

Consortium for Scientific Assistance to Watersheds

C-SAW VIII Final Report Addendum: January 1 – December 31, 2017

*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/Kiski-Conemaugh Stream Team
Delaware Riverkeeper Network
Pennsylvania Lake Management Society
Stroud Water Research Center
United States Geological Survey

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Executive Summary

Hundreds of watershed associations, environmental organizations, and community groups in Pennsylvania devote their time, energy, and resources to protect and restore Pennsylvania's streams and lakes. The willingness of citizens to engage in efforts that improve stream and watershed health holds real promise for waterways throughout the Commonwealth. The Consortium for Scientific Assistance to Watersheds (C-SAW) is a program that provides technical and programmatic assistance to these entities to help them achieve their stream assessment and restoration goals. Since the conception of C-SAW in 2001, C-SAW Partners have helped over 340 groups in Pennsylvania and have built their capacity to research and improve their local streams and lakes.

C-SAW Partners

There are six C-SAW Partners, located throughout Pennsylvania, that collaborate to implement the C-SAW program and provide support to organizations seeking assistance. The Partners include:

- Alliance for Aquatic Resource Monitoring at 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 watershed associations to participate in efforts that improve and protect stream and lake health, and understand that they are uniquely positioned to lead these grassroots efforts. Financial support provided through the Growing Greener Stewardship Program and C-SAW program exemplify the Commonwealth's commitment to local watershed groups and its belief in their abilities to create positive change. The C-SAW partnership presents a model for other states to follow and the Partners have highlighted the approach in conversations and presentations at meetings and conferences.

C-SAW Partners strive to provide statewide coverage to new watershed organizations as well as existing groups 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 increases the effectiveness of watershed groups over time and builds strong, knowledgeable organizations capable of completing scientific work independently.

Many of the organizations that apply for C-SAW assistance have only recently formed and require support with organizational development and program management before they can effectively proceed with watershed monitoring and assessment. C-SAW Partners work with new and existing organizations to build their capacity, confidence, and ownership to manage their organization and successfully implement stream monitoring and restoration projects. This approach sends ripples far beyond the individuals and organizations assisted, and helps to build stronger individuals, organizations, and communities. One can see the independence gained by groups over time as they enhance their skills and begin new projects that build upon their increased capacity.

C-SAW Assistance

The primary goal of C-SAW is to enhance the capacity of Pennsylvania watershed organizations to design and implement watershed protection and restoration programs that result in improving the water quality and function of Pennsylvania streams and lakes. To achieve this goal, C-SAW Partners draw upon their knowledge and skill sets to offer three types of assistance:

1. Watershed-Specific Technical Assistance (WSTA)

WSTA is designed to build the capacity of groups to answer specific questions they have about their local watershed. WSTA is targeted, short-term, and often provided as a workshop or series of meetings. Groups may request different types of WSTA over time to address their questions. Examples of WSTA include:

- Study design development
- Macroinvertebrate collection and identification methods
- Aquatic invasive species identification and management
- Data management, analysis, and interpretation

2. Mentoring (M)

Mentoring is often requested by groups implementing complex, long-term (2-5 years) projects. Mentoring is resource-intensive initially, but helps to ensure that projects are successful and produce useful results. Once the group's capacity is built, they are able to apply their new skills to undertake projects on their own.

3. Quality Control (QC)

For groups involved in stream monitoring and assessment, QC allows them to verify the quality of the data they are collecting. The following C-SAW Partners are set up to provide QC support to watershed groups throughout Pennsylvania:

- a. ALLARM – water quality parameters
- b. CVC – macroinvertebrate identification
- c. SWRC – macroinvertebrate identification

Appendix A: Assistance Reports (ALLARM)

Allegheny County Stream Team

Organization Information:		Assistance Information:	
New group?	Yes	Initial contact with group	TBD
Group membership	TBD	Scoping meeting	TBD
Watershed	TBD	DEP approval	TBD
Watershed size	TBD	Assistance began	TBD
County	Allegheny	Assistance completed	TBD
In-kind match	N/A	Cost of assistance	\$

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

Assistance type: Watershed-specific technical assistance and quality control

Consultations	5
Trainings/workshops	5
Individuals assisted	4
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

No assistance provided this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to three monitors who sent five water samples to ALLARM for their annual quality control event.

Assistance provided July 1 – September 30, 2017

ALLARM spoke with the volunteer leader on the phone about the group's monitoring equipment and helped her troubleshoot issues they were having with their conductivity meters. The leader was also interested in learning more about data management and how to interpret their monitoring results.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Antietam Watershed Association

Organization Information:		Assistance 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 ²	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 quality control

Consultations	49
Trainings/workshops	2
Individuals assisted	34
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM met with the AWA monitoring coordinator this quarter to talk about the status of their water quality monitoring program and to help them order replacement equipment and supplies. In March, AWA gave a community presentation about their program and shared their monitoring results.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to ten AWA monitors who sent eight water samples to ALLARM for their annual quality control event in June.

Assistance provided July 1 – September 30, 2017

ALLARM processed the group's quality control results and met with the AWA monitoring coordinator to talk about the status of their water quality monitoring program and to discuss upcoming needs and trainings. The group is currently recruiting new volunteers and a Water Quality Monitoring Workshop is planned for next quarter. ALLARM began preparing for the workshop in September and reviewed the group's monitoring methods with them, including providing additional information on measuring nutrients.

Assistance provided October 1 – December 31, 2017

ALLARM held a Water Quality Monitoring Workshop for the Antietam Watershed Association on November 13, 2017. The workshop covered sample collection and analysis, equipment care and maintenance, data management, and monitoring best practices. Seventeen volunteers attended the workshop and are working with the AWA Volunteer Monitoring Coordinator to select monitoring locations.

Audubon Pennsylvania – Stream Studies Program

Organization Information:		Assistance Information:	
New group?	No	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 ²	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	60
Trainings/workshops	6
Individuals assisted	484
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM helped Audubon PA develop field stations for the Letort Stream Studies program, where students from the Carlisle Area School District learn about watershed functions and how to monitor and assess streams. Training materials were developed and site locations were selected. ALLARM also gave a presentation to adult students who were interested in learning more about wetland construction and mitigation.

Assistance provided April 1 – June 30, 2017

ALLARM and Audubon PA held a workshop for the Carlisle Area School District science teachers in April to help them prepare for their annual Letort field studies event. ALLARM taught the teachers how to measure water quality parameters and helped them design stations to collect and analyze water samples. In June, ALLARM assisted Audubon PA in conducting a workshop for elementary and middle school teachers, where they learned how to monitor streams and assess stream health.

Assistance provided July 1 – September 30, 2017

ALLARM updated materials from the spring and summer workshops and incorporated the lessons learned and feedback received for the 2018 workshops.

Assistance provided October 1 – December 31, 2017

ALLARM met with Audubon PA and the CASD science teachers to begin planning the Stream Studies field days for the 7th graders. ALLARM provided information about stream assessment and monitoring.

Beaver County Volunteer Monitors

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	7/18/2016
Group membership	4	Scoping meeting	7/18/2016
Watershed	Beaver/Upper Ohio	DEP approval	12/5/2016
Watershed size	470 mi ²	Assistance began	7/18/2016
County	Beaver	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 quality control

Consultations	12
Trainings/workshops	3
Individuals assisted	9
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided quality control assistance to one Beaver County monitor who sent four water samples to ALLARM for duplicate sample analysis this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to one Beaver County monitor who sent two water samples to ALLARM for duplicate sample analysis this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM spoke with three volunteers during a conference call, during which volunteers asked questions about their data and conductivity meters. Preparations for an in-person follow-up meeting also occurred during this time.

Assistance provided October 1 – December 31, 2017

ALLARM met with three volunteers in October to hear about how monitoring is going and to provide assistance in-person. Volunteers handed in samples for quality control and asked questions about the managing their data. One of those volunteers later joined a conference call to talk about data management, which led to follow-up emails to provide more assistance. Another volunteer who stopped monitoring joined the conference call to get looped back into the program, and was later sent information about the monitoring protocol. ALLARM provided quality control assistance to three Beaver County monitors who sent seven water samples to ALLARM for duplicate sample analysis this quarter.

Big Spring Watershed Association

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	5/19/2015
Group membership	30	Scoping meeting	9/10/2015
Watershed	Big Spring Creek	DEP approval	6/3/2016
Watershed size	13 mi ²	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 and mentoring

Consultations	11
Trainings/workshops	0
Individuals assisted	10
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM attended a Big Spring Watershed Association meeting to continue talking about their monitoring results and the next steps of their water quality monitoring program.

Assistance provided April 1 – June 30, 2017

ALLARM shared resources with BSWA to help with their riparian buffer planting project.

Assistance provided July 1 – September 30, 2017

ALLARM talked to the BSWA monitoring coordinator about the status of the group and their future monitoring plans. ALLARM also provided information about choosing appropriate site locations.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Boys and Girls Club of Chambersburg/Shippensburg

Organization Information:		Assistance Information:	
New group?	Yes	Initial contact with group	6/7/2017
Group membership	161	Scoping meeting	7/3/2017
Watershed	Conococheague Creek	DEP approval	10/25/2017
Watershed size	566 mi ²	Assistance began	7/3/2017
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 and quality control

Consultations	9
Trainings/workshops	1
Individuals assisted	35
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

No assistance provided this quarter.

Assistance provided April 1 – June 30, 2017

No assistance provided this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM held a Stream Monitoring Workshop for The Boys and Girls Club staff and students, which explored various ways to monitor and assess the health of streams. The group's facility is adjacent to the Conococheague Creek and they are considering setting up a stream monitoring program to collect water quality, macroinvertebrate, and/or visual assessment data on a regular basis.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Bradford County Stream Team

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	9/8/2015
Group membership	6	Scoping meeting	3/29/2016
Watershed	Chemung River	DEP approval	6/14/2016
Watershed size	3,644 mi ²	Assistance began	3/29/2016
County	Bradford	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 quality control

Consultations	5
Trainings/workshops	3
Individuals assisted	6
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

No assistance provided this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to one Bradford County monitor who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM spoke with one volunteer during a conference call to talk about how the group's monitoring program is going and assisted another volunteer with data interpretation and data management. ALLARM also provided quality control assistance to one Bradford County Stream Team monitor who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided October 1 – December 31, 2017

ALLARM was in communication with a volunteer to set up a follow-up meeting. ALLARM also assisted with data interpretation and communicated with another volunteer about stopping her monitoring over the winter and beginning again the next year.

