San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Planning for Drought

Having a reliable water supply isn't just about what rain or snow fell recently. It's a multi-year process that strikes a balance — protecting natural habitats while ensuring there is water when you turn on the tap.

The Hetch Hetchy Regional Water System operated by the San Francisco Public Utilities Commission provides water to 2.7 million residents and businesses in the Bay Area. It relies on the Tuolumne River; local watersheds in Alameda, Santa Clara and San Mateo Counties; groundwater; and alternative water supplies. Droughts are part of living in California. Planning for them is critical to ensuring we continue to support the environment while delivering water every day. With almost 3 million people relying on us, failure is not an option.

How Much New Water Will be Available Next Year? No One Knows.

There is no way to reliably predict future snow or rainfall. We must remain prepared for dry conditions at any time. They could even worsen in the years to come. Our Tuolumne River watershed precipitation records go back 100 years, with numerous dry years and droughts. Beyond that, tree ring studies indicate that California is periodically subject to severe droughts. Climate change appears to be making this situation worse.

Average Precipitation	Dry Years	Worst Drought Experienced	Prudent Planning	Most Dire
Many years we have plenty of water	Some years we have little to no new water available to us.	The 1987-1992 drought is the worst drought of the last 100 years for the Hetch Hetchy system. We also continue to experience severe two-year droughts.	Preparedness means planning for droughts to be even worse in the future.	0 **Rain or Snow**

Water Rights and Water for Us

The Tuolumne River is the source of 85% of the Hetch Hetchy Regional Water System's supply. When there is a lot of rain and snow in the Sierra Nevada, there is plenty of water. In dry years, there may not be any runoff water available to us because our water rights are junior to those of the Modesto and Turlock Irrigations Districts, which also draw from the Tuolumne River.

Multi-Year Storage

In dry years, we rely on water stored in prior years. By storing water in wet years when there is lots of snow and rain, our system can deliver water even during multiple dry years. However, just like a savings account, this storage can only last so long if it is not regularly replenished, and there is no guarantee of when that would happen.

As an Independent System, No One Will Bail Us Out

Water systems in California are rarely interconnected. Our system is not part of the large state or federal water projects, and our physical connections to other water systems are limited and not a long-term drought solution. We must be prudent, because no one is coming to our rescue if we run out of water during a drought.

Water Conservation, Demand Management

We continuously focus on managing our customer demands for water now and into the future through water conservation programs and recycling or reusing water. San Francisco's per capita water use is already among the lowest in the state. However, conservation cannot reduce our water demand to zero.

Prudent Planning for Today and the Future

Running out of water is not an option. Prudent planning dictates we examine our supplies and operations under severe stress. A prudent utility must understand and plan for a worst-case scenario.

Protecting the Environment

At all times, we maintain flows downstream of our dams and invest in ecological studies, projects and programs to support native species and the environment.

None of these projects are done alone; we partner with the U.S. Forest Service, National Park Service, San Joaquin Tributaries Authority, and Modesto and Turlock Irrigation Districts, among others.

Seasonal flooding of Poopenaut Valley below O'Shaughnessy Dam is part of the Upper Tuolumne River Ecosystem Program.

Whether wet or dry, we always release water downstream to protect the natural ecosystems of our watersheds. Being deliberate in our drought planning ensures we can continue to support downstream ecosystems even during prolonged droughts. The Turlock and Modesto Irrigation Districts, who own and operate Don Pedro Reservoir, are essential partners in managing the river below Don Pedro Reservoir.

The 'Design Drought' - A Stress Test

Droughts can occur at any time and their length cannot be predicted. As a water supplier for over 2.7 million Bay Area residents, we must plan for the worst-case scenario. To prepare our system and examine how limited precipitation can affect our operations and water storage, we have created a 'design drought' for planning purposes.

The 'design drought' does not predict a given precipitation or drought sequence. It is essentially a stress test of our ability to deliver water under extreme drought circumstances. It is similar to examining your personal finances to determine how much savings you would need to weather a serious illness or losing your job.

A Simulated Drought During the 1987-1992 drought, it was assumed each year that the drought would continue for the next two years. Our 'design drought' stress test is based on learning from those six years.

The 'design drought' utilizes the drought of record: 1987 to 1992

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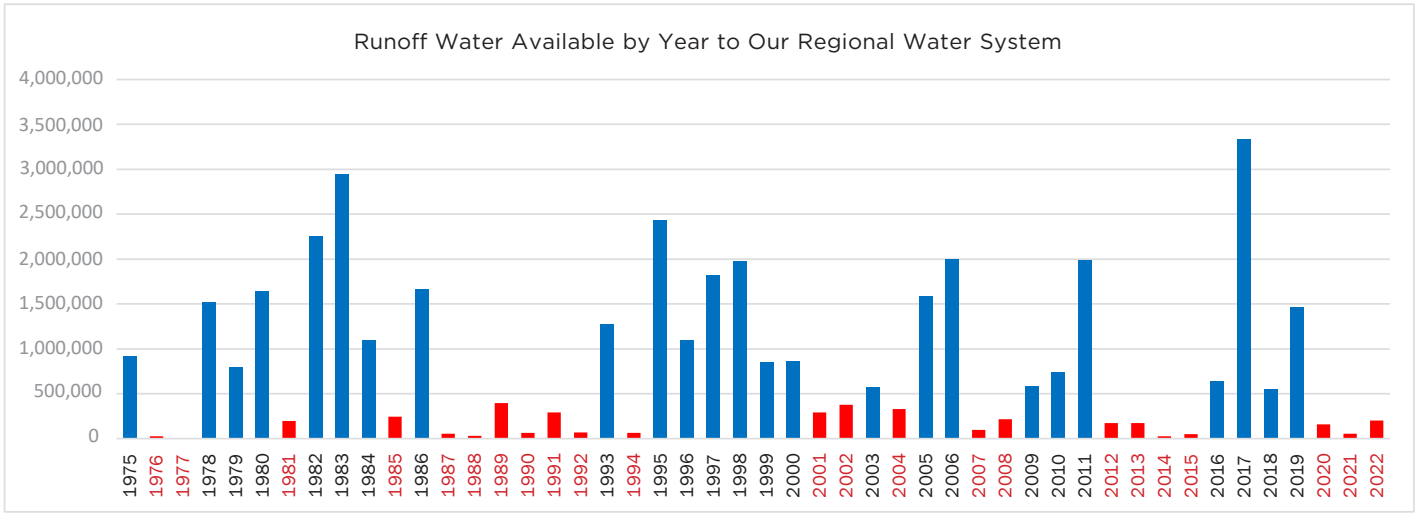
Extended by two years and assumes the most severe historically experienced two-year sequence (1976-77) will recur

Operationally, we must assume that any given year may be a drought, so that in a wet year, the assumption is that the next year is the beginning of a drought. In a dry year the assumption is that the next year is the continuation of a drought.

Our 'design drought' reflects our experience, our nearly exclusive reliance on surface water diversions and carryover storage, and our water rights relationship with the Modesto and Turlock Irrigation Districts under the 1913 Raker Act.

Extreme two-year droughts can happen at virtually any time. Recently they're happening even more frequently. Our design drought takes our worst drought on record, the 1987-1992 drought, and then adds on two years of extremely dry conditions. This allows us to model how our storage and system would behave. We plan for an eight-year severe drought so we are prepared before it happens.

Some Years Our System Has Little to No New Water Available



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