

Consortium for Scientific Assistance to Watersheds

Final Report Addendum: July 1, 2013 – April 10, 2014
C-SAW VII

*Transferring knowledge and skills to watershed groups;
Building capacity to undertake watershed assessments, monitoring,
restoration, and protection of Pennsylvania's waterways.*



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:

There is a significant amount of work needed to protect and restore Pennsylvania's streams and lakes. There are hundreds of watershed associations and groups in Pennsylvania actively participating in these efforts. The willingness of private citizens to take action holds real promise for improving water quality and preserving streams throughout the Commonwealth. The Consortium for Scientific Assistance to Watersheds (C-SAW) program provides technical and programmatic assistance to those organizations that need assistance to accomplish their local aquatic improvement and monitoring goals. Since the conception of the C-SAW program in 2001, more than 337 watershed organizations and thousands of individuals have received watershed specific technical assistance, mentoring, and quality control support. **From July 1, 2013 to April 10, 2014, C-SAW partners have supported over 60 organizations and providing 639 consultations, and 80 workshops to over 2,269 individuals.**

C-SAW Partners:

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

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



With C-SAW assistance, members of the Blackleggs Creek Watershed Association assisted the DEP during a fish electroshock survey and learned about fish habitat, the impacts of pollution on fish and identified many fish species (left). Greenside darter (*Etheostoma blennioides*) counted and released during fish survey (right).

C-SAW Approach:

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

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

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



Brook trout fingerlings before release by Saltsburg Elementary School students into Blackleggs Creek as part of Trout in the Classroom (left & right). Larry Hutchinson, president of the Shade Creek Watershed Association, leads a tour of an AMD treatment system for students (middle). The Kiski-Conemaugh Stream Team led a macroinvertebrate collection and ID session before students toured the drinking water treatment plant, the Reitz #4 AMD discharge, and the Beaverdam Trout Cooperative and Nursery. Students finished the day fishing and exploring the edges of the Central City Sportsmen's Club pond.

Many of the groups that apply for C-SAW assistance have only recently formed and require assistance with organizational development and program management before they can effectively proceed with watershed monitoring and assessment. Even for more seasoned organizations, the request for C-SAW assistance can include organizational development and program management. Consortium partners collaborate with C-SAW recipients to build ownership, capacity, and confidence. This approach sends ripples far beyond the individuals

and organizations assisted, and helps to build stronger individuals, stronger watershed organizations, and stronger communities. One can see the independence gained by groups over time as they enhance their skills and move onto other projects that build on their increased capacity.

C-SAW Assistance:

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

Watershed-Specific Technical Assistance:

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

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

Mentoring:

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

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

Quality Control:

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

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

Summary of Assistance Provided:

60

Groups

Organizations directly receiving assistance from C-SAW (watershed-specific technical assistance, mentoring, and quality assurance/quality control).

80

Trainings & Workshops

A training/workshop is any hands-on or skills-oriented session in which a C-SAW partner takes the lead or facilitates skills-building in a more formal manner than at a general meeting.

Examples include: monitoring trainings, study design workshops, data interpretation workshops, presentations on water quality issues, etc.

639

Consultations

A consultation is any meeting, planning session, or contact a C-SAW provider organized or participated in as part of the assistance provided to an organization.

Examples include: scoping meetings, planning meetings, quarterly/monthly monitoring or other committee meetings, etc.

2,269

Individuals

The number of individuals assisted through consultations and trainings/workshops. Additional members of the organization benefit from these activities as they come into direct contact with the participants.

Appendix A: Assistance Reports From C-SAW July 1, 2013 – April 10, 2014



Residents learn about fish species present in the Delaware River as part of the Upper Delaware Bioblitz and electroshocking that was part of the day's activities. C-SAW assisted with macroinvertebrate sampling and a hands on water testing program as part of the 24 hour event which grass-roots organizers hope to hold on an annual basis to highlight diversity of the region.

APPLICANT: Allegheny County Conservation District

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	4/18/2012
Group membership	N/A	Scoping meeting	N/A
Watershed	Monongahela & Allegheny Rivers	DEP approval	5/1/2012
Watershed size	18,960 mi ²	Assistance began	5/7/2012
County	Allegheny	Assistance completed	Ongoing
In-kind match	\$1,989	Cost of assistance	\$1,100

Assistance provided by: Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Mentoring

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

Assistance provided July 1, 2013 – April, 2014

Email correspondence between the County and CVA began to coordinate needed assistance.

APPLICANT: Antietam Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	6/30/2003
Group membership	80	Scoping meeting	N/A
Watershed	Antietam Creek	DEP approval	10/31/2003
Watershed size	94 mi 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 QA/QC

Consultations	40
Trainings/workshops	3
Individuals assisted	15
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

The Antietam Watershed Association received a \$2,500 grant to purchase new monitoring supplies and ALLARM helped the monitoring coordinator choose the appropriate equipment for their program. ALLARM also helped the group to understand effects of elevated nutrients in their watershed.

Assistance provided October 1 – December 31, 2013

ALLARM provided the group with assistance on monitoring pH. There were several questions about the impacts and how to effectively monitor pH. ALLARM also provided the monitoring coordinator with resources to train new volunteers and order monitoring supplies.

Assistance provided January 1 – April 10, 2014

ALLARM met with the AWA monitoring coordinator and other volunteer to monitor in January to review monitoring kits – the group is interested in exploring ways to monitor bacteria at a few chosen sites as well as other nutrient monitoring options. ALLARM helped the group transition their data management system from 2013 to 2014 and helped them to update their watershed map to reflect all of the new monitoring sites that had been added in the past year. In February, ALLARM facilitated a data interpretation workshop for all of the AWA volunteers. The workshop covered data analysis techniques, water quality criteria, and data collected from 2008 – 2013. In addition, the group participated in split sample QA/QC this quarter.

Assistance provided April 1 – April 10, 2014

ALLARM provided the group with QA/QC results.

APPLICANT: E.L. Rose Conservancy

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	6/15/2010
Group membership	275	Scoping meeting	N/A
Watershed	Silver Creek	DEP approval	11/8/2010
Watershed size	N/A	Assistance began	11/11/2010
County	Susquehanna	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$

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

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

Consultations	8
Trainings/workshops	0
Individuals assisted	10
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

The E.L. Rose Conservancy has new leadership and is hoping to begin their stream monitoring program again. ALLARM provided the group with information about stream monitoring, including methods, training, and quality assurance/quality control procedures.

Assistance provided October 1 – December 31, 2013

ALLARM had several conversations with monitors and leaders of the E.L. Rose Conservancy about stream monitoring and data management. The group is going through a strategic planning process, and stream monitoring is on hold until a plan for the organization is established.

APPLICANT: God's Country Waterdogs

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

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

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

Consultations	
Trainings/workshops	
Individuals assisted	
Stream miles improved	

Assistance provided July 1 – September 30, 2013

ALLARM continues to work with the Potter County Water Dogs on maintaining their baseline monitoring program. In this quarter, ALLARM has worked a good bit with the group on volunteer retention strategies, the group held its first annual picnic in September. Prior to the picnic, ALLARM met with the four coordinators in August to discuss volunteer retention and group data management. After the meeting, ALLARM shared data entry templates.

Additionally ALLARM provided technical support to one of the volunteers conducting a turbidity study to help him quantify his results.

Assistance provided October 1 – December 31, 2013

ALLARM continues to provide assistance to the Potter County Water Dogs. ALLARM initiated two phone calls with coordinators to troubleshoot data management challenges.

Assistance provided January 1 – April 10, 2014

ALLARM met with Potter County Water Dogs in March to facilitate a conversation around their monitoring needs including data management, data interpretation, and program expansion. The group later connected with Kiski-Conemaugh for a macroinvertebrate workshop and ALLARM began work trying to help them troubleshoot their data management issues.

