



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7

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ORIGINATING SECTION: INTEGRATED PLANNING

CONTACT: Sal Segura/Amparo Flores

AGENDA DATE: November 14, 2018

ITEM NO. 13f

SUBJECT: Water Inventory and Water Budget Update

SUMMARY:

This staff report summarizes Zone 7's water supply, usage and storage conditions as of the end of October 2018. The report takes into account the various sources of supply and storage available to Zone 7 locally and in State Water Project facilities, as well as in remote groundwater storage banks. Water supplies are used to meet treated water demands from municipal and industrial customers (retailers and direct retail) and untreated water demands from agricultural customers. The report also includes calculated watershed outflow as an indication of local hydrologic conditions. A monthly summary of treated water demands is included, with comparisons to previous years' conditions. Finally, to provide a state-level perspective on water supply conditions, this report also presents the precipitation conditions in the Northern Sierras, as well as the storage levels in key State Water Project (SWP) reservoirs.

October 2018 Highlights:

In October 2018, demands decreased as autumn began. Zone 7's overall conservation in October 2018 was 14% relative to October 2013; treated water demand was 13% lower relative to 2013, and untreated water demand was 23% lower. Treated water sources in October were 81% surface water and 19% groundwater. Remaining incoming supplies and total water storage are estimated at 234,000 AF with about 5,000 AF of demand projected for the remainder of 2018.

Repairs of the Oroville main and emergency spillways continue as the Department of Water Resources (DWR) prepares for the next wet season. Major work and placement of all concrete on the main spillway has been completed for public safety purposes. Additional finishing work (e.g., site clean-up) will continue after November 1 as needed. Construction of the northern half of the emergency spillway is complete and foundation work is in progress for the southern half. Work on the emergency spillway will continue past November 1, 2018.

OCTOBER 2018

Zone 7 Water Inventory and Water Budget

Supply and Demand

(See Tables 1 and 2, Figures 1 and 2)

- October totals: 3,810 AF delivered to customers (3,510 AF treated, 300 AF untreated)
- Treated water production in October was 5% lower than in September.
- Treated water sources in October were 81% surface water and 19% groundwater.
 - DVWTP and PPWTP combined average production was 30.0 MGD
 - Wellfield production was 6.8 MGD

Water Conservation

(See Table 1)

- Zone 7 total conservation in October 2018 was 14% relative to October 2013 (13% treated, 23% untreated).

Table 1: October water demand and conservation

	Treated Production	Untreated Delivery	Total
October 2018 (AF)	3,510	300	3,810
October 2013 (AF)	4,040	390	4,430
Percent Conservation	13%	23%	14%

Imported Water

(See Table 2)

- Zone 7 withdrew 3,360 AF of Table A supply in October (11,050 AF remain, SWP allocation at 35%).
- Non-local groundwater bank storage is expected to remain at 104,100 AF this year; no withdrawals are planned.
- Supplies from SWP Carryover, Yuba Accord, and River Garden Farms have been fully consumed as of Quarter 3.
- Remaining incoming supplies and total water storage are estimated at 234,000 AF.

Groundwater

(See Table 2 and Figure 3)

- Wellfield pumping in October made up 650 AF of treated supply delivered to retailers.
- Artificial recharge in October along the Arroyo Valle added 200 AF back into the Main Basin.
- Groundwater basin overflow in October was estimated at 15 AF.
- The Main Groundwater Basin is at an estimated 97% of total capacity (246,000 AF out of 254,000 AF).
 - 118,000 AF are operational storage (i.e. above historical groundwater lows).
 - The remaining 128,000 AF are emergency storage.

Local Surface Water*(See Table 2 and Figure 4)*

- Zone 7 has 1,100 AF of water in Lake Del Valle available for use.
 - Zone 7 began 2018 with 0 AF of available water.
 - An additional 1,350 AF of local rainfall runoff have been captured this year.
 - Approximately 70 AF have evaporated. Zone 7 expects to lose 100 AF to evaporation throughout 2018.
 - Any apparent deficit is due to DWR mass balance calculations, and should self-correct as the lake is drawn down throughout autumn.

Stream Outflow*(See Table 2)*

- Surface runoff in October did not exceed the 10 cfs baseflow at the ADLLV stream gauge.
- As of the end of October, cumulative surface runoff in 2018 was 10,530 AF above baseflow.
- Note: some surface flows out of the Tri-Valley are mandated for other downstream purposes.

