Russian River Coho Salmon and Steelhead Monitoring

UPDATE: SUMMER 2016 - SPRING 2017

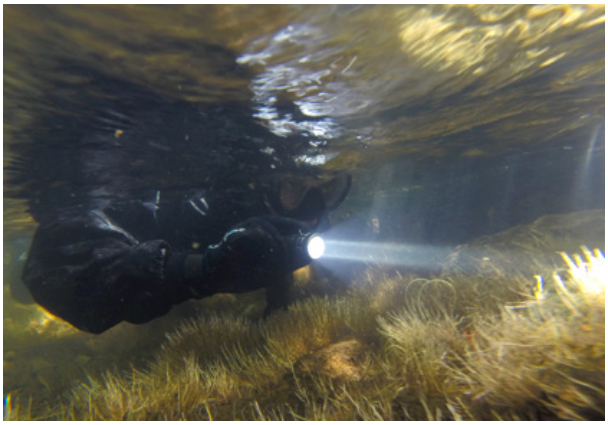
Since 2004, the Russian River Coho Salmon Captive Broodstock Program has released juvenile coho salmon into tributaries of the Russian River, with the goal of re-establishing populations that were on the brink of extirpation from the watershed. California Sea Grant's Russian River Salmon and Steelhead Monitoring Program (CASG) at University of California has been tracking the progress of this effort by monitoring coho at all life stages within their historic range.

Over the last decade, our program has expanded to include more broad-scale salmon and steelhead monitoring, as well as specialized studies, with the intention of providing science-based information to all stakeholders involved in the recovery of these critical native species. This work would not be possible without the support of our partners, including public resource agencies, non-profit organizations, and hundreds of private landowners who have graciously allowed us to access the streams that flow through their properties.

Our program has been hard at work this past year, monitoring juvenile salmon and steelhead on dozens of creeks in the summer, documenting adult returns to the basin in the winter, and operating downstream migrant smolt traps on three streams in the spring.

This update is an overview of seasonal highlights. Complete reports for each monitoring season are available at:

caseagrant.ucsd.edu/coho-reports



Fish biologist Allyson Souza searches for salmon and steelhead in Grape Creek. Photo: Joshua Asel

A coho yoy is observed while snorkeling East Austin Creek.

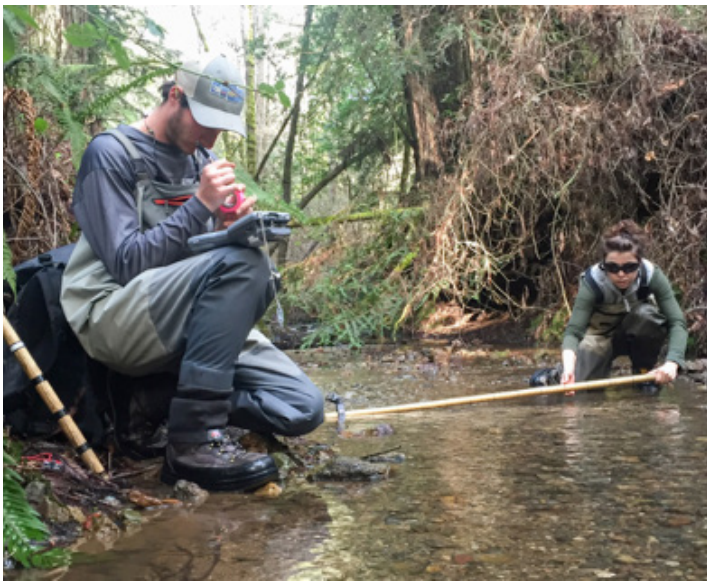
Thousands of juvenile salmon and steelhead counted in 2016

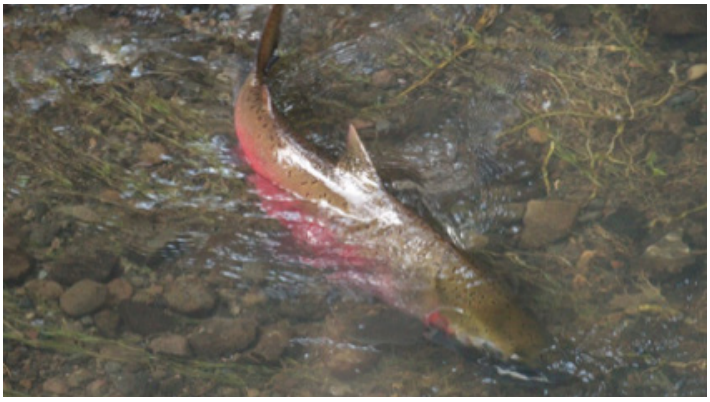
During the summer of 2016, CASG and Sonoma County Water Agency biologists conducted snorkeling surveys in 40 Russian River tributaries to document the distribution and abundance of juvenile coho salmon and steelhead. In all, we counted 5,198 naturally-spawned (wild) coho fry, or young-of-year (yoy). Because only every second pool was snorkeled, we doubled that number to derive an expanded minimum count of 10,396. This number is similar to 2015 observations. We also observed 26,834 steelhead yoy, with an expanded minimum count of 53,668, which is nearly twice as many as the previous summer.

