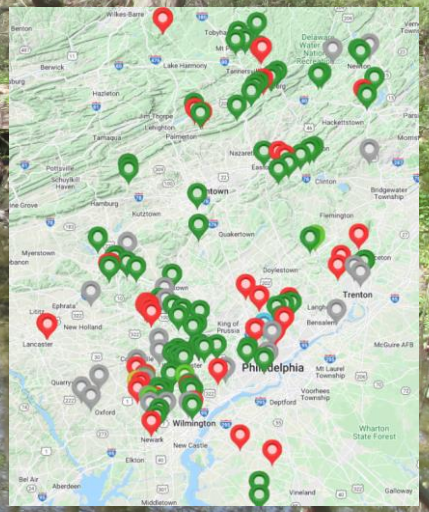
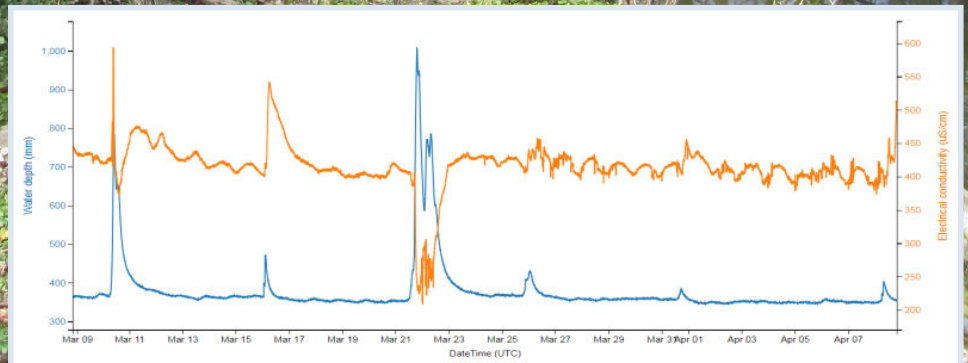
WELCOME!

EnviroDIY and monitoring in the DRB monthly meeting

Online, Thursday, April 20, 2023, 2:30-3:30p





EnviroDIY

Monitor My Watershed®

STROUD WATER RESEARCH CENTER

Today's Agenda

1. Introduction
2. Stroud Updates
3. Presentation – **Water Temperature – Part 1 – Thermal Characteristics of Streams**, John Jackson, PhD, Stroud Water Research Center
4. Discussion
5. Conclusion

