

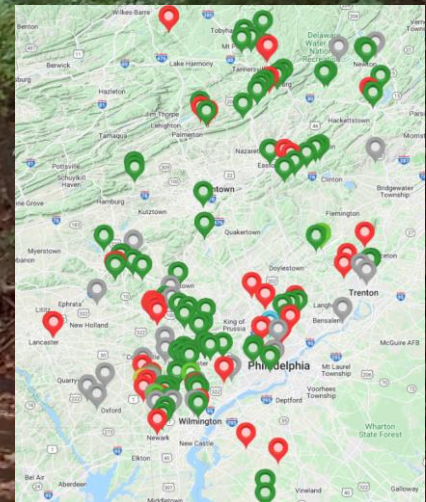
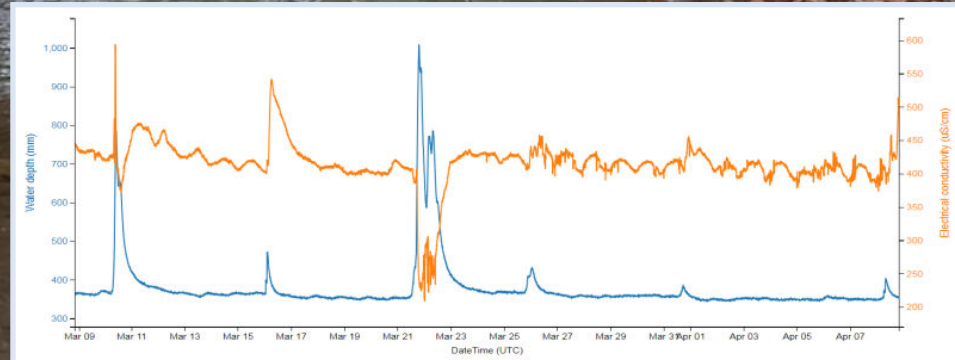
WELCOME!

Monthly EnviroDIY in the DRB User Group Meeting

Online, Thursday, November 17, 2022, 2:30-3:30p



 **Monitor My Watershed®**



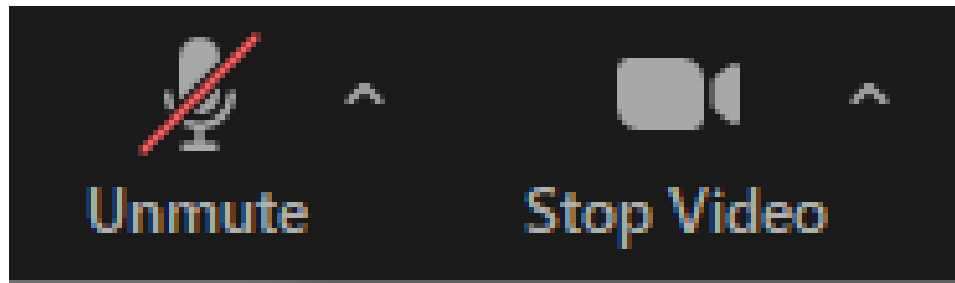
STROUD
WATER RESEARCH CENTER



Zoom Orientation



***Meeting is being recorded**



***Mute unless asking question**

These Monthly Meetings

Recordings available at: <https://wikiwatershed.org/drwi/>

YouTube

Search

WELCOME!
Monthly EnviroDIY-DRWI User Group Meeting
Online, Thursday February 17, 2021, 2:30-3:30p

