



Winter 2013, Vol. 8



This Autumn, we:

- Opened the **\$340,000** Bell Colliery Phase III system which will remove **2 tons of iron** a year from the Schuylkill River
- Led **educational tours** of our AMD systems for **125 students** and **27 adults**
- Reached **90 students** through presentations on the legacy of anthracite coal and its impacts on the watershed
- Acted as the catalyst for **2 rain garden projects** at the Blue Mountain School District and Hamburg High School
- Removed **57 garbage bags of trash** from the Port Clinton beach with **12 volunteers**

Testing Water Quality for Higher Standardized Test Scores

This autumn, the Schuylkill Headwaters Association participated in a semester-long program with Mrs. Rachael Kubick's science classes at the Pottsville High School. Rachael Kubick originally contacted Outreach & Education Coordinator Sierra Gladfelter over the summer because some of her students were struggling to meet Pennsylvania's Keystone Biology and Ecology State Standards. Recognizing that a hands-on, applied project would make the concepts discussed in her classroom more relevant, Rachael Kubick and Sierra Gladfelter designed a curriculum that would culminate in a field day of water quality testing at the Silver Creek Abandoned Mine Drainage Filtration System.

Sierra Gladfelter gave a presentation to students on the history of anthracite coal in Schuylkill County, the legacy of its impacts on the watershed, and the Schuylkill Headwaters Association's efforts at mitigating abandoned mine discharges by building large-scale filtration systems. Following this lecture, Pottsville High School students visited Silver Creek in early October for a two-hour comprehensive walk-through of the system. Sierra Gladfelter and SHA President Bill Reichert discussed how design features of the Silver Creek Filtration System impacted water chemistry.

In mid-November the students returned to Silver Creek for a two and a half hour field day of water testing. Students were broken into four teams and each group monitored two sites throughout the system in order to understand how water quality features (i.e. pH, dissolved oxygen, iron, acidity) changed throughout the system. The curriculum ended in a follow-up analysis with the entire class where students reported their data and discussed trends that they documented as water quality improved between the intake and outflow of the system. The Schuylkill Headwaters Association hopes to continue this relationship with Pottsville High School by structuring applied programs for future science classes and encouraging continued involvement through projects with the Pottsville Ecology Club.



Pottsville High School Students monitor water quality and record their results at the Silver Creek AMD Treatment System.

Photographs by Bill Reichert.

Are you an educator or school administrator interested in installing a rain garden or stormwater project on your school's campus?

Blue Mountain Campus Greening

The Schuylkill Headwaters Association (SHA) has been working closely with a team of science teachers led by Mr. Tom Bonner at the Blue Mountain Middle School to organize a community service project for the 8th grade class this spring. The rain garden project currently under development emerged during a summer tour of the Silver Creek System when Tom Bonner and his fellow teachers asked how they might bring SHA's 'watershed lessons' back to their classrooms.

Outreach & Education Coordinator Sierra Gladfelter and SHA President Bill Reichert visited the Blue Mountain Middle & Elementary School Campus in early September to walk the grounds and assess the potential of storm water retention basins and swales to be retrofitted into rain gardens. Prior to this assessment, Sierra Gladfelter and Bill Reichert visited districts across Montgomery County that had installed extensive rain gardens and stream buffers around their campuses through the Schuylkill Action Network (SAN)'s Schuylkill Action Students Program. Photos and testimony collected during this tour informed conversations with Blue Mountain teachers and administrators as the project developed further.



Priority stormwater basin for spring rain garden

Tom Bonner organized a meeting with grounds staff in October to include their perspective on maintenance headaches and prioritize a project for this spring. With the entire team of teachers, maintenance staff, and SHA behind it, the district's school board approved the project. On Wednesday, November 21st Blue Mountain teachers, members of the high school Ecology Club, community Master Gardeners, staff from the Penn State Agricultural Extension Office, and SHA officers met at the site to draw up a plan. Tom Bonner and Sierra Gladfelter are actively pursuing funding sources through national, regional, and local grants. The project will occur this May with the Blue Mountain Middle School 8th grade class leading the effort with mentorship from students in the High School Ecology Club. When completed, Blue Mountain will be the first Schuylkill County school district to participate in SAN's Schuylkill Action Students program.