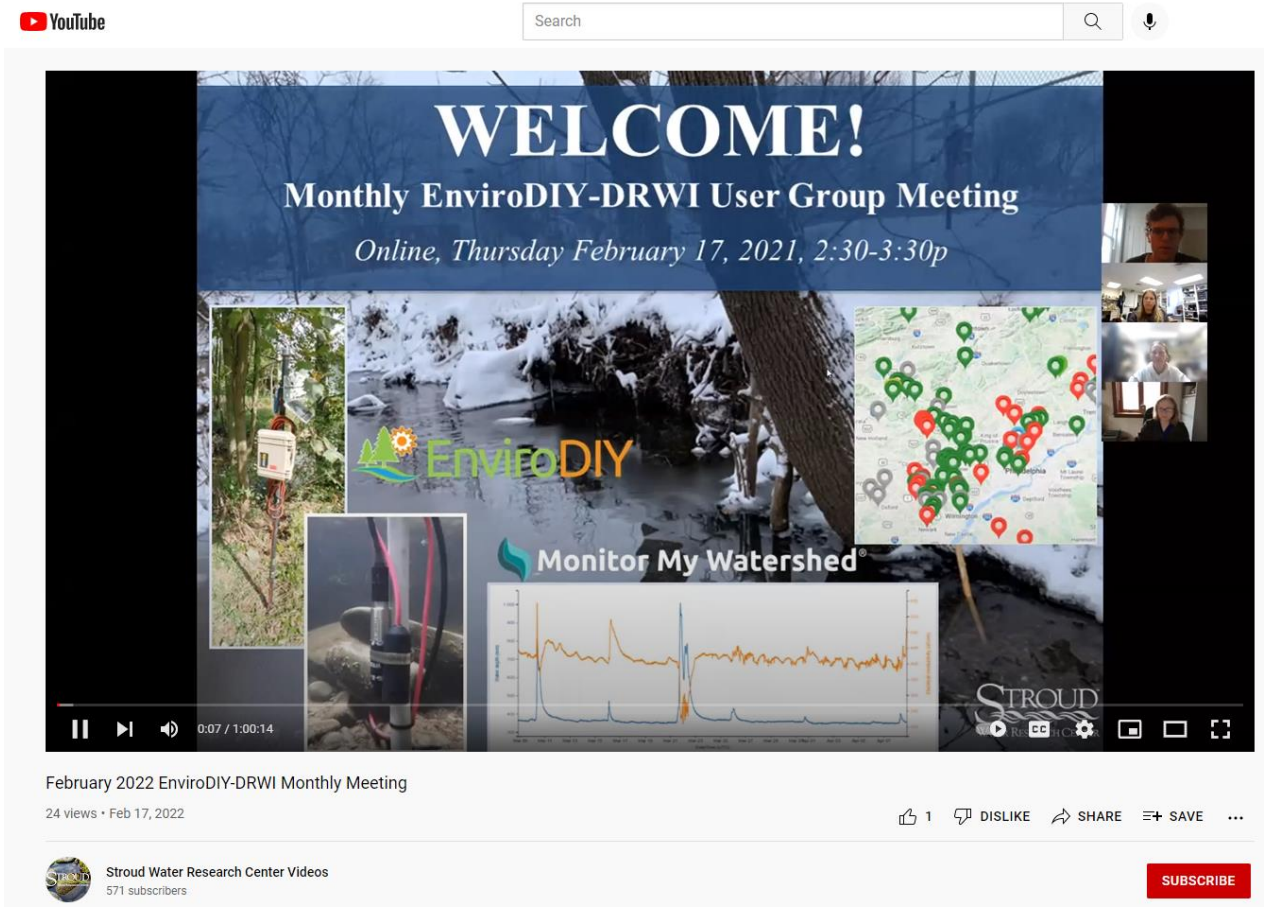
Zoom Orientation

*Meeting is being recorded

***Please mute when not speaking to the group**

These Monthly Meetings

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