Butler County Stream Team

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	1/5/2016
Group membership	7	Scoping meeting	2/18/2016
Watershed	Connoquenessing River	DEP approval	6/14/2016
Watershed size		Assistance began	2/18/2016
County	Butler	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 quality control

Consultations	1
Trainings/workshops	0
Individuals assisted	3
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM had a phone conversation with a Butler County monitor to talk about the status of their water quality and visual assessment monitoring programs. The group is looking to recruit new volunteers to monitor additional sites in the county.

Assistance provided April 1 – June 30, 2017

No assistance provided this quarter.

Assistance provided July 1 – September 30, 2017

No assistance provided this quarter.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Conodoguinet Creek Watershed Association

Organization Information:		Assistance 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 ²	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	21
Trainings/workshops	2
Individuals assisted	59
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM had a phone conversation with the CCWA president about the need for systematic monitoring in the Conodoguinet Creek Watershed. There are several monitoring efforts underway in the watershed that the group will explore.

Assistance provided April 1 – June 30, 2017

ALLARM updated site location maps for CCWA.

Assistance provided July 1 – September 30, 2017

ALLARM talked with members of the Conodoguinet Creek Watershed Association to learn about the status of their organization. The group co-sponsored a one-month stream study that assessed the health of four streams in the watershed through water quality and macroinvertebrate monitoring. ALLARM provided training and quality assurance/quality control support for the stream study.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Corry Stream Team

Organization Information:		Assistance Information:	
New group?	No	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 ²	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

Consultations	3
Trainings/workshops	0
Individuals assisted	17
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided the Corry Stream Team with data management assistance.

Assistance provided April 1 – June 30, 2017

No assistance provided this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM provided data management assistance and continued to work on a template to use for data analysis and interpretation.

Assistance provided October 1 – December 31, 2017

ALLARM provided volunteers with data management assistance.

Diakon Center Point Program

Organization Information:		Assistance Information:	
New group?	No	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	9
Trainings/workshops	1
Individuals assisted	28
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM led a stream monitoring workshop for the Diakon Center Point Program on March 29. Students learned how to assess the stream on their school property by testing water quality parameters and collecting and identifying macroinvertebrates in the stream. The teacher is interested in monitoring the stream year-round during the next school year.

Assistance provided April 1 – June 30, 2017

No assistance provided this quarter.

Assistance provided July 1 – September 30, 2017

No assistance provided this quarter.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Fayette County Stream Team

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	2/5/2016
Group membership	3	Scoping meeting	3/24/2016
Watershed	Youghiogheny River	DEP approval	6/14/2016
Watershed size		Assistance began	3/24/2016
County	Fayette	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 quality control

Consultations	13
Trainings/workshops	1
Individuals assisted	6
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided quality control assistance to two Fayette County monitors who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM helped two monitors manage their water quality and visual assessment data and add it to their data management system.

Assistance provided July 1 – September 30, 2017

ALLARM met with four monitors to discuss the status of the Fayette County Stream Team's monitoring program.

Assistance provided October 1 – December 31, 2017

ALLARM provided quality control assistance to two Fayette County monitors who sent one water sample to ALLARM for duplicate sample analysis this quarter.

God's Country Waterdogs

Organization Information:		Assistance 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 quality control

Consultations	16
Trainings/workshops	1
Individuals assisted	24
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided data management, analysis, and interpretation assistance this quarter.

ALLARM worked on developing a template for the group to interpret and display their monitoring results.

Assistance provided April 1 – June 30, 2017

ALLARM continued working on the template to interpret and understand the God's Country Waterdogs' water quality monitoring results.

Assistance provided July 1 – September 30, 2017

ALLARM provided data management and interpretation assistance, as well as continued to work on the template to interpret and understand this group's water quality monitoring results.

Assistance provided October 1 – December 31, 2017

ALLARM provided data management and interpretation assistance and answered questions about potentially switching or adding monitoring sites to their program.

ALLARM also provided quality control assistance to two monitors who sent three water samples to ALLARM for duplicate sample analysis this quarter.

Johnston Run Revitalization Council

Applicant Information:		Assistance Information:	
New group?	No	Initial contact with group	7/25/2012
Group membership	75	Scoping meeting	6/20/2013
Watershed	Johnstons Run	DEP approval	7/10/2013
Watershed size	9 square miles	Assistance began	7/30/2013
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 and mentoring

Consultations	47
Trainings/workshops	2
Individuals assisted	19
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

No assistance provided.

Assistance provided April 1 – June 30, 2017

The Johnston Run Revitalization Council decided that monitoring Johnston Run is a priority for the group and reached out to ALLARM to learn more about developing a volunteer stream monitoring program. After a few conversations, the group decided to embark on the study design process and the first workshop is scheduled for July 18. ALLARM provided the Johnston Run study design committee with homework questions to begin thinking through the goals of their monitoring program.

Assistance provided July 1 – September 30, 2017

ALLARM met with the Johnston Run study design committee twice to facilitate a conversation about starting up a stream monitoring program, including program goals, appropriate methods and parameters, participant roles, and data use. ALLARM also helped the group choose appropriate equipment and brainstorm fundraising strategies to support their monitoring program.

Assistance provided October 1 – December 31, 2017

ALLARM helped JRRC wrap up their study design and began planning for their first monitoring workshop, which is scheduled for February 24, 2018. ALLARM also planned an information session to share details about the Johnston Run Volunteer Monitoring Program with the recruited volunteers.

PA Council of Trout Unlimited

Organization Information:		Assistance 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: Quality control

Consultations	179
Trainings/workshops	4
Individuals assisted	52
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM worked with Trout Unlimited to develop a quality control program for their new PA pipeline monitoring program. ALLARM also provided quality control assistance to four Trout Unlimited monitors who sent five water samples to ALLARM for duplicate sample analysis this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to sixteen Trout Unlimited monitors who sent thirty water samples to ALLARM for duplicate sample analysis this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM compiled quality control information for PATU for a Quality Assurance Project Plan they are currently writing. ALLARM also provided quality control assistance to eighteen Trout Unlimited monitors who sent twenty-three water samples to ALLARM for duplicate sample analysis.

Assistance provided October 1 – December 31, 2017

ALLARM updated the quality control forms used by PATU volunteers. ALLARM also provided quality control assistance to fourteen Trout Unlimited monitors who sent thirty-nine water samples to ALLARM for duplicate sample analysis.

Ridge and Valley Streamkeepers

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	9/15/2003
Group membership	30	Scoping meeting	N/A
Watershed	Sideling Hill & Town Creeks	DEP approval	10/7/2003
Watershed size	252 mi ²	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 quality control

Consultations	17
Trainings/workshops	1
Individuals assisted	13
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM had a conversation with the RVS monitoring coordinator about scheduling their next quality control event and potentially changing their pH monitoring method and equipment.

Assistance provided April 1 – June 30, 2017

ALLARM compiled information about volunteer-friendly monitoring equipment to share with the Ridge and Valley Streamkeepers.

Assistance provided July 1 – September 30, 2017

ALLARM sent RVS sampling materials for their upcoming annual quality control event.

Assistance provided October 1 – December 31, 2017

ALLARM provided quality control assistance to ten RVS monitors who sent nine water samples to ALLARM for duplicate sample analysis this quarter.

The Nature Conservancy

Organization Information:		Assistance Information:	
New group?	Yes	Initial contact with group	8/1/2016
Group membership	10	Scoping meeting	8/11/2016
Watershed	Brandywine Creek	DEP approval	3/31/2017
Watershed size	565 mi ²	Assistance began	8/11/2016
County	Delaware	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	5
Trainings/workshops	1
Individuals assisted	2
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

The Nature Conservancy is developing a volunteer stream monitoring program to monitor the streams in the First National State Park. ALLARM provided TNC with study design assistance, including choosing appropriate monitoring equipment, and shared resources on creating a water quality monitoring methods manual.

Assistance provided April 1 – June 30, 2017

ALLARM provided TNC with information about coordinating a volunteer stream monitoring program and volunteer-friendly monitoring equipment.

Assistance provided July 1 – September 30, 2017

No assistance provided this quarter.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Venango PA Senior Environmental Corps

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	9/9/2015
Group membership	15	Scoping meeting	10/22/2015
Watershed	Allegheny River	DEP approval	10/28/2015
Watershed size	11,580 mi ²	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 quality control

Consultations	10
Trainings/workshops	2
Individuals assisted	13
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided quality control assistance to one Venango PA SEC monitor who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to two Venango PA SEC monitors who sent two water samples to ALLARM for duplicate sample analysis this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM met with volunteers in-person to hear about how their monitoring efforts are going. ALLARM answered questions about their monitoring protocol and got updated information about which volunteers are currently monitoring. ALLARM also provided quality control assistance to one Venango PA SEC monitor who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided October 1 – December 31, 2017

No assistance provided this quarter.

Westminster College

Organization Information:		Assistance Information:	
New group?	No	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 ²	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 quality control

Consultations	4
Trainings/workshops	1
Individuals assisted	3
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided quality control assistance to one monitor who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided April 1 – June 30, 2017

No assistance provided this quarter.

Assistance provided July 1 – September 30, 2017

No assistance provided this quarter.

Assistance provided October 1 – December 31, 2017

ALLARM met in-person with the coordinator of the Westminster College monitoring group to discuss monitoring strategies and the future of the program. ALLARM was also in contact with one volunteer about visual assessment and her current monitoring efforts.

Westmoreland County Stream Team

Organization Information:		Assistance Information:	
New group?	No	Initial contact with group	7/20/2015
Group membership	15	Scoping meeting	3/24/2016
Watershed	Lower Allegheny River	DEP approval	6/3/2016
Watershed size		Assistance began	3/24/2016
County	Westmoreland	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 quality control

Consultations	17
Trainings/workshops	2
Individuals assisted	9
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

ALLARM provided quality control assistance to one monitor who sent one water sample to ALLARM for duplicate sample analysis this quarter.

Assistance provided April 1 – June 30, 2017

ALLARM provided quality control assistance to three monitors who sent five water samples to ALLARM for duplicate sample analysis this quarter.

Assistance provided July 1 – September 30, 2017

ALLARM spoke with volunteers on the phone about their monitoring program and answered questions about their monitoring protocol. ALLARM also spoke with one volunteer about an outlier in his data and whether or not that could be a potential pollution event.

Assistance provided October 1 – December 31, 2017

ALLARM spoke with a volunteer about scheduling a monitoring workshop and began preparing for the event. ALLARM also contacted another volunteer their data.

