

San Francisco Public Utilities Commission

Hydrological Conditions Report

November 2024

B. Barry, C. Graham, H. Forrester, N. Waeltly
Prepared December 2, 2024



Hetch Hetchy Water and Power staff observe the test installation of a new bulkhead at O’Shaughnessy Dam. The new bulkheads will allow the SFPUC to work on future projects on O’Shaughnessy Dam appurtenances, including the face valves, slide gates and Canyon Tunnel.

System Storage

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

Table 1. Current System Storage as of December 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	241,790		340,830		99,040		71%
Cherry Reservoir ²	246,428		268,811		22,383		92%
Lake Eleanor ³	16,210		21,495		5,285		75%
Water Bank	567,334		570,000		2,666		100%
Tuolumne Storage	1,071,762		1,201,136		129,374		89%
Local Bay Area Storage							
Calaveras Reservoir	81,479	26,550	96,670	31,500	15,191	4,950	84%
San Antonio Reservoir	48,372	15,762	52,506	17,109	4,134	1,347	92%
Crystal Springs Reservoir	52,288	17,038	68,743	22,400	16,455	5,362	76%
San Andreas Reservoir	15,845	5,163	18,898	6,158	3,054	995	84%
Pilarcitos Reservoir	2,335	761	3,118	1,016	783	255	75%
Total Local Storage	200,319	65,274	239,936	78,183	39,616	12,909	83%
Total System	1,272,081		1,441,072		168,990		88%

¹ Maximum Hetch Hetchy Reservoir storage with drum gates deactivated.

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

³ Maximum Lake Eleanor storage with flashboards removed. Boards were removed October 4.

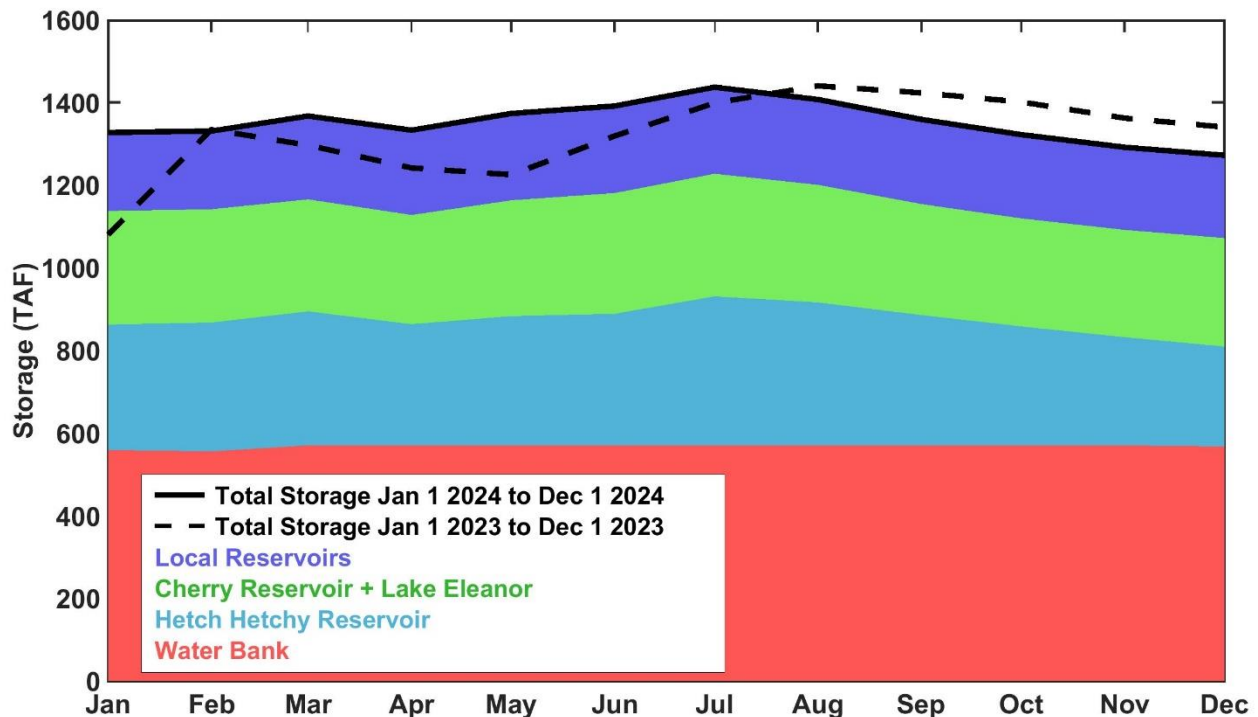


Figure 1: Local and Upcountry Reservoir storage. Color bands show contributions to total system storage. Solid black line shows total system storage for the past 12 months. Dashed black line shows total system storage the previous 12 months.

Hetch Hetchy System Precipitation Index

Current Month: The November 2024 six-station precipitation index was 4.25 inches, which is 156% of the 1991-2020 November median.