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Outreach & Education Coordinator Sierra

Seeding our Systems: Recognizing the Benefit of a More Diverse Wetland

The Schuylkill Headwaters Association has been collaborating with the native plant provider Aquascapes Unlimited to increase plant biodiversity in the wetland cells of our abandoned mine drainage filtration systems. This relationship emerged after the nursery's owner visited our Silver Creek system last spring. After assessing the wetland ponds, he encouraged us to experiment with planting a more diverse palette of wetland vegetation to increase our capacity to filter polluted waters. Aquascapes Unlimited has been extremely generous and has donated several hundred plants, which we have planted at our Silver Creek, Mary D, and Bell Colliery Phase III systems. The Schuylkill Headwaters' intention is to monitor plant survivability and reproduction with local high school ecology clubs this spring and initiate a program to collect, bank, and distribute seeds across our systems.

Extending Our Reach Beyond Schuylkill County

Although the Schuylkill Headwaters Association focuses our efforts on the Schuylkill River's tributaries in Schuylkill County, we have reached out to our neighbors in Berks County. Ms. Pamela Whitman, a teacher at the Hamburg Area High School, contacted the Schuylkill Headwaters Association in early October about organizing a presentation and tour for her students on abandoned mine sites in Schuylkill County. After presenting to her class and leading students on a tour around Silver Creek, Ms. Whitman and her students were inspired by SHA's work and wanted to do something on their own campus to mitigate stormwater and pollutants entering the Schuylkill River. Outreach & Education Coordinator Sierra Gladfelter and SHA President Bill Reichert offered to lead a walking-tour of Hamburg High School's school grounds to assess opportunities to install rain gardens.



The students' enthusiasm quickly drew the attention of the school principal and district superintendent who have expressed interest in the project. While the Schuylkill Headwaters Association intends to connect Hamburg High School to resources in their own county through the Berks County Conservation District, we are thrilled to have been the catalyst for a student-driven project in our neighboring county!

**Hamburg
High School
Students
assess rain
garden
potential on
their campus**

Schuylkill Headwaters Hosts Public Tour of New Systems

On Saturday, October 19, the Schuylkill Headwaters Association hosted a public tour for Schuylkill County residents, organization members, and partners in the wider watershed to visit two new systems—the Mary D Borehole Passive Filtration System and the retrofitted Bell Colliery Phase III System—that opened this June and early September. Over 15 people attended the tour and had the unique opportunity of being guided through the sites by SHA representatives and RETTEW engineer Christine Haldeman behind the design.

The \$792,000 Mary D System built with Environmental Protection Agency 319 funds and Schuylkill River Restoration grant treats an average flow of 950 gallons/minute. This system has successfully raised pH from 5.5 at the intake to 7 at the outflow and will remove 4 to 7.5 tons of iron each year! The \$340,000 new Bell Colliery Phase III System is boosting discharge flowing in with a pH of 4-4.5 to 7-7.5 by the time it leaves the system! This system will remove approximately two tons of iron every year. Less than a mile apart, these two systems will do wonders for water quality in the Schuylkill River headwaters



Visitors tour the Mary D and Bell Systems on the SHA's Public Tour

Photograph by Sierra Gladfelter

Abandoned Mine Discharges: the Headwaters' Most Popular Tour Destination!

Who would have guessed that abandoned mine discharges would be such a popular field trip destination? This season, the Schuylkill Headwaters Association led an unprecedented number of tours for teachers, high school students, and college classes! Besides local school districts like Blue Mountain, Pottsville, and Hamburg, several groups from colleges and universities drove hours to the Schuylkill Watershed's headwaters for full-day tours of the river's tributaries and the mine discharges that impact it. Dr. David Dunbar's Watershed Stewardship class from Cabrini College visited SHA in early October for a four-hour tour of discharges and restoration efforts throughout the Pine Knot watershed. A Fossil Fuels class from Yale University also visited Schuylkill County this October to tour Lehigh Anthracite's active coal mine and discuss the role of anthracite extraction in local and global economies.

Outreach & Education Coordinator Sierra Gladfelter and SHA President Bill Reichert have spoken widely across Schuylkill County to school groups, scout troops, and ecology clubs about our work at the Schuylkill Headwaters Association. Many of these presentations have led to more involved tours and programming, or in the case of Hamburg and Blue Mountain School Districts, even inspired projects on schools grounds.



