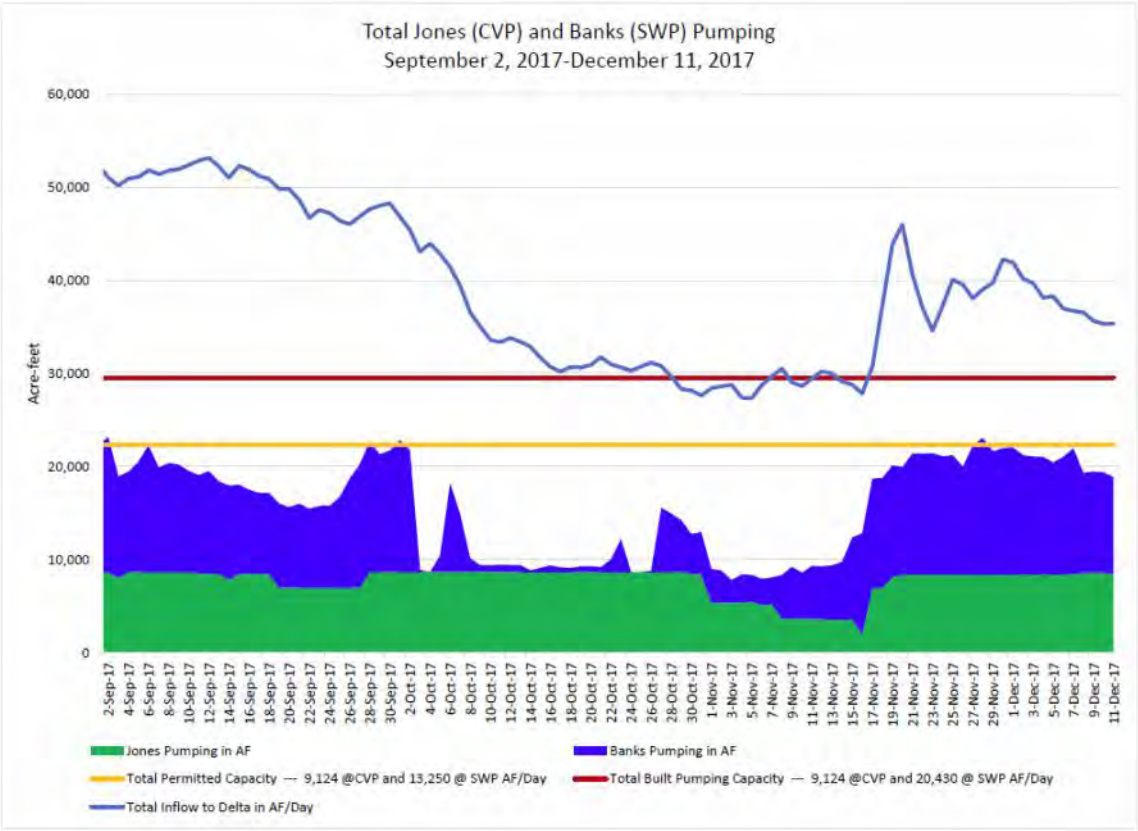
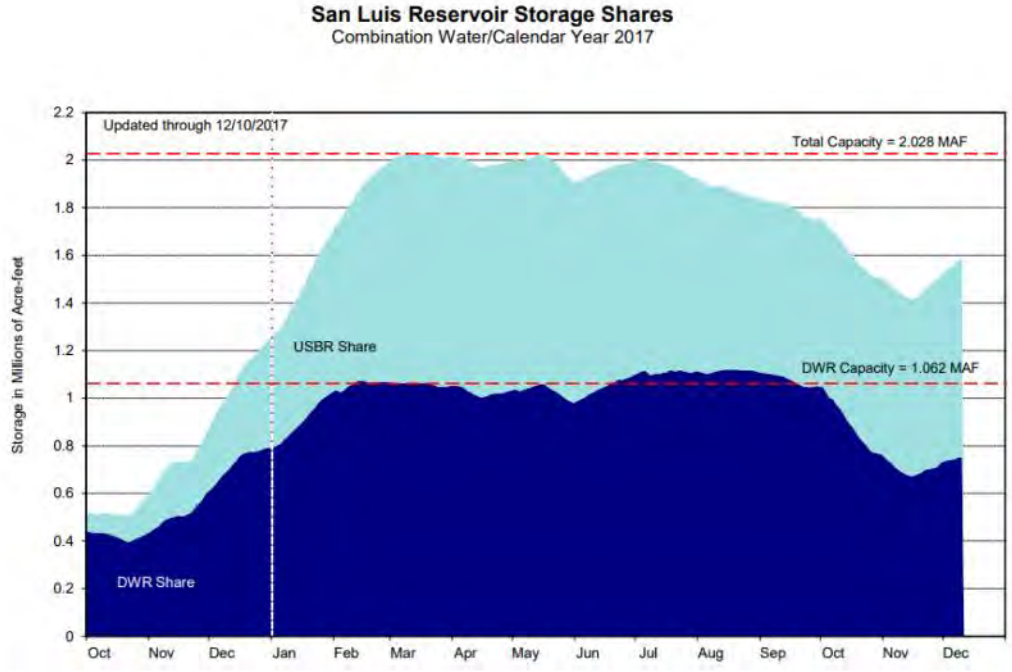
The Water Agency, Inc.
Water Supply Update

Pumping Declining A Little

Precipitation will be needed to bolster inflows to the delta for pumping to remain at these rates (not taking into account the fish factors). As you can see from the chart below, Jones Pumping Plant pumping has remained steady, but Banks Pumping Plant pumping is declining. The bottom chart shows that San Luis is on the rise in both CVP and SWP shares.

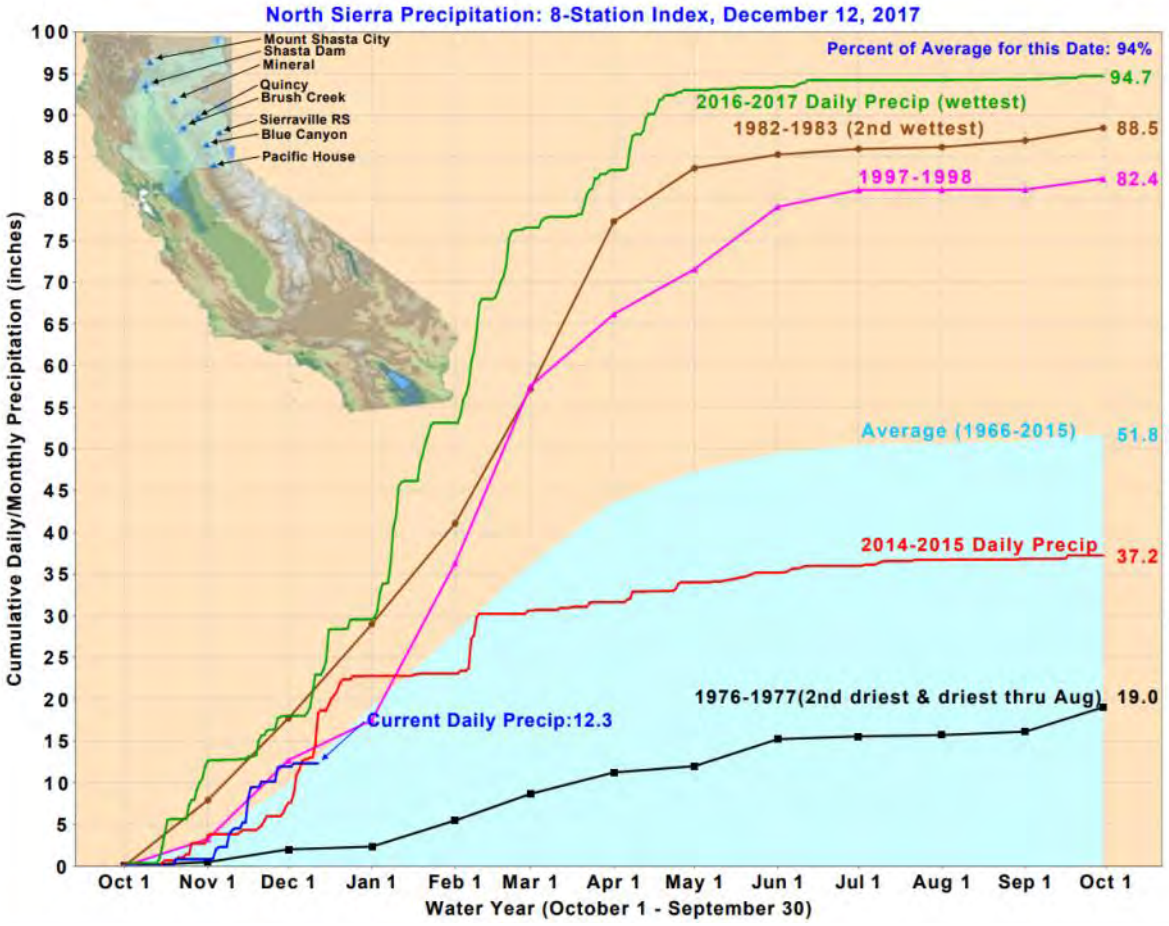




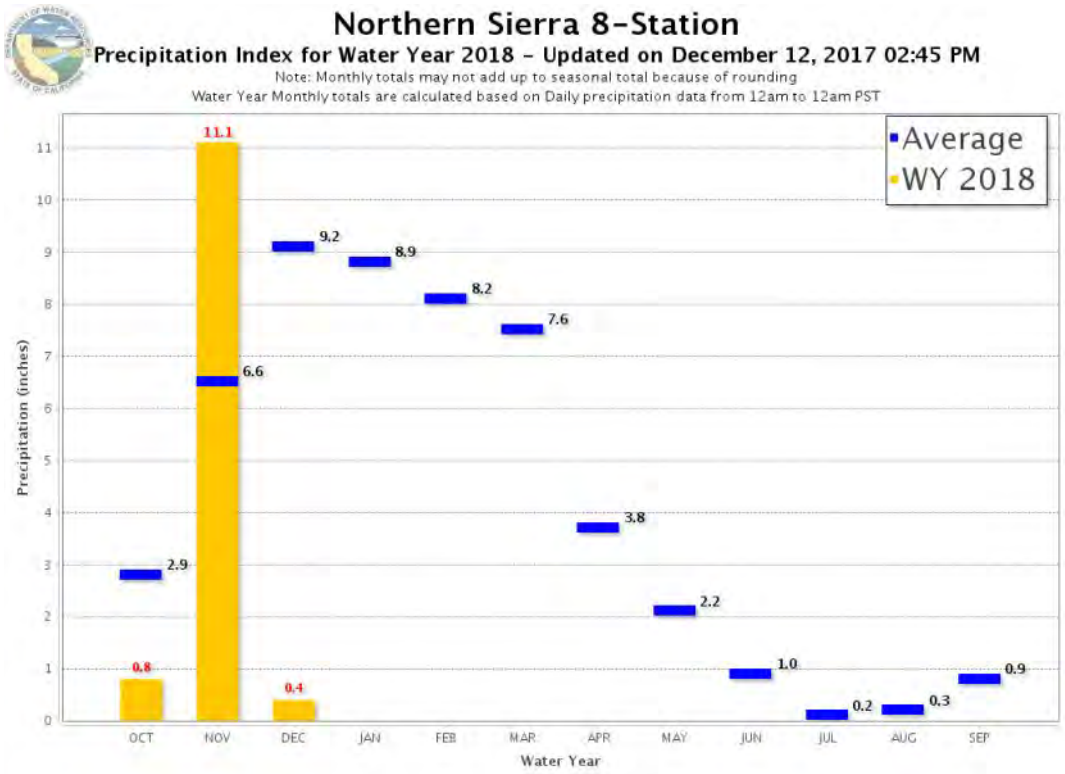
For current San Luis Reservoir Storage Shares, go to http://www.water.ca.gov/swp/operationscontrol/docs/storsanl.pdf

Northern Sierra Precipitation

As of December 12, 2017, the 8-station Northern California index has recorded 12.3 inches of precipitation for this 2018 Water Year (unchanged from last week). This represents 94% of the typical average rainfall to date. The average total for the normal year is 50.0 inches.



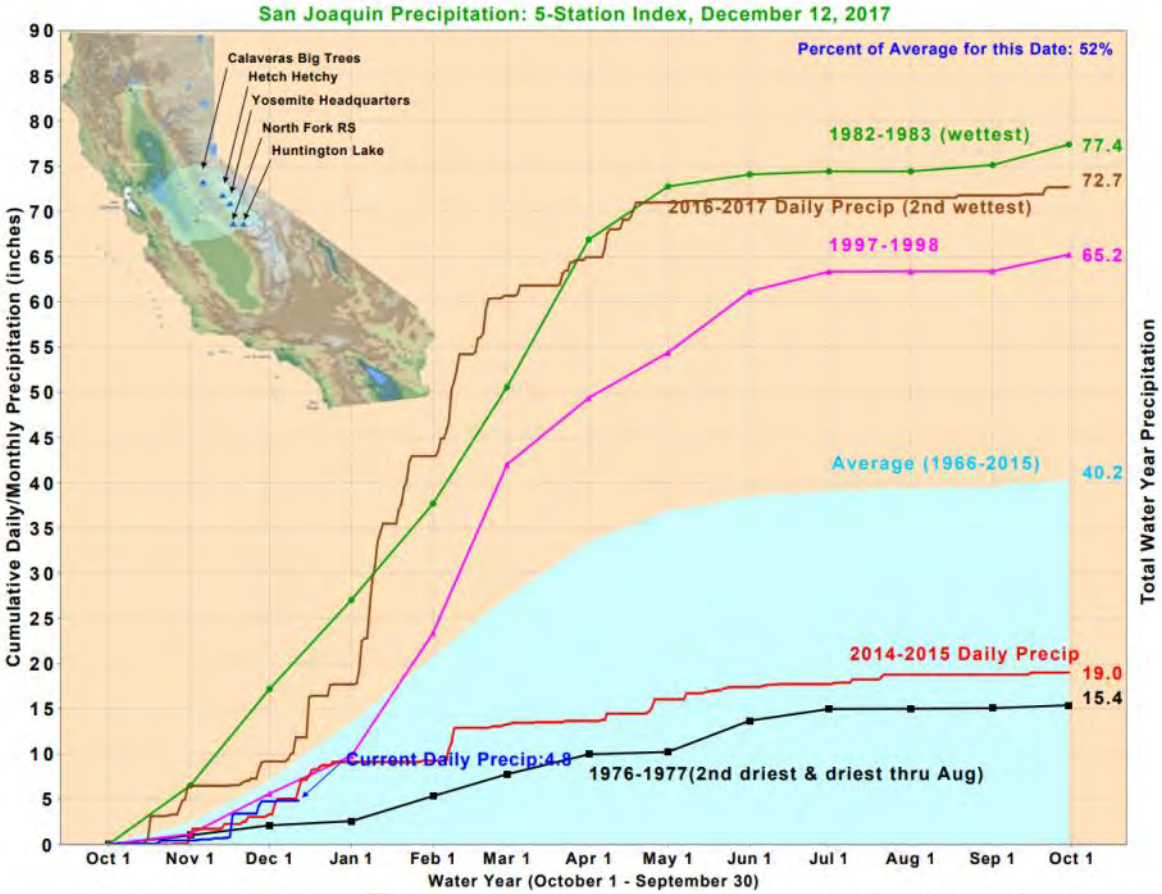
http://cdec.water.ca.gov/cgi-progs/products/PLOT_ESI.pdf



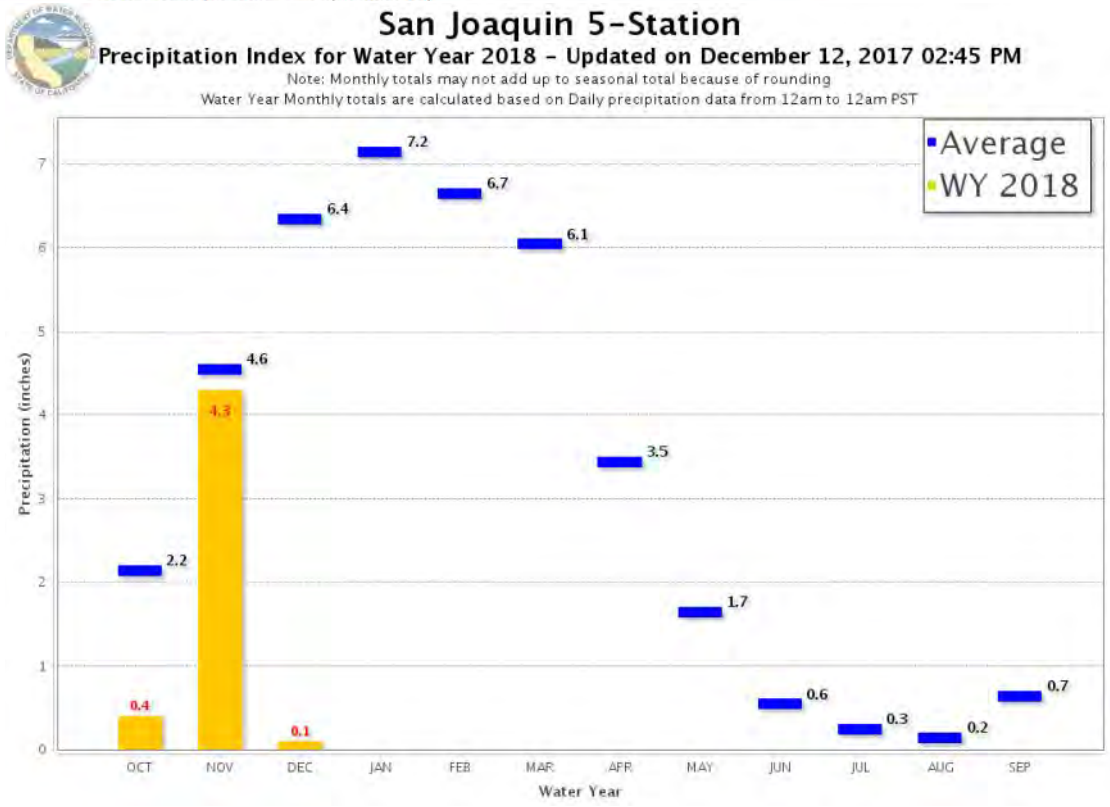
http://cdec.water.ca.gov/images/WYPrecip/BAR_ESI.PNG

San Joaquin Precipitation

As of December 12th, the 5-station San Joaquin index has recorded 4.8 inches of precipitation for this 2018 Water Year (unchanged from last week). This represents 52% of the typical average rainfall to date. The average total for the normal season is 40.8 inches.