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**

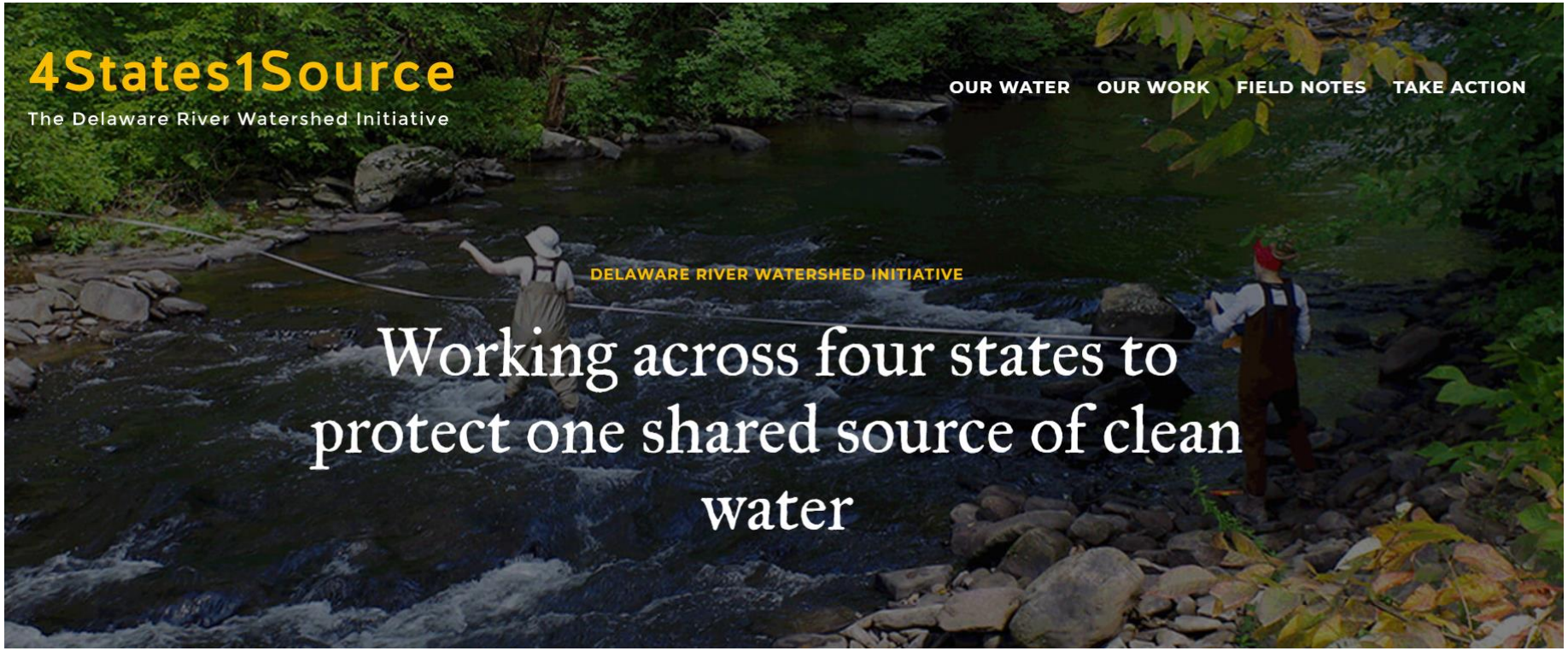
REMINDER

- 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

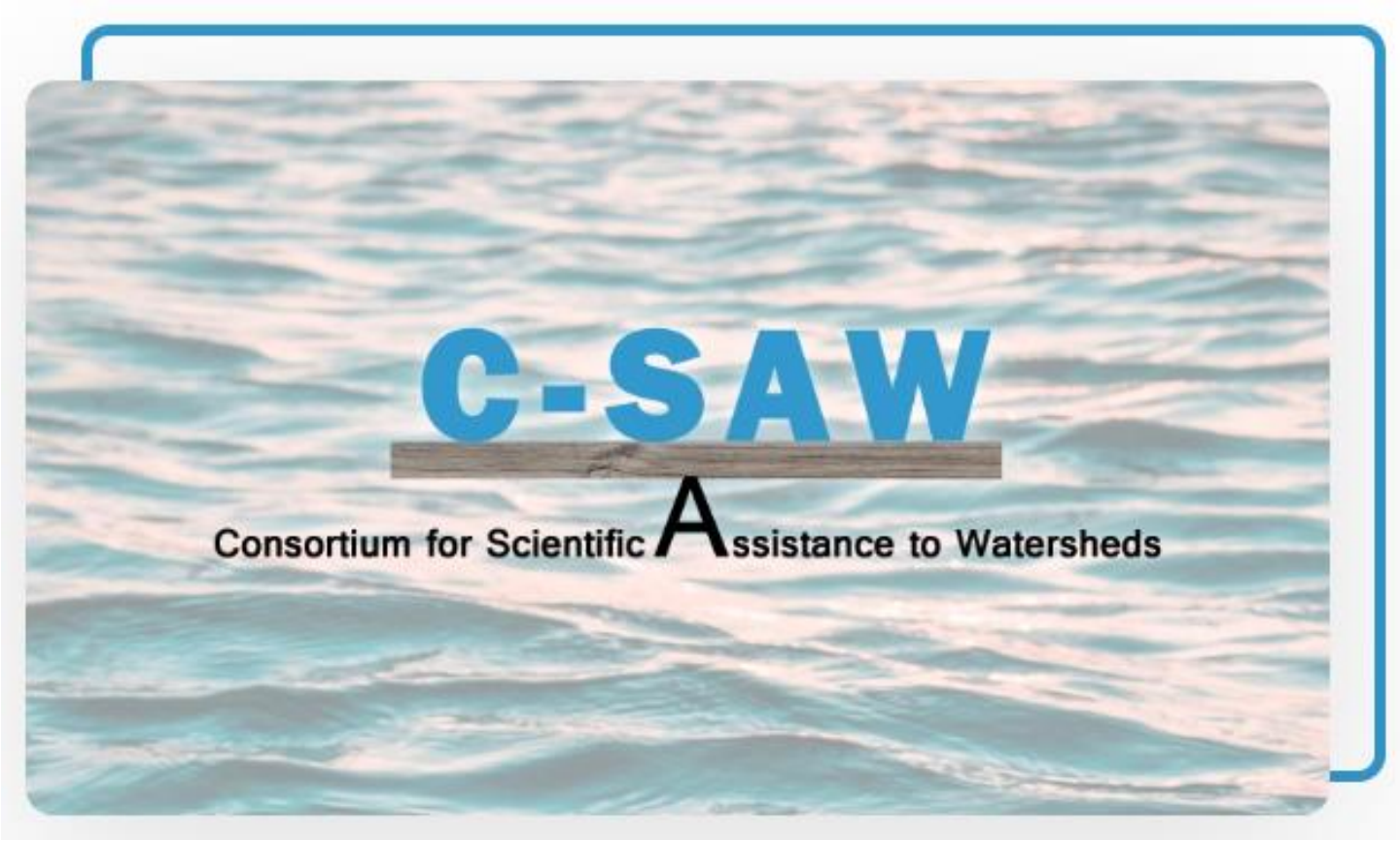
Delaware River Watershed Initiative (DRWI)

