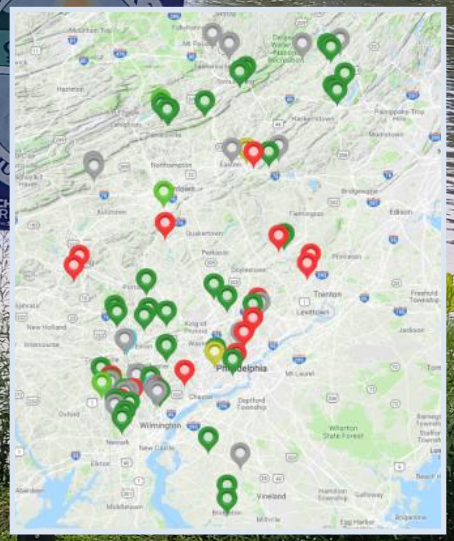
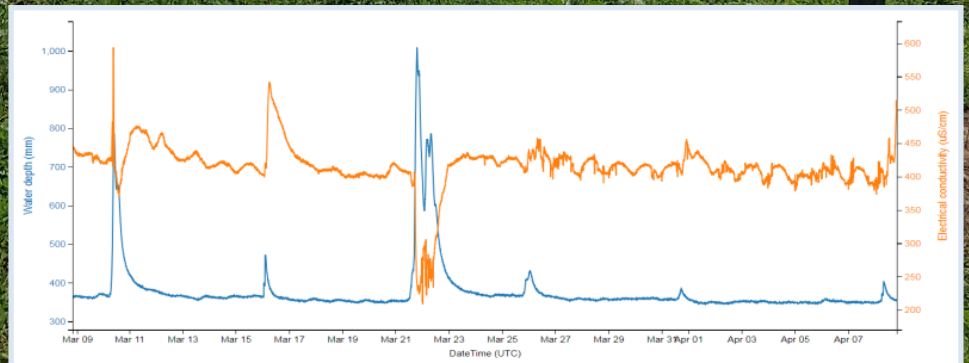
WELCOME!

Monthly EnviroDIY-DRWI User Group Meeting

Online, Thursday October 21, 2021, 2:30-3:30p





EnviroDIY

Monitor My Watershed®

Stroud Water Research Center

Zoom Orientation

*Meeting is being recorded

***Mute unless asking question**

***Today we will only be recording the Stroud Center updates – no presentation today; instead there will be open discussion, which will NOT be recorded**

STROUD WATER RESEARCH CENTER

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 will be sent one week prior to each month's meeting
  - Station owners/managers organize volunteers/others to attend and share Zoom link

