ALAMEDA COUNTY WATER DISTRICT

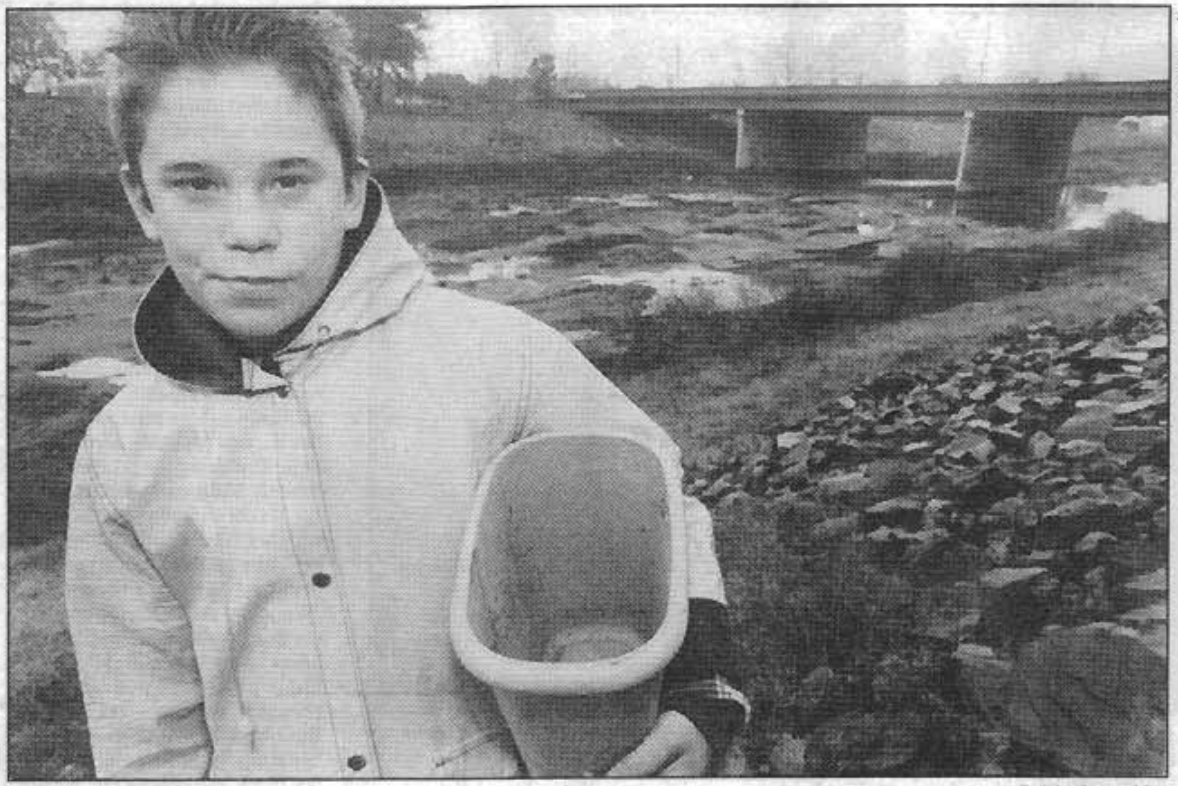
CITYSIDE

What if the Steelhead Were to Return to Alameda Creek?

What might have led a single spawning fish to return to a creek that has been channeled, diverted, and dammed for more than eighty years? When that fish is an endangered steelhead trout, a lot of people want to know.

BY GINA COVINA

On a rainy day two weeks before Christmas, eleven-year-old Robin Benavidez looked out the second-floor window of his Fremont home at the broad expanse of the flood control channel behind his backyard. The dams upstream had closed off the water flow a few hours earlier, leaving a silty mudflat punctuated by occasional puddles. "I saw this thing wiggling, trying to get to the water," he relates, "but there was no water, only these nine-inch puddles." Benavidez ran outside to find a two-foot-long silver fish thrashing in water too shallow to cover its back. Realizing the fish was too big for him to handle alone, the boy got a neighbor, and together they moved the fish into a trash can they filled with creek water. Two hours later it died.



By Lionel Fluker

Robin Benavidez

The fish was a steelhead trout, listed by the National Marine Fisheries Service in August as a threatened species on the central California coast. The flood control channel that runs behind Benavidez's house is Alameda Creek, a waterway once used by thousands of spawning steelhead but now impossible for them to navigate successfully. Can one fish set events in motion that will change the history of Alameda Creek? That the possibility of habitat restoration is even being discussed shows how much influence the fish already has had, and how much many people want steelhead to return to Alameda Creek.

