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## Beneath the waters of Sonoma Creek

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A study of fish in Sonoma Creek is discovering a more vigorous population of fish than expected, especially steelhead trout.

Previous studies showed that steelhead and salmon do indeed spawn (lay eggs) in Sonoma Valley streams. According to Gordon Becker, project manager, the new study asks additional questions: Are young steelhead growing large enough in the streams to undertake a journey to the ocean? Is their migration affected by water levels in the creek? Which Sonoma Valley creeks produce the most fish?

For the study, three veteran fish biologists and a rotating roster of volunteers install a temporary fish "trap" in the stream, following careful protocols to ensure that fish are not harmed. The trap is a screened box that detains fish for less than 24 hours.

The results have been encouraging. "We're finding that upper Sonoma Creek has very high functioning habitat areas that are producing juvenile fish large enough to go the ocean and return as adults to spawn," Becker said. "We now know specific areas we hope to conserve and restore to increase steelhead numbers and the overall health of the watershed."

The biologists visit the site to identify and release the fish, quickly and without harm. Two fish traps are in operation for several weeks at a time, at two locations in the watershed. The team works with private landowners to find good locations for the traps.

The practicalities of collecting the data have been a challenge, Becker said. "In one season we have reacted to concerned landowners, capturing endangered freshwater shrimp, bird attacks, debris clogs, low flows, high flows, and equipment limitations."

Fisheries biologist Jeff Hagar has been looking at fish for decades, but he wasn't sure what to expect from Sonoma Creek. "Many people write off their local streams and assume that they are degraded and don't support interesting fish life." So he and the team were amazed when they went to check the traps in an upper Sonoma Creek location.

"We basically achieved our main project objective the first day, by finding a number of juvenile steelhead including 'smolts' (juvenile steelhead beginning their migration to the sea)," Hagar said. "This indicates there may still be a viable steelhead population in the creek."

Later that week, an unexpected treasure was in the trap: a glistening, massive 24-inch male steelhead trout that had already spawned and was returning to sea. His large size indicated he'd already spent years in the ocean, and his newly silver skin and slender body showed that he was done spawning and had begun a profound physiological transformation to prepare once more for life in the ocean.

A few days later, several nearly transparent California freshwater shrimp and a young Sacramento sucker were observed in the trap. Pacific lamprey — an ancient creature, not quite fish and not quite eel, and the namesake of the Eel River — have found their way into the trap, too. Lamprey was once a major food for Native Americans and settlers, and are now much diminished in numbers. The traps also have captured hundreds of California roach (a small, native fish), Western pond turtles, and a foothill yellow-legged frog, all without harm.

Steelhead and salmon in virtually all Sonoma Valley streams are protected by law, and cannot be fished, or even touched, without a permit.

The study will continue through the end of the month. Meanwhile, Becker said, "it's rewarding to work with so many competent, interested and generous people, and to experience the beauty of steelhead trout almost daily."

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