APPLICANT: Johnston Run Revitalization Council

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	
Group membership	75	Scoping meeting	
Watershed	Johnston Run	DEP approval	7/10/2013
Watershed size		Assistance began	
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	25
Trainings/workshops	1
Individuals assisted	10
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

After a year of planning and working with environmental consultants to develop a walking a trail along Johnston Run, the Johnston Run Revitalization Council is interested in learning about volunteer stream monitoring. ALLARM has had several phone conversations over the summer about the direction the group is heading and will be attending their October meeting to talk about ALLARM, C-SAW, and stream monitoring.

Assistance provided October 1 – December 31, 2013

ALLARM had several phone conversations with members of the Johnston Run Revitalization Council to talk about stream monitoring and volunteers in recruitment. ALLARM attended the group’s monthly meeting in October and the group determined that although they were not quite ready to begin a volunteer monitoring program, they were still interested in learning more about the process – including the methods, equipment used, etc. so that they can have a better understanding of when it is appropriate to begin monitoring their local stream.

Assistance provided January 1 – April 10, 2014

ALLARM attended a community meeting sponsored by the Johnston Run Revitalization Council, which focused on their watershed restoration and trail project. The group is actively recruiting volunteers to help with the many activities they have planned for 2014. The group is still interested in beginning a volunteer monitoring program in the future.

APPLICANT: Middle Spring Watershed Association

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

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

Assistance type: Watershed-specific technical assistance and mentoring

Consultations	5
Trainings/workshops	0
Individuals assisted	20
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

ALLARM helped the Middle Spring Watershed Association compile all of their chemical monitoring data and plans to help the group with data analysis.

Assistance provided October 1 – December 31, 2013

The Middle Spring Watershed Association is going through a transition phase and will soon have new leaders. Volunteers are currently not monitoring the stream but are very interested in interpreting the data they have collected for the past several years.

Assistance provided January 1 – April 10, 2014

ALLARM attended the Middle Spring Watershed Association’s quarterly meeting in March. Strategies on interpreting data and options for reestablishing a monitoring program were brainstormed at the meeting. Additional conversations on these topics will continue at their August meeting.

APPLICANT: PA Alliance for Geographic Education

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

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

Assistance type: Watershed-specific technical assistance

Consultations	20
Trainings/workshops	0
Individuals assisted	10
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

ALLARM had a phone conversation with one of the program coordinators to learn about how the 2013 – 2014 program is organized. Workshops are planned for December 2013 and May 2014, both of which may require assistance from ALLARM.

Assistance provided October 1 – December 31, 2013

ALLARM helped the group with developing a stream monitoring presentation for the December workshop. ALLARM will work more closely with the group during the spring workshops.

Assistance provided April 1 – April 10, 2014

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

APPLICANT: PA Council of Trout Unlimited

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

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

Assistance type: Quality assurance/quality control

Consultations	50
Trainings/workshops	1
Individuals assisted	50
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

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

Assistance provided October 1 – December 31, 2013

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

Assistance provided January 1 – April 10, 2014

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

APPLICANT: Ridge and Valley Streamkeepers

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	9/15/2003
Group membership	30	Scoping meeting	N/A
Watershed	Sideling Hill Creek & Town Creek	DEP approval	10/7/2003
Watershed size	252 mi 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 QA/QC

Consultations	40
Trainings/workshops	3
Individuals assisted	20
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

ALLARM has helped the Ridge and Valley Streamkeepers to compile, analyze, and interpret their data so that they may share the results of 12 years of monitoring with their local community. The group is currently working on producing a watershed report that provides an overview of the organization as well information on the monitoring program and the results generated from it. ALLARM attended their board meeting in July and presented information on stream monitoring at their annual community event.

Assistance provided October 1 – December 31, 2013

ALLARM worked closely with the Ridge and Valley Streamkeepers this quarter to help them draft their watershed report. ALLARM also provided assistance with monitoring supplies and scheduled a QA/QC event for next quarter.

Assistance provided January 1 – April 10, 2014

ALLARM helped RVS choose appropriate thermometers for the volunteer monitoring program and also gave them support on editing their watershed report. The group has new volunteers and needed information on purchasing additional equipment. The entire monitoring group participated in QA/QC in this quarter.

Assistance provided April 1 – April 10, 2014

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

APPLICANT: Watershed Alliance of Adams County

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

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

Assistance type: Watershed-specific technical assistance and mentoring

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

Assistance provided October 1 – December 31, 2013

ALLARM touched base with the monitoring coordinator of the Watershed Alliance of Adams County. The group just finished their low flow monitoring program for the year and will be gearing up again next spring.

APPLICANT: Watershed Alliance of York

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	8/1/2012
Group membership		Scoping meeting	N/A
Watershed	Multiple	DEP approval	9/27/2012
Watershed size		Assistance began	10/3/2012
County	York	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$

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

Assistance type: Mentoring and organizational assistance

Consultations	
Trainings/workshops	
Individuals assisted	
Stream miles improved	

Assistance provided July 1 – September 30, 2013

ALLARM continues to provide strategic planning assistance to WAY. In July the group met to continue working on prioritizing activities to help develop a strategy for work in the next three years. ALLARM had a number of phone calls with coordinators to answer questions about next steps.

Assistance provided October 1 – December 31, 2013

ALLARM facilitated the last strategic planning meeting for the group. Prior to, ALLARM created another survey to pull together feedback from the board members.

Assistance provided January 1 – April 10, 2014

ALLARM finalized the strategic planning process for WAY. ALLARM prepared summary documents and recommendations based on the surveys, conversations, and process.

APPLICANT: Blackleggs Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/5/2012
Group membership	150	Scoping meeting	N/A
Watershed	Blackleggs Creek (Ohio)	DEP approval	12/14/2012
Watershed size	45 mi ²	Assistance began	12/5/2012
County	Indiana	Assistance completed	Ongoing
In-kind match	\$2,250.12	Cost of assistance	\$2,119.57

Assistance provided by: Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance and mentoring

Consultations	76
Trainings/workshops	1
Individuals assisted	85
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Maintained communications with key individuals regarding Big Run #3 and Whiskey Run #9 projects. Provided guidance and assistance to a director seeking grant funds. Coordinated fish surveys by DEP and BCWA. Educated participants on water quality and recovery.

Assistance provided October 1 – December 31, 2013

Helped coordinate a few meetings between project stakeholders, including the watershed association, WPCAMR, DEP, OSM, FPW, SRI, and others to review the status of the Big Run treatment systems and future O&M. Brainstormed alternatives. Recorded and disseminated minutes from these meetings. Provided assistance with project management and reporting. Helped local school start a Trout in the Classroom project and communicated with another interested party. Coordinated monitoring effort among group and volunteers. Shared resulting data.

Assistance provided January 1 – April 10, 2014

Discussed restoration projects, status, funding, membership development, and outreach with BCWA members. Spoke of funding opportunities and Trout in the Classroom at Annual Meeting. Reviewed newsletter and Big Run Study Report. Assisted with TIC grant applications. Tried to get biological monitoring results from DEP.

APPLICANT: Blair County Conservation District

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2012
Group membership	N/A	Scoping meeting	N/A
Watershed	Beaverdam Branch, Juniata River	DEP approval	4/18/2013
Watershed size	32 mi ²	Assistance began	8/2013
County	Blair	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$1082.61 (MWA)

Assistance provided by: United States Geological Survey, Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance

Consultations	17
Trainings/workshops	3
Individuals assisted	30
Stream miles improved	N/A

Requested assistance

BCCD is working with student interns from the Penn State University, Altoona campus to establish a baseline of water quality and quantity data in Mill Run, Brush Run, and Spring Run basins. The quality and quantity of water entering, traversing, and leaving the City of Altoona will be monitored at 7 locations. Water quality will be characterized monthly under baseflow and stormflow conditions and using Hach test kits to analyze water temperature, pH, dissolved oxygen concentration, conductivity, nutrient concentrations, sulfate concentration, and alkalinity. Water quantity will be measured simultaneously with sample collection. The student interns and BCCD seek to develop relationships between streamflow and stage commonly referred to as ratings. Assistance through C-SAW is requested to train BCCD personnel and student interns to: 1) properly identify appropriate locations for streamflow and stage measurement, 2) measure stage using staff plates or other appropriate methods, and 3) conduct streamflow measurements. Under this C-SAW request, the USGS would provide instruction and support for staff plate installation and streamflow measurement at a location mutually agreed upon during site reconnaissance. BCCD and student interns would install additional staff plates and make streamflow measurements, using knowledge transferred from USGS.