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**
  - **Science**
  - **Monitoring**
  - **Watershed management**

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

Stroud Center project personnel

Stroud Center team:

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

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

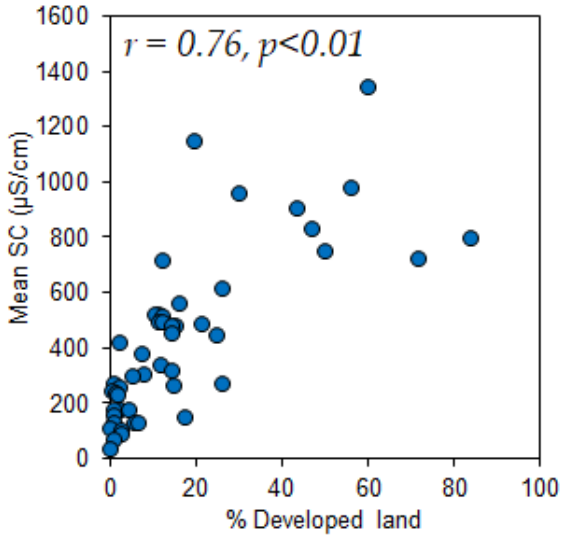
Director of Watershed Restoration

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

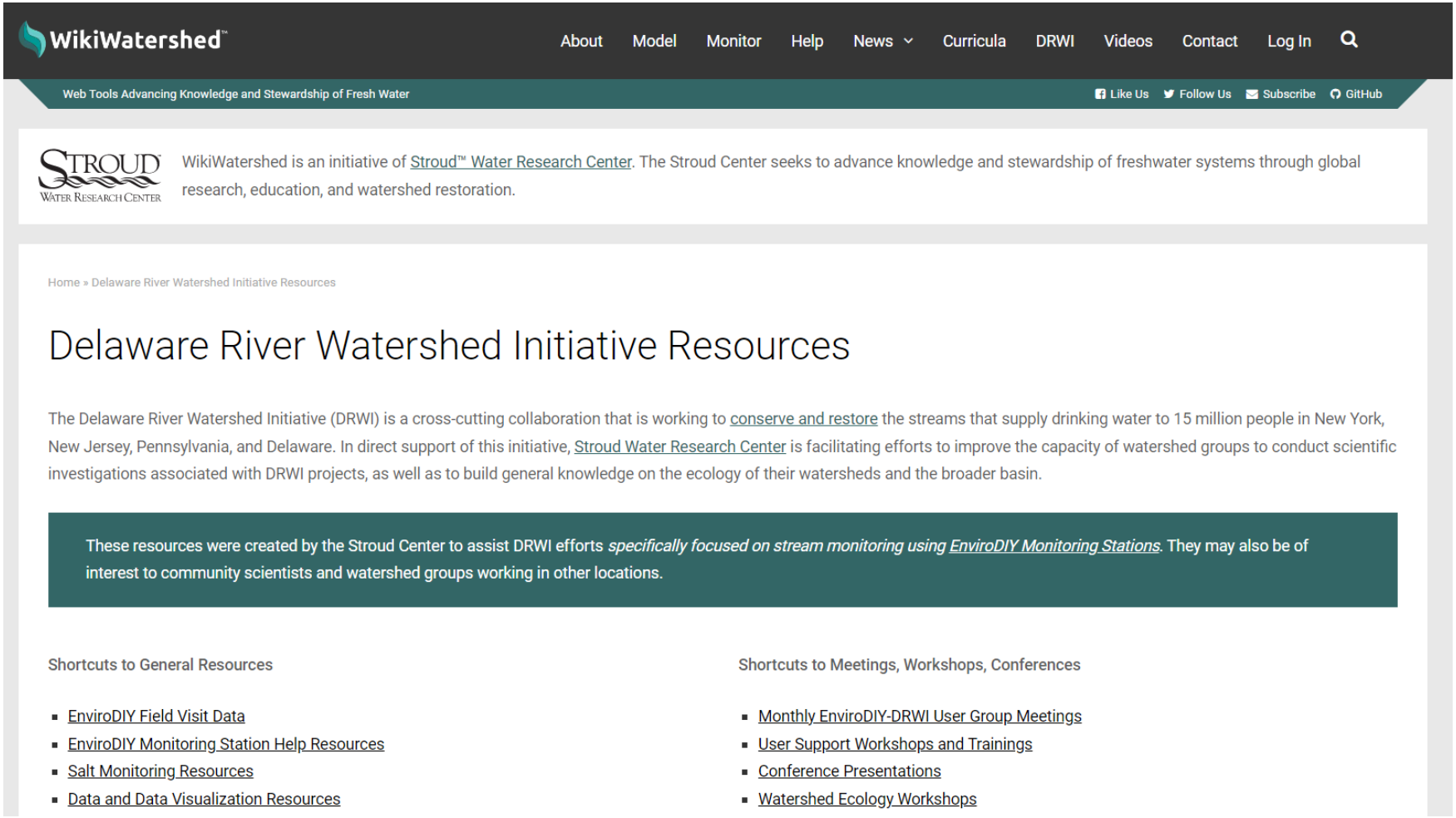


Updates!