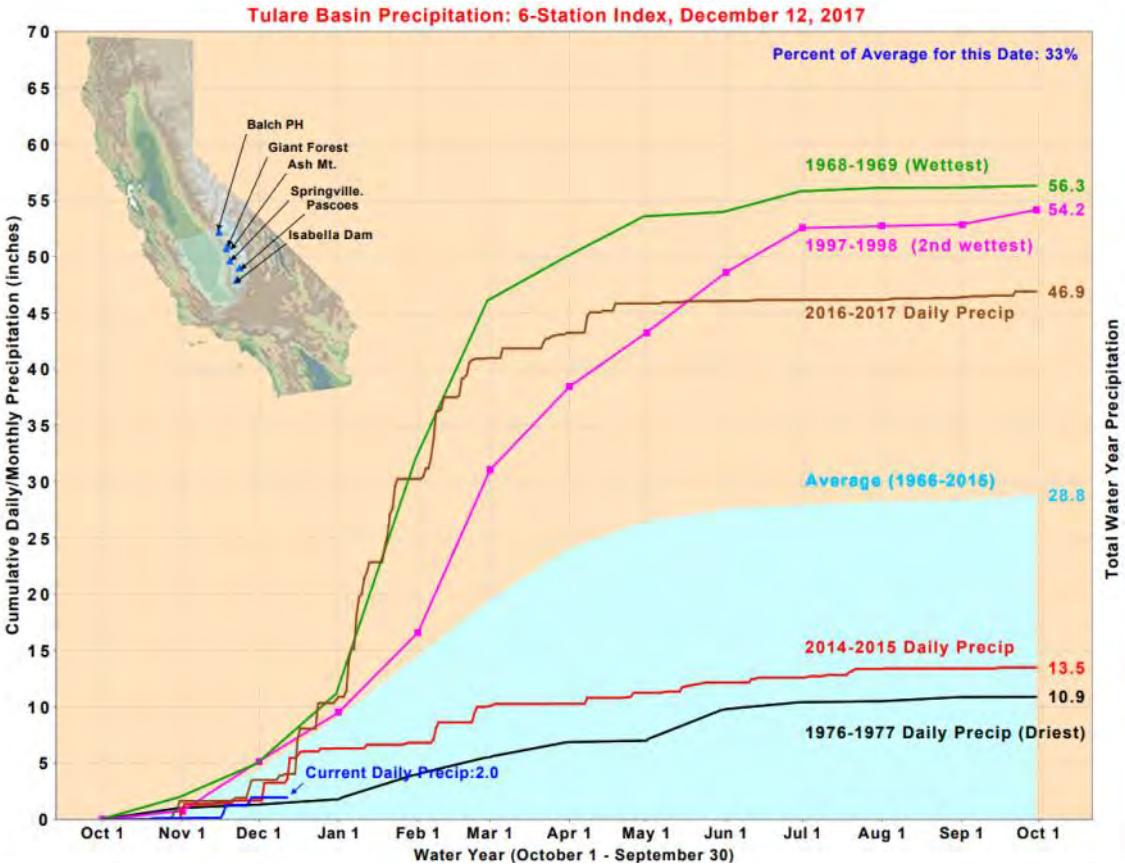
http://cdec.water.ca.gov/cgi-progs/products/PLOT_FSI.pdf



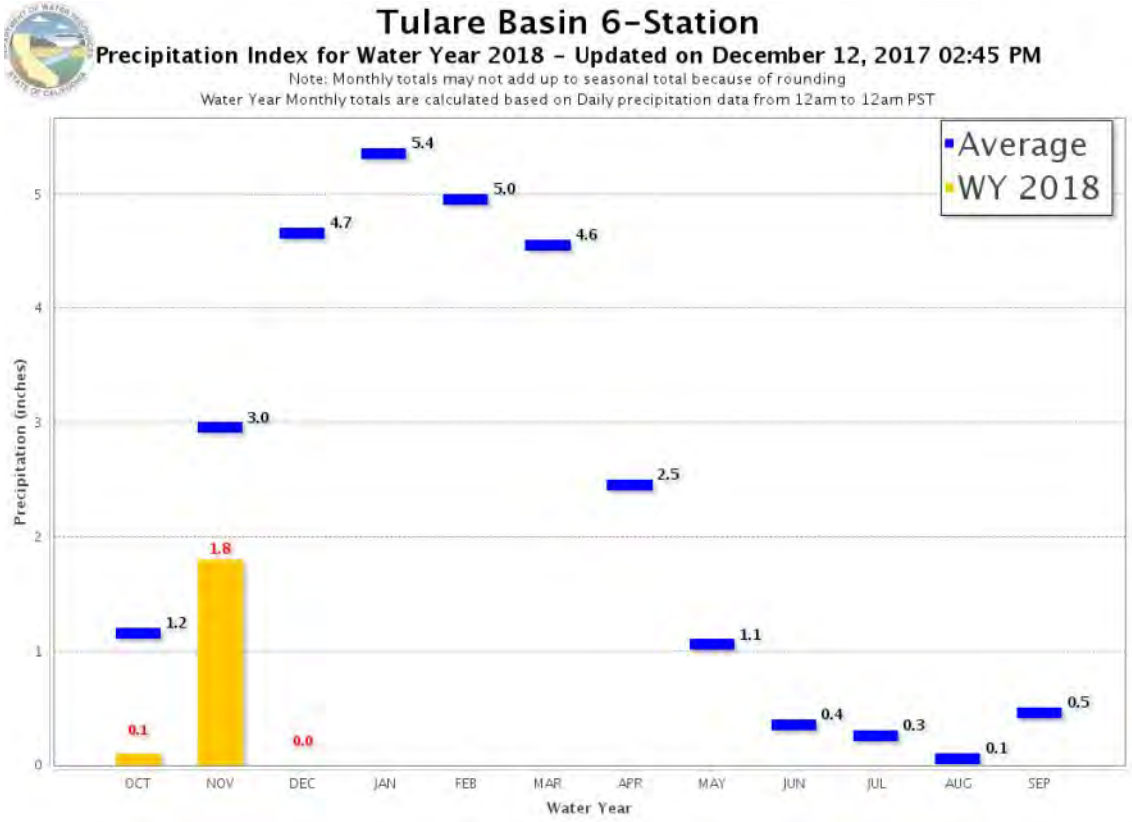
http://cdec.water.ca.gov/images/WYPrecip/BAR_FSI.PNG

Tulare Lake Basin Precipitation

As of December 12th, the 6-station Tulare Basin index has recorded 2.0 inches of precipitation for this 2018 Water Year (unchanged from last week). This represents 33% of the typical average rainfall to date. The average total for the normal season is 29.3 inches.

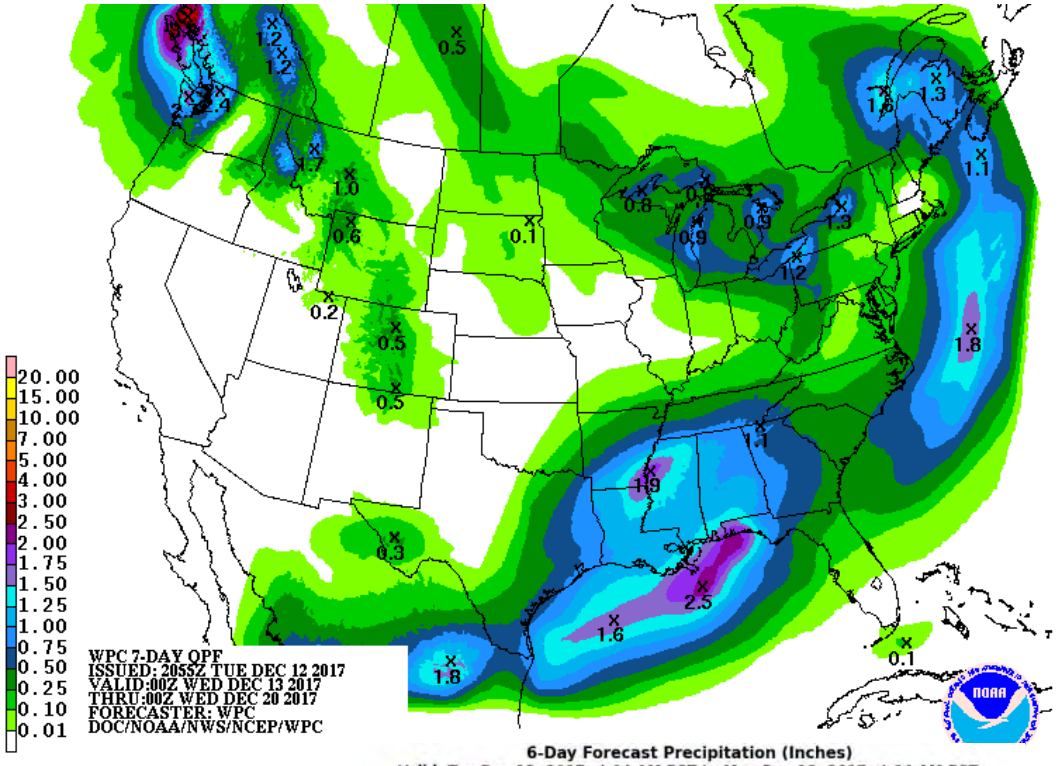


http://cdec.water.ca.gov/cgi-progs/products/PLOT_TSI.pdf

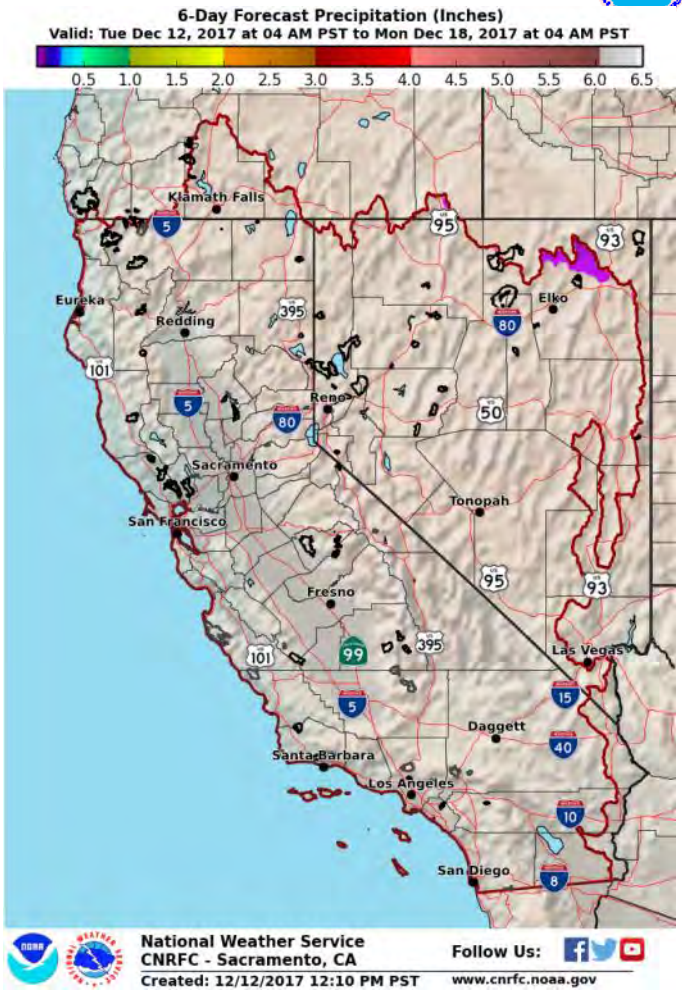


http://cdec.water.ca.gov/images/WYPrecip/BAR_TSI.PNG

Dry California Again This Week



http://www.wpc.ncep.noaa.gov/#



http://www.cnrfc.noaa.gov/precipForecast.php?cwa=RSA&day=123456&img=6

10-Day Feather Basin Quantitative Precipitation Forecast (QPF)

Monday, December 11, 2017
(each day ends at 0400 PST)

