# Restoring Hetch Hetchy

## *The Cherry Solution*

*Providing Public Access to*

## HETCH HETCHY VALLEY

YOSEMITE NATIONAL PARK

*January 2026*

# Restoring Hetch Hetchy

## *The Cherry Solution*

When Yosemite National Park was established in 1890, it included Hetch Hetchy, a magnificent glacier-carved valley, with towering granite cliffs, cascading waterfalls, and lush meadows. It was often described as Yosemite Valley's "twin" or "sister valley," but was less often visited due to its remote location at a time when roads and automobiles were few.

After a destructive earthquake and fire devastated San Francisco in 1906, the City sought permission to build a dam inside Yosemite to secure a reliable water supply. Despite widespread, nationwide opposition, Congress passed the Raker Act in 1913, authorizing the construction of the O'Shaughnessy Dam and the flooding of Hetch Hetchy Valley. This remains the only instance in American history in which a single city was allowed to develop a national park for its own use.

Numerous studies have shown that reliable water supplies for San Francisco's Regional Water System can be maintained without Hetch Hetchy Reservoir. However, this current analysis improves upon earlier studies in three important ways:

1. ***It proposes connecting outflow from Cherry Reservoir to the Mountain Tunnel and San Joaquin Pipelines***, enabling direct conveyance to the Bay Area.
2. ***It incorporates updated demand levels***, reflecting a significant reduction in water use across the Regional Water System.
3. ***It demonstrates that restoration can occur without any changes to downstream facilities or agreements***, meaning the Turlock and Modesto Irrigation Districts are not affected or involved.

> *"A century ago, our nation sought to tame the wilderness with large-scale engineering projects, occasionally with destructive results. Today we should commit to undoing one of the worst examples of that destruction. And tomorrow, we can watch a magnificent valley emerge from the depths.*
>
> *Let's make Yosemite National Park whole once again."*
>
> — Robert Binnewies, B.J. Griffin & David Mihalic, *former* Superintendents of Yosemite National Park

Under these assumptions, San Francisco would meet its full water demand in all future years. Even if repeats of the most severe 20th-century droughts occurred again, the system would retain more than two years' supply in reserve. Should the City desire even greater reliability — against unprecedented drought or potential future demand increases — it could pursue options recently developed by other California agencies.

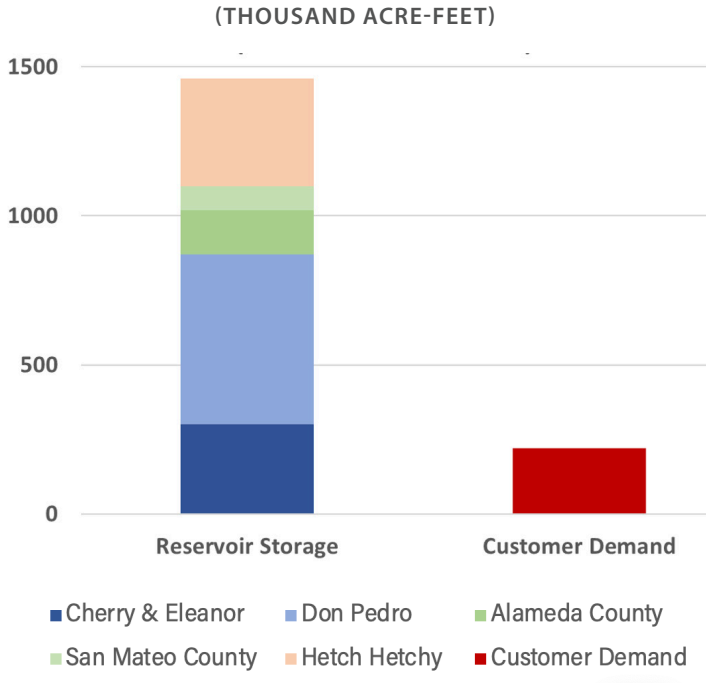
Since water supply for San Francisco is no longer dependent on storing water at Hetch Hetchy, the original justification for flooding such an iconic valley in a national park is no longer valid, and there is no further justification for retaining the reservoir. It is time to empty the reservoir and to return Hetch Hetchy Valley to Yosemite National Park.

