

San Francisco Public Utilities Commission

Hydrological Conditions Report

September 2018

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Elizabeth Lake above Tuolumne Meadows in the Tuolumne River Watershed

System Storage

Current Tuolumne System and Local Bay Area storage conditions are summarized in Table 1.

Table 1 Current System Storage As of October 1, 2018							
Reservoir	Current Storage		Maximum Storage		Available Capacity		Percentage of Maximum Storage
	acre-feet	millions of gallons	acre-feet	millions of gallons	acre-feet	millions of gallons	
Tuolumne System							
Hetch Hetchy ¹	293,312		340,830		48,070		86%
Cherry ²	223,051		268,810		45,425		83%
Eleanor ³	20,142		21,495		1,714		94%
Water Bank	569,824		570,000		176		100%
Tuolumne Storage	1,106,329		1,201,135		95,385		92%
Local Bay Area Storage							
Calaveras ⁴	23,303	7,593	96,824	31,550	73,521	23,957	24%
San Antonio	47,008	15,318	50,496	16,454	3,488	1,137	93%
Crystal Springs	53,138	17,315	58,377	19,022	5,238	1,707	91%
San Andreas	16,501	5,377	18,996	6,190	2,495	813	87%
Pilarcitos	2,381	776	2,995	976	614	200	80%
Total Local Storage	142,331	46,379	227,688	74,192	85,356	27,813	63%
Total System	1,248,660		1,428,822		180,741		87%

¹ Maximum Hetch Hetchy Reservoir storage with drum gates deactivated.

² Maximum Cherry Reservoir storage with flash-boards removed.

³ Maximum Lake Eleanor storage with flash-boards removed.

⁴ Available capacity does not take into account current DSOD storage restrictions.

