

San Francisco Public Utilities Commission

Hydrological Conditions Report

August 2020

J. Chester, C. Graham, N. Waelty, September 11, 2020



On August 20th the Moc Fire started less than 1 mile from Hetch Hetchy Water and Power (HHWP) offices and corporate yard in the Moccasin Compound. The fire burned rapidly towards Priest Reservoir and reached 2857 acres by the time of full containment. At the height of fire suppression efforts thousands of citizens were evacuated in the communities of Moccasin, Big Oak Flat, and Groveland. Ultimately no HHWP facilities were impacted due to the excellent suppression response by local and regional firefighting agencies. To facilitate fire suppression efforts, Cal Fire was permitted to dip from Moccasin and Priest Reservoirs. During this period, we modified our operations, relying on both Priest Reservoir Bypass and the Moccasin Reservoir Bypass. Both reservoirs were returned to service under a restoration plan approved by the California State Water Resources Control Board.

Photos courtesy of HHWP staff and Mymotherlode.com.

System Storage

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

Table 1 Current System Storage as of September 1, 2020							
	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 Reservoir ¹	303,850		360,360		56,510		84%
Cherry Reservoir ²	224,220		273,340		49,125		82%
Lake Eleanor ³	22,611		27,100		4,489		83%
Water Bank	490,600		570,000		79,400		86%
Tuolumne Storage	1,041,281		1,230,800		189,524		85%
Local Bay Area Storage							
Calaveras Reservoir	62,271	19,965	96,824	31,550	35,553	11,585	63%
San Antonio Reservoir	43,283	14,104	50,496	16,454	7,212	2,350	86%
Crystal Springs Reservoir	54,883	17,884	58,377	19,022	3,494	1,138	94%
San Andreas Reservoir	15,132	4,931	18,996	6,190	3,865	1,259	80%
Pilarcitos Reservoir	2,012	656	2,995	976	982	320	67%
Total Local Storage	176,581	57,539	227,688	74,192	51,106	16,653	78%
Total System	1,217,862		1,458,488		240,630		84%

¹ Maximum Hetch Hetchy Reservoir storage with drum gates activated.

² Maximum Cherry Reservoir storage with flash-boards in.

³ Maximum Lake Eleanor storage with flash-boards in.