STROUD WATER RESEARCH CENTER

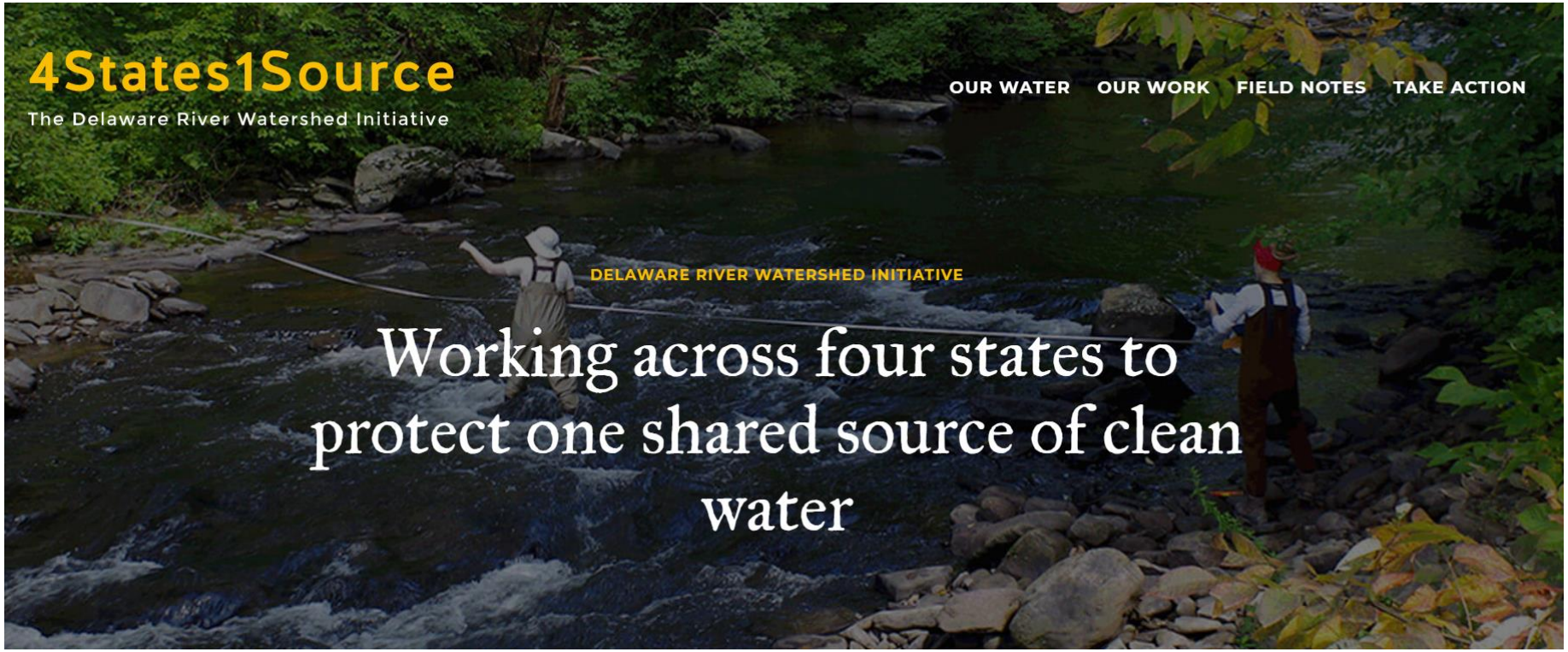
REMINDER

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

STROUD WATER RESEARCH CENTER

Delaware River Watershed Initiative (DRWI)

https://4states1source.org/



STROUD WATER RESEARCH CENTER

C-SAW

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

What is C-SAW?

The Consortium for Scientific Assistance to Watersheds (C-SAW) is a team of specialists who provide *free* organizational and scientific technical assistance to Pennsylvania-based watershed and conservation organizations.

> *C-SAW does not conduct watershed monitoring or assessments. Instead, C-SAW helps watershed organizations do a better job with their own monitoring and assessments.*

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Goals for these monthly meetings

- **Time/space to check-in, ask questions, report issues, network, etc.**

- **Updates** from 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 WATER RESEARCH CENTER

Facilitators

Stroud Center Facilitators:

David Bressler, Rachel Johnson, Christa Reeves, Shannon Hicks




Master Watershed Steward Facilitators:

Carol Armstrong, George Seeds (Chester & Delaware Co.)


