



Hatching Stewardship

Photo by Derrell Bridgeman

Through a classroom program that gives students eggs to raise, children uncover a brand new world, explore fascinating aquatic habitats, and hope that when released, their tiny fish will survive.

Story by
Ethan Rotman

The third-grade classroom was abuzz that day. Students had been preparing for several weeks with anticipation. They'd studied plants and animals during a fieldtrip to a local creek; created posters using markers, sprinkles, and colorful cutouts on how urban runoff harms wildlife; and memorized the life cycle of trout. In the corner of their classroom they'd helped set up an aquarium that a fly-fishing club had delivered. Each day they'd monitored the water's temperature to ensure it remained within the narrow range necessary for trout eggs to survive.

When Ken Brunskill walked into the classroom cradling a small ice chest excitement nearly erupted. Brunskill, a volunteer from Mission Peak Fly Anglers, smiled as the students pressed forward as he slid the lid off and removed the small package wrapped in gauze. While they knew what the gauze was protecting, there was almost a collective holding of breath as Brunskill peeled back layer after layer to reveal 30 bright red trout eggs in the palm of his hand.

"They're beautiful!" one student exclaimed. Giggles rang through the room.

Delicately, Brunskill placed the eggs one-by-one into the tank and gently covered them with the tiny gravel. For the next several weeks, the hidden eggs were watched over by the students. Once the first tiny fish appeared in its larval stage the classroom moved to the next step of an already laid out plan that supports the developing fish until they can survive in the wild. Through this classroom experience, the students witness first-hand the value of aquatic environments, and ultimately the balance necessary to preserve California's fisheries and aquatic habitats.

The scene has played out in more than 2,000 classrooms across the state. Elementary school students strive to create ideal aquarium conditions needed for eggs to hatch and young fish to survive. The process helps them understand larger ecological concepts including habitat elements, how organisms interact, and how human actions can affect local waterways.

"The Trout-in-the-Classroom program is a great way to integrate life science concepts, such as observation, food webs, habitats, and adaptation, with reading, descriptive and expressive writing, and units of measure," says Judi Burle, a teacher at Jefferson Elementary in San Leandro. "My students were fascinated when the eggs hatched. They even wrote farewell poems to mark the release of the fish into a native stream. The experience gives them a reason to care about watershed conservation."

California educators know the program under different names. Some have called it Salmon in the Classroom, Steelhead in the Classroom and Salmon and Trout Education Program. By whatever name used in the classroom, the program that links students to hatching fish is one of the Department of Fish and Game's aquatic education modules, the Classroom Aquarium

Education Program (CAEP). CAEP brings Chinook salmon, rainbow, and steelhead trout into classroom aquariums and offers curriculum designed specifically for these species and the area's local environment.

The idea of hatching fish in a classroom as part of an organized study opportunity began in British Columbia in the 1970s. Local non-profit organizations carried the program to California and worked with DFG hatchery staff to establish it here.



Photo by John Davis

Previous page, as part of the Department of Fish and Game's Classroom Aquarium Education Program, students from the Bay Area release their fish into the wild. The event happens six weeks after the eggs hatch in a classroom aquarium provided by volunteers from local fly-fishing clubs supporting the program. Above, what the fish look like in the aquarium at the school. Below, the journey to release their fish takes students on a field trip where they experience much of the habitat that they've studied in preparation for the event.



Photo by John Davis

Elementary school teachers like Burle attend a certification workshop before taking this program into the classroom. The teachers learn about fish and what they need to survive. During the workshop they practice setting up aquariums, participate in aquatic education activities designed to engage the teacher and the student, and then discover how to get the eggs and where to release the fish.

The biggest treat and surprise for Burle was the support of the fly-fishing club. These clubs assist in tank set-up, offer financial and technical assistance, and in many cases deliver the eggs to the teachers. More than 50 California clubs actively support CAEP. Some have done so for more than 25 years.

"This program is an opportunity to connect students with aquatic environments," says Chris Ramsey, the CAEP coordinator for DFG's nine-county North Coast Region, including Del Norte to Modoc to Lassen and Mendocino counties. "It's great to see how excited the students become. Hatching fish in the classroom and then releasing them gives the students a reason to care about their local streams and lakes. They want to protect their fish."

The goal of the program is to create stewards of aquatic systems, Ramsey explains. "This is viewed as an educational program, not a restoration or stocking program. Success is measured by the learning experience of the students—not how many fish are put into the water."

CAEP structures its classroom experience to align with state educational standards so that the curriculum is easily delivered. Through CAEP, DFG supports California teachers with scientific information in a developed lesson plan that creates a sense of stewardship and ownership in the minds and hearts of their students.

In Burle's San Leandro classroom, each day the students rushed in to see their fish. They diligently recorded the conditions of the aquarium's water, and then watched and recorded the changes as the eggs hatched to alevin, a newly-hatched fish in the larval stage, which has not yet emerged from its nesting area. The alevins have a noticeable yolk sac, and the tiny fish need this yolk sac while their digestive systems develop. At this stage, the students know their fish are not prepared to hunt live prey, and are completely dependent on the yolk sacs and the students to maintain an appropriate environment in the aquarium.

Six weeks after the eggs hatched the students stood on the edge of a lake, crowding forward until the water touched the toes of their tennis shoes. Burle sensed their joy mixed with apprehension. Each of them clutched a paper cup that contains "their" fish. Those who wrote poems read from pieces of paper, others whispered

secret wishes. Then collectively they knelt and slowly submerged the cups, gradually filling them with water, and then watched as their fish swam away—darting for the safety of the natural aquatic habitat the students learned about. While the fish are released into the wild, each student holds the memory of the experience and carries the hope that their fish will survive and grow. 🐻

For more information on the Classroom Aquarium Education Program, visit www.dfg.ca.gov/caep.

Ethan Rotman is a DFG coordinator for CAEP and the Fishing in the City Program for the San Francisco Bay Area.

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