

# Consortium for Scientific Assistance to Watersheds

Annual Report: April 11, 2014 – December 31, 2014

*Transferring knowledge and skills to watershed groups;  
Building capacity to undertake watershed assessments and monitoring.*



***The C-SAW program is funded by a Pennsylvania Department of Environmental Protection Growing Greener grant awarded to the Pocono Northeast Resource Conservation and Development Council in Partnership with:***

Alliance for Aquatic Resource Monitoring at Dickinson College  
Conemaugh Valley Conservancy  
Delaware Riverkeeper Network  
Pennsylvania Lake Management Society  
Stroud Water Research Center  
United States Geological Survey

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## Executive Summary:

There is a significant amount of work needed to protect and restore Pennsylvania's streams and lakes. There are hundreds of watershed associations and groups in Pennsylvania actively participating in these efforts. The willingness of private citizens to take action holds real promise for improving water quality and preserving streams throughout the Commonwealth. The Consortium for Scientific Assistance to Watersheds (C-SAW) program provides technical and programmatic assistance to those organizations that need assistance to accomplish their local aquatic improvement and monitoring goals. Since the conception of the C-SAW program in 2001, more than 277 watershed organizations and thousands of individuals have received watershed specific technical assistance, mentoring, and quality control support. **In the past nine months, C-SAW partners have supported 47 organizations and approximately 1,875 individuals.**

Citizens and local watershed organizations are critical in enhancing and improving watershed protection and restoration at the local level. Therefore, it is anticipated that demands upon the C-SAW program are expected to continue to exceed the limited resources available. C-SAW partners have been working to help spread dollars farther by including match time and money for the program, which comes from volunteer time of C-SAW recipients, other funding sources of C-SAW partners, and volunteer staff time.

## C-SAW Partners:

The scope and depth of collaboration and cooperation that has grown among the Consortium partners enables the C-SAW program to efficiently and effectively provide a range of services to watershed organizations. The Consortium partnership represents a diversity of individual and collective knowledge and skills that can be drawn upon to provide the assistance requested. The C-SAW partnership presents a model for other states to follow and the partners have emphasized this concept in other regions and states. The following organizations provide technical and programmatic support to local groups:

- Alliance for Aquatic Resource Monitoring @ Dickinson College (ALLARM)
- Conemaugh Valley Conservancy (CVC)
- Delaware Riverkeeper Network (DRN)
- Pennsylvania Lake Management Society (PALMS)
- Stroud Water Research Center (SWRC)
- United States Geological Survey (USGS)

## **C-SAW Approach:**

Pennsylvania has long encouraged the development of local watershed groups in recognition of their unique position to lead efforts for improving water quality protection at the grassroots level. Financial support provided through the Growing Greener Stewardship Program and technical and capacity building assistance provided through the C-SAW program exemplify the Commonwealth's commitment to local watershed groups and its belief in their abilities to create positive change.

Over the past year, the Consortium partners have strived to provide statewide coverage and technical assistance to new watershed organizations requesting assistance as well as approved applicants who continue to request support as they evolve. The Consortium's ability to provide long-term support has come to define the C-SAW program. Although this approach requires an intensive dedication of time and resources initially, it significantly advances the effectiveness of watershed groups over time and builds strong, knowledgeable groups capable of completing scientific work independently. Effective local watershed groups require citizens who:

- are empowered with knowledge of aquatic systems
- have acquired and practiced technical skills, and
- have experienced watershed protection and restoration methods.

Many of the groups that apply for C-SAW assistance have only recently formed and require assistance with organizational development and program management before they can effectively proceed with watershed monitoring and assessment. Even for more seasoned organizations, the request for C-SAW assistance can include organizational development and program management. Consortium partners collaborate with C-SAW recipients to build ownership, capacity, and confidence. This approach sends ripples far beyond the individuals and organizations assisted, and helps to build stronger individuals, stronger watershed organizations, and stronger communities. One can see the independence gained by groups over time as they enhance their skills and move onto other projects that build on their increased capacity.

## **C-SAW Assistance:**

The primary goal of C-SAW is to enhance the capacity of Pennsylvania watershed organizations to implement watershed protection and restoration programs in hopes of improving water quality and function in Pennsylvania streams. This is achieved by offering the following types of assistance:

### Watershed-Specific Technical Assistance:

Targeted, short-term skills development, designed to help answer questions on a variety of scientific topics and disciplines. In many instances, recipients may request a series of targeted watershed specific technical assistance over time. Examples of assistance include:

- Monitoring plan/program development
- Watershed protection plan development
- Monitoring equipment selection
- Water quality monitoring methods
- Macroinvertebrate collection and identification
- Habitat and physical assessment
- Stream flow monitoring methods
- Acid mine drainage monitoring and treatment
- Aquatic invasive species identification and management
- Lake monitoring and management
- Stormwater monitoring and management
- Stream/lake restoration monitoring and design
- Data management
- Data analysis and interpretation
- Data/information communication strategies
- GIS support
- Strategic planning
- Volunteer recruitment and retention strategies

### Mentoring:

Intensive, long-term (2 – 5 years) assistance and capacity building, designed specifically for a watershed organization, and may include:

- New assistance – for groups just getting started
- Continuing assistance – for groups with defined goals, objectives and a restoration or monitoring study design
- Next steps assistance – for groups that have been in existence for 5 – 8 years that are moving beyond initial assessment and restoration work.

### Quality Control:

Help to verify the quality of data collected, and includes:

- Blind sample analysis for water quality (USGS)
- Split sample analysis for water quality (ALLARM)
- Macroinvertebrate identification (SWRC)

## C-SAW Spotlight:

The Conemaugh Valley Conservancy provided early stage grant administration and project development guidance to the Shade Creek Watershed Association, which was awarded a PA Department of Environmental Protection Growing Greener grant for its AMD-Impaired Shade Creek Coal Run project, a multi-phased restoration venture. It also collaborated with the Shade Creek Watershed Association, Mountain Laurel chapter of Trout Unlimited (MLTU), PA Fish and Boat Commission, and others to develop a Trout in the Classroom project at Shade-Central City High School. After students released their trout into Laurel Run, they participated in a tour of the Reitz #1 AMD treatment system, which allows their trout to survive in Laurel Run, and a macroinvertebrate collection. Students also toured the local drinking water treatment plant and the Reitz #4 AMD discharge, which is the largest in the Stonycreek River Watershed. Later, they listened to presentations by the PA Fish and Boat Commission's Wildlife Conservation Officer and MLTU's president. Students then had the opportunity to try fly fishing at a local pond. The Conservancy assisted with all aspects of the day.



Summer, 2011, Photo by C. Troup

In the photo, Larry Hutchinson, SCWA's President, explains the Reitz #1 AMD treatment system to students.

## Continuing Need for Assistance:

As a direct result of efforts undertaken by the Consortium partners over the last several years, the number of watershed organizations in Pennsylvania has increased significantly. However, the demands of applicant organizations continue to outpace the resources currently available through the Consortium. Consortium partners recognize that citizens, in order to be effective in their watershed protection efforts, must be informed, confident and able to overcome the disappointments and frustrations they will invariably face. However, many of C-SAW's mentored groups are new to watershed protection and require assistance not only with monitoring study design and skills-building, but also with organizational development, outreach campaigns, and workshops. More established groups require C-SAW assistance to keep their momentum strong as they enter the data interpretation and presentation stages of their monitoring programs or revisit their study design.

Many groups that originally requested watershed-specific technical assistance continue to rely heavily on Consortium partners to provide more extensive assistance as they evolve over time. In many cases, groups receive repeated watershed specific technical assistance as new issues emerge and organizations attempt to respond. As the number of groups benefiting from C-SAW assistance grows, so does the program's exposure. Watershed organizations are seeking out experienced and knowledgeable support from environmental professionals who can help



shorten their organizations's learning curve, provide insights and expertise, and help overcome barriers. More and more groups are signing up for assistance, but resources of Consortium partners to mentor new groups are already fully committed. As a result, new groups that could benefit from mentoring have been assisted only through watershed-specific technical assistance. This annual report exemplifies the continuing success of the C-SAW program and its ability to provide the necessary programmatic and technical assistance to C-SAW recipients across Pennsylvania for the purpose of effectively addressing water quality issues.

Before the creation of C-SAW, the Consortium partners, working separately, struggled to assist watershed groups and concerned citizens with the limited resources available. Today, through the C-SAW program, Consortium partners work in concert to transfer knowledge and skills to grassroots groups and non-profit organizations undertaking watershed assessment and monitoring work that will make Pennsylvania watersheds better and cleaner places to live.