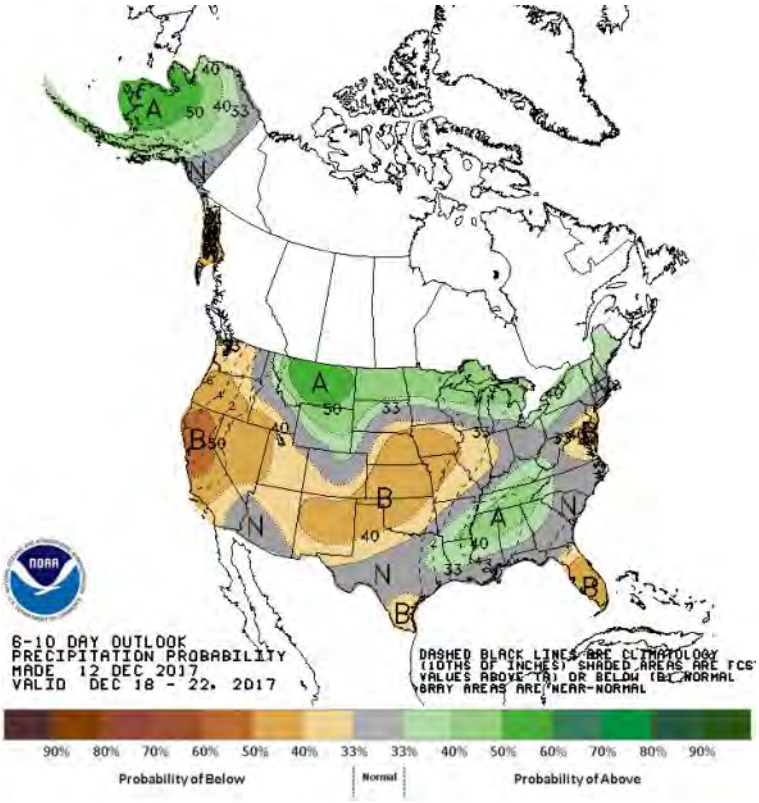
Day No.	Date		Precip (inches)	Snow Level (feet)	Average Daily* Precip (inches)	Snow Depth (inches)	Min Temp (F)
	Saturday, December 2, 2017		**0.0**	**7,500**			
	Sunday, December 3, 2017		**0.2**	**6,000**			
	Monday, December 4, 2017		**0.1**	**3,000**			
	Tuesday, December 5, 2017		**0.0**	**4,500**			
	Wednesday, December 6, 2017		**0.0**	**8,000**			
	Thursday, December 7, 2017		**0.0**	**9,000**			
	Friday, December 8, 2017	Actual	**0.0**	**10,000**			
	Saturday, December 9, 2017		**0.0**	**10,500**			
	Sunday, December 10, 2017		**0.0**	**10,500**			
	Monday, December 11, 2017		**0.0**	**11,000**	**0.23**	**0.5**	**25.1**
	Total observed:		**0.3**				
1	Tuesday, December 12, 2017		0.0	10,500	0.23	0.6	25.0
2	Wednesday, December 13, 2017		0.0	11,500	0.23	0.6	24.9
3	Thursday, December 14, 2017		0.0	12,000	0.23	0.7	24.9
4	Friday, December 15, 2017		0.0	12,500	0.24	0.7	24.8
5	Saturday, December 16, 2017	Forecast	0.0	9,000	0.24	0.8	24.8
6	Sunday, December 17, 2017		0.0	8,500	0.24	0.8	24.7
7	Monday, December 18, 2017		0.0	10,000	0.24	0.9	24.5
8	Tuesday, December 19, 2017		0.0	10,500	0.24	0.9	24.3
9	Wednesday, December 20, 2017		0.0	10,000	0.24	1.0	24.0
10	Thursday, December 21, 2017		0.0	8,000	0.24	1.0	23.8
	Friday, December 22, 2017		0.0	8,000	0.24	1.1	23.6
	10-Day Total:		**0.0**		**2.37**		
	10-Day Percent of Normal:		**0%**				
	Accumulated Observed Precip for WY 2018:		**14.6**	**(WY 2017: 101.5)**			

Comments:

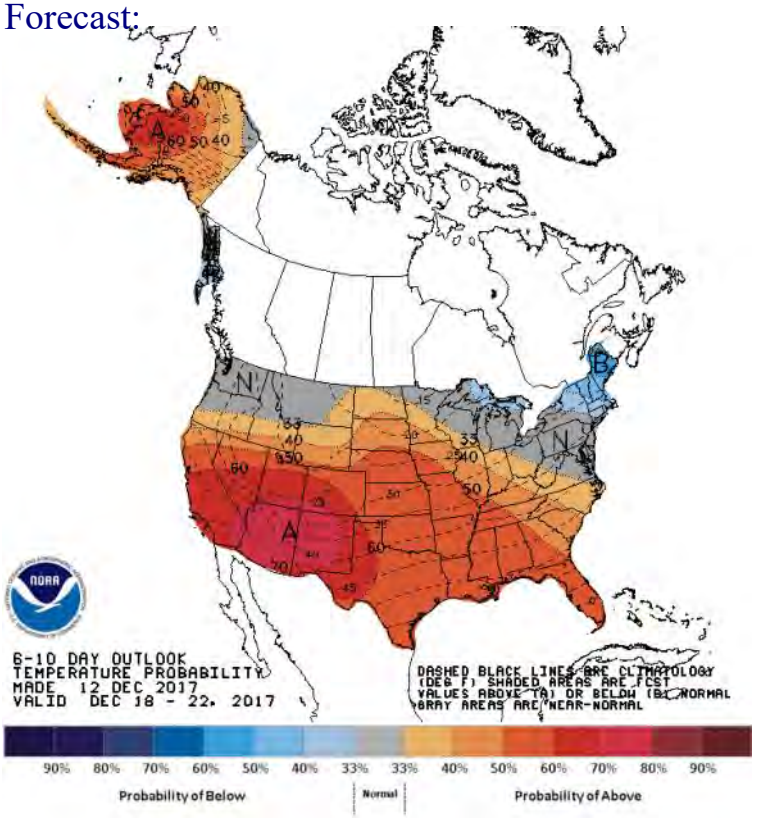
Dry conditions and relatively mild, above-normal daytime temperatures are forecasted into early next week for the Feather Basin. A gradual warming trend is expected this work-week, but night-time temperatures should remain cool. Cooler conditions are expected over the weekend. The next update of this forecast will be about Thursday, December 14, 2017, unless there are significant hydrologic changes.

http://cdec.water.ca.gov/cgi-progs/products/QPF.pdf

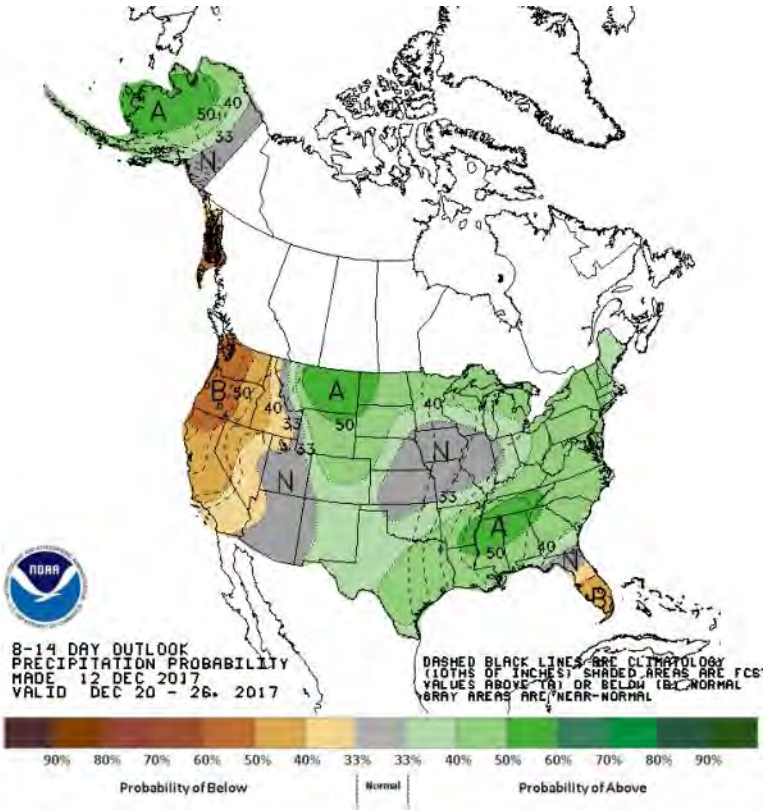
6-10 day Precipitation Forecast:



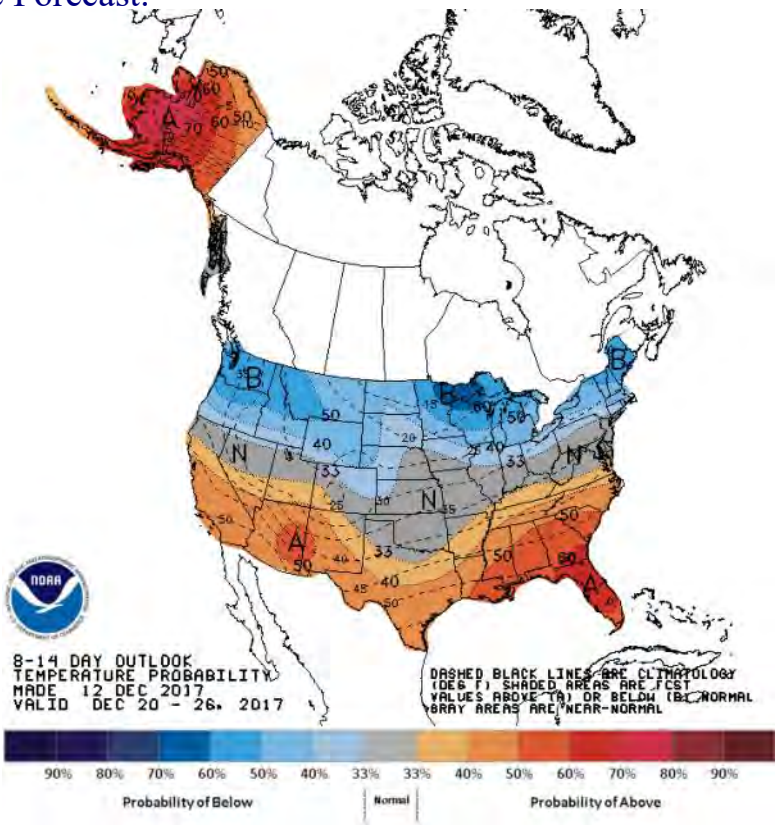
6-10 day Temperature Forecast:



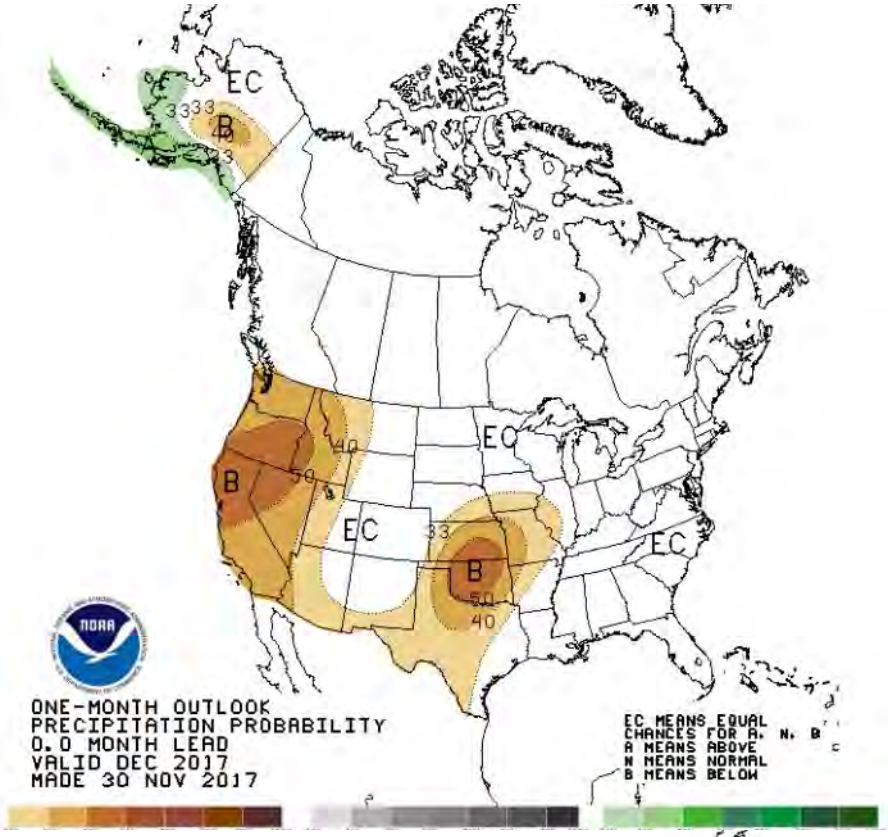
8-14 day Precipitation Forecast:



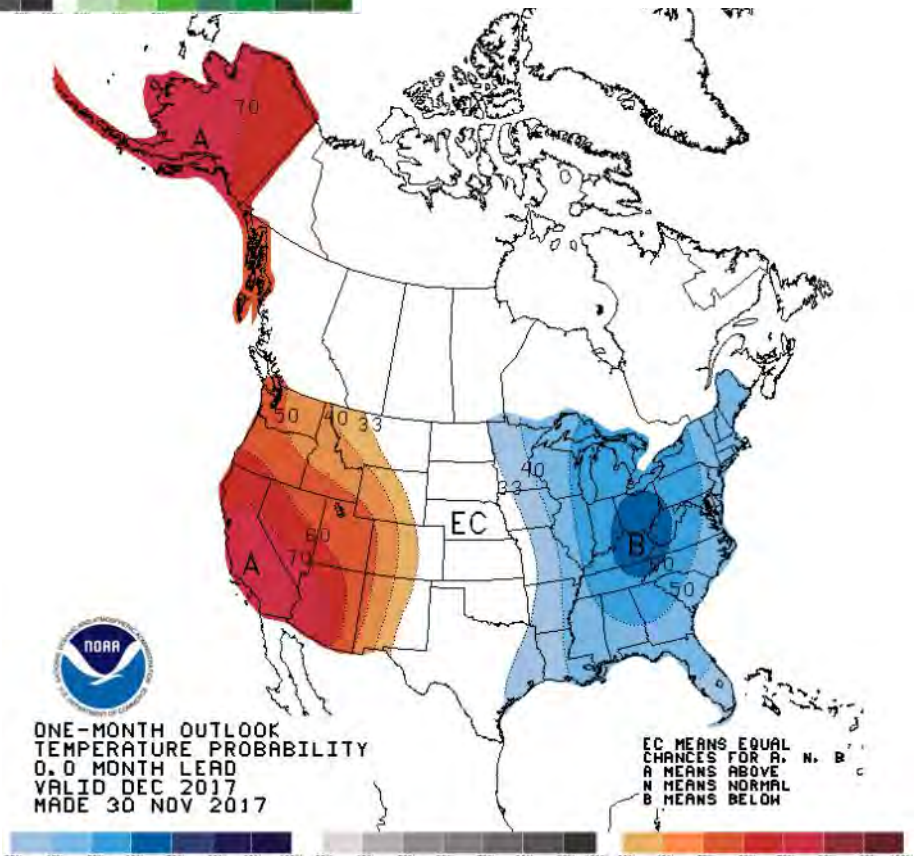
8-14 day Temperature Forecast:



December Precipitation Forecast:

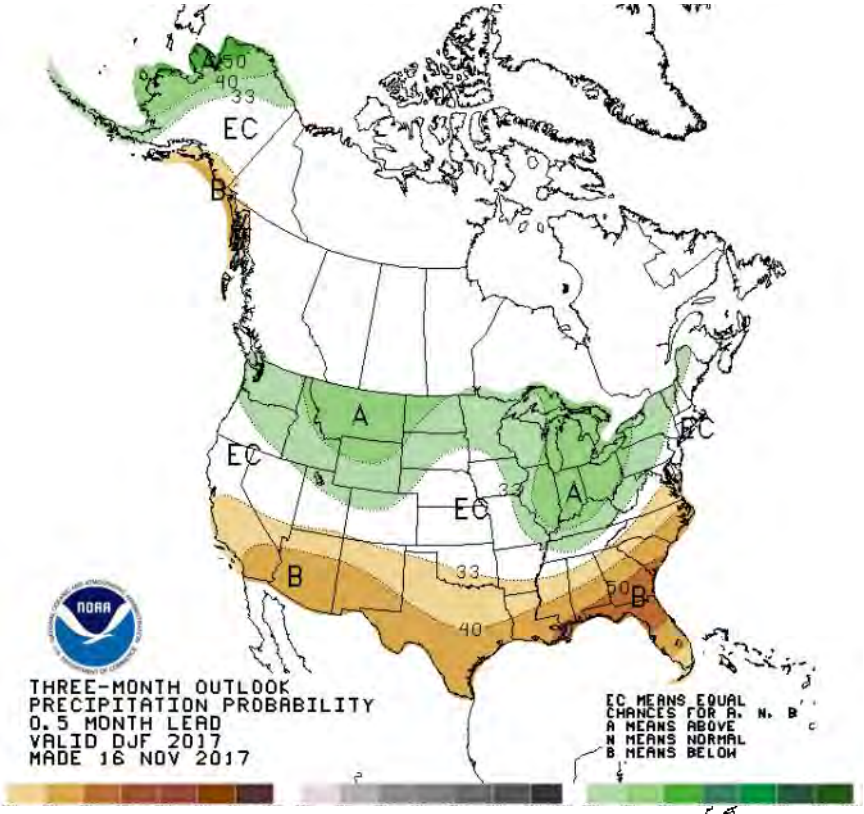


December Temperature Forecast:

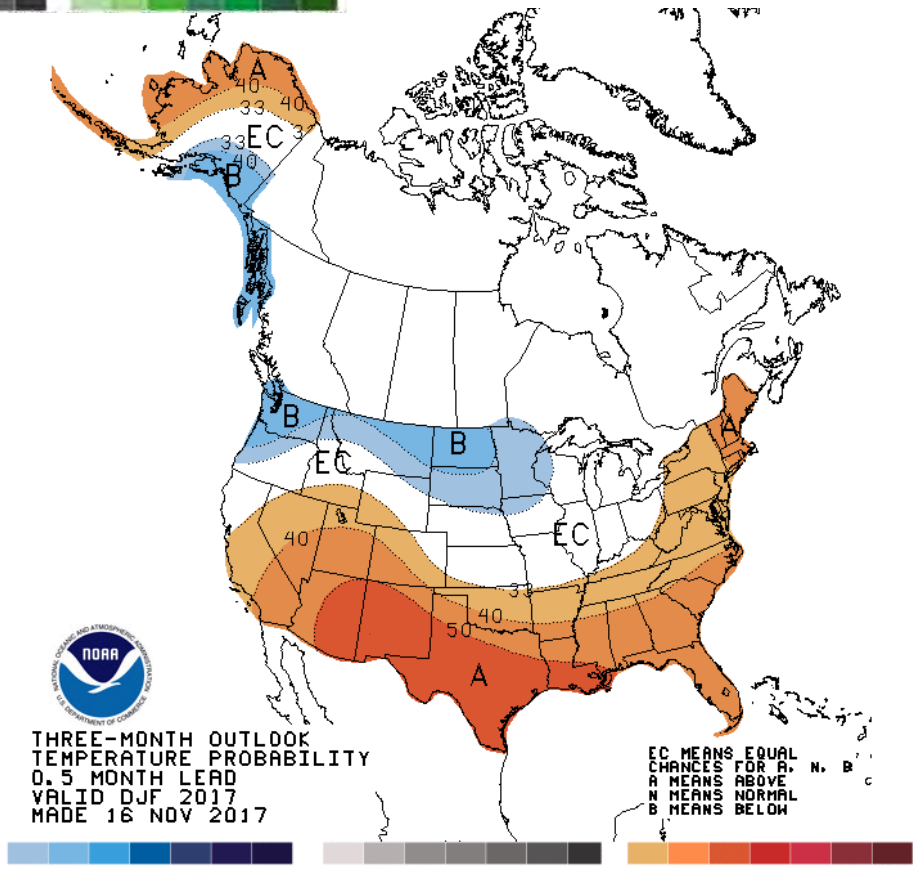


http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead14/index.php

December–February Precipitation Forecast:



December–February Temperature Forecast:



http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

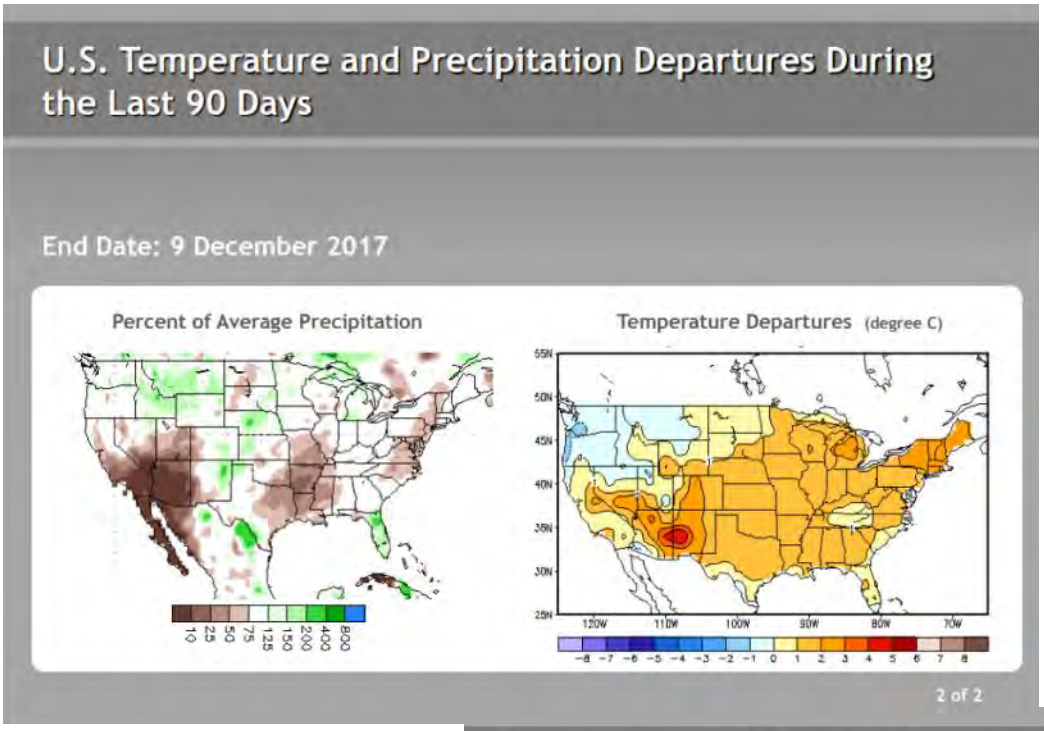
Long Range Forecast—

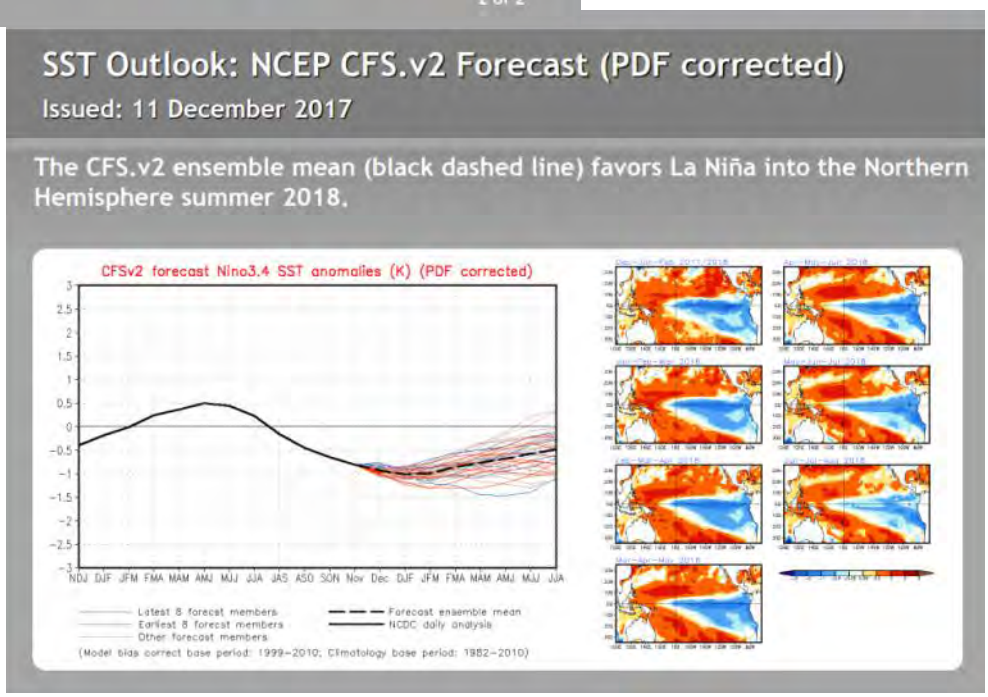
The Climate Prediction Center/NCEP issued its new Update on December 11, 2017:

ENSO Alert System Status: La Niña Advisory

- **La Niña conditions are present.***
- **Equatorial sea surface temperatures (SSTs) are below average across the central and eastern Pacific Ocean.**
- **La Niña conditions are predicted to continue (~65%-75% chance) at least through the Northern Hemisphere winter 2017-18.***

* Note: These statements (and the following charts) are updated at least once a month (2nd Thursday of each month) in association with the ENSO Diagnostics Discussion: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

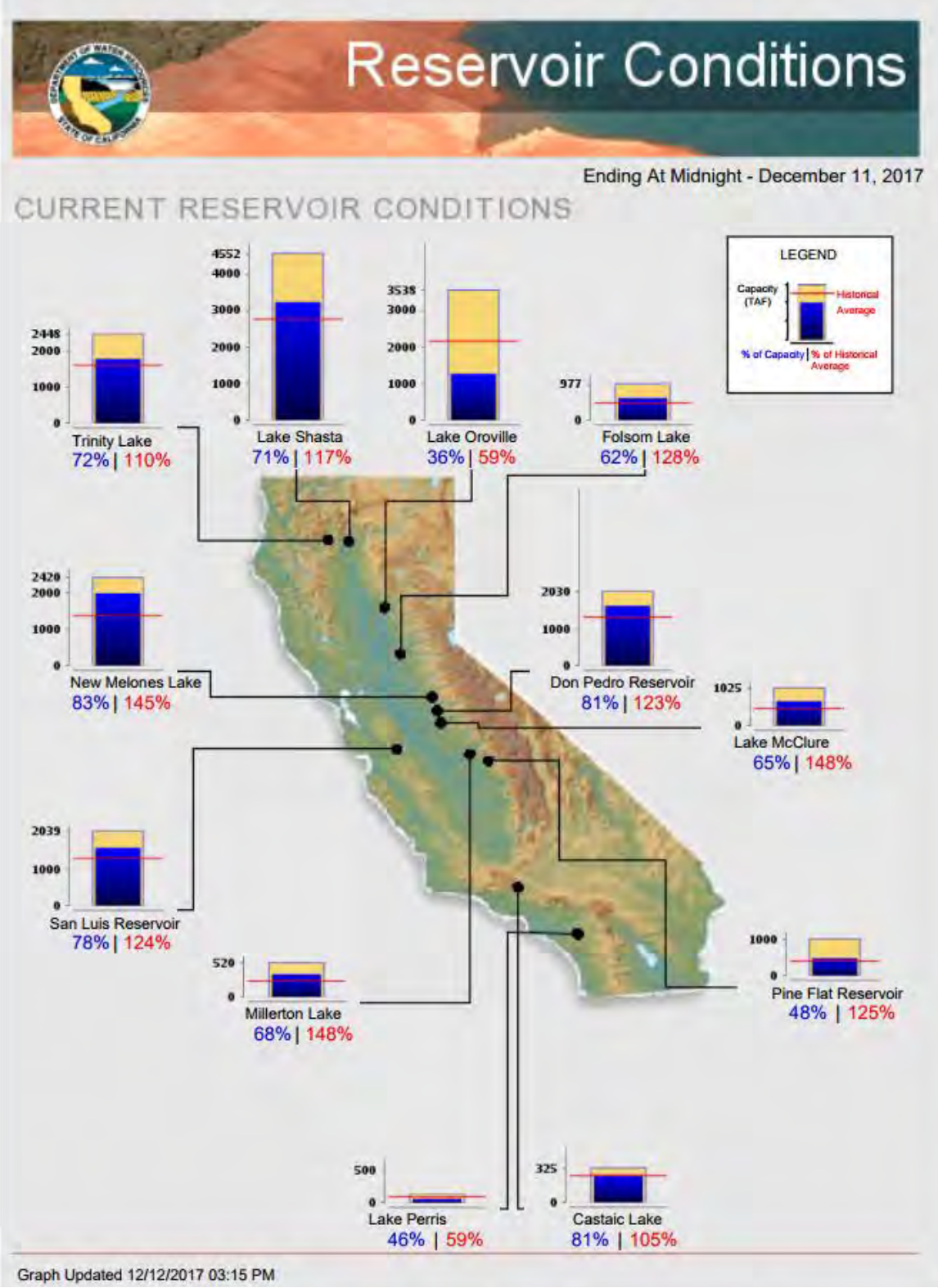




http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf—pages 30 and 25

Reservoir Conditions

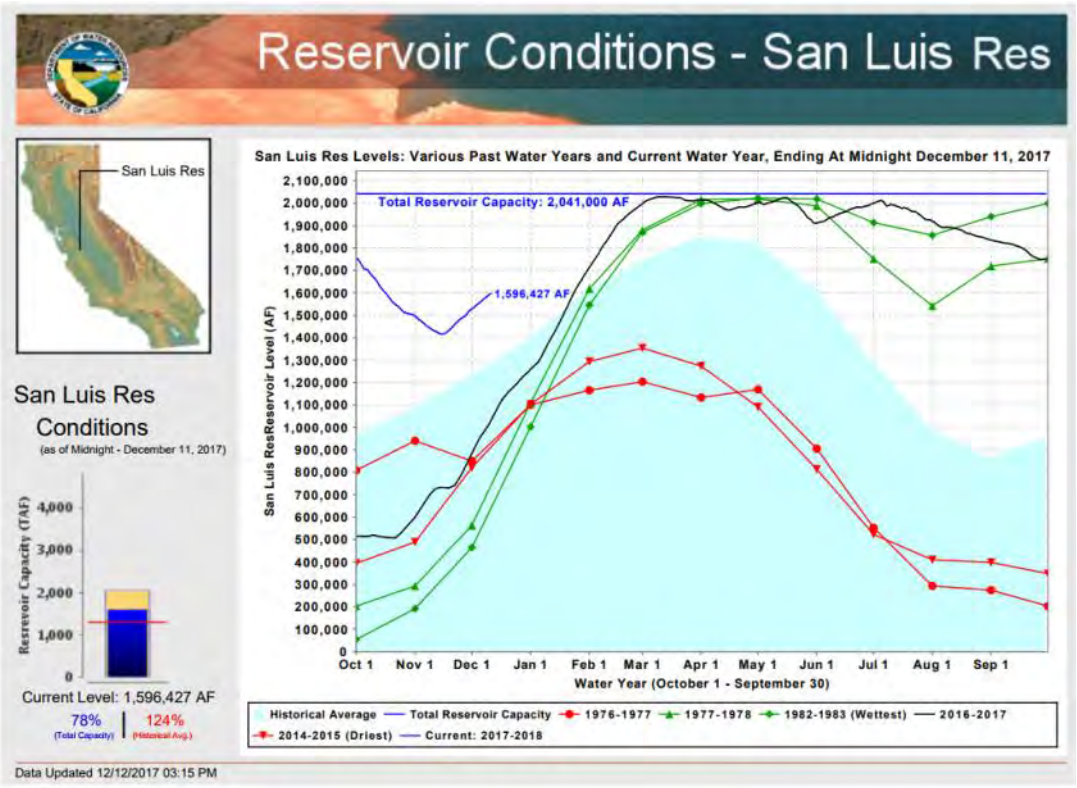
As of December 11th, northern California reservoirs are between 59-128% of historical average and 36-72% of capacity. Folsom is down 1%, and Trinity, Shasta and Oroville are unchanged in capacity from last week. The central ones are between 123-148% of historical average and 48-83% of capacity. San Luis is up 2% of capacity.



http://cdec.water.ca.gov/cgi-progs/products/rescond.pdf

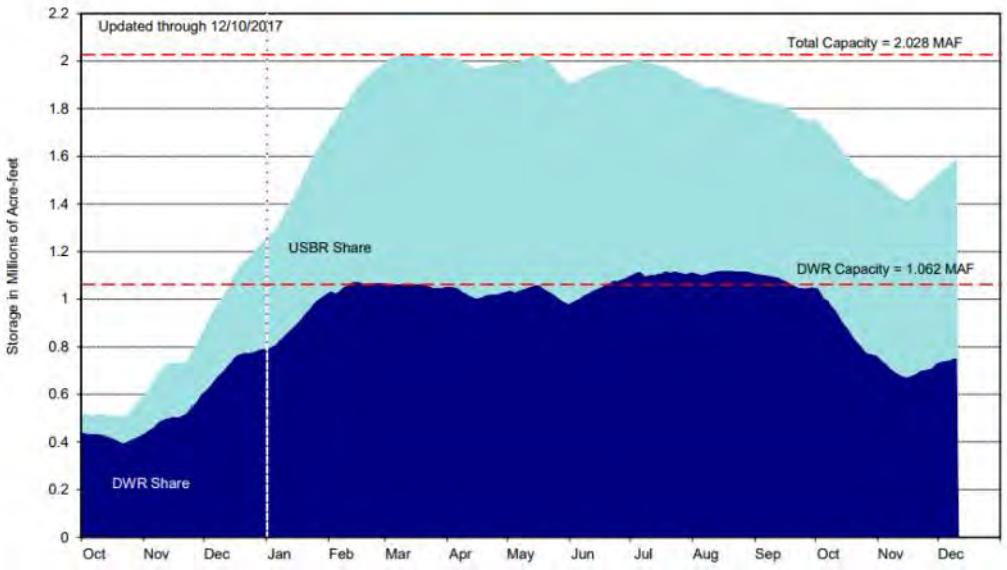
San Luis Reservoir

San Luis is at 124% of the historical average. As of December 11th, San Luis total (CVP + SWP) storage is at 1,596,427 AF and is at 78% of the 2,027,835AF of allotted storage capacity. It is up 53,964 AF from last week. The CVP share is 836,253 AF (at 86.6%) and increased by 33,972 AF in the last week.



