Record 30,000 Endangered Central California Coast Coho Salmon Return to Mendocino Coast Rivers

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Back-to-back record spawning seasons suggest that reconnecting tributaries and restoring salmon habitat is supporting Central California Coast Coho population growth. NOAA has funded more than 100 restoration projects on the Mendocino Coast.

During the 2024–2025 spawning season, endangered Central California Coast coho salmon (CCC coho) migrated to Mendocino Coast rivers in numbers few scientists thought they would see in their careers. Monitoring teams estimated that more than 30,000 adult coho returned, double the previous season's record-breaking return of 15,000 coho. These numbers represent a significant leap from the past decade, where as few as 3,000 fish returned annually.

Several factors contributed to this surge. Many scientists believe that reconnecting spawning streams to mainstem rivers and other large-scale habitat restoration projects significantly boosted their productivity and abundance. These actions expanded and improved the habitat available for salmon to spawn and grow. Since 2000, NOAA has supported more than 100 restoration projects across the region.

For biologists and restoration practitioners who have spent decades surveying streams with few or no fish, the new numbers feel profound.

Adult CCC Coho Migrates up Mill Creek
Coho salmon returns to spawning grounds on a tributary of the Ten Mile River
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"I am overjoyed—everybody's just ecstatic about how many coho there are," said NOAA Marine Habitat Resource Specialist Joe Pecharich, who has been supporting restoration projects in the region for 20 years. "We have conducted intensive sampling since 2009 in these watersheds and many of us never thought we'd see something like this in our lifetime."

"It's very good news for all of us—communities, tribes, NGOs, NOAA, California Department of Fish and Wildlife, and all our partners," said Joshua Fuller, NOAA's Coastal California Branch Supervisor. "Recovering salmon is undeniably challenging, particularly for a species that must successfully navigate both freshwater and marine ecosystems during its lifetime. These numbers are very encouraging and demonstrate

that recovery is possible when management, habitat, ocean, and hydrologic conditions are aligned."

“The monitoring data reflect more than just increased adult returns,” said Nadia Brunner, supervisory fisheries biologist with the Pacific States Marine Fisheries Commission. “They speak to years of monitoring, management, and restoration work along the Mendocino Coast.”

Monitoring Central California Coast Coho Salmon

Central California Coast coho salmon, a NOAA Species in the Spotlight, are the most endangered subset of the coho salmon species. The rivers of the Mendocino Coast are part of their range between Santa Cruz in the south and Punta Gorda in Northern California. While other areas have seen increases in CCC coho salmon, the Mendocino Coast returns are the most dramatic.

To estimate the number of returns on the Mendocino Coast, monitoring teams conduct surveys across roughly 500 miles of habitat. The teams are led by the California Department of Fish and Wildlife, with funding from NOAA Fisheries. Staff from the Pacific Marine Fisheries Commission, Mendocino Redwood Company, and Redwood Timber Company participate in the effort.

Teams visit randomly selected stream sections, known as “reaches,” every 2 weeks during spawning season. They count adult fish and redds—gravel nests built by spawning females. At life-cycle monitoring stations crews track juvenile fish traveling downstream and adult fish traveling upstream. They use this information and other data to estimate watershed-wide populations.

Pacific States Marine Fisheries Commission Technician Cami Boesch observes adult coho in a stream. Almost 100 coho redds were counted on this reach during the 2024-2025 spawning season. Credit: Emily Lang/Redwood Timber Company

What 30,000 Fish Looks Like

Members of the monitoring teams reported that counting fish during the 2024–2025 migration was exhausting but exhilarating.

David Ulrich, a senior scientist at Mendocino Redwood Company, said that in previous years, his team typically surveyed two stream reaches per day on the North Fork Navarro River. Last year, they barely covered half a reach on some days.

“In the past, we’d have days where we wouldn’t see any fish,” Ulrich said. “Last year we were seeing 50 to 100 fish a day during the height of the spawning season.”

Other team members nearly tripped over salmon while crossing streams.

While surveying the Upper Noyo watershed, Elise Allen, a fisheries biologist with the Pacific States Marine Fisheries Commission, tried to step around a group of about a dozen adult coho.

“I took one step and I think I almost had a heart attack,” Allen said. “A 70-centimeter male coho came out from under my foot and swam between my legs.”

In the tiny tributaries of Pudding Creek, Emily Lang of the Redwood Timber Company found salmon using every available inch of habitat.

“In a channel about a foot-and-a-half wide, I saw this big, beautiful female on a redd,” Lang said. “I remember thinking that if she tried to turn sideways, it would have been impossible because the channel was so narrow.”

Coho were also observed in the Gualala River watershed for the first time in roughly two decades. Credit: Adobe Stock

Fish Return to Streams for First Time in Decades

Coho also appeared in watersheds where they had not been seen in years. For example, coho were documented in Usal Creek for the first time since 2014.

“We hadn’t seen coho in that watershed in more than a decade,” Pecharich said. “Trout Unlimited has done extensive restoration there, so coho had access to more spawning areas.”

Coho were also observed in the Gualala River watershed for the first time in roughly two decades.