Macroinvertebrate assistance with MWA was also requested.

Assistance provided July 1, 2013– April 10, 2014

On November 20, 2013 Randy Conger met with Jim Eckenrode and his assistant. Randy provided guidance on site selection for streamgage installation on Spring Run. In addition, Randy demonstrated installation of a staff plate and how to run closed-loop levels. Jim and his assistant plan to use what they learned to install staff plates at additional locations.

MWA Planned and implemented a macroinvertebrate training for volunteers of the BCCD and John Kennedy Chapter of Trout Unlimited

APPLICANT: Carroll Township

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2009
Group membership	10	Scoping meeting	N/A
Watershed	Yellow Breeches & Conewago Crs.	DEP approval	6/22/2012
Watershed size	734 mi ²	Assistance began	1/2013
County	York	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

Assistance provided by: United States Geological Survey

Assistance type: Watershed-specific technical assistance

Consultations	5
Trainings/workshops	1
Individuals assisted	N/A
Stream miles improved	N/A

Requested assistance

Carroll Township has experienced a series of minor or micro-earthquakes since October 2008. Won-Young and others (2009), identify diabase dikes (which underlie about 60 percent of the township) as a potential source of the earthquakes, as the dikes are brittle and break under stress. The reason for the stress is unknown, but one theory is the stress originates from loading of groundwater into old iron mines that exist beneath the township. This area was known as the Dillsburg magnetite district, and was established in the 19th Century. The District now is represented by abandoned underground tunnels and excavations of uncertain depth and breadth. Flooding of the mines increases the overburden weight on the diabase dikes and may also lubricate existing fault planes which promote the tremors felt in the township. Based upon this conjecture, monitoring of water levels in selected wells, springs, and wet lands and their relation with precipitation and earthquake events may be useful in determining the merit of the groundwater earthquake theory. Training through C-SAW has been approved for (1) selection of water-level measurement sites, (2) collection of water-level data, and (3) establishment of various supporting databases. The USGS will provide instruction and support for site selection, water-level measurements, and compilation and maintenance of collected data. Citizens will maintain and expand the earthquake network using knowledge transferred from the USGS.

Assistance provided July 1, 2013 – April 10, 2014

9/30/13 - Visited 4 springs in the Dillsburg area to estimate discharge and collect field values (pH, Spec. Cond, ORP, temperature).

1/14/14 - Download water levels from well in Carroll Twp. for earthquake monitoring. There were reported earthquakes around 1/1/14 and 1/3/14. Time interval appears too great so may swap out the "dumb" transducer for one that records only when water-levels change.

APPLICANT: Chester Ridley Crum Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	N/A
Group membership	550	Scoping meeting	N/A
Watershed	Chester, Ridley & Crum Creeks	DEP approval	3/18/2003
Watershed size	132 mi ²	Assistance began	3/10/2003
County	Chester and Delaware	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	N/A

Assistance provided by: Stroud Water Research Center
Assistance type: Watershed-specific technical assistance

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

Assistance provided January 1 – April 10, 2013

On February 23rd, a Stroud educator provided the annual Water Quality Monitoring training in use of chemistry kits and quality assurance, quality control protocols for twelve new and returning monitoring volunteers. Twelve volunteers attended the workshop which took place at Widener University.

APPLICANT: Clayton Park Recreational Area

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	3/2010
Group membership	400	Scoping meeting	N/A
Watershed	Lake Henry	DEP approval	N/A
Watershed size	0.5 mi ²	Assistance began	N/A
County	Wayne	Assistance completed	N/A
In-kind match	\$1,297.50	Cost of assistance	\$3,644.12

Assistance provided by: Pennsylvania Lake Management Society

Assistance type: Watershed-specific technical assistance

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

Assistance provided July 1 – September 30, 2013

FX Browne, Inc. was contracted to assist the Clayton Park staff in completing a lake study design, guidance on monitoring design and protocols, assistance with lake management issues, consultation on lake biological integrity and habitat assessment, and related issues. During the months June 2013 – September 2013, FX Browne, Inc. compiled all historical lake water quality data and developed trend graphs, worked with Clayton Park Recreation Area volunteers to conduct watershed investigations, collected lake sediment samples and conducted lab analysis, and trained and worked with volunteers to begin a wet weather monitoring program.

Assistance provided October 1 – December 31, 2013

During this period, FX Browne, Inc. coordinated volunteers, and volunteers collected two wet weather samples and drove them to the laboratory for analysis. The volunteers will attempt to collect one more set of samples for one more rain event this coming spring. Work continued on watershed investigations and will be completed in the spring.

Assistance Provided January 1 – April 10, 2014

During this reporting period, F. X. Browne, Inc. continued work on evaluating the historical lake data, received and reviewed sediment quality data, and coordinated with volunteers for the collection of wet weather data. Now wet weather samples were collected during this period, we are hoping to collect at least one wet weather sample during the next reporting period. We also coordinated with volunteers regarding the watershed investigations.

APPLICANT: Delaware Riverkeeper Network

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

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

Assistance type: Quality assurance/quality control

Consultations	10
Trainings/workshops	0
Individuals assisted	6
Stream miles improved	N/A

Assistance provided October 1 – December 31, 2013

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

Assistance provided January 1 – April 10, 2014

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

APPLICANT: Friends of the John Heinz Refuge & Eastwick Neighbors Group

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	5/10/2012
Group membership	200	Scoping meeting	N/A
Watershed	Darby Creek	DEP approval	5/23/2012
Watershed size	77 mi ²	Assistance began	6/1/2012
County	Delaware	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$5,457

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	30
Trainings/workshops	8
Individuals assisted	400
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee with education and outreach and technical help around better floodplain protections for the Darby and Delaware River flood plains to reduce flooding conditions and enhance water quality. An emphasis on preservation of open space is part of this work to elevate the economic driver of the John Heinz National Wildlife refuge which is the largest remaining tidal freshwater wetland in Pennsylvania. This quarter C-SAW has assisted with technical presentations at 4 meetings and 3 strategy sessions. C-SAW also continued assistance regarding the Clearview Landfill and remediation planned for this site along the Darby Creek. Several site tours were conducted along with a video about the issue.

Assistance provided October 1 – December 31, 2013

This quarter C-SAW helped with: coordination of a FEMA public meeting in Eastwick and help with meeting participation and recruitment of the community with the volunteers. CSAW also assisted with tallying of a community survey that included 222 participants regarding flooding concerns. C-SAW also provided info and outreach on a proposed refinery permit in the community where volunteers requested technical help.

Assistance provided January 1 – April 10, 2014

C-SAW is continuing assistance with the Friends of the Heinz Refuge and Eastwick Neighbors Committee with education and outreach and technical help around better floodplain protections for the Darby and Delaware River flood plains to reduce flooding conditions and enhance water quality. An emphasis on preservation of open space is part of this work to elevate the economic driver of the John Heinz National Wildlife refuge which is the largest remaining tidal freshwater wetland in Pennsylvania. This quarter C-SAW helped with: coordination of a FEMA public meeting in Eastwick and help with meeting participation and recruitment of the community with the volunteers. CSAW also assisted with tallying of a community survey that included 222 participants regarding flooding concerns. C-SAW also provided info and outreach on a proposed refinery permit in the community where volunteers requested technical help.