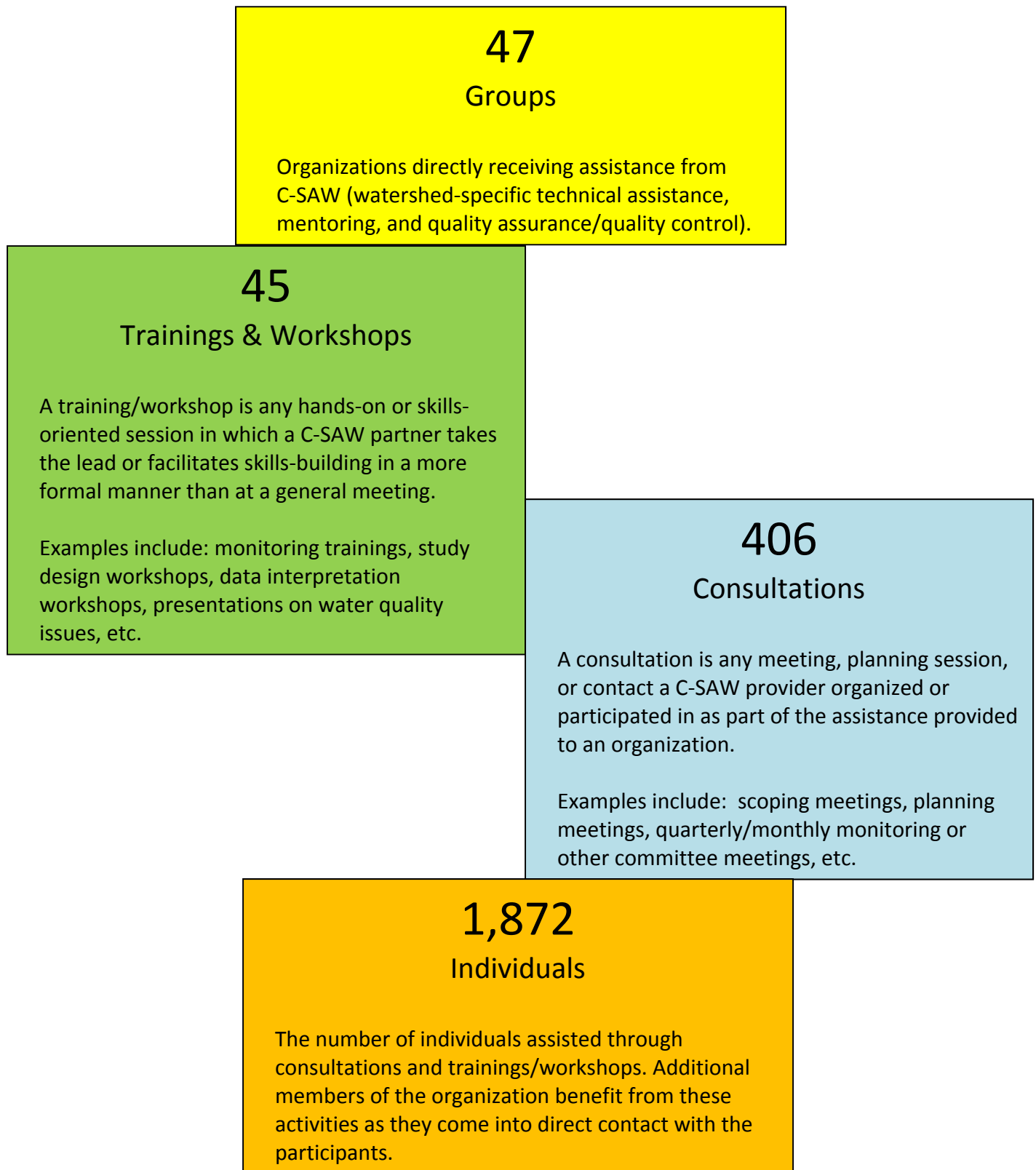
### **C-SAW Spotlight:**

To build upon an earlier C-SAW training about data loggers that the Conemaugh Valley Conservancy provided, Potter County Conservation District requested a macroinvertebrate collection and identification training for the Potter County Water Dogs, who would be adding this biological component to their monitoring program. The training was held at Lyman Run State Park.

In the photos, CVC's Aquatic Biologist leads a presentation about macroinvertebrate collection techniques and identification tricks, which were later applied in the field.



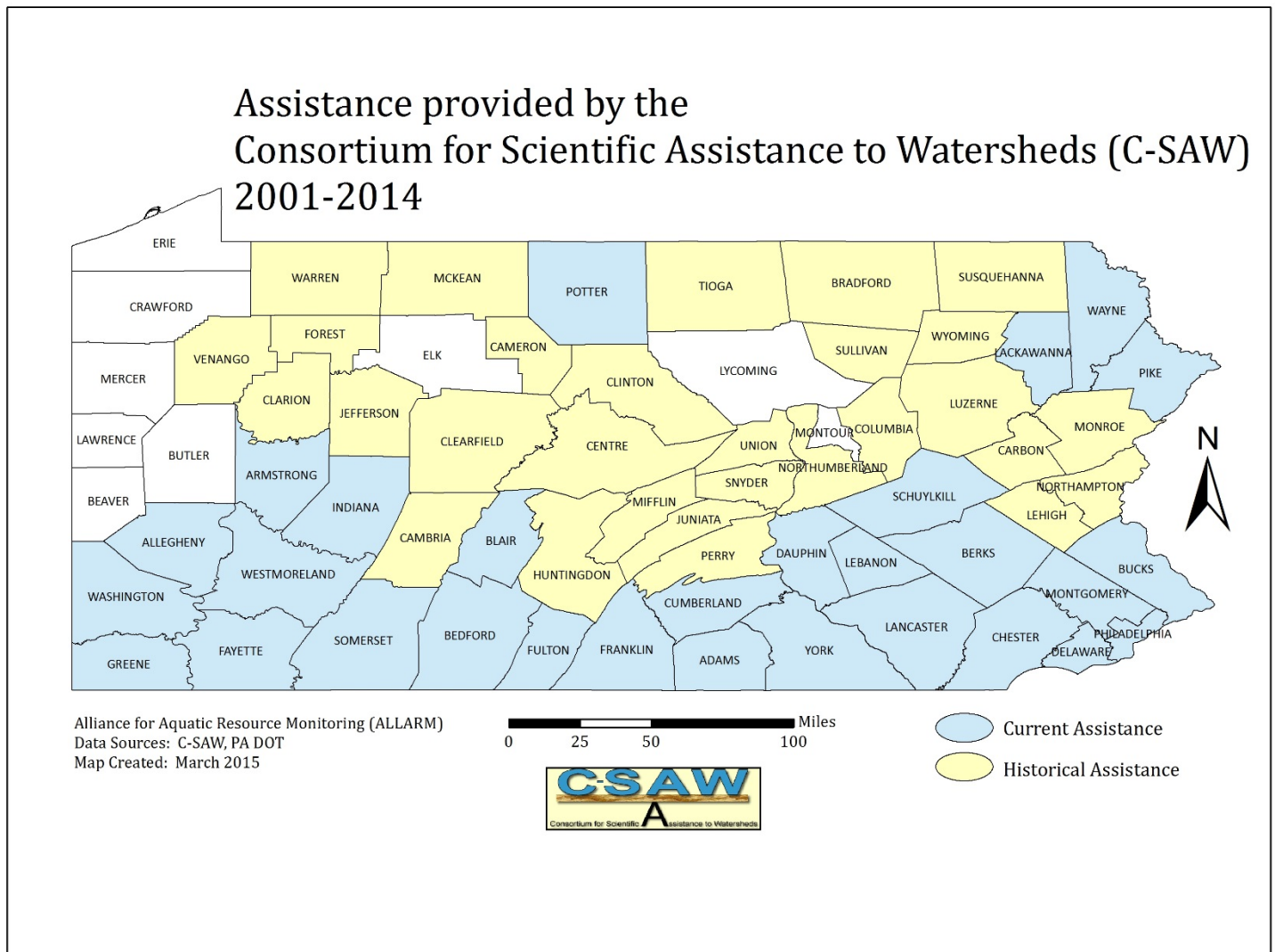
## Summary of Assistance Provided:





## Appendix A: Assistance Reports

The following reports summarize the assistance provided this year, as reported by each partner.



*Map illustrates the counties where assistance has been provided through the C-SAW program.*

## APPLICANT: Antietam Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	6/30/2003
Group membership	80	Scoping meeting	N/A
Watershed	Antietam Creek	DEP approval	10/31/2003
Watershed size	94 mi <sup>2</sup>	Assistance began	10/31/2003
County	Franklin	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance, mentoring, and QA/QC

Consultations	20
Trainings/workshops	0
Individuals assisted	20
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM provided the group with QA/QC results and answers about monitoring equipment.

### Assistance provided July 1 – September 30, 2014

ALLARM met with the AWA Monitoring Coordinator to discuss the status of the Monitoring Program, help troubleshoot alkalinity monitoring equipment, and provide feedback on some unusual pH readings. ALLARM is also working with the group on data management and developing a system to provide individual monitors with feedback on their monthly monitoring values.

### Assistance provided October 1 – December 31, 2014

ALLARM continued to work with AWA on developing a user-friendly data management system and made recommendations on monitoring kits and equipment.

## APPLICANT: Bethel EAC

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	4/23/2014
Group membership	20	Scoping meeting	6/2014
Watershed	Little Swatara Creek	DEP approval	10/14/2014
Watershed size	99 mi <sup>2</sup>	Assistance began	10/14/2014
County	Berks	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance

Consultations	10
Trainings/workshops	1
Individuals assisted	10
Stream miles improved	N/A

### Assistance provided July 1 – September 30, 2014

ALLARM had a scoping meeting with the Bethel Environmental Advisory Council this quarter and commenced the study design process to help the group establish how they wanted to use monitoring as a tool to evaluate water quality. It was established that a primary goal for the group was to use monitoring a tool for youth education. After the meeting ALLARM had several phone consultations with the EAC leader and set up additional meeting dates for the following quarter.

### Assistance provided October 1 – December 31, 2014

ALLARM had two additional meetings with the Bethel EAC to help them develop a youth monitoring educational program. The goals of the study design/program were laid out and the EAC established a timeframe – Summer 2015 for the first pilot event.

## APPLICANT: Blackleggs Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/5/2012
Group membership	150	Scoping meeting	12/5/2012
Watershed	Blackleggs Creek	DEP approval	12/14/2012
Watershed size	45 mi <sup>2</sup>	Assistance began	12/5/2012
County	Indiana	Assistance completed	Ongoing
In-kind match	\$3,545	Cost of assistance	\$1,877

**Assistance provided by:** Conemaugh Valley Conservancy, Inc.

**Assistance type:** Watershed-specific technical assistance and mentoring

Consultations	77
Trainings/workshops	0
Individuals assisted	118
Stream miles improved	6

### Assistance provided April 11 – June 30, 2014

Participated in two large meetings about the Big Run AMD Treatment System Complex, O&M needs, engineers' recommendations, second opinions, funding options, etc. and communicated about these issues after the meetings. Assisted with their two Trout in the Classroom Release Days.

### Assistance provided July 1 – September 30, 2014

Facilitated a meeting between engineers and BCWA to discuss the many needs of the Big Run Watershed and its AMD Treatment System Complex. Provided guidance and assistance on an Act 13 grant application for construction and O&M funds. Helped interpret data for some sites.

### Assistance provided October 1 – December 31, 2014

Advised members on AMD Restoration Projects, grant requirements, grant reporting, potential funding sources, and organizational needs.

## **Applicant: Blair County Conservation District**

**Applicant (new or continuing):** ongoing

**River Basin:** Susquehanna River Basin

**Watershed:** Beaverdam Branch, Juniata River

**Watershed Sizes (sq. miles):** 31.78 (Brush Run (11.72), Mill Run (13.20), Spring Run (6.86))

**County:** Blair

**Lead C-SAW Provider:** U.S. Geological Survey

**Type of Assistance Provided:** Technical Assistance

**Date of Initial Contact with Organization:** 2012

**DEP Approval to Proceed Date:** April 18, 2013

**Date Assistance Began:** August 2013

**Date Assistance Completed:** December 2014

**In-kind/Match Provided by Applicant Organization:** n/a

### **Overview of Assistance:**

Approximate Group Membership: **10**

Total Number of Consultations Provided: **5+**

Total Number of Trainings/Workshops Provided: **2**

Total Number of Individuals Assisted: **10**

Size of Watershed Assisted: **31.78**

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance: **NA**

### **Requested Assistance:**

BCCD is working with student interns from the Penn State University, Altoona campus to establish a baseline of water quality and quantity data in Mill Run, Brush Run, and Spring Run basins. The quality and quantity of water entering, traversing, and leaving the City of Altoona will be monitored at 7 locations. Water quality will be characterized monthly under baseflow and stormflow conditions and using Hach test kits to analyze water temperature, pH, dissolved oxygen concentration, conductivity, nutrient concentrations, sulfate concentration, and alkalinity.