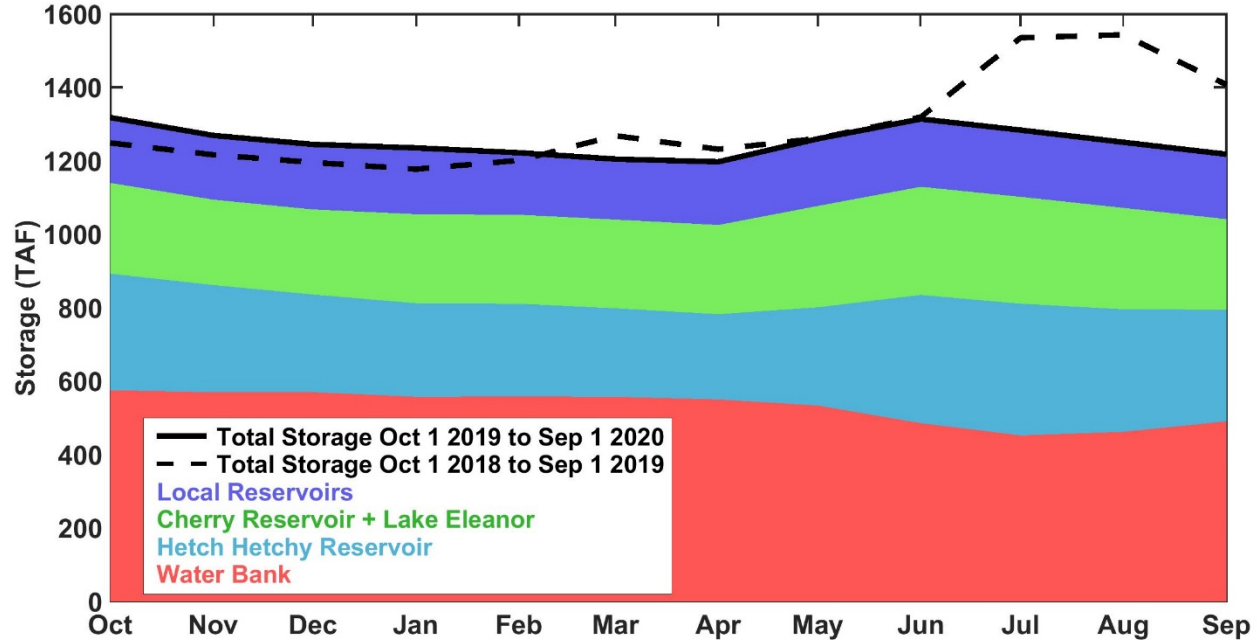


Figure 1: System storage for past 12 months in thousand acre-feet (TAF). Color bands show contributions to total system storage. Solid black line shows total system storage for the past 12 months. Dashed black line shows total system storage the previous 12 months.

Hetch Hetchy System Precipitation Index

Current Month: The August 2020 six-station precipitation index reported 0.04 inches of precipitation for the month. The precipitation index is computed as the average of six Sierra precipitation stations and is an indicator of the overall basin wetness.

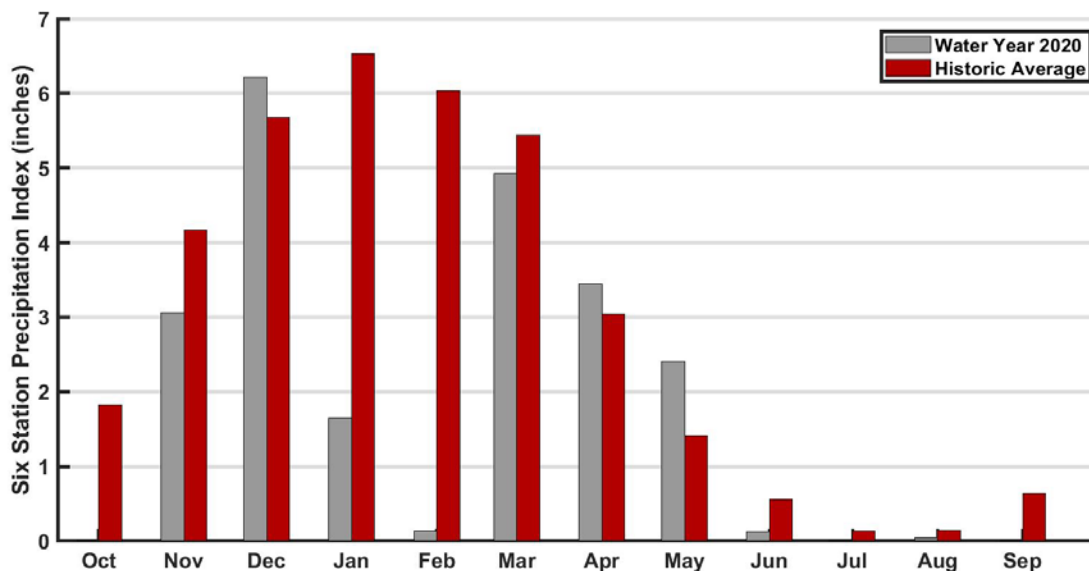


Figure 2: Monthly distribution of the six-station precipitation index relative to the monthly precipitation averages. The precipitation index is computed as the average of six Sierra precipitation stations and is an indicator of the overall basin wetness.

Cumulative Precipitation to Date: As of September 1, the six-station precipitation index for water year (WY) 2020 was 22.04 inches, which is 62% of the average annual water year total. Hetch Hetchy received no precipitation in August for a total of 21.08 inches for WY 2020, or 60% of average to-date. The cumulative Hetch Hetchy precipitation is shown in Figure 3 in red.

