

San Francisco Public Utilities Commission

Hydrological Conditions Report

For April 2008

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Current System Storage

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

Table 1							
Current Storage							
As of May 1, 2008							
Reservoir	Current Storage		Maximum Storage		Available Capacity		Percent of Maximum Storage
	Acre-Feet	Millions of Gallons	Acre-Feet	Millions of Gallons	Acre-Feet	Millions of Gallons	
Tuolumne System							
Hetch Hetchy ^{1/}	166,860		340,830		173,970		49.0%
Cherry ^{2/}	179,149		273,340		94,191		65.5%
Lake Eleanor ^{3/}	26,339		27,100		761		97.2%
Water Bank	513,966		570,000		56,034		90.2%
Tuolumne Storage	886,314		1,211,270		324,956		73.2%
Local Bay Area Storage							
Calaveras ^{4/}	47,488	15,474	96,824	31,550	49,336	16,076	49.0 %
San Antonio	45,951	14,973	50,496	16,454	4,545	1,481	91.0 %
Crystal Springs	44,878	14,623	58,377	19,022	13,499	4,399	76.9 %
San Andreas	18,390	5,992	18,996	6,190	606	198	96.8 %
Pilarcitos	2,569	837	3,100	1,010	531	173	82.9 %
Total Local Storage	159,276	51,899	227,793	74,226	68,517	22,327	69.9 %
Total System	1,045,590		1,439,062		393,473		72.7 %

^{1/} Maximum Hetch Hetchy Reservoir storage with drum gates deactivated.

^{2/} Maximum Cherry Reservoir storage with flash-boards in.

^{3/} Maximum Lake Eleanor storage with all stop-logs in.

^{4/} Available capacity does not take into account current DSOD storage restrictions.

Hetch Hetchy System Precipitation Index ^{5/}

Current Month: The April 30th precipitation index is 0.13 inch, or 4.0% of the average index for the month.

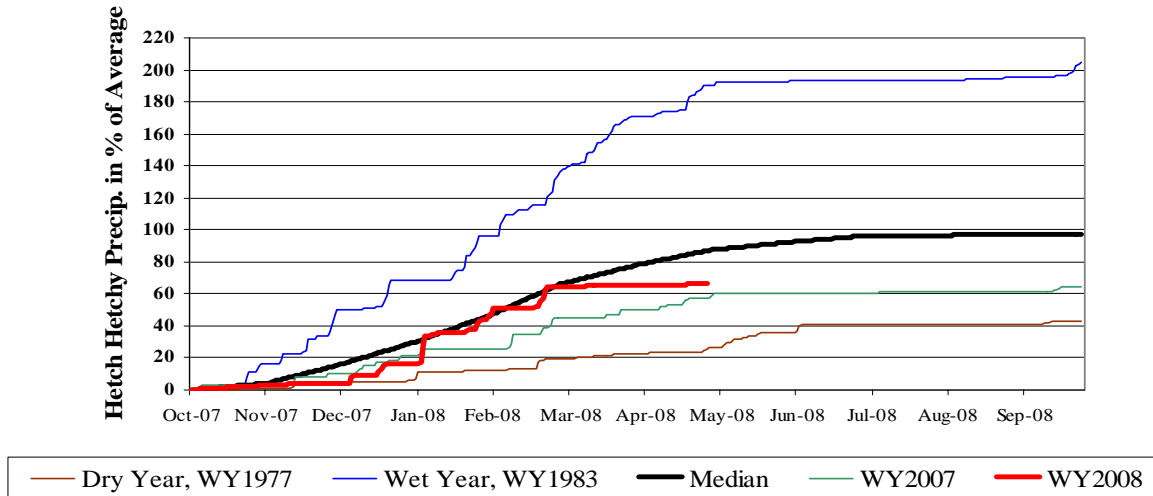
Cumulative Precipitation to Date: The accumulated precipitation index for water year 2008 is 24.72 inches, which is 69.5% of the average annual water year total, or 76.5% of the season-to-date precipitation. The cumulative precipitation for the Hetch Hetchy gauge is shown in Figure 1 in red, and is significantly below the median line.

Snow Water Content: Based on manual snow course measurements in the Stanislaus, San Joaquin, Walker, Mono Lake, Merced and Tuolumne basins, the April 1, 2008 snowpack was about 99.6 % of the season average. May 1st snow course measurements showed that current conditions are about 55 % of April 1st normal conditions.

^{5/}The precipitation index is computed using six Sierra precipitation stations and is an indicator of the wetness of the basin for the water year to date. The index is computed as the average of the six stations and is expressed in inches and in percent.