EnviroDIY

Monitor My Watershed®

STROUD

February 2022 EnviroDIY-DRWI Monthly Meeting

24 views • Feb 17, 2022

1 DISLIKE SHARE SAVE ...

Stroud Water Research Center Videos
571 subscribers

SUBSCRIBE

These Monthly Meetings

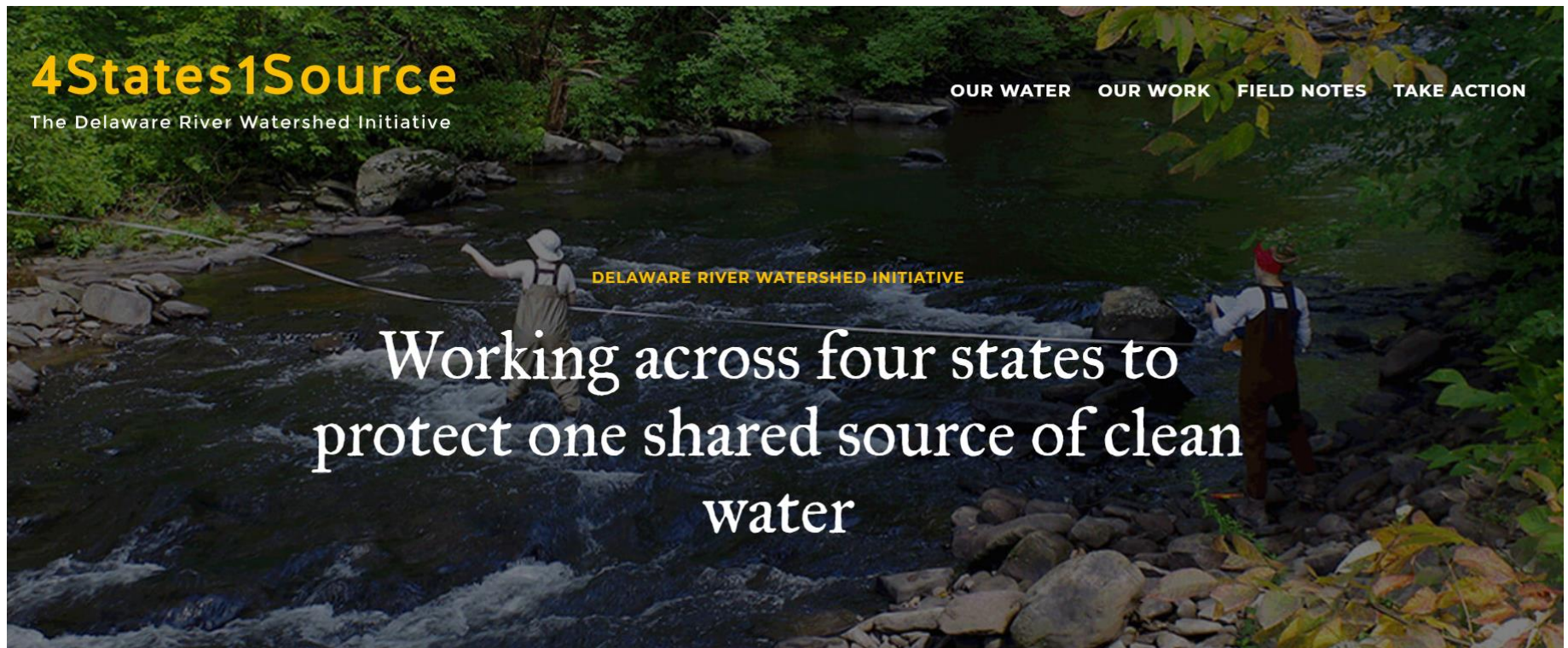
- Every third Thursday of the month
- 2:30-3:30p
- Zoom link will remain the same:
<https://us02web.zoom.us/j/81881801310?pwd=eUFmbXZLbmRibVcxa1dtNVhzRmNvZz09>
- Reminder email one week prior to each month's meeting
 - All are welcome, please share
 - **And let us know if others should be added**

REMINDER

- Attendees include:
 - Groups working in Delaware River Watershed Initiative (DRWI)
 - Groups working in Delaware River Basin (DRB) but not DRWI
 - Folks from outside the DRB
- Stroud Center support via DRWI and C-SAW

