

San Francisco Public Utilities Commission

Hydrological Conditions Report

September 2024

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Stanislaus National Forest and Hetch Hetchy Water and Power staff travel by foot down Upper Cherry Creek during the annual snow survey resupply trip (left). During these trips, staff maintain snow courses and backcountry cabins (right) in preparation for mid-winter snow surveys.

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, 2024 | | | | | | | |
|---|------------------|---------------------|------------------|---------------------|--------------------|---------------------|-------------------------------|
| | 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 | 287,997 | | 360,360 | | 72,363 | | 80% |
| Cherry Reservoir ² | 241,796 | | 268,811 | | 27,015 | | 90% |
| Lake Eleanor ³ | 19,691 | | 27,100 | | 7,409 | | 73% |
| Water Bank | 569,947 | | 570,000 | | 53 | | 100% |
| Tuolumne Storage | 1,119,431 | | 1,226,271 | | 106,840 | | 91% |
| Local Bay Area Storage | | | | | | | |
| Calaveras Reservoir | 88,001 | 28,675 | 96,670 | 31,500 | 8,669 | 2,825 | 91% |
| San Antonio Reservoir | 48,777 | 15,894 | 52,506 | 17,109 | 3,729 | 1,215 | 93% |
| Crystal Springs Reservoir | 51,803 | 16,880 | 68,743 | 22,400 | 16,940 | 5,520 | 75% |
| San Andreas Reservoir | 11,806 | 3,847 | 18,898 | 6,158 | 7,092 | 2,311 | 63% |
| Pilarcitos Reservoir | 2,326 | 758 | 3,118 | 1,016 | 792 | 258 | 75% |
| Total Local Storage | 202,713 | 66,054 | 239,936 | 78,183 | 37,223 | 12,129 | 85% |
| Total System | 1,322,144 | | 1,466,207 | | 144,063 | | 90% |

¹ Maximum Hetch Hetchy Reservoir storage with drum gates activated.

² Maximum Cherry Reservoir storage with flashboards removed. Boards were removed September 12.

³ Maximum Lake Eleanor storage with flashboards installed. Boards were removed October 4. Reduced storage will be reflected in the next report.

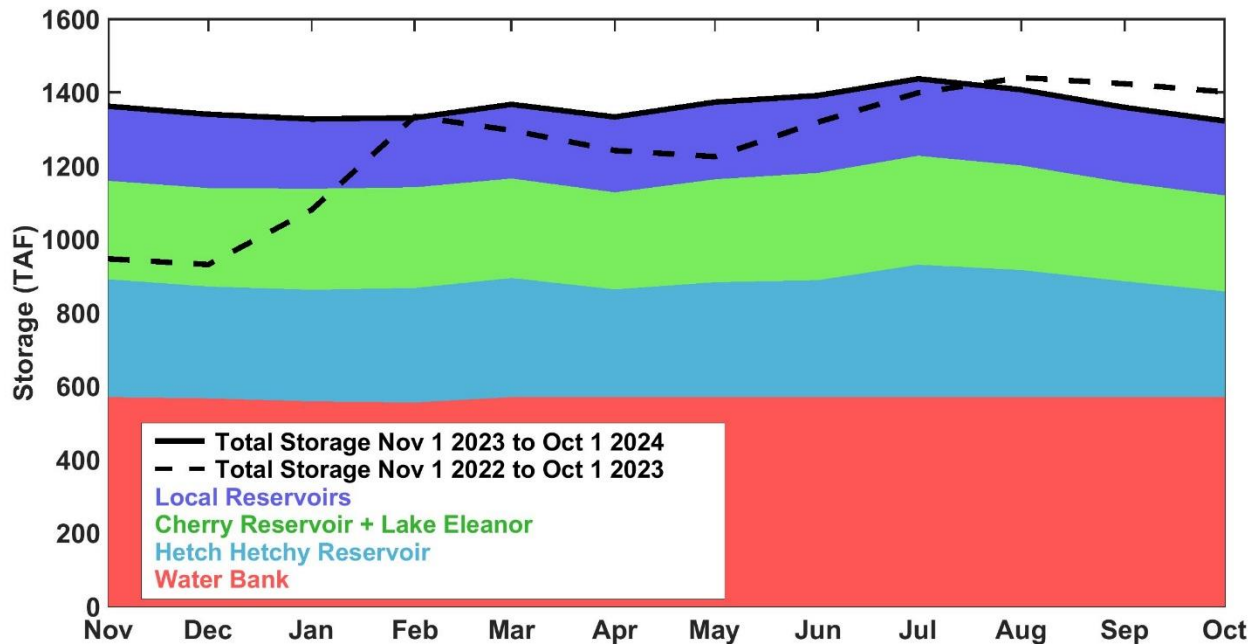


Figure 1: Local and Upcountry Reservoir storage. Color bands show contributions to total system storage. Solid black line shows total system storage for the past 12 months. Dashed black line shows total system storage the previous 12 months.

