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Pescadero community restores historic floodplain



(images/4-ButanoCreek.jpg)

The tiny farming community of Pescadero, is rich in natural habitat, where nearby Pescadero Creek, the longest stream in San Mateo County, empties out into the ocean at Pescadero State Beach. Community volunteers and conservation agencies came together recently to repair the tributary Butano Creek, restoring part of the Pescadero Marsh floodplain, helping native fish and reducing flooding. Credit: Steve Martarano/USFWS

By Steve Martarano

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The tiny farming community of Pescadero, California, population 643, is one of those places where time seems to stand still.

Watersheds, however, do not.

That's why a number of agencies and community volunteers came together recently to repair Butano Creek, ultimately restoring part of its floodplain while helping native fish and reducing flooding.



(images/5-HM-Bay.jpg)

Half Moon Bay, California, one of the most beautiful ocean-front landscapes in the world, is located about 17 miles north of Pescadero. Credit: Steve Martarano/USFWS

Nestled about two miles inland east of Highway 1 and the Pacific Ocean, the small town of Pescadero is a hop, skip and gnarly wave from some of the most beautiful ocean-front landscapes in the world, such as Half Moon Bay (home of the internationally known Mavericks surfing contest) and Santa Cruz.

The Pescadero area is rich in natural habitat – nearby is the Pescadero Marsh Natural Preserve, while Pescadero Creek, the longest stream in San Mateo County, empties out into the ocean at Pescadero State Beach. The town features numerous buildings dating back to the 1800s.

Overlooking that picturesque setting is Butano Creek, which joins Pescadero Creek, as they flow into Pescadero Marsh. Over the past century, Butano Creek became disconnected from its historic floodplain after people altered it for various reasons – moving the creek out of the way of agriculture fields, or clearing out wood to prevent floating logs from damaging bridges, for example.



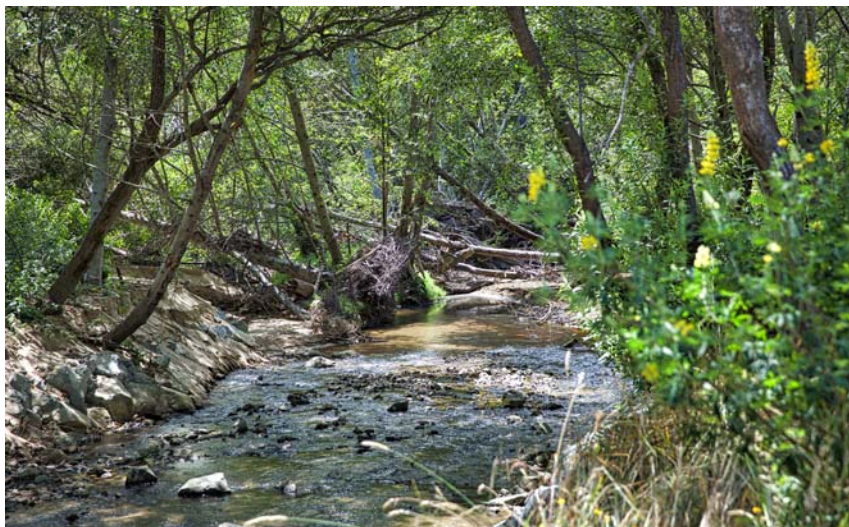
(images/7-PacificaSurfer.jpg)

Conserving habitat in one of the state's most visited coastal areas is important, says Irina Kogan, of the San Mateo Resource Conservation District. "The Pescadero community is really connected to the land, and this watershed is incredibly important to this region," she said. Above, a surfer rides a wave at Rockaway Beach in nearby Pacifica. Credit: Steve Martarano/USFWS

The result to the creek has been what lead agency San Mateo Resource Conservation District (<https://openspacetrust.org/blog/butano-creek/>) has called a "fire hose." Over time, as development projects straightened and steepened the creek channel, there were no longer meanders or log jams to slow it down. Almost all of the creek's floodplain capabilities were lost. In some areas, exposed banks became more than 30 feet high.

"The Pescadero community is really connected to the land, and this watershed is incredibly important to this region," said **Irina Kogan** of the RCD. "Now, habitat that had been lost is being rebuilt, helping people and wildlife in the process."

The RCD partnered with the landowner – Peninsula Open Space Trust – and almost a dozen other agencies, including the U.S. Fish and Wildlife Service, as well as local volunteers to repair Butano Creek last fall.



(images/2-ButanoCreek.jpg)

Fifteen-mile long Butano Creek carries runoff from the Santa Cruz Mountains and, when healthy, deposits rich sediment along its banks and into its floodplain. Credit: Steve Martarano/USFWS

"That whole stretch of coast from Tunitas Creek to Santa Cruz is an underappreciated, highly biodiverse natural resource," said Butano Creek volunteer **Kelly Runyon**, a San Francisco resident who has been volunteering on environmental projects since the 1970s.

That's why the Butano Creek Floodplain Restoration Project has been such a vital endeavor. Encompassing the mile-long stretch of creek in the Butano Farms area, the \$1.25 million, five-week project restored 10 percent of the creek's historical floodplain.