- Updates from the Stroud Center on EnviroDIY, science and monitoring, communications, etc.

EnviroDIY and monitoring resources

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



EnviroDIY Field Visit Data Form entry

https://wikiwatershed.org/drwi/

EnviroDIY Field Visit Data Form entry

https://wikiwatershed.org/drwi/

- Fill out any time a station is visited

STROUD WATER RESEARCH CENTER
www.stroudcenter.org

EnviroDIY Field Visit Data

Enter all data online: wikiwatershed.org/drwi; password: drwi

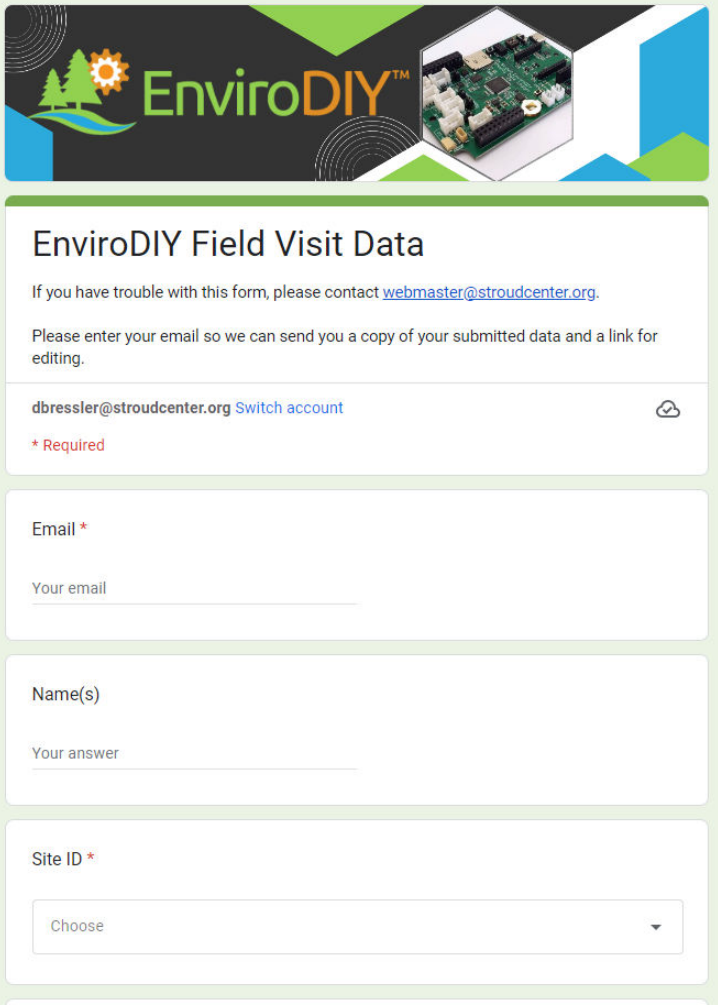
Name(s):