Hetch Hetchy System Precipitation Index

Current Month: The September 2024 six-station precipitation index was 0.05 inches, which is 30% of the 1991-2020 September median.

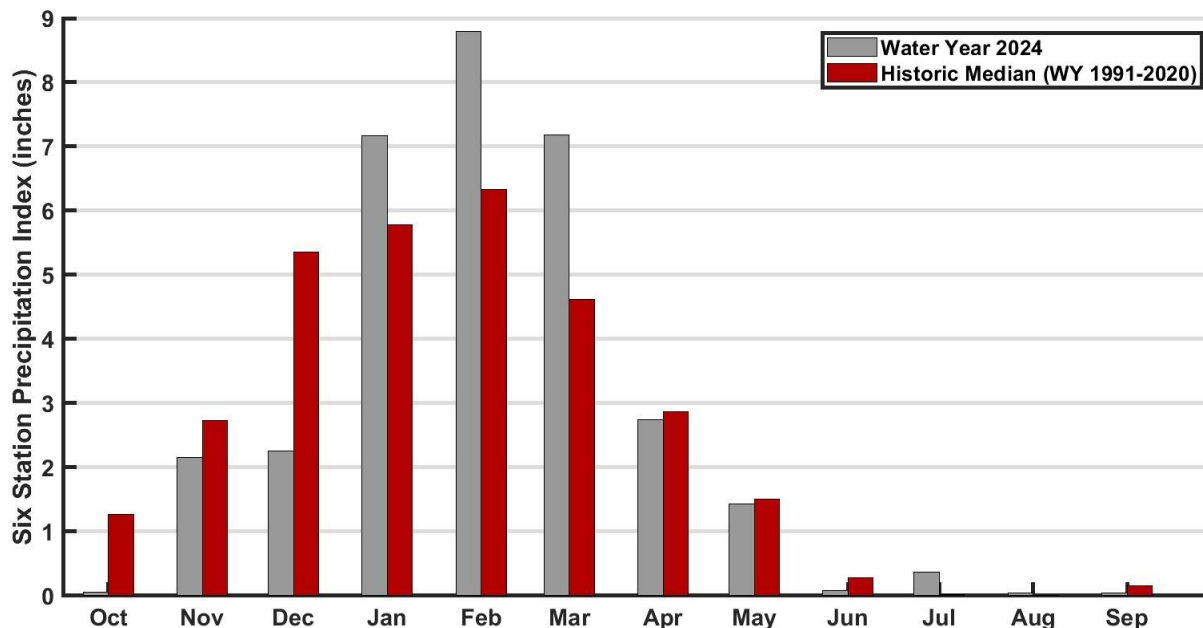


Figure 2: Monthly distribution of the six-station precipitation index relative to the monthly precipitation medians as of October 1. The precipitation index is computed as the average of six Sierra precipitation stations and is an indicator of the overall basin wetness.

Cumulative Precipitation to Date: The cumulative six-station precipitation index for Water Year (WY) 2024 is 32.27 inches, which is 104% of the median to-date. The Hetch Hetchy Weather Station received 0.09 inches of precipitation in September resulting in a total of 30.13 inches for WY 2024, or 87% of median for the Water Year to-date. The cumulative WY 2024 Hetch Hetchy Weather Station precipitation is shown in Figure 3 in red.

