

Students Raise, Release Shad

Greenbriar West students return fish to Potomac River.

By Bonnie Hobbs

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Fifth-graders at Greenbriar West Elementary (GBW) learned firsthand that even children can play an important role in preserving the environment and the ecosystem. They were among students at 18 other schools who collected shad eggs, raised them into fish and then released them into the Potomac River.

IN FACT, for the past 12 years, students throughout the Washington, D.C., area have participated in the American Shad Restoration Project. And once returned to their spawning grounds, the fish swim more than 12,000 miles to the sea — and then come back to lay their eggs in Great Falls National Park. Participating last month from GBW were students in teacher Mary Margaret Wetterhahn's fifth-grade GT class. And, she said, "It's one of the only conservation efforts in the country where children are saving a threatened animal."

The students caught 2,500 shad eggs off Dogue Creek near Fort Belvoir and brought them back to their classroom. They also read the award-winning book, "Let the River Run Silver Again!" by biologist/educator Sandy Burk — who visited them at GBW.

The Potomac River used to run silver with fish, and her book's name came from students who, in 1995, wrote letters to local politicians asking them to help the shad return to Great Falls.

"Shad are an important part of the ecosystem of the Potomac River and Chesapeake Bay," said Burk.

"And the shad restoration program is a documented success. So far this year, students have released over 20,000 fish into the Potomac River below Great Falls, as well as into the Anacostia River."

IN VIRGINIA, this program is funded by the Virginia Chesapeake Bay Restoration Fund. And thanks partly to the student shad program, American shad are returning to the Potomac River and Great Falls in increasing numbers.

"Because of dams, pollution and overfishing, the shad fishery for the whole Chesapeake Bay was closed," said Burk. But, added Wetterhahn: "This program began in 1996, and we're now seeing levels returning to where the fishery might be able to be reopened."

While raising the fish in their classroom, her students explained why shad are important to the Chesapeake Bay's ecosystem. "Many animals who live there, including dolphins, eat them," said Niharika Dar, 10. "The bald eagles and osprey catch them," said Matt Alvarez, 11. "So if the shad population comes back, then the bald eagle and osprey population will, too, as a result."

"That's because shad are part of the food chain," said Hannah Zarnich, 11. "The shad eat plankton that hide in the grasses, and the bald eagles and dolphins eat the shad."

For three weeks prior to their catching the shad eggs, the students prepared water in a big, blue bucket in which they would hatch. "We put in bio-balls — plastic, spiky

disks that grow healthy bacteria on them," said Matt. "And we added a liquid bacteria to help the healthy bacteria grow to help our fish survive," said Niharika.

At first, they put in too much so, said Hannah, "The ammonia level was too high." Added Matt: "It would have killed the fish, so we cleaned out the reservoir." Wetterhahn said that happened because the students hadn't first bleached their container. Then they got a new pump and tried again.

"We tested the water for nitrate twice a day, plus ph, ammonia, nitrite and chlorine," said Niharika. If these elements aren't balanced, explained Hannah, "When the fish got introduced, it would kill the eggs."

PROUD OF HER students, Wetterhahn said she never had to remind them what to do; they took their duties seriously. "I have 32 GT students, and they're all bright and tenacious about this project," she said. And at the same time, they had to juggle other projects, as well as get ready for SOLs. "But they're committed and highly self-directed," said Wetterhahn. "They're problem-solving, sharing the responsibility and keeping records." Hannah said they recorded water-quality targets; Niharika said they also kept records of the number of dead eggs "because we want to know how many we release at the end of the project. Some just die naturally and some don't get fertilized."

To check, said Matt, "We remove

them with a turkey baster, put them in a Petri dish and put them in a graduated cylinder to measure how many dead eggs there are.” Wetterhahn said they generally got 10 eggs per milliliter of water.

Burk expected 50 percent to survive. “In nature, one out of 1,000 go to sea to hatch,” she said. “In a hatchery, that number goes up dramatically.” Matt said they planned to watch the eggs and fish develop over their rapid, three-day gestation.

“We’ll look for lines on the egg sac — that’s the fish,” he said. “We’ll be able to see the spinal cord develop, and little eyes. The next day, they’ll pierce the egg cells with their tails and pop out of the egg chamber into the tank of water. And the day after that, they’ll be fully developed and we’ll release them.”

Before they reached that stage, though, said Niharika, they resembled “two eyes and a wiggle.” Burk said the students sucked up the eggs with pipettes, like eye droppers, and placed them under a microscope to see their development. Added Niharika: “Fish hatch really quickly because, if not, predators could eat them. This way, they can swim away.”

Hannah was pleased that they learned how to keep the water stable for the eggs, and she was happy knowing that, by returning the shad to the river, “It brings back other creatures and increases life in the ecosystem.” Matt said the experience also prepared them to take care of their own fish at home “and we can teach other kids about the shad program.”

NIHARIKA said she learned lots about math and science during the project. “I also had fun setting

up the tank and learning from our mistakes,” she said. “It’s been a really rewarding experience for me.” Hannah learned about cause and effect: “If you do one thing different, it could change your whole experiment, so you have to be really careful.”

Noting that her students take the sixth-grade SOLs for math, Wetterhahn said, “Keeping data tables, making predictions and problem-solving totally correlated with what they were doing in math. And it was such a real-life, learning experience.”

Burk said the GBW students had “the highest rate of viable eggs” of the schools participating that week because of how well they maintained their tank. “It’s probably the best batch of eggs I’ve seen in Fairfax County,” she said. “Several thousand fish will come from this.” Added school Principal Lori Cleveland: “This class has worked very hard, and it’s a credit to Mrs. Wetterhahn.”

Matt said the shad will go to Canada to live and, in three years, when he and his classmates are in eighth grade, they’ll return to the Potomac. “They’ll return to the place they were released to lay their own eggs,” said Niharika. “It’s their instinct to do that,” said Hannah. Delighted with the students’ efforts and caring, Burk said, “This shad-conservation success story gives a message of hope. It shows how people really can make a difference in helping restore our rivers and fisheries.”

For more information, see www.potomacriver.org and click on Living Resources. “Let the River Run Silver Again!” is available at www.mwpubco.com, www.amazon.com and at bookstores.