

# Consortium for Scientific Assistance to Watersheds

Annual Report: January 1 – December 31, 2015

*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, over 305 organizations and thousands of individuals have received watershed specific technical assistance, mentoring, and quality control support. **In the past year, C-SAW partners have supported 63 organizations and approximately 3,446 individuals.**

Citizens and local watershed organizations are critical in enhancing and improving the protection and restoration of watersheds 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)
- Duplicate/split sample analysis for water quality (ALLARM)
- Macroinvertebrate identification (SWRC)

## **C-SAW Spotlight:**

In 2012, an Eastwick resident accidentally came upon a land survey crew marking off portions of a 135 acre parcel next to the Darby Creek (near the John Heinz Wildlife Refuge and the Philadelphia International Airport). Soon the community discovered that Korman Residential intended to build 722 rental units and 1,034 parking spaces on a portion of the largely undeveloped natural parcel, raising huge concerns from the community. Citing a lack of community input and impact of development on stormwater management and flooding, District Councilman Johnson put a stop to the zoning changes necessary for Korman to build.

For several years, C-SAW has been actively engaged with community outreach and education with the grassroots organization Eastwick Friends and Neighbors Coalition (EFNC) to not only save this sensitive and important habitat, but also to speak-out for a greater community voice for long-overdue Eastwick-wide planning to address chronic and catastrophic flooding and poor stormwater management that has plagued the Eastwick community for decades. Speaking-out at City Council meetings, sponsoring public education meetings, door-to-door canvassing to develop a community-wide land-use survey, meeting with officials and agencies and actively participating with US EPA of multiple Superfund Clean-up sites all paid-off for EFNC. The recent transfer of the property to the Philadelphia Redevelopment Authority is a huge win for the community. But preservation of this parcel is far from over because the transfer comes with a four-year purchase option to the City. Because of EFNC's strong community voice, Councilman Johnson and newly elected Mayor Jim Kenney responded to resident concerns and have promised a "robust" community planning process for all of Eastwick led by the Philadelphia City Planning Commission. As a result of EFNC's tenacity and partnering, they were awarded the Bread and Roses Foundation's "2015 Community Empowerment" Award.

## **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 organization'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:**

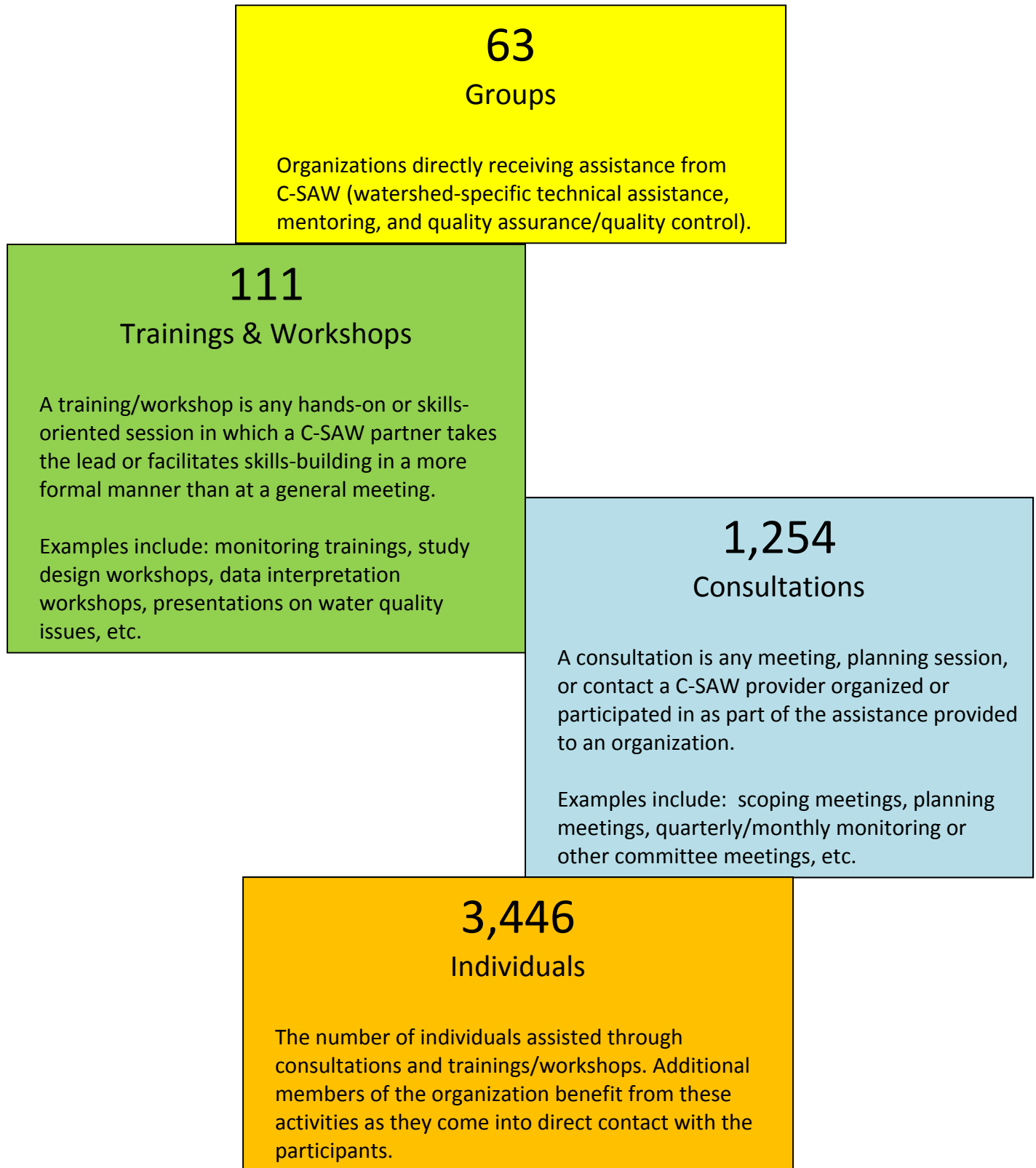
Following up on a couple of previous C-SAW presentations and workshops about data loggers and macroinvertebrates as indicators of water quality, the Conemaugh Valley Conservancy led a macroinvertebrate collection and identification training for Arrowhead Trout Unlimited members. Conservancy staff demonstrated the use of different tools, including Surbers, kick nets, D-frames, and Hester-Dendy samplers, and explained the pros and cons of each. Participants were able to use them to acquire and identify live specimens from Cowanshannock Creek in Armstrong County.



*Captions from left to right: Chelsea Walker and John Linkes pick macroinvertebrates out of debris; CVC's Eric Null demonstrates a Surber Sampler.*

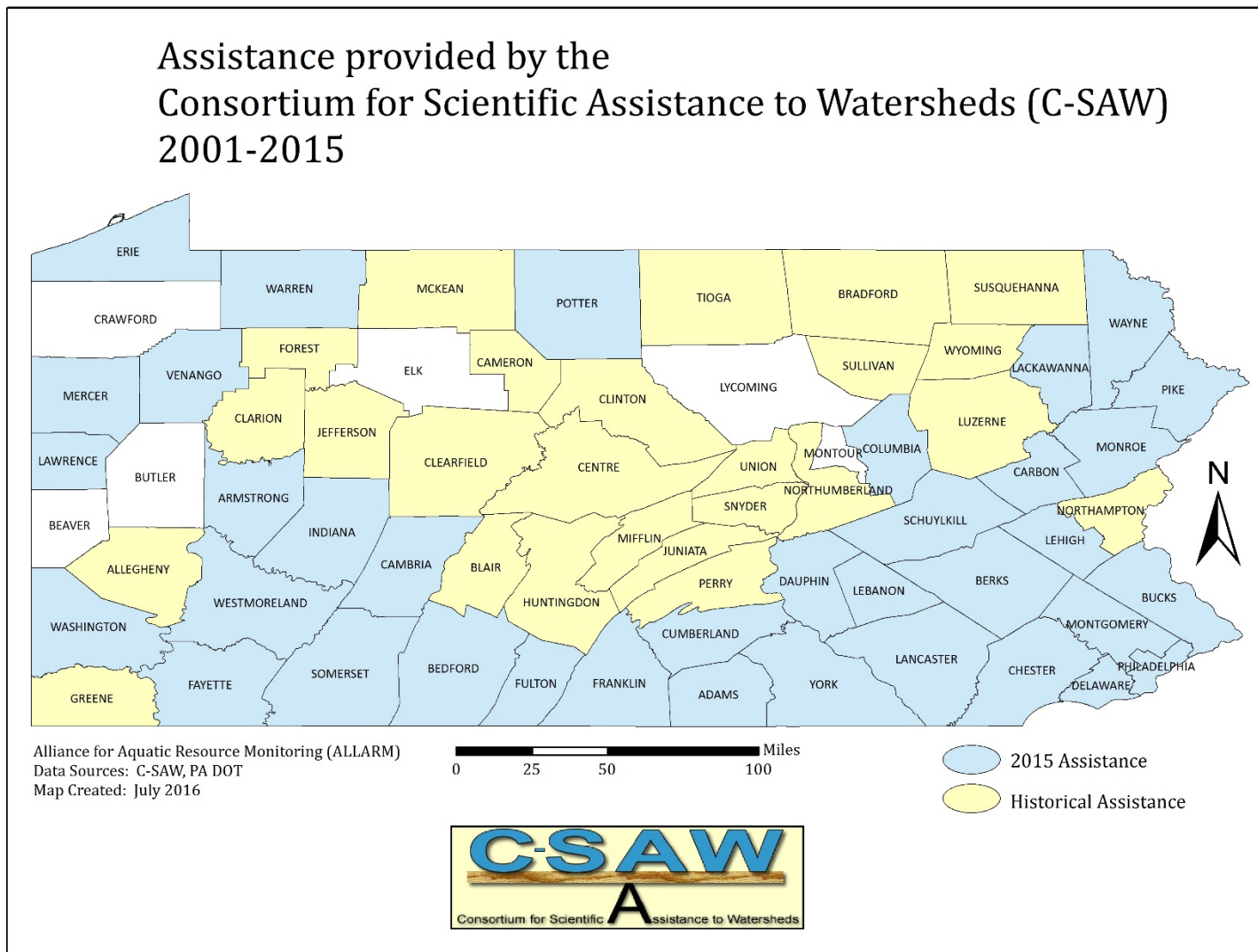


## Summary of Assistance Provided:





The reports in Appendices A – F summarize the assistance provided in 2015, as reported by each C-SAW partner. Pennsylvania counties where assistance has been provided through C-SAW are illustrated in the map below.



