

## **I Clean, You Clean, We All Clean For Nice Streams!!!**

**By Margaret Lynch**

Biology students from Parkdale High School in Riverdale, Maryland, spent one week removing trash and debris from a local tributary of the Chesapeake Bay. Working together over several hot and humid days in June of 2007, the students managed to haul away about 1000 pounds of trash from a local stream. In addition, to determine the overall health of the stream, students collected water quality data including; pH, temperature and salinity. This hands-on activity was an extension of the ecology unit in the PGCPs Biology Curriculum. This service-learning project, along with an associated field trip to the Bay, was funded by Johnson Controls, Inc. and the Chesapeake Bay Trust.

### **Best Practice 1: What recognized community need was met by your project (e.g. health, education, environmental or public safety need)?**

Our service-learning project addressed health, educational, environmental and public safety needs within our community. Parkdale High School is nestled in a small valley of 35 wooded acres in Riverdale, Maryland. The community is close to many major roadways and facilities, including I-495, Baltimore-Washington Parkway, Route 1 and the University of Maryland. Since the area is heavily traveled, pollution is a chronic problem in the community. Trash left on the roadways finds its way to local creeks and streams that are all part of the Chesapeake Bay watershed. Many students are not aware of the problem and the impact that their actions have on the Bay. Therefore, there is a huge need to educate students and the community about local pollution that affects the Bay. In addition, pollution has a negative impact on the environment and local stream ecology and can greatly disrupt community food webs. Lastly, public safety is at risk when hazardous items are discarded and find their ways to local Bay tributaries.

### **Best Practice 2: How was the project connected to school curriculum (e.g. what course outcomes were met and/or how did the project reinforce or enhance student academic learning)?**

Our hands-on project served to reinforce and enhance learning in the classroom and was closely aligned with both the Maryland Voluntary State Curriculum (VSC) and PGCPs Curriculum Framework Progress Guide for Biology. Specifically, through the water quality data collection piece of our project, all Expectations of Goal 1 (below) from the VSC were reinforced.

*Goal 1: The student will demonstrate ways of thinking and acting inherent in the practice of science. The student will use the language and instruments of science to collect, organize, interpret, calculate, and communicate information.*

Additionally, the stream clean-up portion and pre- and post-lessons served to enhance students' understanding of Expectation 3.5 (below) from Goal 3 of the VSC. Specifically, the project taught students about stream ecology, food webs, and the impact that humans have on ecosystems.

*Expectation 3.5: The student will investigate the interdependence of diverse living organisms and their interactions with the components of the biosphere.*

### **Best Practice 3: How did you reflect on your experience throughout the project?**

Throughout and after this project, the students reflected on their experiences through several activities. First they participated in a class discussion where they shared their own

reflections on the experience. In addition, each student wrote a letter to both Johnsons Controls, Inc. and the Chesapeake Bay Trust expressing their gratitude for funding our service-learning project and associated Bay field trip, and to describe what they gained from the experiences. Lastly, each student developed a summary of how much trash they collected and they listed individual large items that they found. In this activity, they were also asked to specifically describe how their actions impact the health of the Bay. Through our reflection activities, we determined that we had removed about 1000 pounds of trash, a computer monitor, siding from a house, a car bumper, a shopping cart, 5 tires, sporting equipment and various items of clothing. Writing the letters to our funding partners also helped the students understand that they are part of a larger community of people that are working to save the environment and improve education.

**Best Practice 4: How did students take leadership roles and take responsibility for the success of the project?**

This project provided an excellent opportunity for students that don't necessarily excel in the classroom to take on leadership roles. Specifically, there were many students that helped coordinate the removal of large items (grocery cart, car bumper, etc.) by leading and directing small teams of students. Meanwhile, other students actively worked to remove trash located in hard-to-reach spots and helped to lead those adventures. Lastly, all students took responsibility for the success of the project and showed this through their dedication and commitment to cleaning the stream. This was especially demonstrated by their lack of vanity as they stepped through mud to remove debris and hauled trash filled bags up a large hill with sweat pouring off their bodies.

**Best Practice 5: What community partners did you work with on this project (e.g. non-profits, civic organizations, business that provided donations, etc.)?**

In order to complete this project, I obtained financial support from two sources. A major portion of our associated Bay field trip was paid for by a \$6,000 grant from Johnson Controls, Inc. The remaining amount, \$3,400, was paid by a grant from Chesapeake Bay Trust, who also provided logistical support for our stream clean-up.

**Best Practice 6: How did you prepare and plan ahead for the project?**

This project required extensive preparation and planning. In order to obtain funding for our associated Bay field trip, the wheels were turning almost a year before the field trip. The Living Classrooms Shipboard Experience field trip provided the springboard for my students to dedicate themselves to the stream clean-up. In order to properly execute the stream clean-up project and achieve our educational goals, we spent time in and out of the classroom preparing ourselves by learning about the Bay, ecological theory, and how to use the water quality testing equipment. All the pre-project time served to develop a stronger commitment from the students and a greater desire to make the clean-up project successful.

**Best Practice 7: What knowledge and skills did students develop through this project?**

Students developed many skills through this project. Specifically, they learned:

- 1) How to become actively engaged in helping their community.
- 2) How to work with other students from all different levels of classes (special-education, regular and honors).
- 3) How to work together as a team with a common goal.

- 4) How to encourage and support others as they struggled to remove items from the stream.
- 5) How to let go of vanity in order to achieve a common goal. The heat, mud and hard work were challenging but not one student stopped what they were doing because of it.
- 6) How to take leadership roles to lead a team to success.
- 7) How to gain a sense of pride through their achievements.
- 8) How to problem solve when your first solution doesn't work.
- 9) How to take water quality data using a hand-held computer, including; pH, salinity and temperature data.

Students also enhanced their knowledge through this project. Specifically, they learned:

- 1) How pH, salinity and temperature data can be used as indicators for the health of a stream.
- 2) The structure of a stream food web and the impact of pollution on stream ecology.
- 3) How their actions impact the health of the Bay and the ecosystem.
- 4) How easy it is to help the environment.

Overall, this project was extremely successful and students walked away with specific skills and knowledge that will not only help them academically, but will also serve to make them stronger leaders and more thoughtful members of their communities.

"One person becomes a drop in the stream, then that stream becomes a river. People together make a swell, then a tide, and that makes a difference." -Richard Hovannisian, UCLA professor of Armenian and Near Eastern history

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