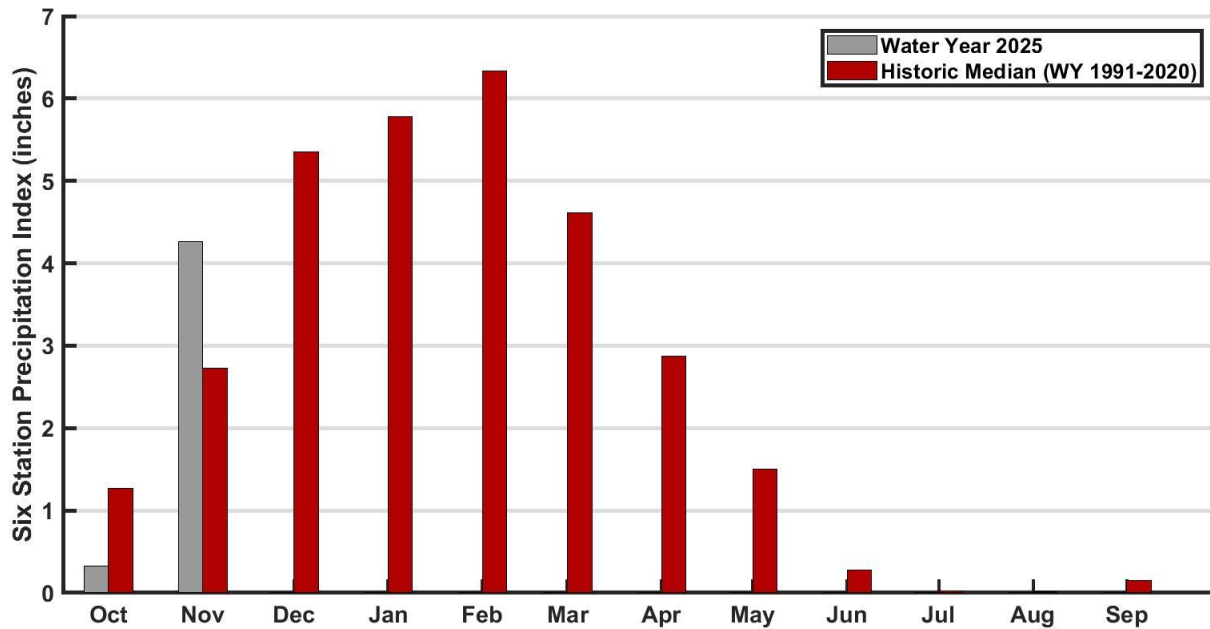


Figure 2: Monthly distribution of the six-station precipitation index relative to the monthly precipitation medians as of December 1. The precipitation index is computed as the average of six Sierra precipitation stations and is an indicator of the overall basin wetness.

Cumulative Precipitation to Date: The cumulative six-station precipitation index for Water Year (WY) 2025 is 4.58 inches, which is 114% of the median to-date. The Hetch Hetchy Weather Station received 4.47 inches of precipitation in November resulting in a total of 4.91 inches for WY 2025, or 100% of WY to-date median. The cumulative WY 2025 Hetch Hetchy Weather Station precipitation is shown in Figure 3 in red.

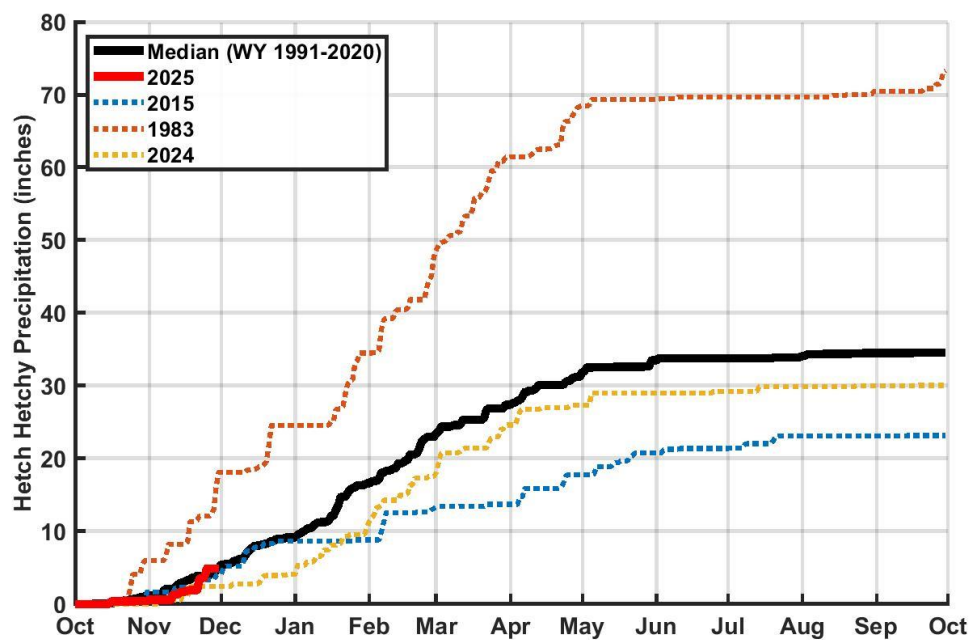


Figure 3: Water Year 2025 cumulative precipitation measured at Hetch Hetchy Weather Station as of December 1. Median cumulative precipitation measured at Hetch Hetchy Weather Station and example wet and dry years are included with Water Year 2024 for comparison purposes.

Tuolumne Basin Unimpaired Inflow

Unimpaired inflow to SFPUC reservoirs and the Tuolumne River at La Grange for November 2024 and Water Year 2025 is summarized below in Table 2.

Table 2. Calculated reservoir inflows and Water Available to City								
* All flows are in acre-feet	November 2024				October 1, 2024 through November 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	2,448 ²	5,425	10,789	23%	3,048 ²	10,113	18,511	16%
Inflow to Cherry Reservoir and Lake Eleanor	3,628 ²	7,439	14,286	25%	3,768 ²	14,047	23,271	16%
Tuolumne River at La Grange	16,804	18,084	33,098	51%	26,963	41,744	55,366	49%
Water Available to City	0	0	5,488	0%	0	726	11,491	0%

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 185 MGD to 150 MGD on November 20.

