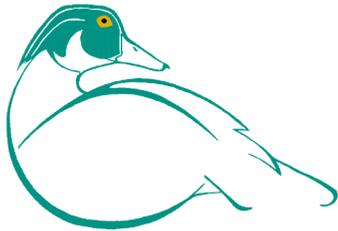


# Potomac Headwaters Leaders Of Watersheds- PHLOW



## Cacapon Institute

From the Cacapon River to the Potomac to the Chesapeake Bay we protect rivers and watersheds using science and education. Founded in 1985, Cacapon Institute (CI) has grown from a local watershed research and protection group to an organization reaching a broad audience across the Mid-Atlantic. Our online Potomac Highlands Watershed School is used by tens of thousands of students. Our science projects include watershed research and urban tree canopy studies. Urban trees are the trees we live with, the trees that grace our neighborhoods, towns, parks, schools and roadsides.

As problem solvers CI develops real-world conservation projects. We facilitate community and school based hands-on watershed conservation across the Potomac Highlands, Shenandoah Valley, and downstream to the Bay. Since 2009 Cacapon Institute has coordinated the Potomac Watershed Partnership. PWP is dedicated to protecting the lands and water of the Basin. CI is an active participant in the WV Chesapeake Bay Tributary Team and Chesapeake Bay Program.



# NFWF



Chesapeake Bay Program  
A Watershed Partnership

## Chesapeake Bay Stewardship Fund

### PHLOW

Since 2011 PHLOW has been funded in large part by a grant from the National Fish and Wildlife Foundation. CI began PHLOW in 2008 in partnership with the WV Corporation for National and Community Service under the Future Leaders of Watersheds program. PHLOW has spread from its WV base and now includes schools in Western Maryland and the Shenandoah Valley.

Through PHLOW, CI teaches students about watersheds and the problems and causes of non-point source water pollution, especially stormwater runoff pollution. Students are then empowered to identify problems on their campus and in their community and implement best management practices to address the problems.

### Supporting Programs for PHLOW



PHLOW draws on technical and material resources from many funders and organizations. CI is building synergy between federal, state and local programs to

enhance K-12 environmental education that will foster an environmentally literate generation of youth. PHLOW supporters include WV Bay Tributary Team, USDA Forest Service, US EPA, Potomac Watershed Partnership, the MARPAT Foundation, Evenor Armington Fund, and Virginia Environmental Endowment.

CI oversees WV Project CommuniTree, a partnership funded by the USDA Forest Service. CTree supports PHLOW by providing trees and educating students on trees' importance in reducing stormwater runoff pollution. CTree promotes tree plantings and education on public lands through volunteerism in the Potomac Headwaters of West Virginia (Berkeley, Jefferson, Morgan, Mineral, Hampshire, Grant, Hardy, Pendleton Counties). Technical assistance is provided by CI and the WV Conservation Agency, Division of Forestry, and Division of Highways.

# PHLOW Beginnings 2008-2011



**PHLOW** began when CI identified a need to engage students in watershed conservation, not just as willing volunteers and strong backs but as full participants in improving their communities.

In 2008, with a grant from the National Corporation for Community Service and WV DEP, Wildwood M.S. and Capon Bridge M.S. formed PHLOW clubs. They surveyed their campuses and planted trees to reduce erosion.

In 2009, in partnership with the Girl Scouts of America, Potomac Valley Audubon, the WV Division of Forestry and Conservation Agency, PHLOW spread to Musselman, E. Hardy, and Paw Paw high schools.

In 2010, thanks to the Virginia Environmental Endowment and Shenandoah Pure Water Forum, Page County, Luray, and Buffalo Gap high schools joined PHLOW.

In 2011 PHLOW helped Jefferson County's Urban Tree Planting Initiative extend watershed education and plant trees at six schools.



## PHLOW 2012 Highlights

### Spring Mills Middle School (WV)

The environmental club's 22 students and teacher Michele Adams worked with CI to plan and install a 500 ft<sup>2</sup> rain garden. They also planted 12 large trees and prepared a 1000 ft<sup>2</sup> wildflower bed.

### Tomahawk Intermediate (WV)

The entire 3<sup>rd</sup> grade was involved in a watershed restoration project and community outreach. This student-led project resulted in the instillation of a 37 x 8 ft. raised bed rain garden, a wildflower planting, a watershed education billboard, educational posters and flyers, interpretive signs, and three decorated rain barrels.

