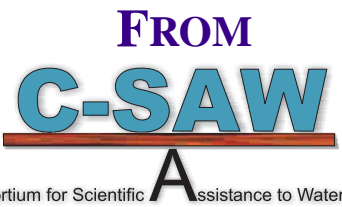


# QUALITY-CONTROL ASSISTANCE FOR WATERSHEDS



## INTRODUCTION

How good are the data you collect in your water-quality monitoring programs? Don't know? Many organizations are unable to use data if they can't verify the quality of those data. Would you be comfortable spending thousands and even tens of thousands of dollars on treatment systems that are designed using data that have not been quality assured?

Quality assurance and quality control should be essential components of any water-quality monitoring program. To help local watershed groups achieve their goals of watershed protection, several organizations have joined forces to form the Consortium for Scientific Assistance to Watersheds (C-SAW).

C-SAW is a team of scientists available to provide technical assistance to your watershed group. Depending on the needs of your group, C-SAW can provide technical assistance in three main areas including Quality-Control Assistance, Watershed-Specific Technical Assistance, and Mentoring Assistance. **C-SAW assistance is provided at no cost to eligible groups.**

This fact sheet explains the quality-control component of C-SAW and how watershed-monitoring programs can receive assistance in their quality-control programs for water chemistry and macroinvertebrate identifications.

## C-SAW REPRESENTATIVES

The consortium consists of many individuals, who are considered experts in the field of watershed studies and assessments, working for the following organizations:

- Alliance for Aquatic Resource Monitoring (ALLARM)
- Delaware Riverkeeper Network (DRN)
- Pennsylvania Association of Resource Conservation and Development Councils (RC&D's)
- Pennsylvania Lake Management Society (PALMS)
- Stroud Water Research Center (Stroud)
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)
- U.S. Geological Survey (USGS)
- Western Pennsylvania Coalition for Abandoned Mine Reclamation (WPCAMR)
- Wilkes University–Center for Environmental Quality

## QUALITY-CONTROL ASSISTANCE

Quality-control technical assistance will be provided to selected watershed organizations across the state for water chemistry and macroinvertebrate identification. This will help ensure that the data collected by the watershed organizations through volunteer monitoring programs are of known quality. The quality-control technical assistance is limited by the availability of resources. When your watershed organization applies you will be contacted by C-SAW to discuss your needs.

## Water Analysis

Two types of quality control for water analysis are available through C-SAW, split-sample analysis and blind sample analysis. For split samples, the results obtained by the volunteer will be compared with results from the laboratory at ALLARM or Wilkes University. For blind samples, results from volunteers will be compared to known values. Based on the deviation from the laboratory or known value, results will be reported to the monitors. Individuals who have poor agreement with the lab or with the known value will be provided with suggestions to improve their technique and will be encouraged to submit another sample for split testing or will be sent another set of blind samples for analysis. Re-training will also be encouraged, through a combination of assistance from monitors within the same group who achieved a closer agreement with the lab, written feedback, and training workshops.

### 1. Split-Sample Analysis for Water

ALLARM and Wilkes University will help groups to assure data quality through split sampling. In

this program, volunteers will collect a sample, split the sample into two parts, and conduct field measurements on one of the portions. The other portion of the split sample will be sent to either ALLARM's Community Aquatic Research Laboratory or Wilkes University Center for Environmental Quality Laboratory. In the lab,



ALLARM staffer conducts quality-control check on a water sample.

University will analyze the sample using the same equipment types as the volunteer used and where applicable more sophisticated analysis methods. Split samples will be analyzed for any of the following parameters by ALLARM: pH, alkalinity, turbidity, conductivity, orthophosphate, total phosphorus, nitrate-nitrogen, sulfate, total iron, and dissolved iron. In addition, Wilkes University can conduct split sample analyses for general water-quality parameters, chlorophyll, nutrients, sediment, trace metals, and selected microbiological parameters. ALLARM or Wilkes University will provide collection bottles and containers for shipping samples and cover shipping costs.