# San Francisco's Regional Water System


San Francisco's Regional Water System serves retail customers in San Francisco, other Bay Area cities in San Mateo, Santa Clara and Alameda Counties (collectively organized as the Bay Area Water Supply and Conservation Agency) and Groveland in the Sierra foothills.

From 2012 to 2022, average system demand was 197 million gallons per day, or 220 thousand acre-feet (TAF) per year — a 19% decline from the previous decade.

**FIGURE 1: San Francisco Regional Water System Reservoir Storage and Customer Demand**




San Francisco can store 1,460 TAF of water — more than six times its annual demand - across nine locations, including local reservoirs in San Mateo and Alameda Counties, upstream storage in the Tuolumne River watershed, and Don Pedro Reservoir in the Sierra foothills. (See Figure 1.)

The Tuolumne River supplies most of the system's water. These supplies are currently diverted from Hetch Hetchy Reservoir and blended with local watershed runoff and limited groundwater.

**Releases from Hetch Hetchy and Cherry Reservoirs also support:**

**FISHERIES**

**HYDROPOWER GENERATION**

**WHITEWATER RECREATION**

**WATER OBLIGATIONS**

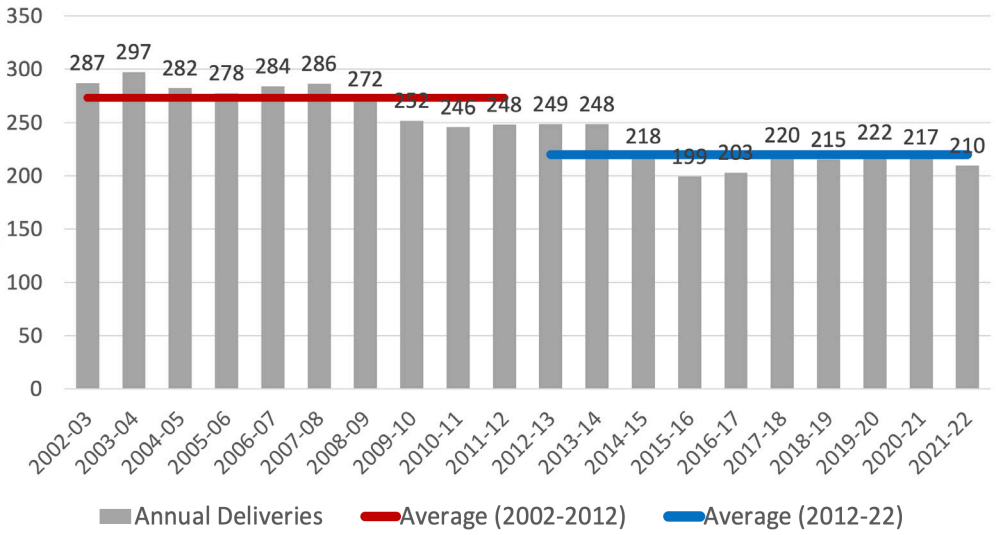
*to the Turlock and Modesto Irrigation Districts*

**Total water use within the San Francisco Regional Water System has declined sharply during the 21st century.**

**From 2002-2012, water deliveries averaged 273 TAF per year. That average dropped to 220 TAF per year from 2012-2022 — a decline of:**

# 19%

**FIGURE 2: San Francisco Regional Water System Total Water Deliveries (2002-2022)**
(THOUSAND ACRE-FEET)




SOURCE: San Francisco Public Utilities Commission Alternative Water Supply Plan, February 2024

## Evaluation Method: The TREWSSIM Model

The TREWSSIM (Tuolumne River Equivalent Water Supply Simulation) model[1] was used to assess system performance without Hetch Hetchy Reservoir and with the addition of a **Cherry Intertie**,[2] which would allow water stored in Cherry Reservoir to be diverted directly to the Bay Area.