### Paw Paw School (WV)

Student Leaders worked with CI to design and construct a 350 ft<sup>2</sup> rain



### Quick Facts- Spring 2012

1515 Native Plants Installed  
2530 ft<sup>2</sup> of Rain Gardens  
450 Student Leaders  
138 Trees Planted  
20 Community Members Engaged  
5 lbs. Wildflower Seeds Dispersed  
3 Rain Barrels (55 gallon) Installed

garden making this the second on the grounds. It captures stormwater runoff pollution from a parking lot.

**Musselman High (WV)- Spring 2012**  
Students from the W.E.T. Club (Watershed Environmental Team), lead by teacher Deb Stevens, designed and installed a 3-tiered rain garden as part of a comprehensive BMP retrofit for the marching band's practice field area.

**Hancock Junior Senior School (MD)**  
Erin Mckee's MAEOE Green School Club worked to address erosion issues on a

steep hill behind the school. They learned that erosion leads to sedimentation in the stream, degrading aquatic habitat. They planted 6 trees in erosion prone areas so the roots would mitigate the problem. The trees will also provide shade for spectators at sporting events.

### Willamsport Middle School (MD)

Teacher Heidi Strite's Green Club planted a Butterfly Garden to beautify the school's sign and provide wildlife habitat. PHLOW provided over 200 plants for the 16x24 ft area and supported planning and grant writing for future projects.

### Quick Facts- Fall 2012

110 Trees Planted  
150 Native Plants Installed  
24 Hours of Education/Outreach  
3 Rain Gauges Installed  
1 Bioretention & Bio Swale Installed

### Musselman High (WV)- Fall 2012

Students installed a new bio swale and bioretention area, planted 12 trees, and performed maintenance on previously installed projects.



Rain Garden Instillation at Musselman High

# PHLOW 2012 Highlights Continued

## Tomahawk Intermediate (WV)

Installed 3 rain gauges to assist the 3<sup>rd</sup> grade with a long term monitoring program comparing stormwater volume at 3 locations; under a deciduous tree, an evergreen tree, and an open lawn.

## Capon Bridge (WV)

Environmental Club members pulled weeds and mulched CommuniTrees from spring 2012.

## Spring Mills Middle School (WV)

The gardening club performed necessary weeding of the rain garden.

## Paw Paw School (WV)

Planted 24 new trees and performed maintenance on their rain gardens.

## Other Education Outreach

Lessons were provided at Jefferson County Science Olympics and St. Leo Cooperative Home School.