Figure 1: Water year 2008 cumulative precipitation received at Hetch Hetchy Reservoir through the end-of-month April. Precipitation curves for wet, dry, median, and WY 2007 years for the station at Hetch Hetchy are included for comparison purposes.

Precipitation at Hetch Hetchy: Water Year 2008



Tuolumne Basin Unimpaired Inflow

Unimpaired inflow to SFPUC reservoirs and Tuolumne River at La Grange as of April 30th is summarized below in Table 2. Water available to the City is also shown in Table 2.

	April 2008				October 1, 2007 through April 30, 2008			
	Observed Flow	Median ⁶	Average ⁶	Percent of Average	Observed Flow	Median ⁶	Average ⁶	Percent of Average
Inflow to Hetch Hetchy Reservoir	74,902	88,560	90,389	82.9%	154,578	210,783	221,393	69.8%
Inflow to Cherry Reservoir and Lake Eleanor	63,055	72,601	72,783	86.6%	141,997	195,960	208,637	68.1%
Tuolumne River at La Grange	188,367	267,607	273,505	68.9%	520,360	799,899	884,725	58.8%
Water Available to the City	23,023	85,789	95,158	24.2%	58,298	246,836	326,876	17.8%

⁶ Hydrologic Record: 1919 – 2005.

Hetch Hetchy System Operations

This April was one of the driest on record with the precipitation gauge at O’Shaughnessy Dam recording only 0.16 inches of precipitation for the entire month. April followed a very dry March with only 0.7 inches of precipitation was recorded. The lack of precipitation in March and April has brought accumulated annual precipitation from normal to below average. April temperatures were characterized by a series of cold and warm temperature cycles though out the month and clear skies. These weather conditions brought the onset of snowmelt in the low and middle elevations of the Up-country watersheds. However, the snowmelt that occurred did not result in significant inflows to the Up-country reservoirs due to dry soil conditions.

Cherry Lake was at 65.5% of capacity at the end of April. Transfer of water from Lake Eleanor to Cherry Lake was stopped in mid-April in order to fill Lake Eleanor. Lake Eleanor filled on April 27th and transfer of water to Cherry Reservoir resumed. During April, over 8,384 acre-feet of water was transferred from Lake Eleanor to Cherry Reservoir by gravity flow.

Power draft from Hetch Hetchy reservoir was increased in April to reduce the projected spring runoff spill. During April, about 35.4 TAF of powerdraft was made from Cherry Reservoir to support the City’s Municipal load, District Class 1, and market sale. All the released Cherry and Hetch Hetchy water was transferred to the City’s Water Bank account in Don Pedro Reservoir.

SJPL Diversion

The average rate of the San Joaquin Pipeline diversion during April was 227.9 mgd. This was an 80% increase over March’s average rate of 127 mgd. The increased diversion was due to the return of SJPL #2 back into service and was associated with the expected seasonal increase in demand, in addition to the dry conditions experienced in the local watersheds during the months of March and April.

Local System Operations

The average rate at the Sunol Valley Water Treatment Plant for April was 15 mgd. The Harry Tracy Treatment Plant for the same period averaged 36 mgd. April water demands averaged 236 mgd, up approximately 14% over March’s average demand. Water demand on May 1, 2008 was 269 mgd.

April was a very dry month and marked the second month in a row for unseasonably dry conditions in the local watersheds. Precipitation averaged only 12% of normal for the month. The accumulated year-to-date totals are about 81% of the expected totals. Precipitation totals for key reservoirs are presented in Table 3.

Table 3 - Precipitation Totals for April at Three Local Reservoirs

Reservoir	Month Total (inches)	Percentage of Normal for the Month	Year To Date ⁷ (inches)	Percentage of Normal for the Year to Date ⁷
Pilarcitos	0.60	21 %	31.40	83 %
Lower Crystal Springs	0.21	10 %	21.10	81 %
Calaveras	0.08	4 %	16.34	78 %