Hetch Hetchy Reservoir power draft and stream releases during the month totaled 19,535 acre-feet. Required minimum instream release during November and December is 50 cfs and 40 cfs, respectively (Type B).

Cherry Reservoir power draft and stream releases totaled 430 acre-feet during the month of November. Required minimum instream release is 5 cfs October through June.

Lake Eleanor stream releases totaled 365 acre-feet during the month of November. Required minimum instream release is 5 cfs November through February. The Cherry Pump Station remained deactivated during November; no water was transferred from Lake Eleanor to Cherry Reservoir.

Regional System Treatment Plant Production

The Harry Tracy Water Treatment Plant production rate for the month was 8 MGD. The Sunol Valley Water Treatment Plant production rate for the month was 31 MGD.

Regional System Water Delivery

The average November delivery rate was 176 MGD which is an 17% decrease compared to the October delivery rate of 212 MGD.

Local Precipitation

The rainfall summary for November 2024 and Water Year 2025 is presented in Table 3.

Weather Station Location	November 2024		October 1, 2024 through November 30, 2024	
	Total (inches)	Percent of Mean for the Month	Total (inches)	Percent of Mean for the Year-To-Date
Pilarcitos Reservoir	8.65	247%	8.96	189%
Lower Crystal Springs Reservoir	4.90	214%	5.06	169%
Calaveras Reservoir	2.24	111%	2.24	90%

*Mean Period = WY 1991-2020

Water Supply and Planned Water Supply Management

After a dry October, above-normal precipitation in November brought water year precipitation and snowpack to near-normal conditions (Figure 2, 3, and 5). Despite wet conditions in November, dry antecedent conditions muted runoff, resulting in no Water Available to the City (WAC) for WY2025 (Figure 4, Table 2).

Hetch Hetchy Reservoir is drafting via SJPL deliveries, Moccasin Fish Hatchery flows and minimum instream releases. The 2024-2025 Winter Shutdown is scheduled to begin on December 11, after which SJPL deliveries will discontinue, and Moccasin Fish Hatchery draft will be provided by storage in Priest and Moccasin Reservoirs. Cherry Reservoir is drafting via minimum instream releases; generation at Holm Powerhouse stopped on October 1 and will resume once significant precipitation occurs. Lake Eleanor is drafting via minimum instream releases. Water Bank is anticipated to remain nearly full as upcountry reservoir releases are slightly less than inflows. This trend is expected to continue until significant runoff occurs.

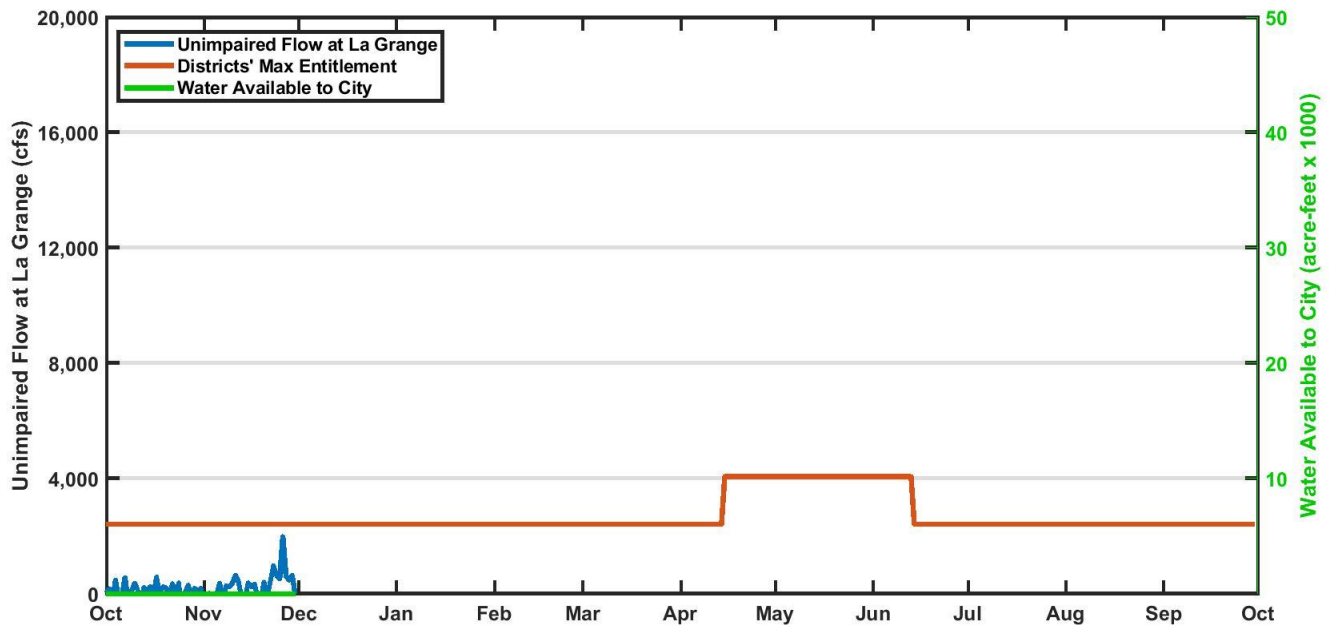


Figure 4: Calculated unimpaired flow at La Grange and the allocation of flows between the Districts and the City.