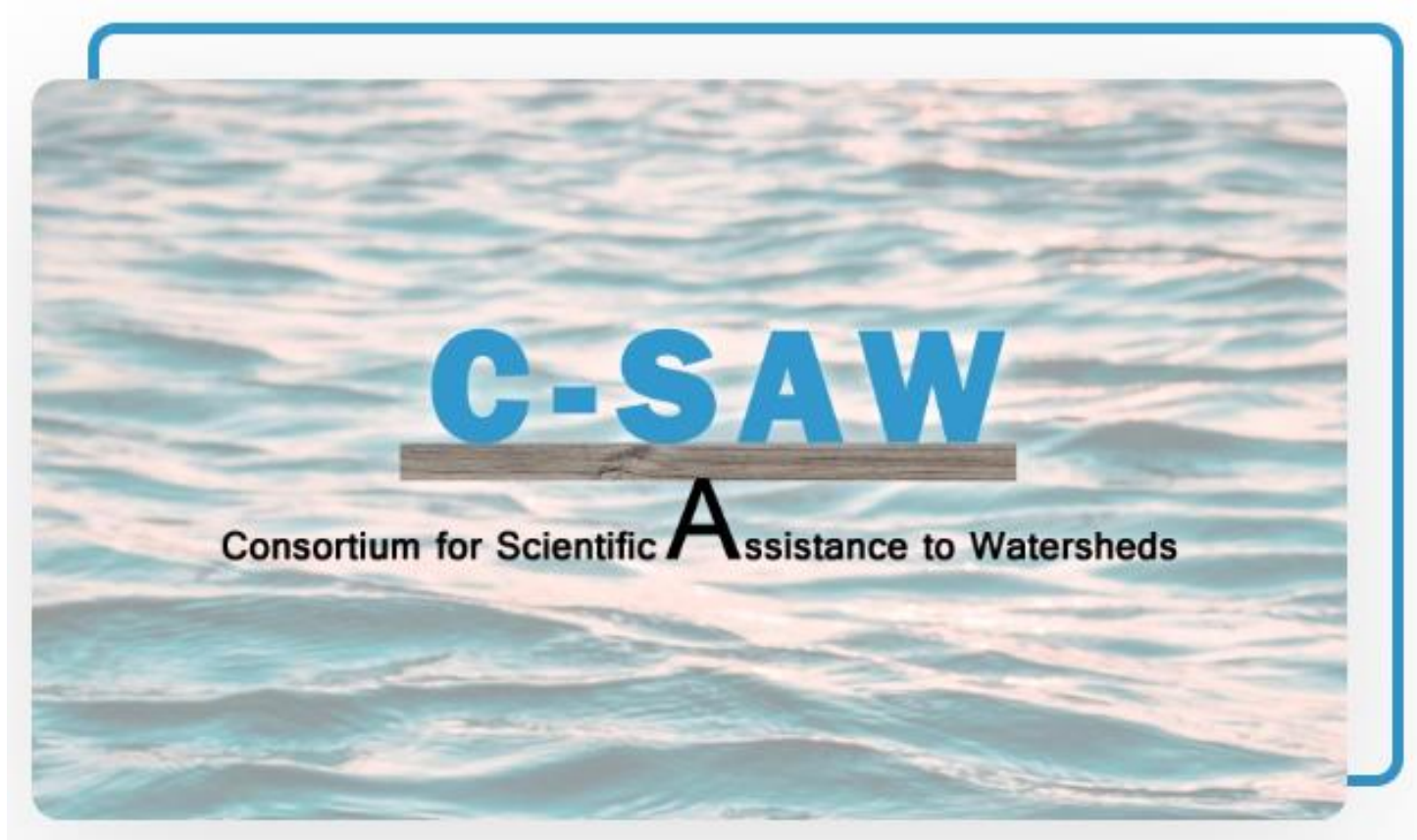
Delaware River Watershed Initiative (DRWI)

<https://4states1source.org/>



C-SAW

<https://www.c-saw.info/>



Goals for these monthly meetings

- **Time to check-in, ask questions, report issues, network, etc.**
- **Updates** from the Stroud Center
- **Presentations**
 - **Station Owner/Manager Presentations** – communicate about individual situations, local watershed work
 - **Focus Topic Presentations** – guest presenters talk about technical/ecological/other focus topics

****All of this to support gathering good data and using it purposefully***

Stroud Center project personnel

Stroud Center Facilitators:

David Bressler



Project facilitator

Rachel Johnson



Research Engineer
Technician

Christa Reeves



Northern DRB
technician and
organization
collaborator

Shannon Hicks



Research Engineer,
Mayfly and EnviroDIY
Inventor/Designer



Elena Hadley
Part-Time Environmental Educator
Research Technician

Stroud Center project personnel

Master Watershed Steward Facilitators:

Carol Armstrong



George Seeds



Master Watershed
Steward Program



PennState Extension

Stroud Center project personnel

Stroud Center DRWI Leads:

Dr. John Jackson



Senior Research Scientist

Matt Ehrhart



Director of Watershed Restoration

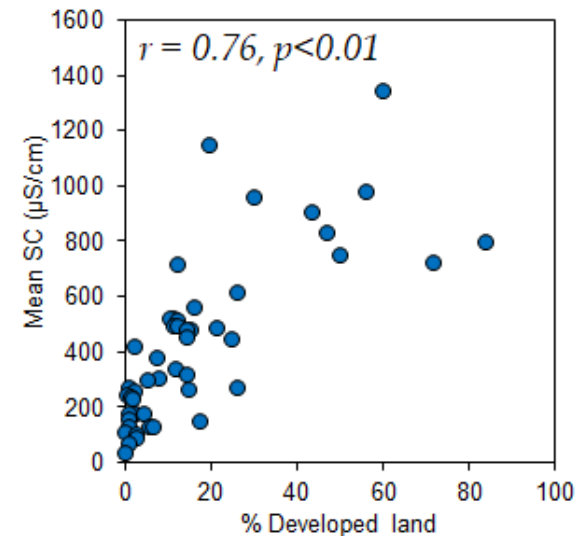
Dr. David Arscott



Executive Director, President
Research Scientist

Stroud Center Perspective – EnviroDIY in the DRB

- Primary Goal
 - Support Station owners, managers, and volunteers
 - Use stations for local purposes
- Secondary Goal
 - Analyze basin-wide data set
 - Develop tools to characterize and contextualize watersheds