Over 150,000 tons of eroded sediment, which can be a contributing factor leading to fish kill conditions, will now be kept from filling in parts of the Pescadero Marsh habitat.

John Klochak, Coastal Program manager based in Half Moon Bay, is the Service's lead on Butano Creek and has designed the post-construction assessment to monitor the new channel structure, sediment storage, as well as stream habitat and groundwater level changes due to the project. He said efforts made so far have been encouraging, but more still needs to be done.



(images/14-Irina-community-tour.jpg)

Irina Kogan of the San Mateo Resource Conservation District leads a community tour into the Butano Creek restoration site (July 2017). Credit: Deborah Hirst/San Mateo County



(images/13-ButanoCreek.jpg)

U.S. Fish and Wildlife Service coastal program manager John Klochak observes sediment that deposited over the winter on the floodplain, 100 feet from Butano Creek. These types of projects "hold back sediment and help with downstream flooding issues, as well as stream, floodplain and marsh health, benefiting us all," he said. Credit: Steve Martarano/USFWS

"We are fixing one of the biggest problems in the watershed," Klochak said. "Projects of this nature hold back sediment and help with downstream flooding issues, as well as stream, floodplain and marsh health, benefiting us all. While we have reconnected 10 percent of the floodplain thus far, we will need to keep working to reduce sediment in order to continue with sustainable habitat downstream."



(images/17-volunteers.jpg)

Volunteers plant willow trees on the banks of Butano Creek to help stabilize the bank. Credit: Peninsula Open Space Trust

Historically, the stream carried sediment supplied from the mountainous upper watershed downstream, depositing it on the floodplain. Due to incision and bank erosion, lower stream reaches no longer provide this storage function, Klochak said.

Over time, sediment built up and plugged the mouth of the creek in Pescadero Marsh, further threatening imperiled species like Coho salmon and steelhead trout, which could no longer access historic spawning grounds in Butano Creek. And the water coming down the creek had no place to go during rainstorms, so it spilled out across the main road into town, flooding the road and private properties.

The overall goal was to reintroduce roughness to the stream channel to slow down flow and force sediment to deposit, restoring the connection to the adjacent floodplain while providing more diverse stream habitat. This was accomplished by adding several engineered log jams, a rock roughened channel at the top of the project to provide fish habitat, and notching the berm that had formed along the incised channel to help direct high water onto the floodplain.

Those actions reversed creek bed incision, raising the streambed to spill water onto the floodplain in lower intensity storm events, while also providing some deep pools and cover where little habitat existed previously. This will provide habitat for several imperiled species, including steelhead trout, California red-legged frog and San Francisco garter snake. The watershed

is also one of only two on the San Mateo Coast where Pacific lamprey are found.

The constructed features were put to the test this past wet winter. Everything worked as intended, an encouraging sign for all who worked on the project, Kogan said.



(images/16-construction.jpg)

The project's goal was to reintroduce roughness to the stream channel to slow down flow and force sediment to deposit, restoring the connection to the adjacent floodplain while providing more diverse stream habitat. Credit: San Mateo Resource Conservation District

"Last winter, the structures that were installed held up," Kogan said. "The floodplain was wetted and sediment was deposited in both the creek and floodplain. A six-foot deep trough we thought would take years to fill up, filled up in one winter. The project is working."

The project received over \$1 million in funding from several groups, including several cooperative agreements with the Service's Coastal Program.

"With the funding, we installed structures that help the creek and floodplain function the way they used to; the way they do naturally," Kogan said.



(images/9-ButanoCreek.jpg)

The whole stretch of coast from Tunitas Creek to Santa Cruz "is an underappreciated, highly biodiverse natural resource," says Butano Creek volunteer Kelly Runyon, a San Francisco resident who has been volunteering on environmental projects since the 1970s. Shown here, the fog rolls in above the road leading to the lower Butano Valley near the Butano Creek restoration site. Credit: Steve Martarano/USFWS

As the project neared completion last fall, volunteers put in the finishing touch, planting willows on the banks of Butano Creek to help stabilize the bank.

"This project helps address the flooding problem that Pescadero folks have been coping with for many years, which will only worsen as sea levels rise, unfortunately," said Runyon, one of the planting volunteers. "Also, it shows that we can work together on long-term restoration of the natural systems in the area, recognizing that Mother Nature only has so much to offer and always has the final say."

With that part of the project finished, the group will continue to build community support for future restoration work while also monitoring the success of this one.

"We will soon quantify the initial success of the project," Klochak said. "It is very exciting and has been a really great team effort. I am especially happy that we can work on and around working lands, sustainably improving ecosystem health while accommodating agriculture."



(images/1-ButanoCreek.jpg)

Today, downtown Pescadero still features several buildings dating back to the late 1800s. Frank Duarte established "Duarte's" (pronounced DOO-arts) as a saloon and barbershop in 1894. This century, the tavern is a well-known landmark and restaurant. Credit: Steve Martarano/USFWS

Steve Martarano is a public affairs officer for the San Francisco Bay-Delta Fish and Wildlife Office, located in Sacramento, California. He writes frequently about the Service's fish and aquatic conservation activities.

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