http://cdec.water.ca.gov/cgi-progs/products/snlres.pdf

San Luis Reservoir Storage Shares
Combination Water/Calendar Year 2017



For current San Luis Reservoir Storage Shares, go to http://www.water.ca.gov/swp/operationscontrol/docs/storsanl.pdf

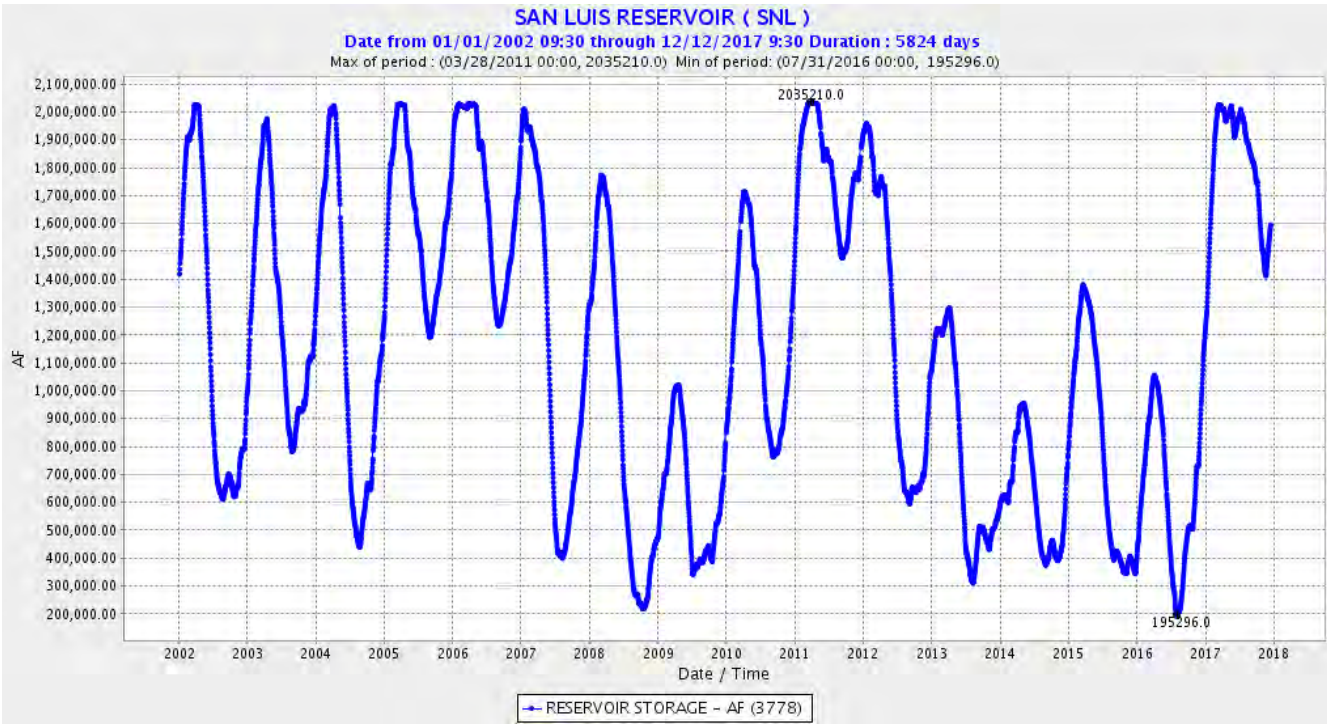
San Luis Reservoir

Federal Storage within San Luis Reservoir

As of December 11th, federal storage was at 836,253AF (86.6% capacity). Total federal storage capacity is 965,655AF.

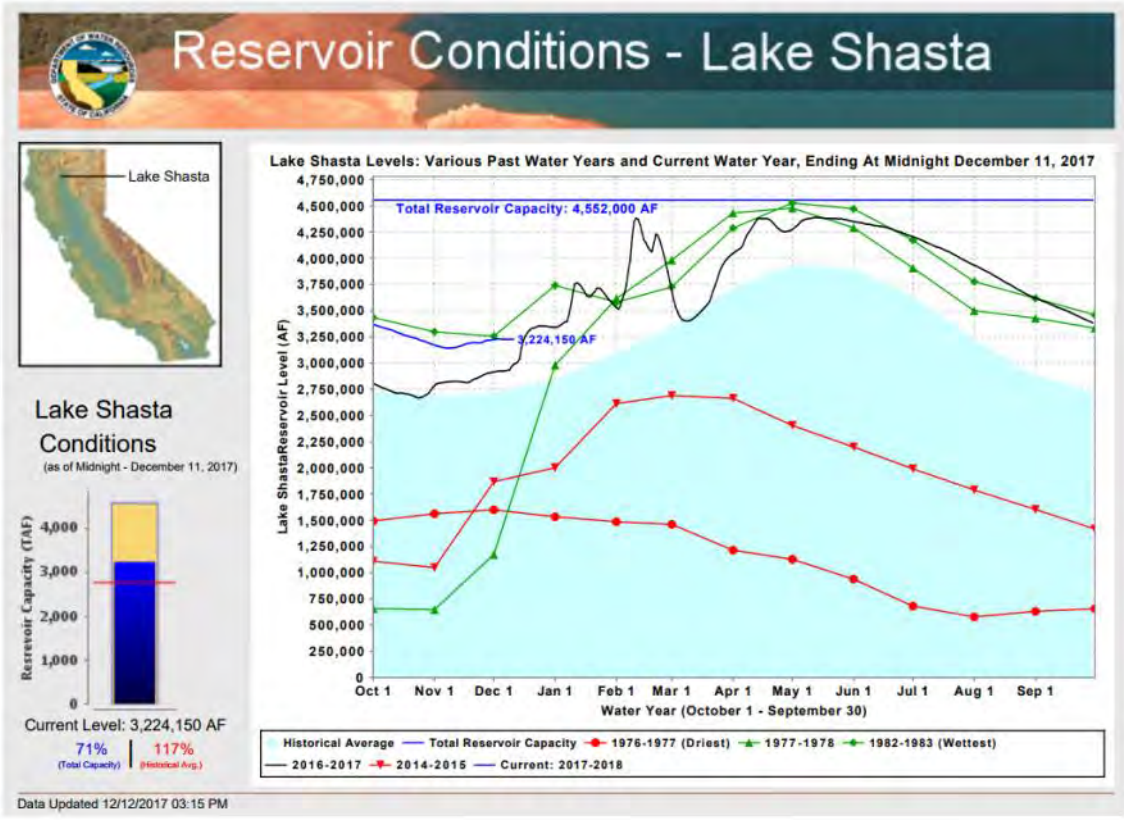
State Storage within San Luis Reservoir

As of December 11th, state storage was at 760,174AF (now at 71.6% capacity). The total state storage capacity in SLR is 1,062,180AF. Total State and Federal storage reported is 1,596,427AF. The reservoir is at 78.7% of allotted storage capacity (2,027,835 AF).



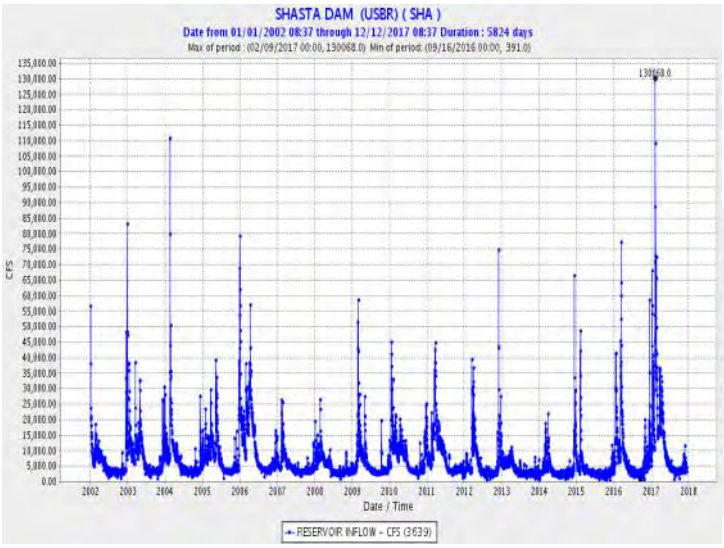
Shasta Storage —

As of December 11th, storage was approximately 3,224,150AF (down 5,479AF and at 71% of capacity, unchanged in capacity from last week). The current level is 117% of the historical average. Total capacity of Shasta is about 4,552,000AF. Shasta's weekly average inflows are about 8,216AF/day, and outflows are about 8,628AF/day as of Monday.

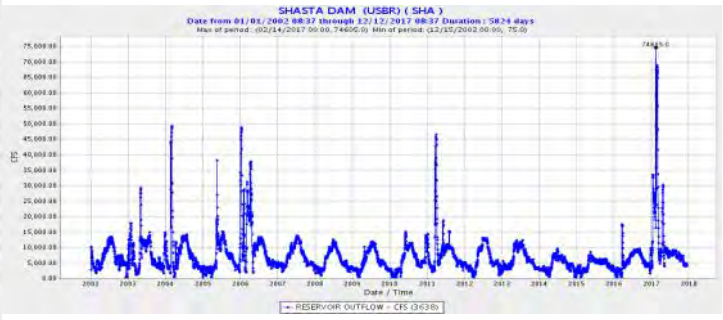


Reservoir graphs from: http://cdec.water.ca.gov/reservoir_map.html

Inflows

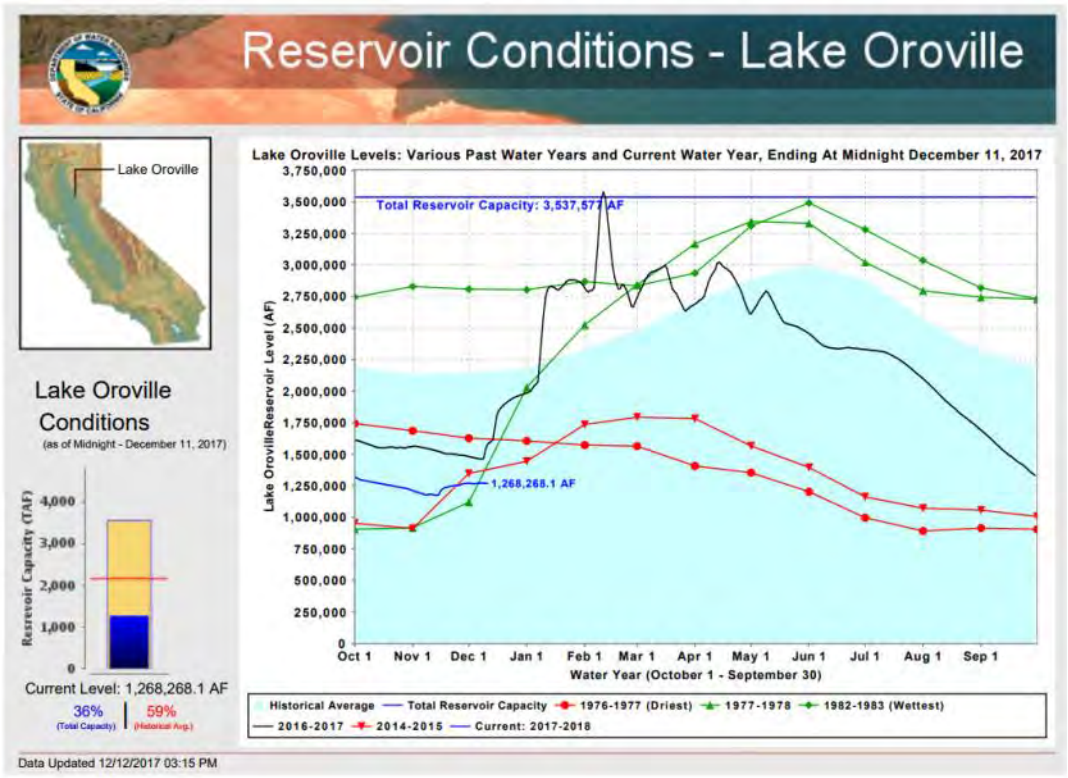


Outflows



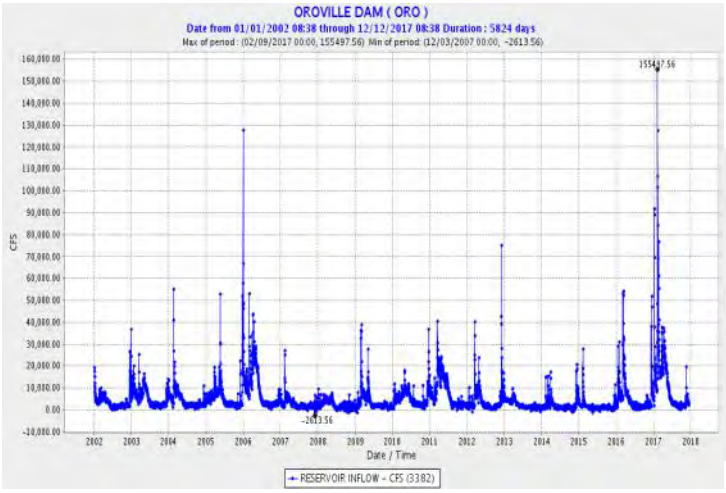
Oroville Storage

As of December 11th, storage was approximately 1,268,268AF (up 1,307AF and at 36% capacity, unchanged in capacity from last week). The current level is 59% of the historical average.

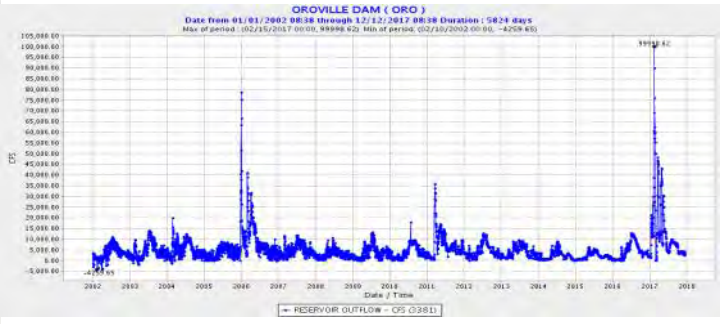


Inflows for the past week averaged 6,372AF/day. Total capacity of Oroville is 3,538,000AF. Current releases into the Feather River as of Monday have gone to 6,891AF/day.