The life of a steelhead, which shares with salmon the mysteries and perils of living in both fresh and salt water, takes place on an epic scale. They begin their lives in small freshwater streams; after two or three years the four- to eight-inch fish get the urge to travel down to the ocean. On contact with seawater they undergo major internal changes to cope with the salt, and their scales turn a metallic silver, with bluish highlights on the back and a rose blush along the sides. Steelhead live at sea, eating anchovies and smelt, for one to three years, and then they return to the same stream in which they spawned to take their turn at reproduction.

Two senses guide them back to their home stream: magnetic receptors in their brains that act as compasses, and their highly developed sense of smell. Every little creek has its particular smell, and young steelhead "imprint" on their first water source so that they can identify it when they return from years at sea. Some salmon return in large groups, but steelhead make the return trip alone.

Once they reenter fresh water the steelhead press upstream with a single intent, not even stopping to eat on a journey that can take from a few days to up to two weeks. They jump up waterfalls or other vertical obstacles like concrete fish ladders, helped by the higher flows of winter. At their spawning grounds, they use their tail fins and bodies to scoop out gravel trenches in the shallow streams where they will lay their eggs. The fish are most vulnerable at this time, easy to catch in the small creeks; they also can tear their bodies while scooping out nests. Pacific salmon all die immediately after egg-laying, but steelhead turn and swim back to the ocean. Estimates are that ten to twenty percent of steelhead survive to make a second spawning run up their home stream.

The greater mystery of steelhead is that they are genetically identical to rainbow trout. The young freshwater steelhead look exactly like rainbow trout, only taking on their silver sheen and larger size at sea. Rainbow trout and steelhead often share the same streams, with resident rainbows spending their whole lives in a small stretch of water, while the steelhead come and go on their epic journeys. There are resident rainbow trout on upper Alameda Creek now, and local fish biologist Pete Alexander says that it is "highly probable"—this is as close to "definitely" as biologists get—that these rainbows are "remnants of a population that did migrate." Alexander speculates that these landlocked steelhead, identical to other rainbow trout except for their dreams of the open sea, do in fact try to migrate down Alameda Creek, that a few make it to the bay, and that the beached Fremont steelhead may very well have been returning to its home stream.

But State Department of Fish and Game officials immediately claimed that the stranded steelhead was most likely a confused hatchery fish up the wrong creek by mistake. Given the extent of urban interference on the lower creek and the sheer numbers of public agencies altering the waterway, it is not surprising that some people hope the steelhead's presence in Fremont was an aberration. Still, if the fish could say where it came from and what its intentions were on December 11, a valuable bit of information would be added to the debate over whether a viable steelhead run could be reestablished up Alameda Creek.

Enter Jennifer Nielson, eminent fish geneticist, whose work on Southern California steelhead was crucial in the decision last August to list steelhead as threatened. (In Southern California steelhead were given the more stringent "endangered" status; their range, once extending to San Diego, now only goes as far south as Malibu Creek.) Since then, Nielson has migrated north to study San Francisco Bay steelhead under a National Marine Fisheries grant. "I look at the genetic architecture for different molecular markers," she explains. She has a fin clip—a one-inch bit of dorsal fin—from the beached steelhead, "but with just one fish it's difficult to make definitive statements." By June she will have gathered genetic data from steelhead all around the bay, including hatchery fish and native rainbow trout populations, and then can compare the Alameda Creek steelhead to come up with "probabilities" about its origin.

Alameda Creek is the largest tributary to San Francisco Bay, draining a watershed that covers 700 square miles. In the early years of the century the creek supported abundant runs of steelhead, as well as chinook and coho salmon. (Chinook, also called king salmon, are also trying to return to Alameda Creek; if the waterway is restored for steelhead, it will also become accessible for these larger nonthreatened and most delicious fish.) The salmon and steelhead spawned from Niles Canyon up to Little Yosemite in what is now Sunol Regional Wilderness, in the Arroyo de la Laguna tributary that now parallels Hwy. 680 through Pleasanton, and far up Arroyo Valle and Arroyo Mocho past Livermore. In dry years the fish were stuck in the upper reaches of the creeks or in the ocean, and in wet years they traveled—an adaptation biologists suggest lends credibility to the possible restoration of steelhead migration here, since historically the fish are accustomed to having their route blocked, sometimes for several years in a row. Jennifer Nielson's southern California study adds further evidence of this theory by showing that significant numbers of genes were retained unchanged by steelhead that had been landlocked for generations.