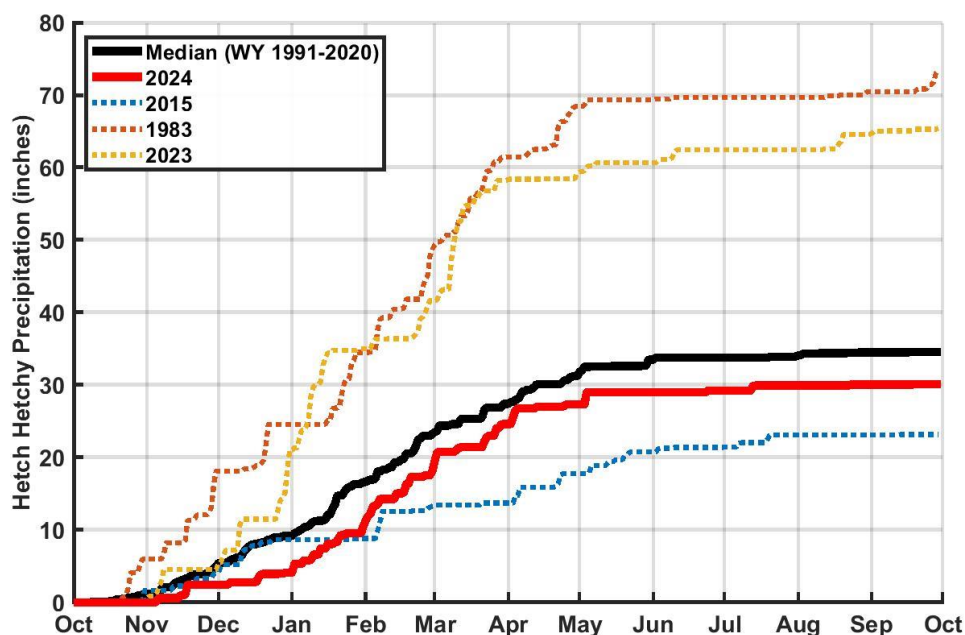


Figure 3: Water Year 2024 cumulative precipitation measured at Hetch Hetchy Weather Station as of October 1. Median cumulative precipitation measured at Hetch Hetchy Weather Station and example wet and dry years are included with Water Year 2024 for comparison purposes.

Tuolumne Basin Unimpaired Inflow

Unimpaired inflow to SFPUC reservoirs and the Tuolumne River at La Grange for September 2024 and Water Year 2024 is summarized below in Table 2.

| Table 2. Calculated reservoir inflows and Water Available to City | | | | | | | | |
|---|------------------|---------------------|-------------------|-----------------|--|---------------------|-------------------|-----------------|
| * All flows are in acre-feet | September 2024 | | | | October 1, 2023 through September 30, 2024 | | | |
| | Observed Flow | Median ¹ | Mean ¹ | Percent of Mean | Observed Flow | Median ¹ | Mean ¹ | Percent of Mean |
| Inflow to Hetch Hetchy Reservoir | 900 ² | 1,669 | 3,314 | 27% | 613,158 | 703,970 | 762,304 | 80% |
| Inflow to Cherry Reservoir and Lake Eleanor | 100 ² | 1,537 | 1,969 | 5% | 458,344 | 465,619 | 508,322 | 90% |
| Tuolumne River at La Grange | 10,120 | 8,681 | 12,079 | 84% | 1,715,906 | 1,664,299 | 1,942,410 | 88% |
| Water Available to City | 0 | 0 | 5 | 0% | 643,192 | 580,260 | 870,173 | 74% |

¹Hydrologic Record: 1991-2020

²Observed flow this month is based on inflow monitoring data vs the usual mass balance calculations. The mass balance calculations resulted in negative calculated inflows due to evaporation and finite resolution in the reservoir rating tables.

Hetch Hetchy System Operations

Water deliveries via the San Joaquin Pipeline (SJPL) decreased from 235 MGD to 210 MGD on September 25.

Hetch Hetchy Reservoir power draft and stream releases during the month totaled 24,805 acre-feet. Required minimum instream release during September 1-14 was 80 cfs; during September 15-30 it was 65 cfs (Type B). On October 1, required minimum instream release decreased to 50 cfs (Type B).

Cherry Reservoir power draft and stream releases totaled 5,603 acre-feet during the month of September. Required minimum instream release was 15 cfs from July 1 through September 30. On October 1, required minimum instream release decreased to 5 cfs.

Lake Eleanor stream releases totaled 990 acre-feet during the month of September. Required minimum instream release was 20 cfs from July 1 through September 15. On September 16, required minimum release decreased to 10 cfs and will remain at 10 cfs through October. The Cherry Pump Station transferred 4,403 acre-ft of water from Lake Eleanor into Cherry Reservoir.

Regional System Treatment Plant Production

The Harry Tracy Water Treatment Plant production rate for the month was 31 MGD. Sunol Valley Water Treatment Plant was offline for the entire month.

Regional System Water Delivery

The average September delivery rate was 222 MGD which is an 3.1% decrease compared to the August delivery rate of 229 MGD.