## Appendix A: Assistance Reports (ALLARM)

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### 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	42
Trainings/workshops	1
Individuals assisted	20
Stream miles improved	N/A

#### Assistance provided January 1 – March 31, 2015

ALLARM provided the Antietam Watershed Association with assistance in developing a data management system that could better incorporate their growing program. With close to 30 sites, the group needed a way to help consolidate the data and better summarize the data at an individual site. ALLARM also helped to troubleshoot an issue with a kit and reviewed equipment maintenance.

#### Assistance provided April 1 – June 30, 2015

ALLARM met with the coordinator of the AWA Stream Monitoring Program to get updates on the program and tour different sites in the watershed, particularly one that shows consistently high nutrient levels. ALLARM recommended that the group follow-up with the Franklin County Conservation District about the site. ALLARM helped the group interpret water quality data at two additional sites. The group also participated in quality assurance/quality control.

#### Assistance provided July 1 – September 30, 2015

ALLARM sent QA/QC results to the ten monitors that submitted samples to ALLARM. The group did well with QA/QC, with a pass rate of 96%. ALLARM also answered questions about water chemistry parameters and data interpretation.

#### Assistance provided October 1 – December 31, 2015

ALLARM reviewed alkalinity monitoring methods to AWA stream monitors, including how to titrate their water samples and record final values.

## APPLICANT: Audubon Pennsylvania – Stream Studies Program

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/17/2014
Group membership	50	Scoping meeting	1/15/2015
Watershed	Letort Spring Run	DEP approval	5/1/2015
Watershed size	22 mi <sup>2</sup>	Assistance began	1/15/2015
County	Cumberland	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 and mentoring

Consultations	66
Trainings/workshops	1
Individuals assisted	12
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM began working with Audubon PA and the Carlisle Area School District this quarter to help develop a stream studies program for 7<sup>th</sup> grade students. Beginning next year, students will learn about water quality monitoring and stream assessment. ALLARM is specifically helping to train teachers on monitoring water chemistry and helping with choosing appropriate equipment for in the field and classroom.

### Assistance provided April 1 – June 30, 2015

On June 9, ALLARM helped to lead a workshop with Audubon PA for seventh grade teachers. The workshop focused on watershed education and stream monitoring. Teachers learned about methods to test water chemistry, how stormwater impacts streams, how to perform a visual assessment, and how to collect and identify macroinvertebrates. Additional workshops are currently being planned.

### Assistance provided July 1 – September 30, 2015

ALLARM continued to help Audubon PA gather resources to create a 7<sup>th</sup> grade stream studies program.

### Assistance provided October 1 – December 31, 2015

ALLARM met with Audubon PA to begin planning the second stream monitoring workshop for the Carlisle 7<sup>th</sup> grade teachers, and also met with the 7<sup>th</sup> grade teachers to sort out details for the event. ALLARM also met with the principal and scouted out the school grounds (including the adjacent stream) to find appropriate locations for in-stream and near-stream activities for the four Stream Studies days in May.

## APPLICANT: Bethel EAC

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	4/23/2014
Group membership	20	Scoping meeting	9/30/2014
Watershed	Little Swatara Creek	DEP approval	10/14/2014
Watershed size	99 mi <sup>2</sup>	Assistance began	9/30/2014
County	Berks	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

Consultations	27
Trainings/workshops	3
Individuals assisted	6
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

The Bethel EAC is interested in exploring options to assess local streams primarily to educate residents within the township. ALLARM facilitated a study design process to map out a plan to achieve their goals. The group decided to kick-start their initiative by planning a summer educational event for middle school students. ALLARM met with the EAC to provide an overview of stream monitoring including monitoring methods and the equipment needed.

### Assistance provided April 1 – June 30, 2015

ALLARM met with two members of the Bethel EAC on June 18 to review their upcoming watershed education event and to sort through monitoring equipment the group inherited from the Swatara Creek Watershed Association. Based on the equipment available and the goals of the event, ALLARM made equipment recommendations to the group. A workshop to teach the EAC members about stream monitoring methods is planned for July 8.

### Assistance provided July 1 – September 30, 2015

On July 8, ALLARM held a water quality monitoring workshop for the Bethel EAC. The purpose of the workshop was to educate members on stream monitoring prior to them holding an education event for middle school students. Participants learned how to collect and identify macroinvertebrates as well as use an index to determine the quality of the stream. Participants also learned how to collect water samples for water chemistry analysis and learned how to measure alkalinity, conductivity, nitrate, pH, and water temperature.

### Assistance provided October 1 – December 31, 2015

ALLARM followed up with the Bethel EAC members and helped them brainstorm ways to engage their local community in watershed issues, including holding a public educational event at the town library where children and adults could learn about their local watershed and water quality.

## APPLICANT: Big Spring Watershed Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	5/19/2015
Group membership	30	Scoping meeting	9/10/2015
Watershed	Big Spring Creek	DEP approval	N/A
Watershed size	13 mi <sup>2</sup>	Assistance began	9/10/2015
County	Cumberland	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

Consultations	15
Trainings/workshops	1
Individuals assisted	20
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

No assistance provided.

### Assistance provided April 1 – June 30, 2015

ALLARM was contacted by the Big Spring Watershed Association with questions on stream monitoring. On June 10, ALLARM had a call with the group, and found out that they are interested learning more about volunteer monitoring, specifically how they can learn more about potential nutrient pollution in the watershed. A scoping meeting is scheduled for September 17.

### Assistance provided July 1 – September 30, 2015

ALLARM attended a Big Spring Watershed Association meeting on September 17 to learn more about the group and to gauge whether they were a good fit for C-SAW. The group is concerned about the lack of water quality data on Big Spring and would like to fill in the data gaps by beginning a volunteer monitoring program. ALLARM discussed different options and shared examples of what other groups have done in the region. The group plans to meet next month to decide how best to proceed.

### Assistance provided October 1 – December 31, 2015

ALLARM presented at the Big Spring Watershed Association's annual meeting on November 12. The presentation focused on developing a monitoring plan since the group is considering starting up a stream monitoring program. The steps of the study design were reviewed to the board and public audience as well as highlighting monitoring success stories from other volunteer stream monitoring groups in Pennsylvania. Following the 11/12 meeting, the board decided that they would like to begin a stream monitoring program and asked ALLARM to help lead them through the study design process. The first study design workshop is scheduled for January 2016.

## APPLICANT: Conodoguinet Creek Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/16/2002
Group membership	100	Scoping meeting	N/A
Watershed	Conodoguinet Creek	DEP approval	4/1/2002
Watershed size	524 mi <sup>2</sup>	Assistance began	4/1/2002
County	Cumberland & 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

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

### Assistance provided January 1 – March 31, 2015

ALLARM assisted the Conodoguinet Creek Watershed Association in developing a plan to research and gather data on the watershed including any monitoring data collected in recent years. The group is looking to create a presentation for residents of the watershed to educate them about the status and health of the Conodoguinet Creek.

### Assistance provided April 1 – June 30, 2015

ALLARM helped the group research characteristics of the watershed and produced four maps for the group to use in their presentation to the community.

### Assistance provided July 1 – September 30, 2015

ALLARM provided additional resources to the group to help with their community presentation. The group has learned how to gather information on the watershed for future meetings.

### Assistance provided October 1 – December 31, 2015

ALLARM provided information to the Conodoguinet Creek Watershed Association on nutrients and algal blooms. The group is interested in learning more about the nutrient concentrations in their watershed – both on the mainstem and also the tributaries.

## APPLICANT: Corry Stream Team

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	2/25/2015
Group membership	11	Scoping meeting	3/6/2015
Watershed	French Creek Watershed	DEP approval	3/10/2015
Watershed size	1,236 mi <sup>2</sup>	Assistance began	3/10/2015
County	Erie & Warren	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 and QA/QC

Consultations	24
Trainings/workshops	2
Individuals assisted	11
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

The Corry Stream Team is interested in redefining their volunteer monitoring program and requested help from ALLARM to think through possible options based on their goals. ALLARM reviewed the assistance C-SAW could provide and sent them materials to begin the study design process.

### Assistance provided April 1 – June 30, 2015

During the group's first study design meeting, the members decided that they would like to end their current monitoring program and take a break from monitoring before beginning a new program. Their goals were achieved and agreed that they had learned a lot about the watershed through weekly testing. Therefore, the group will no longer be developing a study design. Instead, ALLARM will be working with the group on data analysis to explore and better understand the data that have already been collected. This step is important to help the group wrap up and close this project.

### Assistance provided July 1 – September 30, 2015

ALLARM gathered all of the stream data that the Corry Stream Team has collected and will use it to develop a data analysis and interpretation workshop for the group.

### Assistance provided October 1 – December 31, 2015

ALLARM met with Corry Stream Team in October to distribute equipment and discuss group objectives and current efforts. Some QA/QC samples were also collected at the meeting. Follow-up questions from the group concerned cleaning/calibrating equipment and future monitoring sites.



## APPLICANT: Delaware Riverkeeper Network

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	10/1/2009
Group membership	N/A	Scoping meeting	N/A
Watershed	Delaware River	DEP approval	9/13/2010
Watershed size	13,000 mi <sup>2</sup>	Assistance began	9/13/2010
County	Multiple	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$

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

**Assistance type:** QA/QC

Consultations	19
Trainings/workshops	1
Individuals assisted	3
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

No assistance provided this quarter.

### Assistance provided April 1 – June 30, 2015

ALLARM provided quality assurance/quality control assistance to DRN volunteers.

### Assistance provided July 1 – September 30, 2015

ALLARM provided quality assurance/quality control assistance to DRN volunteers.

### Assistance provided October 1 – December 31, 2015

ALLARM provided quality assurance/quality control assistance to DRN volunteers.

## 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	\$

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

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

Consultations	29
Trainings/workshops	2
Individuals assisted	30
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

The Diakon Center Point Program is interested in monitoring a local stream and teaching their students about stream assessment. ALLARM worked with the group to develop an outline for a spring workshop that focuses on water quality monitoring.

### Assistance provided April 1 – June 30, 2015

On April 21, ALLARM held a stream monitoring workshop at the Diakon Center that focused on teaching students and staff how to collect and identify macroinvertebrates and test the water chemistry at a stream that flows through the Center.

### Assistance provided July 1 – September 30, 2015

ALLARM began planning for an October stream monitoring workshop with the Diakon Center. The goal of the workshop is to teach a new set of students how to monitor the stream that flows through their campus.