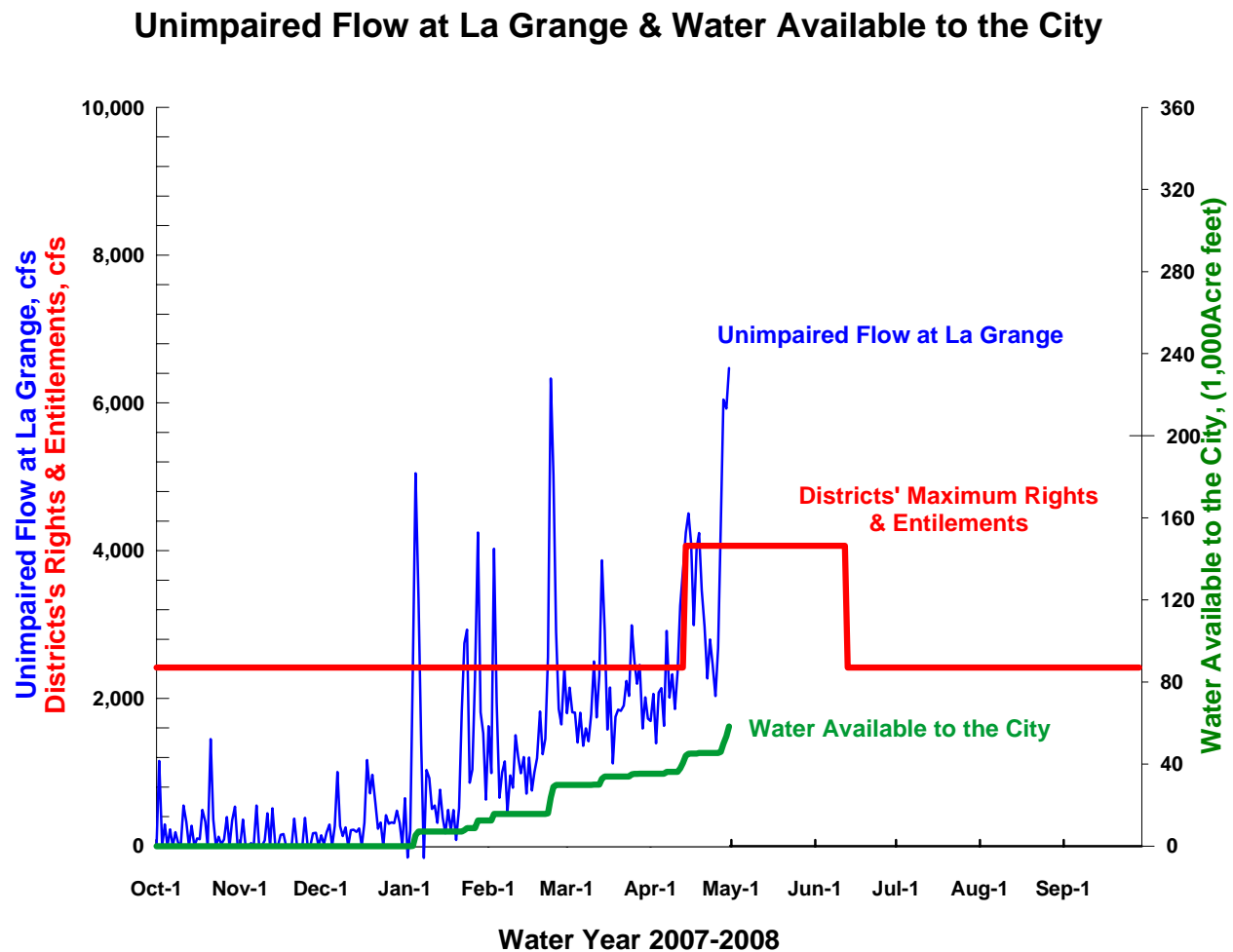
⁷ Since 7-1-2007

Snowmelt and Water Supply

The persistent dry pattern through April reduced the seasonal hydrologic conditions to about 69% of the long-term average and brought the season-to-date contribution to water supply to only 18% of average (Table 2). The City's entitlement during April was 23,023 acre-feet, or 24% of average (Figure 2). Entitlements rose at the end of the month due to a few days of warm weather, but have since decreased due to the cool weather.