**Two scenarios were compared:**

1. ***Current Operations*** — The system as currently operated using Hetch Hetchy Reservoir to meet a demand of 220 TAF, plus a prospective 15 TAF instream flow requirement below Don Pedro.[3]
2. ***Cherry Solution*** — A reconfigured system without Hetch Hetchy Reservoir. Natural Tuolumne River flows would be diverted at the outlet of Hetch Hetchy Valley. When natural flows are insufficient, water stored in Cherry Reservoir would supplement supplies through the Cherry Intertie.

Cherry Reservoir (pictured on the right) sits at 4700' elevation in the Sierra Nevada. It is connected by tunnel to nearby Lake Eleanor and the two are generally operated as a single storage unit. Cherry Reservoir is not presently connected to the pipelines which deliver Tuolumne River supplies to the Bay Area.

***Cherry Reservoir*** (above) lies just outside Yosemite National Park.

[1] The TREWSSIM (Tuolumne River Equivalent Water Supply Simulation) Model is based on detailed information provided by output from the San Francisco Public Utilities Commission's HHSM-LSM model. Originally developed by the Environmental Defense *Fund for Paradise Regained: Solutions for Restoring Yosemite's Hetch Hetchy Valley* (2004), TREWSSIM was modified to examine the *Cherry Solution* scenario. Detailed modeling results are posted online at https://hetchhetchy.org/the-cherry-solution/.

[2] An Intertie connecting San Francisco's Holm Powerplant to its Early Intake was proposed in Hetch Hetchy Water and Power: Systemwide Power Study, Sverdrup & Parcel and Associates, et al., 1981, although its purpose was to increase hydropower production, not to allow for Hetch Hetchy Valley to be restored.

[3] Under present Federal Energy Regulatory Commission (1996) regulations, the Turlock and Modesto Irrigation Districts are required to provide an average of 217 TAF to protect fish in the lower Tuolumne River. This amount is expected to be increased to 245 TAF under the "Voluntary Agreement" negotiated by multiple parties in response to the California State Water Resource Control Board's Bay-Delta Plan. San Francisco is expected to be responsible for meeting 51.7% of this increase — an average 15 TAF per year. Advocates for the downstream fishery continue to make a strong case for additional flow requirements, which would increase demands on the SFRWS.

# *Comparing Scenarios:* Current Operations vs. The Cherry Solution

Under the ***Current Operations*** scenario, an average of 192 TAF is diverted from Hetch Hetchy Reservoir to the Bay Area. These diversions, combined with 28 TAF from local watersheds, provide a total of 220 TAF to customers in San Francisco and other cities.

The majority of water released from Hetch Hetchy Reservoir (537 TAF), as well as all releases from Cherry Reservoir (428 TAF), flow downstream through pipelines or river channels, to Don Pedro Reservoir. These releases generate hydropower, sustain fisheries, provide flows for whitewater recreation and meet water rights obligations to the Turlock and Modesto Irrigation Districts.

Under the ***Cherry Solution*** scenario, the natural flow of the Tuolumne River would be diverted as it leaves Hetch Hetchy Valley using a small water diversion facility at the mouth of the Valley.[4] When the natural flow of the Tuolumne is insufficient to meet demand, typically in late summer and fall, releases from Cherry Reservoir would be diverted through the new Cherry Intertie.

On average, under the ***Cherry Solution*** scenario, 122 TAF per year of Tuolumne River flow would be diverted to the Bay Area after it passes through Hetch Hetchy Valley. Releases from Cherry Reservoir, an average of 70 TAF per year, would make up the difference. Again, these diversions, combined with 28 TAF from local watersheds, provide a total of 220 TAF to customers in San Francisco and other cities.

Under the ***Cherry Solution*** scenario, total diversions to the Bay Area would be the same, and there would be a very small increase in total flows into Don Pedro Reservoir, reflecting the absence of evaporative losses at Hetch Hetchy Reservoir. (See tables 1 and 2).

