



*Photo illustration by Dan Neuland*

**Don Fine, president of the Potomac Valley Fly Fishers, instructs a group of students from Lewistown Elementary School on macro invertebrate life in Carroll Creek. The activity was part of the Trout in the Classroom program, where students raise trout from eggs and release them as fingerlings in local streams.**

## ***Trout go from the classroom to the creek***

“WHAT A DAY! Twenty-five students, four parents, and six volunteers later ... our trout are swimming free in Carroll Creek,” posted Andrea Maruskin on her May 1 blog.

Actually, about 90 fingerling rainbow trout raised by elementary and middle school students were released into the creek as the culminating event of the Trout in the Classroom program.

I was first introduced to Maruskin, as the featured speaker on the TIC program at



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### **DETAILS**

- **INFORMATION:** On TIC program at Monocacy Middle School visit <http://mrs-maruskinsscience.wikispaces.com>.
- Trout in the Classroom program: [www.troutintheclassroom.org](http://www.troutintheclassroom.org)
- Potomac Valley Fly Fishers: [www.pvflyfish.org](http://www.pvflyfish.org)

the February meeting of the Potomac Valley Fly Fishers. Maruskin a sixth-grade science teacher at Monocacy Middle School, spoke very enthusiastically about her school's two-year involvement on the Trout in the Classroom program.

"We got the trout as eggs the first week in January. Students have been monitoring tank water quality (pH, nitrates, nitrites, ammonia, temperature, water clarity), feeding the trout and replacing a portion of the tank water daily," explained Maruskin. Keeping a cold-water species such as trout alive in a classroom aquarium is not an easy task.

"The tank needs to simulate a healthy stream environment — running water to add oxygen, a chiller to keep the temperature in a 52- to 54-degree range, lava rocks that colonized good bacteria and four-stage filter to clean the water," she added.

For three years, the Potomac Valley Fly Fishers, with financial support from the Mid-Atlantic Council Federation of Fly Fishers (MAC-FFF) and in cooperation with the Monocacy and Catoctin Watershed Alliance, has sponsored the TIC program in Frederick County schools.

Chuck Dinkel, past PVFF president, has been instrumental in this program.

"TIC is an environmental education program in which students raise trout from eggs to fry. In the process, students grow to understand their ecosystem by studying the life cycle of trout, monitoring tank water quality and engaging in stream habitat study.

"It is a wonderful means of fostering stewardship of students' local stream environments," Dinkel said. Currently, four middle schools and one elementary school in the county participate.

When I arrived at the release site on Carroll Creek, I found the students from Monocacy Middle and Lewistown

Elementary schools divided into three groups at three different stations, each with a field expert.

Dr. Don Fine, microbiologist and PVFF president, was preparing to capture aquatic macro invertebrates found in the stream with the help of students. A few volunteers from the elementary students waded into the stream with a fine seine directly downstream from Fine, who used his feet to dislodge the macro invertebrates. They found midge fly larva, aquatic worms, cress bugs and a crayfish claw. Under the guidance of Fine, the students also observed some wetland plants, such as jewelweed, duckweed and cat-tails.

At the PVFF trout rearing station, John Brognard, MAC-FFF vice president of conservation and PVFF member, discussed how to avoid the transfer of invasive species, like didymo and whirling disease, on fishing gear and boats by practicing clean angling methods. Brognard also explained how the club raises trout in the springhouse/trout pen and how PVFF works with the Department of Natural Resources Inland Fisheries for raising and stocking local waters.

One additional environmental concern that Brognard expressed is the importance of not putting unused medicine down the drain, but instead returning it to the pharmacy. Pharmaceuticals in our wastewater can act as endocrine disruptors and can lead to adverse biological effects in species such as the smallmouth bass.

"We have a problem with our smallmouth bass in the Potomac and Monocacy rivers ... I am asking the youngsters to take the message home to mom and dad," said Brognard.

Kay Schultz, a representative from the Monocacy and Catoctin Watershed Alliance, led the third group of students. She talked to the youngsters

about local watershed issues, rain gardens and wetland protection. Schultz stressed the importance of planting riparian buffers to protect watersheds and other things students can do to take care of our water.

"We envision healthy streams and rivers with forested buffers supplying clean drinking water and supporting healthy communities of aquatic and terrestrial life, as well as diverse and popular recreational uses," said Schultz about the alliance's mission.

To close the activities of the day, Fine and Brognard gave a fly-casting demonstration and provided instruction on a variety of fly-casting techniques. They also discussed basic fly-fishing equipment and passed around a box of flies that represent nymph and adult aquatic insects and minnows that trout eat.

Maruskin believes the TIC program is an "awesome" way to teach many sixth-grade science objectives. "Population sampling methods, ecosystems, watershed issues, how pollution affects water quality, human impact on the water cycle, food webs, energy pyramids, interdependence of organisms living in the same ecosystem, and so much more! My students were able to learn about these things and apply them," Maruskin said.

"I think one of the greatest things about TIC is that it fosters this idea of 'connectedness' with the natural world. As these students grow to care about the trout, they grow to care about the stream they are released into. This sense of stewardship is incredibly powerful ... today's students who are engaged in environmental education will be, in the future, those adults who find solutions to the environmental issues facing us all," added Maruskin.

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