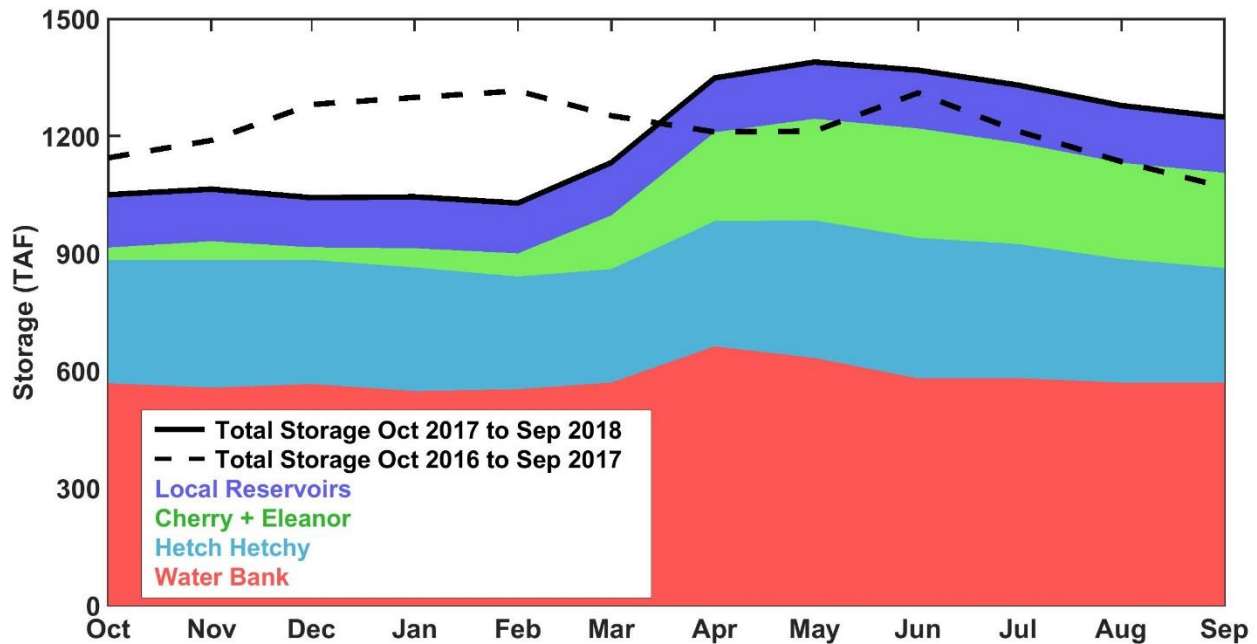


Figure 1: Monthly system storage for past 12 months in thousand acre-feet (TAF). Color bands show contributions to total system storage. Solid black line shows total system storage for the past 12 months. Dashed black line shows total system storage the previous 12 months.

Hetch Hetchy System Precipitation Index

Current Month: The September 2018 six-station precipitation index was 0.06 inches, or 9% of the average index for the month (Figure 2). The precipitation index is computed as the average of six Sierra precipitation stations and is an indicator of the overall basin wetness. Hetch Hetchy received 0.20 inches of precipitation in September (Figure 3, in red).

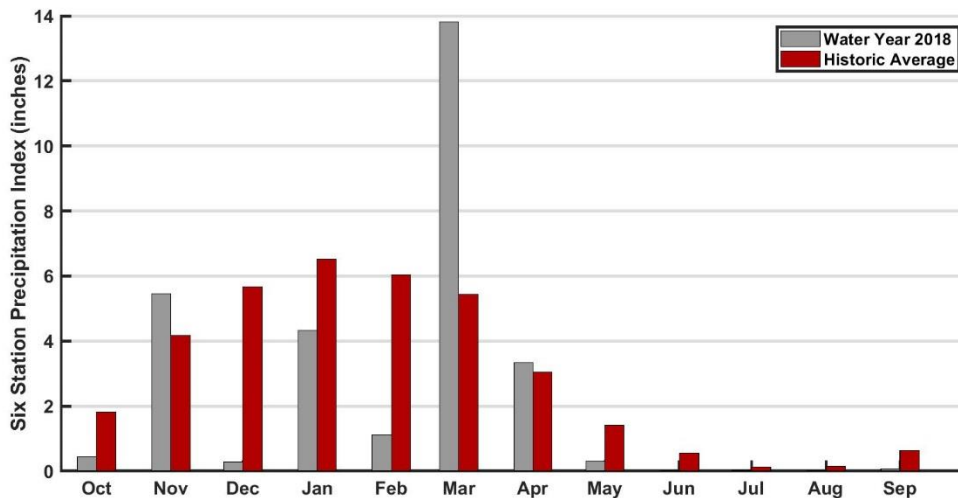


Figure 2: Monthly distribution of the six-station precipitation index for Water Year 2018.

Cumulative Precipitation to Date: The Water Year 2018 (WY 2018; October 1st, 2017 to September 30th, 2018) six-station precipitation index was 29.18 inches, which is 82% of the average annual water year total. Water Year 2018 total precipitation at Hetch Hetchy was 32.45 inches, or 90% of average.