Appendix B: Assistance Reports (CVC)

APPLICANT: Blackleggs Creek Watershed Association

Applicant (new or continuing): continuing

River Basin: Ohio

Watershed: Blackleggs Creek

Watershed Size: 45 sq. miles

County: Indiana

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance, Mentoring

Date of Initial Contact with Group: 12/5/12

DEP Approval to Proceed Date: 12/14/12

Date Assistance Began: 12/5/12

Date Assistance Completed: Ongoing

Total Cost of Assistance: \$1,093.15

In-kind/Match Provided by Applicant Organization: \$2,225.08

Overview of Assistance:

Approximate Group Membership: 150

Total Number of Consultations Provided: 16

Total Number of Trainings/Workshops Provided: 2

Total Number of Individuals Assisted: 44

Size of Watershed Assisted: 45 sq. mi.

Total Number of Stream Miles Improved or BMP's Installed as a Result of C-SAW Assistance: 10

Assistance Provided January 1, 2017 – March 31, 2017

The Conemaugh Valley Conservancy's Kiski-Conemaugh Stream Team continues to provide advice and guidance to the group regarding their projects and grant administration. In March, the Stream Team gave a presentation at the BCWA's annual meeting on the water quality of Big Run and Blackleggs Creek and commented on the water quality data collected from Marshall Run, on which a mining accident occurred in 2016.

Assistance Provided April 1, 2017 – June 30, 2017

Met with BCWA's Watershed Coordinator and Trout Nursery Manager to discuss the status of several AMD projects.

Assistance Provided July 1, 2017 – September 30, 2017

Spoke with BCWA's Watershed Coordinator to discuss the status of several AMD projects, especially the Kolb system, which is being expanded to keep more iron oxide from entering Blackleggs Creek. Met with BCWA's Trout Nursery Manager to show her how to use their new field meter.

Assistance Provided October 1, 2017 – December 31, 2017

Discussed the funding status of BCWA projects with their Watershed Coordinator.

APPLICANT: BOTTLE WORKS

Applicant (new or continuing): continuing

River Basin: Ohio

Watershed: Conemaugh

Watershed Size: 1372 sq. mi.

County: Cambria and Somerset

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 8/29/16

DEP Approval to Proceed Date: 9/28/16

Date Assistance Began: 8/29/16

Date Assistance Completed: ongoing

Total Cost of Assistance: \$1,729.16

In-kind/Match Provided by Applicant Organization: \$2,172.69

Overview of Assistance:

Approximate Group Membership: 100

Total Number of Consultations Provided: 28

Total Number of Trainings/Workshops Provided: 2

Total Number of Individuals Assisted: 402

Size of Watershed Assisted: 1372 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

On March 3, 2017, the first annual NatureWorks event was held at the BottleWorks Ethnic Art Center in Johnstown. This free event was open to the public and boasted 14 organizations including Allegheny Ridge Corporation Mainline Canal Greenway, Benscreek Canoe Club, Cambria County Conservation District, Cambria County Solid Waste Authority, Conemaugh Valley Conservancy's Kiski-Conemaugh Stream Team, Indiana University of Pennsylvania's Student Art Association, Mountain Laurel Trout Unlimited, National Wild Turkey Federation's Allegheny Plateau Chapter, Nature Abounds' Natural Biodiversity, PA DCNR's Prince Gallitzin State Park, PA Fish and Boat Commission, PA Game Commission, Somerset Conservation District, and Stonycreek Conemaugh River Improvement Project. These groups led hands-on, engaging activities to educate the general public, especially children, about our natural environment, threats to our resources, conservation practices to help, and local recreation opportunities. Additionally, Michael Reimer, a Pennsylvania resident, demonstrated Gyotaku – a Japanese art form of printing fish – with fish caught from the Stonycreek River and other streams. His artwork was on display all month. Over 350 people participated in this overwhelmingly positive event.

Assistance Provided April 1, 2017 – June 30, 2017

The Conservancy assisted with the BottleWorks Summer Ocean Camp by leading activities for the youth that focused on headwater streams and the water cycle. Activities included building a watershed to understand non-point source pollution, tie-dyeing t-shirts with iron-oxide recovered from an AMD treatment system, completing a worksheet about the water cycle, and making a bracelet with beads representing the various stages of the water cycle.

Assistance Provided July 1, 2017 – September 30, 2017

None.

Assistance Provided October 1, 2017 – December 31, 2017

The BottleWorks Ethnic Art Center in Johnstown is requesting assistance in the planning and execution of the second annual NatureWorks event, which will be held March 3, 2018. This free event will be open to the public and provide information, education, and hands-on activities to engage participants in environmental topics on a cold winter's day. An initial planning call was held and invitations sent to partner organizations.

APPLICANT: Pennsylvania Environmental Council

Applicant (new or continuing): new

River Basin: Statewide

Watershed: Statewide

Watershed Size:

County: all

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 12/15/16

DEP Approval to Proceed Date: 1/18/17

Date Assistance Began: 1/18/17

Date Assistance Completed: 3/28/17

Total Cost of Assistance: \$792.05

In-kind/Match Provided by Applicant Organization: \$85.00

Overview of Assistance:

Approximate Group Membership: 500

Total Number of Consultations Provided: 6

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 50+

Size of Watershed Assisted: 466 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

The Pennsylvania Environmental Council asked the Conemaugh Valley Conservancy's Kiski-Conemaugh Stream Team to present on monitoring Abandoned Mine Discharges and incorporating data into river conservation planning. The Watershed Connections conference was held March 5-6, 2017 at the Ramada in State College.

Assistance Provided April 1, 2017 – June 30, 2017

None.

Assistance Provided July 1, 2017 – September 30, 2017

None.

Assistance Provided October 1, 2017 – December 31, 2017

None.

APPLICANT: Saltsburg Middle School

Applicant (new or continuing): new

River Basin: Ohio

Watershed: Blackleggs Creek

Watershed Size: 45 sq. miles

County: Indiana

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 9/25/17

DEP Approval to Proceed Date: 9/28/17

Date Assistance Began: 9/28/17

Date Assistance Completed: ongoing

Total Cost of Assistance: \$292.50

In-kind/Match Provided by Applicant Organization: \$72.42

Overview of Assistance:

Approximate Group Membership: 80

Total Number of Consultations Provided: 7

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 81

Size of Watershed Assisted: 45 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

None.

Assistance Provided April 1, 2017 – June 30, 2017

None.

Assistance Provided July 1, 2017 – September 30, 2017

Saltsburg Middle School is requesting a presentation introducing 9th grade Biology students to Trout in the Classroom (TIC) and local watershed issues so that, throughout the year, they may understand why they're raising trout fingerlings in a classroom setting and why the state does it. The presentation will occur in October.

Assistance Provided October 1, 2017 – December 31, 2017

The CVC gave a presentation on what students should expect throughout the year with their TIC project and discussed how the aquarium mimics nature, the life stages and habitat needs of brook trout, and the different species of trout, and touched on pollution problems. A workshop was postponed to spring due to weather.

APPLICANT: Shanksville-Stonycreek Elementary School

Applicant (new or continuing): new

River Basin: Ohio

Watershed: Stonycreek River

Watershed Size: 466 sq. miles

County: Somerset

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 2/23/17

DEP Approval to Proceed Date: 3/2/17

Date Assistance Began: 3/2/17

Date Assistance Completed: 6/11/17

Total Cost of Assistance: \$299.82

In-kind/Match Provided by Applicant Organization: \$1,078.49

Overview of Assistance:

Approximate Group Membership: 50

Total Number of Consultations Provided: 5

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 46

Size of Watershed Assisted: 466 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

Shanksville-Stonycreek Elementary School is requesting a Fish ID program from CVC for its third grade students who will participate in an "Outdoor Day" in May. CVC will discuss freshwater fish species, their habitats, anatomy, and threats to water quality as students practice Gyotaku – fish printing. Students will participate in a total of four "hands-on" workshops. Then, as a group, students will spin and/or fly fish at the Central City Sportsmen's Club pond with the assistance of Mountain Laurel Trout Unlimited and others.

Assistance Provided April 1, 2017 – June 30, 2017

Shanksville's Outdoor Day, as described above, was held on May 23 with about 45 students participating.

Assistance Provided July 1, 2017 – September 30, 2017

None.

Assistance Provided October 1, 2017 – December 31, 2017

None.

APPLICANT: Southmoreland Middle School

Applicant (new or continuing): new

River Basin: Ohio

Watershed: Jacobs Creek

Watershed Size: 98 sq. miles

County: Westmoreland

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 1/18/17

DEP Approval to Proceed Date: 1/19/17

Date Assistance Began: 1/19/17

Date Assistance Completed: 6/11/17

Total Cost of Assistance: \$681.98

In-kind/Match Provided by Applicant Organization: \$442.55

Overview of Assistance:

Approximate Group Membership: 150

Total Number of Consultations Provided: 4

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 150

Size of Watershed Assisted: 98 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

Southmoreland Middle School submitted a C-SAW application requesting the CVC's Kiski-Conemaugh Stream Team lead a Water Study for its 6th grade students who will participate in the school's annual Outdoor Day in May.

Assistance Provided April 1, 2017 – June 30, 2017

Southmoreland's Outdoor Day was held May 18 at the Laurelville Mennonite Camp in Mount Pleasant. The Conservancy developed a Macroinvertebrate ID/Match Activity to supplement the macroinvertebrate collection and identification that was part of the Water Study. Students also learn how AMD is formed and used HACH kits to test the pH of water collected from an AMD, the receiving stream, tap water, and Jacob's Creek.

Assistance Provided July 1, 2017 – September 30, 2017

None.

Assistance Provided October 1, 2017 – December 31, 2017

None.

APPLICANT: University of Pittsburgh at Johnstown

Applicant (new or continuing): new

River Basin: Ohio

Watershed: Stonycreek

Watershed Size: 466 sq. mi.

County: Cambria and Somerset

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 8/1/17

DEP Approval to Proceed Date: 8/10/17

Date Assistance Began: 8/10/157

Date Assistance Completed: 10/24/17

Total Cost of Assistance: \$165.48

In-kind/Match Provided by Applicant Organization: \$675.92

Overview of Assistance:

Approximate Group Membership: 9

Total Number of Consultations Provided: 5

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 9

Size of Watershed Assisted: 466 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

None.

Assistance Provided April 1, 2017 – June 30, 2017

None.

Assistance Provided July 1, 2017 – September 30, 2017

UPJ's Engineering Department requests the CVC's Kiski-Conemaugh Stream Team lead a tour of the Rock Tunnel and Oven Run D treatment systems for students in a Wastewater and Water Supply class at UPJ, while discussing local conservation efforts. An October date was chosen.

Assistance Provided October 1, 2017 – December 31, 2017

The aforementioned tour was conducted on October 24.