Sierra Precipitation*(See Figure 5)*

- 1.0 inch precipitation was recorded in the North Sierra in October.
- Cumulative precipitation was at 33% of average conditions as of the end of October for the new water year.

Lake Oroville*(See Figure 6)*

- Lake Oroville was at 33% capacity (55% of average) as of October 31.
 - Total storage: 1,178,900 AF (384,100 MG)
 - Storage decreased by 6% of total capacity since last month (217,000 AF decrease).

San Luis Reservoir*(See Figure 7)*

- San Luis Reservoir was at 60% capacity (113% of average) as of October 31.
 - Total storage: 1,218,300 AF (397,000 MG)
 - Storage increased by 5% of total capacity since last month (110,200 AF increase).

NOTE: Numbers presented are estimates only and subject to adjustment over the course of the year.

Table 2: Quarterly water inventory

Note: Values Are Rounded. All Units in AF Unless Noted Otherwise

	2017 Jan-Dec	2018 - Q1 Jan-Mar	2018 - Q2 Apr-Jun	2018 - Q3 Jul-Sept	2018 - Q4 Oct-Dec	2018 - YTD Jan-Dec
Supply						
Surface Water Sources Used						
SWP Table A	58,460	0	6,530	7,260	3,360	17,150
SWP Carryover	2,940	5,730	4,370	5,600	0	15,700
Local Surface Water (Lake Del Valle)	9,520	0	0	0	0	0
Yuba Accord and River Garden Farms	710	0	0	2,700	0	2,700
Subtotal	71,630	5,730	10,900	15,560	3,360	35,550
Withdrawals from Groundwater Storage						
Zone 7 Groundwater Basin	4,610	710	1,250	1,460	650	4,070
Non-Local Groundwater Banks	0	0	0	0	0	0
Subtotal	4,610	710	1,250	1,460	650	4,070
Total Supply	76,240	6,440	12,150	17,020	4,010	39,620
Demand / Water Use						
Delivered to Customers						
Municipal Water ¹	32,630	5,200	9,610	12,460	3,510	30,780
Untreated Water	4,560	300	1,680	2,960	300	5,240
Subtotal	37,190	5,500	11,290	15,420	3,810	36,020
Recharging Groundwater Storage						
Zone 7 Groundwater Basin	9,050	940	860	1,600	200	3,600
Non-Local Groundwater Banks	30,000	0	0	0	0	0
Subtotal	39,050	940	860	1,600	200	3,600
Total Demand	76,240	6,440	12,150	17,020	4,010	39,620
Available Water Supplies						
	Starting Bal.	End-of-Quarter Balances				
Available from Incoming Supplies in 2018						
2018 Table A Allocation (%)	20%	20%	35%	35%	35%	
2018 Table A Allocation Remaining (AF)	16,100	16,100	21,670	14,410	11,050	
Yuba Accord and River Garden Farms	2,700	2,700	2,700	0	0	
Subtotal	18,800	18,800	24,370	14,410	11,050	
Available from Storage in 2018						
SWP Carryover Balance ²	15,700	9,970	5,600	0	0	
Lake Del Valle	0	1,200	1,300	1,100	1,100	
Local GW Basin (Above Historical Low) ³	120,000	122,000	122,000	119,000	118,000	
Non-Local Groundwater Banks	104,100	104,100	104,100	104,100	104,100	
Subtotal	239,800	237,270	233,000	224,200	223,200	
Total Available Water	258,600	256,070	257,370	238,610	234,250	
Watershed Conditions						
	End-of-2017					
Precipitation at Livermore Station (in)	20.3	8.2	1.7	0.0	0.0	9.9
Lake Del Valle Net Yield		1,200	100	-200	0	1,100
Groundwater Net Recharge (est.)		2,000	0	-3,000	-1,000	-2,000
Surface Water Outflow ⁴	169,750	7,980	2,550	0	0	10,530

¹ Includes a small amount of unaccounted-for water

² SWP Carryover balance includes Article 56 water in San Luis Reservoir.

³ Groundwater estimate based on most recent groundwater level data. Additional emergency storage is 128,000 AF.

⁴ Surface Water Outflow is estimated based on flow at USGS gage Arroyo De La Laguna at Verona.