Inflows

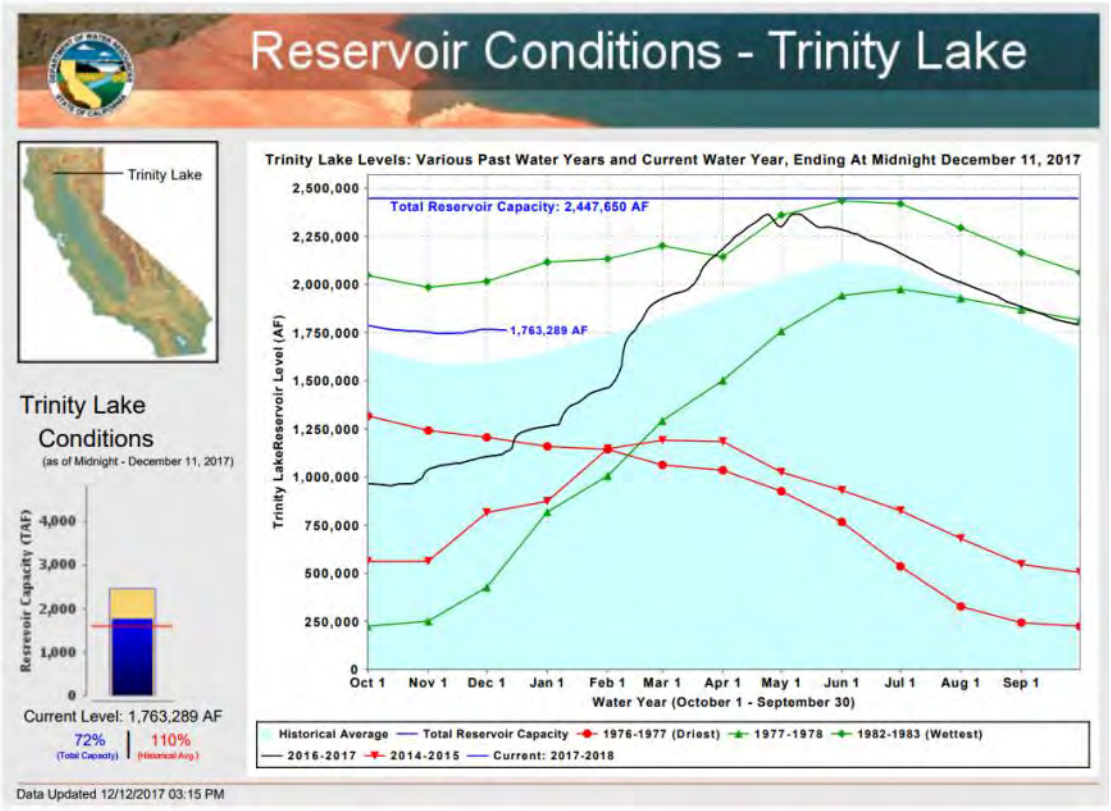


Outflows



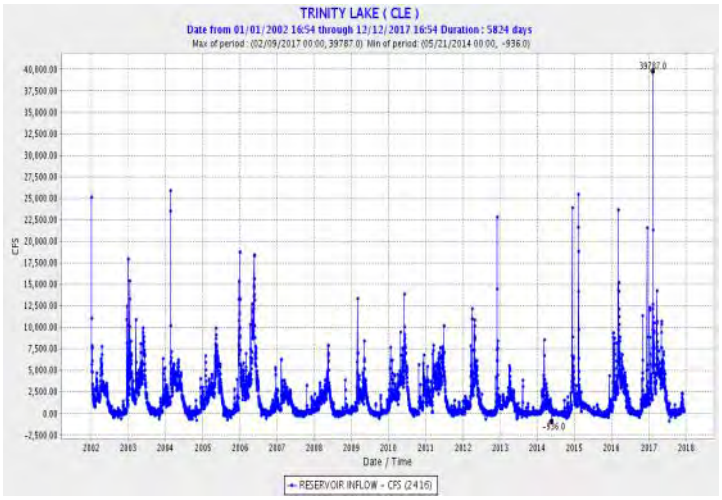
Trinity Lake Storage

As of December 11th, storage was approximately 1,763,289AF with capacity being at 72% (down 3,341AF and unchanged in capacity from last week). The current level is 110% of the historical average.

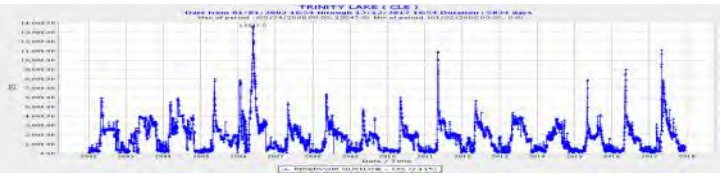


Net inflows for the past week averaged 851AF/day. Total capacity of the Trinity is about 2,448,000AF. On Monday, releases to the Trinity River were about 1,152AF/day.

Inflows

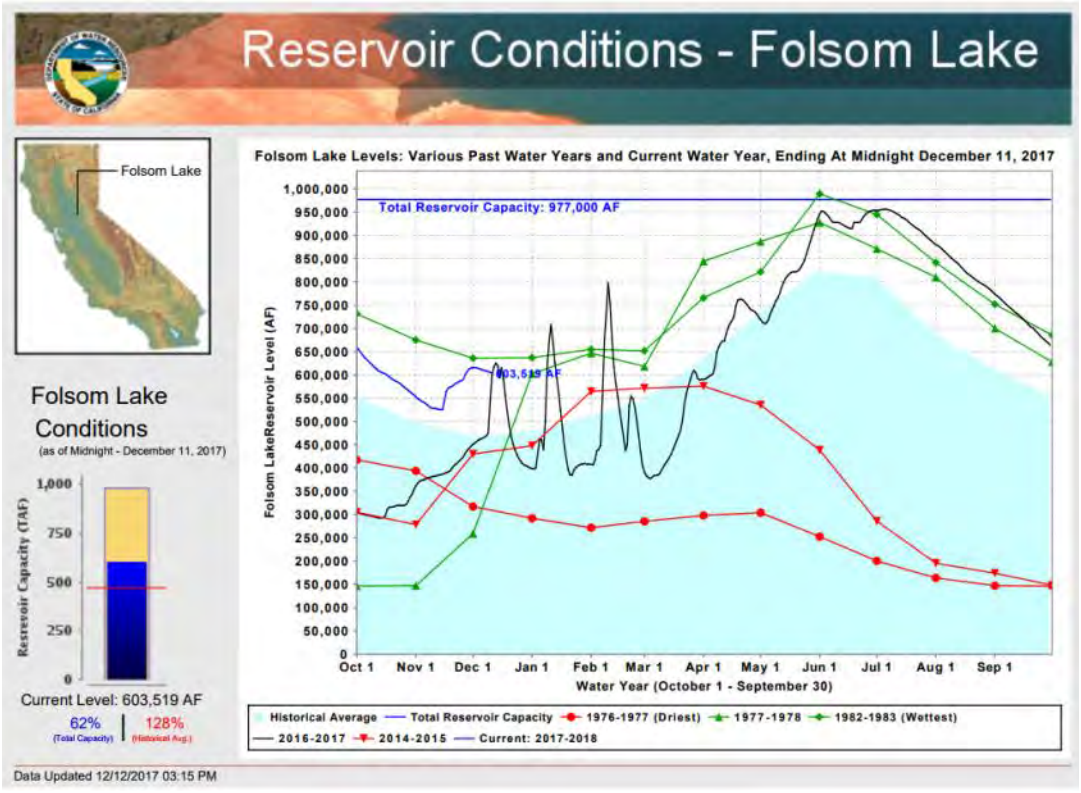


Outflows



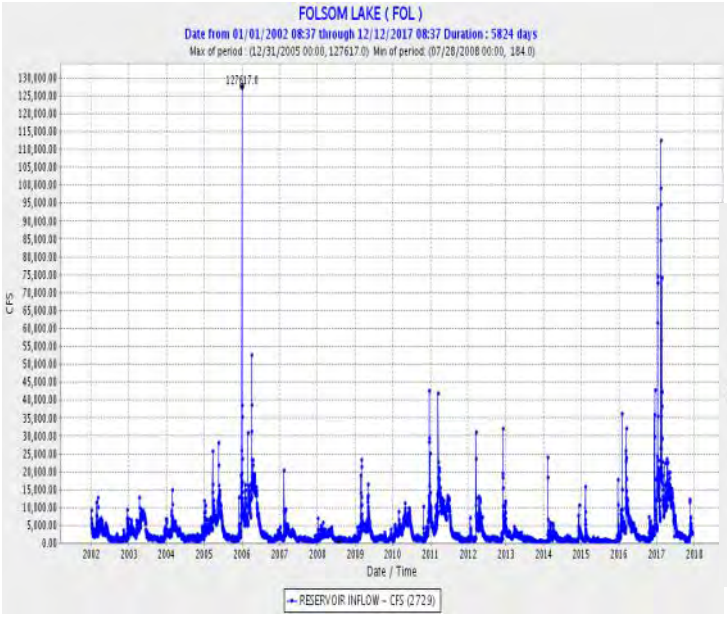
Folsom Storage

As of December 11th, storage was approximately 603,519AF (down 11,745AF and at 62% capacity, down 1% in capacity from last week). The current level is 128% of the historical average.

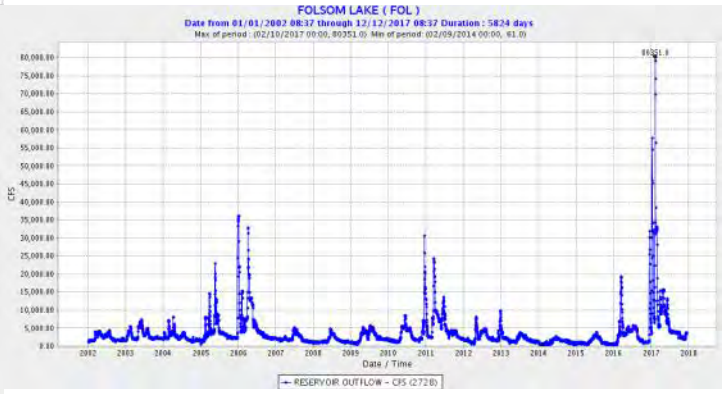


Inflows for the past week averaged 5,927AF/day. Total capacity of Folsom is 977,000AF. As of Monday, releases were about 7,565AF/day.

Inflows

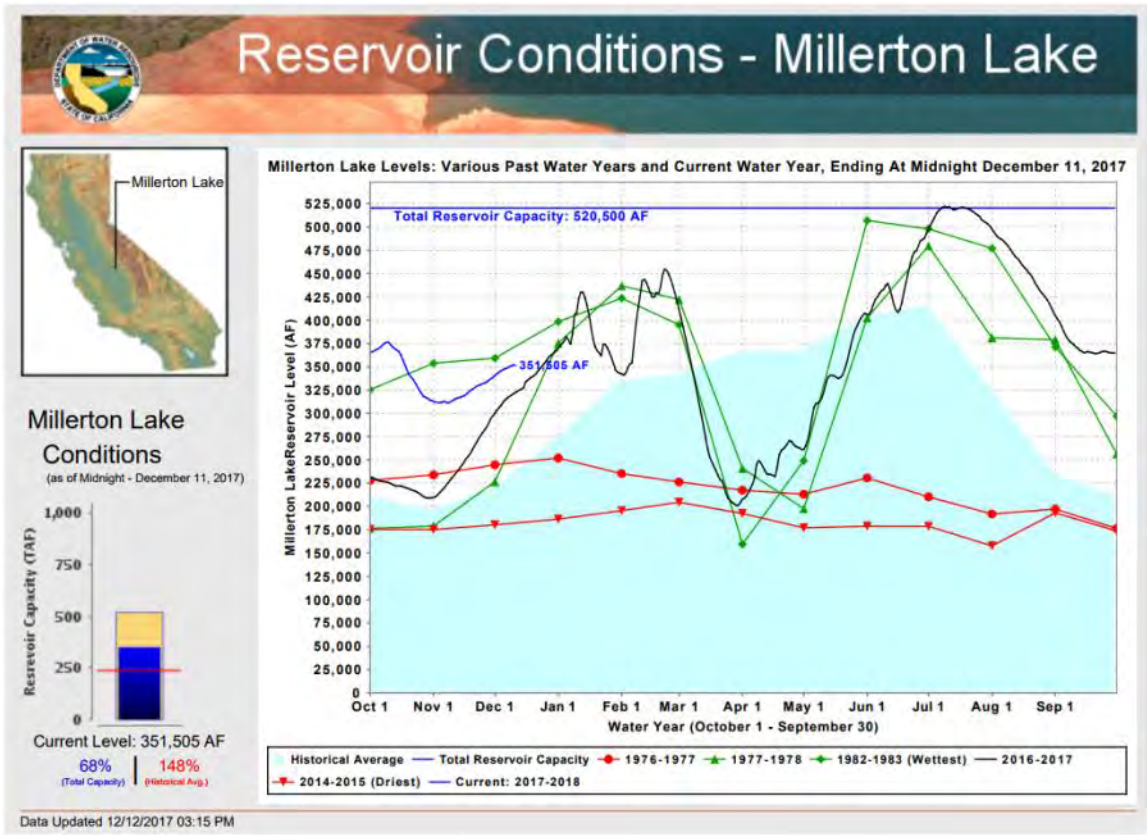


Outflows



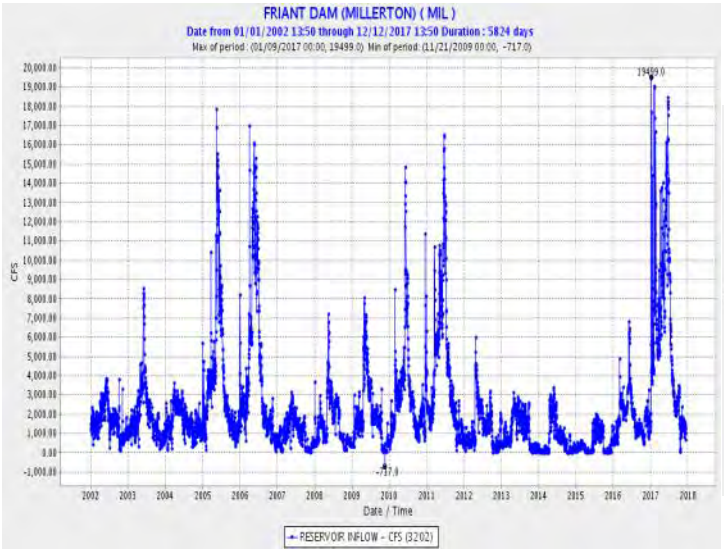
Friant Storage

As of December 11th, storage was about 344,058AF (up 7,447AF and at 68% capacity, up 2% in capacity from last week). The current level is 148% of the historical average. Inflows for the last week averaged about 2,382 AF/day. Total capacity of Friant is 520,500AF.

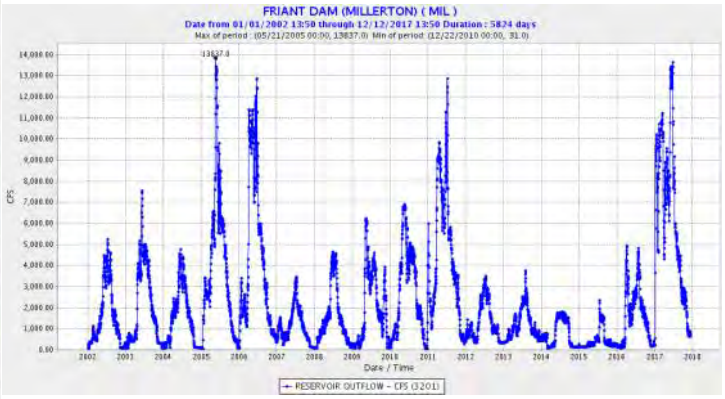


On Monday, 422CFS was released into the Friant/Kern Canal, 0CFS was released into the Madera Canal, and 375CFS was released into the San Joaquin River. The eight upstream San Joaquin River reservoirs are about 39% full, holding 236,616AF of their 610,288AF capacity.