APPLICANT: Friends of Silver Lake Nature Center

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	10/2012
Group membership	600	Scoping meeting	N/A
Watershed	Mill Creek & Otter Creek	DEP approval	1/22/2013
Watershed size	N/A	Assistance began	3/11/2013
County	Bucks	Assistance completed	3/20/2013
In-kind match	N/A	Cost of assistance	\$1,867.50

Assistance provided by: Stroud Water Research Center, Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	13
Trainings/workshops	3
Individuals assisted	42
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Due to success of the first quarter's presentations as part of Silver Lake Nature Center's stewardship program, they have requested additional presentations in their upcoming naturalist training series. This quarter John Nystedt provided a technical presentation in September about stream restoration.

Assistance provided October 1 – December 31, 2013

C-SAW provided a workshop/presentation and field ecological tour for 15 participants that are Master Naturalist Program participants that is being conducted by the Silver Lake Nature Center's stewardship program. Several Bucks County areas were visited as part of the ecological walks.

Assistance provided January 1 – April 10, 2014

C-SAW provided a workshop/presentation and field ecological tour for 15 participants that are Master Naturalist Program participants that is being conducted by the Silver Lake Nature Center's stewardship program last quarter. This quarter follow up to that training was provided.

APPLICANT: Lackawaxen River Conservancy

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	N/A
Group membership	200	Scoping meeting	N/A
Watershed	Lackawaxen River	DEP approval	12/17/2009
Watershed size	598 sq miles	Assistance began	12/1/2009
County	Lackawanna, Pike & Wayne	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$2,311

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	21
Trainings/workshops	4
Individuals assisted	37
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Assistance with gas pipeline E&S violations reporting was provided using visual assessments. Assistance with QAQC was also provided and split sampling via ALLARM was conducted for several new volunteer monitors who were recently trained in visual assessments. Pollution hotline training was also reviewed with the group.

Assistance provided October 1 – December 31, 2013

Assistance with gas pipeline E&S violations reporting was provided using visual assessments. Assistance with QAQC was also provided and split sampling via ALLARM was conducted for several new volunteer monitors who were recently trained in visual assessments. Pollution hotline training was also reviewed with the group post pipeline construction.

Assistance provided January 1 – April 10, 2014

Follow up on reported violations in regard to pipelines crossing the region was conducted with the group. Hotline protocols were provided.

APPLICANT: Little Conemaugh Watershed Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	11/6/2012
Group membership	20	Scoping meeting	N/A
Watershed	Little Conemaugh	DEP approval	11/29/2012
Watershed size	190 mi ²	Assistance began	11/7/2012
County	Cambria	Assistance completed	Ongoing
In-kind match	\$229.73	Cost of assistance	\$7.50

Assistance provided by: Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance and mentoring

Consultations	4
Trainings/workshops	1
Individuals assisted	5
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Coordinated monitoring effort with volunteer and Cambria Co. Conservation District.

Supervised monitoring prep.

Assistance provided October 1 – December 31, 2013

Coordinated monitoring effort with volunteer and Cambria Co. Conservation District.

APPLICANT: Meadowood Nature Preserve/Worcester Elementary School

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	N/A
Group membership	N/A	Scoping meeting	N/A
Watershed	Schuylkill River	DEP approval	6/5/2013
Watershed size	1,920 mi ²	Assistance began	6/5/2013
County	Montgomery	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$399

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	5
Trainings/workshops	1
Individuals assisted	17
Stream miles improved	N/A

Assistance provided October 1 – December 31, 2013

C-SAW conducted a site visit with applicants to share restoration scoping ideas and technical concerns about the site.

Assistance provided January 1 – April 10, 2014

C-SAW coordinated with applicants to share restoration scoping ideas and technical concerns about the site post field day in the fall.

APPLICANT: Pidcock Creek Watershed Association

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2005
Group membership	250	Scoping meeting	N/A
Watershed	Pidcock Creek	DEP approval	9/10/2012
Watershed size	23 miles long	Assistance began	9/10/2012
County	Bucks	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$262

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	5
Trainings/workshops	1
Individuals assisted	15
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Follow up with the students and the watershed group that participated in the training was conducted. Data management options were discussed.

Assistance provided October 1 – December 31, 2013

Follow up with the students and the watershed group that participated in the training was conducted. Data management options were discussed. Kit selection for additional volunteers and technical support was provided to several new students joining the monitoring network for the Pidcock Watershed Association.

APPLICANT: Potter County Conservation District

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/23/2012
Group membership	55	Scoping meeting	N/A
Watershed	Multiple	DEP approval	2/24/2012; 3/21/14
Watershed size	N/A	Assistance began	2/25/2012; 3/13/14
County	Potter	Assistance completed	12/31/2012
In-kind match	\$33.21	Cost of assistance	\$80.00

Assistance provided by: Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance and mentoring

Consultations	4
Trainings/workshops	0
Individuals assisted	1
Stream miles improved	N/A

Assistance provided January 1 – April 10, 2014

Discussed and began planning another macroinvertebrate training for PCCD and its many partners.

APPLICANT: Multiple - Schuylkill Center for Environmental Education, Limerick Township Historical Society, Reading Area Community College, Nolde's Books & Boots

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	N/A - multiple	Scoping meeting	N/A
Watershed	Delaware River	DEP approval	6/11/2013
Watershed size	13,000 mi ²	Assistance began	6/11/2013
County	Multiple	Assistance completed	6/27/2013
In-kind match	N/A	Cost of assistance	\$1,653

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	16
Trainings/workshops	10
Individuals assisted	240
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

C-SAW conducted a several presentations on the Schuylkill River clean during this quarter to educate participants. Combined, over 120 people attended these presentations which varied depending on the audience. Work this quarter included: preparing the presentations, promoting the events with those who requested the talks, and following up with participants.

Assistance provided October 1 – December 31, 2013

C-SAW conducted a rescheduled talk at Nolde's Books & Boots Event (inclement weather cancelled first session) Work included: preparing the presentation, promoting the event with those who requested the talk, and follow up with participants. p

APPLICANT: Stonycreek Conemaugh River Improvement Project

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/14/2011
Group membership	80	Scoping meeting	N/A
Watershed	Little Conemaugh & Stonycreek R	DEP approval	8/4/2011
Watershed size	659 mi ²	Assistance began	9/1/2011
County	Cambria and Somerset	Assistance completed	Ongoing
In-kind match	\$88.56	Cost of assistance	\$62.50

Assistance provided by: Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Mentoring

Consultations	6
Trainings/workshops	0
Individuals assisted	580
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Helped promote improvement of the Little Conemaugh River due to Rosebud's St. Michael AMD Treatment Plant coming online.

Assistance provided January 1 – April 10, 2014

Provided input for Paddle the Que Event.

APPLICANT: The Tincum Conservancy

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	N/A
Group membership	2,300	Scoping meeting	N/A
Watershed	Swamp Creek	DEP approval	3/28/2013
Watershed size	N/A	Assistance began	3/15/2013
County	Bucks	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$3,191.75

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	30
Trainings/workshops	5
Individuals assisted	59
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

C-SAW provided technical assistance to Tincum Conservancy and residents regarding the Swamp Creek riparian corridor management, with a focus on riparian restoration and management of invasive species. This quarter assistance included: coordination and help with coordinated and effective treatment of Japanese knotweed and mile-a-minute weed; multiple field visits and work days to assist the group; assistance with selection of tree protection devices and guards; volunteer training and coordination, planning and assistance for fall work days.

Assistance provided October 1 – December 31, 2013

C-SAW provided technical assistance to Tincum Conservancy and residents regarding the Swamp Creek riparian corridor management, with a focus on riparian restoration and management of invasive species. This quarter assistance included: coordination and help with coordinated and effective treatment of Japanese knotweed and mile-a-minute weed; multiple field visits and work days to assist the group; assistance with selection of tree protection devices and guards; volunteer training and coordination, planning and assistance for fall work days.