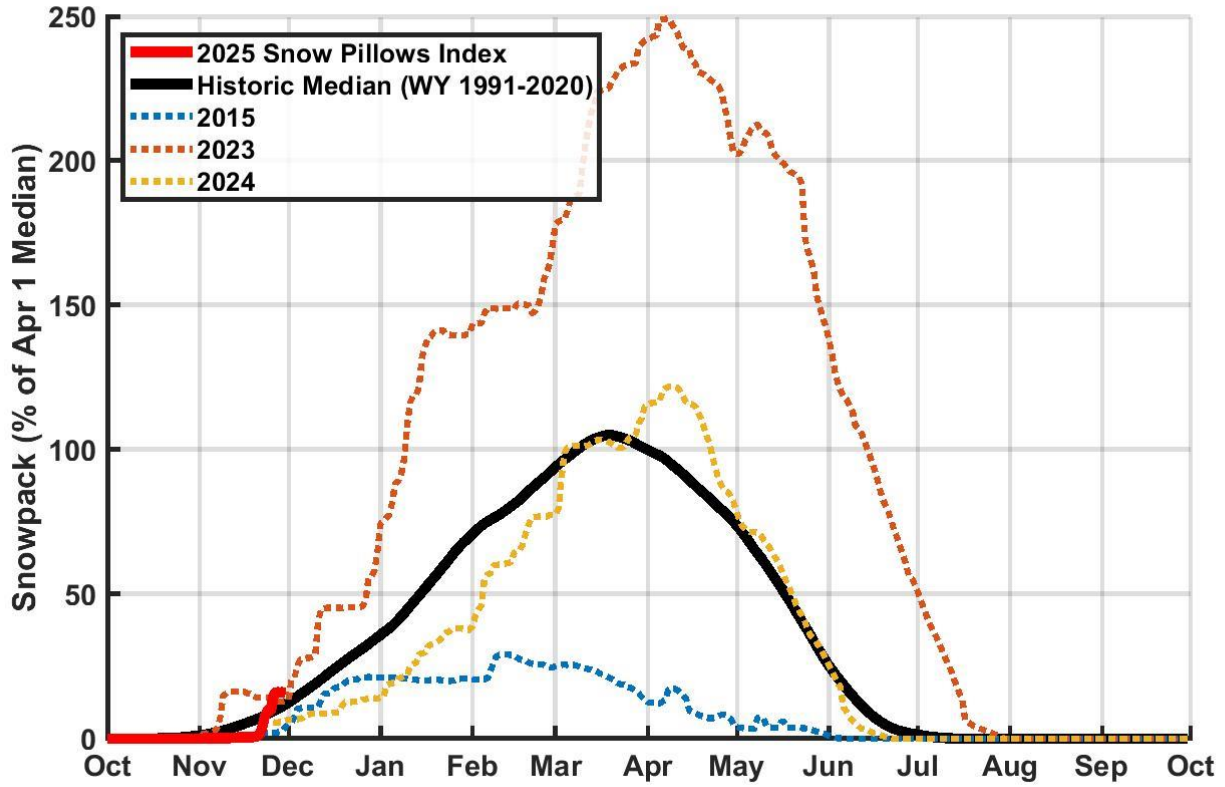
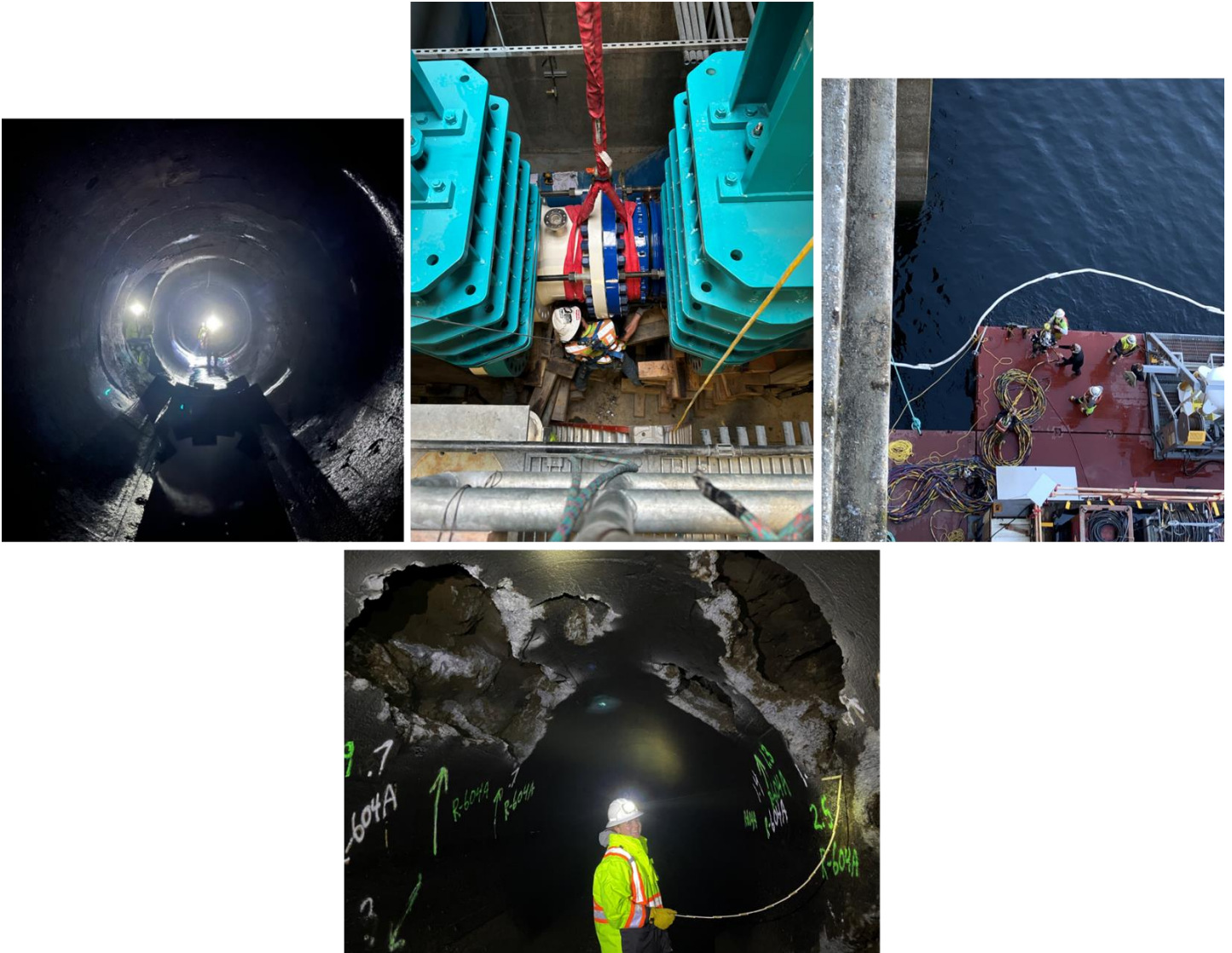