Today's Agenda

1. Introduction
2. Stroud Updates
3. Presentation: Darby Creek Headwaters monitoring project and salt snapshot – Willistown Conservation Trust and Darby Creek Valley Watershed Association, Lauren McGrath
4. Discussion
5. Conclusion

Stroud Center Updates

- Fall weather means leaf fouling of turbidity sensors
 - Clean sensors more often, as needed
- Power issues due to lower light before leaves have fallen
 - Hang on until leaves fall
 - Cycle batteries in the meantime if necessary

Stroud Center Updates

- Stroud Center (Rachel Johnson and Elena Hadley) collecting grab samples for lab analysis all new EnviroDIY sites deployed in 2022 in DRB
 - About 20 sites
 - If permission is needed we will be in touch, but feel free to reach out

Stroud Center Updates

- A number of groups doing Salt Snapshots
 - Be in touch with the Stroud Center if you'd like assistance in doing this

Watershed Salt Snapshot – Instructions

Overview

The following is a method for documenting salt levels in streams and rivers across a watershed by measuring the concentration of chloride (Cl⁻) (milligrams/liter, mg/l) during baseflow conditions. Measuring electrical conductivity is also recommended as it can provide explanatory information and is directly related to chloride concentration.

The intent of this method is to 1) determine salt levels that aquatic life is exposed to the majority of the time (i.e., during baseflow conditions) in streams of a watershed(s) and 2) identify specific areas of the watershed(s) that may be contributing to or preventing salt contamination of nearby streams.

The basic method:

Over a short period of time (less than a week, to ensure consistency in data) a group of people fans out across a watershed (or other area of interest) during baseflow conditions and collects water samples from pre-determined stream sites. Sites are strategically chosen to help identify specific areas of the landscape that may be contributing to or protecting nearby streams from salt contamination. The samples are returned to a central meeting location where they are measured for chloride (mg/l) and specific conductivity (uS/cm). Because sampling is recommended to occur over a relatively short time period, it is important to consider the number of people available to conduct the work and the number of sites that can be visited in the allotted time. Judgment will be required to balance desired number of sites with personnel and time availability.

Baseflow: the resting state of a stream between precipitation events; a stream or river's normal flow state when not influenced by recent precipitation runoff, often composed primarily of groundwater; the flow that would exist in a stream without the contribution of direct overland runoff from rainfall or melting snow/ice.

Equipment/Supplies

- Chloride Quantab® Test Strips, 30-600 mg/L, or other chloride measurement method

Stroud Center Updates

- Follow-up Questions/Discussion from these meetings and in general
 - Post to Manage My Watershed – Stroud Center current recommendation



Stroud Center Updates

<https://managemywatershed.org/>



Manage My Watershed®

About

Stories ▾

Tools ▾

Q&A Forum

Members ▾

Register

Contact



Main Forum

Viewing topic 1 (of 1 total)

Topic	Voices	Posts	Last Post
How to Use the Q & A Forum Started by: Heather Brooks	1	1	February 5, 2021 at 3:45 pm Heather Brooks

Viewing topic 1 (of 1 total)

You must be logged in to create new topics.

Username:

Password:

☐ Keep me signed in

Log In

Make an account and save your log in information

Stroud Center Updates

<https://managemywatershed.org/>

Viewing topic 1 (of 1 total)

Topic	Voices	Posts	Last Post
How to Use the Q & A Forum Started by:  Heather Brooks	1	1	February 5, 2021 at 3:45 pm  Heather Brooks

Viewing topic 1 (of 1 total)

Create New Topic in "Main Forum"

A note about images: Within the text editor, clicking the image icon only allows you to embed images via URL, in other words, images that exist on other websites. There is an option, below the text editor, to attach your own images to the topic.