Table 3 provides an average breakdown comparing, by month, when the natural flow of the Tuolumne River would be available to when releases from Cherry Reservoir would be required. Natural flows would provide the majority of overall supply and the Cherry Intertie would seldom if ever be used during spring snowmelt months March through June. The Cherry Intertie would be the primary mechanism for diverting Tuolumne River water supplies to the Bay Area during late summer and fall months..

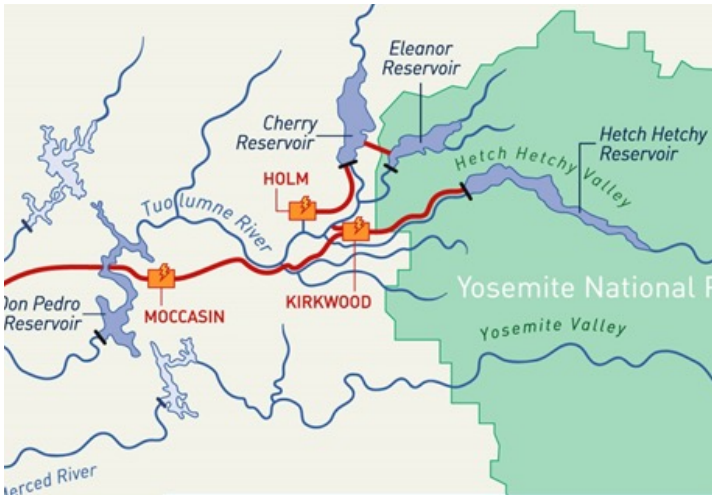



**Table 1: Current Operations Scenario (Annual Average in TAF)**

| | To Bay Area | To Don Pedro |
|---|---|---|
| *From* Hetch Hetchy | 192 | 537 |
| *From* Cherry Reservoir | 0 | 428 |
| **Total** | **192** | **965** |

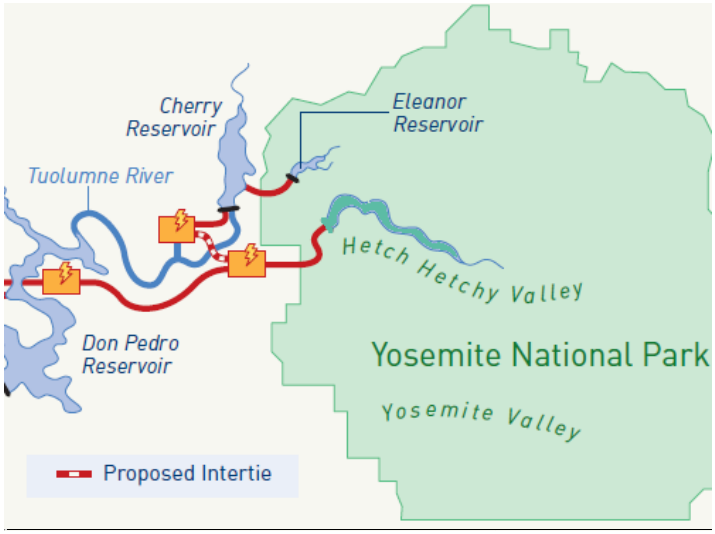



**Table 2: Cherry Solution Scenario (Annual Average in TAF)**

| | To Bay Area | To Don Pedro |
|---|---|---|
| *From* Hetch Hetchy | 122 | 612 |
| *From* Cherry Reservoir | 70 | 358 |
| **Total** | **192** | **970** |

**Table 3: Monthly Average Distribution of Tuolumne River Diversions under Cherry Solution Scenario**

| Month | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | **Annual** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Source:* River Flow via Hetch Hetchy Valley | 3 | 5 | 5 | 4 | 4 | 13 | 21 | 19 | 23 | 16 | 7 | 2 | **122** |
| *Source:* Storage Release from Cherry Reservoir | 14 | 7 | 6 | 4 | 2 | 0 | 0 | 0 | 0 | 4 | 14 | 19 | **70** |

[4] This diversion facility, a new Canyon Tunnel intake, and a Cherry Intertie are both included in Hetch Hetchy Restoration Study, California Natural Resources Agency, 2006.

## Storage and Reliability

Without Hetch Hetchy Reservoir, San Francisco would retain 1,100 TAF of storage capacity — five times annual demand.