Water quantity will be measured simultaneously with sample collection. The student interns and BCCD seek to develop relationships between streamflow and stage commonly referred to as ratings. Assistance through C-SAW is requested to train BCCD personnel and student interns to: 1) properly identify appropriate locations for streamflow and stage measurement, 2) measure stage using staff plates or other appropriate methods, and 3) conduct streamflow measurements. Under this C-SAW request, the USGS would provide instruction and support for staff plate installation and streamflow measurement at a location mutually agreed upon during site reconnaissance. BCCD and student interns would install additional staff plates and make streamflow measurements, using knowledge transferred from USGS.

### **Assistance provided April 11, 2014 through December 31, 2014**

No work was completed on this project during the above-referenced time period. Assistance complete.

**APPLICANT: Bucks County Conservation District (Project: Bucks County Pond Management Workshop)**

Applicant: Meghan Rogalus, Watershed Specialist

River Basins: Delaware River

Watersheds: Multiple (e.g., Neshaminy Creek, Tohickon Creek, direct tributaries to Delaware)

Watershed Size: N/A

Counties: Bucks

Lead CSAW Provider: PALMS

Type of Assistance Provided:

Technical Assistance, presenter for pond management workshop.

Date of Initial Contact: December 10, 2013

DEP Approval to Proceed: January 2, 2014

Date Assistance Began: April 5, 2014

Date Assistance Completed: April 5, 2014

Total Cost of Assistance this Request:

TBD (invoice pending)

In Kind Match Provided by Applicant Organization this Request:

\$1,879.12 for January 1 – May 31, 2014

Approximate Attendance: 23

Total Number of Consultations Provided: 0

Total number of Training/Workshops: 1

Total Number of individuals Assisted: 23

Size of Watershed Assisted: N/A

**Assistance Provided April 1 –May 31, 2014**

Aqua Link, Inc. was contracted to provide technical assistance to the Bucks County Conservation District by presenting a PowerPoint presentation on aquatic plant management techniques and addressing questions from pond owners throughout the county who attended a half-day workshop hosted by the District. This was part of a larger workshop in collaboration with Penn State Cooperative Extension and Aquascapes Unlimited, Inc. Twenty-three participants attended the half-day workshop, which included a field component looking at several small ponds. Attendees reported a knowledge increase on key areas such as herbicide use and permitting, plant identification and native plants and the importance of shoreline buffers for water quality and habitat.

**Applicant: Carroll Township**

**Applicant (new or continuing):** ongoing

**River Basin:** Susquehanna River Basin

**Watershed:** Yellow Breeches Creek, Conewago Creek

**Watershed Size (acreage or sq. miles):** 218 sqmi (Yellow Breeches), 516 sqmi (Conewago)

**County:** York

**Lead C-SAW Provider:** U.S. Geological Survey

**Type of Assistance Provided:** Technical Assistance

**Date of Initial Contact with Organization:** 2009

**DEP Approval to Proceed Date:** June 22, 2012

**Date Assistance Began:** January 2013

**Date Assistance Completed:** December 2014

**In-kind/Match Provided by Applicant Organization:** n/a

**Overview of Assistance:**

Approximate Group Membership: **10**

Total Number of Consultations Provided: **5+**

Total Number of Trainings/Workshops Provided: **1**

Total Number of Individuals Assisted:

Size of Watershed Assisted: **218 sqmi (Yellow Breeches), 516 sqmi (Conewago)**

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance: **NA**

**Requested Assistance:**

Carroll Township has experienced a series of minor or micro-earthquakes since October 2008. Won-Young and others (2009), identify diabase dikes (which underlie about 60 percent of the township) as a potential source of the earthquakes, as the dikes are brittle and break under stress. The reason for the stress is unknown, but one theory is the stress originates from loading of groundwater into old iron mines that exist beneath the township. This area was known as the Dillsburg magnetite district, and was established in the 19<sup>th</sup> Century. The District now is represented by abandoned underground tunnels and excavations of uncertain depth and breadth. Flooding of the mines increases the overburden weight on the diabase dikes and may also lubricate existing fault planes which promote the tremors felt in the township. Based upon this conjecture, monitoring of water levels in selected wells, springs, and wet lands and their relation with precipitation and earthquake events may be useful in determining the merit of the groundwater earthquake theory.

Training through C-SAW has been approved for (1) selection of water-level measurement sites, (2) collection of water-level data, and (3) establishment of various supporting databases. The USGS will provide instruction and support for site selection, water-level measurements, and compilation and maintenance of collected data. Citizens will maintain and expand the earthquake network using knowledge transferred from the USGS.

**Assistance provided April 11, 2014 through December 31, 2014**

No work was completed on this project during the above-referenced time period. Assistance complete.



## APPLICANT: Chartiers Creek Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	7/8/13
Group membership	16	Scoping meeting	
Watershed	Chartiers Creek	DEP approval	3/21/14
Watershed size	137 sq. mi.	Assistance began	6/6/14
County	Washington	Assistance completed	Ongoing
In-kind match	\$999.82	Cost of assistance	\$1,340.27

**Assistance provided by:** Conemaugh Valley Conservancy, Inc.

**Assistance type:** Watershed Specific Technical Assistance & Quality Control

Consultations	19
Trainings/workshops	1
Individuals assisted	29
Stream miles improved	n/a

### Assistance provided April 11 – June 30, 2014

Provided a training on the importance of riparian buffers, invasive vs. native plants, and the best plants to use for stream side buffers and stormwater management. Discussed a water pollution spill in the watershed, its affects, and their collection of macroinvertebrates. DEP approved QC on their macroinvertebrate specimens.

### Assistance provided July 1 – September 30, 2014

Provided Quality Control and interpretation of the macroinvertebrates ChCWA collected earlier this year.

### Assistance provided October 1 – December 31, 2014

Provided Quality Control and interpretation of the macroinvertebrates ChCWA collected later this year.

**Applicant: Chester County Conservation District and Brandywine Valley**

**Applicant (new or continuing):** new

**River Basin:** Christina River Basin

**Watershed:** Delaware River Watershed

**Watershed Size (acreage or sq. miles):**

**County (multiple):** Chester County

**Lead C-SAW Provider:** Stroud Water Research Center

**Type of Assistance Provided:** Technical Assistance

**Date of Initial Contact with Organization:** 5 May, 2014

**DEP Approval to Proceed Date:** 9 May, 2014

**Date Assistance Began:** July 2014

**Date Assistance Completed:** on going

**Total Cost of Assistance:** ~\$1,500

**In-kind/Match Provided by Applicant Organization:**

**Overview of Assistance:**

Approximate Group Membership: 250

Total Number of Consultations Provided: 4

Total Number of Trainings/Workshops Provided:

Total Number of Individuals Assisted: 8

Size of Watershed Assisted:

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

**Assistance Provided July 1 – September 30, 2014**

Dr. Melinda Daniels (Stroud Fluvial Geomorphologist) provided technical assistance to the Chester County Conservation District and the Brandywine Valley Association. Dr. Daniels advised these organizations on approaches to bank stabilization and sediment reduction in streams. She provided site visits to develop advice at a number of eroding river locations so that these organizations could more effectively address the problem. Suggestions included riparian plantings, tree revetments, design guidance, and monitoring protocols. The sites were located within the Brandywine Creek watershed along the main stem of the river as well as several tributaries.

**Assistance Provided 1 October – 31 December, 2014**

Dr. Daniels visited 3 other sites in the Brandywine River watershed with representatives from the Brandywine Valley Association during this quarter and provided guidance on erosion control vegetation plantings.

**Applicant: C-SAW Organization**

**Applicant (new or continuing):** New

**River Basin:** All of PA

**Watershed:** All of PA

**Watershed Size (acreage or sq. miles):**

**County (multiple):** All

**Lead C-SAW Provider:** Stroud Water Research Center

**Type of Assistance Provided:** C-SAW Website Re-design

**Date of Initial Contact with Organization:** December 10<sup>th</sup>, 2013

**DEP Approval to Proceed Date:** December 12<sup>th</sup>, 2013

**Date Assistance Began:** 1 January, 2014

**Date Assistance Completed:** Ongoing

**Total Cost of Assistance:** \$2,000 – 4,000

**In-kind/Match Provided by Applicant Organization:**

**Assistance Provided January 1 – March 31, 2014**

Stroud Water Research Center's web developer and webmaster (H. Brooks), along with D. Arscott, built a new C-SAW web site in Word Press. All partners have approved the site is now live. There are still some functionality aspects that we would like to complete that include building an electronic sign up and mailing database using MailChimp and WordPress and building online request filing capabilities. The new site is c-saw.info.

## **Applicant: Delaware Riverkeeper Network**

**Applicant (new or continuing):** Continuing

**River Basin:** Delaware

**Watershed:** Schuylkill

**Watershed Size (acreage or sq. miles):**

**County (multiple):** Montgomery County

**Lead C-SAW Provider:** Stroud Water Research Center

**Type of Assistance Provided:** Workshop

**Date of Initial Contact with Organization:** December 10<sup>th</sup>, 2013

**DEP Approval to Proceed Date:** December 12<sup>th</sup>, 2013

**Date Assistance Began:** March 12, 2014

**Date Assistance Completed:** March 15<sup>th</sup>, 2014

**Total Cost of Assistance:** <\$1500

**In-kind/Match Provided by Applicant Organization:**

### **Overview of Assistance:**

Approximate Group Membership: 50

Total Number of Consultations Provided: one

Total Number of Trainings/Workshops Provided: one

Total Number of Individuals Assisted: +50

Size of Watershed Assisted:

Total Number of Stream Miles Improved or BMP's installed as a result of C-SAW

Assistance: 0

## **Assistance Provided April 1 – June 30, 2014**

On 30 May to 2 June 2014, Bern Sweeney (Stroud Center Director) and Tara Muenz (Stroud Center Educator Program Manager), presented a Leaf Pack Workshop and Wikiwatershed Lecture at the 2014 River Rally in Pittsburgh, PA.