### 2. Blind Sample Analysis for Water

Another quality-assurance component of this project is to provide blind-sample testing for field personnel. Under this component, samples with a known pH, specific conductance, or alkalinity will be prepared in the USGS laboratory in Denver, Colorado. Volunteer monitors may request these blind samples for their analysis. No information about the actual chemical values will be provided to the volunteers; hence, they are called blind samples. The volunteers will analyze the blind samples and report the results. Follow-up will be provided by the USGS.

**Macroinvertebrate Identification**

The Stroud Center will provide a quality-control component for macroinvertebrate identification. Macroinvertebrate samples that are collected, identified, and counted by watershed monitors will be shipped to the Stroud Water Research Center in Avondale, Pa., for verification of the field identifications. Staff at the Stroud Center will re-identify the organisms to the taxonomic level being used by the watershed monitoring group, confirm the counts, and report their findings to the field monitors. Specimens will be labeled and returned, and additional follow-up will be provided as needed.



Quality-control assistance is available for macroinvertebrate identifications.

**WHO IS**

**ELIGIBLE?**

Parties eligible to apply for Growing Greener Grants are eligible to receive assistance through C-SAW. Eligible parties include watershed organizations recognized by the Pennsylvania Department of Environmental Protection (PADEP) and established to promote local watershed-conservation efforts in an identified watershed; counties, municipalities, and their subdivisions; county conservation districts; and charitable organizations or educational institutions involved in research, restoration, rehabilitation, planning, acquisition, development, or other activities that further the protection, enhancement, conservation, and preservation of Pennsylvania’s environmental resources. In addition, the project must be one that addresses nonpoint sources of pollution, mining restoration, or oil and gas well plugging. Specific details are available at the Growing Greener web site:

<http://www.depweb.state.pa.us/growinggreener/site/default.asp>

If you are unsure whether your organization is eligible, contact the RC&D Council in your area.



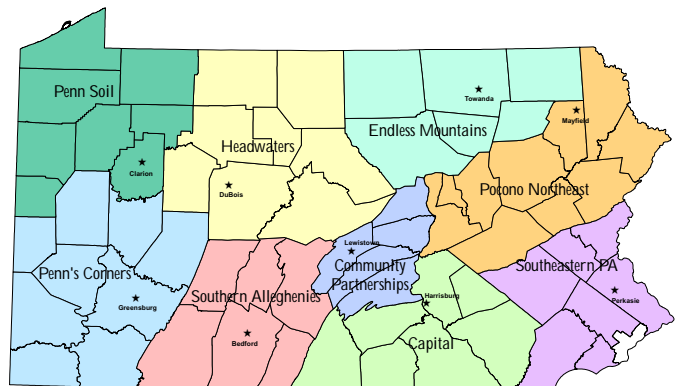
Both split-sample analyses and blind-test samples are quality -ontrol options offered through C-SAW.

**HOW TO REQUEST ASSISTANCE**

To obtain assistance, please contact the RC&D Council in your area. The RC&D Councils are nonprofit organizations authorized by the U.S. Department of Agriculture to provide administrative support to watershed groups across the state. The RC&D Council in your area will give you instructions for filling out a C-SAW one-page application for assistance. If you are unsure of the appropriate RC&D contact, you may call the Pocono Northeast RC&D and they will put you in contact with the correct office.

**Contact Information**

Capital Area RC&D	717-724-0009
Endless Mountains RC&D	570-265-5288 ext. 5
Headwaters RC&D	814-375-1372 ext. 4
Community Partnerships RC&D	717-248-4901
Penn Soil RC&D	814-226-8160 ext. 5
Penn’s Corner RC&D	724-834-9063 ext. 3
Pocono Northeast RC&D	570-282-8732 ext. 4
Southeastern PA RC&D	215-453-9527 ext. 5
Southern Alleghenies RC&D	814-623-7900 ext. 5



**HOW DO WE FIND OUT MORE?**

Visit the C-SAW web site at:

<http://pa.water.usgs.gov/csaw/>

*NOTE: This project is funded in part by a Growing Greener Grant provided by the Pennsylvania Department of Environmental Protection (PADEP). The views herein are those of the authors and do not necessarily reflect the views of the PADEP.*