Counts of coho salmon yoy were highest in Green Valley Creek and coho yoy were seen in 24 of the 40 creeks snorkeled. This is a significant improvement from the early 2000s, when coho salmon were observed in low numbers in just one to two streams per year.

>> For a list of juvenile counts by stream and more information, see our Juvenile Monitoring page at:
caseagrant.ucsd.edu/coho-juveniles

Record number of coho salmon adults returned to the Russian River watershed last winter





(above) An adult coho salmon returns to Green Valley Creek to spawn. Photo: Steve Py

(left) Fish biologists Zac Reinstein and Suzanne LaChance measure a salmon redd on Grape Creek. Photo: Jak Wonderly, Sonoma County Water Agency

Each spring and fall, the Broodstock Program releases juvenile coho salmon into carefully-selected Russian River tributaries. CASG uses stationary, channel-spanning PIT-tag antennas to monitor tagged fish as they swim through the stream at all life stages, including when they return from the ocean as adults to spawn. Since a known proportion of fish are tagged for each release, this number can be used (along with antenna detection efficiency) to generate an estimate of returning adults. The estimated count of returning coho salmon for the uncommonly wet winter of 2016/17 was 533. This is the highest count since the inception of the Broodstock Program in the early 2000s, when fewer than 10 fish were documented returning each winter!

CASG and Water Agency biologists also completed spawning surveys on dozens of stream reaches within the lower Russian River basin approximately every two weeks to count redds (salmon nests) and returning adults as part of the statewide Coastal Monitoring Program. More than 400 salmonid redds were observed in 23 out of 34 streams surveyed; the highest number of streams in which coho have been observed spawning since the Broodstock Program began releasing fish in 2004.

The greatest number of salmon and steelhead redds were observed in Pena Creek, in Healdsburg, which contained a staggering 40% of all redds observed in the entire watershed. We have consistently observed more salmonid redds in Pena Creek than any stream in the Russian River basin since we began surveying there in the winter of 2013/14, indicating that it is critically important for salmon.

>> To see adult coho numbers over all monitoring years, go to: caseagrant.ucsd.edu/coho-adults

QUICK LOOK

NOW vs. THEN

533

Returning coho salmon for 2016/17 winter (estimated)

<10

Returning coho salmon for 2000/01 winter (estimated)

Multi-year effort to address fish barrier on Mill Creek pays off

After years of planning and collaboration with local residents, a partnership that included Trout Unlimited, Prunuske Chatham, Inc., NOAA's Restoration Center, California Department of Fish and Wildlife, Sonoma County Water Agency, and CASG successfully remediated a historic barrier to salmon migration on Mill Creek in Healdsburg. Implemented during the summer of 2016, this project allowed adult salmonids to reach 11.2 miles of spawning and rearing habitat that was previously only accessible during rare high-flow events.

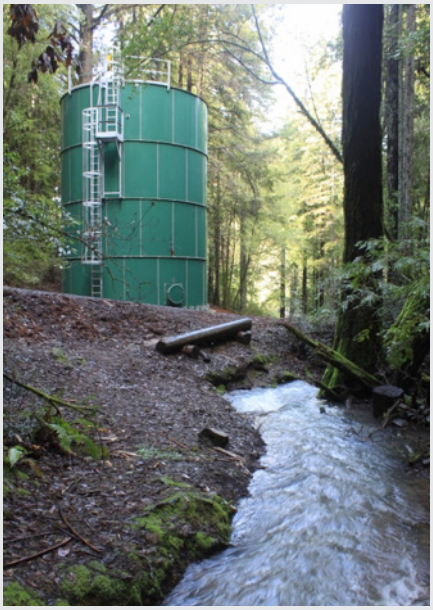
We estimated that a total of 19 coho salmon passed upstream of the site last winter and, by the end of the winter spawning season, a total of seven coho salmon redds were observed upstream of the site; nearly twice as many redds as were observed in the previous five years combined.

>>To learn more and see a photo documentary, go to: caseagrant.ucsd.edu/habitat-enhancement

Historic flashboard dam on Mill Creek, prior to remediation.

Coho salmon pair spawning upstream of the barrier remediation site within weeks of project completion

Dutch Bill Creek Streamflow Improvement Plan released



Water storage tanks were installed to capture spring water in place of a direction diversion from Dutch Bill Creek.

The Russian River Coho Salmon Water Resources Partnership was formed in 2009, with support from the National Fish and Wildlife Foundation and the Sonoma County Water Agency. The Partnership is dedicated to improving streamflow for coho and other fish in high priority tributaries to the Russian River, while increasing water security for streamside landowners. Partners—including CASG, Trout Unlimited, Occidental Arts and Ecology Center's WATER Institute, and both the Gold Ridge and Sonoma Resource Conservation Districts—have worked with landowners to complete numerous water storage and irrigation efficiency projects that support the long-term restoration of a viable, self-sustaining run of coho salmon in the Russian River watershed.

This past March, Partners released the Dutch Bill Creek Streamflow Improvement Plan (SIP), a roadmap for prioritizing and implementing streamflow improvement projects with multiple public benefits. Dutch Bill Creek is the third of five watersheds for which we are developing SIPs.

This plan can be found, along with the Grape Creek and Mill Creek SIPs, at: caseagrant.ucsd.edu/coho-reports