### Assistance provided October 1 – December 31, 2015

ALLARM held a stream monitoring workshop for the Diakon Center on October 14. The workshop introduced students to stream health and watershed functions. Students collected water chemistry measurements in-stream and near-stream using field kits and collected and identified macroinvertebrates in hopes of understanding the health of the stream reach.

## 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	23 mi <sup>2</sup>	Assistance began	10/29/2013
County	Adams	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 and mentoring

Consultations	17
Trainings/workshops	1
Individuals assisted	15
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM continued working with the Friends of Tom's Creek to develop their stream monitoring plan, which focuses on monitoring physical parameters, macroinvertebrates, and visual assessment. The group is concerned about whether an expanding local mining operation will impact Tom's Creek.

### Assistance provided April 1 – June 30, 2015

No assistance provided.

### Assistance provided July 1 – September 30, 2015

ALLARM helped the Friends of Tom's Creek develop outreach materials on the status of their watershed as well as educational materials on Pennsylvania's water resources. ALLARM sent them materials and guided them to places where they could retrieve information, including the Integrated Report.

### Assistance provided October 1 – December 31, 2015

The Friends of Tom's Creek is looking upgrade a stream designation for the upper reaches of Tom's Creek as a result of data gathered from several macroinvertebrate collection events and water chemistry data. ALLARM provided the Friends of Tom's Creek with information on upgrading stream designations and referred them to the Delaware Riverkeeper Network and PA DEP for additional information.

## 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	\$

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

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

Consultations	17
Trainings/workshops	1
Individuals assisted	20
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM continued to provide the God's Country Waterdogs with assistance on data management and analysis.

### Assistance provided April 1 – June 30, 2015

ALLARM attended one of the God's Country Waterdogs' meetings to discuss the status of monitoring and the needs of the group. Some members of the group stated that they were interested in learning about other monitoring methods and potentially expanding their monitoring program.

### Assistance provided July 1 – September 30, 2015

ALLARM began brainstorming ways to help the group with data interpretation and communication.

### Assistance provided October 1 – December 31, 2015

ALLARM scheduled a check-in meeting with group volunteers for the spring.

## 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	571 mi <sup>2</sup>	Assistance began	4/2/2014
County	Dauphin	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

Consultations	23
Trainings/workshops	2
Individuals assisted	22
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM assisted the Lower Dauphin High School with managing their water chemistry data this quarter and provided troubleshooting tips for their monitoring equipment. ALLARM also began preparing for a workshop scheduled with the group for April.

### Assistance provided April 1 – June 30, 2015

A workshop was held on April 13 with the Lower Dauphin High School. Students at the workshop learned alternative methods for testing water quality, learned ways to analyze their water chemistry data with the use of GIS, created watershed maps, and learned about how stormwater impacts streams. The students ended their monitoring program the beginning of May and used lessons learned at the workshop to create a final report.

### Assistance provided July 1 – September 30, 2015

ALLARM began planning for an October stream monitoring workshop with the Lower Dauphin High School. The goal of the workshop is to teach a new class about stream monitoring, specifically how to collect and analyze samples for water chemistry parameters.

### Assistance provided October 1 – December 31, 2015

ALLARM held a water quality monitoring workshop at the Lower Dauphin High School on October 16. The workshop consisted of a presentation reviewing watershed functions and an overview of the water quality parameters the students will be monitoring all year. The second half of the workshop was devoted to teaching the students how to collect water samples and analyze them for eight parameters using a combination of field kits and meters. How to care for and calibrate the equipment was also covered.

## 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	48 mi <sup>2</sup>	Assistance began	7/16/2007
County	Cumberland & 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 and mentoring

Consultations	8
Trainings/workshops	1
Individuals assisted	10
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM continued to help the Middle Spring Watershed Association analyze their water chemistry data and summarize their results. The group is looking to develop a short watershed report to share with the local community.

### Assistance provided April 1 – June 30, 2015

ALLARM assisted the group with analyzing their data and creating a four-page watershed report that summarizes the findings of their monitoring program.

### Assistance provided July 1 – September 30, 2015

No assistance provided.

### Assistance provided October 1 – December 31, 2015

The Middle Spring Watershed Association is interested in finding ways to limit and remove the trash within their stream. They contacted ALLARM to learn about different in-stream trash management systems. ALLARM posted the question on list serves to see what other groups have done to tackle this issue.

## 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	\$

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

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

Consultations	16
Trainings/workshops	0
Individuals assisted	8
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM sent information and resources on stream monitoring to a teacher who is looking to incorporate watershed education into her lesson plans for the next school year.

### Assistance provided April 1 – June 30, 2015

ALLARM provided assistance to five teachers this quarter who were interested in stream monitoring and planning watershed education events.

### Assistance provided July 1 – September 30, 2015

ALLARM provided assistance to two teachers who were looking to include stream monitoring into their lesson plans for the upcoming school year.

### Assistance provided October 1 – December 31, 2015

No assistance provided.



## 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	\$

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

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

Consultations	369
Trainings/workshops	4
Individuals assisted	91
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM provided quality assurance/quality control assistance to PA Trout Unlimited.

### Assistance provided April 1 – June 30, 2015

ALLARM provided quality assurance/quality control assistance to PA Trout Unlimited and provided information on ways to measure stream stage.

### Assistance provided July 1 – September 30, 2015

ALLARM provided quality assurance/quality control assistance to PA Trout Unlimited.

### Assistance provided October 1 – December 31, 2015

ALLARM provided quality assurance/quality control assistance to PA Trout Unlimited and helped volunteers troubleshoot issues they were having with their monitoring equipment.

## 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	\$

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

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

Consultations	14
Trainings/workshops	1
Individuals assisted	15
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM processed water samples for thirteen Ridge and Valley Streamkeepers volunteers during their annual QA/QC check.

### Assistance provided April 1 – June 30, 2015

ALLARM sent RVS the results of their QA/QC submission. The group did well, with a 93% pass rate for all of the tests.

### Assistance provided July 1 – September 30, 2015

ALLARM touched base with the Ridge and Valley Streamkeepers to get updates on the group and also answer questions on monitoring pH and the different equipment options available.

### Assistance provided October 1 – December 31, 2015

ALLARM provided RVS with information on monitoring equipment.

## APPLICANT: Roaring Creek Valley Conservation Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	5/28/2015
Group membership	25	Scoping meeting	6/1/2015
Watershed	Roaring Creek	DEP approval	6/24/2015
Watershed size	80 mi <sup>2</sup>	Assistance began	6/1/2015
County	Columbia	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 and mentoring

Consultations	25
Trainings/workshops	2
Individuals assisted	20
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

No assistance provided this quarter.

### Assistance provided April 1 – June 30, 2015

ALLARM had a scoping call with the Roaring Creek Valley Conservation Association on June 1 and learned that the group is interested in beginning a monitoring program that focuses on visual assessment. ALLARM will begin working with the group to develop a study design that addresses the group's goals and then will hold a visual assessment workshop next quarter.

### Assistance provided July 1 – September 30, 2015

ALLARM held two workshops for the Roaring Creek Valley Conservation Association this quarter. On August 20, ALLARM met with four members of the group to begin the study design process, specifically narrowing down the goals the group has with monitoring. On September 21, ALLARM held a visual assessment workshop for seven members to learn how to assess stream health using visual observations. There was a lot of enthusiasm and interest at both workshops and the group is looking forward to begin learning more about their local watershed.

### Assistance provided October 1 – December 31, 2015

The Roaring Creek Valley Conservation Association is interested in continuing the study design process to develop a stream monitoring plan. The group was excited about being able to visually assess streams in their watershed and is looking to incorporate other types of monitoring into their program to gain a better understanding of stream health. ALLARM will continue facilitating the study design process with the group.

## APPLICANT: Silver Lake Nature Center

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	2/5/2015
Group membership	490	Scoping meeting	2/20/2015
Watershed	Mill & Otter Creeks	DEP approval	2/25/2015
Watershed size	14 mi <sup>2</sup>	Assistance began	2/20/2015
County	Bucks	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 and QA/QC

Consultations	27
Trainings/workshops	1
Individuals assisted	10
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM began working with the Silver Lake Nature Center this quarter. The group has received assistance from both Stroud Water Research Center and Delaware Riverkeeper Network in the past and is looking to participate in ALLARM's Quality Assurance/Quality Control Program. The group also had questions about their monitoring equipment.

### Assistance provided April 1 – June 30, 2015

ALLARM provided the Silver Lake Nature Center with information on quality assurance and quality control. The group plans to participate in ALLARM's QA/QC program in the fall.

### Assistance provided July 1 – September 30, 2015

ALLARM had a follow-up phone call with the Silver Lake Nature Center to talk about their stream monitoring program and to plan for their upcoming QA/QC submission. The group also had questions about equipment recommendations.

### Assistance provided October 1 – December 31, 2015

ALLARM sent the Silver Lake Nature Center information on the purpose of external quality assurance/quality control as well as instructions and supplies to collect samples. In November, eight monitors sent water samples to ALLARM for analysis. The group did very well with QA/QC with a 92% pass rate. ALLARM also glanced at the group's database for QC checking.

## APPLICANT: Venango PA Senior Environmental Corps

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	9/9/15
Group membership	15	Scoping meeting	10/22/15
Watershed	Allegheny River	DEP approval	10/28/2015
Watershed size	11,580 mi <sup>2</sup>	Assistance began	10/28/2015
County	Venango	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 and QA/QC

Consultations	3
Trainings/workshops	1
Individuals assisted	13
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

No assistance provided.

### Assistance provided April 1 – June 30, 2015

No assistance provided.

### Assistance provided July 1 – September 30, 2015

No assistance provided.

### Assistance provided October 1 – December 31, 2015

ALLARM met with volunteers in October to collect QA/QC samples and discuss the goals of the group moving forward. Time was also spent discussing the group's current data management system (group has a dedicated website to house monitoring data).

## APPLICANT: Westminster College

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	10/12/15
Group membership	15	Scoping meeting	10/29/2015
Watershed	Shenango River	DEP approval	12/1/2015
Watershed size	1,066 mi <sup>2</sup>	Assistance began	12/1/2015
County	Lawrence & Mercer	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 and QA/QC

Consultations	2
Trainings/workshops	1
Individuals assisted	10
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

No assistance provided.

### Assistance provided April 1 – June 30, 2015

No assistance provided.

### Assistance provided July 1 – September 30, 2015

No assistance provided.

### Assistance provided October 1 – December 31, 2015

ALLARM met with the group to help volunteers choose new monitoring sites and to talk about recent developments in the watershed. The group is interested in getting students from Westminster College involved to help monitor additional sites within the watershed.