Site ID:
Stream Name:
GPS (Lat/Long):
Photos? Yes/No
Precipitation last 24 Hours? Yes/No Amount:
General Notes/ Photo Descriptions:

LoggerID:
Location:
Date: Arrival Time: AM/PM? *EST/EDT?
*EST=Eastern Standard Time; EDT=Eastern Daylight Time (Daylight Savings)
Water Clarity (Clear, Cloudy, Muddy):

SENSOR CLEANING (*Recommended frequency: weekly or biweekly; monthly if only CTD sensor*)

*Cleaned Sensors? Yes/No If Yes, exact time: AM/PM? EST/EDT? *Clean >5 min. before grab sampling*



EnviroDIY Service Request Form

https://wikiwatershed.org/drwi/

EnviroDIY Field Visit Data

Enter Field Visit Data

- View field visit data
- View older data (7/18/2017 to 7/24/2018)

EnviroDIY Field Visit Data Sheets (Printable)

- EnviroDIY Field Visit Data sheet (blank)
- EnviroDIY Field Visit Data sheet tutorial

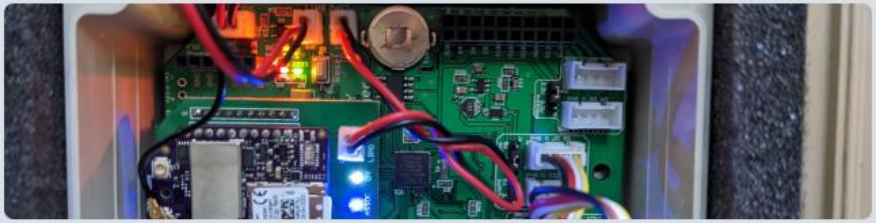
EnviroDIY Monitoring Station Service Requests

Use this form to report technical issues that require assistance from the Stroud Center team.

Submit a Service Request

EnviroDIY Service Request Form

- **Simpler form**
  - Required info now is very basic – all other info is optional
- **Anyone with assistance needs should complete this**
  - To make internal record-keeping easier



EnviroDIY Monitoring Station Service Request Form

Please complete this form with as much information as possible to assist Stroud Water Research Center technicians in troubleshooting your problem.

*Please note, station assistance is only available to groups working within the Delaware River Basin.

dbressler@stroudcenter.org (not shared) Switch account

* Required

Name (first and last) *

Your answer

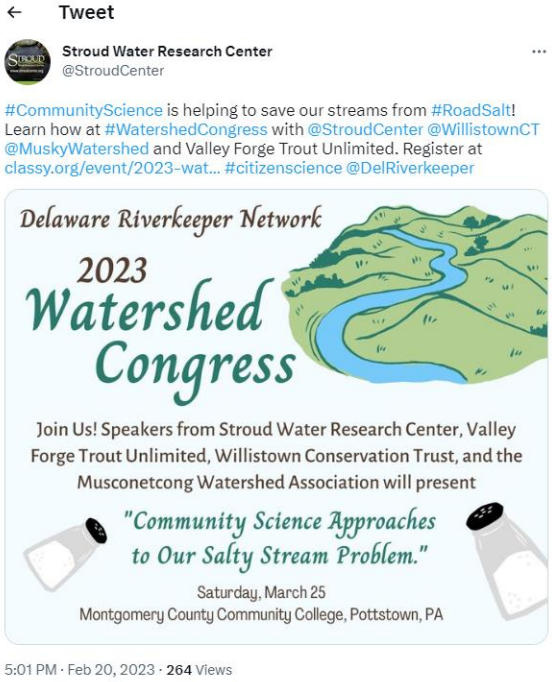
Organization *

Your answer

Support on Snapshots

- Stroud Center support on synoptic sampling (aka **snapshots** or blitzes)
  - Salt (chloride and conductivity)
  - Water temperature
- *Please be in touch if you would like support in doing this type of monitoring*