Figure 1: Monthly treated water production in acre-feet (AF)

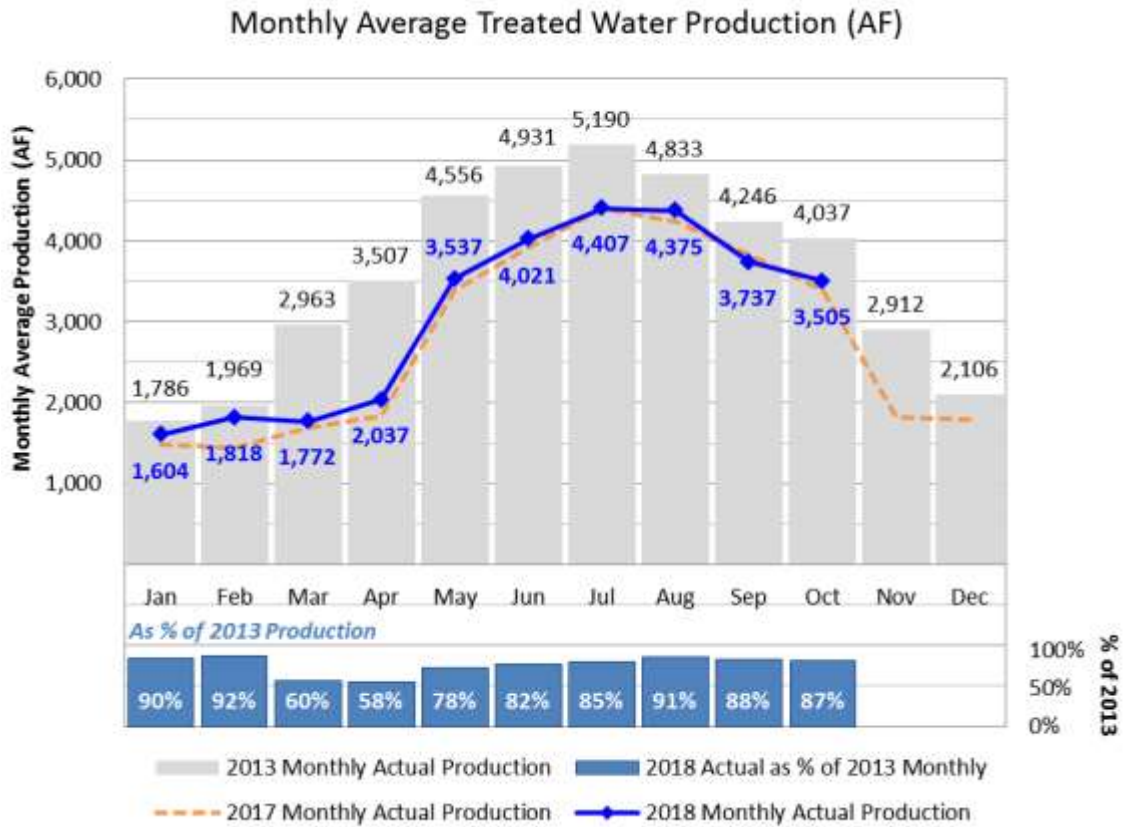


Figure 2: Monthly treated water production in average million gallons per day (MGD)