Topic Title (Maximum Length: 80):

Visual Text

B *I* “ ” ABC        

Stroud Center Updates

<https://managemywatershed.org/>

 **Manage My Watershed®**

AboutStories ▼Tools ▼Q&A ForumMembers ▼RegisterContact 🔍 👤

Tools and Resources

[Home](#) » [Tools and Resources](#)

Have you found (or created) a resource or tool that supports freshwater stewardship? [Complete a short form](#) to submit it for consideration. We'll review it and, once approved, it will be added to the list below.

[USGS StreamStats](#)

StreamStats provides access to spatial analytical tools that are useful for water-resources planning and management, and for engineering and design purposes. The map-based user interface can be used to delineate drainage areas, get basin characteristics ...



Dave Bressler / No Comments

[Water Reporter](#)

Water Reporter is an app that connects people and organizations working to protect watersheds. The social network of users collect and share water observations and watershed information in an effort to build monitoring campaigns and ...



Scott Ensign / No Comments

[Water Data Collaborative](#)

The Water Data Collaborative was created by a partnership of water-focused environmental organizations to "organize community water science resources, and practitioners. as well as create new and helpful tools to guide users through the entire ...

Stroud Center Updates

- EnviroDIY manual - <https://www.envirodiy.org/knowledge-base/>

The screenshot shows the EnviroDIY website. The top navigation bar includes links for About, Participate, Mayfly, Blog, Forums, Videos, Shop, Help, Register, and Log In. A dropdown menu is open under 'Participate', showing options: Getting Started, Hardware, Software, and Monitoring Station Manual and Appendices. The 'Monitoring Station Manual and Appendices' option is highlighted with a red box. Below the navigation bar, there is a search bar and a list of help topics. The 'EnviroDIY Monitoring Station Manual' section lists 9 articles, and the 'EnviroDIY Monitoring Station Manual Appendices' section lists 8 articles. A 'View all' link is at the bottom of the appendices list.

EnviroDIY
An Initiative of Stroud Water Research Center

Getting Started
Hardware
Software
Monitoring Station Manual and Appendices

Welcome to EnviroDIY, a community for do-it-yourself environmental science and monitoring practitioners, municipal decision-makers, researchers, educators, and students advocating for clean, fresh water. New to EnviroDIY? [Start here](#)

Search the

Help Topics

EnviroDIY Monitoring Station Manual (9 Articles)
The EnviroDIY team created this manual to help you build, program, and install an EnviroDIY Monitoring Station. Please leave feedback on the individual articles so that we can continue to improve the documentation.

- 1. Key Terms and Links
- 2. EnviroDIY Overview
- 3. EnviroDIY Monitoring Station
- 4. Preparing the Mayfly Data Logger
- 5. Programming and Activating an EnviroDIY Monitoring Station
- 6. Building an EnviroDIY Monitoring Station
- 7. Installing an EnviroDIY Monitoring Station
- 8. Monitoring Station Management
- 9. References and Acknowledgments



EnviroDIY Monitoring Station Manual Appendices (8 Articles)
The EnviroDIY Monitoring Station appendices contain supplemental information to help you manage your EnviroDIY Monitoring Station. Please leave feedback on the individual articles so that we can continue to improve the documentation.

- 1. Battery and Solar Options
- 2. Example Data
- 3. Data Patterns
- 4. Troubleshooting
- 5. Commercial Meters
- 6. Field Supplies Checklist
- 7. Maintenance Checklist
- 8. Supplemental Sampling, Rating Curves, Loads





View all


Stroud Center Updates

- Guidance materials - <https://wikiwatershed.org/drwi/>

[About](#) [Model](#) [Monitor](#) [Help](#) [News](#) [Curricula](#) [DRWI](#) [Videos](#) [Contact](#) [Log In](#) 

Web Tools Advancing Knowledge and Stewardship of Fresh Water

 Like Us  Follow Us  Subscribe  GitHub



WikiWatershed is an initiative of [Stroud™ Water Research Center](#). The Stroud Center seeks to advance knowledge and stewardship of freshwater systems through global research, education, and watershed restoration.

Home » Delaware River Watershed Initiative Resources

Delaware River Watershed Initiative Resources

The Delaware River Watershed Initiative (DRWI) is a cross-cutting collaboration that is working to [conserve and restore](#) the streams that supply drinking water to 15 million people in New York, New Jersey, Pennsylvania, and Delaware. In direct support of this initiative, [Stroud Water Research Center](#) is facilitating efforts to improve the capacity of watershed groups to conduct scientific investigations associated with DRWI projects, as well as to build general knowledge on the ecology of their watersheds and the broader basin.