If you want, send your photos and stories



Email or Text to:

- **Diane Huskinson (dhuskinson@stroudcenter.org; 717-383-1179)**
- **Dave Bressler (dbressler@stroudcenter.org; 410-456-1071)**

Stroud Center annual report

https://stroudcenter.org/annual-reports/

We, the Community Scientists

PEOPLE THROUGHOUT THE DELAWARE RIVER WATERSHED ARE JOINING FORCES AND COLLECTING DATA TO PROTECT THE VITAL FRESHWATER RESOURCES THAT SUSTAIN THEIR COMMUNITIES

By Diane Huskinson

Volunteers are gathering data on the health of the Delaware River watershed, helping scientists and local watershed groups understand threats to water quality and where progress can be made. Their backgrounds are varied – some are teachers, others are doctors – but they all have one ambitious goal in common: to ensure everyone has access to clean fresh water. Stroud™ Water Research Center is helping these unsung heroes and the watershed organizations through which they work by providing technical support, capacity building, and a bit of can-do spirit.

Carol Armstrong

PASSION:
Data and stream ecology

After a successful and rewarding career working in brain injury rehab and cognitive neuroscience research and healthcare, Carol Armstrong decided it was time to retire and help scientists tackle the global water crisis. She had seen the

Jill Kemp

PASSION:
Trout in Angelica Creek

The naturally cold waters that support trout are heating up amid climate change, the loss of tree shade, and other sources of thermal pollution. Stan and Jill Kemp, David George, and Beckey Seel hope to save Angelica Creek from such a fate.

"From headwaters to mouth, Angelica Creek, which runs through Nolde Forest, is a naturally producing trout stream," says Stan Kemp.

The Kemps and George are volunteers with Angelica Creek Watershed Association (ACWA). Seel runs the volunteer program at Berks Nature, which oversees ACWA as one of its programs.

"By monitoring temperatures, it gives us an idea of how the stream is doing, where the stream is getting too warm, and where we might need to do some restoration," says Stan Kemp, who is a fish ecologist and professor at the University of Baltimore.

Jill Kemp is an environmental educator at Nolde Forest Environmental Educational Center who relies on the stream as an educational resource.

George, a retired physician and a Master Watershed Steward, maintains one of the EnviroDIY Monitoring Stations.

Together, they are petitioning the Pennsylvania Department of Environmental Protection to raise the status of Angelica Creek to Exceptional Value, which would come with additional protections, and they're using data from EnviroDIY Monitoring Stations to support their cause.

Seel says, "The volunteers are deeply involved, and they deeply care about the watershed. Angelica Creek is used in so many different educational aspects with all ages from preschool to postgraduate, so I really feel that we're teaching the future about water quality."

George Seeds

PASSION:
The impact of pollution on healthy soils and stream health

George Seeds says humans need to do a better job of managing healthy soils and clean water. Retired from a career in managed healthcare, he enjoys his time gardening, visiting scenic freshwater lakes and streams, and volunteering to monitor the health of Black Horse Run and Taylor Run. He also mentors community scientists working at four other stations in West Chester, Pennsylvania.

He says, "Volunteering has taught me to see the value in collecting and tracking data. You can demonstrate what's going on with the stream from the standpoint of pollution."

He has learned that Goose Creek and Plum Run have chronically

Charlie Coulter

PASSION:
Upstream impacts of Darby Creek on the watershed

Darby Creek flows into the Delaware River in Philadelphia, but its headwaters and the flooding and pollution they may bring, begin 20 or so miles to the northwest in the suburbs of Radnor, Berwyn, and Newtown Square.