## APPLICANT: Yellow Breeches Education Center

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	9/1/2014
Group membership	60	Scoping meeting	9/12/2014
Watershed	Doubling Gap Run	DEP approval	10/14/2014
Watershed size	17 mi <sup>2</sup>	Assistance began	10/7/2014
County	Cumberland	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

Consultations	5
Trainings/workshops	0
Individuals assisted	30
Stream miles improved	N/A

### Assistance provided January 1 – March 31, 2015

ALLARM touched base with the Yellow Breeches Education Center about their program. The group is interested in holding a stream monitoring workshop next fall.

### Assistance provided April 1 – June 30, 2015

No assistance provided this quarter.

### Assistance provided July 1 – September 30, 2015

No assistance provided this quarter.

### Assistance provided October 1 – December 31, 2015

ALLARM followed up with the Yellow Breeches Education Center about a stream monitoring workshop. The group decided to hold off on holding an event until the spring.



## Appendix B: Assistance Reports (CVC)

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### APPLICANT: American Association of University Women (AAUW)

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	11/1/2014
Group membership	65	Scoping meeting	11/9/2015
Watershed	Conemaugh River	DEP approval	11/9/2015
Watershed size	956 sq. mi.	Assistance began	11/9/2015
County	Cambria	Assistance completed	Ongoing
In-kind match	\$362.08	Cost of assistance	\$358.28

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	4
Trainings/workshops	1
Individuals assisted	142
Stream miles improved	n/a

#### Assistance provided October 1 – December 31, 2015

The CVC's Kiski-Conemaugh Stream Team Director, Melissa Reckner, led a workshop on macroinvertebrates and water pollution for middle-school aged girls participating in AAUW's STEM Event, which had a water theme this year. During the presentation, girls discussed watersheds, sources of water pollution, macroinvertebrates, habitat, and conservation and enthusiastically identified live specimens. They left with some PFBC handouts, a greater understanding of watershed dynamics, and much less fear of crayfish!

## APPLICANT: Arrow Head Chapter of Trout Unlimited

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	6/27/2013
Group membership	230	Scoping meeting	
Watershed	Ohio	DEP approval	4/20/2015
Watershed size	203,940 sq. mi.	Assistance began	4/20/2015
County	Armstrong	Assistance completed	4/30/2015
In-kind match	\$838.75	Cost of assistance	\$694.00

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	2
Trainings/workshops	1
Individuals assisted	18
Stream miles improved	n/a

### Assistance provided April 1 – June 30, 2015

CVC's Kiski-Conemaugh Stream Team led a macroinvertebrate collection, identification, and quality indicator program for members of the group.

## APPLICANT: Bishop McCort High School

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	3/5/2015
Group membership	110	Scoping meeting	
Watershed	Conemaugh River	DEP approval	3/10/2015
Watershed size	297 sq. mi.	Assistance began	3/10/2015
County	Cambria and Somerset	Assistance completed	6/1/2015
In-kind match	\$1,809.61	Cost of assistance	\$350.25

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	6
Trainings/workshops	7
Individuals assisted	110
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

Discussed an educational field trip for students participating in Trout in the Classroom.

### Assistance provided April 1 – June 30, 2015

CVC's Kiski-Conemaugh Stream Team coordinated a Trout in the Classroom Release Day for Bishop McCort High School students while CVC's Natural Biodiversity led one of seven hands-on workshops that taught students about plant diversity, stream macroinvertebrates, predator/prey relationships, water filtration, and more!

## APPLICANT: Blackleggs Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Continuing	Initial contact with group	12/5/2012
Group membership	150	Scoping meeting	n/a
Watershed	Blackleggs Creek	DEP approval	12/14/2012
Watershed size	45 sq. mi.	Assistance began	12/14/2012
County	Indiana	Assistance completed	Ongoing
In-kind match	\$530.38	Cost of assistance	\$959.23

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance, Mentoring

Consultations	27
Trainings/workshops	0
Individuals assisted	27
Stream miles improved	6

### Assistance provided January 1 – March 31, 2015

Discussed grant opportunities and management with the group individually and with WPCAMR.

Discussed AMD treatment system function and reviewed data. Collaborated on two Trout in the Classroom projects and provided troubleshooting.

### Assistance provided April 1 – June 30, 2015

Reviewed water quality data and discussed projects in the watershed, as well as a planned watershed tour and dinner.

### Assistance provided July 1 – September 30, 2015

Reviewed water quality data from AMD treatment systems and corresponded regarding this and the proposed watershed tour.

### Assistance provided October 1 – December 31, 2015

Discussed the purpose and needs of a PNDI. Helped to find a more economical and faster company to conduct the Phase II Investigation for the Kolb AMD system extension.

## APPLICANT: Chartiers Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Continuing	Initial contact with group	7/8/2013
Group membership	16	Scoping meeting	n/a
Watershed	Chartiers Creek	DEP approval	6/5/2014
Watershed size	137 sq. mi.	Assistance began	6/6/2015
County	Washington	Assistance completed	Ongoing
In-kind match	\$11.32	Cost of assistance	\$57.50

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance, Quality Control

Consultations	1
Trainings/workshops	0
Individuals assisted	17
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

No activity.

### Assistance provided April 1 – June 30, 2015

Returned the macroinvertebrates on which CVC did quality control late last year.

### Assistance provided July 1 – September 30, 2015

No activity.

### Assistance provided October 1 – December 31, 2015

Discussed field meters.

## APPLICANT: Everett Area School District (Middle/High School)

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	8/1/2015
Group membership	1300	Scoping meeting	
Watershed	Raystown Branch of Juniata River	DEP approval	10/29/2015
Watershed size	756 sq. mi.	Assistance began	10/30/2015
County	Bedford	Assistance completed	Ongoing
In-kind match	\$1,371.22	Cost of assistance	\$864.44

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	38
Trainings/workshops	1
Individuals assisted	14
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

### Assistance provided April 1 – June 30, 2015

### Assistance provided July 1 – September 30, 2015

### Assistance provided October 1 – December 31, 2015

Kristina Strosnider, Director of Natural Biodiversity, a program of Conemaugh Valley Conservancy, met with Everett Middle School science teacher, Chris Turner and Everett High School science teacher, Genie Kline, in October to create a project timeline, list of goals, student engagement opportunities and potential funding sources. A basic site visit and assessment was conducted, as well. Kristina returned to Everett Area Middle/High School to meet with Mrs. Kline's class to discuss soil, soil sampling and then showed the class how to gather a soil sample. Two of Mrs. Kline's classes later gathered soil samples and sent them to Penn State Extension for analysis. The first workshop Kristina conducted was on December 5. It involved learning about topography, hydrology, reading topographic maps and analyzing the school's engineering plan to determine where stormwater on their campus originates and ends up. Kristina also used this site visit to meet with Mr. Turner to determine which grant program they would pursue. Following the workshop, Kristina and Mr. Turner communicated by email, as well as a conference call to develop grant proposal materials, with guidance and review from Kristina.

## APPLICANT: Saint Francis University

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	9/1/2015
Group membership	14	Scoping meeting	
Watershed	Stonycreek River	DEP approval	10/8/2015
Watershed size	466 sq. mi.	Assistance began	10/8/2015
County	Cambria and Somerset	Assistance completed	10/27/2015
In-kind match	\$233.94	Cost of assistance	\$171.60

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	5
Trainings/workshops	1
Individuals assisted	14
Stream miles improved	n/a

### Assistance provided October 1 – December 31, 2015

CVC's Kiski-Conemaugh Stream Team led a tour of the Rock Tunnel, an alkaline discharge, and the Oven Run D, an acidic discharge, treatment systems for Saint Francis University students. Local conservation efforts and treatment system options were discussed.



## APPLICANT: Shade Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Continuing	Initial contact with group	1/3/2012
Group membership	55	Scoping meeting	
Watershed	Shade Creek	DEP approval	2/24/2012
Watershed size	34 sq. mi.	Assistance began	2/25/2012
County	Somerset	Assistance completed	6/1/2015
In-kind match	\$39.80	Cost of assistance	\$38.90

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance, Mentoring

Consultations	1
Trainings/workshops	0
Individuals assisted	1
Stream miles improved	10

### Assistance provided January 1 – March 31, 2015

Discussed grant options and management with Larry Hutchinson, SCWA's president.

### Assistance provided April 1 – June 30, 2015

No activity.

## APPLICANT: Shanksville-Stonycreek Elementary School

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	3/21/2015
Group membership	50	Scoping meeting	
Watershed	Stonycreek River	DEP approval	5/7/2015
Watershed size	466 sq. mi.	Assistance began	5/7/2015
County	Somerset	Assistance completed	5/29/2015
In-kind match	\$1,015.23	Cost of assistance	\$315.13

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	2
Trainings/workshops	2
Individuals assisted	50
Stream miles improved	

### Assistance provided April 1 – June 30, 2015

CVC's Kiski-Conemaugh Stream Team led a fish ID and printing activity for third grade students and then helped them fish at the Central City Sportsmen's Club pond.

## APPLICANT: Southmoreland Middle School

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	2/11/2015
Group membership	150	Scoping meeting	
Watershed	Jacobs Creek	DEP approval	2/18/2015
Watershed size	98 sq. mi.	Assistance began	2/18/2015
County	Fayette and Westmoreland	Assistance completed	6/1/2015
In-kind match	\$283.80	Cost of assistance	\$444.50

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	4
Trainings/workshops	1
Individuals assisted	150
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

Discussed an educational field trip for 6<sup>th</sup> grade students.

### Assistance provided April 1 – June 30, 2015

Helped coordinate and then implement a field day at Laurelville Mennonite Camp for 6<sup>th</sup> grade students, who participated in several outdoor workshops. The CVC's Kiski-Conemaugh Stream Team led the Water Study, which included a discussion on water quality, pollution, and prevention. Students also tested mine and stream water and collected, then identified macroinvertebrates.

## APPLICANT: Saint Benedict School

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	3/12/2015
Group membership	100	Scoping meeting	
Watershed	Conemaugh River	DEP approval	3/20/2015
Watershed size	297 sq. mi.	Assistance began	3/20/2015
County	Cambria and Somerset	Assistance completed	6/1/2015
In-kind match	\$1,254.16	Cost of assistance	\$16.00

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	7
Trainings/workshops	6
Individuals assisted	150
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

Discussed an educational field trip for students participating in Trout in the Classroom.