## APPLICANT: Diakon Center Point Program

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	10/1/2014
Group membership	N/A	Scoping meeting	10/1/2014
Watershed	Multiple	DEP approval	11/14/2014
Watershed size	N/A	Assistance began	10/1/2014
County	Cumberland	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance

Consultations	8
Trainings/workshops	1
Individuals assisted	40
Stream miles improved	N/A

### Assistance provided October 1 – December 31, 2014

ALLARM met with a teacher at Diakon on November 4 to review the assistance requested by the Center. ALLARM worked with Diakon to develop a workshop that combined different elements of stream monitoring. ALLARM held a workshop on November 11 that highlighted macroinvertebrate monitoring, where students had the opportunity to collect and identify macroinvertebrates and learn how they play a role in the stream ecosystem. Chemical and visual monitoring were also discussed, but a workshop is planned for the spring to study those methods more closely.

## **Applicant: Donegal Trout Unlimited**

**Applicant (new or continuing):** New

**River Basin:** Susquehanna

**Watershed:** Pequea

**Watershed Size (acreage or sq. miles):**

**County (multiple):** Lancaster

**Lead C-SAW Provider:** Stroud Water Research Center (Muenz and Mapes)

**Type of Assistance Provided:** Leaf Pack Monitoring Instruction

**Date of Initial Contact with Organization:** May 1, 2014

**DEP Approval to Proceed Date:** May 16, 2014

**Date Assistance Began:** 1 May, 2014 – Phone conversations on site selection and site setup of leaf packs and on June 18<sup>th</sup> 2014 we conducted training for the TU group on macroinvertebrate identification and visited monitoring sites.

**Date Assistance Completed:** June 18<sup>th</sup> 2014

**Total Cost of Assistance:** \$1,366.82

**In-kind/Match Provided by Applicant Organization:** \$1,886.14

### **Overview of Assistance:**

Approximate Group Membership: > 550

Total Number of Consultations Provided: 3

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 34

Size of Watershed Assisted:

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

### **Assistance Provided June 18, 2014**

Beginning May 1<sup>st</sup>, Tara Muenz began phone consultations with Donegal Trout Unlimited to discuss their monitoring objectives for the Pequea watershed. They were interested in monitoring with the Leaf Pack Network methods and we had a few phone conversations to assist in their site selection and beginning the deployment of leaf packs in their streams. T.Muenz then applied for C-Saw assistance to continue consultations and as a followup, one month later at a membership meeting, T. Muenz and K. Mapes met with Donegal TU president to visit their monitoring sites and answer questions. Later at the meeting with other TU members, T.Muenz gave a presentation on the Leaf Pack Network and macroinvertebrate ecology and identification. After the presentation, T.Muenz and K.Mapes led identification experiences with the members as well as demonstration the Leaf Pack methods. Donegal TU is continuing their monitoring efforts and will begin entering data into the Leaf Pack Network database. Permission was granted by Cheryl Snyder on 16 May, 2014.

## **Friends of the John Heinz Refuge & Eastwick Neighbors Group**

**River Basin:** Delaware  
**Watershed:** Darby Creek  
**Watershed Size:** 77 square miles  
**County:** Delaware  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 5/10/2012  
**DEP Approval to Proceed Date:** 5/23/2012  
**Date Assistance Began:** 6/1/2012  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 4,129.83

### **Overview of Assistance:**

Approximate Group Membership: 400 residents and volunteers  
Total Number of Consultations Provided: 8  
Total Number of Trainings/Workshops Provided: 2  
Total Number of Individuals Assisted: 120

### **Assistance Provided April 1 – June 30, 2014**

C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee with education and outreach and technical help around better floodplain protections for the Darby and Delaware River flood plains to reduce flooding conditions and enhance water quality and community outreach assistance and education. An emphasis on preservation of open space is part of this work to elevate the economic driver of the John Heinz National Wildlife refuge which is the largest remaining tidal freshwater wetland in Pennsylvania. This quarter C-SAW helped with a report layout for statistics in the community and also helped with a community tour plan of the region of low lying areas to educate the community and decisionmakers. C-SAW provided info and outreach on a proposed refinery permit in the community where volunteers requested technical help. C-SAW also provided assistance related to a nearby closed landfill and possible contamination issues present. Two public meetings took place during this quarter that CSAW assisted – 95 people were in attendance at the meetings.

### **Assistance Provided July 1 – September 30, 2014**

C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee with education and outreach and technical help around better floodplain protections for the Darby and Delaware River flood plains to reduce flooding conditions and enhance water quality and community outreach assistance and education. An emphasis on preservation of open space is part of this work to elevate the economic driver of the John Heinz National Wildlife refuge which is the largest remaining tidal freshwater wetland in Pennsylvania. This quarter C-SAW helped residents with a FOIA request on an Army Corps Berm Project so they can review the proposed project, helped promote and plan a climate change information session, assisted with outreach activities and post survey follow up to the community. DRN also assisted with outreach tools including help with the development of a newsletter to increase exposure in the community to the groups' work.

### **Assistance Provided October 1 –December 31, 2014**

C-SAW is continuing assistance and work this quarter included:

- Stormwater trainings and series for the region on better stormwater controls
- Survey compilation on Eastwick flood plain use
- Outreach and coordination assistance
- Assistance with newsletter creation on stormwater issues and floodplain issues



## APPLICANT: Friends of Tom's Creek

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	9/25/2013
Group membership	20	Scoping meeting	10/10/2013
Watershed	Toms Creek	DEP approval	10/24/2013
Watershed size	14 square miles	Assistance began	10/29/2013
County	Adams	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance, mentoring, and QA/QC

Consultations	40
Trainings/workshops	1
Individuals assisted	15
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM continued to help the Friends of Tom's Creek in developing their stream monitoring program. On June 17, ALLARM facilitated a visual assessment workshop, where FOTC members had the chance to walk along the stream and record physical characteristics of the watershed. Participants learned how visual observations are related to water quality and stream health. The workshop will also help to inform decisions on the group's volunteer monitoring program.

### Assistance provided July 1 – September 30, 2014

ALLARM attended a Friends of Tom's Creek meeting to facilitate the remainder of the study design process. The group has thought through their monitoring goals and the monitoring plan will be finished next quarter.

### Assistance provided October 1 – December 31, 2014

ALLARM helped FOTC develop a written study design, which outlines the group's monitoring goals and methods. The group is interested in recruiting volunteers to help carry out stream monitoring in the watershed.

## APPLICANT: God's Country Waterdogs

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	3/22/2011
Group membership	50	Scoping meeting	N/A
Watershed	Multiple	DEP approval	6/2/2011
Watershed size	N/A	Assistance began	6/3/2011
County	Potter	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance, mentoring, and QA/QC

Consultations	15
Trainings/workshops	1
Individuals assisted	19
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM assisted the group with data management this quarter, helping them develop an excel template for their existing data. Once the template and their data were ready, ALLARM set up a meeting in July to train them.

### Assistance provided July 1 – September 30, 2014

ALLARM provided data management assistance to the God's Country Water Dogs this quarter and met with the group in July to start the data interpretation process. Additionally the group requires organizational assistance to help address some volunteer recruitment challenges that ALLARM consulted on.

### Assistance provided October 1 – December 31, 2014

ALLARM continued to help the God's Country Waterdogs with data management and data analysis. Waterdog volunteers sent water samples to ALLARM for QA/QC this quarter.

## **Applicant: Green County Watershed Alliance (GCWA)**

**Applicant (new or continuing):** new  
**River Basin:** Ohio River Basin  
**Watershed:** Headwater streams of the South Fork Ten Mile Creek  
**Watershed Sizes (sq. miles):** 338  
**County:** Green  
**Lead C-SAW Provider:** U.S. Geological Survey  
**Type of Assistance Provided:** Technical Assistance  
**Date of Initial Contact with Organization:** December 2013  
**DEP Approval to Proceed Date:** December 23, 2013  
**Date Assistance Began:** Spring 2014  
**Date Assistance Completed:** on-going  
**In-kind/Match Provided by Applicant Organization:** n/a

### **Overview of Assistance:**

Approximate Group Membership: **1-5**  
Total Number of Consultations Provided: **5+**  
Total Number of Trainings/Workshops Provided:  
Total Number of Individuals Assisted: **1-5**  
Size of Watershed Assisted: **338 sqmi**  
Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance: **NA**

GCWA is working in headwater streams of the South Fork Ten Mile Creek watershed where underground mining for coal ongoing or is anticipated. The effect of coal mining on streamflow quantity is of particular interest. GCWA seeks to develop relationships between streamflow and stage commonly referred to as ratings. Assistance through C-SAW is requested to train GCWA personnel and student interns to: 1) properly identify appropriate locations for streamflow and stage measurement, 2) measure stage using staff plates or other appropriate methods, and 3) conduct streamflow measurements. Under this C-SAW request, the USGS would provide instruction and support for staff plate installation and streamflow measurement at a location mutually agreed upon during site reconnaissance. GCWA would install additional staff plates and make streamflow measurements, using knowledge transferred from USGS.

### **Assistance provided April 11, 2014 through December 31, 2014**

Liz Hittle (USGS) established a point of contact (Terri Davin, Green County Watershed Alliance). USGS and GCWA representatives agreed on a mutually beneficial monitoring site and met in the field in September. GCWA was instructed on installation of a streamflow gaging station, including a staff plate and pressure transducer at Grinnage Run.

## **\*New Request – Green Valleys Association**

**River Basin:** Delaware  
**Watershed:** Schuylkill River Basin  
**County:** Chester & Berks County  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 8/15/14  
**DEP Approval to Proceed Date:** 9/26/14  
**Date Assistance Began:** 9/26/14  
**Date Assistance Completed:**  
**Total Cost of Assistance:** \$ 57

### **Overview of Assistance:**

Approximate Group Membership: 500  
Total Number of Consultations Provided: 1  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 2

**Background on CSAW Applicant:** The Green Valleys Association (GVA) protects, preserves, and restores the natural waterways of northern Chester County. GVA inspires, educates, and involves local communities to make a difference for our generation and for generations to come.

**Background of project:** GVA has requested CSAW technical assistance to 1) increase understanding of the environmental history of the Schuylkill River watershed for its members as well as the general public, and 2) provide an overview of how volunteers can make a difference for the environment. GVA has requested DRN present a program for its members and the general public on October 14th, 2014 at GVA's Welkinweir, Pottstown, PA. GVA has also requested DRN present a program on the role of volunteers in watershed protection for the Schuylkill Water Stewards, volunteers who are being trained to help monitor and protect water quality in the French, Hay, and Pickering Creek Watersheds. This program will be presented on October 30th, 2014 at the West Vincent Township Building, Chester Springs, PA.

### **Proposed C-SAW Assistance Requested:**

- Provide educational materials including resources on environmental history.
- Present technical information including on causes of pollution, environmental regulation, river restoration techniques.
- Present information on the role of volunteers in watershed protection, volunteer training, examples of volunteer projects, and application of data.

