







New Funding and Coordinated Action to Help Bring California Salmon Back from the Brink

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NOAA and its partners are implementing dozens of projects to benefit endangered Central California Coast coho salmon.



The [Office of Habitat Conservation's Restoration Center](#) has awarded an unprecedented \$27.8 million to its California salmon restoration partners through the [Bipartisan](#)

[Infrastructure Law and Inflation Reduction Act](#). The funding is dedicated to bringing Central California Coast coho salmon back to California rivers. NOAA designated CCC coho as a [Species in the Spotlight](#) due to its high risk of extinction. [Trout Unlimited](#) , the [San Mateo](#)  and [Gold Ridge](#)  Resource Conservation Districts, and [The Nature Conservancy](#)  will implement or design more than 40 projects over the next 3 to 4 years with these funds.

These projects will allow salmon to reach their historic spawning grounds by removing barriers and increase their survival rates by restoring degraded habitat and increasing floodplain access. In addition, the project partners will work with landowners to develop land management practices that benefit both fish and people.

Salmon Habitat Degradation and Population Decline

When NOAA Fisheries Biologist Erin Seghesio was growing up, her grandfather told her how he could feed his whole family by fishing for coho salmon in California's Russian River. Today, she is the Recovery Coordinator for the federally endangered CCC coho salmon. She does outreach work at local schools where students are often shocked to learn salmon live in California.

"Salmon are no longer a normal part of our culture like they are in Alaska or Washington," says Seghesio. "The species are far below our recovery targets in all of their populations."

CCC coho are a genetically distinct group of coho salmon adapted to the warmer central California climate. They represent the southernmost and most endangered subset of the species and salmon overall. Once numbering in the hundreds of thousands, CCC coho supported commercial and recreational fishing and allowed local people, including tribal members, to feed their families.

During the 19th and 20th centuries, extensive road networks were built for logging. Streams and creeks were forced to pass through tiny culverts which often blocked fish passage. Naturally complex, braided streams—which provide a variety of habitat types suitable for the different life stages of coho—were straightened for industry and development. Erosion caused by timber practices, farming, and forest fires clogged rivers with sediment.

Juvenile coho must spend at least a year growing in freshwater before heading out to sea, but climate change has further threatened their survival. Warming temperatures and severe weather patterns cause streams to dry up quicker in the summer. Atmospheric rivers in the winter turn streams into raging torrents, flushing salmon eggs and young fish downstream.



Dry Dock Gulch project site (Photo: Trout Unlimited)

NOAA and Partner Expertise Accelerates Restoration

With so many complicating factors affecting CCC coho, it takes more than money to ensure a good outcome for the species. In California, NOAA Fisheries has started using the collaborative [Salmon Habitat Restoration Priorities](#) process to prioritize where salmon have the best chance of recovery and to determine what restoration work is needed. “NOAA helps to establish partnerships and bring together diverse groups of people—sometimes with competing interests—to develop projects that are a win-win for everyone,” says Seghesio.

Partners can apply for multiple projects at once instead of only one at a time. “Instead of designing, permitting, and implementing one project at a time, we are now able to complete many of these critical steps for multiple projects within the same award,” says Joe Pecharich, Habitat Specialist for the NOAA Restoration Center. “The faster we can move, the faster fish benefit.”

Much of the land in key watersheds for CCC coho is privately owned. NOAA Fisheries and its partners in California have spent years building relationships with farmers, ranchers, and the community of other landowners which is now starting to pay off.

“Many landowners are land stewards who care about the health of the ecosystems that are on their land,” says Anna Halligan, North Coast Coho Project Coordinator for Trout Unlimited. “However, they have a bottom line, so we work with them to find a middle ground where we can do restoration work and help them solve land management problems. It’s amazing how one good relationship can lead to many others because people talk.”