Assistance provided January 1 – April 10, 2014

C-SAW provided technical assistance to Tincum Conservancy and residents regarding the Swamp Creek riparian corridor management, with a focus on riparian restoration and management of invasive species. This quarter assistance included: coordination and help with coordinated and ongoing effective treatment options for invasive plants.

APPLICANT: Upper Providence Township, Recreation Department & Friends of Mingo Creek

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	N/A
Group membership	21,219	Scoping meeting	N/A
Watershed	Perkiomen Creek	DEP approval	3/25/2013
Watershed size	N/A	Assistance began	3/4/2013
County	Montgomery	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$485

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	8
Trainings/workshops	1
Individuals assisted	30
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

DRN assisted with recommendations to remediate the existing low-functioning rain garden to improve the project with a retrofit project and participated with on-site field walks with the community to discuss options. A summer species identification walk was conducted with participants in July.

APPLICANT: Villanova University – Stormwater Bioretention Symposium

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	20,000	Scoping meeting	N/A
Watershed	Schuylkill River	DEP approval	9/27/2013
Watershed size	1,920 mi ²	Assistance began	9/27/13
County	Montgomery	Assistance completed	Ongoing
In-kind match	N/A	Cost of assistance	\$1,439

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	3
Trainings/workshops	2
Individuals assisted	20
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

C-SAW presented on technical restoration concepts including rain garden and other infiltration techniques at a Pennsylvania Stormwater Symposium conducted at Villanova University. Over 50 interested people were in attendance. Follow up with several participants was conducted.

Assistance provided October 1 – December 31, 2013

C-SAW presented at the Pennsylvania Stormwater Symposium that was conducted on October 17, 2013 to about 45 attendees. Follow up with several participants has been conducted.

APPLICANT: Bucks County Conservation District

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/10/13
Group membership	County wide	Scoping meeting	N/A
Watershed	N/A - Multiple	DEP approval	2/15/14
Watershed size	N/A	Assistance began	4/5/14
County	Bucks	Assistance completed	4/5/14
In-kind match	\$ 1,879.12	Cost of assistance	\$

Assistance provided by: Pennsylvania Lake Management Society

Assistance type: Watershed-specific technical assistance

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

Requested assistance

BCCD requested assistance with lake management for residents. PALMs assisted with a half day lake workshop and presentation.

Assistance provided April 1 – June 30, 2014

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

APPLICANT: Valley Forge Trout Unlimited

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	10/15/13
Group membership	250+	Scoping meeting	N/A
Watershed	Crabby Creek/Valley Creek	DEP approval	11/12/13
Watershed size	25 sq miles	Assistance began	11/14/13
County	Chester	Assistance completed	N/A
In-kind match	\$	Cost of assistance	

Assistance provided by: Stroud Water Research Center (other assistance provided by DRN in another request)

Assistance type: Watershed-specific technical assistance

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

Assistance provided October 1 – December 31, 2013

Stroud Center scientist Melinda Daniels, a fluvial geomorphologist, met with 4 members of the VFTU chapter in the Crabby Creek watershed. They reviewed the stream geomorphology at three sites within the basin and discussed past restoration approaches. Dr. Daniels then made initial recommendations on future best practices regarding the repair of failing restoration and approaches for new restoration efforts. A general site assessment was also performed to provide the group with context regarding stream channel stability and likely stressors inducing instability in the system.

APPLICANT: Lebanon & Lancaster County Conservation Districts

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	3/31/11
Group membership	N/A	Scoping meeting	N/A
Watershed	Multiple	DEP approval	3/30/11
Watershed size	N/A	Assistance began	4/8/11
County	Lebanon	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$1,000

Assistance provided by:

Assistance type: Watershed-specific technical assistance

Consultations	5
Trainings/workshops	1
Individuals assisted	70
Stream miles improved	N/A

Assistance provided October 1 – December 31, 2013

For the last 10 years, the Watershed Specialists from both Lancaster and Lebanon County Conservation District have hosted a "Lebanon/Lancaster County Watershed Forum." The forum audience consists primarily of volunteers from local watershed and conservation groups. In the past they have also been college students, municipal officials and conservation minded/interested citizens. They generally average 100 people in attendance. The focus of the forums has always been about education and giving attendees tools they can use in their efforts of water quality improvement and/or addressing NPS pollution. Attendees volunteer efforts range from stream assessments, water quality monitoring, to general education and outreach.

The most recent Watershed Forum took place on October 26, 2013 from 9am-12pm at Acorn Farms Reception and Conference Center in Mount Joy, PA. A Stroud educator gave a presentation to 66 volunteers on the basics of stream ecology and introduced participants to the Leaf Pack Experiment as a type of monitoring tool.

APPLICANT: Tobyhanna Creek/Tunkhannock Creek Watershed Group

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2/15/11
Group membership	300	Scoping meeting	N/A
Watershed	Tobyhanna Creek	DEP approval	3/4/11
Watershed size	129 miles squared	Assistance began	3/26/11
County	Carbon, Monroe, & Wayne	Assistance completed	N/A
In-kind match	\$457.50	Cost of assistance	\$1,028.34

Assistance provided by: Pennsylvania Lake Management Society

Assistance type: Watershed-specific technical assistance

Consultations	3
Trainings/workshops	1
Individuals assisted	30
Stream miles improved	129 square miles

Requested assistance

The watershed group requested workshops and assistance with lake monitoring. In addition the group requested assistance with developing management recommendations for the lake based on the water quality data.

Assistance provided July 1 – September 30, 2013

Hanover Engineering prepared for and attended the monthly watershed association meeting and reviewed the proposed grant project and schedule. Hanover also discussed adding other lakes to the scope of work for the training events. They assisted with the preparation of mapping and other materials and equipment necessary for field training at Wagner Lake. They conducted assistance with lake monitoring for water quality, aquatic plant identification and mapping, and bathymetric surveying/mapping. Lastly, Hanover assisted the lake association with processing of laboratory samples and field data that were collected, including conducting a review of the laboratory data and then discussing lake management needs based on the field evaluation work.

APPLICANT: Multiple – Schuylkill Watershed Congress

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/10/13
Group membership	N/A	Scoping meeting	N/A
Watershed	Schuylkill River	DEP approval	12/12/13
Watershed size	N/A	Assistance began	3/12/14
County	Multiple	Assistance completed	3/15/14
In-kind match	\$	Cost of assistance	\$1,500

Assistance provided by: Stroud Water Research Center & Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	1
Trainings/workshops	1
Individuals assisted	50
Stream miles improved	N/A

Assistance provided January 1 – April 10, 2014

One and a half hour seminar provided by Dr. Dave Arscott at the Watershed Congress along the Schuylkill on March 15th, 2014. The title and abstract was as follows:

Title: Getting to know rock snot (*Didymosphenia geminata*): a discussion on the ecology, distribution, and management of an emerging nuisance stream alga

Dave B. Arscott, Ph.D., Stroud Water Research Center, Avondale, PA 19311, *Didymosphenia geminata* (a.k.a., *Didymo* or rock snot) is a nuisance stream alga that has unexpectedly increased in streams and rivers worldwide in recent years. *Didymo* is native to cool temperate regions of the Northern Hemisphere. During rapid periods of growth (blooms), this diatom produces long polysaccharide stalks, and their sometimes thick and prolific, cottony mats can modify stream ecosystems, having influences on other algae, aquatic insects, and biogeochemical processes. *Didymo* mats have a cotton-like texture and tan color that has led to the common name “rock snot.” Rock snot was first noticed as a nuisance alga in New Zealand in 2004, thought to have been introduced to the southern tip of New Zealand’s South Island via trout fishing tourism. Since that time, the alga has also become more noticeable and has spread to many streams throughout North America where it had never been observed, including streams in Pennsylvania, New York, Maryland, Vermont, Virginia, West Virginia, and New Hampshire. As a microscopic organism, it is easily transported on wading and fishing gear as long as some moisture remains with the gear. Research on *Didymo*’s ecology, its impact, distribution and spread, and control options have been extensive in New Zealand and efforts in both NZ and the US to understand why it is now expanding its range and producing prolific bloom conditions are ongoing.