During dry years and multi-year droughts, end-of-year storage would decline but remain substantial. Minimum projected end-of-year storage is 459 TAF, more than twice annual demand, even after the severe droughts matching those which ended in 1977 and 1992. The system would remain highly reliable.

If San Francisco chooses to further increase resilience, it could pursue measures other agencies have already implemented, including groundwater recharge, local surface storage, aggressive conservation, and water recycling — investments which, collectively, would replace Hetch Hetchy Reservoir **15 times over**.[5]

***The Tuolumne River below Hetch Hetchy*** is a favorite of adventurous rafters and kayakers. The ***Cherry Solution*** scenario assumes San Francisco would continue to provide managed summertime dam releases for whitewater recreation.

**FIGURE 3: Total San Francisco Regional Water System Storage *under Cherry Solution scenario***

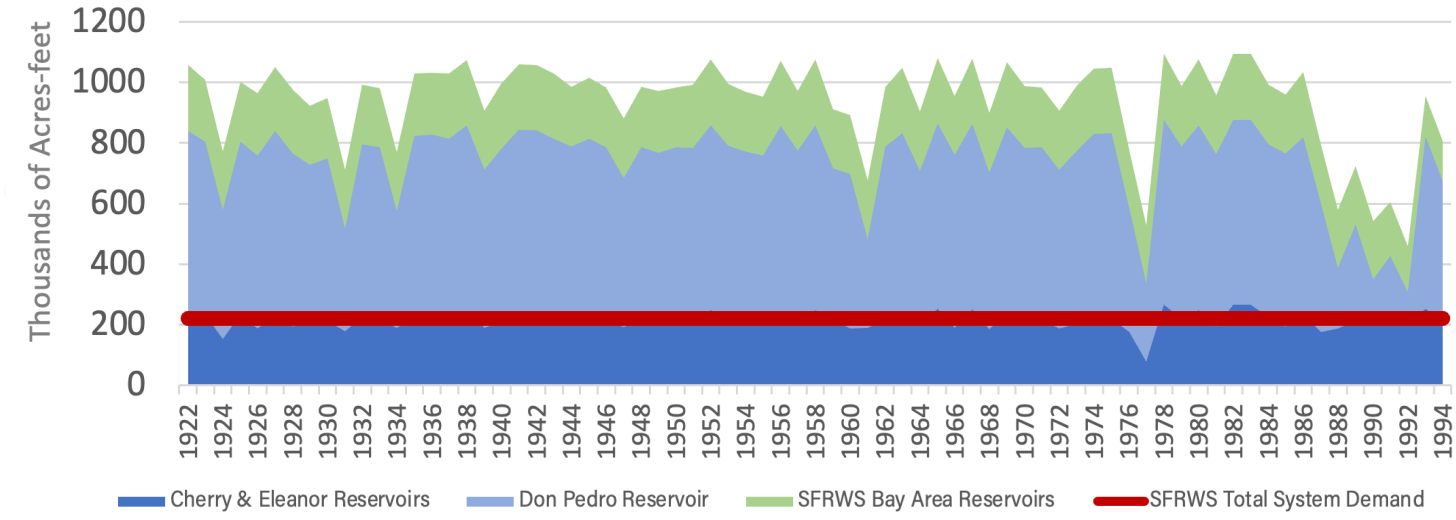
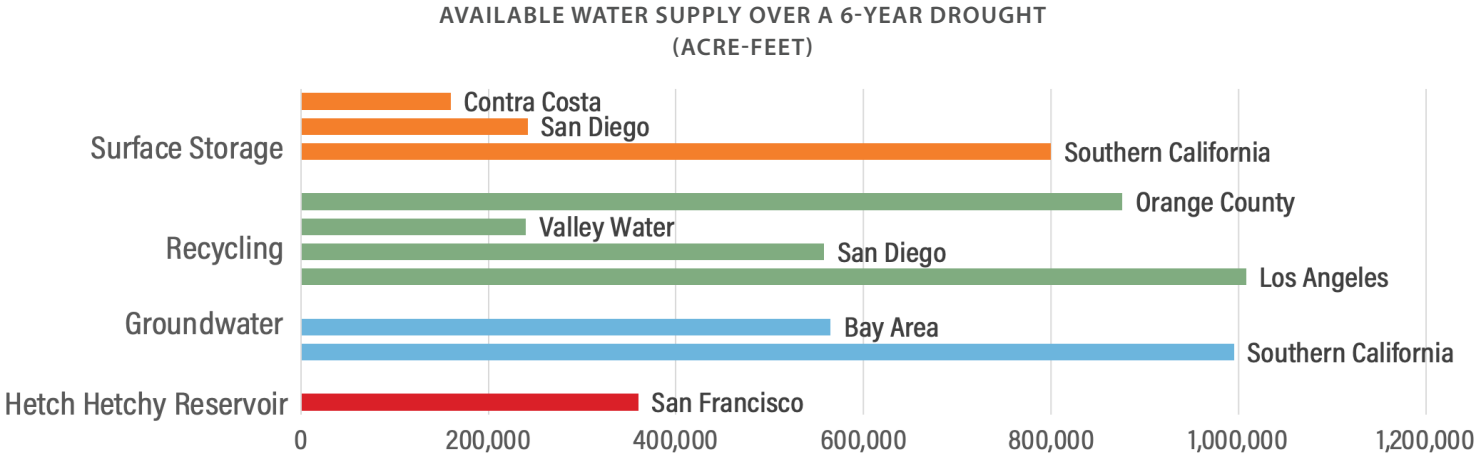