APPLICANT: Johnstown Vision 2025

Applicant (new or continuing): new

River Basin: Ohio

Watershed: Conemaugh River

Watershed Size: 295 sq. miles

County: Cambria and Somerset

Lead C-SAW Provider: Conemaugh Valley Conservancy

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date of Initial Contact with Group: 3/23/17

DEP Approval to Proceed Date: 8/10/17

Date Assistance Began: 7/27/17

Date Assistance Completed: ongoing

Total Cost of Assistance: \$1,323.59

In-kind/Match Provided by Applicant Organization: \$1,689.80

Overview of Assistance:

Approximate Group Membership: 1,000

Total Number of Consultations Provided: 24

Total Number of Trainings/Workshops Provided: 5

Total Number of Individuals Assisted: 79

Size of Watershed Assisted: 295 sq. mi.

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

Assistance Provided January 1, 2017 – March 31, 2017

None.

Assistance Provided April 1, 2017 – June 30, 2017

None.

Assistance Provided July 1, 2017 – September 30, 2017

The Conemaugh Valley Conservancy is serving as an advisor and facilitator with the Johnstown Vision 2025's Rivers Capture Team, which seeks to create awareness of the region's rivers and their many benefits, to improve access to and use of these invaluable assets, and to improve the rivers' habitat and value for fish and wildlife. CVC helped plan and prepare for a public meeting held in August at which participants were encouraged to brainstorm and focus efforts on projects that could happen now, independent of the Army Corps of Engineers' current study of the Johnstown river walls. CVC led the Rivers Events Focus Group breakout session during the public meeting and facilitated the Rivers Events Focus Group meeting in September at which time realistic awareness and engagement projects were solidified with project leads appointed.

Assistance Provided October 1, 2017 – December 31, 2017

CVC facilitated the River Events Focus Group meeting on November 6 at which time projects centered on Johnstown's rivers were congealed and leadership roles assigned. CVC also participated in and provided advice at meetings at which UPJ students in a Marketing class used the rivers as a basis for a class project.

Appendix C: Assistance Reports (DRN)

New Group: Abington Lansdale Hospital

River Basin: Delaware
Watershed: Neshaminy Creek (West Branch)
Watershed Size:
County: Montgomery Co.
Lead C-SAW Provider: Delaware Riverkeeper Network
Type of Assistance Provided: (Watershed-Specific Technical Assistance, Mentoring, QC, and/or Reporting)
Date of Initial Contact with Group: 11/10/17
DEP Approval to Proceed Date: 11/17/17
Date Assistance Began: 11/17/17
Date Assistance Completed: Ongoing
Total Cost of Assistance: \$

Overview of Assistance:

Approximate Group Membership: 300
Total Number of Consultations Provided: 7
Total Number of Trainings/Workshops Provided: 1
Total Number of Individuals Assisted: 50

Background: The hospital is looking to better protect a small headwater tributary that is located on hospital property. The tributary flows into the west branch Neshaminy Creek. They requested assistance to better understand options to improve conditions for this tributary. Time would include:

- Prepare and present an evening program for hospital staff, Hatfield Shade Tree Commission and the general public on non-point source pollution and retrofitting existing landscaping to achieve benefits of green stormwater. Further technical assistance and time would include municipalities Pollution Reduction Plan, a DEP MS4 requirement, and helping illustrate the economic value of better stormwater management,
- Match time would likely come from TreeVitalize for the actual buffer planting the hospital envisions would happen in Fall 2018.

Assistance Provided Oct 1 to Dec 31, 2017

DRN assisted with initial meetings with the hospital and the county conservation district.

Bertsch, Hokendauqua, Catasauqua Watershed Association

River Basin: Upper Delaware
Watershed: Delaware River Watershed
Watershed size: 80 sq. miles
County: Lehigh and Northampton Counties
Lead C-SAW Provider: Delaware Riverkeeper Network
Type of Assistance Provided: Watershed-Specific Technical Assistance,
DEP Approval to Proceed Date: 4/5/2016
Date Assistance Began: 4/13/2016
Date Assistance Completed: Ongoing
Total Cost of Assistance: \$ 435

Overview of Assistance:

Approximate Group Membership: 20; www.watershedcoalitionlv.org
Total Number of Consultations Provided: 5
Total Number of Trainings/Workshops Provided: 1
Total Number of Individuals Assisted: 20

Background on Group

This watershed association formed in 2009 and worked extensively to document water quality and macroinvertebrates in the Indian Creek Watershed when a STP was proposed for the stream. At that time the group also documented native breeding trout. The STP has been in operation for about 10 years and now they would like to do follow up research as new studies have found no evidence of native trout populations in the stream today which could be a reduction in water quality. At this time the watershed association is looking to expand and reinvigorate their efforts to determine how changing land use might further impact the water quality and habitat. There is a proposal for a large tract housing development early in the process and the group would like DRN to assist them with charting the best road forward to protect the stream and to document current conditions.

Assistance Requested

Strategic planning and outreach tools
Help with proposed threats in the watershed

Assistance Provided January 1 to March 31, 2017

DRN coordinated with the BHCWA on strategy and what activities DRN could assist with to help the group with capacity building and outreach to the community. The org is going through a revival of sorts with one of their vols offering to update their website and create a social media FB page to help with outreach. DRN helped with the planning of a youth oriented wildlife show, high school essay contest, and poetry readings on nature to generate interest in local schools about the watershed.

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: \$2726

Overview of Assistance:

Approximate Group Membership: 120
Total Number of Consultations Provided: 26
Total Number of Trainings/Workshops Provided: 8
Total Number of Individuals Assisted: 120

Assistance Provided January 1 to March 31, 2017

DRN provided assistance related to vernal pool mapping along the proposed PennEast pipeline path for volunteer monitors along the route. There are other local groups and watershed groups who are part of this work along the proposed pipeline path. A web-based recorded tutorial was developed for volunteers to view from home to refresh their skills or for new volunteers to learn what to look for in the field – the PA Natural Heritage Program of the Western Pennsylvania Conservancy assisted with sharing their vernal pool slides.

Assistance Provided April 1 to June 30, 2017

DRN provided assistance related to technical review of the PennEast pipeline path and provided follow up tech assistance to trained volunteer monitors along the route. A webinar for endangered and threatened species and vernal pool mapping were created for volunteer monitors not able to make the in-person trainings. There are other local groups who are also part of this work along the proposed pipeline path.

Assistance Provided July 1 to September 30, 2017

DRN continued to provide assistance related to technical review of the PennEast pipeline path and provided follow up tech assistance to trained volunteer monitors along the route. A webinar for endangered and threatened species and vernal pool mapping were created for volunteer monitors not able to make the in-person trainings and circulation continued upon request. DRN invited volunteer monitors to another field training for automatic probes monitoring and maintenance underway at several location along the pipeline path. As part of this connection a local Bucks County land trust also requested a training in the fall on advocacy around fracking and pipelines as their land would be cut by the pipeline and their members have concerns of land and water quality impacts. DRN is coordinating with the group to set up a separate training that will be conducted separate from a CSAW training. There are other local groups who are also part of this work and community watchdogging.

Assistance Provided October 1 to Dec 31, 2017

Assistance this quarter involved macroinvertebrate sampling to document baseline conditions for several streams in the pathway to the penn east pipeline route. This work was conducted largely in Monroe and Luzerne Counties. Several watershed associations requested this technical sampling work and were assisted and engaged to determine best sampling locations.

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: \$1044

Overview of Assistance:

Approximate Group Membership: 400 residents and volunteers
Total Number of Consultations Provided: 10
Total Number of Trainings/Workshops Provided: 8
Total Number of Individuals Assisted: 300
Total Number of Stream Miles Improved or BMP's installed as a Result of C-SAW Assistance:

Assistance Provided July 1 to Sept 30, 2017

DRN continued assistance with the Eastwick community group through its regular meetings. Work included technical assistance on local landuse issues including Region 9 seniors housing proposal, technical work related to the closed landfill clean up; and assistance with watershed and organization outreach events to build community.

Assistance Provided October 1 to Dec 31, 2017

DRN continued assistance with the Eastwick community group through its regular meetings. Work included continued technical assistance on local landuse issues including Region 9 seniors housing proposal, technical work related to the closed landfill clean up; and assistance with watershed and organization outreach events to build community.

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: \$ 1,508

The PTO Green Committee is working on expanding on the green infrastructure that was conducted at the school and incorporating more educational pieces and activities for the students at the elementary school (take note assistance from CSAW years past was also conducted). The group wants new assistance through C-SAW to help with some of the following tasks:

- Species assessment and technical assistance for restoration plans of an invasive meadow that the volunteers want to convert into a healthy native habitat that includes species for native wildlife and that helps increase the stormwater infiltration of the site. Lessening mowed lawn and expanding the meadow is another aspect of the plan.
- Training and leadership during restoration events and clean up days that would incorporate and educate the community and school children
- Follow-up review after growth of restoration areas and incorporating the school students interested into each aspect of the project so long term stewardship of the project is sustained.

Overview of Assistance:

Approximate Group Membership: 15
Total Number of Consultations Provided: 14
Total Number of Trainings/Workshops Provided: 2 field day
Total Number of Individuals Assisted: 20

Assistance Provided April 1 to June 30, 2017

DRN provided a site visit to discuss maintenance steps for the stormwater enhancement project to keep invasive plant species in check. DRN restoration manager also assisted on stormwater work and planning within Radnor township during this quarter. DRN provided technical help regarding a proposed development on Villanova Campus related to construction practices being employed and follow up on a potential ID of a headwater stream to help the community push for possible daylighting. (this outreach is also part of a larger effort beyond CSAW assistance).

Assistance Provided July 1 to September 30, 2017

DRN restoration program continued expanding work on stormwater and flooding issues in this watershed. A training was conducted in Radnor with volunteer monitors to assess areas of concern where flooding and basins are not adequately protecting the communities from excessive stormwater. DRN assisted with a hotline call related to development practices by Villanova university around a small stream that drains into Ithan Creek.

The Lackawaxen River Conservancy, Pike TU, Damascus Citizens, Other Upper Delaware watershed monitors

Watershed: Upper Delaware

River Basin: Delaware River Watershed

County: Wayne, Pike 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: \$2031

Overview of Assistance:

Approximate Group Membership: 200

Total Number of Consultations Provided: 28

Total Number of Trainings/Workshops Provided: 8

Total Number of Individuals Assisted: 120

Size of Watershed Assisted: 598 sq miles

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

Assistance Provided April 1 to June 30, 2017

DRN assisted with data analysis and presentations for the upper Delaware basin and ongoing stream re-designation petition. DRN coordinated QAQC monitoring through Rider and ALLARM. DRN provided maps and updates to community concerned about the TGP Orion Pipeline Project and coordinated with the national park service in regard to the lackawaxen river pipeline crossing. DRN shared tutorials with trained volunteer monitors watchdogging the pipeline construction and provided feedback on construction. Data collected by volunteers is being used for enforcement follow up.