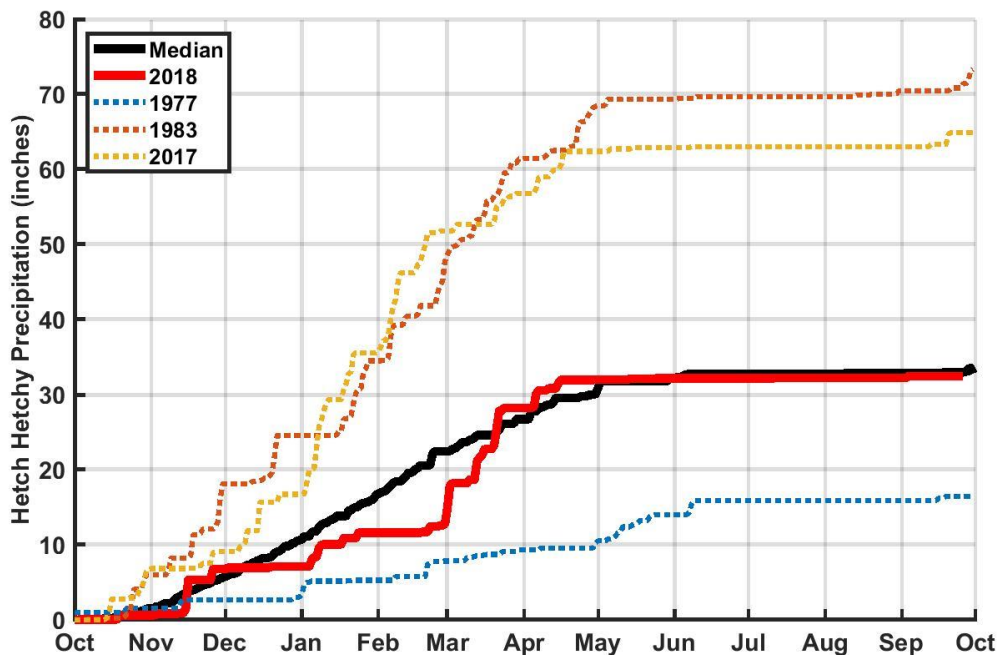


Figure 3: Water year 2018 cumulative precipitation measured at Hetch Hetchy Reservoir. Median cumulative precipitation at Hetch Hetchy and example wet and dry years are included with WY 2017 and WY 2018 for comparison purposes.

Tuolumne Basin Unimpaired Inflow

Unimpaired inflow to SFPUC reservoirs and the Tuolumne River at La Grange for September and WY 2018 is summarized below in Table 2.

Table 2 Calculated reservoir inflows and Water Available to City								
*All flows are in acre feet	September 2018				WY 2018			
	Observed Flow	Median ¹	Mean ¹	Percent of Mean	Observed Flow	Median ¹	Mean ¹	Percent of Mean
Inflow to Hetch Hetchy Reservoir	1,359	3,070	4,821	28%	647,859	703,453	737,009	88%
Inflow to Cherry Reservoir and Lake Eleanor	-815 ²	803	1,905	-43% ²	407,259	445,183	452,050	90%
Tuolumne River at LaGrange	17,034	7,169	11,203	152%	1,677,298	1,676,737	1,814,284	92%
Water Available to City	0	0	883	0%	666,636	580,260	765,361	87%

¹Hydrologic Record: 1919 – 2015

²Negative inflows are due to uncertainties in evaporation, flows and reservoir rating curves

Hetch Hetchy System Operations

Power draft and stream releases from Hetch Hetchy Reservoir during the month of September totaled 24,811 acre-feet. Total inflows as of September 1st results in a Water Year Type A (normal to wet conditions) for Hetch Hetchy Reservoir through January 1st, 2019. Hetch Hetchy minimum instream release requirements for September 1-14th were 100 cfs, and September 15-30th were 80 cfs. Instream release requirements for October and November are 60 cfs. Current Hetch Hetchy releases are equal to minimum environmental releases and water deliveries to the City.

Power draft and valve releases from Cherry Reservoir totaled 2,053 acre-feet during the month of September. The required minimum instream release from Cherry Reservoir was 15 cfs through September 30th, 2018. Cherry Reservoir October minimum instream releases are 5 cfs. Required minimum release from Lake Eleanor (due to pumping) were 20 cfs through September 15th after which it dropped to 10 cfs. Transfer from Lake Eleanor to Cherry Reservoir started September 28th.

Regional System Treatment Plant Production

The Harry Tracy Water Treatment Plant average production rate for September was 37 MGD. The Sunol Valley Water Treatment Plant returned to service in September with an average production rate for the month of 7 MGD.

Local System Water Delivery

The average September delivery rate was 221 MGD which is a 7% decrease below the August delivery rate of 237 MGD.

Local Precipitation

Seasonably dry conditions characterized the month’s weather. The rainfall summary for September and WY 2018 are presented in Table 3.