Master Watershed Steward Program

PennState Extension

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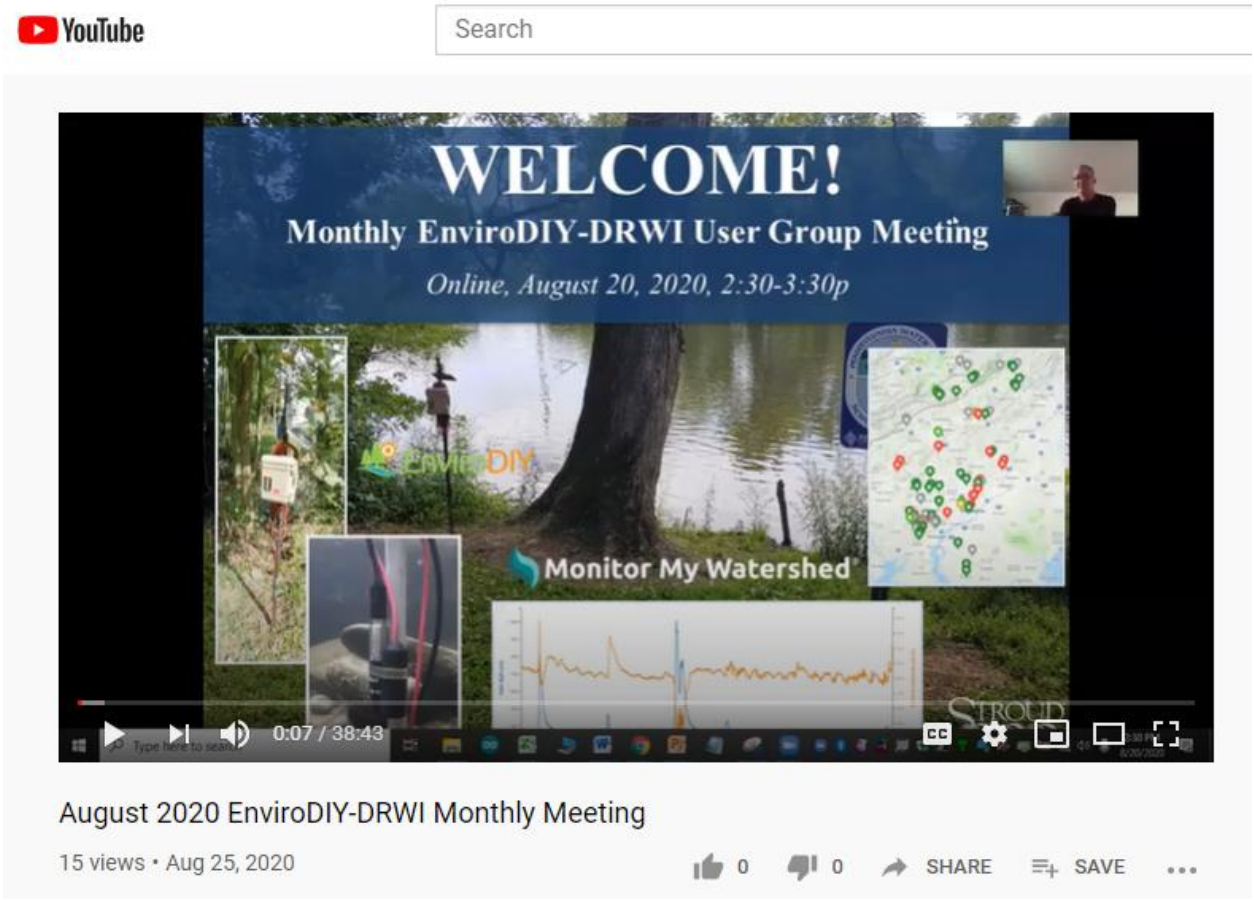
These Monthly Meetings

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



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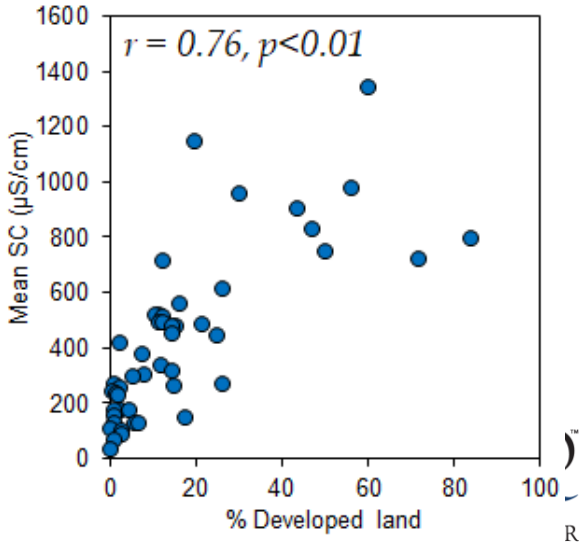
Stroud Center Perspective – EnviroDIY in DRWI