### **Assistance Provided July 1 – September 30, 2014**

Coordination with the group for the presentations has begun for the October sessions.

### **Assistance Provided October 1 – December 31, 2014**

Due to the community response two presentations were conducted instead of one during this quarter.

## **Applicant: Green Woods Charter School**

**Applicant (new or continuing):** New

**River Basin:** Schuylkill River Basin

**Watershed:**

**Watershed Size (acreage or sq. miles):**

**County (multiple):** Philadelphia

**Lead C-SAW Provider:** Stroud Water Research Center

**Type of Assistance Provided:** technical advice on ecosystem restoration and monitoring programs

**Date of Initial Contact with Organization:** 19 March, 2014

**DEP Approval to Proceed Date:** 5 May, 2014

**Date Assistance Began:** 26 March, 2014 – preliminary scoping meeting

**Date Assistance Completed:** continuing

**Total Cost of Assistance: estimated at** \$2,000 – 3,000

**In-kind/Match Provided by Applicant Organization:**

### **Overview of Assistance:**

Approximate Group Membership: > 600

Total Number of Consultations Provided: 1

Total Number of Trainings/Workshops Provided: 0

Total Number of Individuals Assisted: 1

Size of Watershed Assisted:

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

### **Assistance Provided April 1 – June 30, 2014**

On 6 June, D. Arscott met with Jean Wallace, CEO of Green Woods Charter School in NE Philly to revisit plans for water quality monitoring of ponds and streams in recovering their landscape from construction of their new school.

## **Ithan Elementary School PTO Green Committee**

**River Basin:** Delaware  
**Watershed:** Darby-Cobbs Creek Watersheds (695 Clyde Rd Bryn Mawr, PA 19010)  
**Watershed Size:** 13,000 sq miles  
**County:** Montgomery  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** prior years there was earlier csaw assistance  
**DEP Approval to Proceed Date:** 8/22/13  
**Date Assistance Began:** 8/22/13  
**Date Assistance Completed:** ongoing  
**Total Cost of Assistance:** \$ 513

### **Overview of Assistance:**

Approximate Group Membership: 150  
Total Number of Consultations Provided: 3  
Total Number of Trainings/Workshops Provided: 1  
Total Number of Individuals Assisted: 15

### **Assistance Provided April 1 – June 30, 2014**

DRN assisted with restoration planning and on-site coordination with the school department. DRN also provided technical assistance regarding restoration materials that would work best for the projects.

### **Assistance Provided July 1 – September 30, 2014**

DRN assisted with restoration planning and on-site coordination with the school. DRN also provided technical assistance regarding restoration materials that would work best for the projects and helped address and forecast maintenance concerns that could develop over time.

### **Assistance Provided October 1 –December 31, 2014**

DRN assisted with restoration planning. DRN also provided technical assistance regarding restoration materials that would work best for the projects and helped address and forecast maintenance concerns that could develop over time to be considered as part of any budget or grant proposal.

## **The Lackawaxen River Conservancy**

**Watershed:** Lackawaxen River

**River Basin:** Delaware River Watershed

**County:** *Wayne, Pike, Lackawanna, Counties*

**Lead C-SAW Provider:** DRN

**DEP Approval to Proceed Date:** 12/17/09

**Date Assistance Began:** 12/1/09

**Type of Assistance Provided:** Watershed-Specific Technical Assistance

**Date Assistance Completed:**

**Approximate Group Membership:** 120

**Size of Watershed Assisted:** 598 sq. miles

**Total Cost of Assistance:** \$ 912

### **Overview of Assistance:**

Approximate Group Membership: 200

Total Number of Consultations Provided: 12

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 6

Size of Watershed Assisted: 598 sq miles

Total Number of Stream Miles Improved or BMP's Installed as a Result of C-SAW Assistance: NA

### **Assistance Provided April 1 – June 30, 2014**

Repeated follow up on pipeline restoration gaps and compliance violations reported by trained volunteer monitors watchdogging a gas pipeline in the upper Delaware basin. Technical assistance was also provided to residents in the region related to a proposed compressor station.

### **Assistance Provided July 1 – September 30, 2014**

Additional technical assistance via a conference call was provided related to a proposed compressor station and ideas residents could use to organize and monitor air impacts.

### **Assistance Provided October 1 –December 31, 2014**

Assisted with development of a possibly air monitoring project related to pipelines and compressor stations.



**Applicant: Land Conservancy for Southern Chester County – PA Master Naturalist Program**

**Applicant (new or continuing):** Continuing  
**River Basin:** Christina River Basin  
**Watershed:** Delaware River Watershed  
**Watershed Size (acreage or sq. miles):**  
**County (multiple):** Chester  
**Lead C-SAW Provider:** Stroud Water Research Center  
**Type of Assistance Provided:** Workshop  
**Date of Initial Contact with Organization:** August, 2013  
**DEP Approval to Proceed Date:** 23 August, 2013  
**Date Assistance Began:** September 2013  
**Date Assistance Completed:** on going  
**Total Cost of Assistance:** ~\$500  
**In-kind/Match Provided by Applicant Organization:** \$1589.44

**Overview of Assistance:**

Approximate Group Membership: 12  
Total Number of Consultations Provided:  
Total Number of Trainings/Workshops Provided: 2  
Total Number of Individuals Assisted: 12  
Size of Watershed Assisted:  
Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

**Assistance Provided July 1 – September 30, 2014**

On 9 September and 23 September, Drs. Arscott and Jackson provided workshop trainings to a PA Master Naturalists program held at Stroud Water Research Center and organized and facilitated by the Land Conservancy for Southern Chester County. Topics included wetland ecology and restoration, stream ecology and biomonitoring, wetland wastewater treatment, rainwater capture and re-use, stormwater management, and toilet composting.

### **\*New Group: Lebanon and Schuylkill Pipeline Awareness**

**River Basin:** Delaware  
**Watershed:** Schuylkill River Basin  
**County:** Schuylkill and Lebanon Counties  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** Mentoring  
**Date of Initial Contact with Group:** 10/20/14  
**DEP Approval to Proceed Date:** 10/27/14  
**Date Assistance Began:** 10/20/14  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 1,850.00

#### **Overview of Assistance:**

Approximate Group Membership: 60  
Total Number of Consultations Provided: 17  
Total Number of Trainings/Workshops Provided: 3  
Total Number of Individuals Assisted: 70

**Background of Group:** Lebanon & Schuylkill Pipeline Awareness and other concerned residents have expressed concern about proposed large intrastate gas pipelines in the region that are planned and requested technical guidance to assist in watershed protection measures.

#### **C-SAW Request:**

DRN has received multiple requests from Schuylkill, Columbia, and Lebanon County residents to provide information pertaining to a proposed natural gas pipeline route that would span across much of the state. Specifically, the groups along the pipeline path would like assistance with several technical presentations that share the environmental effects on water and forests of intrastate pipeline projects. A presentation is planned for Nov 13<sup>th</sup>. DRN was asked to present and show pictures of a similar lines that was implemented in the Delaware River Watershed. DRN will share data that was compiled along another similar pipeline route. Lynda Farrell, Pipeline Safety Coalition will be co-presenting at this session designed for landowners living along the route. In addition, the groups would like assistance with outreach ideas to educate the public about gas pipelines in other upcoming series and workshops since some of these counties are outside of the gas drilling regions and they are unfamiliar with high pressure gas lines. They expressed interest in how to monitor along their property to ensure resources are protected. The latter would be based on upcoming work depending on what the group would need after this first workshop.

#### **Assistance Provided October 1 – December 31, 2014**

DRN provided technical assistance for a Nov 13<sup>th</sup> workshop in Schuylkill County. Fifteen residents attended this session. DRN also assisted with four conference calls with residents and landowners to discuss environmental impacts and concerns related to this pipeline. Assistance related to township outreach was also provided during this timeframe to three township in the region. DRN assisted with education and outreach tools for impacted residents during this timeframe to assist in education about the pipeline project. As a result, new people in the region have become engaged in watershed issues and attended township meetings to testify.

## APPLICANT: Lower Dauphin High School

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	7	Scoping meeting	4/2/2014
Watershed	Swatara Creek	DEP approval	4/22/2014
Watershed size	N/A	Assistance began	4/2/2014
County	Dauphin	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance

Consultations	10
Trainings/workshops	2
Individuals assisted	23
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM educated AP Environmental Studies students on different aspects of water quality monitoring, including sample collection, processing, and analysis. Students learned how to test for a variety of water quality parameters and how to analyze the data using summary statistics and GIS.

### Assistance provided July 1 – September 30, 2014

ALLARM worked with the AP Environmental Science teacher to develop a chemical monitoring manual and a data management system for his stream monitoring program. This year, eleven students will monitor eight sites in the Swatara Creek watershed. ALLARM will hold a chemical monitoring workshop for the class next quarter.

### Assistance provided October 1 – December 31, 2014

ALLARM held a workshop on October 2 to train eleven students on water quality monitoring methods. Students will monitor alkalinity, conductivity, nitrate, pH, phosphate, and water temperature weekly between October and April. ALLARM will then help to train the students on data analysis and communication methods.

## **\*New Request – Maiden Creek Watershed Association**

**River Basin:** Delaware River Basin  
**Watershed:** Schuylkill River Watershed  
**County:** Berks County  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 8/1/14 (historic group)  
**DEP Approval to Proceed Date:** 9/8/14  
**Date Assistance Began:** 9/8/14  
**Date Assistance Completed:**  
**Total Cost of Assistance:** \$ 57

### **Overview of Assistance:**

Approximate Group Membership: 300  
Total Number of Consultations Provided: 1  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 1

**Background on CSAW Applicant:** The Maiden Creek Watershed Association promote awareness of the Maiden Creek Watershed as a valuable resource through community education and monitoring. The group consists of individual citizens, farmers, non-profit organizations, and representatives from state and local government.

**Background of project:** The Maiden Creek Watershed Association (MCWA) has requested CSAW technical assistance to increase understanding of the environmental history of the Schuylkill River watershed for its members as well as the general public. MCWA has requested DRN present a program for its members and the general public on November 5th, 2014 at Kutztown University in Kutztown, PA. This meeting is free and open to the public.

### **Proposed C-SAW Assistance Requested:**

- Present technical information at public meeting, including causes of pollution, environmental regulation, river restoration techniques.
- Provide educational materials including resources on environmental history.

### **Assistance Provided July 1 – September 30, 2014**

Coordination with the group for the presentation has begun for the November workshop.

### **Assistance Provided October 1 –December 31, 2014**

DRN conducted a presentation to the watershed association in early November. About 30 people were in attendance.

