)				
Millerton Releases:				
Madera Canal		0	0	999
Friant-Kern Canal		185	277	2,303
San Joaquin River		386	380	6,089
Spillway		<u>0</u>	<u>0</u>	<u>0</u>
Total Millerton Releases		571	657	9,391
Actual Millerton Inflow		779	802	9,961
Computed Natural River (@Friant)		2,574	370	13,235
SAN JOAQUIN RIVER (A.F.)				
This Month:				
Actual to-date		15,354	734	217,997
Forecasted DWR 50% forecasts.		47,500	32,600	30,600
April/July Period:				
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
Water Year:				
Actual to-date		101,444	86,824	430,702
Forecasted DWR 50% forecasts.		N.A.	N.A.	N.A.
Last Year Actual				4,395,400
ESTIMATED WATER YET TO BE DELIVERED (A.F.)				
Contract Year Ending February 28		124,315*	128,713*	

*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:	AVERAGE (INCHES)	THIS YEAR 01/10/18		LAST YEAR 01/11/17	
		ACCUMULATIVE TO DATE (INCHES/PERCENT AVG)			
HUNTINGTON					
This Month	7.38	2.82 /	38	14.72 /	199
Seasonal Average*	22.43	9.46 /	42	32.04 /	143
Annual Average	42.65	9.46 /	22	32.04 /	75
CRANE VALLEY					
This Month	7.83	2.69 /	34	18.51 /	236
Seasonal Average*	20.71	6.75 /	33	33.26 /	161
Annual Average	40.54	6.75 /	17	33.26 /	82
FRIANT					
This Month	2.65	1.39 /	52	3.93 /	148
Seasonal Average*	7.50	2.73 /	36	10.38 /	138
Annual Average	14.49	2.73 /	19	10.38 /	72

* 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	87,287	1	99
Fresno/Hidden	90,000	18,546	0	127
Kings/Pine Flat	1,000,000	503,228	252	1,611
Kaweah/Terminus	185,000	16,809	2	572
Tule/Success	82,314	11,554	16	179
Kern/Isabella	570,000	165,374	414	549

FRIANT WATER AUTHORITY
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA

CVP/SWP SAN LUIS OPERATIONS

		THIS YEAR 01/10/18	LAST WEEK FLOWRATE (C.F.S.)	LAST YEAR 01/11/17 Average
PUMPING INSTANTANEOUS				
	MAX. FLOWRATE (C.F.S.)			
Tracy P.P.	4,600	3,541	2,721	4,050
Banks P.P.	10,000	2,634	3,920	5,813
MONTH TO DATE				
Tracy P.P.		48,373	10,814	63,550
Banks P.P.		61,685	15,047	79,607
SEASON TO DATE (Since October 1)				
Tracy P.P.		748,603	711,044	674,462
Banks P.P.		665,195	618,557	846,693
SAN LUIS RESERVOIR CAPACITY				
	(A.F.)		(A.F.)	
Federal	980,000	929,102	911,288	518,544
State	1,060,000	742,199	734,648	852,620
Total	2,040,000	1,671,301	1,645,936	1,371,164
SAN LUIS RESERVOIR				
Federal		6,087	331	7,826
State		(1,455)	4,041	10,244

SACRAMENTO-SAN JOAQUIN DELTA FLOW INDICES

	FLOWRATE (C.F.S.)
Delta Outflow Index	18,658
Sacramento River @ Freeport	13,958
San Joaquin River @ Vernalis	1,833
Total Delta Inflow	16,745

FRIANT WATER AUTHORITY
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA

SIERRA SNOW SENSOR DATA		01/10/18		
REPORTING STATION	ELEVATION (FT.)	WATER CONTENT (IN.)	APRIL 1st AVERAGE (IN.)	PERCENT OF APRIL 1st AVERAGE
San Joaquin River				
Kaiser Pass	9,200	0.7	37.8	2%
Green Mountain	7,900	0.0	30.8	0%
Tamarack	7,600	0.0	30.5	0%
Chilkoot Meadow	7,150	0.0	38.0	0%
Huntington Lake	7,000	0.0	20.1	0%
Graveyard Meadow	6,900	0.0	18.8	0%
Poison Ridge	6,900	0.0	28.9	0%
Mammoth Pass	9,300	0.8	42.4	2%
San Joaquin River Average		0.2	30.9	1%
San Joaquin River Areal *				
Weighted Average		0.3	32.7	1%
Kings River				
Charlotte Lake	10,400	1.7	27.5	6%
State Lakes	10,400	3.6	29.0	12%
Mitchell Meadow	9,900	7.3	32.9	22%
Upper Burnt Corral	9,700	3.9	34.6	11%
W. Woodchuck Mdw.	9,100	0.9	32.8	3%
Big Meadows	7,600	N.A.	25.9	N.A.
Kings River Average		3.5	30.5	11%
Kaweah River				
Farewell Gap	9,500	N.A.	34.5	N.A.
Giant Forest	6,650	0.3	10.0	3%
Kaweah River Average		0.2	22.3	3%
Tule River				
Quaking Aspen	7,200	1.8	21.0	9%
Kern River				
Upper Tyndall Crk	11,450	2.3	27.7	8%
Crabtree	10,700	N.A.	19.8	N.A.
Chagoopa Plateau	10,300	6.8	21.8	31%
Pascoes	9,150	0.3	24.9	1%
Tunnel	8,950	N.A.	15.6	N.A.
Wet Meadow	8,950	N.A.	30.3	N.A.
Beach Meadow	7,650	0.1	11.0	1%
Kern River Average		1.6	21.6	10%

* 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 1/9/2018 (Inches)	TOTAL PAST 7 DAYS (Inches)	NORMAL PAST 7 DAYS (Inches)	VARIANCE FROM NORMAL (%)	NORMAL NEXT 7 DAYS* (Inches)
5	Shafter	0.06	0.30	0.28	7	0.28
15	Stratford	0.03	0.24	0.21	14	0.25
39	Parlier	0.02	0.23	0.21	10	0.23
80	Fresno State	0.00	0.24	0.21	14	0.24
86	Lindcove	0.04	0.28	0.21	33	0.24
125	Arvin-Edison	0.06	0.37	0.28	32	0.31
142	Orange Cove	0.02	0.28	0.28	0	0.27
148	Merced	0.01	0.16	0.25	2	0.26
169	Porterville	0.04	0.23	0.25	-8	0.27
182	Delano	0.03	0.25	0.25	0	0.25
188	Madera II	0.01	0.19	0.31	-39	0.28

FRIANT WATER AUTHORITY
SAN JOAQUIN RIVER AND ASSOCIATED WATER DATA

CROP COEFFICIENTS

10-Jan-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)	0.40	0.40	0.40
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	0.55	0.54	0.56
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 st AVERAGE (IN.)	APRIL 1 st AVERAGE (%)
276	Pioneer Basin	10,400	Scheduled for measurement by Southern California Edison, Big Creek					
185	Heart Lake	10,100	Scheduled for measurement by Southern California Edison, Big Creek					
187	Rose Marie	10,000	Scheduled for measurement by Southern California Edison, Big Creek					
190	Kaiser Pass	9,100	26-Dec	13.0	6.0	46%	37.5	16%
191	Dutch Lake	9,100	Scheduled for measurement by Southern California Edison, Big Creek					
199	Huntington Lake	7,000	26-Dec	0.0	0.0	54%	19.7	0%
Basin Average Percent of April 1st::							8%	
January 1st:							23%	

HUNTINGTON PRECIPITATION

Water Accumulation in Inches