This session will include an introductory seminar leading to discussion on all aspects of *Didymo* ecology and management. Topics will range from current known distribution, vectors for distribution, hygiene protocols for disinfecting gear, education and outreach resources, reporting options, and options for validating its identification.

Delaware Riverkeeper Network’s John Nystedt also conducted an infiltration and stormwater workshop at the Congress. Over 40 people attended the stormwater session.

APPLICANT: Tyler Arboretum

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/1/13
Group membership	3,000	Scoping meeting	N/A
Watershed	Chester Creek	DEP approval	1/8/14
Watershed size	N/A	Assistance began	1/8/14
County	Delaware	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$2,000

Assistance provided by: Stroud Water Research Center

Assistance type: Watershed-specific technical assistance

Consultations	4
Trainings/workshops	2
Individuals assisted	10
Stream miles improved	N/A

Assistance provided October 1 – December 31, 2013

Tyler Arboretum received a grant from 3M to provide watershed and stream ecology programs to local public school students. Although they have a strong group of part-time educators, they find their educators are in need of training and asked Stroud educators to provide this training. The workshop will focus on determining collection sites, macroinvertebrate collection and identification, water chemistry training, reading topographic maps in effort to understand water quality issues, and assistance with the set up of data record keeping and data analysis.

In the future, they would like to pursue other C-SAW assistance, specifically in regards to restoration of a first order stream on their property.

Assistance provided January 1 – April 10, 2014

2/18/14 - Two hours of C-SAW introduction and review in preparation for meeting with Martha Moore and Amy Mawby of Tyler Arboretum including review of all e-mail exchanges and applications.

2/19/14 - Travel to Tyler Arboretum for discussion of grant (3-M and Honda), Arboretum property use and teacher workshops for the summer.

3/19/14 – Provided macro identification and stream ecology program to 5 Arboretum naturalists. Essentially the naturalists participated in our school stream program. Program included discussions about teaching methods that Stroud uses to teach our stream program. Purpose of these discussions was to broaden the Arboretum naturalists in their general stream knowledge to facilitate teaching their stream programs.

APPLICANT: Green Wood Charter School

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	3/19/14
Group membership	>600	Scoping meeting	N/A
Watershed	Schuylkill/Delaware	DEP approval	5/5/14
Watershed size	N/A	Assistance began	3/26/14
County	Philadelphia	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$3,000

Assistance provided by: Stroud Water Research Center

Assistance type: Watershed-specific technical assistance

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

Assistance provided January 1 – April 10, 2014

On 26 March, D. Arscott met with Jean Wallace, CEO of Green Woods Charter School in NE Philly to discuss how C-SAW could assist them in recovering their landscape from construction of their new school and promote a healthy ecosystem surrounding their storm water pond and stream and monitoring advice. It was determined that Stroud could provide assistance to them with suggestions about riparian re-forestation, aquatic plant establishment/additions, and monitoring protocols. They are located atop the watershed divide between Wissahickon Creek and the Schuylkill River.

APPLICANT: Buffalo Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	7/8/13
Group membership	30	Scoping meeting	N/A
Watershed	Buffalo Creek (Ohio)	DEP approval	7/9/13
Watershed size	164 sq miles	Assistance began	7/23/13
County	Washington	Assistance completed	N/A
In-kind match	\$ 1,201.30	Cost of assistance	\$694.88

Assistance provided by: Conemaugh Conservancy/Kiski Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance

Consultations	16
Trainings/workshops	1
Individuals assisted	39
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Buffalo Creek WA and others are working with West Virginia Water Research Institute to monitor waterways in the Ohio River Basin. These groups are looking for assistance expanding their monitoring program, engaging and training new and existing volunteers, deploying data loggers, adding macroinvertebrate monitoring to their program, addressing QA/QC concerns, equipment selection, and more. CVC shared a volunteer recruitment and retention strategy with the group, reviewed BCWA's Water Monitoring Program Plan, and had several consultations regarding equipment, monitoring site selection, volunteer engagement, etc. On September 28, CVC led a training on water monitoring.

Assistance provided October 1 – December 31, 2013

CVC provided several consultations with BCWA's president and led a macroinvertebrate collection and ID training October 5. Follow-up communication focused on macros, grant opportunities, and upcoming trainings.

Assistance provided January 1 – April 10, 2014

Provided information on funding, training, and networking opportunities.

APPLICANT: Watershed Alliance of Green County

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	12/2013
Group membership		Scoping meeting	N/A
Watershed	Ohio River Basin	DEP approval	12/23/13
Watershed size	338 sq miles	Assistance began	Spring, 2014
County	Green	Assistance completed	N/A
In-kind match	\$	Cost of assistance	

Assistance provided by: U.S. Geological Survey

Assistance type: Watershed-specific technical assistance

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

Requested assistance

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

Assistance provided October 1 – April 10, 2014

A reconnaissance visit is planned in Spring 2014. Assistance has consisted of a number of phone consultations for coordination and planning.

APPLICANT: Schuylkill County Conservation District

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	10/28/13
Group membership		Scoping meeting	N/A
Watershed	Susquehanna River (Mill Creek)	DEP approval	11/20/13
Watershed size	25.53	Assistance began	11/20/13
County	Schuylkill	Assistance completed	N/A
In-kind match	\$	Cost of assistance	

Assistance provided by: US Geological Survey

Assistance type: Watershed-specific technical assistance

Consultations	
Trainings/workshops	
Individuals assisted	
Stream miles improved	

Requested assistance

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

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

Assistance provided July 1, 2013– April 10, 2014

The request-to-proceed was granted by Cheryl Snyder of DEP on November 20, 2013. A scoping meeting on Mill Creek was held Jan. 7, 2014, Future activity for installation of weir and staff plates with associated training on proper flow measurement methods will take place in the spring.

APPLICANT: West Chester University

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	2/2014
Group membership		Scoping meeting	N/A
Watershed	Delaware (Plum Run)	DEP approval	3/12/14
Watershed size	3.7	Assistance began	3/12/2014
County	Chester	Assistance completed	N/A
In-kind match	\$	Cost of assistance	

Assistance provided by: US Geological Survey

Assistance type: Watershed-specific technical assistance

Consultations	6
Trainings/workshops	0
Individuals assisted	5
Stream miles improved	

Requested assistance

WCU is working with Brandywine Valley Association and Stroud Water Research Center to monitor the performance of stream restoration projects in Chester County. WCU students will semi-continuously monitor turbidity, suspended sediment, and streamflow over a range of conditions in the Plum Run Basin; data collection will be conducted at an existing weir located near the confluence with Brandywine Creek. Ultimately field measurements will be compared to sediment yields estimated using MapShed, a GIS-based watershed modeling tool developed by Penn State University. The project will be conducted over a two-year period.

The procedure will closely follow guidelines developed by staff at the USGS. Two sensors will be installed to collect turbidity and water depth data. The turbidity data will be converted to suspended solids concentration by simple linear regression, requiring approximately 20 samples during base flow and storm events during the two year study to obtain suspended solids concentrations. Similarly, 20 direct measurements of stream flow discharge through the weir will be used to calibrate the weir for stream flow based on water depth. Finally, suspended solid concentration will be multiplied by discharge to determine sediment export from the stream, calculated per year, by season, and by storm event. Effectively, this provides estimates of sediment export for comparison with MapShed estimates of sediment input.

Assistance through C-SAW is requested to train students conducting the monitoring to: 1) properly install, operate and maintain turbidity sensors, 2) identify appropriate locations for streamflow and stage measurement, and 3) conduct streamflow measurements. Under this C-SAW request, the USGS would provide instruction and support in conducting all three tasks. Subsequent to instruction, WCU students would install additional staff plates and make streamflow measurements, using knowledge transferred from USGS.