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Alameda Creek

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Alameda Creek has been so altered over the last eighty years that steelhead attempts to continue to call it home can only be seen as heroic. In addition to the wear and tear of over-grazing followed by urban development, much of the creek's water has been siphoned off. First came Calaveras Reservoir in 1916 (workers on the dam's construction caught steelhead on their lunch breaks). Next came San Antonio Reservoir, like Calaveras a part of the San Francisco Water Department, and Del Valle Reservoir, which is owned by the state. By the late 1950s the run was small but local fisherpeople were still catching steelhead. The Department of Fish and Game then decided, in the logic characteristic of that era but incomprehensible to us today, that since the creek had lost so much of its water volume and supported only a small remnant of its former fish population, it was no longer viable as a steelhead run and should therefore be given over to urban development with no further thought of the steelhead's welfare.

The Army Corps of Engineers was brought in, and the eleven miles of Alameda Creek from the bay up to Mission Blvd. were obliterated by the wide flat geometry of the Alameda County Flood Control Channel. This change meant that at low flows, instead of a narrow channel still usable by fish, cooled and protected by overhanging shrubs, there are only inches of water on open ground—too shallow, too warm, and making fish too visible to predators.

Then the Alameda County Water District built their groundwater recharge system, with three inflatable dams across the flood control channel in Fremont. When the dams are inflated, water is shunted off into nearby quarry ponds, where it percolates down and raises the water table. Not only are the inflated dams an insurmountable fish barrier, but they impound the entire flow, drying up downstream sections in a matter of a few hours. This lack of water is what stopped the steelhead on December 11. The water district is not a villain here; as water supply engineer Jim Reynolds says, "We've done everything we've ever been asked to do. When the dams were designed, Fish and Game had written off the creek."

The last obstacle to the steelheads' path is the concrete structure that supports the BART and railroad tracks spanning the flood control channel in downtown Fremont. Everyone involved sees this most formidable-looking barrier as the least of the problems facing the steelhead, and agrees that the smooth slope can be modified fairly easily with some ridges to catch the fish so they can jump against it and not slide all the way back down. This barrier and the inflatable dams seem to be recognized as merely technical challenges with several possible solutions. The necessity of a low-flow channel within the flood control plain, a deep and narrow simulation of the old creekbed, presents a trickier challenge but is still seen as possible, if expensive. The other long-term necessity for a steelhead run is more water during the winter and spring months when the mature fish come up from the bay and the youngsters go out, and, as Margaret Roper, Fish and Game fisheries director, put it, "It's very difficult to get water for fish."

The National Marine Fisheries Service, having listed the steelhead as threatened in August, now has the responsibility of coming up with rules to be followed to aid its recovery. The agency is notorious for dragging its heels through this process, and the earliest unconfirmed date for rules to be announced is the end of February. Then it will be up to the Department of Fish and Game to oversee implementation of the rules. Roper expresses Fish and Game's skepticism over Alameda Creek when she asks, "Is it wise to put this much effort into a creek that has this many problems?"

If Roper posed her question to the Alameda Creek Alliance, the answer would be an unequivocal yes. Jeff Miller, the group's founder, asserts that "Alameda Creek has the potential to support the largest steelhead population in San Francisco Bay" and it's clear he's not the only one who thinks so. The Alliance's January 6 meeting—only the organization's third—attracted close to forty people, most of them fishermen eager to trade stories about steelhead they'd seen caught on the creek when they were kids and rescues they'd made of king salmon trying to navigate the flood control channel in recent winters. Anecdotal evidence strongly indicated a continuing attempt on the part of both steelhead and king salmon to use the creek, with the El Niño winter of 1982-83 offering up so many fish it was hard work to move them all up past the dams: "They wouldn't have made it if we didn't move them with burlap sacks," one fisherman remarked. "I don't know if it was illegal—I don't care, to tell you the truth—we just did it 'cause we seen 'em there."

The two Alameda County Water District representatives present were quickly engaged in rather technical dialogue concerning modifications that might be made to their inflatable dams. "We want to involve you in a proactive solution," Miller told them. That goal has placed the Alliance at the hub of a wheel of communication among all the agencies involved in Alameda Creek. None of the agencies have taken adversarial positions; Rick Baker of the Alameda County Flood Control District, for instance, asserts, "We're one of the players in this whole planning thing—we want to be able to ensure that whatever project comes out of this, we'll still be able to provide flood protection." If Southern California's experience is any indicator, we may see actual cooperation for a common goal. Steelhead restoration is further along in the south; Jennifer Nielson reports that "when the water agencies were forced by the [endangered species] listings, they began to think proactively. The listing has reduced the amount of conflict—an awful lot of people are putting their heads together to try to make this work."

By the end of the meeting, petitions had been signed, committees had been formed, twenty people had volunteered to help with a habitat assessment study of the upper creek this spring, and Fremont residents had made plans to patrol the dangerous areas of the flood control channel for stranded fish. "Bring burlap sacks," they called to each other on the way out. "And remember to get the sacks wet first," someone added. A fisherman caught my elbow for a last word: "I love fish," he growled passionately, "and I'd do anything for them." ■