Excavators creating floodplains at the Butano Creek project site (Photo: San Mateo RCD)

San Mateo Resource Conservation District: Water for Farms and Fish

The San Mateo Resource Conservation District is carrying out 18 projects in key watersheds in San Mateo County with the new funding. Their floodplain and streamflow enhancement project on Butano Creek demonstrates how restoration work can benefit fish and farms. In conjunction with habitat restoration, the organization also helps keep streams flowing for fish by building water storage for farmers. That way, they don’t need to divert water during the dry summer months when coho need it the most.

A previous [NOAA Restoration Center-funded project](#) paved the way for the new work to take place. In 2019, the District dredged and cleared an 8,000-foot stretch of Butano Creek that had been clogged with sediment. This enabled fish to access 8 miles of Butano Creek

and drastically reduced flood risks to the community. For the first time in almost 20 years, CCC coho began returning to the creek.

“An explosion of hope came out of this one project and individuals who had previously said they would never invest in this watershed started investing,” says Kellyx Nelson, Executive Director of San Mateo Resource Conservation District. “Private landowners believed that we could get things done and had the best of intentions and cared about not just the fish but also the community. They started inviting us onto their properties to do restoration.”

One of those farmers lives upstream of the 2019 Butano project site. This summer, the District recreated 7 acres of floodplain habitat on the land. They will build a lined reservoir so the farmer doesn’t need to divert water from the creek in the summer. Excavators reestablished a floodplain adjacent to the creek and used the removed soil to elevate another part of the farmer’s field so that it won’t flood.

Getting streamflow to spread across floodplains during winter storms replenishes groundwater which the earth can later release during dry months to keep the creek flowing. The floodplain also gives juvenile salmon a place to escape fast-moving flows in the main creek channel. The newly flooded wetlands turn into a smorgasbord for juveniles as protein-packed bugs get pulled into the water. Bulking up on highly nutritious terrestrial treats gives salmon a much better chance of survival when they reach the ocean, so more return to rivers as adults to spawn the next generation.



Original culverts at the Dry Dock Gulch site (left) versus the new culvert (right). (Photo: Trout Unlimited)

Trout Unlimited: Restoring Access to Spawning Grounds

According to Halligan, if you fly over the area where Trout Unlimited works in Mendocino County, the ground below looks like an ant farm. Old logging roads chew through the landscape with streams diverted to flow through poorly designed culverts. Trout Unlimited's North Coast Coho Project partnership will remove nine stream barriers. They block access to high-quality spawning and rearing habitat for CCC coho and steelhead trout, which are threatened under the Endangered Species Act.

Last year, while visiting one of the project sites at Dry Dock Gulch off the Big River, Pecharich witnessed a sight that brought home the importance of removing aging culverts. "All of a sudden a 14-inch steelhead swam up in this little 4-inch-deep pool right below the culvert and lay still. Before I could get my phone out to take a picture, it disappeared and a harbor seal's head popped up. The steelhead was trying to get up the gulch but it couldn't get away because the culvert was too high for it to reach."

This summer, Trout Unlimited replaced the two small culverts at Dry Dock Gulch with a 10-foot-wide, 68-foot-long aluminum culvert that fish can now reach. This will allow tidal flow to return to the waterway. Frogs and other species were relocated from a freshwater pond that had built up behind the old culverts. In its place, excavators dug an off-channel alcove where juvenile coho can find refuge during winter and spring storms and feed before making their ocean migration.

What's Next

Next year, Trout Unlimited and San Mateo Resource Conservation District will start implementing a new round of projects. Gold Ridge Resource Conservation District and The Nature Conservancy will begin their restoration work in the Lower Russian River and Mendocino coast, respectively.

"It took 150 years for humans to bring CCC coho to the edge of extinction, so it's going to take some time to fix the damage," says Pecharich. "I find a lot of personal joy in every little win we can get. Santa Cruz is currently the southernmost extent of salmon. I don't want that line to move up to Golden Gate or Mendocino County. I want it to stay right where it is. It's a challenge, so that's why we're putting in so much hard work now."

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