Assistance Provided April 1 to June 30, 2017

DRN assisted with data analysis and presentations for the watershed groups. DRN held 2 workshops and 2 webinars for pipeline watch volunteers around the Orion Pipeline Project and provided oversight on that pipeline project.

Assistance Provided July 1 to September 30, 2017

DRN continued assistance with data analysis and monitoring conducted regarding the Orion pipeline TGP project. DRN also assisted with outreach and pollution reporting to the local conservation district. DRN continued to share information to upper Delaware partners in regard to watershed protections under anti-degradation. Continued shale watch baseline monitoring assistance also continued for data dissemination.

Assistance Provided October 1 to Dec 31, 2017

DRN continued assistance with data analysis and monitoring conducted regarding the Orion pipeline TGP project. DRN assisted with outreach and pollution reporting to the local conservation district. DRN continued to share information to upper Delaware partners in regard to watershed protections under anti-degradation. DRN continued shale watch baseline monitoring assistance and also continued data dissemination in way of proposed regulations. DRN disseminated information and technical

information regarding DRBC gas drilling regulations to the local groups and monitor groups to engage them in the review of the regulations.

Lebanon and Schuylkill Pipeline Awareness, Lancaster Against Pipelines and Martic SOUL

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: \$ 18,738

Overview of Assistance:

Approximate Group Membership: 800
Total Number of Consultations Provided: 101
Total Number of Trainings/Workshops Provided: 14
Total Number of Individuals Assisted: 230

Assistance Provided January 1 to March 31, 2017

DRN tasks this quarter included technical help and outreach around public comments for 401 certification, FERC EIS, and deficiency reviews related to the Atlantic Sunrise pipeline. A training was also conducted to train Lebanon Co residents to be train the trainers in pipeline watch construction protocols to assist with field documentation and watchdogging for Mariner 2 pipeline which began construction and the proposed AS which has not gotten authorizations yet due to incomplete applications to date. DRN continued to help the local groups assist concerned landowners 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. Assistance with press and letters to the editor samples were also provided as templates. Research of endangered bat clearances and talus management practices to minimize nesting bats along the pipeline route was conducted. DRN also provided multiple powerpoint presentations for community group to use for outreach on climate change and pipelines.

Assistance Provided April 1 to June 30, 2017

DRN tasks this quarter included technical help around volunteer monitor mapping and technical review of applications from Williams Pipeline. DRN assisted with outreach on the FEIS and provided tutorials for subscribers and those interested in following the docket. DRN continued to assist 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 the DEP pipeline portal and technical options to help map natural features along the proposed pipeline route. DRN also assisted in requesting GIS layers for the project for simpler monitoring. DRN followed up on initial information pertaining to the gas power plant in Good Springs and its connection to the proposed Atlantic Sunrise Pipeline. DRN helped lead several sessions on environmental issues and fracking in the state of PA and held 3 in person field sessions with landowners. A joint information session on fracking was conducted in the summer with help from DRN and other PA partners where 25 people from Schuylkill County and Lebanon County attended. Barring mapping provided, DRN assisted with securing a review of the wetlands and waterways information for the 105 through the PA Campaign for Clean Water EV team members to establish missing information in the application. During this time frame DRN also assisted landowners and farmers dealing with pollution issues along the Mariner East 2 pipeline. On May 6 2017, DRN held a 3-hour workshop for concerned residents and landowners long both pipeline routes – 12

people attended the workshop and it was recorded for follow up trainings conducted by LPA. As a result LPA has documented at least 3 pollution violations related to the Mariner East 2 Sunoco pipeline. DRN assisted with file review requests through the various districts to watchdog pipeline construction – in this case Mariner 2. DRN provided assistance on the formation of press releases for key decision making and public hearings during this quarter and as a result several press outlets picked up the pipeline stories.

Assistance Provided July 1 to September 30, 2017

DRN tasks this quarter continued to include technical help around volunteer monitor mapping and technical review of applications on water quality impacts along the pipeline route. DRN assisted with outreach on the FEIS and provided tutorials for subscribers and those interested in following the docket. DRN continued to assist 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 the DEP pipeline portal and technical options to help map natural features along the proposed pipeline route. DRN assisted in requesting GIS layers for the project for simpler monitoring. DRN followed up on initial information pertaining to the gas power plant in Good Springs and its connection to the proposed Atlantic Sunrise Pipeline as well as the the Birdsboro Power Plant that is proposed. DRN helped lead several sessions on environmental issues and fracking in the state of PA and held 3 in person field sessions with landowners. During this time frame DRN also assisted landowners and farmers dealing with pollution issues along the Mariner East 2 pipeline pertaining to water quality impacts. To follow up on the May 6 2017 3-hour pipeline watch workshop for concerned residents and landowners long both pipeline routes and upon request is planning another session with other volunteers outside of Lebanon and Schuylkill County. DRN assisted with file review requests through the various districts to watchdog pipeline construction – in this case Mariner 2. DRN provided assistance and outreach assistance with drafting air permit comments and attending a public hearing for a stretch of the pipeline proposed for Lebanon and Lancaster counties where air exceedances already exist.

Assistance Provided October 1 to Dec 31, 2017

Various work continued as construction began on this pipeline. As a result of initial trainings, another training was requested by Martic SOUL to expand the vol monitoring network watchdogging the construction of the atlantic sunrise pipeline and DRN conducted the training on Dec 3, 2017 – 45 people participated in the training. DRN continued to assist 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 the DEP pipeline portal and technical options to help map natural features along the proposed pipeline route. As a result some violations were documented along the route in the initial phases and volunteer monitors alerted the state agency to potential air violations from an idling variance requested by the pipeline operator during cold weather. Work and assistance for various pipeline watch volunteers continues as needed. In October DRN helped the local community groups organize a vigil at an impacted farm along the route in Schuylkill County. Press was part of this outreach. 30 people attended the vigil.

The Marcellus Biodiversity Project

Watershed: Loyalsock

River Basin: Susquehanna

County: Loyalsock

Lead C-SAW Provider: DRN

DEP Approval to Proceed Date: 6/10/2016

Date Assistance Began: 6/1/2016

Type of Assistance Provided: Watershed-Specific Technical Assistance

Date Assistance Completed:

Approximate Group Membership: 20

Size of Watershed Assisted:

Total Cost of Assistance: \$ 87

Overview of Assistance:

Approximate Group Membership: 20

Total Number of Consultations Provided: 3

Total Number of Trainings/Workshops Provided:

Total Number of Individuals Assisted: 20

Size of Watershed Assisted:

Assistance Provided January 1 to March 31, 2017

DRN discussed conception of the second summer bioblitz for the Marcellus shale drilling region. The group is checking on next best steps and priorities as they are an all-volunteer group. DRN will continue to check in on needs.

Assistance Provided April 1 to June 30, 2017

DRN checked in with the group about a potential 2017 bioblitz.

Assistance Provided July 1 to September 30, 2017

DRN provided information from DCNR studies to the volunteer monitors who conducted the bioblitz related to their areas of concern.

Middletown Coalition for Community Safety

Applicant (new or continuing): new

River Basin: Delaware

Watershed: Multiple: Chester Creek, Ridley Creek,

Watershed Size: 1,912 square miles

County: Delaware

Lead C-SAW Provider: Delaware Riverkeeper Network

Type of Assistance Provided: (Watershed-Specific Technical Assistance, Mentoring, QC, and/or Reporting)

Date of Initial Contact with Group: 6/2017

DEP Approval to Proceed Date: 7/1/2017

Date Assistance Began: 7/1/2017

Date Assistance Completed: Ongoing

Total Cost of Assistance: \$ 1,856

Overview of Assistance:

Approximate Group Membership: 300

Total Number of Consultations Provided: 21 emails

Total Number of Trainings/Workshops Provided: 2

Total Number of Individuals Assisted: 35

Assistance Provided July 1 to Sept 30, 2017

DRN is providing assistance to local residents with concerns on the Mariner 2 pipeline project. DRN participated in a day long community workshop in early August in Delaware County and provided background on steps residents can take to monitor pipeline construction as well as other steps. The group requested additional workshops to learn more details on monitoring activities to assist with their goals. DRN conducted several field visits after hotline calls and followed up on pollution reporting to the county conservation district and PADEP. DRN also assisted recruiting volunteer monitors along hot spots in the area where steep slopes and bentonite releases were reported. The community group has been meeting with elected representatives and local officials to alert them to their concerns and using information collected to support their concerns. DRN also helped develop a hotline reporting list for citizen volunteer monitors and landowners along the route. Some work was conducted in areas west of Delaware County as well pertaining to wetland violations and stream impacts.

Assistance Provided Oct 1 to Dec 31, 2017

DRN is providing assistance to local residents with concerns on the Mariner 2 pipeline project. DRN conducted several field visits after hotline calls and followed up on pollution reporting to the county conservation district and PADEP. DRN continues to assist on recruiting volunteer monitors along hot spots in the area where steep slopes and bentonite releases were reported. Some monitor work was conducted in areas west of Delaware County as well pertaining to wetland violations and stream impacts to Chester Creek from settlement violations in December.

Montgomery County Community College

Applicant (new or continuing): Ongoing
River Basin: Delaware
Watershed: Schuylkill River
Watershed Size: 1,912 square miles
County: Montgomery
Lead C-SAW Provider: Delaware Riverkeeper Network
Type of Assistance Provided: (Watershed-Specific Technical Assistance, Mentoring, QC, and/or Reporting)
Date of Initial Contact with Group: 6/27/2016 (DRN has worked w/MCCC for years; this is the date of this assistance request)
DEP Approval to Proceed Date: 7/18/2016
Date Assistance Began: 6/29/2016
Date Assistance Completed: Ongoing
Total Cost of Assistance: \$641

Overview of Assistance:

Approximate Group Membership:
Total Number of Consultations Provided: 16 emails
Total Number of Trainings/Workshops Provided: 1
Total Number of Individuals Assisted: 36

Assistance Provided April 1 to June 30, 2017

DRN conducted several calls with the applicant to go over oral history of the Schuylkill River presentation workshop ideas. Interviews of some of the local residents were also conducted during this quarter.

Assistance Provided July 1 to Sept 30, 2017

DRN provided a presentation on the history of the Schuylkill River and pollution threats active today on August 23, 2017 to interested students and over 30 students participated.

Morrisville Borough and Morrisville EAC

Applicant (new or continuing): Continuing

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: \$ 145

Approximate Group Membership: 10,023

Total Number of Consultations Provided: 4

Total Number of Trainings/Workshops Provided: 0

Total Number of Individuals Assisted: 3

Size of Watershed Assisted: multiple

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

Assistance Provided April 1 to June 30, 2017

DRN's new restoration manager connected with the EAC to determine next steps and needs. It was suggested additional riparian plantings in the buffer could benefit the project site.