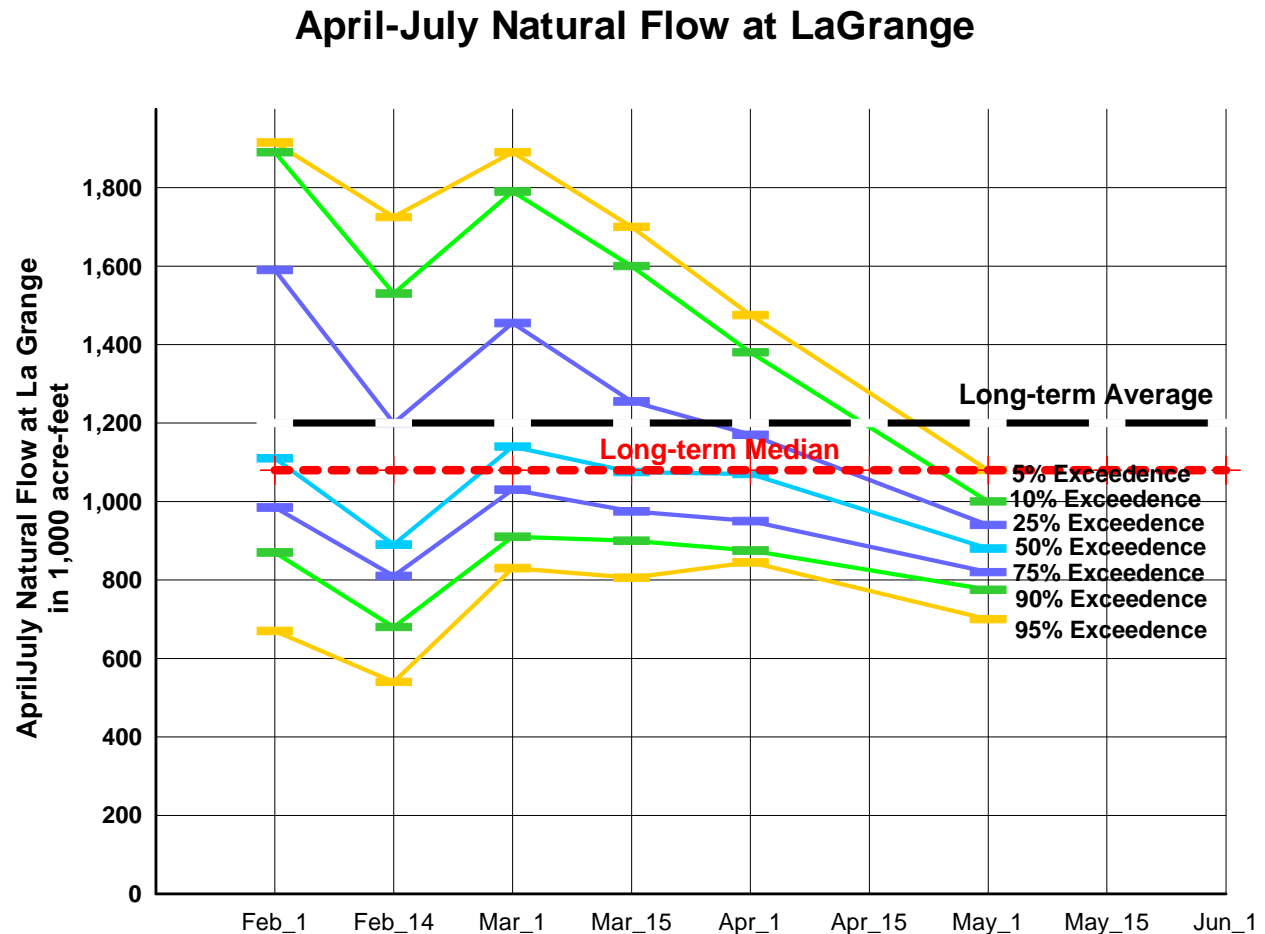
Current weather conditions are again dominated by an off-shore high-pressure system. Cool temperatures and clear skies are forecasted during the early part of May. The 30-day weather outlook pattern is for normal precipitation and temperature conditions, but May precipitation is typically modest.

Figure 2: Calculated unimpaired flow at La Grange and the allocation of flows between the Districts and the City. Water available to the City for the period from October 1, 2007 through April 30th, 2008 is 58,298 acre-feet.



The forecast indicates that the median amount of runoff that may occur this year is about 81.5% of the long-term median. The median forecast of April-to-July runoff is about 880 TAF, compared to the long-term median runoff for the April-to-July period of 1,080 TAF. For natural flow at La Grange, there is an 80 percent chance that the April-to-July natural runoff will be between 775 TAF and 1,000 TAF.

Figure 3: Tuolumne River at La Grange April-July runoff forecast



cc	HHWP Records	DeGraca, Andrew	Kehoe, Paula	Samii, Camron
	Bauer, Leo	Fong, Mike	Levin, Ellen	Sandkulla, Nicole
	Briggs, David	Gass, Matt	Mazurkiewicz, Adam	Sanguinetti, Dave
	Cameron, David	Hale, Barbara	McGurk, Bruce	Tsang, Michael
	Carlin, Michael	Hannaford, Margaret	Meier, Steve	
	Chester, John	Jensen, Art	Rickson, Norman	