Inflows

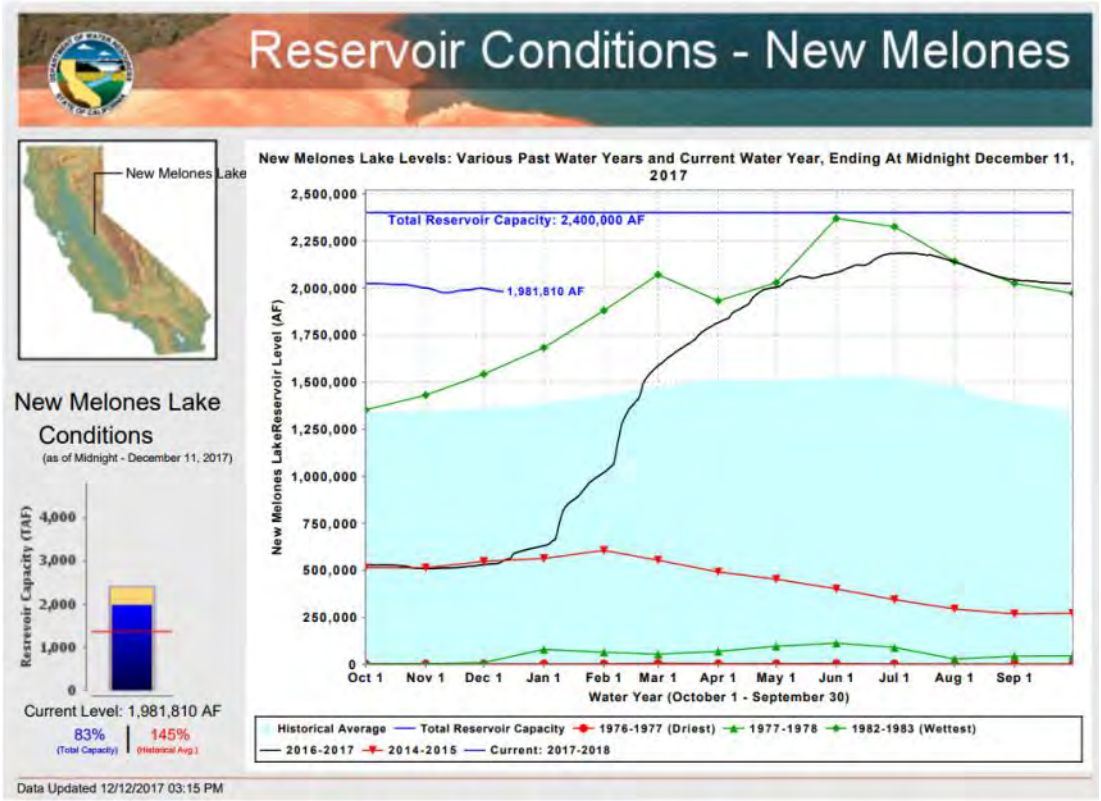


Outflows



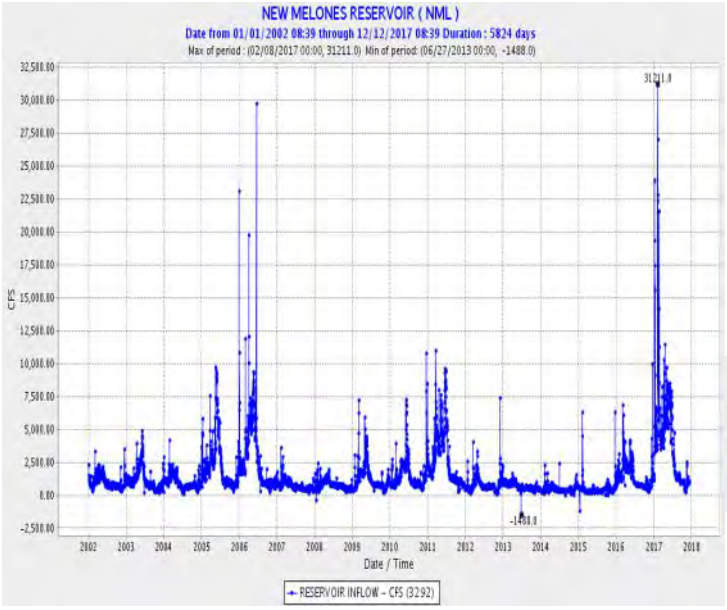
New Melones Storage

As of December 11th, storage was approximately 1,981,810 AF (down 12,567AF and at 83% capacity, unchanged in capacity from last week). The current level is 145% of the historical average.

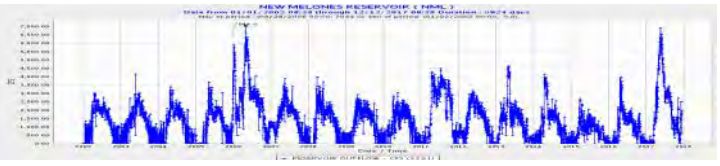


Inflows for the past week averaged 2,012AF/day. Total capacity of New Melones is 2,400,000AF. Current releases to the Stanislaus River have been adjusted to 1,345 AF/day.

Inflows

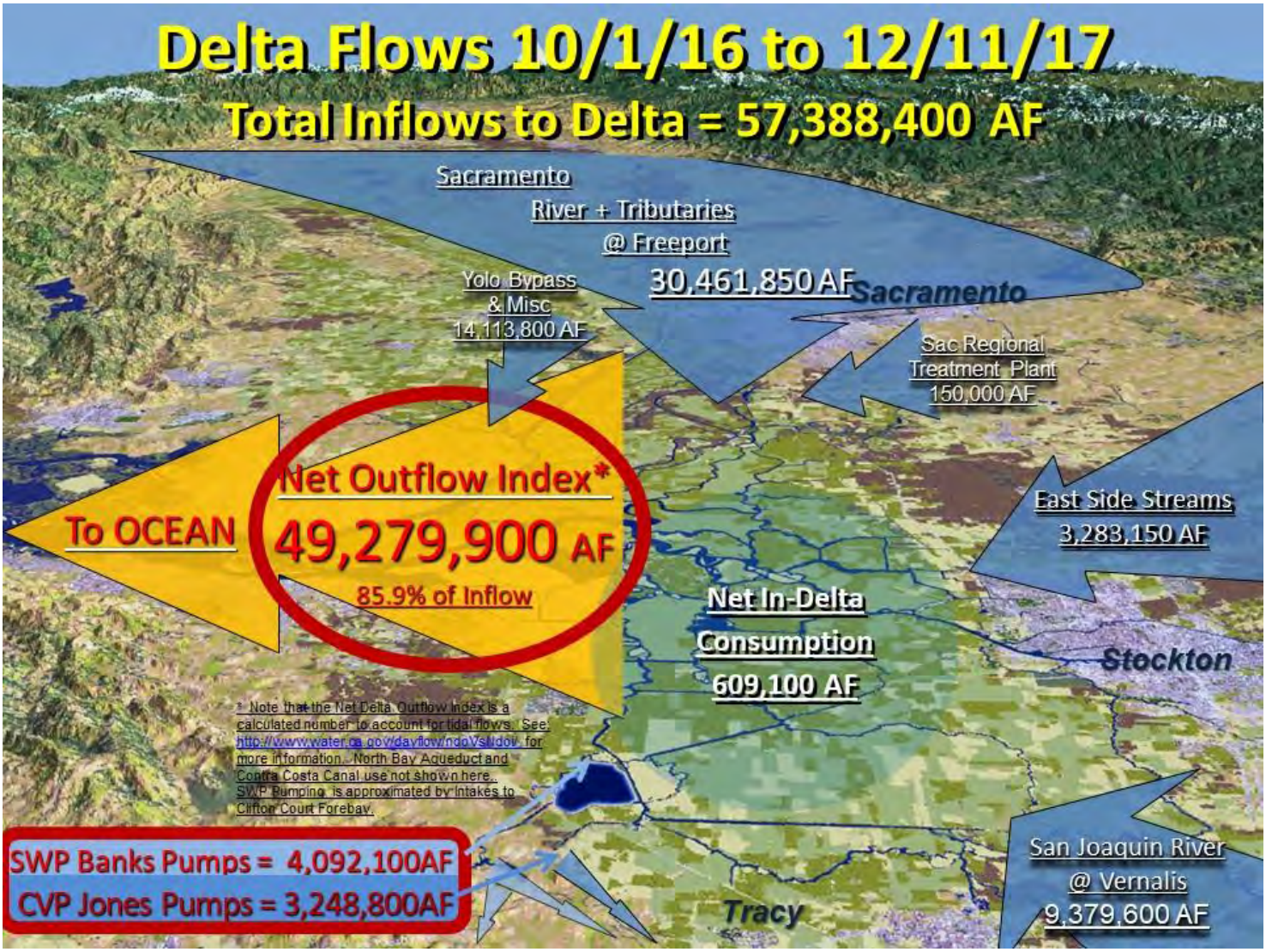


Outflows

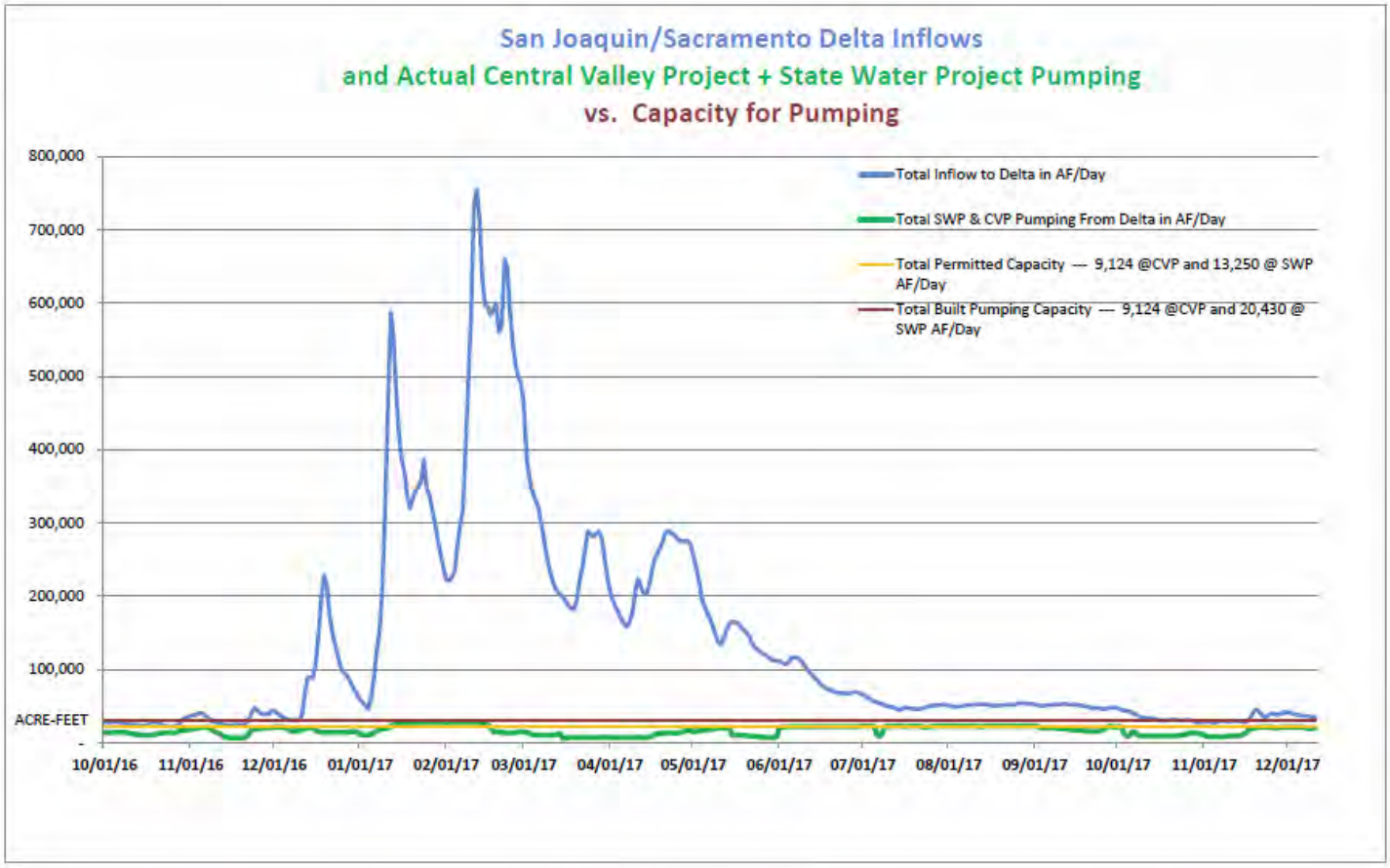


Delta Flows from October 1, 2016, through December 11, 2017

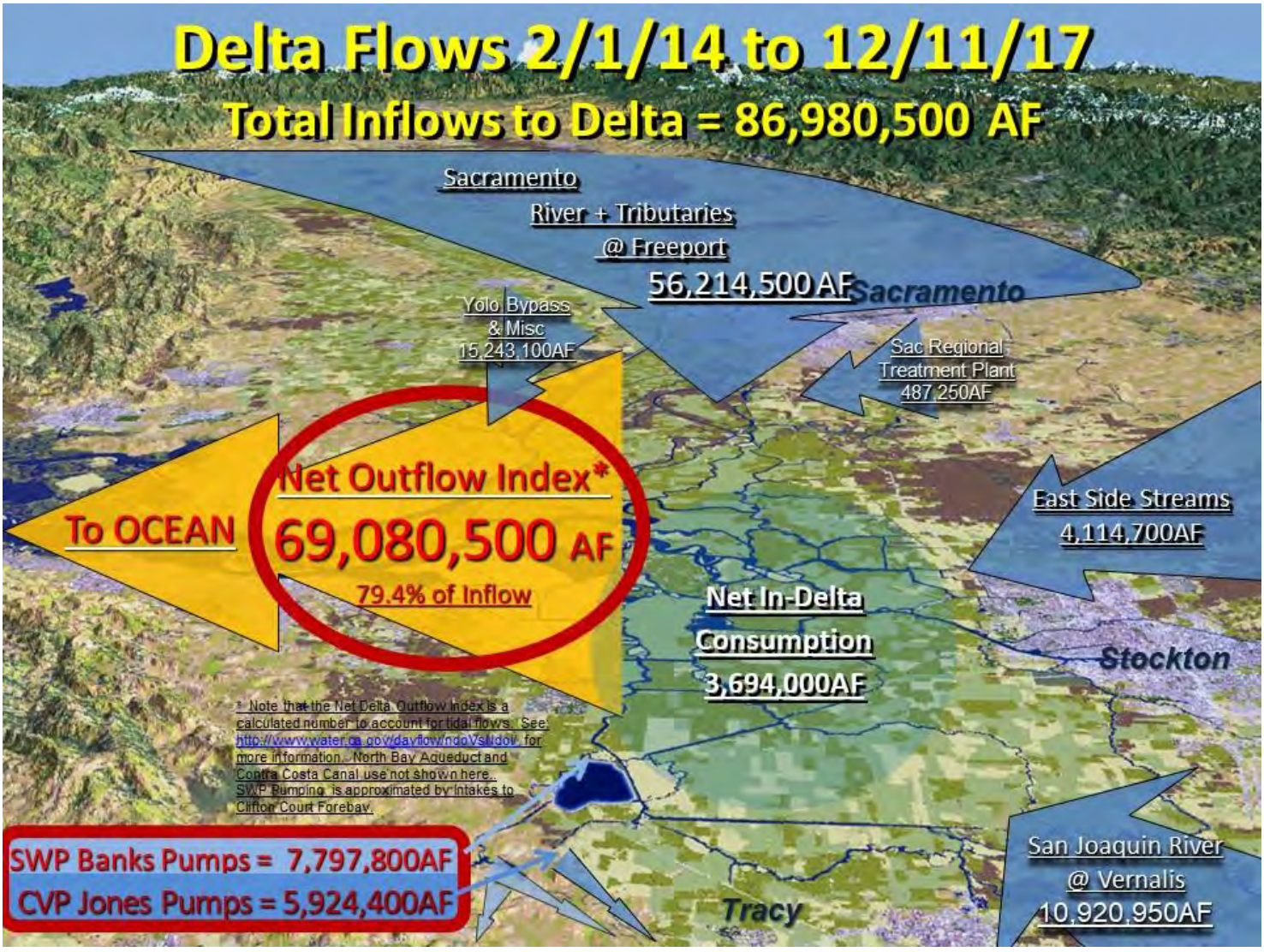
In just over fourteen months, 57,388,400AF of water flowed into the Delta. The Net In-Delta Consumption was 609,100AF (1.1%). The Banks and Jones Pumps captured 7,340,900AF (12.8%), and 49,279,900AF (85.9%)