### Assistance provided April 1 – June 30, 2015

CVC's Natural Biodiversity planned a workshop for St. Benedict's School's Trout in the Classroom Release Day, which was coordinated by CVC's Kiski-Conemaugh Stream Team, but canceled the morning of, so the Stream Team led a program in its place. Students participated in 6 Outdoor Discovery Workshops.

## APPLICANT: University of Pittsburgh at Johnstown

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	5/25/2015
Group membership	13	Scoping meeting	
Watershed	Stonycreek River	DEP approval	8/10/2015
Watershed size	466 sq. mi.	Assistance began	8/10/2015
County	Cambria and Somerset	Assistance completed	9/10/2015
In-kind match	\$915.88	Cost of assistance	\$268.22

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	6
Trainings/workshops	2
Individuals assisted	14
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

### Assistance provided April 1 – June 30, 2015

### Assistance provided July 1 – September 30, 2015

CVC's Kiski-Conemaugh Stream Team led a tour of the Rock Tunnel, an alkaline discharge, and the Oven Run D, an acidic discharge, treatment systems for students in a Wastewater and Water Supply class at UPJ. Local conservation efforts and treatment system options were discussed.

### Assistance provided October 1 – December 31, 2015

No activity.

## APPLICANT: Western PA Coalition for Abandoned Mine Reclamation (WPCAMR)

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	2/1/2015
Group membership	125	Scoping meeting	
Watershed	Ohio River	DEP approval	6/12/2015
Watershed size	203,940 sq. mi.	Assistance began	6/12/2015
County	Many in Western PA	Assistance completed	6/30/2015
In-kind match	\$500.00	Cost of assistance	\$1,705.39

**Assistance provided by:** Conemaugh Valley Conservancy

**Assistance type:** Watershed-Specific Technical Assistance

Consultations	2
Trainings/workshops	2
Individuals assisted	125
Stream miles improved	n/a

### Assistance provided April 1 – June 30, 2015

CVC staff provided two presentations at the annual PA Abandoned Mine Reclamation conference. One was about using data loggers and biological monitoring to determine watershed health and impacts, while the other promoted C-SAW as a resource.

## Appendix C: Assistance Reports (DRN)

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### **Applicant: Bryn Gweled Homesteads**

**River Basin:** Delaware  
**Watershed:** Burn Creek, tributary to Mill Creek (1010 Woods Road, Southampton PA)  
**County:** Bucks  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** Mentoring  
**Date of Initial Contact with Group:** 3/2015  
**DEP Approval to Proceed Date:** 7/20/2015  
**Date Assistance Began:** 4/7/2015  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 4,205

### **Overview of Assistance:**

Approximate Group Membership: 240  
Total Number of Consultations Provided: 20  
Total Number of Trainings/Workshops Provided: 6  
Total Number of Individuals Assisted: 125

### **Assistance Requested**

Proposed tasks they requested assistance with:

Anticipated Scope of Technical Assistance:

- Lead on-site review with residents regarding state of the stream and woodland
- Riparian corridor and upland woodland restoration
- Advise on current deer enclosure study, and potential expansion
- Provide guidance on restoration and invasives control outside of the enclosure(s)
- Advise on pond management including inflow/outflow management
- Guidance for property owners on best management practices
- Bioengineering along stream erosion
- Review upstream inputs and provide outreach materials
- Advise on phased projects and budgeting
- Green stormwater infrastructure improvements
- On-site guidance during restoration activities

### **Assistance Provided April 1 – June 30, 2015**

C-SAW is assisting this organization and homeowners group with work related to property improvements that will benefit the local and nearby stream. DRN met with residents at three different community meetings to present and walk the area. DRN also assisted with a plant ID walk with residents.

### **Assistance Provided July 1 – September 30, 2015**

DRN attended several environmental committee meetings during this quarter to review restoration measures and exotic invasive plant control options. A presentation entitled, "What Should I do with my own Backyard" was presented to the larger homeowners group in September to educate the community how to improve stormwater conditions, habitat, and streamside properties to better protect water quality.

**Assistance Provided Oct 1 – Dec 31, 2015**

DRN attended environmental committee meetings during this quarter to review restoration measures and exotic invasive plant control options and share technical options with the homeowners association. A Saturday work day was held as a result of all the planning and plant ID workshops were held. Topics covered during field training and classroom sessions included: invasive and native plants ID and field skills, habitat restoration and green stormwater infrastructure projects, and project maintenance needs for restoration projects.



## **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:** \$ 7,177

### **Overview of Assistance:**

Approximate Group Membership: 70  
Total Number of Consultations Provided: 78  
Total Number of Trainings/Workshops Provided: 7  
Total Number of Individuals Assisted: 545

### **Assistance Provided January 1 – March 31, 2015**

DRN provided assistance for an Energy Justice workshop held in Susquehanna Co in March - over 70 participants attended the 3 day workshops and field days that focused on educating participants about gas drilling infrastructure. DRN presented on monitoring pipelines and gas infrastructure and what volunteer monitors can help document during pipeline construction using a case study of the Tennessee Gas pipeline. DRN continued to assist with regular organizing conference calls with residents and landowners to discuss environmental impacts and concerns related to this pipeline up and down the 170 mile pipeline path. Assistance related to township outreach was also provided during this timeframe to six townships in the region where the pipeline would cut – outreach to elected officials was pursued by the groups. DRN assisted with education and outreach tools for impacted residents and landowners to assist in education about the pipeline project. As a result, new people in the region have become engaged in watershed issues. During this timeframe several mailings to 300 landowners also occurred with CSAW assistance as many impacted landowners with property where the pipeline would cut are not online or on email.

### **Assistance Provided April 1 – June 30, 2015**

DRN continued to assist with regular organizing conference calls with residents and landowners to discuss environmental impacts and concerns related to this pipeline up and down the 170 mile pipeline path. Assistance related to township outreach was also provided during this timeframe to six townships in the region where the pipeline would cut – outreach to elected officials was pursued by the groups. DRN assisted with education and outreach tools for impacted residents and landowners to assist in education about the pipeline project.

### **Assistance Provided July 1 – September 30, 2015**

DRN assisted SPA, LPA, other community groups and landowners by organizing and providing two technical conference call trainings related to landowner options for easements and continued to assist with questions about wetlands and waterway crossings along the 170 mile pipeline path when landowners had environmental concerns. A mailing to landowners (420 landowners) was also provided since many landowners are not online. About 80 people participated in the two conference calls trainings.

**Assistance Provided Oct 1 – Dec 31, 2015**

DRN assisted concerned landowners of SPA with information regarding reviewing aquatic resource reports by the pipeline company, obtaining information about the project on the FERC website and technical options to help map natural features along the proposed pipeline route.

## **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:** January 30, 2015  
**Total Cost of Assistance:** \$361.00

### **Overview of Assistance:**

Approximate Group Membership: 300  
Total Number of Consultations Provided: 3  
Total Number of Trainings/Workshops Provided: 1  
Total Number of Individuals Assisted: 35

### **Assistance Provided January 1 – March 31, 2015**

DRN participated in a conference call to plan the presentation. On January 16, 2015 DRN presented to the club the environmental history of the Schuylkill River – 35 people attended the session.

## **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:** Dec, 2014  
**Total Cost of Assistance:** \$ 448

### **Overview of Assistance:**

Approximate Group Membership: 700  
Total Number of Consultations Provided: 7  
Total Number of Trainings/Workshops Provided: 1  
Total Number of Individuals Assisted: 21

### **Assistance Provided January 1 to March 31, 2015**

Preliminary preparation for an April workshop was conducted.

### **Assistance Provided April 1 to June 30, 2015**

DRN held one presentation on the history of the Schuylkill River – 20 residents and GVA members attended.

## **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:** \$ 268

### **Overview of Assistance:**

Approximate Group Membership: 300  
Total Number of Consultations Provided: 3  
Total Number of Trainings/Workshops Provided: 2  
Total Number of Individuals Assisted: 32

### **Assistance Provided January 1 to March 31, 2015**

DRN provided oversight and technical guidance and protocols on a sampling plan to evaluate the use of road salt during the winter months. The group's volunteer monitors will be collecting seasonal samples as part of this study.

### **Assistance Provided April 1 to June 30, 2015**

DRN provided oversight and technical guidance and protocols on a sampling plan to evaluate the use of road salt during the winter months. The group's volunteer monitors will be collecting seasonal samples as part of this study.

## **Schuylkill Headwaters Association**

**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:** NA  
**Total Cost of Assistance:** \$ 29.00

### **Overview of Assistance:**

Approximate Group Membership: 350  
Total Number of Consultations Provided: 1  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 3

### **Assistance Provided January 1 to March 31, 2015**

Stemming from work conducted in the summer and prior – C-SAW reached out to SHA as part of work related to a pipeline that is proposed for the county to carry natural gas which would be a greenfield project.

## **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 C-SAW assistance  
**DEP Approval to Proceed Date:**  
**Date Assistance Began:** 3/11/14  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 7,859

### **Overview of Assistance:**

Approximate Group Membership: 3,000  
Total Number of Consultations Provided: 50  
Total Number of Trainings/Workshops Provided: 9  
Total Number of Individuals Assisted: 80

### **Assistance Provided January 1 to March 31, 2015**

DRN assisted the group with technical support and presentations on design options for a green infrastructure project to improve infiltration at various locations in Radnor Township. Two technical presentations were conducted with the Army Corps of Engineers and Radnor Township to discuss options to improve water quality through infiltration projects. A meeting with a Radnor Township Commissioner was also conducted as well as a meeting with the DEP in Norristown.

### **Assistance Provided July 1 – September 30, 2015**

DRN assisted boyscout troop 284 and eagle scouts with Darby Creek watershed restoration projects. During this quarter – site planning and maintenance were conducted with the scouts and two site visits and restoration days were held.

### **Assistance Provided Assistance Provided Oct 1 – Dec 31, 2015**

DRN assisted boyscout troop 284 and eagle scouts with Darby Creek watershed restoration projects. During this quarter – site planning and maintenance were conducted with the scouts and five site visits and restoration days were held.

## **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:** \$ 9,975.50

### **Overview of Assistance:**

Approximate Group Membership: 50  
Total Number of Consultations Provided: 51  
Total Number of Trainings/Workshops Provided: 10  
Total Number of Individuals Assisted: 90

### **Assistance Provided January 1 to March 31, 2015**

DRN assisted with restoration planning and a project plan and provided AutoCAD formatting and set up. One consultation was held with the school administrators.

### **Assistance Provided April 1 to June 30, 2015**

DRN assisted with restoration planning and a project plan and provided AutoCAD formatting and set up. three consultations were held with school administrators to review options and provide technical assistance to the fall restoration project being planned. DRN assisted the group with budgeting and planning for an REF submission.

