

The West Coast's Largest Estuary Is Being Starved of Water

A report warns the decades-long diversion of rivers that feed San Francisco Bay has put the vital ecosystem on the verge of collapse.

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California's vibrant and biodiverse San Francisco Bay, the biggest estuary on the West Coast of North America, is running out of freshwater.

In some years, as much as two-thirds of the freshwater that would normally reach the bay—an estuary where freshwater and ocean water mix—is diverted for [urban](#) and [agricultural](#) use, effectively starving the ecosystem, according to a [new report](#) from the Bay Institute, an environmental organization dedicated to protecting and restoring the local watershed.

“When you alter the hydrology of a major aquatic ecosystem so radically, there are going to be huge effects,” said Gary Bobker, the rivers and delta program manager for the Bay Institute. The report, he said, was the result of a two-year effort to understand those effects. “We wanted to get a better picture of how water flow is affecting the whole system.”

The findings were striking. Freshwater input into the bay has been dramatically cut—on average more than 50 percent a year and as much as 65 percent in some years. As salinity has increased, native fish species have moved upstream to riskier habitats. Invasive species such as the overbite clam and the inland silverside fish, which can withstand the saltier waters, have moved in. Sediment flows have been cut in half, causing sandy beaches to shrink and increasing coastal erosion. Pollutants have built up, allowing toxic algae blooms to grow. Birds and whales that depend on food from the bay have suffered.

Bobker explained that the normal function of the bay requires the inflow of both fresh and saline waters. “In order to have healthy wetlands,” he said, “you should have wetlands that represent a range of salinity.” Some waters should be fresher, while others should be brackish, to preserve the natural plant and animal communities that evolved there.

This not only protects biodiversity but also helps to safeguard the coastal regions where people live. Wetlands, Bobker said, are starting to be recognized as “weapons against climate change.” Maintaining a healthy and varied ecosystem, he said, will help protect San

Francisco and the surrounding communities from the effects of sea level rise. He called healthy habitat for fish and wildlife “a kind of green infrastructure against the effects of flooding.”

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Other organizations praised the Bay Institute's study. “This report gives a very important scientific foundation documenting the fact that agribusiness and federal and state regulators have imposed permanent drought conditions on the bay-delta, starving the ecosystem of freshwater, with disastrous consequences for fish and wildlife,” said Jeff Miller, conservation advocate for the Center for Biological Diversity. “It comes at a critical time, while federal and state regulators are trying to divert even more water from the delta through peripheral tunnels.” He was referring to a plan to build [\\$16 billion twin tunnels](#) to carry water from Northern California to agricultural and urban districts in the southern half of the state. The tunnel is one of the many elements of what is referred to as [California's “water wars,”](#) a decades-long fight between farms, urban areas, environmental groups, and other interests over the state's water supplies.

Bobker said he hopes the report can start to influence the discussion about water flow and how it affects the bay. “There's a real need for awareness in the Bay Area of this problem,” he said, noting that the tide of public perception is starting to shift. He pointed to a ballot measure passed in June by a two-thirds vote in the nine-county Bay Area that established a \$12 per parcel property tax to [underwrite wetland restoration](#).

He added that things can go further, as many people mistakenly view the water wars as something only related to the agricultural part of the state. “We all use water, and we all have a responsibility to use it wisely,” he said. “It's not just irrigators in the Central Valley or developers in Los Angeles. The Bay Area diverts water from the mountains. We all need to be thinking about ways that we use less water and support these kinds of management changes that will help the estuary. It's something that affects everyone.”