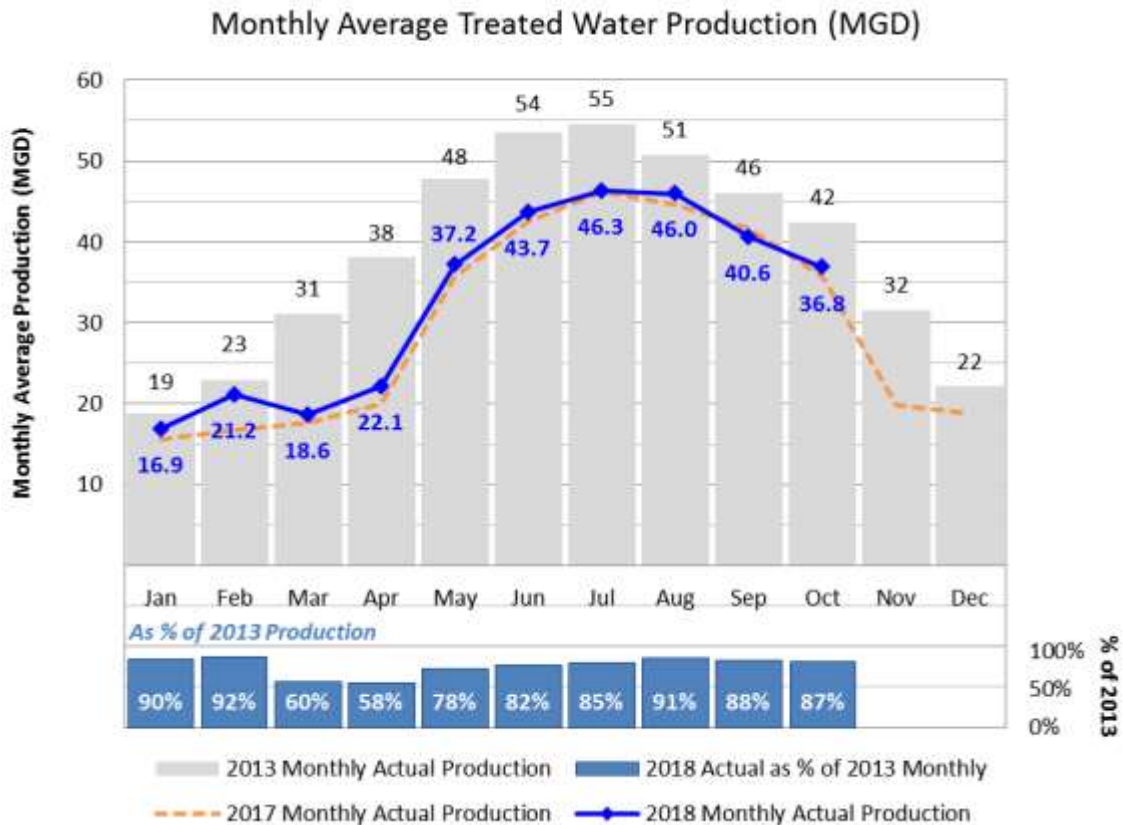


Figure 3: Main Groundwater Basin storage