Assistance Provided July 1 to September 30, 2017

The local EAC is pursuing supplements to the existing riparian buffer projects that came about from subsequent technical assistance to enhance wildlife value in the buffer. DRN is providing some oversight on that potential planned work.

Assistance Provided October 1 to Dec 31, 2017

The local EAC is pursuing supplements to the existing riparian buffer projects that came about from subsequent technical assistance to enhance wildlife value in the buffer. DRN is providing some oversight on that planned work and coordinating with EAC members regularly.

Schuylkill Navy River Restoration & Stewards Committees; University Barge Club

Applicant (new or continuing): Continuing
River Basin: Delaware
Watershed: Schuylkill River
Watershed Size: 1,912 square miles
County: Philadelphia
Lead C-SAW Provider: Delaware Riverkeeper Network
Type of Assistance Provided: Watershed Specific Technical Assistance
Date of Initial Contact with Group: 12/6/2016
DEP Approval to Proceed Date: 1/10/2017
Date Assistance Began: 12/6/2016
Date Assistance Completed: April 30, 2017
Total Cost of Assistance: \$923

Overview of Assistance:

Approximate Group Membership: 500
Total Number of Consultations Provided: 6
Total Number of Trainings/Workshops Provided: 1
Total Number of Individuals Assisted: 30
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, 2017

DRN conducted a presentation on the history of the Schuylkill River clean-up and other environmental activities in the region on January 11. Twenty five people attended the presentation.

Assistance Provided April 1 to June 30, 2017

After the first quarter presentation there was limited follow up with a few participants interested in learning more about the frack moratorium in the Delaware River Basin.

Southeast PA Sierra Club

Applicant (new or continuing): New

River Basin: Delaware

Watershed: Schuylkill River

Watershed Size: 1,912 square miles

County: Philadelphia

Lead C-SAW Provider: Delaware Riverkeeper Network

Type of Assistance Provided: (Watershed-Specific Technical Assistance, Mentoring, QC, and/or Reporting)

Date of Initial Contact with Group: 3/3/2017

DEP Approval to Proceed Date: 5/30/2017

Date Assistance Began: 5/11/2107

Date Assistance Completed: Ongoing

Total Cost of Assistance: \$1123

Overview of Assistance:

Approximate Group Membership:

Total Number of Consultations Provided: 16

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 51

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, 2017 – June 30, 2017

DRN began work on the presentation on the oral history of the Schuylkill River in June.

However, high winds and rain hit the region so the lecture series scheduled for June 29th was postponed by the applicant until a later date. The session was rescheduled for October.

Assistance Provided July 1 to Sept 30, 2017

This presentation was conducted by DRN in September and 30 participants took part. The focus was on monitoring data in the Upper Delaware River Watershed and analyses looking at special protection waters as it pertains to gas drilling and the moratorium on hydraulic fracturing currently taking place by the DRBC. There was a lot of interest on this topic by the participants.

Assistance Provided October 1 to Dec 31, 2017

This quarter DRN followed up with committees from Sierra club related to the drbc fracking regulations that were a focus of an earlier workshop. Members participated in several organizing calls around the frack ban in the Delaware River Basin.

Springfield Township EAC

Applicant (new or continuing): New

River Basin: Delaware

Watershed: Schuylkill River Watershed with small portions in the Tookany

Watershed Size: 1,912 square miles (Schuylkill Watershed)

County: Montgomery

Lead C-SAW Provider: Delaware Riverkeeper Network

Type of Assistance Provided: (Watershed-Specific Technical Assistance, Mentoring, QC, and/or Reporting)

Date of Initial Contact with Group: 4/24/2017

DEP Approval to Proceed Date: 6/6/2017

Date Assistance Began: 4/24/2017

Date Assistance Completed: Ongoing

Total Cost of Assistance: \$3306

Overview of Assistance:

Approximate Group Membership:

Total Number of Consultations Provided: 22

Total Number of Trainings/Workshops Provided: 1 field day

Total Number of Individuals Assisted: 36

Size of Watershed Assisted:

Assistance Provided April 1, 2017 – June 30, 2017

DRN assisted the group with team calls to coordinate next steps and plans to assist with riparian buffer protection. Several DRN staff, including Erik Sildorff DRN's new restoration manager is engaged to help determine next steps for preservation of buffers in the township. Research was conducted to inform the process. Three calls with the EAC members were held this quarter in June.

Assistance Provided July 1 to Sept 30, 2017

DRN met with Springfield EAC members in the field to tour and recon for community green infrastructure projects along areas where known flooding and non-point source problems exist in the community. A few sites were identified that have simpler but comprehensive fixes that will benefit from native stream plantings. DRN is assisting with data assembly for public presentation on the benefits of these projects to garner more community support and better practices.

Assistance Provided October 1 to Dec 31, 2017

DRN continues coordinating with Springfield EAC members in the field to tour and recon for community green infrastructure projects along areas where known flooding and non-point source problems exist in the community. A few sites had been identified that have simpler but comprehensive fixes that will benefit from native stream plantings. DRN is assisting with data assembly for public presentation on the benefits of these projects to garner more community support and better practices.

The Tinicum Conservancy/Swamp Creek/Tohickon

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 (this group is a historic assisted group now requiring more assistance)
Date Assistance Began: 3/15/13
Date Assistance Completed: Ongoing
Total Cost of Assistance: \$ 1624

Overview of Assistance:

Approximate Group Membership: 2,300
Total Number of Consultations Provided: 21
Total Number of Trainings/Workshops Provided: 3
Total Number of Individuals Assisted: 14

Assistance Provided April 1 to June 30, 2017

C-SAW got a call from a landowner who was part of the Swamp Creek restoration project conducted back in the early 2000's. The landowner had concerns the buffer was in need of protection based on new land group looking into "cleaning up the buffer". DRN also assisted with review of temperature data around the Tohickon Creek re-designation and a meeting was held with Tinicum Conservancy to discuss the results from probe monitoring and possible next steps to push that petition forward in a positive direction.

Assistance Provided July 1 to September 30, 2017

Continued work originating around the stream upgrade petition for Tohickon Creek. A consultation with the conservancy and DRN was held in the summer to discuss possible outreach and next steps based on the pending petition. DRN restoration is also assisting with landowner request for better protections for their existing stream buffers from a past project and DRN is coordinating with DEP on that work.

Assistance Provided October 1 to Dec 31, 2017

DRN coordinated with Tinicum Conservancy regarding conservation easements and water qualifiers for the tri-ennial review. DRN disseminated information to groups to engage them in this process. As a result the land conservancies are weighing into water quality standards reviews and an extension of comment was granted on the tri-ennial review.

Appendix D: Assistance Reports (PALMS)

APPLICANT: Bradford County Conservation District

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	3/28/17
Group membership	N/A	Scoping meeting	N/A
Watershed	Multiple	DEP approval	4/28/17
Watershed size	N/A	Assistance began	5/3/17
County	Bradford	Assistance completed	12/29/17
In-kind match	\$4784.19	Cost of assistance	\$1592.91

Assistance provided by: Pennsylvania Lake Management Society (PALMS)

Assistance type: Watershed-specific technical assistance

Consultations	N/A
Trainings/workshops	2
Individuals assisted	353
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

Discussed possible assistance ideas at the 2017 PALMS Conference in March.

Received/reviewed CSAW application.

Assistance provided April 1 – June 30, 2017

Request for assistance for 2 pond/lake workshops (May and Oct) and newsletter mailing to pond/lake landowners. Spring pond/lake newsletter designed, printed, and mailed (353 copies). First pond/lake workshop held May 16, 2017 attended by 23 individuals.

Assistance provided July 1 – September 30, 2017

No assistance provided.

Assistance provided October 1 – December 31, 2017

Second pond/lake workshop held October 3, 2017 attended by 12 individuals.

APPLICANT: Bucks County Conservation District

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	3/17/17
Group membership	23	Scoping meeting	N/A
Watershed	Multiple (E. Perkiomen, Neshaminy Creek, Delaware River South)	DEP approval	4/1/17
Watershed size	~415 sq miles	Assistance began	4/1/17
County	Bucks	Assistance completed	7/27/17
In-kind match	\$247.50	Cost of assistance	\$365.60

Assistance provided by: Pennsylvania Lake Management Society (PALMS)

Assistance type: Watershed-specific technical assistance

Consultations	0
Trainings/workshops	1
Individuals assisted	23
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

Assistance provided April 1 – June 30, 2017

No assistance provided.

Assistance provided July 1 – September 30, 2017

Preparations for and presentation on Pond and Lake Ecology and Management for 23 program participants in Penn State Master Watershed Steward program in Bucks County. Presentation handouts were provided for all participants.

Assistance provided October 1 – December 31, 2017

No assistance provided.

APPLICANT: Glade Run Lake Conservancy

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	3/2/17
Group membership	1900	Scoping meeting	N/A
Watershed	Glade Run	DEP approval	
Watershed size	3.3 sq miles	Assistance began	
County	Butler	Assistance completed	
In-kind match	N/A	Cost of assistance	N/A

Assistance provided by: Pennsylvania Lake Management Society (PALMS)

Assistance type: Watershed-specific technical assistance

Consultations	1
Trainings/workshops	0
Individuals assisted	1
Stream miles improved	N/A

Assistance provided January 1 – March 31, 2017

After presenting the CSAW program at the 2017 PALMS Conference (March), GRLC representative approached PALMS about assistance. PALMS spent approximately 2 hours over the course of 2 days discussing the Conservancy's needs and the support CSAW could provide. The interest is in a monitoring and assessment program.

Assistance provided April 1 – June 30, 2017

No assistance provided.

Assistance provided July 1 – September 30, 2017

No assistance provided.

Assistance provided October 1 – December 31, 2017

No assistance provided.

APPLICANT: Mercer County Conservation District

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	1/26/17
Group membership	N/A	Scoping meeting	N/A
Watershed	Sandy Creek	DEP approval	3/30/17
Watershed size	103,043 acres	Assistance began	4/1/17
County	Mercer, Crawford, Venango	Assistance completed	ongoing
In-kind match		Cost of assistance	

Assistance provided by: Pennsylvania Lake Management Society (PALMS)

Assistance type: Watershed-specific technical assistance

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

Assistance provided January 1 – March 31, 2017

PALMS emailed with applicant to discuss application and budget details.

Assistance provided April 1 – June 30, 2017

PALMS emailed applicant with notice of DEP approval to proceed. PALMS continued coordination of a watershed educational series with applicant via email.