Local Precipitation

The rainfall summary for September 2024 and Water Year 2024 is presented in Table 3.

| Weather Station Location | September 2024 | | October 1, 2023 through September 30, 2024 | |
|---------------------------------|----------------|-------------------------------|--|--------------------------------------|
| | Total (inches) | Percent of Mean for the Month | Total (inches) | Percent of Mean for the Year-To-Date |
| Pilarcitos Reservoir | 0.05 | 50% | 43.18 | 129% |
| Lower Crystal Springs Reservoir | 0.00 | 0% | 32.57 | 147% |
| Calaveras Reservoir | 0.00 | 0% | 24.51 | 136% |

*Mean Period = WY 1991-2020

Water Supply and Planned Water Supply Management

Water Year 2024 began with below average precipitation and above average temperatures. Well above-average precipitation and cooler temperatures January through March led to the emergence of near-normal total precipitation. Near-normal precipitation continued in April and May (Figure 2 and 3). Above average temperatures in May generated above average runoff for the month. This was followed by a dramatic cooldown and rapid reduction in reservoir inflows in mid-June (Figure 4). An extreme heatwave in early July and sustained above-average temperatures throughout the month lead to July 2024 being the hottest July on record. Temperatures moderated substantially in August; an anomalously cold low-pressure system generated record cold maximum temperatures August 24 and 25. Aside from a minor low-pressure system in the middle of the month, September was characterized by persistent above-average temperatures and dry conditions. Water Year cumulative runoff was below average (Table 2, Figure 4).

This Fall, Hetch Hetchy Reservoir is drafting via SJPL deliveries, Moccasin Fish Hatchery flows and minimum instream releases. Cherry Reservoir is drafting via minimum instream releases; generation at Holm Powerhouse ceased on October 1 and Holm Powerhouse will remain out of service until significant precipitation occurs. Lake Eleanor is drafting via minimum instream releases and pumping transfer. Water Bank is anticipated to remain nearly full or debit slightly as upcountry reservoir releases balance inflows through October.

Cumulative Water Available to the City for WY 2024 was 643,192 acre-feet on October 1 (Figure 4). Measured inflows to date on the Tuolumne River at La Grange have resulted in Water Year runoff (1,715,906 acre-ft) between the median and mean of the 1991 and 2020 period (Table 2).

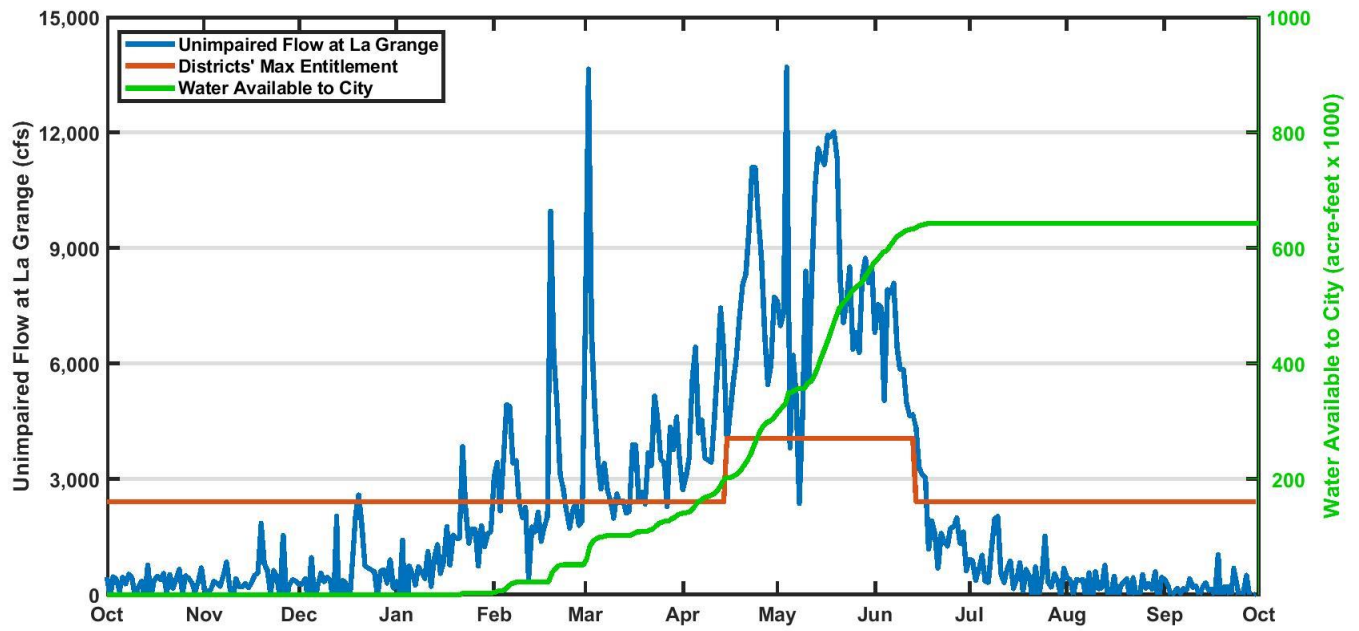


Figure 4: Calculated unimpaired flow at La Grange and the allocation of flows between the Districts and the City.