Salmon resurgence in Butte County

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The salmon looked like shadows gliding silently beneath the surface of a pool between the foaming rapids of rugged Butte Creek.

Suddenly, with a splash, a big glittering fish leaped out of the water, then another and another. The spring-run chinook were jumping this past week in the remote, forested gorge outside Chico.

"This is the last best run of wild salmon in California," said Allen Harthorn, 56, the executive director of Friends of Butte Creek, who has been fighting for more than a decade to save the historic - and once sacred - spring run of chinook in this untamed tributary of the Sacramento River.

The fast-flowing creek now holds the largest population of wild spring-run chinook, or king salmon, in the Sacramento River system.

"It's the only place that gives me hope," Harthorn said from an observation deck he built on a cliff-side five years ago.

It was clear from Harthorn's deck as the morning sun peaked over the volcanic cliffs surrounding Butte Creek Canyon that, despite the almost complete collapse of the salmon fishery in California, there are still healthy salmon where there is healthy habitat.

The number of spawning fish returning from the ocean to Butte Creek increased 10 percent from 2006 to 2007, Harthorn said. By the look of things, he said, even more fish are returning this year.

But the most dramatic resurgence occurred over the past 10 years, when an average of almost 10,000 salmon a year swam back up the creek, according to Harthorn, who co-founded Friends of Butte Creek in 1999 after years battling farming interests and Pacific Gas and Electric over its DeSabla-Centerville plant.
It is a minor miracle that there are any salmon at all wriggling their way up Butte Creek, given that only 14 fish returned to spawn in 1987.

The dismal return outraged environmentalists and prompted a desperate effort to save the fish. About $30 million was spent by the state on a variety of projects over the years, including the removal of six small dams, the building of fish ladders and the insertion of numerous screens to keep salmon out of water diversion pipes.

**Healthy runs**

The effort finally paid off in 1998, when 20,000 spring-run salmon were counted in Butte Creek. The runs in 2006 and 2007 were slightly below the average, but still healthy compared with the rest of the Sacramento system.

"The restoration there I think has clearly had a measurable response," said Rob Titus, a senior Department of Fish and Game environmental scientist. "Butte Creek is a good example in the respect that the removal of diversion dams, migration barriers, hydroelectric dams can make a difference. It's a thing you'd really like to see on the really big systems."

The sight of leaping, wriggling salmon - once as reliable as the seasons in almost every river and tributary in California - is increasingly rare. The shocking collapse of the fall run of salmon in the Sacramento River prompted federal officials to shut down all ocean fishing this year in a desperate attempt to save California's last viable population of the iconic pink fish.

It is a problem up and down the Pacific Coast, where salmon populations are steadily declining. Every one of the Sacramento's seasonal runs has plummeted - and the winter and spring runs are listed by the federal Endangered Species Act.

The collapse is particularly troubling because fishermen all along the West Coast depend on Sacramento River fish, most of which come from hatcheries. Some believe the species itself is in danger of becoming extinct in California.

**Success story**

Curiously, the current crisis has had little to no effect on Butte Creek.

"The spring run in Butte Creek is doing exceptionally well," said Harry Morse, a spokesman for the California Department of Fish and Game. "For the fish, it's a success story, no two ways about it."

The wild salmon in Butte Creek go back thousands of years to a time when the spring run was so large that Native Americans patterned their lives around it. Back then tribal leaders or a shaman would watch the fish and decide the best time to start fishing. A big ceremony would be held after the first catch.
Butte Creek was just one of many tributaries in the Central Valley river system, which included the Sacramento and San Joaquin rivers. The spring run was the largest of four genetically distinct populations that returned to their native streams in the spring, fall, late fall and winter.

The spring fish were bigger, Harthorn said, because they would store up fat for epic upriver journeys, traveling against the current in March, April and May, and not stopping until they reached a natural barrier, sometimes 7,000 feet up in the high Sierra and Cascade ranges.

The spring-run fish would stay in water chilled by melting snow throughout the summer and spawn in late September and October.

There were once so many spring-run fish that pioneers and old timers remembered seeing thousands of them wriggling on top of one another in the waterways. There was such an abundance that some farmers remembered plucking them out and using them as fertilizer.

**Dams and diversion**

The construction of Shasta Dam on the Sacramento, Friant Dam on the San Joaquin, Folsom Dam on the American and Oroville Dam on the Feather River over the past century cut off huge sections of river, wiping out much of the spring run.

Numerous smaller dams were built on the various creeks that fed the rivers. Diversions of freshwater to cities and farms, pumping operations and exposure to pollutants all contributed to the reduction of the once-mighty salmon runs.

Fisheries experts and environmentalists throughout the Sacramento River system would like to duplicate the restoration work done on Butte Creek, but finding the money and navigating through the bureaucracy is always a problem, especially with so many competing interests, like PG&E and the various water contractors.

There has been limited success removing migration obstacles on smaller tributaries, but there is very little hope that any of the big dams will ever be removed and bypassing them would cost a fortune, according to state fisheries experts.

**Spawning naturally**

The problems elsewhere make the successes on Butte Creek all the more remarkable. Harthorn said there are still water temperature issues caused by the hydro-electric dam upstream at DeSabla, but overall conditions have dramatically improved. It helps, he said, that all of Butte's fish spawn naturally instead of in hatcheries.

"There really are almost no wild fall-run fish left in the Sacramento River system," Harthorn said, referring to a recent genetic study by the Institute of Marine Sciences at
UC Santa Cruz, showing that 90 percent of the fall run fish caught in the ocean were born in hatcheries.

"The fish in Butte Creek are spawned naturally," he said. "They seem to have the wherewithal when it comes to surviving in the ocean. When conditions are adverse, wild fish do better."

Tracy McReynolds, a Fish and Game biologist for the Chico region, said it is impossible to draw any conclusions about hatchery or wild fish because both are dying.

"We don't know exactly why the Butte fish seem to be holding stable, but there are other populations of wild spring-run salmon whose numbers are low," McReynolds said. "We do have an idea that the ocean food source is affecting fish runs."

Whatever the reason for the decline elsewhere, Harthorn believes Butte Creek could be used as an incubator for the rest of the Sacramento system and a model for fisheries restoration. The cost, he said, would more than be offset by the money coming in from a healthy fishery.

"We need to do everything we can to restore these rivers and give these fish every opportunity to survive and help repopulate the rest of the system," he said. "Focusing our restoration efforts on naturally spawning spring-run fish is a good idea because they are adapted to the conditions."
Chinook salmon swim in Butte Creek, where restoration efforts have established a healthy habitat for them. Chronicle photo by Kurt Rogers
Allen Harthorn looks at the salmon swimming in Butte Creek. He has been fighting for years to restore the habitat for the fish. Chronicle photo by Kurt Rogers