Assistance provided July 1 – September 30, 2017

Applicant decided to postpone event until May/June 2018

Assistance provided October 1 – December 31, 2017

Continued emails with applicant discussing event planning for May/June 2018.

Appendix E: Assistance Reports (SWRC)

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 10th, 2013
DEP Approval to Proceed Date: December 12th, 2013
Date Assistance Began: March 14th, 2015
Date Assistance Completed: ongoing
Total Cost of Assistance: <\$1500
In-kind/Match Provided by Applicant Organization: no

Overview of Assistance:

Approximate Group Membership: 150
Total Number of Consultations Provided: one
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: 0

Assistance Provided January 1 – March 31, 2017

The Stroud Center provided one workshop by Dave Arscott, Steven Kerlin, and Melinda Daniels at the Watershed Congress along the Schuylkill in March, 2017 in Pottstown, PA. The title and abstract was as follows:

Model My Watershed v2 with Enhanced Features: An online toolkit to model water quality in your watershed

Abstract: Model My Watershed version 2 (MMW2) web application has been developed to enable the public and watershed protection professionals the means to easily visualize maps and model outputs that are relevant to understanding effects of current and possible future land uses and watershed restorations on storm water runoff and water quality. MMW2 is a free professional grade toolkit for conservation practitioners, municipal decision makers and the public to evaluate impacts of current land use on water quantity and quality, target restoration efforts to the most critical locations, and predict how proposed restoration projects and other changes to land cover will affect or improve conditions in the Delaware River Basin. The web-app currently incorporates two different approaches to modeling the fate of precipitation falling either as a single storm event (24hr site-storm model based on TR-55) or falling over an annual time period (based on 10 yr historic precipitation records and using MapSheds modeling framework). For this workshop, participants will be given a hands-on tutorial on how to use the MMW2 application and information about new features recently made available.

Participants are strongly urged to bring a laptop to explore the geospatial analysis and modeling capabilities. Development of MMW2 has been funded by the William Penn Foundation and the National Science Foundation.

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: ~\$3000

In-kind/Match Provided by Applicant Organization: yes = \$1,310.40 (for Sept. 2017)

Overview of Assistance:

Approximate Group Membership: 7

Total Number of Consultations Provided:

Total Number of Trainings/Workshops Provided: 2

Total Number of Individuals Assisted: 7

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, 2017

On August 29th, Dr. Jackson provided a workshop for PA Master Naturalists attendees held at and facilitated by The Land Conservancy for Southern Chester County. Topics included introduction to insect ecology, aquatic insect life history, and use of aquatic macroinvertebrates for biomonitoring. 4 hours was spent with the group and 1 hour was used to prepare the seminar/workshop.

In September (29th), Dr. Arscott provided workshop trainings to a PA Master Naturalists program held at and facilitated by The Land Conservancy for Southern Chester County. Topics included introduction to watershed hydrology, chemistry and aquatic biology, wetland ecology and restoration, stream ecology and biomonitoring. 2 hours was spent with the group and 1 hour was used to prepare the seminar/workshop.

Applicant: Middle Susquehanna Riverkeeper

Applicant (new or continuing): NEW

River Basin: Chesapeake Bay, Susquehanna

Watershed: Middle Susquehanna, west and north branches

Watershed Size (acreage or sq. miles):

County (multiple):

Lead C-SAW Provider: Stroud Water Research Center

Type of Assistance Provided: Training in monitoring of stream macroinvertebrates.

Date of Initial Contact with Organization: 9/01/ 2017

DEP Approval to Proceed Date: Request approved

Date Assistance Began: 9/01/17

Date Assistance Completed: On going

Total Cost of Assistance: ~\$3200

In-kind/Match Provided by Applicant Organization:

Overview of Assistance:

Approximate Group Membership: 25

Total Number of Consultations Provided: 1

Total Number of Trainings/Workshops Provided: 1

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:

Project Summary

This workshop included 3 Stroud staff for a full day workshop (instruction and preparation, plus some consult time, travel time, mileage).

The Middle Susquehanna Riverkeeper members attended a water quality monitoring of aquatic macroinvertebrate training on 30 Sept, 2017. Workshop was co-instructed by Tara Muenz and 2 more Stroud Center Staff. Workshop was held September 30th, located at the Middle Susquehanna Riverkeeper's office in Sunbury, PA. Workshop included training in macroinvertebrate monitoring and identification as the Riverkeeper is initiating a watershed-wide effort. Support will be ongoing, with future trainings of volunteers potentially needed.

Applicant: Pennsylvania Association of Environmental Educators

Applicant (new or continuing): New

River Basin: statewide

Watershed: statewide

Watershed Size (acreage or sq. miles):

County (multiple): statewide

Lead C-SAW Provider: Stroud Water Research Center

Type of Assistance Provided: Training workshop at conference

Date of Initial Contact with Organization:

DEP Approval to Proceed Date: Application approved 2/7/2017

Date Assistance Began: 2/7/17

Date Assistance Completed: March 13-14, 2017 at McKeever Environmental Center

Total Cost of Assistance: ~ \$3330

In-kind/Match Provided by Applicant Organization: no

Overview of Assistance:

Approximate Group Membership: 150

Total Number of Consultations Provided:

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted:

Size of Watershed Assisted:

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

Project Summary

The Pennsylvania Association of Environmental Educators is a non-profit which supports the community of environmental educators throughout Pennsylvania. One way in which this goal is accomplished, is through facilitating trainings for their membership. District watershed specialists, citizen monitors, state park naturalists, teachers are just a few types of audiences this organization serves.

The Stroud Center has been invited to their annual conference to lead a training session in aquatic macroinvertebrate monitoring and identification, and how to develop and continue long-term monitoring at a schools waterway to track water quality changes and learn about activities that degrade and restore stream water quality. In addition, we will lead a workshop showing how to use the online watershed landscape tool called Model My Watershed.

Included will be 2.5 days total of staff time for 2 Stroud staff, which will include 1 day of workshop instruction and 1.5 day of travel each. For one staff, we request two nights of lodging and 2 days of food and mileage. The Stroud Center subsidized the registration, lodging and food of one staff, in addition to our preparation time (2 days total).

Request: Instruction on aquatic macroinvertebrate monitoring and life history, plus instruction on how to use the Model my Watershed online GIS tool to model improvements in stormwater runoff and water quality in proposed changes to land cover types and installation of conservation practices.

Applicant: Perkiomen Watershed Conservancy

Applicant (new or continuing): NEW

River Basin: Delaware

Watershed: Perkiomen Creek

Watershed Size (acreage or sq. miles):

County (multiple): Montgomery, Berks, Bucks, Lehigh

Lead C-SAW Provider: Stroud Water Research Center

Type of Assistance Provided: Guidance and assistance on education/outreach, restoration, research/monitoring opportunities in their watershed.

Date of Initial Contact with Organization: November 30, 2016

DEP Approval to Proceed Date: Request approved 2/9/2017

Date Assistance Began: November 2017

Date Assistance Completed: 2/27/2017

Total Cost of Assistance: ~\$2100

In-kind/Match Provided by Applicant Organization: yes – \$2,798.15

Overview of Assistance:

Approximate Group Membership:

Total Number of Consultations Provided: multiple emails and phone calls, 1 workshop at Stroud Water Research Center (February 25, 2017)

Total Number of Trainings/Workshops Provided: 1

Total Number of Individuals Assisted: 19

Size of Watershed Assisted:

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

Project Summary

This workshop occurred at Stroud Water Research Center for members of the Perkiomen Watershed Conservancy Board and other Conservancy members, Montgomery Co. Master Watershed Stewards, and educators at the conservancy. The workshop focused on learning about (1) innovative stormwater management systems and other green infrastructure and watershed restoration techniques on demonstration at the Stroud Center, (2) river sampling methods (with open-source hardware and sensors), and (3) developing a better understanding the kinds of projects the Conservancy can implement to improve their organization's impact on the Perkiomen Watershed. Tara Muenz, John Jackson, and Lamonte Garber from the Stroud Center led this workshop.

Applicant: Sierra Club of Philadelphia

Applicant (new or continuing): NEW

River Basin: Delaware

Watershed: Neshaminy and Lower Tidal Schuylkill

Watershed Size (acreage or sq. miles):

County (multiple): Philadelphia and Bucks.

Lead C-SAW Provider: Stroud Water Research Center

Type of Assistance Provided: Training in monitoring of stream chemistries, E.coli, and macroinvertebrates.

Date of Initial Contact with Organization: May 9, 2017

DEP Approval to Proceed Date: Request approved 6/22/2017

Date Assistance Began: 1JUL17 (1st workshop; attendees)

Date Assistance Completed: ongoing

Total Cost of Assistance: Staff time (1-2 staff teaching); 3-4 hrs of prep and workshop followup time; consulting time for participants (Muenz @ \$260). 16 hrs of staff time for workshop instruction (Muenz @ \$1050) and 16 hrs of staff time for 1 additional educator (Totora or Wilson @ \$880). **Total is \$2190.00**

In-kind/Match Provided by Applicant Organization: From July 1, 2017 (\$1,638.96)- file of in-kind from this event saved in folder.

Overview of Assistance:

Approximate Group Membership:

Total Number of Consultations Provided: multiple emails and phone calls, 1 workshop at Stroud Water Research Center is scheduled for July 1st; 1 more full day training in macroinvertebrate to be scheduled for Fall 2017.

Total Number of Trainings/Workshops Provided:

Total Number of Individuals Assisted:

Size of Watershed Assisted:

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

Project Summary

A full day workshop on chemical and bacterial monitoring was held at Stroud Water Research Center for Sierra Club members of Philadelphia and Bucks Counties on 1 July, 2017. Seven people were in attendance.

Applicant: Sustainable Business Network of Philadelphia – Green Stormwater Initiative

Applicant (new or continuing): Continuing

River Basin: Schuylkill and Delaware

Watershed: Delaware

Watershed Size (acreage or sq. miles):

County (multiple): Philadelphia, Delaware

Lead C-SAW Provider: Stroud Water Research Center

Type of Assistance Provided: Workshops and technical support

Date of Initial Contact with Organization: May, 2016

DEP Approval to Proceed Date: 17 May, 2016

Date Assistance Began: 19 May, 2016

Date Assistance Completed: Ongoing

Total Cost of Assistance: ~\$3,000

In-kind/Match Provided by Applicant Organization: yes, attached ~ \$1,818.60

Overview of Assistance:

Approximate Group Membership: +100

Total Number of Consultations Provided: +20 emails, multiple phone calls, 3 workshops, 2 field consultations

Total Number of Trainings/Workshops Provided: 19 May, 2016; 25 June, 2016; 26-27 January, 2017

Total Number of Individuals Assisted: 32 at first meeting; 11 at second; 8 at Jan. 2017

Size of Watershed Assisted:

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

Project Summary

Group: Sustainable Business Network of Philadelphia's Green Stormwater Initiative Partners (<http://sbnphiladelphia.org/> and http://www.sbnphiladelphia.org/initiatives/GSI_Partners/)

SBN requested a workshop on using open-source hardware and sensors for stormwater BMP monitoring. A group of 8 visited Stroud Water Research Center on 26-27 January, 2017 for a technical training on building, programming, deploying, and interpreting data from low-cost and open-source hardware/software to build and deploy monitoring systems in stormwater BMPS. D. Arscott, S. Hicks, D. Bressler, and S. Damiano provided a hands-on workshop to introduce this program.