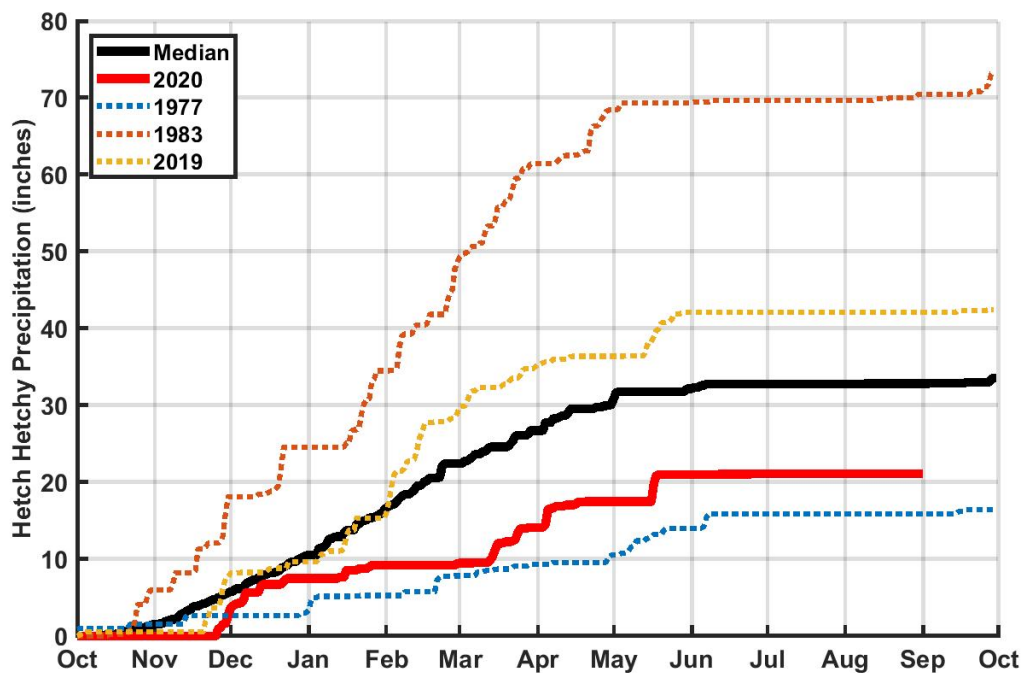


Figure 3: Water Year 2020 cumulative precipitation measured at Hetch Hetchy Weather Station. Median cumulative precipitation measured at Hetch Hetchy Weather Station and example wet and dry years are included with Water Year 2020 for comparison purposes.

Tuolumne Basin Unimpaired Inflow

Unimpaired inflow to SFPUC reservoirs and the Tuolumne River at La Grange for August 2020 and the year to date is summarized below in Table 2.

Table 2 Calculated Reservoir Inflows and Water Available to City								
* All flows are in acre-feet	August 2020				October 1, 2019 through September 1, 2020			
	Observed Flow	Median ¹	Mean ¹	Percent of Mean	Observed Flow	Median ¹	Mean ¹	Percent of Mean
Inflow to Hetch Hetchy Reservoir	1,170	6,994	13,698	9%	347,918	699,972	732,221	48%
Inflow to Cherry Reservoir and Lake Eleanor	0	1,648	3,203	0%	248,616	442,832	450,150	55%
Tuolumne River at La Grange	13,460	15,673	24,312	55%	969,161	1,670,349	1,802,942	54%
Water Available to City	0	0	1,392	0%	170,302	580,260	763,870	22%

¹Hydrologic Record: 1919-2015

Hetch Hetchy System Operations

Hetch Hetchy Reservoir power draft and stream releases during the month totaled 31,018 acre-feet. Hetch Hetchy Reservoir minimum instream release requirements for August were 75 cfs. Total precipitation and inflows thus far for Water Year 2020 have resulted in a Water Year Type C (dry) for Hetch Hetchy Reservoir. Instream release requirements for the first half of September remain at 75 cfs and decrease to 50 cfs on September 15.

Cherry Reservoir valve and power draft releases totaled 26,073 acre-feet for the month and were used to maintain seasonal target elevations. The required minimum instream release from Cherry Reservoir for August was 15 cfs and remain at 15 cfs for September. Lake Eleanor required minimum instream release are 20 cfs for April 15 through September 15 and decrease to 10 cfs for September 16 through September 30.

Regional System Treatment Plant Production

The Harry Tracy Water Treatment Plant average production rate for August was 33 MGD. The Sunol Valley Water Treatment Plant average production for the month was 1 MGD.

Local System Water Delivery

The average August delivery rate was 238 MGD, which is a 1% decrease below the July delivery rate of 240 MGD.