- 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: No presentation
4. Discussion – open discussion, NOT recorded
5. Conclusion

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Stroud Center Updates

- Stroud Center recommendation to **Remove and clean sensor bundle at least once a year**

- The PVC can get sealed to the in-stream rebar – remove from time to time to prevent this
- Inspect sensors and thoroughly clean
- If your bundle hasn't been removed in a while be careful when removing it – you might pull the entire rebar out

Stroud Center Updates

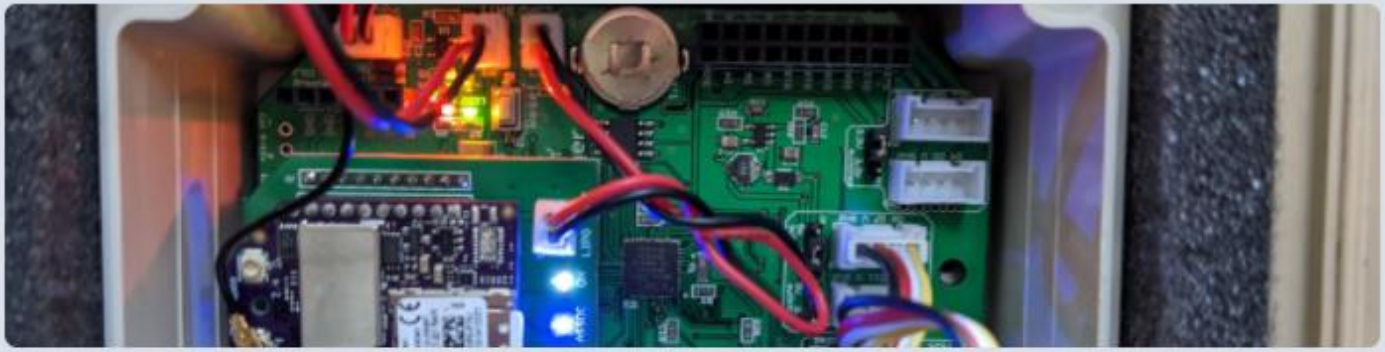
- Stroud Center 100% finished collecting chemistry grab samples at all active EnviroDIY monitoring stations in Delaware River Basin (N=102 samples)

Suspended Sediments (mg/L)
DOC (µg C/L)
Cl (mg/L) from SEAL
NH4N (mg/L) from SEAL
NO3N (mg/L) from SEAL
PO4P (mg/L) from SEAL
TN (mg/L) from SEAL
TP (mg/L) from SEAL
AL from DE-ICP (mg/L)
B from DE-ICP (mg/L)
CA from DE-ICP (mg/L)
CU from DE-ICP (mg/L)
FE from DE-ICP (mg/L)
K from DE-ICP (mg/L)
MG from DE-ICP (mg/L)
MN from DE-ICP (mg/L)
NA from DE-ICP (mg/L)
P from DE-ICP (mg/L)
S from DE-ICP (mg/L)
SI from DE-ICP (mg/L)
ZN from DE-ICP (mg/L)

STROUD WATER RESEARCH CENTER

Stroud Center Updates

- New, pilot – Service Request Form, available at https://wikiwatershed.org/drwi/