Figure 5: Current water year 10-Station Snow Pillows Index as of December 1 (red line), based on real-time snow water equivalent measurements in the Tuolumne Basin. Historic median, wet and dry years, and previous water year are included for comparison purposes.

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The Winter 2025 Hetch Hetchy Shutdown began on December 16, 2024, and is scheduled to continue until mid-March 2025. During the shutdown numerous maintenance and improvement projects can occur across Hetch Hetchy Water and Power facilities that are otherwise inaccessible. Maintenance projects and inspections are occurring during this year's shutdown at Foothill Tunnel (upper left), San Joaquin Pipeline Pelican Crossover Station (upper middle), O'Shaughnessy Dam (upper right), and Mountain Tunnel (bottom).

System Storage

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	acre-feet	millions of gallons	acre-feet	millions of gallons	acre-feet	millions of gallons	
Tuolumne System							
Hetch Hetchy Reservoir ¹	241,790		340,830		99,040		71%
Cherry Reservoir ²	253,692		268,811		15,119		94%
Lake Eleanor ³	22,239		21,495		0		100%
Water Bank	548,225		570,000		21,775		96%
Tuolumne Storage	1,065,946		1,201,136		135,934		89%
Local Bay Area Storage							
Calaveras Reservoir	78,251	25,498	96,670	31,500	18,419	6,002	81%
San Antonio Reservoir	47,970	15,631	52,506	17,109	4,536	1,478	91%
Crystal Springs Reservoir	50,846	16,568	68,743	22,400	17,897	5,832	74%
San Andreas Reservoir	16,173	5,270	18,898	6,158	2,725	888	86%
Pilarcitos Reservoir	2,418	788	3,118	1,016	700	228	78%
Total Local Storage	195,658	63,755	239,936	78,183	44,278	14,428	82%
Total System	1,261,604		1,441,072		180,212		88%

¹ Maximum Hetch Hetchy Reservoir storage with drum gates deactivated.

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

³ Maximum Lake Eleanor storage with flashboards removed. Boards were removed October 4.