## APPLICANT: Middle Spring Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	6/15/2007
Group membership	70	Scoping meeting	N/A
Watershed	Middle Spring Creek	DEP approval	8/17/2007
Watershed size	25 mi <sup>2</sup>	Assistance began	7/16/2007
County	Cumberland & Franklin	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance and mentoring

Consultations	5
Trainings/workshops	0
Individuals assisted	8
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

No assistance provided.

### Assistance provided July 1 – September 30, 2014

ALLARM is helping the Middle Spring Watershed Association with analyzing and interpreting their data as well as brainstorm ways to disseminate the information to the public.

### Assistance provided October 1 – December 31, 2014

ALLARM attended the MSWA quarterly meeting to review the data analysis project and talk about ways of sharing the results with the community. The group is interested in putting together a short watershed report. ALLARM will continue working on this with the group in early 2015.

## **Morrisville Borough and Morrisville EAC**

**Applicant (new or continuing):** New  
**River Basin:** Delaware River Watershed  
**Watershed:** Delaware River Main Stem  
**Watershed Size:** 13,000 sq miles  
**County:** Bucks  
**Lead C-SAW Provider:** DRN  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:**  
**Date of Scoping Meeting:** 2/15/2011  
**DEP Approval to Proceed Date:** 3/1/2011  
**Date Assistance Began:** 3/1/2011  
**Date Assistance Completed:** ongoing  
**Total Cost of Assistance:** \$ 598.50

Approximate Group Membership: 10,023  
Total Number of Consultations Provided: 6  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 15  
Size of Watershed Assisted: multiple  
Total Number of Stream Miles Improved or BMP's Installed as a Result of C-SAW Assistance: 1 acre

### **Assistance Provided April 1 – June 30, 2014**

C-SAW provided restoration technical assistance related to the planning of maintenance days based on invasive plant status and native plant colonization along the riparian buffer project.

### **Assistance Provided July 1 – September 30, 2014**

C-SAW provided restoration technical assistance to MEAC related to the planning of maintenance days and a native planting that is scheduled for the fall to do supplemental plant in areas where invasives have been removed.

### **Assistance Provided October 1 –December 31, 2014**

C-SAW provided restoration technical assistance to MEAC related to the planning of maintenance days and a native planting that occurred in October. Volunteers participated in fall native planting and invasive removal days.

## **Applicant: Natural Lands Trust**

**Applicant (new or continuing):** New

**River Basin:** Schuylkill, Allegheny Creek

**Watershed:** Delaware

**Watershed Size (acreage or sq. miles):**

**County (multiple):** Berks

**Lead C-SAW Provider:** Stroud Water Research Center

**Type of Assistance Provided:** Technical Assistance

**Date of Initial Contact with Organization:** 23 June, 2014

**DEP Approval to Proceed Date:** 26 June, 2014

**Date Assistance Began:** 1 July, 2014

**Date Assistance Completed:** 3 September, 2014

**Total Cost of Assistance:** ~\$3,000

**In-kind/Match Provided by Applicant Organization:** None

### **Overview of Assistance:**

Approximate Group Membership: 50

Total Number of Consultations Provided: 2

Total Number of Trainings/Workshops Provided:

Total Number of Individuals Assisted: 3

Size of Watershed Assisted:

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

### **Assistance Provided July 1 – September 30, 2014**

Dr. Arscott provided technical assistance and recommendations for monitoring water quantity and water quality in freshwater habitats draining a NLT preserve where Bog Turtle habitat is being conserved. Dr. Arscott met with NLT staff once at Stroud and once on the Preserve to assess conditions. Dr. Arscott provided a written assessment of monitoring options and an implementation plan.



## APPLICANT: Ohio River Watershed Celebration

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	8/6/14
Group membership	700	Scoping meeting	
Watershed	Pine Creek	DEP approval	8/14/14
Watershed size	67.5 sq. mi.	Assistance began	9/17/14
County	Allegheny	Assistance completed	9/18/14
In-kind match		Cost of assistance	\$526.88

**Assistance provided by:** Conemaugh Valley Conservancy, Inc.

**Assistance type:** Watershed Specific Technical Assistance

Consultations	3
Trainings/workshops	1
Individuals assisted	100
Stream miles improved	n/a

### Assistance provided April 11 – June 30, 2014

No activity.

### Assistance provided July 1 – September 30, 2014

Throughout the day, at the annual Ohio River Watershed Celebration, the CVC's Kiski-Conemaugh Stream Team provided macroinvertebrate collection demonstrations and explained to participants the importance of these aquatic bugs, while identifying those found in the lake.

### Assistance provided October 1 – December 31, 2014

No activity.

## APPLICANT: PA Alliance for Geographic Education

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/1/2013
Group membership	1150	Scoping meeting	1/9/2013
Watershed	Multiple	DEP approval	2/6/2013
Watershed size	N/A	Assistance began	2/6/2013
County	Multiple	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance

Consultations	9
Trainings/workshops	0
Individuals assisted	20
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM provided individual teachers with water quality and monitoring resources for use in their classroom this spring.

### Assistance provided July 1 – September 30, 2014

ALLARM provided the group with equipment recommendations as well as directions on how to use a variety of volunteer water quality monitoring kits.

### Assistance provided October 1 – December 31, 2014

No assistance provided this quarter.

## APPLICANT: PA Council of Trout Unlimited

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/1/2010
Group membership	12,000	Scoping meeting	5/17/2010
Watershed	Multiple	DEP approval	2/24/2010
Watershed size	N/A	Assistance began	2/24/2010
County	Multiple	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Quality assurance/quality control

Consultations	60
Trainings/workshops	1
Individuals assisted	102
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM provided volunteers with quality assurance/quality control support with their chemical monitoring program.

### Assistance provided July 1 – September 30, 2014

ALLARM provided volunteers with quality assurance/quality control support with their chemical monitoring program.

### Assistance provided October 1 – December 31, 2014

ALLARM provided volunteers with quality assurance/quality control support with their chemical monitoring program.

## APPLICANT: Potter County Conservation District

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	3/10/14
Group membership	55	Scoping meeting	
Watershed		DEP approval	3/21/14
Watershed size		Assistance began	3/21/14
County	Potter	Assistance completed	5/10/14
In-kind match	\$648.08+	Cost of assistance	\$1,784.64

**Assistance provided by:** Conemaugh Valley Conservancy, Inc.

**Assistance type:** Watershed Specific Technical Assistance

Consultations	4
Trainings/workshops	1
Individuals assisted	12
Stream miles improved	n/a

### Assistance provided April 11 – June 30, 2014

Conducted a macroinvertebrate collection and identification training for the Conservation District and Potter County Waterdogs at Lyman Run State Park on May 10.

### Assistance provided July 1 – September 30, 2014

No activity.

### Assistance provided October 1 – December 31, 2014

No activity.

## APPLICANT: Ridge and Valley Streamkeepers

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	9/15/2003
Group membership	30	Scoping meeting	N/A
Watershed	Sideling Hill Creek & Town Creek	DEP approval	10/7/2003
Watershed size	252 mi <sup>2</sup>	Assistance began	10/7/2003
County	Bedford & Fulton	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance, mentoring, and QA/QC

Consultations	18
Trainings/workshops	0
Individuals assisted	15
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM provided RVS with QA/QC results and information on monitoring equipment.

### Assistance provided July 1 – September 30, 2014

ALLARM provided RVS with equipment recommendations for the stream monitoring program.

### Assistance provided October 1 – December 31, 2014

No assistance provided.

## **Applicant: Schuylkill County Conservation District**

**Applicant (new or continuing):** new

**River Basin:** Susquehanna River Basin

**Watershed:** Mill Creek

**Watershed Sizes (sq. miles):** 25.53

**County:** Schuylkill

**Lead C-SAW Provider:** U.S. Geological Survey

**Type of Assistance Provided:** Technical Assistance

**Date of Initial Contact with Organization:** October 28, 2013

**DEP Approval to Proceed Date:** November 20, 2013

**Date Assistance Began:** 2013

**Date Assistance Completed:** on-going

**In-kind/Match Provided by Applicant Organization:** n/a

### **Requested Assistance:**

SCD is working with the Schuylkill Headwaters Association (SHA) to obtain data on stream flow and mine drainage characteristics in the Mill Creek watershed of the upper Schuylkill River. These data are needed to develop a watershed restoration strategy that will meet the requirements of an acceptable "Qualified Hydrologic Unit" as stipulated by the PaDEP Bureau of Abandoned Mine Reclamation Acid Mine Drainage Set-Aside Program. In 2011, a regional evaluation of available hydrological data for the upper Schuylkill River basin was completed by USGS, with assistance from SCD and SHA, to prioritize the sources of contaminant loading and to assess potential costs and benefits for restoration. Of five sub-basins in the region, the Mill Creek watershed was identified as having greatest potential for economic benefits associated with restoration of fisheries. Additional flow data are needed to better quantify the volume and contaminant loading of the mine discharges and to develop site-specific treatment strategies.

The SCD seeks to develop relations between streamflow and stage commonly referred to as ratings. Assistance through C-SAW is requested to train SCD personnel and SHA interns to: 1) properly identify appropriate locations for streamflow and stage measurement, 2) measure stage using staff plates or other appropriate methods, 3) conduct streamflow measurements, and 4) evaluate water quality. Under this C-SAW request, the USGS would provide instruction and support for staff plate installation and streamflow measurement at two locations mutually agreed upon during site reconnaissance. One site will be a stream channel (bridge crossing), and the other site will be a mine discharge where a weir plate is needed to gather flow. SCD and SHA interns would install additional staff plates and make streamflow measurements, using knowledge transferred from USGS.

### **Assistance provided April 11, 2014 through December 31, 2014**

Chuck Cravotta (USGS) met with Wayne Lehman (SCD) on the following dates: 6/13, 6/20, 6/23 and 6/27 to provide assistance with construction and training on the operation of weirs and streamgages at four (4) sites in the watershed. Future activity will involve instruction with regard to water-quality and streamflow measurements.

**\*New Request - Schuylkill Headwaters Association – Schuylkill Acts & Impacts**

**River Basin:** Delaware  
**Watershed:** Schuylkill River Basin  
**County:** Schuylkill County  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 5/27/14  
**DEP Approval to Proceed Date:** 6/4/14  
**Date Assistance Began:** 5/27/14  
**Date Assistance Completed:** 6/15/14  
**Total Cost of Assistance:** \$ 935.14

**Overview of Assistance:**

Approximate Group Membership: 350  
Total Number of Consultations Provided: 2  
Total Number of Trainings/Workshops Provided: 1  
Total Number of Individuals Assisted: 15

**Background on CSAW Applicant:** The Schuylkill Headwaters Association (SHA) promotes the environmental integrity of the Schuylkill River, its tributaries, and the watershed that lies within the boundaries of Schuylkill County. SHA works to protect and enhance the headwaters of the Schuylkill River by educating residents about the Schuylkill River and by implementing projects to reduce and control pollution. There are various sources of water pollution within the headwaters of the Schuylkill River, but the main impairment is abandoned mine drainage.