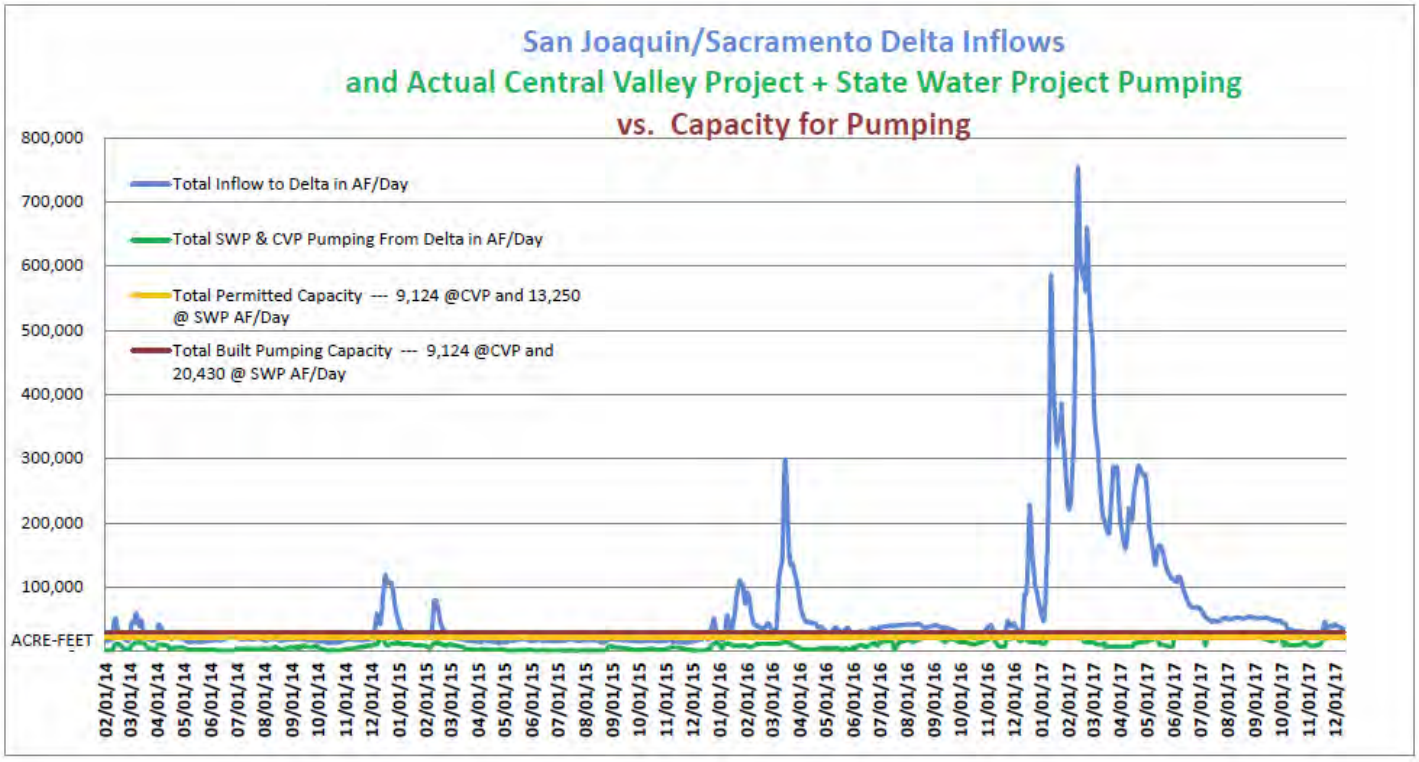
October 1, 2016 to December 11, 2017



Plenty of water has been flowing through the delta. In just over 46 months, almost 87 million acre-feet of water have poured into the delta. Of that water, 79.4 percent, or over 69 million acre-feet, has gone out to the ocean, but just over 13.7 million acre-feet have been pumped into the California Aqueduct and Delta Mendota Canal for cities and farms. Since October 1, 2016, the losses are worse with 85.9 percent wasted to the ocean.



February 1, 2014 to December 11, 2017



MEMORANDUM

TO: JASON PELTIER, EXECUTIVE DIRECTOR

FROM: TOM BOARDMAN, WATER RESOURCES ENGINEER

SUBJECT: DECEMBER PROJECT OPERATIONS UPDATE

DATE: DECEMBER 1, 2017

Project Operations

- Declining inflow to the delta during the first half of November limited Jones pumping to about 2200 cfs in efforts to comply with the fall X2 requirement per the delta smelt BiOp. However, arriving storms during the latter half of month were enough to support full pumping into December. Jones is expected to remain at capacity absent sustained dry conditions or reverse flow restrictions in Old and Middle rivers are triggered by a major storm that cause turbidity levels to spike in the delta.
- Banks was also limited to about 2,200 cfs during the first half of November, but has since increased to 6,500 cfs with the help of increased delta inflow. DWR's latest forecast shows Banks pumping at about 4500 cfs through December with possible reductions in January due BiOp restrictions.
- Millerton is currently releasing 375 cfs as required by the San Joaquin River Restoration Program. The latest estimate shows that about 70 cfs will be available for recapture in the lower San Joaquin River through December.
- San Joaquin flows at Vernalis have dropped to about 1,500 cfs; about half the rate during early November. The current flow rate is about 300 cfs less than what occurred during the last wet year in 2011.
- Shasta is 70% full at 3.21 MAF or about 138% of the 15 year average. With the reservoir at its maximum allowable level for flood control, the additional inflow resulting from over 10 inches of precipitation during November has been released.
- Folsom is 62% full at 601 TAF or about 158% of the 15 year average. The reservoir received about 4.5 inches of precipitation during November.
- CVP demands were about 122 TAF during November which is about 50% above the 15 year average.

San Luis Reservoir Storage and Allocation Outlook

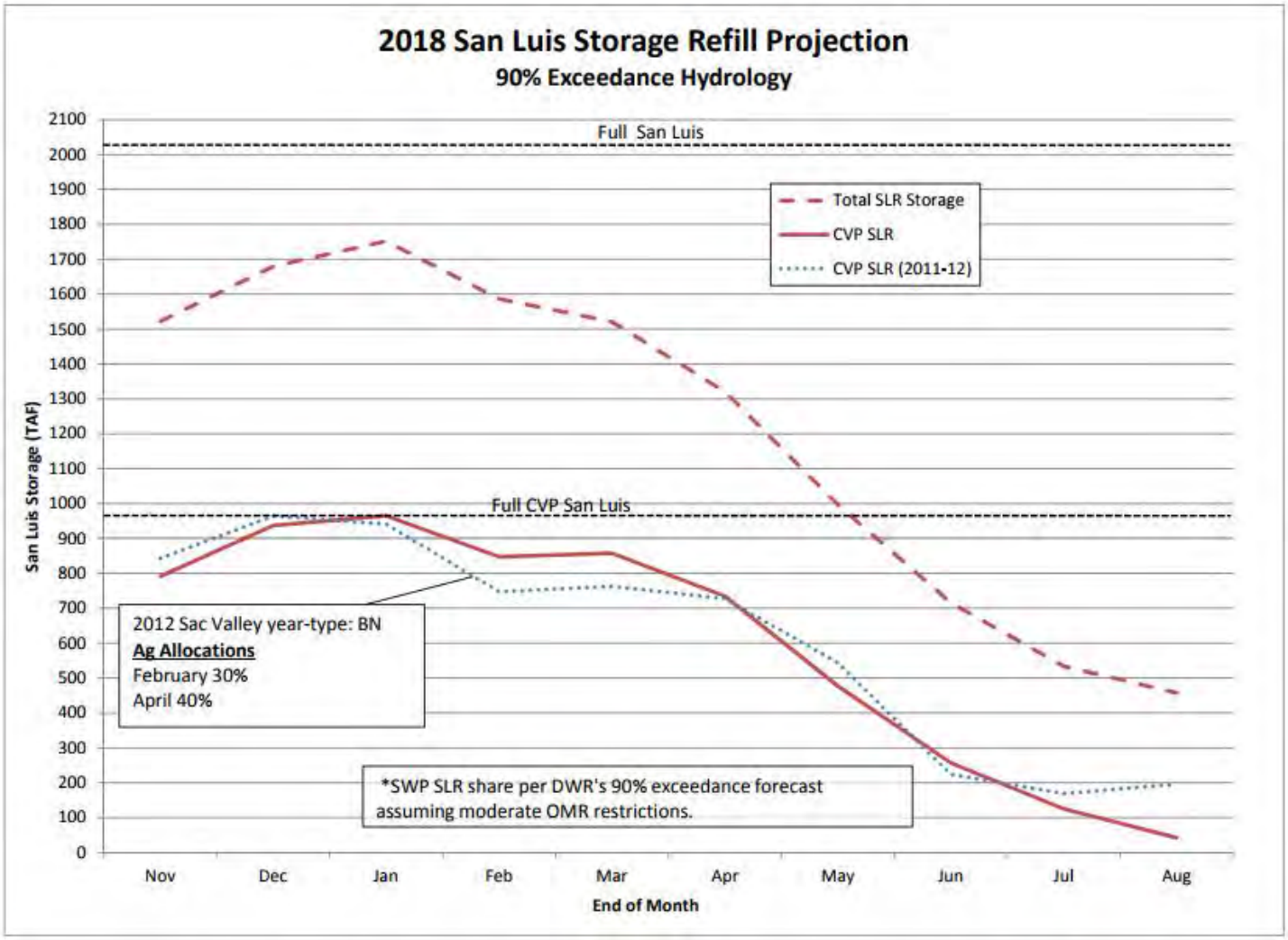
Sustained high demands during November and pumping reductions related to X2 compliance curtailed the refill of CVP San Luis to about 52 TAF for the month. As a result, the projected fill date for CVP San Luis has slipped to later in January. But, with the pre spawning movement of adult delta smelt possibly beginning in December, it is possible that

*See pages 39-42 (includes the charts) from http://www.sldmwa.org/OHTDocs/pdf_documents/Meetings/Board/Prepacket/2017_1207_Board_PrePacket_Post.pdf

the fill projection could be further delayed or even precluded with early and sustained reverse flow restrictions in Old and Middle Rivers prompted by a sudden increase in delta turbidity levels. Absent a substantial storm that could trigger OMR- related export restrictions, the attached charts depict refill projections for CVP San Luis under dry and average conditions. Keeping the reservoir full through the winter and spring, however, will depend on hydrology and levels of export cuts imposed by various requirements of the BiOps and D1641.

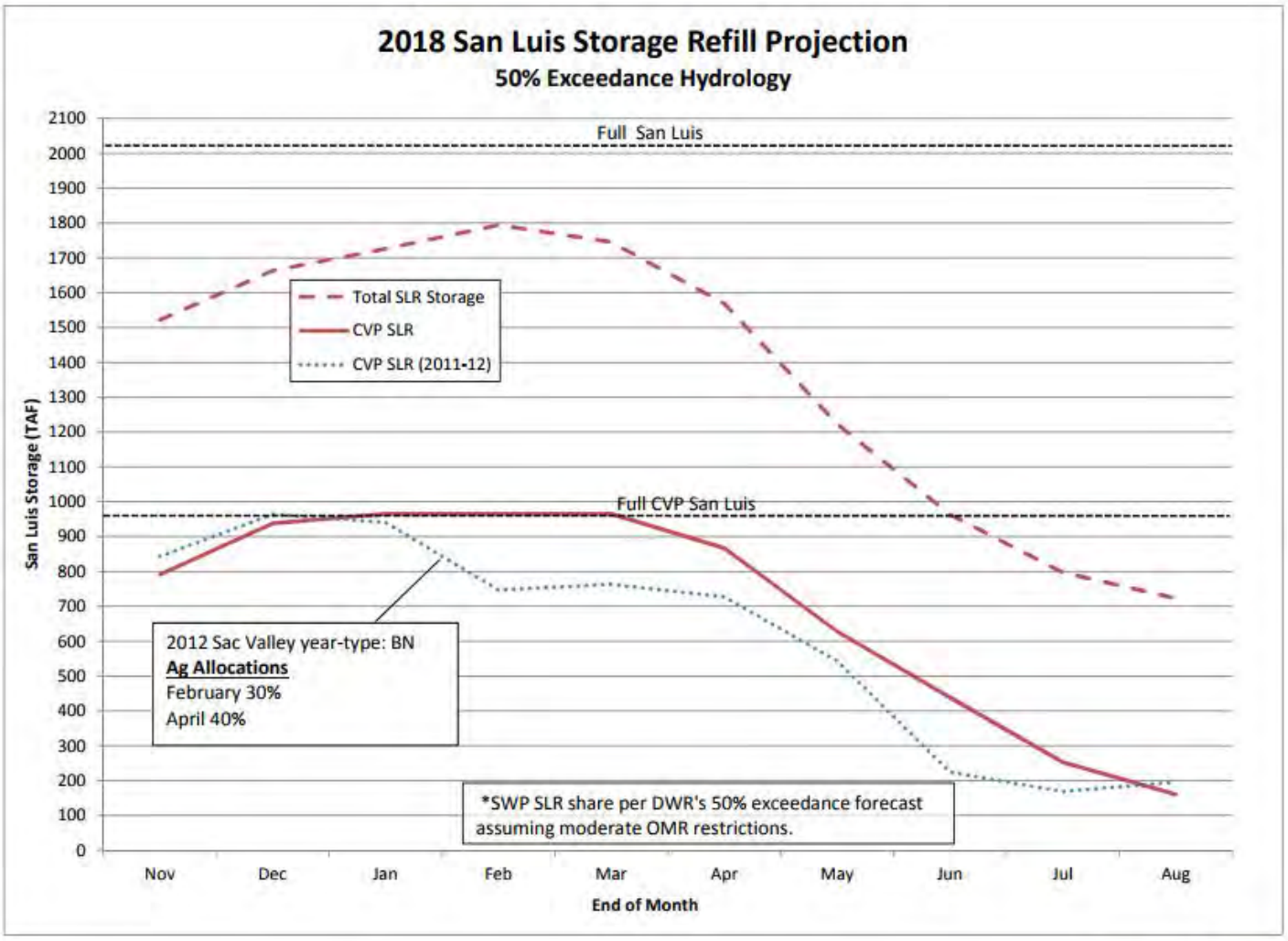
With ample upstream storage and absent a severe BiOp-related export curtailment, the Ag allocation is expected to be at least 30-40% under dry conditions and 45-55% with average conditions. If the San Joaquin basin is above average during late spring, the Ag Allocation could increase to 65-70%.

*See pages 39-42 (includes the charts) from http://www.sldmwa.org/OHTDocs/pdf_documents/Meetings/Board/Prepacket/2017_1207_Board_PrePacket_Post.pdf



T. Boardman, SLDMWA
12/1/2017

*See pages 39-42 (includes the charts) from http://www.sldmwa.org/OHTDocs/pdf_documents/Meetings/Board/Prepacket/2017_1207_Board_PrePacket_Post.pdf



T. Boardman, SLDMWA
12/1/2017

*See pages 39-42 (includes the charts) from http://www.sldmwa.org/OHTDocs/pdf_documents/Meetings/Board/Prepacket/2017_1207_Board_PrePacket_Post.pdf

2018 Agricultural Water Allocations—

SWP:

As of November 30, 2017, the 2018 SWP allocation is set at 15%.

http://www.water.ca.gov/news/newsreleases/2017/113017allocation.pdf

2017 Agricultural Water Allocations—

SWP:

As of April 14, 2017, the 2017 SWP allocation is set at 85%.

http://www.water.ca.gov/swpao/docs/notices/17-05.pdf

As of January 18, 2017, the 2017 SWP allocation is set at 60%.

http://www.water.ca.gov/news/newsreleases/2017/011817swp_allocation.pdf

As of December 21, 2016, the 2017 SWP allocation is set at 45%.

http://www.water.ca.gov/news/newsreleases/2016/122116.pdf

The 2017 SWP allocation is set at 20% as of November 28, 2016.

http://www.water.ca.gov/news/newsreleases/2016/112916.pdf

CVP:

As of April 11, 2017, the South-of-the-Delta CVP Allocation is set at 100%.

https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=59000

As of March 22, 2017, the South-of-the-Delta CVP Allocation is set at 65%.

https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=58861

As of February 28, 2017, USBR announces Friant Class 1 allocation is set at 100%.

Class 2 water is available up to the full contract amount during the uncontrolled season.

Unreleased Restoration Flow supply related to the San Joaquin River Restoration Program of 358,730 acre-feet are being made available in a block that needs to be scheduled and delivered by June 15 to avert flood management concerns.

https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=58769

***Disclaimer**: The information contained herein is compiled from a number of sources. Some of what we report is gleaned from news articles or meetings we attend. While we strive for this information to be accurate, it may be in error, and much of the information and data contained herein is provisional and subject to future revisions. If you plan on using this information to make business decisions about your water assets or needs, we strongly suggest that you do your own independent verification of the accuracy of this information. The Water Agency, Inc. provides no guarantee as to the accuracy or completeness of the information. Neither The Water Agency, Inc., nor any of the sources of the information contained herein are responsible for any errors or omissions, or for the use or results obtained from the use of this information. Please feel free to send us information or opinions, which are contrary to what we write, so we can try to integrate them into future updates.*

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