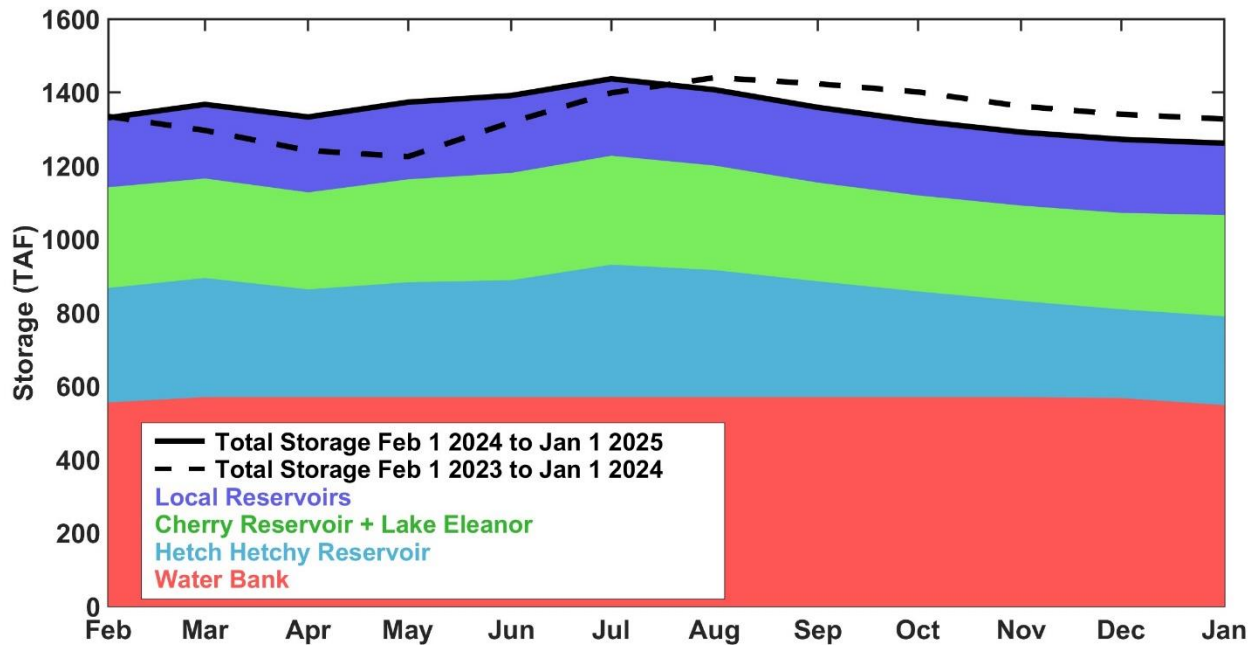


Figure 1: Local and Upcountry Reservoir storage. Color bands show contributions to total system storage. Solid black line shows total system storage for the past 12 months. Dashed black line shows total system storage the previous 12 months.

Hetch Hetchy System Precipitation Index

Current Month: The December 2024 six-station precipitation index was 4.56 inches, which is 85% of the 1991-2020 December median.

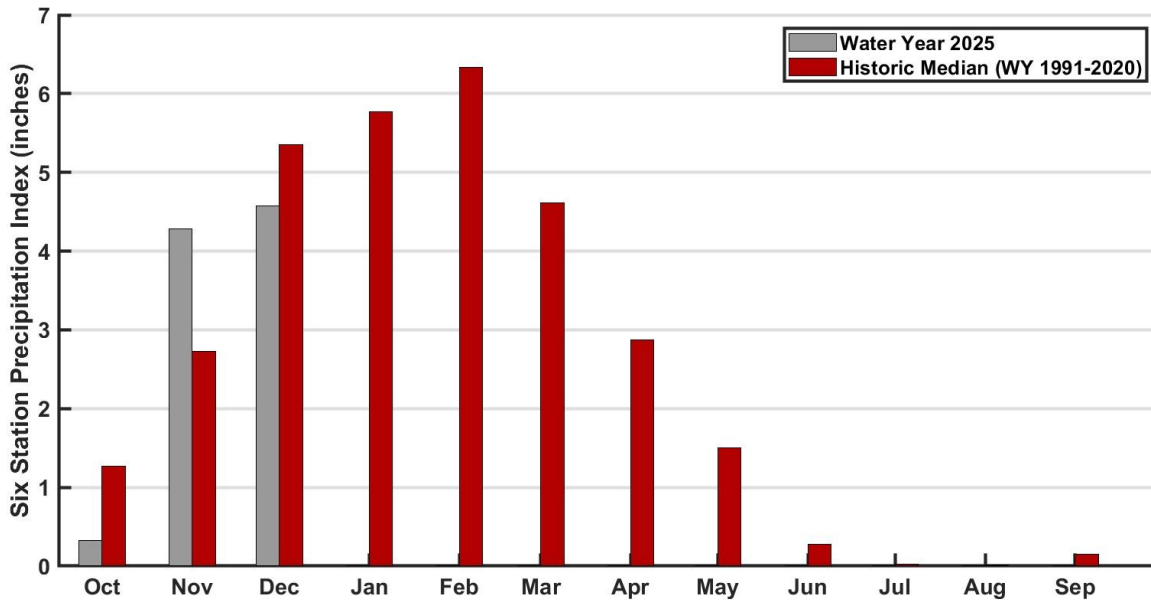


Figure 2: Monthly distribution of the six-station precipitation index relative to the monthly precipitation medians as of January 1. The precipitation index is computed as the average of six Sierra precipitation stations and is an indicator of the overall basin wetness.

Cumulative Precipitation to Date: The cumulative six-station precipitation index for Water Year (WY) 2025 is 9.14 inches, which is 98% of the median to-date. The Hetch Hetchy Weather Station received 4.76 inches of precipitation in December resulting in a total of 9.67 inches for WY 2025, or 105% of WY to-date median. The cumulative WY 2025 Hetch Hetchy Weather Station precipitation is shown in Figure 3 in red.