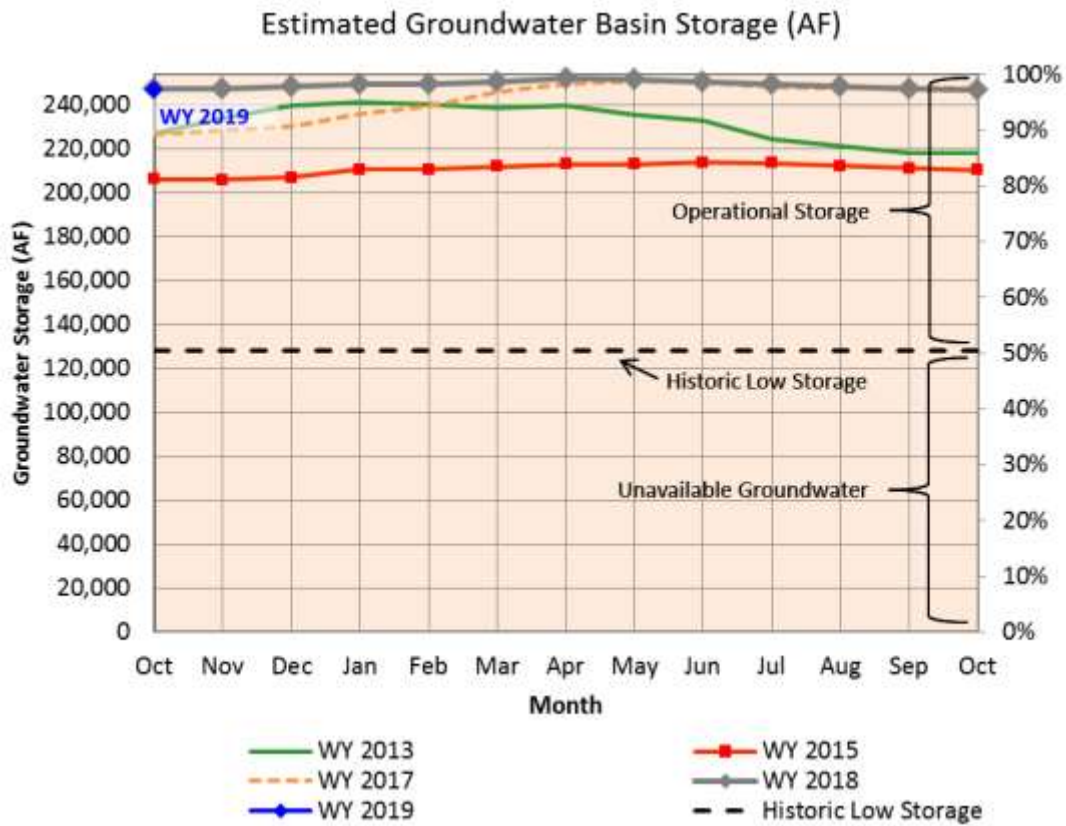
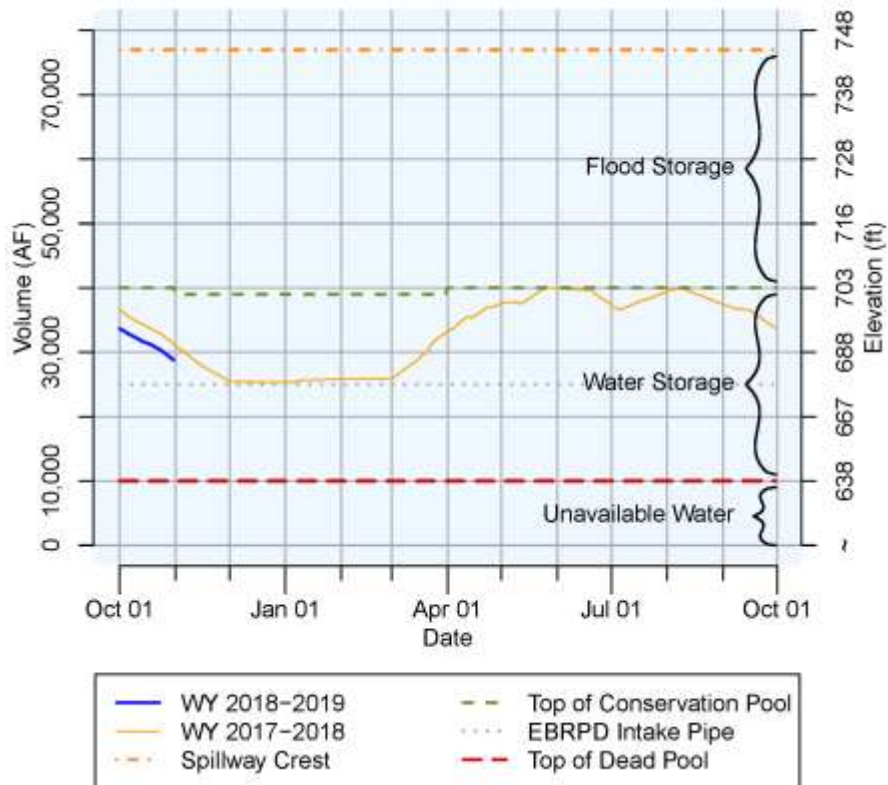
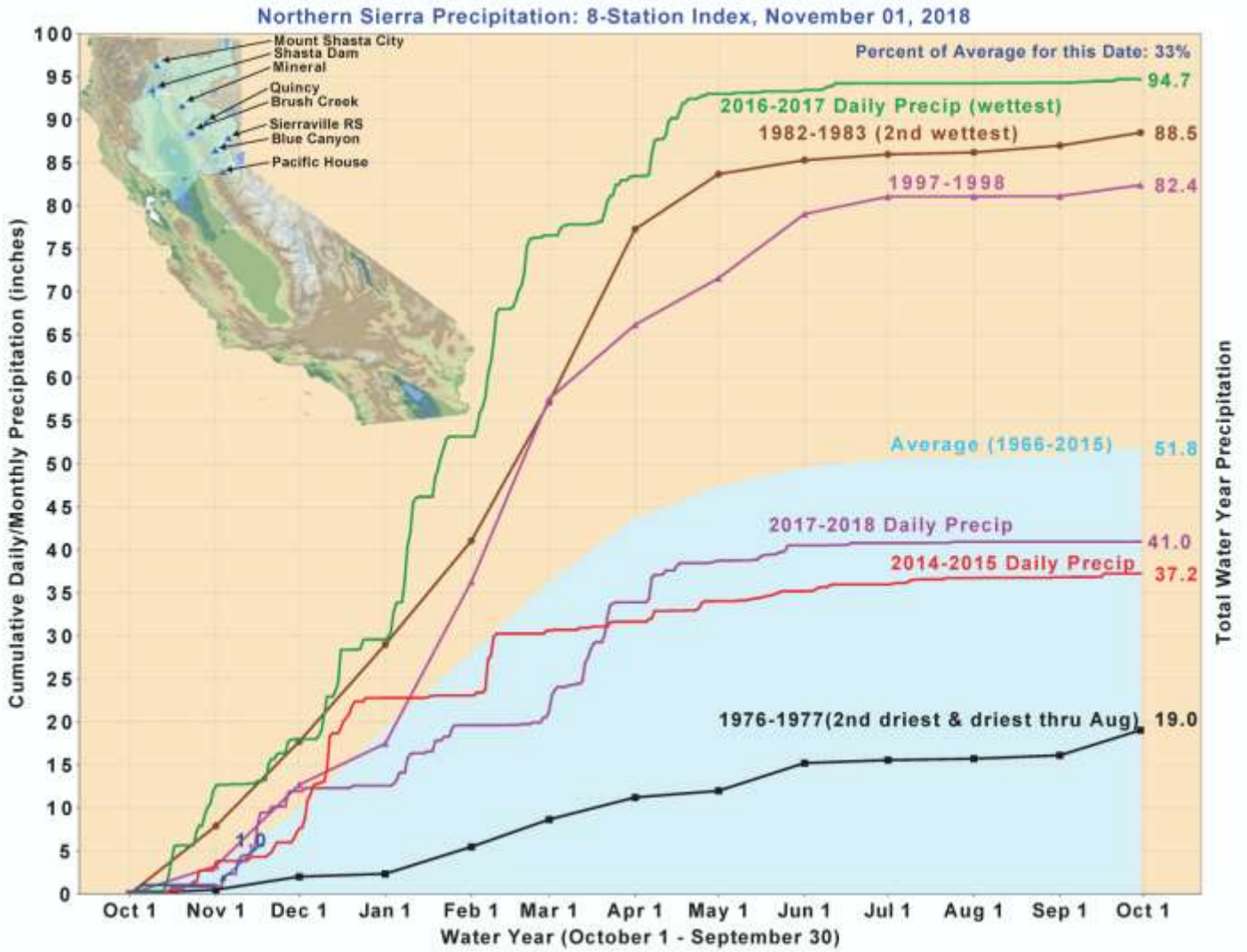