**Proposed C-SAW Assistance Requested:**

- Present technical information at meeting, including causes of pollution, environmental regulation, river restoration techniques.
- Provide educational materials including resources for researching environmental history.

**Assistance Provided April 1 – June 30, 2014**

DRN participated in the June events and provided technical assistance and a presentation to the students in June.

**Assistance Provided July 1 – September 30, 2014**

Follow up with SHA from the summer program was conducted.

**Assistance Provided October 1 –December 31, 2014**

Stemming from work conducted in the summer and prior – DRN reached out to SHA as part of work related to another CSAW request where an LNG plant is being proposed in the county. If more work is conducted a new request will be requested.

## APPLICANT: Shade Creek Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	1/3/12
Group membership	55	Scoping meeting	
Watershed	Shade Creek	DEP approval	2/24/12
Watershed size	34 sq. mi.	Assistance began	2/25/12
County	Somerset	Assistance completed	ongoing
In-kind match	\$468.45	Cost of assistance	\$440.00

**Assistance provided by:** Conemaugh Valley Conservancy, Inc.

**Assistance type:** Watershed Specific Technical Assistance & Mentoring

Consultations	8
Trainings/workshops	4
Individuals assisted	43
Stream miles improved	n/a

### Assistance provided April 11 – June 30, 2014

Helped to coordinate Shade High School's Trout Release Day activities in partnership with SCWA and led the macroinvertebrate station on May 28. Students also toured the Reitz #1 AMD treatment system, a drinking water plant, the local trout nursery, and the biggest AMD discharge in the Stonycreek River Watershed, the Reitz #4. Students then fished and explored the edges of a pond. Provided guidance on a Growing Greener grant project (Coal Run/Swallow Farms) and required paperwork.

### Assistance provided July 1 – September 30, 2014

No activity.

### Assistance provided October 1 – December 31, 2014

Advised on grant & project management and reporting requirements.



## **Silver Lake Nature Center (Master Naturalists)**

**River Basin:** Delaware  
**Watershed:** Otter  
**Watershed Size:**  
**County:** Bucks  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 3/15/2011  
**DEP Approval to Proceed Date:** 3/30/2011  
**Date Assistance Began:** 3/15/2011  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 228

### **Overview of Assistance:**

Approximate Group Membership: Approx. 300  
Total Number of Consultations Provided: 5  
Total Number of Trainings/Workshops Provided: 1  
Total Number of Individuals Assisted: 15  
Size of Watershed Assisted:  
Total Number of Stream Miles Improved or BMP's installed as a Result of C-SAW Assistance:

#### **Assistance Provided April 1 – June 30, 2014**

This quarter DRN followed up to a training and provided restoration technical assistance to the group. DRN also assisted with limited water quality monitoring assistance related to data collected by volunteer monitors.

#### **Assistance Provided July 1 – September 30, 2014**

This quarter DRN worked on prep for the October Master Naturalist Training tour for the new students who will be taking part in the Master Naturalist program.

#### **Assistance Provided October 1 –December 31, 2014**

DRN provided a fall tour of the riparian buffer and Master naturalist t tour in October at the Silver Lake Nature Center. Twelve people attended.

## **Spring Ford Area Historical Society**

**River Basin:** Delaware

**Watershed:** Schuylkill River Basin

**County:** Montgomery

**Lead C-SAW Provider:** Delaware Riverkeeper Network

**Type of Assistance Provided:** WSTA

**Date of Initial Contact with Group:** prior years there was earlier csaw assistance

**DEP Approval to Proceed Date:** 3/18/14

**Date Assistance Began:** 3/18/14

**Date Assistance Completed:** 4/9/14

**Total Cost of Assistance:** \$ 484.50

### **Overview of Assistance:**

Approximate Group Membership: 50

Total Number of Consultations Provided: 3

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 48

**Background of project:** The Spring Ford Area Historical Society (Montgomery County, PA) has requested CSAW technical assistance to increase understanding of the environmental history of the Schuylkill River watershed for its members as well as the general public. SPAHS has requested DRN present a program for its members and the general public on April 9th, 2014 at the VFW in Royersford, PA. This meeting is free and open to the public.

### **Proposed C-SAW Assistance Requested:**

- Present technical information at public meeting, including causes of pollution, environmental regulation, river restoration techniques.
- Provide educational materials including resources on environmental history.

### **Assistance Provided April 1 – June 30, 2014**

DRN conducted the talk at the VFW for the Historical Society on April 9<sup>th</sup>, 2014 with the and 44 people attended.

## **Applicant: The Tinicum Conservancy/Swamp Creek**

**River Basin:** Delaware River Basin  
**Watershed:** Swamp Creek - Roaring Rocks Watershed (State Water Plan 2D)  
**County:** Bucks  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**DEP Approval to Proceed Date:** 3/28/13  
**Date Assistance Began:** 3/15/13  
**Date Assistance Completed:** ongoing  
**Total Cost of Assistance:** \$1,083

### **Overview of Assistance:**

Approximate Group Membership: 2,300  
Total Number of Consultations Provided: 3  
Total Number of Trainings/Workshops Provided: 2  
Total Number of Individuals Assisted: 55

### **Assistance Provided April 1 – June 30, 2014**

C-SAW provided technical assistance to Tinicum Conservancy and residents regarding the Swamp Creek riparian corridor management, with a focus on riparian restoration and management of invasive species. This quarter assistance included: coordination of volunteers and planning for a restoration day.

DRN provided equipment and supplies for maintenance days and helped plan with the volunteers, key areas to include in 2014 maintenance and restoration activities while on site. DRN also provided help with an existing stream upgrade petition and providing supplemental data to support the petition. DRN helped TC set up an additional team of volunteers monitors to continue monitoring of the Tohickon Creek and its tributaries. A training was held and monitoring supplies were provided to the group.

### **Assistance Provided July 1 – September 30, 2014**

C-SAW provided technical assistance to Tinicum Conservancy and residents regarding the Swamp Creek riparian corridor management, with a focus on riparian restoration and management of invasive species.

### **Assistance Provided October 1 –December 31, 2014**

C-SAW provided technical assistance to Tinicum Conservancy and residents regarding future planning for the riparian corridor management along Swamp Creek.

## APPLICANT: Tri-County Trout Club

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	2/20/14
Group membership	60	Scoping meeting	
Watershed	Deer Creek	DEP approval	2/27/14
Watershed size		Assistance began	2/27/14
County	Allegheny, Armstrong, Westmoreland	Assistance completed	9/30/14
In-kind match	\$1,685.12	Cost of assistance	\$899.27

**Assistance provided by:** Conemaugh Valley Conservancy, Inc.

**Assistance type:** Watershed Specific Technical Assistance

Consultations	3
Trainings/workshops	1
Individuals assisted	23
Stream miles improved	n/a

### Assistance provided April 11 – June 30, 2014

No activity.

### Assistance provided July 1 – September 30, 2014

A presentation on macroinvertebrates, hatches and their connection to water quality was given at the Tri-County Trout Club's September meeting.

### Assistance provided October 1 – December 31, 2014

No activity.

## **Upper Delaware BioBlitz Event**

**River Basin:** Delaware  
**Watershed:** Delaware River Basin  
**County:** Multiple  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 10/1/13  
**DEP Approval to Proceed Date:** 1/15/14  
**Date Assistance Began:** 1/15/14  
**Date Assistance Completed:** Ongoing

**Total Cost of Assistance:** \$ 1,767

### **Overview of Assistance:**

Approximate Group Membership: 4,000 (multiple groups)  
Total Number of Consultations Provided: 6  
Total Number of Trainings/Workshops Provided: 3  
Total Number of Individuals Assisted: 312

**Background on CSAW Applicant:** The Upper Delaware Bioblitz planning committee comprised of multiple non-profit and all volunteer groups is working on a science and public event for the second Upper Delaware Bioblitz to be scheduled for June 2014. The group will bring together academic scientists from the region to conduct a 24 hour bioblitz to monitor the life along a designated site and then the public will be invited to attend to meet and learn from the scientists near the close of the 24 hour collection period. C-SAW was requested to assist with the benthic collection team.

### **Assistance Provided April 1 – June 30, 2014**

DRN assisted with planning, coordination, volunteer recruitment and implementation of the Upper Delaware Bioblitz which was a partnership of many organizations. Stroud also provided technical assistance for the event in way of macroinvertebrate collection and ID. DRN assisted with macroinvertebrate sampling, ID and tallying and public macro sampling training sessions on June 28<sup>th</sup> and 29<sup>th</sup> – 82 aquatic invertebrates were identified. DRN also held a water quality monitoring session with the public on the 29<sup>th</sup>. Throughout the weekend there were over 300 people that visited the scientists and the Bioblitz event. The water monitoring session had 12 people in attendance. In total there were 9 science teams that documented 884 species on the bioblitz site that is part of Boyscout property in the Upper Delaware. DRN also provided video production of the event to broaden the exposure to this educational science event.

### **Assistance Provided July 1 – September 30, 2014**

DRN assisted with follow up and data compilation for the 2014 Upper Delaware Bioblitz. In total there were 9 science teams that documented 884 species on the bioblitz site that is part of Boyscout property in the Upper Delaware. DRN also provided video production of the event to broaden the exposure to this educational science event (video production was Match time).

### **Assistance Provided October 1 –December 31, 2014**

DRN assisted with planning and possibly ideas for venue for the 2015 Bioblitz that will be held in the Pike County PA region. Two conference calls were a part of this work.

**Applicant: Valley Creek Trout Unlimited**

**Applicant (new or continuing):** New  
**River Basin:** Schuylkill River  
**Watershed:** Delaware River  
**Watershed Size (acreage or sq. miles):**  
**County (multiple):** Chester County  
**Lead C-SAW Provider:** Stroud Water Research Center  
**Type of Assistance Provided:** scoping meeting/site consultation  
**Date of Initial Contact with Organization:** 5 March, 2014  
**DEP Approval to Proceed Date:** 7 March, 2014  
**Date Assistance Began:** April 20, 2014  
**Date Assistance Completed:** April 20, 2014  
**Total Cost of Assistance:** ~\$650  
**In-kind/Match Provided by Applicant Organization:**

**Overview of Assistance:**

Approximate Group Membership:  
Total Number of Consultations Provided: 2  
Total Number of Trainings/Workshops Provided:  
Total Number of Individuals Assisted: 5  
Size of Watershed Assisted:  
Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

**Assistance Provided April 1 – June 30, 2014**

Dr. M. Daniels provided technical assistance on two occasions to Valley Creek Trout Unlimited (Rich Bauer and other members). Dr. Daniels provided guidance with respect to strategies for mitigating excessive bank erosion and poor in-stream habitat conditions.

