

Here's what brought king salmon back to Bay Area rivers

October's atmospheric river triggered a rush of breeding Chinook salmon



Chinook salmon. (Photo by Mike Weir)

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Autumnal rain has sent a surge of Chinook salmon swimming up Bay Area creeks, a sharp reversal in fortune for an iconic species that has struggled after years of drought.

A living link between our mountains and coast, the fish responded to late October's fierce atmospheric river by rushing up the region's once-parched rivers, say biologists, frequenting spots where they've never been seen.

"It's remarkable," said Joe Sullivan, fishery manager with the East Bay Regional Park District. The storm "triggered them to go to the first slug of fresh water they could find," as they returned from their epic ocean migration to spawn.

In recent years, populations of Chinook, also known as king salmon, have collapsed with astonishing speed — and even this current run is unlikely to end well if more rain doesn't come.



The recent storm triggered the migration of Chinook salmon into lower Alameda Creek in Fremont, Calif. They are blocked from moving upstream by a cement weir, but construction of a fish migration ladder is nearing completion. (Photo courtesy of Dan Sarka, Alameda Creek Alliance)

A newly restored stretch of San Geronimo Creek received a historic rainfall of 10 inches in a 24-hour period — and within three days, chinook salmon were swimming through the riffles and milling about in pools, according to Turtle Island Restoration Network. In Sonoma County, fish swam from San Pablo Bay up to Sonoma Creek.

The fall-run Chinook is the largest species of Pacific wild salmon.

They're powerful and red-hued, with black spots on their back. Weighing up to 30 pounds, the fish are born in fresh water and then adapt to saltwater during a mass migration out into the Pacific Ocean, where they live for three years. Then they swim to freshwater rivers to spawn and die.



With winter rain, Chinook Salmon moved up to spawn in Los Gatos Creek, then die. (Photo courtesy of Mike Tamaro, South Bay Clean Creeks Coalition)

“Big and beautiful,” said Sullivan. “That’s the best way I can say it.”

The Chinook seen in Santa Clara and Alameda counties were likely born in Central Valley hatcheries, or are descendants of hatchery-born fish, then were introduced into the bay, said Jeff Miller of the Alameda Creek Alliance. In contrast, the fish in coastal Marin, San Mateo and Santa Cruz rivers were born in wild waters.

Every October and November, when streams cool down, they move up from the ocean into the estuaries and the bay, waiting for storms, according to Jerry Smith, fish expert and retired professor of biological sciences at San Jose State University.

Historically, Chinook were abundant. But manmade migrational barriers, such as dams, have reduced their numbers. There’s been pollution and poaching. The recent droughts were exceptionally punishing, turning rivers warm and dry.

Compared to other salmon, Chinook have an advantage, said Miller. The baby fish can swim safely to the ocean in the spring – so don’t perish in summer’s desiccated rivers.

But recent winter’s flows have been too low, or too late, to welcome the adults back for breeding. In the South Bay, which hosts the nation’s most southern salmon runs, last year’s draining of Anderson Dam for a seismic retrofit project meant that fresh water was released into Coyote Creek, attracting fish that normally run up Guadalupe River, according to Steve Holmes, founder and executive director of the South Bay Clean Creeks Coalition.

In the 1990s, at least 2,000 fish were counted coming up into San Jose’s Guadalupe River watershed, said Holmes. In recent years, on average, only 150 to 200 fish were seen.

In Fremont’s lower Alameda Creek, the last notable year was 2006, when a handful was spotted. Only one was seen in 2012, then another in 2018. Two were seen in 2019, said Miller.

But this year’s major storm on Oct. 24 changed everything.

For humans, that atmospheric river was perilous. A concentrated plume of moisture pummeled the Bay Area with rain and high winds, felling trees and stalling cars.

For the fish, however, it was a godsend — perfectly timed for their courtship rituals.

“All the fish were waiting for water and lower temperatures,” said Holmes. “So when that atmospheric storm hit and flows increased, they started moving up.”



The recent storm triggered the migration of Chinook salmon into lower Alameda Creek in Fremont. They are blocked from moving upstream by a cement weir, but construction of a fish migration ladder is nearing completion. (Photo courtesy of Dan Sarka, Alameda Creek Alliance)

It was brief, he added. In a two- or three-day window, some made it far. But most others, lagging behind them, are still waiting.

Hopes are now pinned on the right parade of storms. Each one could trigger a big pulse of water, said biologists, offering additional fish a safe route up to spawning grounds.

“If the flows are right, and the fish are in the right place on the river, they’ll just sort of hopscotch up,” Holmes said.

But if the storms don’t arrive, those pools will shrink — and today’s abundant Chinook will be trapped in tomorrow’s stagnant water.

“We’ve had one good storm, but the majority of the fish are still in the bay, waiting,” said Holmes. “We really need more.”

Help Count The Fish

South Bay: The South Bay Clean Creeks Coalition is starting to monitor fish populations. An introductory organizational meeting will be on Tuesday, Nov. 30 at 6:00 p.m. at the Campbell Community Center at 1 W. Campbell Ave. There also is a [Facebook Live](https://www.facebook.com/FriendsLGCreek/photos/a.564801383558771/4795046380534229/) option: <https://www.facebook.com/FriendsLGCreek/photos/a.564801383558771/4795046380534229/>

Alameda County: If you see fish in the lower Alameda Creek Flood Control Channel that you believe to be salmon or steelhead, from November through April, please contact Jeff Miller, Alameda Creek Alliance, jeff@alamedacreek.org.

An earlier version of this article incorrectly reported that no water was released for fish when Anderson Dam was drained for retrofit work. Fresh water was released to Coyote Creek, attracting fish which would normally run up the Guadalupe River.