Local Precipitation

The rainfall summary for August 2020 is presented in Table 3.

Weather Station Location	August		October 1, 2019 through September 1, 2020	
	Total (inches)	Percent of Mean for the Month	Total (inches)	Percent of Mean for the Year-To-Date
Pilarcitos Reservoir	0.09	113 %	24.06	64 %
Lower Crystal Springs Reservoir	0.14	280 %	15.11	58 %
Calaveras Reservoir	0.00	0 %	13.37	63 %

Water Supply and Planned Water Supply Management

The upcountry system as of September 1 is 85% full, as reservoirs have been managed through the summer to maximize storage. SJPL1 is out of service for repairs through March 2021. SJPL deliveries remain at 249 MGD for August. Hetch Hetchy Reservoir storage is expected to continue to decrease as deliveries and stream releases exceed inflows. Cherry / Eleanor Pumps are currently off. Cherry Reservoir is dropping as recreational releases, which end September 7, and instream minimum releases exceed inflows. The calculated unimpaired flow at La Grange and the allocation of flows between the Districts and the City are shown in Figure 4. As of September 1 there has been a total of 170,302 acre-feet available to the City in Water Year 2020

Inflows to the reservoirs have reached summer baseflow and Water Bank has begun crediting as Holm Powerhouse powerdraft and reservoir releases exceed inflows.

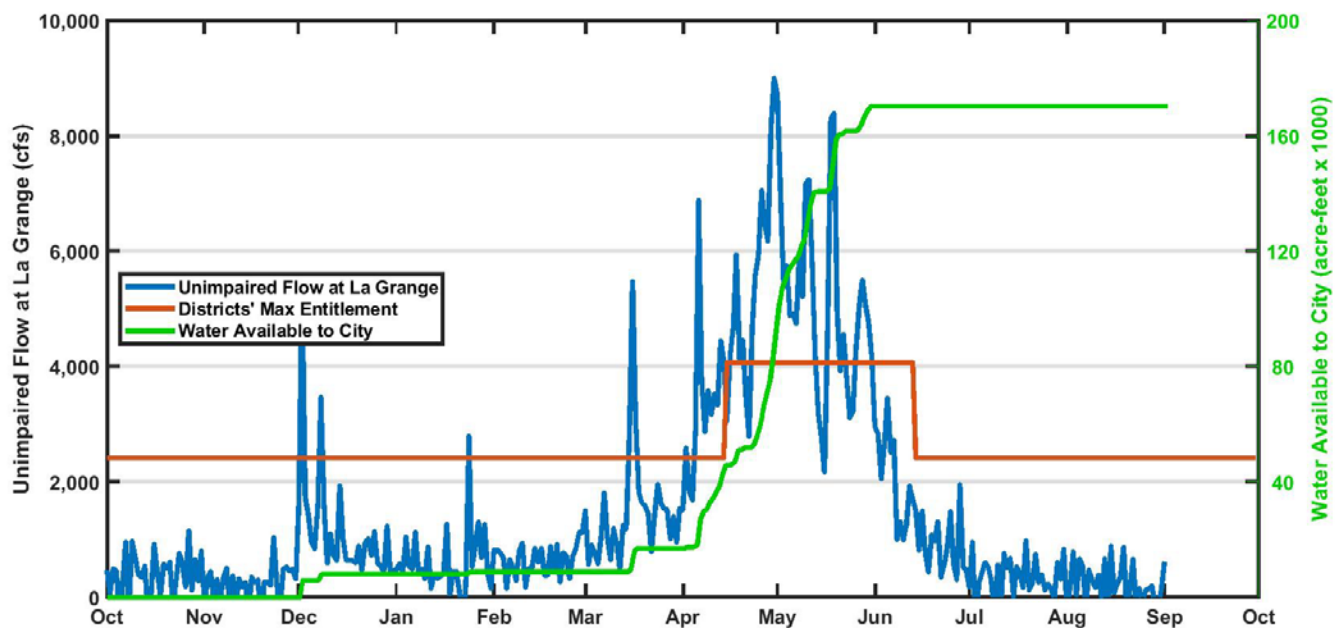


Figure 4: Calculated unimpaired flow at La Grange and the allocation of flows between the Districts and the City.