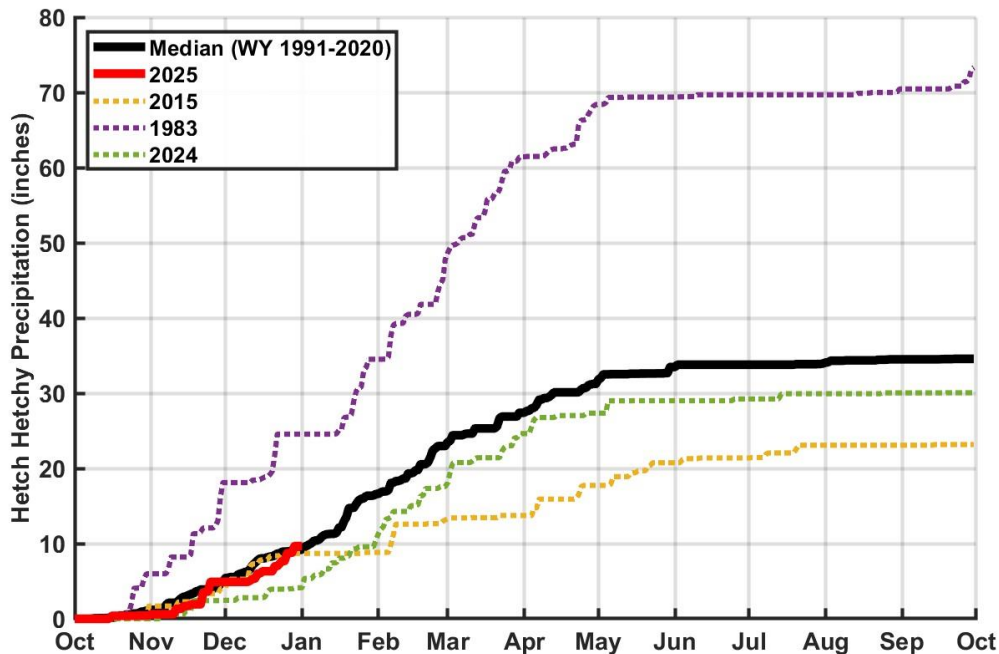


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* All flows are in acre-feet	December 2024				October 1, 2024 through December 31, 2024			
	Observed Flow	Median ¹	Mean ¹	Percent of Mean	Observed Flow	Median ¹	Mean ¹	Percent of Mean
Inflow to Hetch Hetchy Reservoir	10,569	11,208	18,263	58%	13,617 ²	27,977	36,794	37%
Inflow to Cherry Reservoir and Lake Eleanor	14,463	14,889	25,932	56%	18,231 ²	39,901	48,899	37%
Tuolumne River at La Grange	44,579	52,580	83,633	53%	71,542	93,205	137,255	52%
Water Available to City	296	325	31,109	1%	296	8,925	42,394	1%

¹Hydrologic Record: 1991-2020

²Water Year inflow uses a combination of inflow monitoring data and mass-balance calculations. The mass balance calculations resulted in negative calculated inflows during dry months due to evaporation and finite resolution of the reservoir rating table.

Hetch Hetchy System Operations

Water deliveries via the San Joaquin Pipeline (SJPL) decreased from 150 MGD to 120 MGD on December 4, and then decreased to 0 MGD on December 17.

Hetch Hetchy Reservoir power draft and stream releases during the month totaled 8,894 acre-feet. Required minimum instream release increased from 40 cfs (Type B) during December to 50 cfs (Type A) in January.

Cherry Reservoir power draft and stream releases totaled 724 acre-feet during the month of December. Required minimum instream release is 5 cfs October through June.

Lake Eleanor stream releases totaled 450 acre-feet during the month of December. Required minimum instream release is 5 cfs November through February. The Cherry-Eleanor Pumps remained deactivated during December; no water was transferred from Lake Eleanor to Cherry Reservoir.

Regional System Treatment Plant Production

The Harry Tracy Water Treatment Plant production rate for the month was 46 MGD. The Sunol Valley Water Treatment Plant production rate for the month was 57 MGD.

Regional System Water Delivery

The average December delivery rate was 151 MGD which is a 14% decrease compared to the November delivery rate of 176 MGD.

Local Precipitation

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	Total (inches)	Percent of Mean for the Month	Total (inches)	Percent of Mean for the Year-To-Date
Pilarcitos Reservoir	9.32	140%	18.28	158%
Lower Crystal Springs Reservoir	7.00	156%	12.06	161%
Calaveras Reservoir	5.56	165%	7.80	133%

*Mean Period = WY 1991-2020

Snowpack, Water Supply and Planned Water Supply Management

After a dry October, above-normal precipitation in November, and near-normal precipitation in December, water year precipitation and snowpack conditions remain near normal (Figure 2, 3, and 5). Storms in late December generated modest runoff, resulting in 296 AF Water Available to the City (WAC) for WY2025 (Figure 4, Table 2).

Hetch Hetchy Reservoir is drafting via minimum instream releases. The 2024-2025 Winter Shutdown began on December 16, resulting in SJPL deliveries dropping to 0 MGD. SJPL deliveries are scheduled to resume on March 20. During the shutdown, Moccasin Fish Hatchery draft is reduced to 3 cfs and will be provided by storage in Priest and Moccasin Reservoirs. Cherry Reservoir is drafting via minimum instream releases. Except for minimal generation associated with scheduled maintenance, Holm Powerhouse remained deactivated in December. Following significant precipitation in December, Holm Powerhouse generation resumed January 2. Lake Eleanor is full and spilling and drafting via minimum instream releases. The Cherry-Eleanor Pumps will be activated once Lake Eleanor spills 50 cfs. Water Bank is anticipated to gradually debit as upcountry reservoir releases are less than inflows. This trend is expected to continue through January.