### **Assistance Provided July 1 – September 30, 2015**

The planning, outreach, coordination for the 3 rain gardens and habitat restoration at Ithan Elementary school was in full swing this quarter. Tasks included: site design finalized (planning for meadow seeding, erosion control, swale and pipe placement, and rain gardens); help with budget and ordering rain garden supplies and plants; coordination with school, PTO, and boy scout troop; brochure design and finalization; and project implementation of first phase which involves a series of rain gardens and swales to control runoff. Soil grading at the three rain gardens and swales was completed during this quarter, as well as temporary seeding, in preparation for finalized piping and planting in the upcoming quarter.

### **Assistance Provided Oct 1 – Dec 31, 2015**

The planning, outreach, coordination for the 3 rain gardens and habitat restoration at Ithan Elementary school was implemented this fall with 5 work days by volunteers and DRN staff. Tasks included: site design construction (meadow seeding, erosion control, swale and pipe placement, and rain gardens); help with acquiring rain garden supplies and plants; coordination with school, PTO, and boy scout troop; brochure design and finalization; and project implementation of first phase which involves a series of rain gardens and swales to control runoff. Soil grading at the three rain gardens and swales was completed last quarter, as well as temporary seeding. This quarter finalized piping and planting occurred with the community. Slight modifications after rains also involved some fine tuning of the rain garden water system to get the proper elevations needed.



## **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:** \$ 6,058.25

### **Overview of Assistance:**

Approximate Group Membership: 400 residents and volunteers  
Total Number of Consultations Provided: 56  
Total Number of Trainings/Workshops Provided: 7  
Total Number of Individuals Assisted: 600  
Total Number of Stream Miles Improved or BMP's installed as a Result of C-SAW Assistance:

### **Assistance Provided January 1 to March 31, 2015**

C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee and work this quarter included:

- Survey compilation on Eastwick flood plain use
- Outreach and coordination assistance
- Assistance with newsletter creation on stormwater issues and floodplain issues

### **Assistance Provided April 1 to June 30, 2015**

C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee and work this quarter included:

- Assistance with survey and canvassing outreach completion to community
- Survey compilation on Eastwick flood plain use and resident input
- Outreach and coordination assistance
- Assistance with newsletter creation on stormwater issues and floodplain issues
- Presentation of results to the community was conducted in June

### **Assistance Provided Oct 1 to Dec 31, 2015**

There was a major community victory this quarter to preserve threatened sensitive lands that EFNC has been focusing on the past two years. C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee and work this quarter included:

- Assistance with survey, canvassing and compilation and dissemination of survey results to the community about flooding impacts and concerns of what more floodplain development would bring to downstream flood victims
- DRN assisted to get letter of support disseminated and drafted to various partners related to partner and agency interest in preserving 128 acres. USFWS also a partner.
- Clearview landfill meetings and a technical review of DRBC floodplain study
- EFNC victory! Philadelphia's Redevelopment Authority announces that a deal has been made with Korman (proposed developer) and city has bought the developers rights to develop the wetlands and floodplain area. EFNC received some help with press conference and events related to this protection effort

## **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:** \$ 1,363

### **Overview of Assistance:**

Approximate Group Membership: Approx. 300  
Total Number of Consultations Provided: 16  
Total Number of Trainings/Workshops Provided: 2  
Total Number of Individuals Assisted: 24  
Size of Watershed Assisted:  
Total Number of Stream Miles Improved or BMP's installed as a Result of C-SAW Assistance:

### **Assistance Provided January 1 to March 31, 2015**

DRN provided follow up to the Master Naturalist Training that was held in the fall.

### **Assistance Provided April 1 to June 30, 2015**

Perliminary planning for another master naturalist training that will involve a tour of Bucks County and green designs to reduce stormwater. Limited assistance on the volunteer monitoring program that was developed by the nature center was also provided.

### **Assistance Provided July 1 – September 30, 2015**

A fall master naturalist session is being planned and will be conducted in October. DRN also met with the nature center and Heritage conservancy in September to discuss merging of two monitoring projects for the Otter Creek. Silver Lake has an established volunteer monitoring program that was developed several years ago with C-SAW assistance. Heritage Conservancy is going to weave another sample station into Silver Lake's monitoring program in the tidal section of the Otter Creek which includes Bristol Marsh. As a result Silver Lake Nature Center is providing training in monitoring protocols to Heritage Conservancy. Consultation on a road salt runoff stream study was also provided.

### **Assistance Provided Oct 1 – Dec 31, 2015**

A fall master naturalist session was conducted with master naturalist volunteers on October 24, 2015. DRN led a watershed tour and plant ID session for the naturalists. Photo monitoring and documentation options were discussed with the participants.

## **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:** \$ 841

Approximate Group Membership: 10,023  
Total Number of Consultations Provided: 9  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 8  
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 January 1 to March 31, 2015**

C-SAW provided restoration technical assistance to MEAC related to the planning of maintenance days and a native planting that occurred in October. Adjustments to the masterplan were discussed and compiled for MEAC based on what the group was reporting on the ground at the stream restoration site.

### **Assistance Provided April 1 to June 30, 2015**

C-SAW provided restoration technical assistance to MEAC related to the maintenance and difficulties of restoration from the fall project. Adjustments to the masterplan were discussed and compiled for MEAC based on what the group was reporting on the ground at the stream restoration site so that next steps could be taken.

Total Number of Stream Miles Improved or BMP's Installed as a Result of C-SAW Assistance: 1 acre

### **Assistance Provided July 1 – September 30, 2015**

C-SAW provided restoration technical assistance to MEAC related to Japanese hops management techniques for the Morrisville Riverfront Preserve and the latest research on controls. A site visit was also conducted on September 16 of the waterfront restoration project.

### **Assistance Provided Oct 1 – Dec 31, 2015**

Coordination with Morrisville EAC in October related to tree shelter clearing and maintenance and invasive species monitoring. The group is now doing their own maintenance days to maintain the restoration project.

## **Reading Area Community College**

**River Basin:** Delaware  
**Watershed:** Schuylkill  
**County:** Berks  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 8/12/15  
**DEP Approval to Proceed Date:** 8/20/15  
**Date Assistance Began:** 8/12/15  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 413.19

### **Overview of Assistance:**

Approximate Group Membership: 60  
Total Number of Consultations Provided: 3  
Total Number of Trainings/Workshops Provided: 1  
Total Number of Individuals Assisted: 60

### **Assistance Provided July 1 – September 30, 2015**

DRN began preliminary prep work for a workshop to be conducted next quarter.

### **Assistance Provided Oct 1 – Dec 31, 2015**

DRN conducted a presentation at the community college that was held on October 1, 2015. Forty five students attended the workshop.

## **Perkiomen Valley Trout Unlimited**

**River Basin:** Delaware  
**Watershed:** Schuylkill  
**County:** Berks  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 2013  
**DEP Approval to Proceed Date:** 9/2/15  
**Date Assistance Began:** 9/1/15  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$406

### **Overview of Assistance:**

Approximate Group Membership: 500  
Total Number of Consultations Provided: 4  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 45

**Background of project:** The Perkiomen Valley Chapter Trout Unlimited is dedicated to the protection and preservation of the Perkiomen watershed. The Perkiomen Valley Chapter Trout Unlimited 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. The Perkiomen Valley Chapter Trout Unlimited has requested DRN present a program for its members and the general public on October 19th, 2015 at the Upper Perkiomen Valley Library. 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 Oct 1 – Dec 31, 2015**

DRN presented to the club on October 19, 2015. Thirty people from the community and the club attended.

**Bucks CCAP**

**River Basin:** Delaware  
**Watershed:** Multiple  
**County:** Bucks  
**Lead C-SAW Provider:** Delaware Riverkeeper Network  
**Type of Assistance Provided:** WSTA  
**Date of Initial Contact with Group:** 2/2015  
**DEP Approval to Proceed Date:** 11/15/2015  
**Date Assistance Began:** 11/15/2015  
**Date Assistance Completed:** Ongoing  
**Total Cost of Assistance:** \$ 450.50

**Overview of Assistance:**

Approximate Group Membership: 120  
Total Number of Consultations Provided: 6  
Total Number of Trainings/Workshops Provided: 0  
Total Number of Individuals Assisted: 120

**Assistance Requested**

Bucks CCAP is an all-volunteer community group that was formed out of concern of an intrastate transmission pipeline project that could impact parts of Bucks County. The group has been organizing residents and educating them on the concerns of these projects, the environmental impacts that come with them, and ways that residents and landowners can stay involved in the process as the pipeline is reviewed. The group requested help with the creation, production, design and outlay of a brochure about ecotourism and pipelines to assist them with educating the community.

**Assistance Provided Oct 1 – Dec 31, 2015**

DRN provided various technical reports and statistics for the group to consider with the ecotourism brochure. Two drafts have been reviewed to date. The group needs design help and DRN will be assisting more next quarter to help layout the design.

## **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:** \$2,131.50

### **Overview of Assistance:**

Approximate Group Membership: 2,300  
Total Number of Consultations Provided: 42  
Total Number of Trainings/Workshops Provided: 3  
Total Number of Individuals Assisted: 45

### **Assistance Provided January 1 to March 31, 2015**

DRN provided technical assistance to Tinicum Conservancy and residents regarding an ecological tour that is being planned for the spring. Assistance was also provided to the conservancy related to stream upgrade work for the Tohickon Creek.

### **Assistance Provided April 1 to June 30, 2015**

DRN provided technical assistance to Tinicum Conservancy and residents regarding an ecological tour that was conducted. DRN also assisted the day of the tour. Restoration planning was also conducted. Assistance was provided to the conservancy related to stream upgrade work for the Tohickon Creek.

### **Assistance Provided July 1 – September 30, 2015**

Restoration planning was conducted and coordination and assistance with the TreeVitalize program was implemented as residents looked to put in a grant for plantings. Work was also conducted related to research for vole damage deterrence for planted trees.

### **Assistance Provided Oct 1 – Dec 31, 2015**

Restoration planning was conducted and coordination and assistance with the TreeVitalize program was implemented as residents looked to put in a grant for plantings. Work was also conducted related to maintenance to care for planted trees.

## **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:** \$ 174

### **Overview of Assistance:**

Approximate Group Membership: 200

Total Number of Consultations Provided: 5

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 90

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 January 1 to March 31, 2015**

Limited assistance related to pipeline watchdogging was conducted by CSAW with trained volunteer monitors.

