

## **Severna Park Middle School PTO-Mini Grant EE Final Report-grant #11997**

### **1. Project Summary**

#### **A. Project Overview & Outcomes**

The storm drain garden project completed last month at Severna Park Middle School was a tremendous success. The project entailed 100- 6<sup>th</sup> grade students learning about storm water issues, including run-off and pollution, through various classroom lessons, culminating with a field trip to the Columbus Center to learn hands-on techniques in studying and improving these issues. The education in this arena was capped off by the installation of two adjacent rain gardens on the school campus to improve run-off and the health of the Chesapeake Bay, as these gardens will reduce the amount of nitrogen, sediment and trash that enter the Magothy River, and ultimately, the Bay.

The project scope was significant and entailed the efforts of many people and resources. It brought the curriculum to life, demonstrating to the students the relevance of the material they were studying through hands-on-application and a service learning component that demonstrated the impact of their efforts and actions.

The 6<sup>th</sup> grade science curriculum includes the Chesapeake Bay and teacher Debbie Sparby brought the topic to life for her students by beginning with the utilization of Arlington Echo's model of the Bay to illustrate to students the scope of the subject, as well as their direct involvement by showing the extent of run-off and the sources from our community. This was the first step in introducing the kids to the idea of the rain garden project and how their actions can improve the severity of the situation. The students embarked on a field trip to the Columbia Center in Baltimore in which they participated in several rotations that involved them increasing their understanding of storm water management, pollution and run-off by obtaining and studying samples by using various scientific tools to evaluate and analyze the data, as well as discuss the impact and possible solutions. This field trip allowed students to work closely with scientists involved in addressing these issues. Later in the semester, classroom lessons shifted gears to focus on the solution and specifically the benefits of rain gardens in improving run-off. A watershed steward led classroom lessons about rain gardens and then challenged students to use the information to act as landscape architects to design rain gardens for the designated area at the school. The student designs were then compared with those already created by the landscape architect who volunteered for this project. This allowed students to fully understand the relevance of the gardens, materials and process to the issue of storm water management. Finally, the students' education concluded with "planting" day, in which they installed the many different plants, mulch and leaf-gro to establish these gardens. Of course, volunteers and service partners had been working behind the scenes to design, procure, excavate and prepare the area so that students were then able to plant. The cooperative effort showed the real impact, not just of run-off, but of the potential to improve the community through dedication, pooling of resources and desire.

#### **B. GRANT METRICS**

The goal of this project was to have the students plan and carry out a project to improve the impact of the school grounds on water quality leading to the Chesapeake Bay. Our plan was to provide them with

the skills to know how to accomplish this. We began the school year teaching about what a watershed was, where they were in the watershed, factors that impact the health of the watershed, how to measure water quality, and finally, ways to improve water quality. To teach them what a watershed was, we used a hands-on watershed model and had students add things to the watershed and watch what happens as they change the landscape. To teach them where they were in the watershed, we had the students use the internet site called AA County Silverlight in order to locate the school and their homes and identify septic systems, calculate impervious surfaces, and determine where the property drained. To teach them how to measure water quality, we took the kids on a field trip to the Columbus Center, where I had my internship with Maryland Sea Grant to have them create a mock rain garden, learn about consequences of dead zones, use the microscope to see local microorganisms that live in our watershed, and finally to use instruments to measure the temperature, salinity and clarity of the Baltimore Harbor. Finally, to problem solve ways to improve water quality on the grounds, students completed the CBF School Yard Report Card and then identified 5 ways we could improve the score of the school yard. From that list of 5, students selected by majority vote to plant the rain garden to slow the drainage of storm water from school property. The grant was used to help with Columbus Center Field Trip costs and for excavation of the site and procurement of supplies to plant the native rain garden.

### **C. Public Involvement**

The project was possible due to the concerted efforts of many different players. The committee consisted of a diverse group that represented the many stakeholders and talents needed to bring the project to fruition. The adage, "It takes a village" certainly held true for this project, given the details and magnitude. The resources consisted of:

Debbie Sparby – science teacher and project lead

Chris Myers – PTO President and Green School Committee Coordinator, who assisted with funding matters, material procurement, and publicity

Lou Anoff – SPMS Assistant Principal who served as administration representative and liaison to AACPS

Jackie Evans – SPMS Chief Custodian who served as facility coordinator, working with utilities for digging purposes, delivery of materials and site management and clean up

John Dawson – Watershed Steward who helped in the planning, design, materials procurement, classroom lessons/guest speaker, and planting supervisor with the students

Anne Guillette – Landscape Architect who designed the gardens, coordinated the procurement of plants, coordinated vendor for excavation, and assisted in supervising the planting

Willie Williams – Arlington Echo – reviewed project plan and surveyed site to determine project area; assisted with classroom lesson plans and materials for curriculum integration

Bear Landscaping-SPMS parents who own Landscape Company and provided mulch and other landscaping materials.

Columbus Center- Julie Damico and Adam Frederick planned field trip rotations and activities.

Unity Gardens-obtained grant to purchase native plants for rain garden.

Many parent volunteers, 35, were involved as well, specifically as chaperones for the Columbia Center field trip and to assist and oversee students with the planting activity.

#### **D. Demographic Information**

96 Caucasian students and 4 African American students participated in all aspects of the project.

Of the 35 volunteers, all were Caucasian and 65% were female and 35% were male.