EnviroDIY Monitoring Station Service Request Form

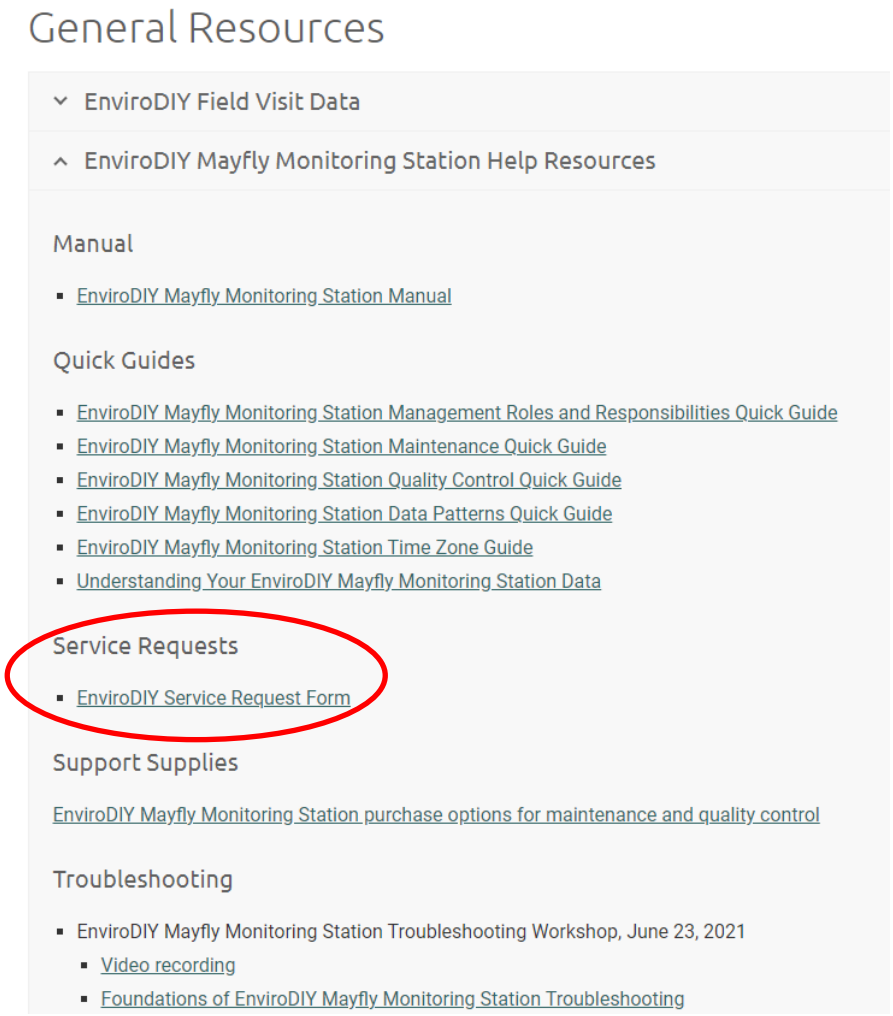
Please complete this form with as much information as possible to assist Stroud Water Research Center technicians in troubleshooting your problem. For extremely urgent issues please contact the Stroud Center team directly (rjohnson@stroudcenter.org; shicks@stroudcenter.org; dbressler@stroudcenter.org).

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

STROUD WATER RESEARCH CENTER

Stroud Center Updates

- New, pilot – Service Request Form via https://wikiwatershed.org/drwi/



STROUD WATER RESEARCH CENTER

Stroud Center Updates

Support Supplies

Located at: https://wikiwatershed.org/drwi/

Delaware River Watershed Initiative Resources

General Resources

- EnviroDIY Field Visit Data
- EnviroDIY Mayfly Monitoring Station Help Resources

Manual

- EnviroDIY Mayfly Monitoring Station Manual

Quick Guides

- EnviroDIY Mayfly Monitoring Station Management Roles and Responsibilities Quick Guide
- EnviroDIY Mayfly Monitoring Station Maintenance Quick Guide
- EnviroDIY Mayfly Monitoring Station Quality Control Quick Guide
- EnviroDIY Mayfly Monitoring Station Data Patterns Quick Guide
- EnviroDIY Mayfly Monitoring Station Time Zone Guide
- Understanding Your EnviroDIY Mayfly Monitoring Station Data

Service Requests

- EnviroDIY Service Request Form

Support Supplies

EnviroDIY Mayfly Monitoring Station purchase options for maintenance and quality control

Troubleshooting

- EnviroDIY Mayfly Monitoring Station Troubleshooting Workshop, June 23, 2021
  - Video recording