### **Assistance Provided April 1 to June 30, 2015**

Limited assistance related to pipeline watchdogging was conducted by CSAW with trained volunteer monitors.

### **Assistance Provided July 1 – September 30, 2015**

Pipeline watchdogging was conducted by CSAW with trained volunteer monitors. A proposed new pipeline – the TGP Orion Project – is slated to cut across the Lackawaxen again so initial coordination with the group was conducted as the group begins outreach to landowners. (much of this work is match).

### **Assistance Provided Oct 1 – Dec 31, 2015**

DRN assisted with a community pipeline forum held on November 17, 2015 that Lackawaxen River Conservancy and Shale Justice helped plan and coordinate. Over 60 people attended the forum. DRN presented on the environmental impacts of pipeline ROW projects and the pipeline approval process. This new pipeline project would expand on the ROW that was built and expanded on along TGP's past 300 line (much of this work is match).



## **Other Assistance This Quarter:**

Preliminary outreach to possible future CSAW groups

Growing Greener Grant tasks and writing

Quarterly reporting

Watershed Congress presentation on Green Stormwater Infrastructure conducted by DRN – over 40 people participated in the session.

Initial work begun with Bryn Gweled that included a walk with residents along the stream to discuss stormwater issues and possibly restoration strategies

Limited follow up assistance with Tulpehocken Trout Unlimited

Initial scoping with groups from Hedgerow Culbertson Run interested in streetside rain garden projects

Preliminary outreach to possible future CSAW groups: French Creek racing, Montgomery County Mount Jeffries, Bucks CCAP,

End of year budget and calls and meetings

Plant and restoration presentation to be presented at the 2016 Schuylkill Watershed Congress

## Appendix D: Assistance Reports (PALMS)

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### APPLICANT: Clayton Park Recreational Area

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	3/2010
Group membership	400	Scoping meeting	N/A
Watershed	Lake Henry	DEP approval	N/A
Watershed size	0.5 mi <sup>2</sup>	Assistance began	N/A
County	Wayne	Assistance completed	12/31/15
In-kind match	N/A	Cost of assistance	N/A

**Assistance provided by:** Pennsylvania Lake Management Society

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

Consultations	4
Trainings/workshops	2
Individuals assisted	4
Stream miles improved	N/A

### Assistance provided January 1 - December 31 2015

Due to no additional communication from this group since April 2014, this request for assistance is completed/closed.

## APPLICANT: Hanover Township (Lehigh County)

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	8/2013
Group membership	Municipality	Scoping meeting	?
Watershed	Lehigh River	DEP approval	4/7/14
Watershed size	4 acre lake	Assistance began	4/9/15
County	Lehigh	Assistance completed	ongoing
In-kind match		Cost of assistance	

**Assistance provided by:**

**Assistance type:**

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

### Assistance provided January 1 – December 31, 2015

Due to aquatic invasive treatment work and sinkhole problems, there was a delay to work with the group on water quality monitoring assistance.

Remaining assistance to be provided in 2016 includes: Assisting with development and training for a water quality monitoring program. Assisting with development and implementation of an invasive plant management program, including plant identification and mapping training. Assisting with lake and watershed management education materials for the Township to use in public education efforts, including brochures, newsletter articles, and signage for posting at the lake.

## APPLICANT: Tobyhanna Creek/Tunkhannock Creek Watershed Association.

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/15/11
Group membership	300	Scoping meeting	N/A
Watershed	Tobyhanna Creek	DEP approval	3/4/11
Watershed size	129 mi <sup>2</sup>	Assistance began	3/26/11
County	Carbon, Monroe, Wayne	Assistance completed	
In-kind match		Cost of assistance	

**Assistance provided by:** Pennsylvania Lake Management Society

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

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

### Assistance provided January 1 – December 31, 2015

No billable assistance was provided in 2015. Plan is to provide a final report with management recommendations to the watershed group.

## **Appendix E: Assistance Reports (SWRC)**

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

**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: 5  
Total Number of Trainings/Workshops Provided:  
Total Number of Individuals Assisted: 10  
Size of Watershed Assisted:  
Total Number of Stream Miles Improved or BMP's Installed  
as a result of C-SAW Assistance:

#### **Assistance Provided 1 July – 31 December, 2015**

Dr. Daniels visited 2 sites in the Brandywine River watershed with representatives from the Brandywine Valley Association and the Chester County Conservation District during this quarter and provided guidance on erosion control vegetation plantings and stream channel reconstruction.

## **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 14<sup>th</sup>, 2015

**Date Assistance Completed:** ongoing

**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 January 1 – March 31, 2015**

One and a half hour seminar provided by Drs John K. Jackson and Dave B. Arscott at the Watershed Congress along the Schuylkill on March 14<sup>th</sup>, 2015. The title and abstract was as follows:

#### **Title: Are freshwater streams becoming salty?**

Fresh water is, by definition, low in salt (NaCl). However, several studies have observed that some streams have elevated salt concentrations, and that salt concentration (or conductivity) can be a good predictor of stream degradation and urbanization. In addition, long-term data have shown that salt concentration (or conductivity) has been increasing over the last several decades. Elevated salt concentrations have been observed in effluents from wastewater treatment plants, and in road runoff following applications of winter deicing products. It can also be a major component in wastewaters from some industrial and oil and gas production activities (e.g., produced water from Marcellus shale wells). One concern with elevated salt concentration is that it means there is an elevated chloride concentration, which is regulated as a potential toxin in aquatic environments. Chloride in some streams has been observed to exceed both acute and chronic toxicity thresholds. This presentation will review what is known about salt in fresh waters, including sources, changes over time, and potential toxic effects to aquatic life such as mayflies.

**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:** ~\$2500  
**In-kind/Match Provided by Applicant Organization:**

**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, 2015**

In September, Dr. Arscott 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. 8 hours was spent with the group.

## **Applicant: LANCASTER COUNTY CONSERVATION DISTRICT**

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

**River Basin:** Susquehanna

**Watershed:** Conastoga

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

**County (multiple):** Lancaster

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

**Type of Assistance Provided:** Stream ecology and buffer training workshop

**Date of Initial Contact with Organization:** 11/30/2014

**DEP Approval to Proceed Date:** 12/12/14

**Date Assistance Began:** 2/19/2015

**Date Assistance Completed:** 2/19/2015

**Total Cost of Assistance:** ~\$4,600

**In-kind/Match Provided by Applicant Organization:** yes - \$7,451.50

### **Overview of Assistance:**

Approximate Group Membership:

Total Number of Consultations Provided: 3 consultations and 1 workshop

Total Number of Trainings/Workshops Provided: 1

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:

### **Assistance Provided January 1 – March 31, 2015**

Following a request by the Lancaster County Conservation District manager, Stroud Water Research Center (SWRC) provided a full day training on Feb 29, 2015 to the District's entire staff and many of their Board of Directors on the subjects of stream ecology, forest buffer restoration, impaired streams and recovery, and agricultural BMP implementation. The session also included a tour of the SWRC lab facilities and "virtual" tour of the White Clay Creek (wind chill conditions prevented our planned physical tour of the stream). This training provided valuable information to the District's strategic planning process that is underway.

### **Assistance Provided April 1 – June 30, 2015**

None



## **Applicant: SCHUYLKILL CENTER FOR ENVIRONMENTAL EDUCATION**

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

**River Basin:** Schuylkill

**Watershed:** Delaware

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

**County (multiple):** Philadelphia

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

**Type of Assistance Provided:** workshop and technical knowledge transfer for monitoring

**Date of Initial Contact with Organization:** 9/1/2014

**DEP Approval to Proceed Date:** 9/3/2014

**Date Assistance Began:** 10/2014

**Date Assistance Completed:** ongoing

**Total Cost of Assistance:** ~\$2,000

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

### **Overview of Assistance:**

Approximate Group Membership:

Total Number of Consultations Provided: 4

Total Number of Trainings/Workshops Provided: 1

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:

### **Assistance Provided Jan 1 – June 30, 2015**

The Schuylkill Center received technical advice on building and installing instrumentation to measure the depth of stormwater runoff and then transmit those data to an online database, and visualize it in their lobby. SWRC will assist in training their artist-in-residence on how to build and deploy the sensors and datalogger and how to setup and maintain the online database. Stroud engineers spent 2 site visits assisting and several trainings at SWRC.

## **Applicant: Tookany/Tacony-Frankford Watershed Partnership, Inc.**

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

**River Basin:** Delaware

**Watershed:** Tookany/Tacony-Frankford

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

**County (multiple):**

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

**Type of Assistance Provided:** Forum/workshop

**Date of Initial Contact with Organization:** 1 June, 2015

**DEP Approval to Proceed Date:** 2 June, 2015

**Date Assistance Began:** 6/17/2015

**Date Assistance Completed:** 6/18/2015

**Total Cost of Assistance:** \$

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

### **Overview of Assistance:**

Approximate Group Membership:

Total Number of Consultations Provided:

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 75

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, 2015**

TTF organized a forum on the importance of the Clean Water Rule that was held on Wednesday, June 17 at 5:30 pm at Abington Friends School (AFS) in Jenkintown, PA. The program convened a panel of experts and stakeholders to discuss the recent Clean Water Rule and how that rule protects streams and rivers from pollution and other forms of degradation. The panel included Shawn Garvin, Administrator, EPA's Mid-Atlantic Region (Region 3), Bern Sweeney, Stroud Water Research Center

Christopher Anderson, Philadelphia Water Department, J. Drew Shaw, Montgomery County Planning Commission, Steven Miano, Hangley Aronchick Segal & Pudlin, ABA Section of Environment, Energy and Resources. Dr. Sweeney participated as a panelist and presented information on how landowners can implement land use practices that protect water quality and minimize downstream flooding issues.

## **Applicant: WASTE OIL RECYCLERS**

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

**River Basin:** Delaware

**Watershed:** Brandywine River

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

**County (multiple):** Chester Co.

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

**Type of Assistance Provided:** Training and mentoring in water quality measures and protocols, data management and interpretation

**Date of Initial Contact with Organization:** May 2015

**DEP Approval to Proceed Date:** 2 June, 2015

**Date Assistance Began:** June 3, 2015

**Date Assistance Completed:** July 30, 2015

**Total Cost of Assistance:** \$2400 staff time + \$70 mileage

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

### **Overview of Assistance:**

Approximate Group Membership:

Total Number of Consultations Provided: 6 (some in person, some via phone)

Total Number of Trainings/Workshops Provided: 1

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:

### **Project Summary**

Provide assistance for the Waster Oil Recyclers (WOR) (<http://www.wasteoilrecyclers.com/>), an organization that is located along the Brandywine River and who are interested in training their staff in various water quality monitoring protocols to collect baseline data on chemistries, physical measures, E.coli and macroinvertebrates. They will be monitoring stretches of the Brandywine and a select subset of tributaries near the location of their business on a monthly basis throughout this and subsequent years. Their goals are to engage and train mentored students with the Coatesville Youth Initiative and WOR staff during the months of June (2 training days) and to develop baseline data for a stretch of the Brandywine to support conservation planning in their local area of the watershed as well as engage in public outreach efforts.