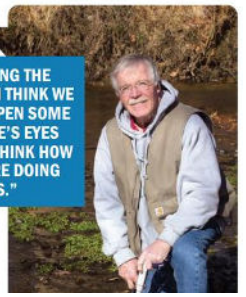
Willistown Conservation Trust's Lauren McGrath and Anna Willig are working with the Stroud Center and Aurora Dizel at the Darby Creek Valley Association (DCVA) to collect data and identify problem areas. In speaking with downstream partners and volunteers about environmental justice, McGrath says, "Conversations came to a head that people are dying

Among those forming a connection to Darby Creek is Charlie Coulter. He became a Master Watershed Steward after retiring as an instrument technician and volunteers with DCVA to monitor the headwaters of Darby Creek. He also monitors data from 19 EnviroDIY Monitoring Stations and provides weekly reports to the station owners and managers.

" BY USING THE DATA, I THINK WE CAN OPEN SOME PEOPLE'S EYES TO RETHINK HOW THEY'RE DOING THINGS."

While he enjoys examining the data and looking for patterns, his main concern is for his grandchildren and ensuring they

Photo: Berks Nature



POWR Conversation Cafe

Info and to register: https://pawatersheds.org/events/

Putting Water Quality Data to Work, Locally: A Conversation Café

May 17, 2023 at 6 PM

POWR, along with our partners from Stroud Water Research Center, Penn State Extension Master Watershed Steward Program, and a small working group of watershed organization leaders invite you to a special Conversation Café to explore challenges and opportunities for meaningfully sharing water quality monitoring data with municipal officials, EACs, and the public for improved land use planning and decision-making.

POWR is excited to host this event to give you the opportunity to talk about your experiences, challenges, questions, and ideas related to sharing, using, and applying the water quality data you have gathered to help inform land use and other local policy, practices, and planning.

This event is FREE but registration is required to receive the Zoom link.
REGISTER NOW

Updates from Local Policy/Practice Workgroup

- Updates from Ian Brastow, Lopatcong Creek Initiative/New Jersey Highlands Coalition, NJ

Updates from Local Policy/Practice Workgroup

- *Current leadership:*
  - Ian Brastow, Lopatcong Creek Initiative/New Jersey Highlands Coalition (NJ)
  - David Manning, PA Master Watershed Steward and Schuylkill Water Steward with Green Valleys Watershed Association (PA)
  - Christa Reeves, Musconetcong Watershed Association (NJ)
  - Alex Jackson, Brodhead Watershed Association (PA)
  - Erin Landis, Wissahickon Trails (PA)
  - Joe Debes, PA Master Watershed Steward and Stroud Center volunteer (PA)
  - *NEW* Carol Armstrong, PA Master Watershed Steward
  - *NEW* Tali MacArthur, PA Environmental Council/PA Organization for Watersheds and Rivers (PA)
- *Support:*
  - David Bressler, Stroud Water Research Center (PA)
- *Meetings:* 1st Thursdays, 11 am (Zoom)

Updates from Local Policy/Practice Workgroup

Short Term Charge

The short-term charge of the workgroup is to develop the most effective way of employing stream monitor data – conductivity, temperature, depth, and sometimes turbidity – and related measures to advise and otherwise influence municipal entities. The charge includes an emphasis on stream quality in relation to land use and development.

Updates from Local Policy/Practice Workgroup

Summary of Topics Discussed:

- Impervious Coverage
  - >10% → Impaired Streams
    - Better infrastructure to reduce the impacts of higher coverage.
    - Green Infrastructure Ordinances
  - Interacting with zoning (Start with what they are doing well)
    - Utilize GIS (buffers, wetlands, and hydric soils overlayed on top of current zoning)
  - Issues with local precedent

Updates from Local Policy/Practice Workgroup

- Temperature
  - Climate vs Development
  - Temperature Modeling
  - Human Health Impacts
- Conversation Café - Putting Water Quality Data to Work, Locally (hosted by POWR)
  - May 17, 6:00p, https://pawatersheds.org/events/

Any questions before we move on?

Today's presentation

- **Water Temperature – Part 1 – Thermal Characteristics of Streams**, John Jackson, PhD, Stroud Water Research Center

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 (Musconetcong Watershed Association/Stroud Center), christa@musconetcong.org, 727-520-5849

Conclusion

Next month's meeting will be on:

Thursday May 18, 2023
2:30-3:30p

Onward!

Stroud Water Research Center 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 contacts:

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