Figure 4: Lake Del Valle storage



(Source: <http://cdec.water.ca.gov/dynamicapp/QueryDaily?s=DLV>)

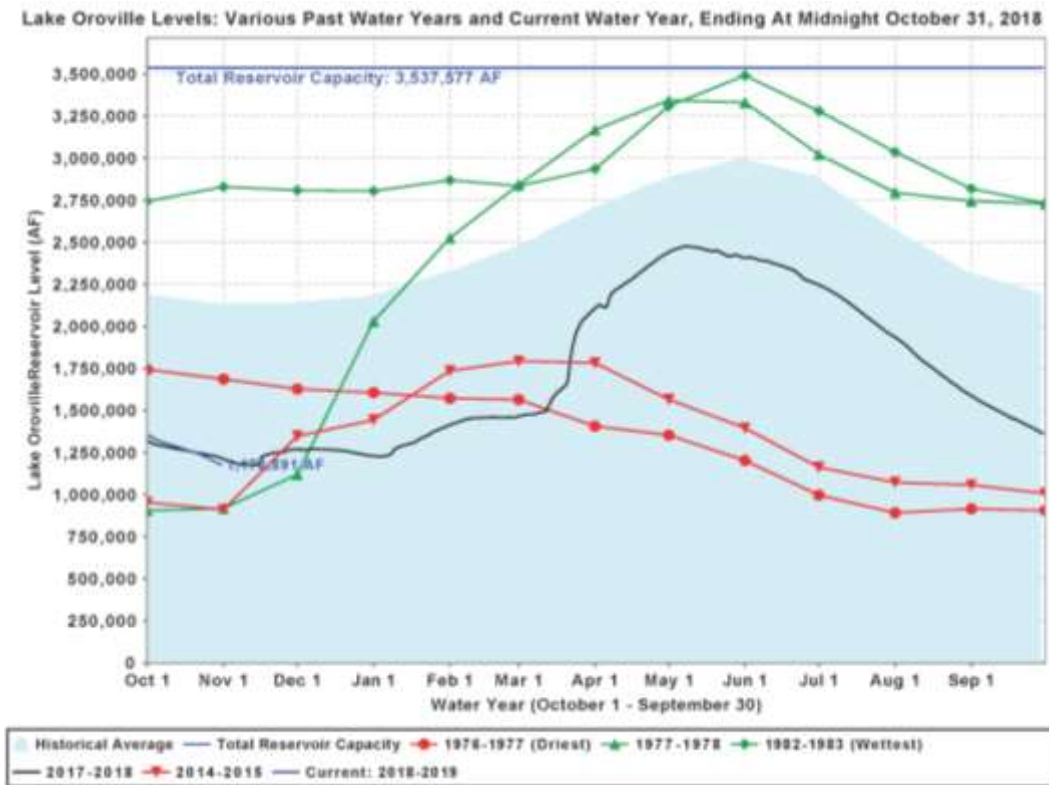
Figure 5: Cumulative precipitation in the North Sierra