## APPLICANT: Watershed Alliance of Adams County

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	7/15/2007
Group membership	100	Scoping meeting	N/A
Watershed	Multiple	DEP approval	7/12/2007
Watershed size	N/A	Assistance began	7/12/2007
County	Adams	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance and mentoring

Consultations	3
Trainings/workshops	0
Individuals assisted	10
Stream miles improved	N/A

### Assistance provided April 1 – June 30, 2014

ALLARM provided the group with monitoring resources for collecting, processing, and analyzing macroinvertebrates. ALLARM previously trained WAAC members on macroinvertebrate monitoring and the group is looking to collect some additional information on their local streams.

**\*New Group: West Chester Fish, Game & Wildlife Association**

**River Basin:** Delaware  
**Watershed:** West Valley Creek/Brandywine Creek/Christina River  
**County:** Chester County  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 10/10/14  
**DEP Approval to Proceed Date:** 10/17/14  
**Date Assistance Began:** 10/17/14  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 57

**Overview of Assistance:**

Approximate Group Membership: 300  
Total Number of Consultations Provided: 2  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 2

**Background of Group:** The West Chester Fish, Game & Wildlife Association mission statement: Be advocates for fish, game and wildlife and our natural resources. Educate and promote to the residents of Chester County the enjoyment of the field sports of fishing, hunting and wildlife observation.

**Background of project:** West Chester Fish, Game & Wildlife Association has requested CSAW technical assistance to increase understanding of the environmental history of the Schuylkill River watershed for its members as well as the general public. GVA has requested DRN present a program for its members and the general public on January 16th, 2015 at the Eat Bradford Township building, Downingtown, PA.

**Proposed C-SAW Assistance Requested:**

- Provide educational materials including resources on environmental history.
- Present technical information including on causes of pollution, environmental regulation, river restoration techniques.

**Assistance Provided October 1 – December 31, 2014**

Preliminary outreach regarding January workshop on environmental history slated for Jan 16, 2015.



## **Applicant: West Chester University**

**Applicant (new or continuing):** new

**River Basin:** Delaware River Basin

**Watershed:** Plum Run

**Watershed Sizes (sq. miles):** 3.7

**County:** Chester

**Lead C-SAW Provider:** U.S. Geological Survey

**Type of Assistance Provided:** Technical Assistance

**Date of Initial Contact with Organization:** February, 2014

**DEP Approval to Proceed Date:** March 12, 2014

**Date Assistance Began:** 2014

**Date Assistance Completed:** on-going

**In-kind/Match Provided by Applicant Organization:** n/a

### **Overview of Assistance:**

Approximate Group Membership:

Total Number of Consultations Provided:

Total Number of Trainings/Workshops Provided:

Total Number of Individuals Assisted: **about 5**

Size of Watershed Assisted: **3.7 sqmi**

### **Requested Assistance:**

WCU is working with Brandywine Valley Association and Stroud Water Research Center to monitor the performance of stream restoration projects in Chester County. WCU students will semi-continuously monitor turbidity, suspended sediment, and streamflow over a range of conditions in the Plum Run Basin; data collection will be conducted at an existing weir located near the confluence with Brandywine Creek. Ultimately field measurements will be compared to sediment yields estimated using MapShed, a GIS-based watershed modeling tool developed by Penn State University. The project will be conducted over a two-year period. The procedure will closely follow guidelines developed by staff at the USGS. Two sensors will be installed to collect turbidity and water depth data. The turbidity data will be converted to suspended solids concentration by simple linear regression, requiring approximately 20 samples during base flow and storm events during the two year study to obtain suspended solids concentrations. Similarly, 20 direct measurements of stream flow discharge through the weir will be used to calibrate the weir for stream flow based on water depth. Finally, suspended solid concentration will be multiplied by discharge to determine sediment export from the stream, calculated per year, by season, and by storm event. Effectively, this provides estimates of sediment export for comparison with MapShed estimates of sediment input. Assistance through C-SAW is requested to train students conducting the monitoring to: 1) properly install, operate and maintain turbidity sensors, 2) identify appropriate locations for streamflow and stage measurement, and 3) conduct streamflow measurements. Under this C-SAW request, the USGS would provide instruction and support in conducting all three tasks. Subsequent to instruction, WCU students would install additional staff plates and make streamflow measurements, using knowledge transferred from USGS.

### **Assistance provided April 11, 2014 through December 31, 2014**

No work was completed on this project during the above-referenced time period.

## **Applicant: Western Pennsylvania Conservancy**

**Applicant (new or continuing):** new

**River Basin:** Ohio, Susquehanna

**Watershed:** Allegany, Youghiogheny, Susquehanna

**Watershed Size (acreage or sq. miles):**

**County (multiple):** Fayette County, Lancaster County

**Lead C-SAW Provider:** Stroud Water Research Center

**Type of Assistance Provided:** Workshops and Lecture

**Date of Initial Contact with Organization:** 1 September, 2014

**DEP Approval to Proceed Date:** 9 Sept, 2014

**Date Assistance Began:** 11 November, 2014

**Date Assistance Completed:** 30 November, 2014

**Total Cost of Assistance:** ~\$4,700

**In-kind/Match Provided by Applicant Organization:** no

### **Overview of Assistance:**

Approximate Group Membership: 500

Total Number of Consultations Provided:

Total Number of Trainings/Workshops Provided: 5

Total Number of Individuals Assisted: 400

Size of Watershed Assisted:

Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance: unknown

### **Assistance Provided 1 October – 31 December, 2014**

Dr. Bern Sweeney and Mr. Lamonte Garber provided a workshop entitled "In Support of Streamside Forests" at the 2014 Riparian Buffer Workshop of the Western Pennsylvania Conservancy.

Sweeney and Garber also provided a workshop in Grantville, Pa. to present "Building Healthy Soils For Healthy Streams" at the Keystone Crop and Soil Conference and then in East Earl, Pa. to present "Caring for Streams as Living Systems" at the Shady Maple Conference "Unlocking the Secrets in the Soils and Streams". Finally they presented "Monitoring the Effects of Soil Conservation Practices on Stream Quality" at the Meeting of the Minds Cover Crop Field Day (Groff Farm) and "Stream Ecology and Forest Riparian Buffers: Cleaner Water at a Fraction of the Cost" at the Annual Meeting of the Pennsylvania Association of Conservation Districts in State College, Pa.

## **West Wayne Preserve and Boy Scout Troop 284**

**River Basin:** Delaware  
**Watershed:** Schuylkill River Basin  
**County:** Multiple (Delaware, Chester, Montg, Phila)  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** prior years there was earlier csaw assistance  
**DEP Approval to Proceed Date:**  
**Date Assistance Began:** 3/11/14  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 199.50

### **Overview of Assistance:**

Approximate Group Membership: 3,000  
Total Number of Consultations Provided: 2  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 5

**Background:** West Wayne Preserve & BoyScout Troop 284 are teaming up to educate the community about watershed stormwater restoration projects and to develop several projects that could be implemented in the community to improve water quality. DRN envisions the guidance including the following:

#### **Proposed Scope:**

- Provide Guidance on Green Stormwater Infrastructure Projects and Riparian Restoration/Access Projects
- Meet with Troop's project managers
- Guide Restoration Designs
- Coordinate between Troop and landowners
- Oversight of installation(s)

### **Assistance Provided April 1 – June 30, 2014**

Design on the green infrastructure options was discussed with the group in April and restoration options are being considered by the community and troop.

### **Assistance Provided July 1 – September 30, 2014**

Design options for a green infrastructure project to improve infiltration is being brainstormed with the group.

### **Assistance Provided October 1 –December 31, 2014**

Design options for a green infrastructure project to improve infiltration at various locations in Radnor Township is part of this request. DRN helped: coordinate with the various township contacts and DCNR and develop a project strategy and management plan.

## APPLICANT: Yellow Breeches Education Center

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	9/1/2014
Group membership	N/A	Scoping meeting	9/12/2014
Watershed	Yellow Breeches	DEP approval	10/14/2014
Watershed size	219 mi <sup>2</sup>	Assistance began	10/7/2014
County	Cumberland	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Alliance for Aquatic Resource Monitoring (ALLARM)

**Assistance type:** Watershed-specific technical assistance

Consultations	15
Trainings/workshops	2
Individuals assisted	40
Stream miles improved	N/A

### Assistance provided July 1 – September 30, 2014

ALLARM prepared for two macroinvertebrate workshops to be held the first week of October.

### Assistance provided October 1 – December 31, 2014

ALLARM held two macroinvertebrate workshops on October 7 and 9. Students from two different classes participated and learned how to collect and identify macroinvertebrates and how their findings relate to overall stream health.

## Quality Assurance/Quality Control: 4/1/2014 – 12/31/2014

The following QA/QC assistance was provided by the Alliance for Aquatic Resource Monitoring:

	Apr – Jun 2014	Jul – Sep 2014	Oct – Dec 2014	Total
Groups assisted	2	2	2	2
Individuals assisted	64	20	33	117
Water samples processed	768	240	396	1,404

Month	Group	Parameters									# of Monitors	# of Samples
		Alkalinity	Chloride	Conductivity	Nitrate	pH	Phosphorus	Total Dissolved Solids	Turbidity	Other		
April 2014	God's Country Waterdogs			X		X		X			11	132
April 2014	PA Council of Trout Unlimited			X		X		X			11	132
May 2014	PA Council of Trout Unlimited			X		X		X			3	36
June 2014	PA Council of Trout Unlimited			X		X		X			39	468
July 2014	PA Council of Trout Unlimited			X		X		X			4	48
August 2014	PA Council of Trout Unlimited			X		X		X			1	12
August 2014	God's Country Waterdogs			X		X		X			1	12
September 2014	PA Council of Trout Unlimited			X		X		X			14	168
October 2014	PA Council of Trout Unlimited			X		X		X			17	204
November 2014	PA Council of Trout Unlimited			X		X		X			10	120
November 2014	God's Country Waterdogs			X		X		X			3	36
December 2014	PA Council of Trout Unlimited			X		X		X			3	36
<b>Total</b>	<b>4 groups</b>										<b>117</b>	<b>1,404</b>