The workshop was followed by a 3 hour consultation meeting and a field visit later in the year in Philadelphia.

Applicant: York County Master Watershed Stewards – Penn State Extension and York County Conservation District

Applicant (new or continuing): Continuing/Ongoing

River Basin: Susquehanna

Watershed: Susquehanna

Watershed Size (acreage or sq. miles):

County (multiple): York

Lead C-SAW Provider: Stroud Water Research Center

Type of Assistance Provided: Training/Monitoring workshop on water chemistry monitoring, macroinvertebrate ecology, and stormwater management

Date of Initial Contact with Organization: August 11, 2015

DEP Approval to Proceed Date: Dave Arscott mentioned since we had approval for the 2016 program as ongoing, so we didn't submit for a new application this year.

Date Assistance Began:

Date Assistance Completed: ongoing

Total Cost of Assistance: ~\$1,480.00

Note: Tara coordinated. Vince O'Donnell and Bill Anderson instructed. John Jackson was not scheduled, but showed up and gave an intro.

In-kind/Match Provided by Applicant Organization: yes –scanned file saved. \$ 4,190.14

Overview of Assistance:

Approximate Group Membership: 12

Total Number of Consultations Provided: multiple emails and phone calls, 1 workshop at Stroud Water Research Center (April 2017),

Total Number of Trainings/Workshops Provided:

Total Number of Individuals Assisted:

Size of Watershed Assisted:

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

Assistance:

Project Summary

This workshop at Stroud Water Research Center for York County Master Watershed Stewards focused on water quality/chemistry, macroinvertebrate sampling and ID, and stormwater management. The workshop included hands-on, boots in the water experiences and demonstrations with chemistry sampling and analysis techniques and examples of various aquatic macroinvertebrate sampling protocols.

Appendix F: Assistance Reports (USGS)

APPLICANT: Schuylkill County Conservation District (SCD) and Catawissa Creek Restoration Association (CCRA)

Applicant information:		Procedure information:	
New group?	New	Initial contact with group	8/15/2017
Group membership	N/A	Scoping meeting	N/A
Watershed	Catawissa Creek	DEP approval	9/25/2017
Watershed size	153 sqmi	Assistance began	TBD
County	Schuylkill and Columbia	Assistance completed	TBD
In-kind match	N/A	Cost of assistance	\$8,900

Assistance provided by: U.S. Geological Survey – Pennsylvania Water Science Center (USGS-PAWSC)

Assistance type: Watershed-specific technical assistance and mentoring to include: assistance with development of monitoring plan/program and watershed protection plan, monitoring equipment selection, water-quality monitoring methods, streamflow monitoring methods, acid mine drainage monitoring & treatment

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

OVERVIEW

Through C-SAW, the USGS-PAWSC received a request to provide technical assistance to the Schuylkill Conservation District (SCD) operating in Schuylkill County Pennsylvania and the Catawissa Creek Restoration Association (CCRA) operating in Schuylkill and Columbia Counties. This C-SAW request by SCD expands on a previous C-SAW effort in 2010 that was conducted by USGS on behalf of the Columbia County Conservation District (CCCD). In 2010, the USGS, with assistance from CCCD, SCD, and CCRA, installed staff gages and crest stage gages at the three stations (TC1, CC8, and CC9) within Catawissa Creek watershed. The staff gages had been useful to CCRA and Penn Tech volunteers involved in water quality monitoring. However, all three gages were destroyed by flooding or bridge removal.

The current request for assistance includes the reinstallation of the staff gages plus technical assistance on:

1. Monitoring plan/program development (study design)
2. Watershed protection plan development (AMD focus)
3. Monitoring equipment selection (stream and AMD sites)
4. Water quality monitoring methods (flow, field parameters)
5. Stream flow monitoring methods (staff gages plus measurements)

6. Acid mine drainage monitoring & treatment (data plus interpretation)

The main stem Catawissa Creek and its largest tributary, Tomhicken Creek of the Susquehanna River Basin, in Schuylkill and Columbia Counties, are degraded by acid mine drainage (AMD). Since the 1930s, the Audenreid, Catawissa, and Green Mountain Tunnels have discharged AMD into the Catawissa Creek headwaters while the Oneida #1 and #3 Tunnels have discharged AMD to the Sugarloaf and Tomhicken Creeks. Although treatment systems are in place at the Oneida #1 and #3 and Audenreid Tunnels, the Catawissa Creek still suffers from AMD contamination. Information on flow data and water quality are needed to evaluate current performance and to develop site-specific maintenance strategies for the AMD treatment systems and to assess other AMD treatment or abatement options.

SCD is working with the Catawissa Creek Restoration Association (CCRA) to obtain data on stream flow and mine drainage characteristics in the Catawissa Creek watershed. These data are needed to develop a watershed restoration strategy that will meet the requirements of an acceptable “Qualified Hydrologic Unit” as stipulated by the PaDEP Bureau of Abandoned Mine Reclamation Acid Mine Drainage Set-Aside Program.

The SCD has already obtained replacement staff plates and pressure transducers, but needs assistance to complete their installation. As part of the current request, USGS will provide guidance and surveying equipment for installation of the staff gages and installation of submersible pressure transducers at three stream locations: (1) TC1 at the Red Ridge Rd bridge crossing Tom Hicken Creek near the Red Ridge Lake Campground, (2) CC8 at the Labenburg Rd. bridge crossing Catawissa Creek, upstream from Tom Hicken Creek, and (3) CC9 at the Cranberry Run Rd bridge (bl Davis Chapel) crossing Catawissa, downstream from Tom Hicken Creek. Replacement gages will be installed as close to the original locations as possible.

The PaDEP has offered to provide laboratory services for analysis of water quality samples collected by SCD and CCRA. Stream flow data are needed to better quantify the volume and contaminant loading within Catawissa and Tom Hicken Creeks downstream of key mine discharges. The staff gages will be crucial for documenting temporal variability in the volume and quality of stream water and upstream mine discharges. Additionally, flow data and water quality are needed for the major mine discharges to develop site-specific treatment strategies.

The SCD seeks to develop relations between streamflow and stage commonly referred to as ratings. Assistance through C-SAW is requested to train SCD personnel and CCRA volunteers to: 1) properly identify appropriate locations for streamflow and stage measurement, 2) measure stage using staff plates or other appropriate methods, 3) conduct streamflow measurements, and 4) evaluate water quality. Under this C-SAW request, the USGS would provide instruction and support for staff plate installation, weir installation, and streamflow measurement.

Also, as part of this C-SAW request, the USGS will provide guidance on the use of streamflow and water quality data to estimate contaminant loading as needed for computations of downstream effects of AMD and on potential AMD treatment costs using the program AMDTreat. Currently available data will be used to estimate the acidity and metals loading at known AMD sites and upstream and downstream sites, if available, on Tom Hicken and Catawissa Creeks.

Assistance provided July 1 – September 30, 2017

A C-SAW Application for Assistance was received by USGS-PAWSC and a Request to Proceed document was prepared and submitted to PADEP. PADEP approval was granted on 9/25/2017.

Assistance provided October 1 – December 31, 2017

USGS provided assistance with regard to installation of staff plates and pressure transducers at three sites in Catawissa Creek watershed. Equipment and supplies associated with gage installation was provided by the Applicant. USGS also provided guidance with evaluating the potential for treatment of acidic water discharged from the Audenreid Tunnel by titration with lime slurry (or sodium silicate solution).

Appendix G: Quality Control Assistance (ALLARM)

Quality Control Assistance: 1/1/2017 – 12/31/2017

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

	Jan – Mar 2017	Apr – Jun 2017	Jul – Sep 2017	Oct – Dec 2017	Total
Groups assisted	6	7	3	6	12
Individuals assisted	10	36	20	31	97
Water samples processed	13	53	25	59	150
Tests performed	124	656	292	721	1,793

Timeframe	Group	Parameters									# of Samples	# of Tests
		Alkalinity	Chloride	Conductivity	Nitrate	Orthophosphate	pH	Total Dissolved Solids	Turbidity	Other		
Jan – Mar	Beaver County Volunteer Monitors			X				X			4	32
Jan – Mar	Fayette County Stream Team			X				X			1	8
Jan – Mar	PA Council of Trout Unlimited (CCC)			X			X	X			3	36
Jan – Mar	PA Council of Trout Unlimited (P)			X			X		X		2	24
Jan – Mar	Venango PA SEC			X				X			1	8
Jan – Mar	Westminster College			X				X			1	8
Jan – Mar	Westmoreland County Stream Team			X				X			1	8
Apr – Jun	Allegheny County Stream Team			X				X			5	40
Apr – Jun	Antietam Watershed Association	X			X	X	X		X		8	168
Apr – Jun	Beaver County Volunteer Monitors			X			X	X			2	24
Apr – Jun	Bradford County Stream Team			X				X			1	8
Apr – Jun	PA Council of Trout Unlimited (CCC)			X			X	X			19	228
Apr – Jun	PA Council of Trout Unlimited (P)			X			X		X		11	132
Apr – Jun	Venango PA SEC			X				X			2	16
Apr – Jun	Westmoreland County Stream Team			X				X			5	40
Jul – Sep	Bradford County Stream Team			X				X			1	8
Jul – Sep	PA Council of Trout Unlimited (CCC)			X			X	X			16	192
Jul – Sep	PA Council of Trout Unlimited (P)			X			X		X		7	84
Jul – Sep	Venango PA SEC			X				X			1	8
Oct – Dec	Beaver County Volunteer Monitors			X				X			7	56
Oct – Dec	Fayette County Stream Team			X				X			1	8
Oct – Dec	God's Country Waterdogs			X			X	X			3	36
Oct – Dec	PA Council of Trout Unlimited (CCC)			X			X	X			31	372
Oct – Dec	PA Council of Trout Unlimited (P)			X			X		X		8	96
Oct – Dec	Ridge and Valley Streamkeepers	X			X		X		X		9	153