

Tracking Where Water Goes in a Changing Sacramento–San Joaquin Delta

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Highlights

- ▶ The Sacramento–San Joaquin Delta and its watershed supply water to cities and farms across much of California; they also support commercial and recreational fisheries and provide vital habitat for many endangered native fishes and other aquatic species.
- ▶ During dry periods, most of the outflow from the Delta into San Francisco Bay is required to keep the Delta fresh enough for agricultural and urban uses, while during wet periods, most outflow is runoff that is too great to be captured and used.
- ▶ The climate in the watershed is changing: the past two decades have seen record warmth, making droughts more intense, with higher evaporation and declining snowpack. Water use upstream of the Delta appears to be rising, resulting in less inflow to the Delta.
- ▶ To address declining ecosystem health, regulations have also been changing, leading to higher outflows and lower water exports to other regions. These changes have not stopped the decline in native species.
- ▶ To better cope with more intense droughts, management of the Delta and its watershed would benefit from a suite of improvements in water use tracking and oversight, updates in water flow and quality regulations, and cost-effective investments to store more water in wet years.

The Delta is important to all Californians

The Sacramento–San Joaquin Delta lies at the confluence of two of the state’s largest rivers and at the head of the San Francisco Estuary. Forty percent of California’s runoff comes from the Delta watershed. It supplies water to roughly 30 million residents and more than 6 million acres of farmland upstream of and within the Delta, as well as in other watersheds including the Bay Area, the southern San Joaquin Valley, the Central Coast, and Southern California. The ecological health of the Delta and the reliability of its water supplies are in decline. Given the challenges facing the watershed and the competing uses for scarce supplies, Delta water management issues are a source of conflict and many misunderstandings about water use. Weak water accounting systems make this worse.

Runoff in the Delta watershed has many destinations

Surface water available in the Delta watershed in any given year can be broken down into three broad categories:

- ▶ **Water sources.** Rain and snow in the headwaters, along with rainfall in the valley and the Delta, generate runoff. The volume of runoff varies dramatically between wet and dry years, with frequent droughts and occasional floods (see first figure). Upstream reservoirs change the runoff available in any given year by storing water in wet years and releasing it in dry years—such as 2021 (see second figure).