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

Figure 6: Lake Oroville storage compared with past water years

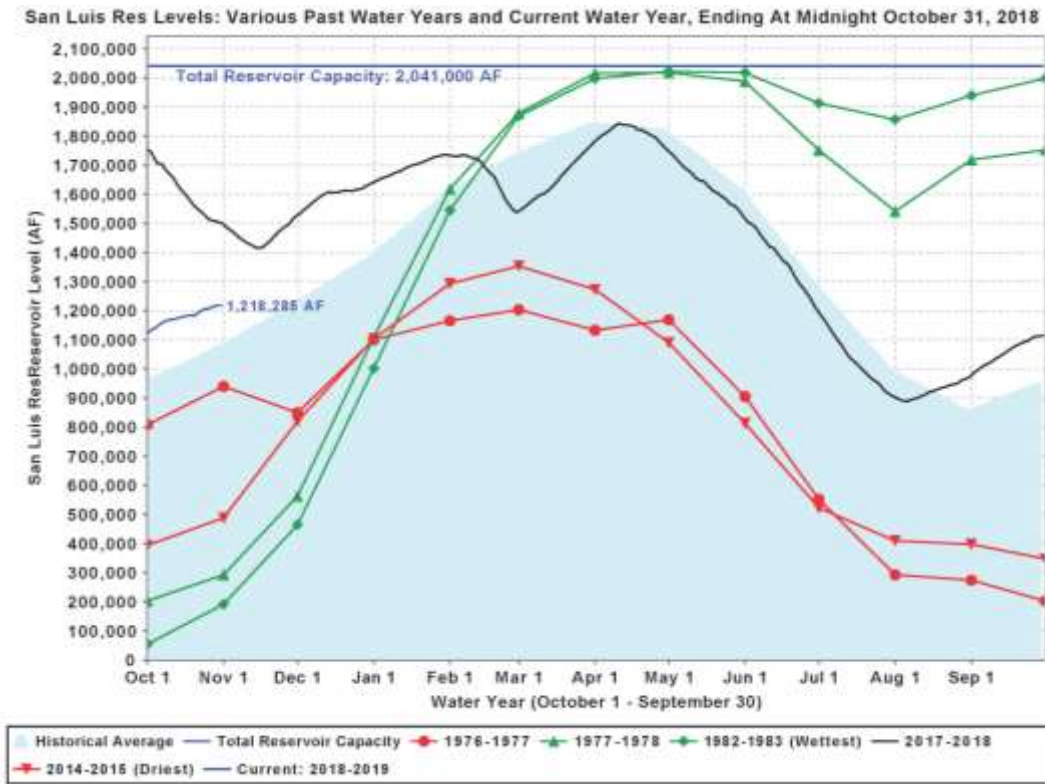
Note: As of October 31, the reservoir was at 55% of its historical average, and 33% of its total capacity.