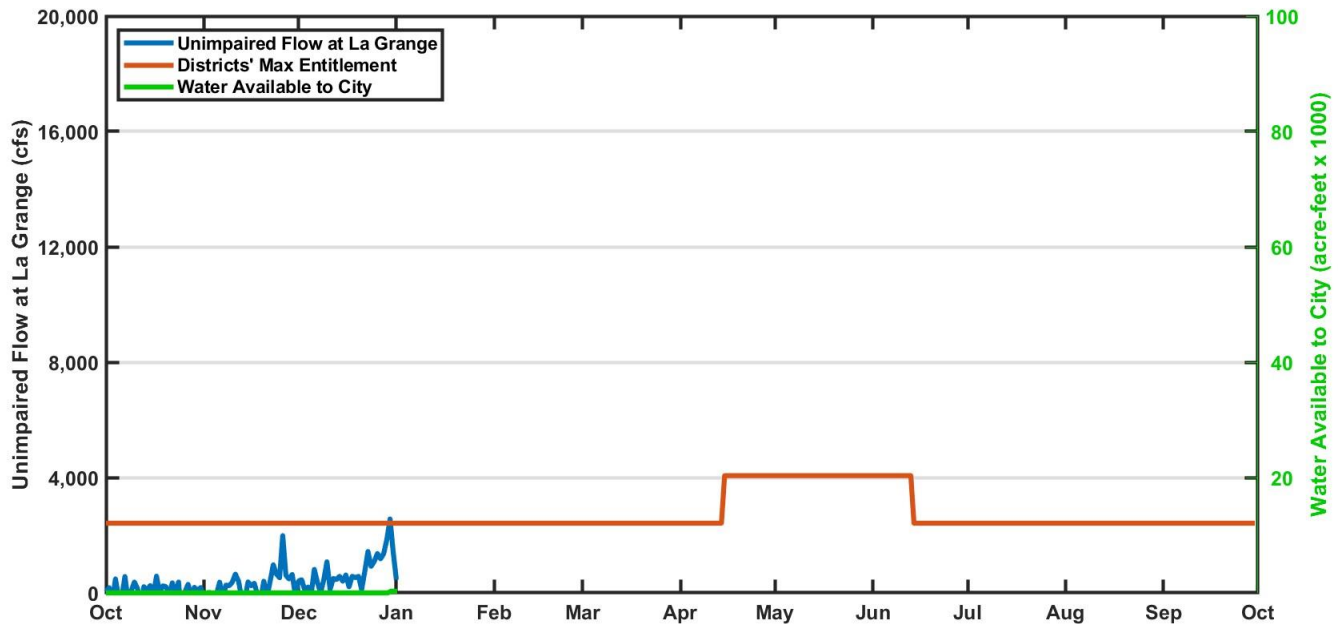


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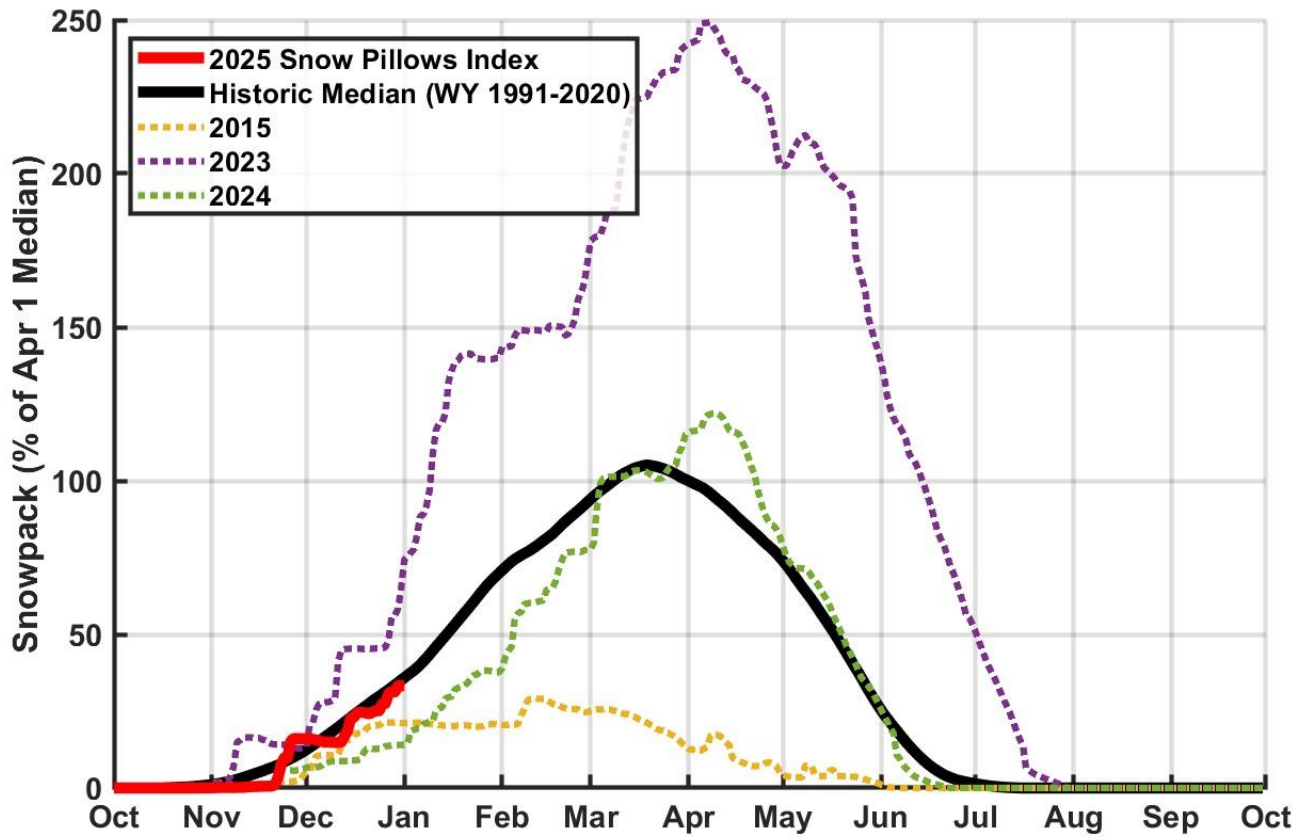


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