**FIGURE 4: Summary of Recent and Ongoing Water Storage and Supply Projects for Cities in California**




Recent investments by California's cities in groundwater, recycling and local surface storage would ***replace Hetch Hetchy Reservoir more than 15 times over.*** The San Francisco Public Utilities Commission has the opportunity to pursue any or all of these technologies.

[5] See **Yosemite's Opportunity:** *Options For Replacing Hetch Hetchy Reservoir, Restore Hetch Hetchy, 2022*

***When the Statue of Liberty was restored*** for its centennial in the 1980s, contributions totaled $350,000,000 – roughly $1,000,000,000 today. Is there any question that restoration of one of America's flagship national parks would draw substantial philanthropic interest?

***The O'Shaughnessy Dam*** could be entirely removed or merely breeched to allow the river to pass – saving money and time. Visitors at the base of 2,000' Kolana Rock would hardly notice a 300' tall dam a mile away. Further into the valley, the dam would not be seen at all.

## A Time for Action

Water supply — the reason Congress allowed Hetch Hetchy Reservoir a century ago — is no longer a defensible justification for retaining it. No such project would be considered or authorized today. It is time to restore Hetch Hetchy Valley to Yosemite National Park, its wildlife and its visitors.

In addition to improving conveyance to assure uninterrupted and reliable water supplies to all customers of the San Francisco Regional Water System, other issues need to be addressed, including:

### HYDROPOWER REPLACEMENT

Hydropower replacement, estimated at 349 GWh per year – a tiny fraction of statewide power – roughly half the generation lost when Klamath River dams were removed in 2024.

### BREACH/REMOVE O'SHAUGHNESSY DAM

Deciding whether to breach or remove the O'Shaughnessy Dam to allow the Tuolumne River to flow naturally through the valley.

### ESTABLISH FUNDING MECHANISMS

Establishing funding mechanisms for all phases of restoration.

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*Restoring Hetch Hetchy is an unprecedented opportunity — to return a majestic, glacier-carved valley with soaring cliffs and waterfalls to the American people; to reduce crowding by creating a second world-class valley experience in Yosemite; to honor the Indigenous peoples who lived in the region long before the arrival of European-Americans; and to preserve and elevate a cherished natural legacy for generations to come.*



3286 ADELINE STREET, SUITE 8, BERKELEY, CALIFORNIA 94703 | 510.893.3400 | TAX ID 77-0551533
www.hetchhetchy.org | restoration@hhetchhetchy.org