“Finding them in places where they have not been was really exciting,” said Sarah Gallagher, senior environmental scientist with the California Department of Fish and Wildlife. “I got to actually go out and see them in person and snorkel with them.”

Building an engineered log jam on the Ten Mile River. Credit: The Nature Conservancy

Investment in Restoration Pays Off

Scientists believe decades of habitat restoration are beginning to pay off.

“In combination with improved fisheries management, the Mendocino Coast shows the value of restoration and watershed health,” Fuller said. “When good ocean conditions and good hydrology align, restored habitat allows fish to take full advantage of those conditions.”

Over the past two decades, NOAA Fisheries' Pacific Coastal Salmon Recovery Fund and the Office of Habitat Conservation have invested heavily in rebuilding habitat across Mendocino Coast watersheds.

By replacing barriers to fish passage—such as undersized road culverts—with fish-friendly designs, restoration partners have reopened access to spawning and rearing habitat.

“We don’t want to write off an area just because we haven’t seen coho there,” Gallagher said. “When we increase connectivity in the upper and lower reaches, salmon move in and use that space.”

NOAA’s Office of Habitat Conservation currently funds Trout Unlimited to remove barriers in the Navarro, Big, Garcia, and Noyo River watersheds.

Trout Unlimited's Anna Halligan, Director of the North Coast Coho Project, and Karen Jamogochian, Project Manager, looking for spawning coho. Credit: Christie Hemm Klok/Trout Unlimited.

In 2024, Trout Unlimited remediated a barrier in Neefus Gulch, a small tributary of the North Fork Navarro River. The project restored 1,600 feet of stream channel and reopened upstream spawning habitat. Trout Unlimited also removed a barrier on Neefus Gulch in 2021.

"We visited the site after construction, and there were so many juvenile coho above the former dam," Pecharich said. "Every pool had a ton of coho in it. It was really exciting."

"This January, Trout Unlimited fisheries biologists conducted spawner surveys in Neefus Gulch and observed 10 coho salmon redds and two steelhead trout redds," said Anna Halligan, director of the North Coast Coho Project for Trout Unlimited. "Of these, eight redds were observed in the newly restored habitat above the former barriers. Salmon have not had the ability to spawn in this area for more than 70 years."

This year, the organization will reconnect streams at Duffy Gulch in the Noyo watershed and at Soda Creek and Meyer Gulch in the Navarro watershed.

Other projects restore natural stream processes to heavily altered waterways. When channels are straightened and simplified, heavy winter flows can wash salmon eggs and juveniles downstream. Reconnecting floodplains, excavating side channels, and installing engineered log jams create slower water refuges for both adult and juvenile salmon.

Floodplain restoration on the Ten Mile River. Credit: The Nature Conservancy

In the Ten Mile River watershed, NOAA has funded multiple floodplain restoration and engineered logjam projects with The Nature Conservancy. Last summer, they constructed the largest-ever habitat restoration project in the Ten Mile watershed.

“We documented juvenile coho salmon using this new floodplain habitat almost immediately after completing construction,” said Peter van de Burgt, The Nature Conservancy’s North Coast Restoration project manager. “It’s been amazing to see how quickly coho will occupy new habitat. Just days after the excavators roll out, the fish will start to swim in.”

This year, The Nature Conservancy will restore habitat on the lower Navarro River. NOAA funded the planning, design, and permitting for this project.

Other Factors Involved in Increasing Coho Numbers

Coho salmon have a 3-year life cycle, spending about 18 months in freshwater and 18 months in the ocean. The adults that returned in winter 2024–2025 were born to parents that spawned in the winter of 2021–2022.

Many complex factors impact salmon numbers, and pinpointing the exact causes is extremely difficult. However, according to NOAA Fisheries scientist Nate Mantua, several conditions aligned. When the parents of the 2024–2025 spawners migrated

upstream in 2021, fall rains provided enough water for them to access to tributaries higher up in the watershed. When juveniles migrated to sea in 2023, stream flows were also favorable.

Marine survival appears to have improved as well.

“From our life cycle monitoring station on Pudding Creek, we found that marine survival was around 8 percent last year,” said Gallagher. “Usually, we’re hovering around 2 percent or lower. That suggests more favorable ocean conditions.”

Scientists also point to conservative ocean management measures and changes to California forest practice rules that reduce logging impacts in salmon habitat.

Adult coho making the final leg of their journey on Pudding Creek. Credit: Emily Lang/ Redwood Timber Company

A Shift in Trajectory

Recovering CCC coho will require sustained effort in both freshwater and ocean ecosystems. The species remains endangered, and increasingly erratic cycles of drought and intense winter storms continue to pose risks.

Monitoring for the 2025–2026 season will continue through May, but early observations suggest another strong year despite frequent storms.

“We’ve seen somewhere around 400 coho on the North Fork Navarro so far,” Ulrich said in mid-February. “That’s way up past our normal estimates.”

Two consecutive record seasons do not guarantee recovery. But they signal that long-term investments in restoration, monitoring, and management are reshaping the future of this endangered species.