

Water Rights on the Tuolumne River

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While rafting down the Tuolumne River, it's easy to wonder – who gets access to this water? In short, most water from the Tuolumne River is used by two irrigation districts and the [San Francisco Public Utilities Commission \(SFPUC\)](#). These waters are also used by a small number of riparian water rights holders who use water on properties that touch the Tuolumne River.

California's water codes were not officially put in place until the twentieth century, but the state's water rights system is descended from ancient Roman, English, and Spanish legal doctrines, among others. For example, the [public trust doctrine](#) emerged almost 1500 years ago, and it still establishes the right of the public to use certain water resources, which the state is required to protect and hold in trust for the people. In California, this ancient law has been used in recent attempts to protect both [surface water](#) and [groundwater](#) from overuse. Water rights are distinct from many other property rights because they are use rights, which means that private entities cannot wholly own water. Thus, Tuolumne River water rights holders are users, not owners, of the water.

Most of the water rights on the Tuolumne River are appropriative rights. The doctrine of prior appropriation emerged in the western US, and it operates from the principle of “first in time, first in right.” That means those entities with older or “senior” water rights will get water before “junior” water rights holders in times of shortage or drought.

On the Tuolumne River, [Turlock Irrigation District \(TID\)](#) and [Modesto Irrigation District \(MID\)](#) are the senior water rights holders. Beginning in the late nineteenth century, these irrigation districts invested in canals and dams to divert water to farmers in the Central Valley. Together, they financed Don Pedro Dam, which is still the largest locally-funded dam in the U.S.

SFPUC is the junior rights holder on the Tuolumne River because it began diverting water after TID and MID. Thus, in times of drought and low water availability, TID's and MID's water rights are fulfilled before SFPUC gets water (Figure 1). Still, although TID and MID are senior water rights holders, certain environmental requirements set by the [state and federal](#) governments must be met before TID and MID can divert Tuolumne River water.

In addition to TID, MID, and SFPUC, riparian rights holders can use Tuolumne River water. [Riparian rights](#) emphasize sharing water amongst landholders along a stream for reasonable beneficial uses. Unlike appropriative rights, riparian rights holders can have dormant rights, meaning they do not have to use water to maintain their right to that water. While riparian rights holders use small amounts of water in comparison to TID, MID, and SFPUC, these dormant water rights are one source of uncertainty into the water rights system.

California's hybrid appropriative-riparian water rights system largely determines the distribution of Tuolumne River waters. This system is the dominant way of allocating water in California, but of course, other governance systems exist and could yet emerge. Indeed, Indigenous peoples and other species have been in relationship with the Tuolumne River since time immemorial. [Salient criticisms](#) of the water rights regime have increased in recent years, especially as climate change exacerbates longstanding structural inequities in who gets to access and use water.

While rafting on the river, I found myself reflecting on how the water rights system is working, and more specifically, for whom it is working and for whom it is failing. Here, I find it helpful to think about exclusions, both from water distributions and from decision-making. For example, rural communities along the Tuolumne River from the Sierra Nevada to the Central Valley are largely excluded from Tuolumne River water use. In the San Joaquin Valley floodplains, communities near the river must often rely on groundwater, which can frequently be contaminated with [nitrates](#) and other pollutants. In addition to these communities, I wondered about more-than-human life: fish,

birds, bugs, plants, and whole ecosystems have been greatly affected by the appropriative rights regime, under which waters can be moved huge distances outside of their watersheds. More broadly, who do you think should get to use water from the Tuolumne? Who should decide? These are important questions in a changing climate.

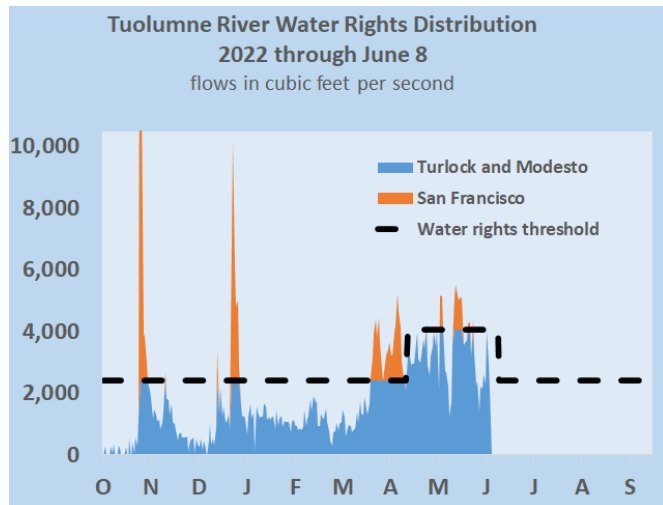


Figure 1. Recent appropriative water rights allocations on the Tuolumne River in water year 2022 (October 2021 - September 2022). The dashed line indicates the water rights threshold, whereby Turlock Irrigation District and Modesto Irrigation District receive all water flows up to 2,416 cubic feet per second (cfs) for most of the year, and up to 4,066 cfs during late spring. The blue- and orange-shaded areas depict actual water flows on the Tuolumne River from October 2021 - June 2022, and indicate that the San Francisco Public Utilities Commission has received Tuolumne River water only during several large flow events. Figure source: [Restore Hetch Hetchy](#).