These resources were created by the Stroud Center to assist DRWI efforts *specifically focused on stream monitoring using [EnviroDIY Monitoring Stations](#)*. They may also be of interest to community scientists and watershed groups working in other locations.

Shortcuts to General Resources

- [EnviroDIY Field Visit Data](#)
- [EnviroDIY Monitoring Station Help Resources](#)
- [Salt Monitoring Resources](#)
- [Data and Data Visualization Resources](#)
- [Volunteer Management Guidance Materials](#)
- [WikiWatershed Toolkit](#)
- [Project Updates](#)

Shortcuts to Meetings, Workshops, Conferences

- [Monthly EnviroDIY-DRWI User Group Meetings](#)
- [User Support Workshops and Trainings](#)
- [Conference Presentations](#)
- [Watershed Ecology Workshops](#)

Any questions before we move on?



Presentation

Presentation: Lauren McGrath, Anna Willig (Willistown Conservation Trust), and Aurora Dizel (Darby Creek Valley Association)



Darby Creek headwaters monitoring project

Mentors currently available

- Carol Armstrong (MWS), mnem.np@gmail.com, 610-659-7477
- George Seeds (MWS), geoseeds@verizon.net, 484-886-9586
- Rachel Johnson (Stroud Center), rjohnson@stroudcenter.org, 973-557-8995
- Christa Reeves (Stroud Center)(in the north, situational), christa@musconetcong.org, 727-520-5849

****Anyone else interested? If so get in touch with Stroud Center or Carol or George***

Conclusion

Next month's meeting will be on:

Thursday December 15, 2022
2:30-3:30p

Onward!

Stroud Water Research Center, EnviroDIY-DRWI contacts:

- David Bressler, dbressler@stroudcenter.org, 410-456-1071
- Shannon Hicks, shicks@stroudcenter.org, 610-268-2153 x267
- Rachel Johnson, rjohnson@stroudcenter.org, 973-557-8995
- Christa Reeves, christa@musconetcong.org, 908-537-7060

Master Watershed Stewards, EnviroDIY-DRWI contacts:

- Carol Armstrong, mnem.np@gmail.com, 610-659-7477
- George Seeds, geoseeds@verizon.net, 484-886-9586

Organization	Chronic/Long-Term Chloride Threshold (mg/l)	Acute/Short-Term Chloride Threshold (mg/l)	Links
New York Department of Environmental Conservation	250	--	https://www.epa.gov/sites/default/files/2014-12/documents/nywqs-section2.pdf#page=24
New Jersey Department of Environmental Protection	230	860	https://www.nj.gov/dep/standards/njac7_9b.pdf
U.S. Environmental Protection Agency (Aquatic Life)	230	860	https://www.epa.gov/sites/default/files/2018-08/documents/chloride-aquatic-life-criteria-1988.pdf
Germany Environment Agency, Umweltbundesamt	50-200		https://www.umweltbundesamt.de/en/topics/water/rivers/assessment-of-watercourses/chemical-quality-standards-assessment#chemical-water-quality-classification
Delaware River Basin Commission, Delaware River Zone 3	180	--	https://www.epa.gov/sites/default/files/2016-10/documents/dewqs-drbc.pdf#page=109
Michigan Department of Environment	150	640	https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/WRD/NPDES/chloride-sulfate-implementation-plan.pdf?rev=07c3a64eed2849a6aae7130eda1fe384
Canadian Council of Ministers of the Environment	120	640	https://sustainabletechnologies.ca/app/uploads/2014/05/CWQG_chlorides.pdf
Ohio EPA Recommended Hazard Concentration for Aquatic Biota	52	--	Hazard concentration: https://www.researchgate.net/publication/352922966_Assessing_the_Impacts_of_Chloride_and_Sulfate_Ions_on_Macroinvertebrate_Communities_in_Ohio_Streams
Delaware River Basin Commission, Delaware River Zone 2	50	--	https://www.epa.gov/sites/default/files/2016-10/documents/dewqs-drbc.pdf#page=96
Maryland Department of Environment, MD Bio Stressor ID Process)	50	--	Threshold concentration: https://mde.maryland.gov/programs/Water/TMDL/Approved_FinalTMDLs/Documents/BSID_Methodology_Final_2009.pdf (p19-20)

Figure 4. Example chloride criteria and thresholds. To view Chloride criteria across the country:
<https://www.epa.gov/wqs-tech/state-specific-water-quality-standards-effective-under-clean-water-act-cwa#tb3>