(Source: <https://cdec.water.ca.gov/resapp/ResDetail.action?resid=ORO>)

Figure 7: San Luis Reservoir storage compared with past water years

Note: As of October 31, the reservoir was at 113% of its historical average, and 60% of its total capacity.

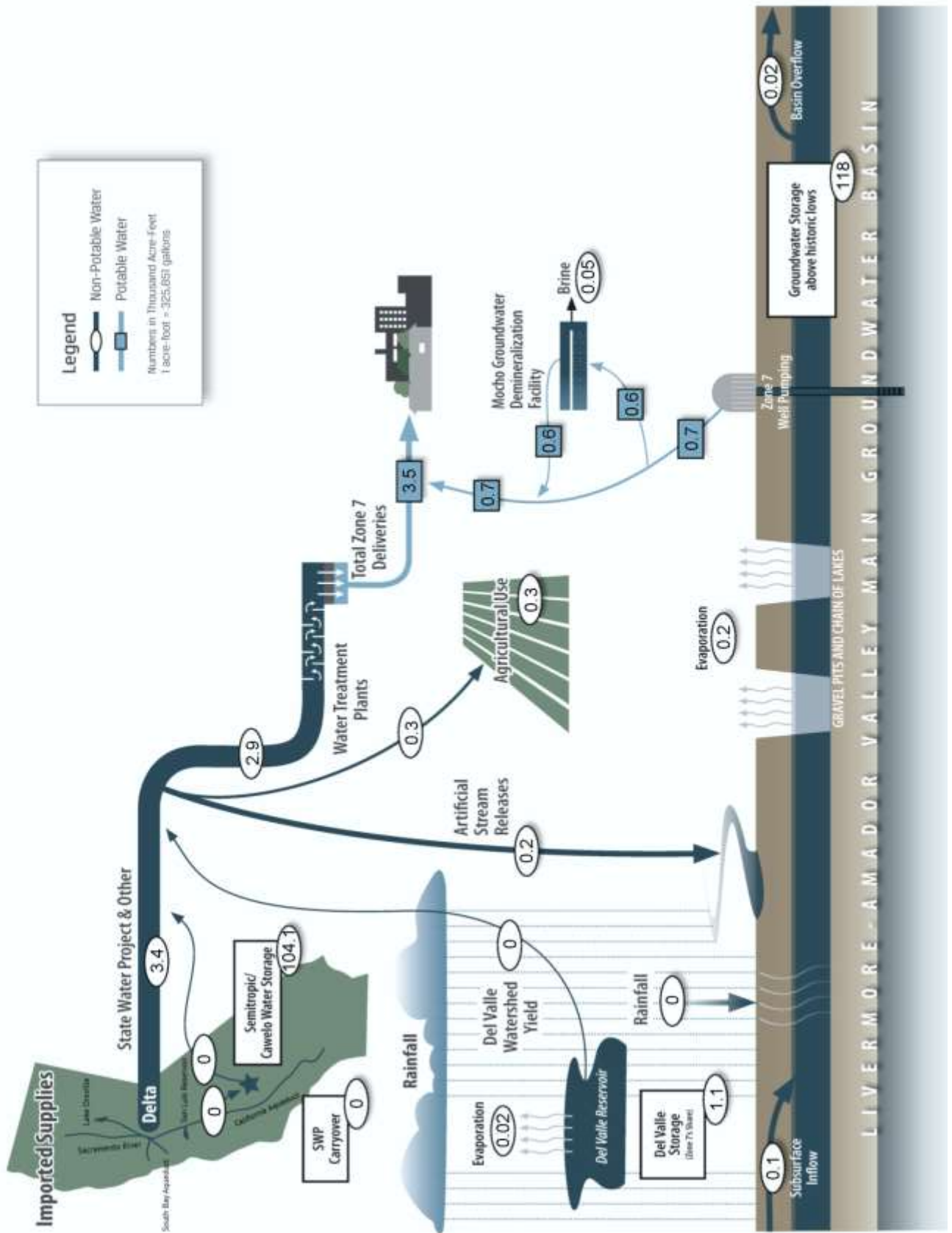


(Source: <https://cdec.water.ca.gov/resapp/ResDetail.action?resid=SNL>)

Figure 8: Zone 7 Water Agency water supply and water use

Zone 7 Water Agency Water Supply & Use (in thousands of acre-feet)

October 2018



(Note: numbers may not sum to total due to rounding)