Assistance provided October 1, 2013– April 10, 2014

Assistance consisted of email and phone correspondence in February and early March. Field work is planned for Spring 2014.

APPLICANT: Arrow Head Chapter of Trout Unlimited

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	6/27/13
Group membership	230	Scoping meeting	N/A
Watershed	N/A all in Armstrong Co.	DEP approval	10/18/13
Watershed size	N/A	Assistance began	10/21/13
County	Armstrong	Assistance completed	N/A
In-kind match	\$2,736.90	Cost of assistance	\$2,433.57

Assistance provided by: Conemaugh Valley Conservancy/Kiski Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance

Consultations	16
Trainings/workshops	2
Individuals assisted	31
Stream miles improved	

Assistance provided October 1 – December 31, 2013

The Arrow Head Chapter of Trout Unlimited received a mini-grant from the Three Rivers Quest, a program of the West Virginia Water Research Institute that is expanding its Mon River Quest program into the Ohio River Basin, which includes much of Western PA. Arrow Head TU requested assistance with using data loggers to expand their monitoring program, engaging and training new and existing volunteers, deploying data loggers, adding macroinvertebrate monitoring to their program, addressing QA/QC concerns, choosing proper equipment, and more. CVC led a training with members and partners on November 9 and helped install a logger.

Assistance provided January 1 – April 10, 2014

The Conemaugh Valley Conservancy provided a PowerPoint presentation to Arrow Head TU members discussing how to identify macroinvertebrates, their importance and indication of water quality, and how fishermen use flies to mimic nature.

APPLICANT: Chartiers Creek Watershed Association

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	7/8/13
Group membership	23	Scoping meeting	N/A
Watershed	Chartiers Creek	DEP approval	7/9/13
Watershed size	139 sq miles	Assistance began	7/23/13
County	Washington	Assistance completed	N/A
In-kind match	\$ 1,201.30	Cost of assistance	\$753.83

Assistance provided by: Conemaugh Valley Conservancy/Kiski-Conemaugh Stream Team

Assistance type: Watershed-specific technical assistance

Consultations	20
Trainings/workshops	1
Individuals assisted	32
Stream miles improved	N/A

Assistance provided July 1 – September 30, 2013

Chartiers Creek WA and others are working with West Virginia Water Research Institute to monitor waterways in the Ohio River Basin. These groups are looking for assistance expanding their monitoring program, engaging and training new and existing volunteers, deploying data loggers, adding macroinvertebrate monitoring to their program, addressing QA/QC concerns, equipment selection, and more. CVC shared a volunteer recruitment and retention strategy with the group, reviewed CCWA’s Water Monitoring Program Plan, and had several consultations regarding equipment, monitoring site selection, volunteer engagement, etc. On September 28, CVC led a training on water monitoring.

Assistance provided October 1 – December 31, 2013

CVC provided several consultations with CWA’s president and led a macroinvertebrate collection and ID training October 5. Follow-up communication focused on macros, grant opportunities, and upcoming trainings.

Assistance provided January 1 – April 10, 2014

Shared information about funding, training, and networking opportunities and discussed riparian buffer training scheduled for later this year.

APPLICANT: Friends of Toms Creek

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	9/25/13
Group membership	50	Scoping meeting	N/A
Watershed	Toms Creek	DEP approval	10/24/13
Watershed size		Assistance began	10/29/13
County	Adams	Assistance completed	N/A
In-kind match	N/A	Cost of assistance	

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

Assistance type: Watershed-specific technical assistance

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

Assistance provided July 1 – September 30, 2013

The Friends of Toms Creek contacted ALLARM for help with stream monitoring. There is a mining operation proposed in their forested watershed and would like to begin collecting baseline data prior to any activities taking place. ALLARM plans to attend their next monthly meeting to learn more about the group and their goals.

Assistance provided October 1 – December 31, 2013

ALLARM attended two meetings and had several phone calls with members of the Friends of Toms Creek to learn more about the needs of the group. They are interested in beginning a volunteer stream monitoring program and have decided to begin the study design process. ALLARM facilitated one study design session this quarter and will continue next quarter.

Assistance provided January 1 – April 10, 2014

ALLARM helped the Friends of Tom’s Creek develop a watershed map in order to help choose monitoring locations as part of the study design process. The group is still working on developing their volunteer monitoring program.

APPLICANT: Ithan Elementary School PTO Green Committee

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	2012
Group membership	15	Scoping meeting	N/A
Watershed	Darby-Cobbs Creek	DEP approval	8/22/13
Watershed size	13,000	Assistance began	8/23/13
County	Montgomery	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$200

Assistance provided by: Delaware Riverkeeper Network
Assistance type: Watershed-specific technical assistance

Consultations	3
Trainings/workshops	0
Individuals assisted	6
Stream miles improved	N/A

Requested assistance

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.

Assistance provided July 1 – September 30, 2013

Several calls and emails between PTO members and DRN related to improvements needed for the rain garden and anticipated next steps led by the community.

Assistance provided October 1 – December 31, 2013

During this quarter, restoration planning assistance to the committee was conducted via email.

APPLICANT: Bucks County Montesorri Charter School

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	6/2013
Group membership	500	Scoping meeting	N/A
Watershed	Martins Creek (Delaware Basin)	DEP approval	8/23/13
Watershed size	13,000 sq miles	Assistance began	8/23/13
County	Bucks	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$1,525

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	8
Trainings/workshops	2
Individuals assisted	15
Stream miles improved	N/A

Requested assistance

- Training for stream health monitoring for new citizen monitors & students
- Walking the stream with the group to assist group in identifying habitat and stormwater improvement projects they should prioritize and focus on that will improved water quality and lessen stormwater impact
- Advise on trail access to Creek while also preserving a healthy native corridor
- Training and capacity building during volunteer workday(s)

Assistance provided July 1 – September 30, 2013

Assistance on project planning and group coordination was conducted this quarter. CSAW provided a technical review of restoration and education opportunities available to the group.

Assistance provided October 1 – December 31, 2013

DRN walked the stream with the group to assist group in identifying habitat and stormwater improvement projects they should prioritize and focus on that will improve water quality and lessen stormwater impacts. Assistance on project planning and group coordination was conducted this quarter with site visits and two workshops and presentations provided to 35 interested students at the Montesorri School.

APPLICANT: Morrisville Borough and Morrisville EAC

Applicant information:		Procedure information:	
New group?	No	Initial contact with group	2010
Group membership	10,023	Scoping meeting	N/A
Watershed	Delaware River	DEP approval	3/1/2011
Watershed size	13,000 sq miles	Assistance began	3/1/2011
County	Bucks	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$1,325.25

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	21
Trainings/workshops	1
Individuals assisted	45
Stream miles improved	1 acre

Assistance provided July 1 – September 30, 2013

Follow up site visits to help assess the success of invasives control and restoration was conducted with volunteers in July. C-SAW provided additional technical assistance and follow up based on the status of the riparian buffer area. Assistance with project coordination also.

Assistance provided October 1 – December 31, 2013

C-SAW provided additional restoration technical assistance and follow up based on the status of the riparian buffer area.

Assistance provided January 1 – April 10, 2014

C-SAW provided additional restoration technical assistance and follow up based on the status of the riparian buffer area. Work included:

- Call with Morrisville EAC members to review species planting list
- Planning for 2014 restoration TA
- Coordination with MEAC

APPLICANT: Keystone Canoe Club

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	500	Scoping meeting	N/A
Watershed	Schuylkill (Delaware)	DEP approval	10/29/13
Watershed size	1,900 sq miles	Assistance began	10/29/13
County	Philadelphia	Assistance completed	12/30/13
In-kind match	N/A	Cost of assistance	\$530

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	3
Trainings/workshops	1
Individuals assisted	30
Stream miles improved	N/A

Requested assistance

The Keystone Canoe Club was organized in 1973 in an effort to promote the sports of canoeing and kayaking. They address the needs of paddlers, with an emphasis on enjoying the water safely and protecting the environment. The club holds monthly meetings where they present programs to inform paddlers about river issues.