Left to Right: Pottsville High School YES (Your Employability Skills) Program tour of Mary D System, Cabrini College watershed tour, Yale Fossil Fuel class tour of Lehigh Anthracite, Pottsville High School tour of Silver Creek System

Port Clinton Beach Sweep

On Saturday, November 16, Penn State Schuylkill students from the Community Service Club and high school students active in Blue Mountain's Ecology Club participated in a clean up to remove garbage discarded by summer swimmers at the "Rock" in Port Clinton. Students labored, alongside community volunteers and members of the Schuylkill Headwaters Association, to remove 57 garbage bags of picnic trash and beer bottles. Penn Dot was generous enough to pick-up the trash and dispose of it. The most important lesson participants took away from this clean up was what a recycling "rebate" can do to mitigate littering. While volunteers collected 15 bags of glass bottles alone, there were only a mere 20 aluminum cans on the entire site! The Schuylkill Headwaters Association plans to host a second clean up in the spring to do a thorough sweep before the summer season begins.

Penn State Schuylkill Community Service Club volunteers and students from Blue Mountain High School's Ecology Club pose with the

57

bags of trash they collected!



Photograph by
Sierra Gladfelter

Schuylkill Acts & Impacts Summer Youth Program in the Works

Outreach & Education Coordinator Sierra Gladfelter has been actively planning the Schuylkill Acts & Impacts program that was partially funded through a Toyota TogetherGreen grant administered by the National Audubon Society. Schuylkill Acts & Impacts will be a weeklong summer program offered June 7-14, 2014 to a team of 10 high school students, with two participants representing each county in the greater watershed. The program involves a journey along the 120-mile Schuylkill River from its headwaters in the anthracite coal lands of Schuylkill County to its confluence with the Delaware River in Philadelphia. Team leaders and professionals will guide students downriver, illustrating the array of issues affecting water quality and river ecology. Students will paddle stretches of the river with biologists and conduct water quality monitoring, tour abandoned and active coal mines, visit farms to examine stream bank erosion, and walk Philadelphia's streets to witness pioneering work in mitigating storm water. Each stop will involve a half-day service project.

While Toyota TogetherGreen has been generous enough to give us seed money, we also recognize that the long term sustainability of a program ultimately must come from those with a stake in the watershed, in this community, and in the youth who will be the leaders of the future. We need to raise \$5,000 more dollars. Since Toyota TogetherGreen has given us \$5,000 toward the program, we are asking for sponsors to contribute \$500 toward sponsoring a student. If you or an organization or business that you represent would be interested in sponsoring a student from your community please contact Outreach & Education Coordinator **Sierra Gladfelter** at outreach@schuylkillheadwaters.org or call 570-573-2093.



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Call for Eagle Scout Projects: Native Pollinator Garden, Wildlife Viewing Platform, Walking Trail Bridge

Looking for an Eagle Scout Project that will make a difference for conservation in your community? The Schuylkill Headwaters Association has several projects that could easily meet your Eagle Scout requirements! SHA would like assistance on a series of projects that are nested within our larger effort to convert the Silver Creek Abandoned Mine Drainage (AMD) Passive Filtration System into a recreational and educational park for the New Philadelphia community. Please contact Outreach & Education Coordinator Sierra Gladfelter for complete project descriptions at outreach@schuylkillheadwaters.org or call 570-573-2093.

Upcoming Events...

Whipporwill Walk: Sunday, January 12 from 1:00-3:00pm

Join John Domalakes for a 2-mile tour of the outskirts of the “mountain city” of Frackville, Whipporwill Park, and the nearby dam. Meet John at the Odd Fellows Cemetery at the end of East Oak Street in Frackville. Be sure to turn onto Morea Road. For a complete schedule of Schuylkill On the Move’s hikes, contact Porcupine Pat at porcupinepat@yahoo.com; 570.622.4124x113.

The Schuylkill Watershed Congress: March 15, 2014

Montgomery County Community College—West Campus, Pottstown PA

This event is a place for organizations, businesses, educational institutions, agencies and individuals who care about the Schuylkill River to come together for a creative and productive exchange. To participate as a presenter or participants contact the Delaware Riverkeeper Network: dm@delawareriverkeeper.org or call 215.369.1188.

Schuylkill Headwaters Association, Inc.

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