Included will be 4 days total of staff time for 1 Stroud staff, which will include 2 days of training and 2 days of consult time. For trainings, we will need one more additional staff to help facilitate (2 days). Specifically, these days will include an introduction to water quality monitoring, training in the various methods, consultations on equipment, site selection, development of their protocols and data forms as well as assistance with data entry (into the CitSci.org database) and analysis/interpretation.

Request: Training and instruction on water quality monitoring protocols & macroinvertebrate identification, as well as assistance on using the biotic scoring index. Advice on sampling strategies and data interpretation will also be given.

### **Assistance Provided April 1 – June 30, 2015**

Provide assistance for the Waste Oil Recyclers (WOR) (<http://www.wasteoilrecyclers.com/>), an organization that is located along the Brandywine River and who are interested in training their staff in various water quality monitoring protocols to collect baseline data on chemistries, physical measures, E.coli and macroinvertebrates. They will be monitoring stretches of the Brandywine and a select subset of tributaries near the location of their business on a monthly basis throughout this and subsequent years. Their goals are to engage and train mentored students with the Coatesville Youth Initiative and WOR staff during the months of June (2 training days) and to develop baseline data for a stretch of the Brandywine to support conservation planning in their local area of the watershed as well as engage in public outreach efforts.

Included will be 4 days total of staff time for 1 Stroud staff, which will include 2 days of training and 2 days of consult time. For trainings, we will need one more additional staff to help facilitate (2 days). Specifically, these days will include an introduction to water quality monitoring, training in the various methods, consultations on equipment, site selection, development of their protocols and data forms as well as assistance with data entry (into the CitSci.org database) and analysis/interpretation.

Request: Training and instruction on water quality monitoring protocols & macroinvertebrate identification, as well as assistance on using the biotic scoring index. Advice on sampling strategies and data interpretation will also be given.

### **Assistance Provided June-July 2015**

Two Stroud Water Center staff, Tara Muenz and Jennifer Matkov provided assistance to the Waste Oil Recyclers water quality monitoring staff and their volunteers on June 29, 2015 hosted at the Stroud Water Research Center. July 7<sup>th</sup> Jennie Matkov, an SWRC research technician, joined the WOR group on the river to continue field instruction in water quality monitoring parameters, using the equipment from prior days training.

## Appendix F: Assistance Reports (USGS)

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### APPLICANT: Carroll Township

Applicant information:		Procedure information:	
New group?	Continuing	Initial contact with group	2009
Group membership	10	Scoping meeting	n/a
Watershed	Yellow Breeches Creek Conewago Creek	DEP approval	6/22/2012
Watershed size	218 sq mi (Yellow Breeches) 516 sq mi (Conewago Creek)	Assistance began	January 2013
County	York	Assistance completed	12/31/2015
In-kind match	n/a	Cost of assistance	~\$8,500

**Assistance provided by:** U.S. Geological Survey

**Assistance type:** watershed-specific technical assistance (groundwater) & mentoring

Consultations	5
Trainings/workshops	1
Individuals assisted	6
Stream miles improved	n/a

#### Assistance provided January 1 – March 31, 2015

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

#### Assistance provided April 1 – June 30, 2015

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

#### Assistance provided July 1 – September 30, 2015

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

#### Assistance provided October 1 – December 31, 2015

USGS personnel met with representatives and interested parties from Carroll Township with regard to monitoring wells and springs in Carroll Township. USGS personnel demonstrated how to measure water levels in wells with a steel tape and an electric tape. USGS personnel also demonstrated how to use several different meters to measure pH, specific conductance, turbidity, and dissolved oxygen. USGS personnel discussed the geology of the Township and how land use can impact water quality.

No future work is anticipated, and project can be considered complete.

## APPLICANT: Schuylkill County Conservation District / Schuylkill Headwaters Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	10/28/2013
Group membership	~30 (SHA)	Scoping meeting	n/a
Watershed	Mill Creek	DEP approval	11/20/2013
Watershed size	25.5 sq mi	Assistance began	11/21/2013
County	Schuylkill	Assistance completed	6/30/2015
In-kind match	n/a	Cost of assistance	~\$8,000

**Assistance provided by:** U.S. Geological Survey

**Assistance type:** watershed-specific technical assistance & mentoring

Consultations	5 (consisting of phone calls & meetings in field)
Trainings/workshops	2 (field trainings)
Individuals assisted	2
Stream miles improved	n/a

### Assistance provided January 1 – March 31, 2015

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

### Assistance provided April 1 – June 30, 2015

On April 14, 2015, assistance was provided with regard to field measurements, including flow and chemistry; data was also downloaded from a continuous stage recorder at the Pine Forest wetlands treatment system in the Mill Creek watershed. Additionally, on May 20, 2015, assistance was provided with monitoring that focused on the effects of mine discharges in the upper Schuylkill River watershed, including the Pine Forest discharge in Mill Creek. The data on flow rates of the AMD that were collected is needed by Schuylkill Conservation District for development of a watershed restoration plan. No further work is anticipated on this project.

### Assistance provided July 1 – September 30, 2015

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

### Assistance provided October 1 – December 31, 2015

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

## **APPLICANT: Tinicum Township / Bridgeton-Nockamixon-Tinicum Groundwater Management Committee (BNT GWMC)**

<b>Applicant information:</b>		<b>Procedure information:</b>	
New group?	New	Initial contact with group	3/15/2015
Group membership	Tinicum Twp est. pop. 3,995	Scoping meeting	n/a
Watershed	Delaware River Basin	DEP approval	6/2/2015
Watershed size	n/a (groundwater assistance)	Assistance began	June 2015
County	Bucks	Assistance completed	On-going
In-kind match	n/a	Cost of assistance	~\$10,000

**Assistance provided by:** U.S. Geological Survey

**Assistance type:** watershed-specific technical assistance (groundwater) & mentoring

Consultations	Multiple (in the form of meetings, phone calls, and emails)
Trainings/workshops	1
Individuals assisted	8
Stream miles improved	n/a

### **Assistance provided January 1 – March 31, 2015**

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

### **Assistance provided April 1 – June 30, 2015**

USGS staff reviewed the Bridgeton-Nockamixon-Tinicum Groundwater Management Committee (BNT-BMC) reports on water-level modeling and researched similar methods in the published scientific literature. A presentation on previous USGS work in the study area was presented to the committee, and a meeting was held with the Tinicum Township Manager. A telecom work session was conducted with the lead committee member for the water-level modeling.

### **Assistance provided July 1 – September 30, 2015**

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

### **Assistance provided October 1 – December 31, 2015**

USGS staff provided input for the Bridgeton-Nockamixon-Tinicum Groundwater Management Committee (BNT-BMC) reports on water-level modeling and bounded aquifer testing through several meetings, telephone calls, and email exchanges. A bibliography of reports and journal articles that provide background for similar modeling approaches was provided.

## APPLICANT: West Chester University

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	Feb 2014
Group membership	about 5	Scoping meeting	n/a
Watershed	Plum Run	DEP approval	3/12/2014
Watershed size	3.7 sq mi	Assistance began	(see special note below)
County	Chester	Assistance completed	(see special note below)
In-kind match	n/a	Cost of assistance	\$0

**Assistance provided by:** U.S. Geological Survey

**Assistance type:** watershed-specific technical assistance & mentoring

**Special note:** An estimated cost of \$2,400 was attributed to provide assistance to the applicant; however, C-SAW partner has not heard from applicant in over a year. No assistance was provided.

Consultations	0
Trainings/workshops	0
Individuals assisted	0
Stream miles improved	0

### Assistance provided January 1 – March 31, 2015

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

### Assistance provided April 1 – June 30, 2015

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

### Assistance provided July 1 – September 30, 2015

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

### Assistance provided October 1 – December 31, 2015

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



## Appendix G: Quality Control Assistance (ALLARM)

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

	Jan – Mar 2015	Apr – Jun 2015	Jul – Sep 2015	Oct – Dec 2015	Total
Groups assisted	2	3	3	6	8
Individuals assisted	20	37	36	38	131
Water samples processed	23	87	52	65	227
Tests performed	276	1,052	660	828	2,816

Month	Group	Parameters									# of Samples	# of Tests
		Alkalinity	Chloride	Conductivity	Nitrate	pH	Phosphorus	Total Dissolved Solids	Turbidity	Other		
March 2015	Ridge and Valley Streamkeepers	X			X	X			X		11	132
March 2015	PA Council of Trout Unlimited			X		X		X			12	144
April 2015	Antietam Watershed Association	X			X	X	X		X		2	32
April 2015	PA Council of Trout Unlimited			X		X		X			33	396
May 2015	PA Council of Trout Unlimited			X		X		X			4	48
June 2015	Delaware Riverkeeper Network		X	X				X			4	48
June 2015	PA Council of Trout Unlimited			X		X		X			44	528
July 2015	Antietam Watershed Association	X			X	X	X		X		9	144
July 2015	Delaware Riverkeeper Network		X	X				X			2	24
July 2015	PA Council of Trout Unlimited			X		X		X			2	24
August 2015	Delaware Riverkeeper Network		X	X				X			3	36
August 2015	PA Council of Trout Unlimited			X		X		X			10	120
September 2015	Delaware Riverkeeper Network		X	X				X			1	12
September 2015	PA Council of Trout Unlimited			X		X		X			25	300
October 2015	Silver Lake Nature Center			X	X	X	X	X		X	6	132
October 2015	PA Council of Trout Unlimited			X		X		X			28	336
October 2015	Venango PA SEC			X				X			2	16

Month	Group	Parameters									# of Samples	# of Tests
		Alkalinity	Chloride	Conductivity	Nitrate	pH	Phosphorus	Total Dissolved Solids	Turbidity	Other		
October 2015	Westminster College			X				X			1	8
November 2015	PA Council of Trout Unlimited			X		X		X			18	216
November 2015	Delaware Riverkeeper Network		X	X				X			3	36
November 2015	God's Country Waterdogs			X		X		X			7	84