Reservoir	September		WY 2018	
	Total (inches)	Percent of mean	Total (inches)	Percent of mean
Pilarcitos	0.00	0 %	29.03	77 %
Lower Crystal Springs	0.00	0 %	19.78	75 %
Calaveras	0.00	0 %	14.03	65 %

Water Supply

Inflows at all upcountry reservoirs continued to recede throughout the month of September. Hetch Hetchy Reservoir storage remains within seasonal targets and is drafting according to instream and water delivery demands. At Cherry Reservoir, storage is near the seasonal target with recreational releases concluding after Labor Day. Total Tuolumne system storage is at 92%. Water Bank was full throughout September and its maximum value reset back to 570,000 acre-feet after Don Pedro receded below flood storage targets on August 5th. SFPUC releases in excess of unimpaired flows at LaGrange resulted in a saturation, or “spilling” of Water Bank, which is expected to remain full or near full throughout the remainder of the water year.

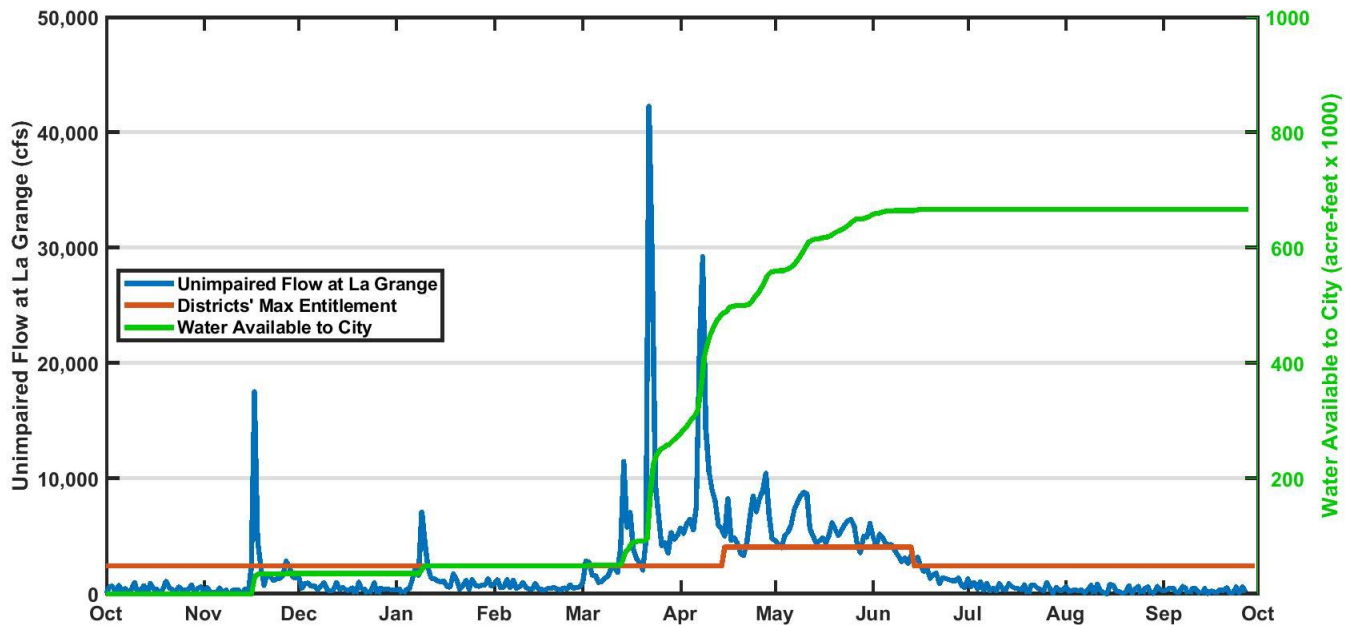


Figure 4: Calculated unimpaired flow at La Grange and the allocation of flows between the Districts and the City. Current Water Available to the City is 666,636 acre-feet in WY 2018.