# Goals and Accomplishments

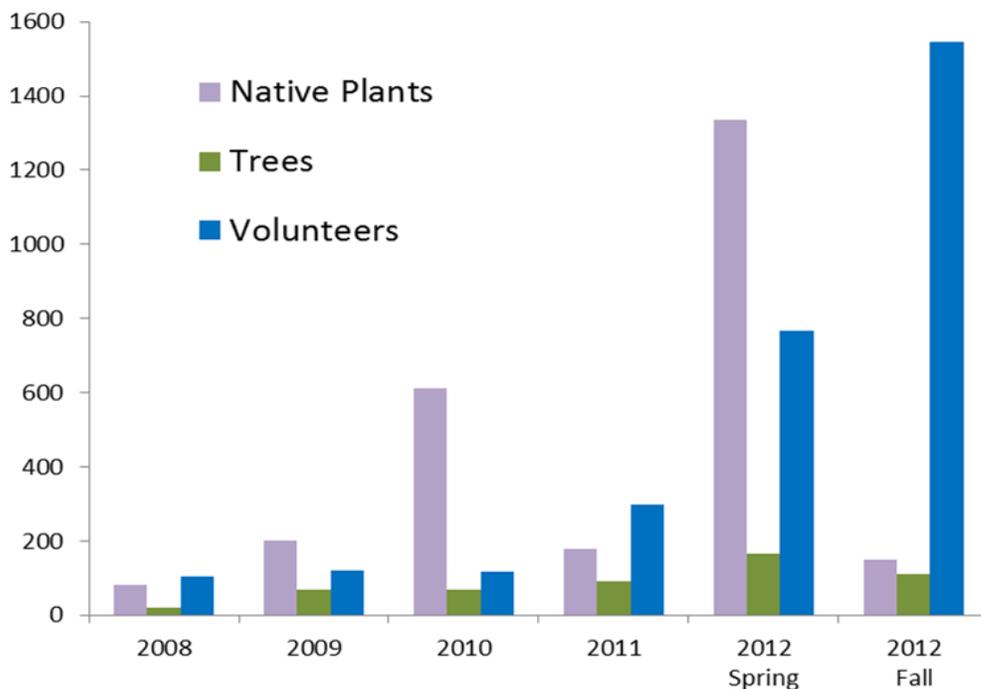


### 2012-2013 Goals:

- Plant 449 Trees
- Install 6 Rain Gardens
- 3 Bioretention Facilities (expand/install)
- 15 Schools Improve Stormwater Management
- Engage 1,500 Students in Hands-on Conservation
- Involve 150 Parents and Community Members
- 8 WV Counties
- 5 MD or VA Counties

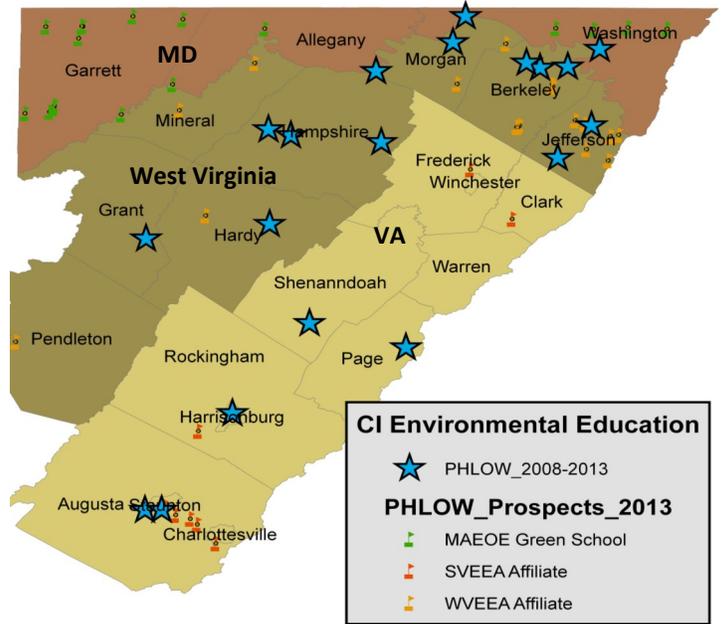
### Accomplishments to Date:

- ⇒ 599 Trees Planted
- ⇒ 3 Rain Gardens Installed
- ⇒ 2 Bioretention Facilities (expanded/installed)
- ⇒ 12 Schools Improve Stormwater Management
- ⇒ > 1,000 Students Engaged in Hands-on Conservation
- ⇒ > 50 Parents and Community Members Involved
- ⇒ 5 WV Counties
- ⇒ 1 MD County; 2 VA Counties



# PHLOW Looking to the Future

PHLOW is devoted to education programs tied to hands-on outdoor conservation. This gives students a strong sense of ownership in the projects and is building future generations of watershed stewards. CI looks forward to reaching new schools and working with Maryland Association for Environmental and Outdoor Education (MAEOE), Shenandoah Valley Environmental Education Association (SVEEA) and West Virginia Environmental Education Association (WVEEA).



**CI Environmental Education**

- PHLOW\_2008-2013
- MAEOE Green School
- SVEEA Affiliate
- WVEEA Affiliate

**PHLOW\_Prospects\_2013**

## Cacapon Institute’s Additional Educational Resources



PHLOW is underpinned by Cacapon Institute’s many watershed education programs. These include our online Potomac Highlands Watershed School and Stream Cleaner Pinball.

Online “Stream Cleaner” and Stream Cleaner Pinball are interactive educational tools that teach students about urban and agricultural runoff pollution and best management practices (BMP) to mitigate pollution. Pinball has traveled throughout the Potomac Highlands and into Maryland and Virginia.

The Potomac Highlands Watershed School plays a key role in PHLOW education and restoration projects. CI staff and teachers devote many hours to education and instruction prior to hands-on projects.

Lessons include “What Is A Watershed”, “Sedimentation Blues”, and many online “games” to familiarize students with benthic macroinvertebrates and non-point source pollution issues. High school classes are invited to join our twice annual Environmental Forums, a month-long moderated dialogues between classes across the Chesapeake Bay watershed.



For more information visit our website or contact:

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