Background of project: The Keystone Canoe Club (Reading, PA) has requested CSAW technical assistance to increase understanding of the environmental history of the Schuylkill River watershed. Specifically, KCC has requested DRN present a program on the Schuylkill River cleanup for its members on November 26th, 2013, in Reading, PA.

Proposed C-SAW Assistance Requested:

- Present technical information at public meeting, including causes of pollution, environmental regulation, river restoration techniques.
- Provide educational materials including list or resources to read, brochures on streamside management, native plants, and restoration.

Assistance provided October 1 – December 31, 2013

C-SAW provided a presentation to the Canoe Club on 12/29/13 (a reschedule from the original December date due to inclement weather) about the restoration clean up of the Schuylkill River and the impact of coal to the region. Information about riparian restoration and the importance of buffers was also included in this presentation.

APPLICANT: Springford Area Historical Society

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	50	Scoping meeting	N/A
Watershed	Schuylkill (Delaware)	DEP approval	3/18/14
Watershed size	1,900 sq miles	Assistance began	3/18/14
County	Montgomery	Assistance completed	N/A
In-kind match	\$	Cost of assistance	\$14.25

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	3
Trainings/workshops	0
Individuals assisted	4
Stream miles improved	N/A

Requested assistance

The Spring Ford Area Historical Society promotes and develops information of historical value for the people of the Spring-Ford area, to include - but not limited to - research, publication, acquisition and preservation of property throughout the area.

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

Proposed C-SAW Assistance Requested:

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

Assistance provided January 1 – April 10, 2014

DRN coordinated with the school on logistics for talk in April to be most effective and tailored to audience.

APPLICANT: Mifflin Writers Group

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	1/5/14
Group membership	1,000	Scoping meeting	N/A
Watershed	Schuylkill River Basin	DEP approval	1/15/14
Watershed size	1,900 sq miles	Assistance began	1/15/14
County	Berks	Assistance completed	3/21/14
In-kind match	N/A	Cost of assistance	\$436.91

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

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

Requested assistance

The Mifflin Writers' Group has both a Fiction and Non-Fiction section, and they meet on rotating weeks. The group is for writers to encourage other writers to practice and polish their craft in all genres: fiction, memoir, creative nonfiction, poetry and essay.

Background of project: The Mifflin Writers' Group (Berks County, PA) has requested CSAW technical assistance to increase understanding of the environmental history of the Schuylkill River watershed, as well as the process of researching, writing environmental information. MWG has requested DRN present a program for tis members on the Schuylkill River cleanup as well as on researching and writing environmental history on March 20th, 2014 in Shillington, PA.

Proposed C-SAW Assistance Requested:

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

Assistance provided January 1 – April 10, 2014

DRN tailored and presented to the group in March. Ten people were in attendance.

APPLICANT: West Wayne Preserve & BoyScout Troop 284

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	3,000	Scoping meeting	N/A
Watershed	Schuylkill (Delaware)	DEP approval	3/2014
Watershed size	1,900 sq miles	Assistance began	3/11/14
County	Multiple	Assistance completed	N/A
In-kind match	N/A	Cost of assistance	\$85.50

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	4
Trainings/workshops	0
Individuals assisted	25
Stream miles improved	N/A

Requested assistance

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

Proposed Scope:

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

Assistance provided January 1 – April 10, 2014

Initial talks and coordination with the groups were conducted by John Nystedt

APPLICANT: Upper Delaware Bioblitz & Delaware Highlands Conservancy

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	10/1/13
Group membership	4,000	Scoping meeting	N/A
Watershed	Delaware	DEP approval	1/15/14
Watershed size	13,000 sq miles	Assistance began	1/15/14
County	Multiple	Assistance completed	N/A
In-kind match	N/A	Cost of assistance	\$345

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	14
Trainings/workshops	0
Individuals assisted	40
Stream miles improved	

Requested assistance

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

Assistance provided January 1 – April 10, 2014

DRN participated in several planning calls and helped recruit members to the aquatic macroinvertebrate sampling team. The Boyscout camp was secured for the Bioblitz location. DRN also assisted with filling the botany team leaders.

APPLICANT: Valley Forge Trout Unlimited

Applicant information:		Procedure information:	
New group?	Yes	Initial contact with group	N/A
Group membership	1,000	Scoping meeting	N/A
Watershed	Schuylkill River Basin	DEP approval	10/29/13
Watershed size	1,900 sq miles	Assistance began	10/29/13
County	Chester	Assistance completed	N/A
In-kind match	N/A	Cost of assistance	\$765

Assistance provided by: Delaware Riverkeeper Network

Assistance type: Watershed-specific technical assistance

Consultations	4
Trainings/workshops	2
Individuals assisted	60
Stream miles improved	N/A

Requested Assistance

Background on CSAW Applicant: Valley Forge Chapter of Trout Unlimited is dedicated to preserving, protecting, and restoring trout habitat throughout Chester County, Pennsylvania. Its 800-plus members and affiliates are engaged in the fight to preserve our precious coldwater resources. Valley Forge Trout Unlimited has requested CSAW technical assistance to increase understanding of the environmental history of the Schuylkill River watershed. Specifically, VFTU has requested DRN present a program on the Schuylkill River cleanup for its members on December 12th, 2013, in Exton, PA.

Assistance Provided October 1 – December 31, 2013

C-SAW conducted a presentation on December 12, 2013 for the PVTU membership. C-SAW presented technical information including causes of pollution, environmental regulation, river restoration techniques for the Schuylkill River related to anthracite coal mining impacts.

Assistance provided January 1 – April 10, 2014

C-SAW conducted a presentation on December 12, 2013 for the PVTU membership. C-SAW presented technical information including causes of pollution, environmental regulation, river restoration techniques for the Schuylkill River related to anthracite coal mining impacts. Out of this presentation in December came an additional need and request related to sewage pollution from in Valley Forge State park from a sewer main break which DRN is assisting with. Letters to improve infrastructure in the region to avoid additional sewer main breaks were drafted and submitted.

Quality Assurance/Quality Control: 7/1/2013 – 4/10/2014

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

	Jul – Sep 2013	Oct – Dec 2013	Jan – Mar 2014	Apr 1 – 10, 2014	Total
Groups assisted	2	2	4	2	4
Individuals assisted	24	27	35	11	97
Water samples processed	284	324	448	132	1,188

Month	Group	Parameters								# of Monitors	# of Samples	
		Alkalinity	Chloride	Conductivity	Nitrate	pH	Phosphorus	Total Dissolved Solids	Turbidity			Other
July 2013	PA Council of Trout Unlimited			X		X		X			2	24
August 2013	PA Council of Trout Unlimited			X		X		X			11	132
August 2013	God's Country Waterdogs			X				X			1	8
September 2013	God's Country Waterdogs			X		X		X			9	108
September 2013	PA Council of Trout Unlimited			X		X		X			1	12
October 2013	PA Council of Trout Unlimited			X		X		X			16	192
October 2013	God's Country Waterdogs			X		X		X			3	36
December 2013	PA Council of Trout Unlimited			X		X		X			8	96
February 2014	God's Country Waterdogs			X				X			1	8
February 2014	PA Council of Trout Unlimited			X		X		X			2	24
March 2014	God's Country Waterdogs			X				X			3	36
March 2014	PA Council of Trout Unlimited			X		X		X			10	120
March 2014	Antietam Watershed Association	X			X	X	X		X		8	128
March 2014	Ridge and Valley Streamkeepers	X			X	X			X		11	132
April 1-10, 2014	PA Council of Trout Unlimited			X		X		X			4	48
April 1-10, 2014	God's Country Waterdogs			X				X			7	84
Total	4 groups										97	1,188