Severna Park Middle School is located in Anne Arundel County and is located between the Severn and Magothy Rivers. The front of the school drains into the Magothy and the back drains into the Severn. The project focused on improving the water quality to the Magothy River. This improvement benefits 70% of the residents in Severna Park because most of the storm water drains into the Magothy here. This improved water quality on the grounds by about 20%, given the total number of drains on the property. The front fields where the planting took place are used extensively by Green Hornets for sports, bringing people from beyond Severna Park to the area and highlighting the importance of improving storm water management.

#### **E. Impact to other SPMS Environmental Activities**

This project was inspired by the success of a similar rain garden project that Debbie Sparby completed with her students in the spring of 2013. Much smaller in scope, but similarly following the curriculum of 6<sup>th</sup> grade science as it relates to the Chesapeake Bay, Ms. Sparby, the PTO and the school, engaged the volunteer services of a local watershed steward to design a small rain garden around a storm drain that was not performing well. Students worked with the watershed steward to plant and maintain that garden. Based upon the success and enthusiasm the students experienced, and how much they learned through that hands-on project, Ms. Sparby was inspired to look elsewhere on the school grounds to repeat and expand the process. The initial hope was a project very similar to the spring garden but due to future AACPS construction plans at the neighboring elementary school, a new location was identified.

Once again, following the success of this project and the student, school and community response, there is already talk of future garden projects to continue the momentum and solidify the school's role as a steward of the Bay.

Based upon the spring garden project, the attainment of this grant and the plans of this garden project, Debbie Sparby was awarded placement in the Governor's Watershed Program. This includes professional development, allowing this tremendously talented and dedicated teacher to continually improve and share that information with her peers at SPMS, as well as additional hands-on, service learning projects for her students. Specifically, in the spring of 2014, she will be taking students to Cattail Creek in Severna Park, where they will conduct water quality testing. This is a tributary of the Magothy River, which the gardens the students just planted drain into and as such, this next project will strengthen the kids' understanding of the area and their impact to the Bay.

The project highlights the school's direct connection to the Bay and as a result, the Environmental Club has made a commitment to follow up the rain garden projects with implement storm drain stencils on the many drains on the school grounds. The project began in the spring and will take months to continue via the after-school club meeting program but the commitment is present and strong, thanks in part to the success of this rain garden project.

This project helps to continue to strengthen the school's Green School program and inspires continued involvement and dedication to it. SPMS will apply for Maryland Green School re-certification in 2015 and this project is very much a part of the plan of the school's journey to maintain its status as an environmental leader and certified Maryland Green School.

## **F. Outreach & Educational Activities**

Park Pride is evident in this project, and as such, it was communicated and shared with many. It was exciting for students to be interviewed and photographed on planting day by a reporter from the Severna Park Voice. This strengthened their resolve and validated their belief that their efforts are indeed meaningful to the community at large and the Bay. Other media outlets, such as a The Severna Park Patch and the Capital were contacted. Student reporters from the school newspaper and staff and student photographers from the school yearbook were present to capture "planting day", again letting everyone at the school know the importance of this project. An additional grant was obtained through Unity Gardens. They too have been apprised of the project and were invited to attend to witness the culmination of efforts on planting day. The PTO received a letter of congratulations for receiving the CBT grant from State Delegate Cathy Vitale. The PTO kept her apprised of the project status and invited her to attend the project planting. Unfortunately a last minute schedule change precluded her from attending but when the students heard of her interest, their enthusiasm was elevated even further.

John Dawson, of the Watershed Steward Academy, came to Debbie Sparby's classroom to teach a lesson on how to design a rain garden prior to planting. Students then compared their designs to the actual design created by Anne Guillette. John also discussed what was required to become a Watershed Steward and why what he does helps improve the quality of the Bay.

Governor's Watershed Program-this planting project is tied to the Governor's Watershed program as a complement to our planned action project. The Watershed program stresses outdoor education and improvements with the goal of teachers having their students take an active role in becoming stewards of the Bay.

## **2. Project Evaluation**

### **A. Methods/Procedures to Evaluate Success**

Through the use of water quality testing, we will analyze data from previous years and compare it to now in order to determine if the water quality has improved. The Environmental Science Club, which is comprised of about 30 students, will help with monitoring and maintenance of both gardens.

## **B. Greatest Success/Biggest Challenge – Advice to another group**

Reflecting on this project, it is difficult to name the singular, “greatest” success. There is much to be proud of and celebrate! The success of the project was due in large part to the key players who executed their roles so brilliantly and in a coordinated fashion. Debbie Sparby is a dynamic teacher who led and juggled all the moving parts, inspiring her students and all involved. She is the true champion of this project, John Dawson, Watershed Steward, was the hero. His knowledge, expertise, and ability to work with and lead the students both in the classroom and in the field made all the difference. He also engaged the services of a landscape architect who designed and then engaged resources to bring the project to fruition. These key players, and their ability to communicate regularly, stay on task, follow up and follow through are the reasons for success.

The greatest outcome, and thus success, is the students’ buy in and their willingness, ability and understanding that they can and should be part of the solution to matters affecting their community. The goal of education is not just to impart information, but to do so in a way that inspires action and change for the better. This project exemplifies that this was indeed achieved and teachers, parents, schools and communities as a whole cannot ask for anything more.

Of course reaching this end does not come without obstacles. The biggest challenge in this project was communication and keeping the project, in terms of the many tasks, players and materials given the fact that most of those involved were volunteers who were all in different places; meaning the team was not all school-based. The limited time for the project and most significantly, the limited time that the many players had in common, made this project challenging. Email proved to be incredibly helpful in managing the project.