EnviroDIY

STROUD WATER RESEARCH CENTER

Equipment and supply list for maintenance and quality control of standard Stroud Center EnviroDIY Monitoring Station (*pricing and availability subject to change*)

SD cards and adaptors:

- Single micro SD card and SDHC adaptor, $6.00: https://www.amazon.com/SanDisk-Mobile-MicroSDHC-SDSDQM-B35A-Adapter/dp/B004ZIEMWU
- USB adaptor (for use when computer cannot accommodate SDHC adaptor), $10.99: https://www.amazon.com/Reader-Adapter-Micro-UHS-I-Cards/dp/B07L63Z54G
- Micro SD card and adaptor value pack (5 count), $19.65: https://www.amazon.com/PACK-SanDisk-MicroSD-SDSDQAB-008G-Packaging/dp/B00MHZ6ZJQ

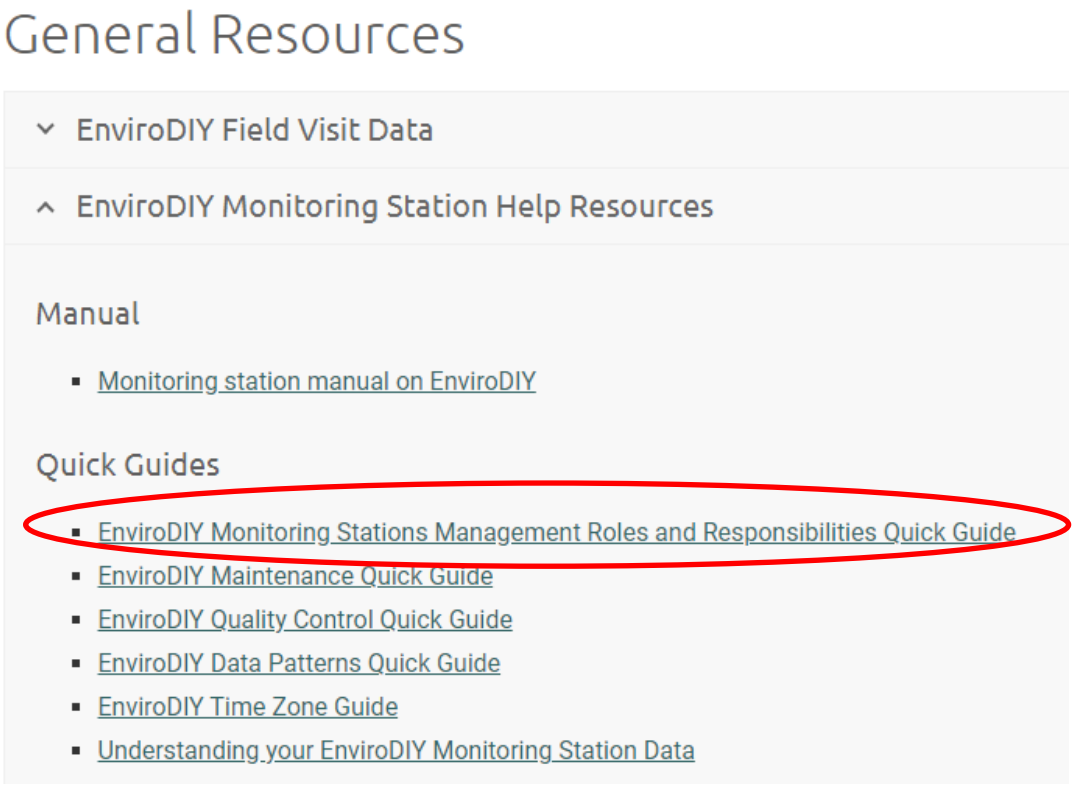
Power:

- Lipo Charger, PRT-15217, $9.95:
  - https://www.sparkfun.com/products/15217
  - https://www.digikey.com/en/products/detail/sparkfun-electronics/PRT-15217/10244131
  - https://www.adafruit.com/product/1904
- USB wall adapter 5V, TOL-11456, $3.95:
  - https://www.sparkfun.com/products/11456
  - https://www.digikey.com/en/products/detail/phihong-usa/PSAA05A-050QL6-R/6560437
- Lithium Ion Battery Pack - 3.7V 4400mAh, $19.95:
  - https://www.amazon.com/Battery-Packs-Lithium-Pack-3-7V/dp/B0137IRGHG
  - https://www.digikey.com/en/products/detail/adafruit-industries-llc/354/5054541
  - https://www.adafruit.com/product/354
- USB Type A to Type C Cable, $4.95:
  - https://www.adafruit.com/product/4474
  - https://www.digikey.com/en/products/detail/adam-tech/CA-USB-AM-CM-1FT/9830207
  - https://www.sparkfun.com/products/15425

Stroud Center Updates

Quick Guide: Recommended Roles/Responsibilities for Managing an EnviroDIY Monitoring Station

Located at: https://wikiwatershed.org/drwi/



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Stroud Center Updates

Quick Guide: Recommended Roles/Responsibilities for Managing an EnviroDIY Monitoring Station

Station Owner/Manager – ensuring station is managed properly

- Assign individuals to the following roles: 1) desktop monitoring of station functionality via Monitor My Watershed, 2) sensor cleaning and station maintenance, and 3) quality control (QC)
- Track above tasks and make sure that they are being accomplished
- Ensure Hologram cell plan is paid to ensure data transmission to Monitor My Watershed

Desktop monitoring of station functionality via Monitor My Watershed (Daily)

- Check site(s) of interest on a daily basis via Monitor My Watershed:
  - On "Browse Sites" map: Is the station live (i.e., dark green)?
  - Are the quick view data panels showing expected data ranges?
  - Are there any abnormal numbers/patterns in quick view data panels or in Time Series Analyst graphs?
- Contact station owner/manager, maintenance, and/or QC people with any issues identified (e.g., sensor fouling, low battery)

Sensor cleaning and station maintenance (Weekly)

- Review station data on Monitor My Watershed before and after station maintenance
- Visit station at least once a month (weekly is recommended)
- Clean sensor(s)
- Clear sediment and debris from under and near sensor(s)
- Clear vegetation and debris from around the logger and solar panel
- Complete Field Visit Data sheet and enter into online form
- Reference EnviroDIY Maintenance Quick Guide as needed

Conduct Quality Control (Quarterly and per situational needs)

- Review station data on Monitor My Watershed before and after conducting QC
- Use calibrated hand-held meter to cross check station conductivity and temperature data
  - Make sure QC measurement and sensor station reading match up – if they don't (difference greater than 10%), proceed with troubleshooting or contact Stroud Center
- If turbidity is a high priority, conduct cross check using a turbidity tube or turbidity meter when conditions are suitable (i.e., when water is cloudy/muddy enough to assess turbidity data)
- Use metric ruler and on-site QC rebar pin (or staff gauge) to cross check station depth data
- Swap microSD card with blank SD card and save data file to secure location
- Complete Field Visit Data sheet and enter into online form
- Reference EnviroDIY Quality Control Quick Guide as needed

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Stroud Center Updates

Current lack of reliability of cell boards

- **NEW cell boards – actively being replaced in DRB**
- **Updated Mayfly Data Logger – often swapped along with cell board**

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Stroud Center Updates

Updates to EnviroDIY/Mayfly

https://www.envirodiy.org/shop/

EnviroDIY Mayfly Data Logger (Pack of 5)
$0.00

EnviroDIY Mayfly Data Logger Board and Starter Kit (Pack of 5)
$0.00

EnviroDIY LTE Bee (Pack of 5)
$0.00

EnviroDIY OLED Half-shield (Pack of 5)
$0.00

EnviroDIY RS-485 Half-shield (Pack of 5)
$0.00

EnviroDIY Multipurpose 6-pin Screw Terminal Grove Adapter (Pack of 5)
$0.00

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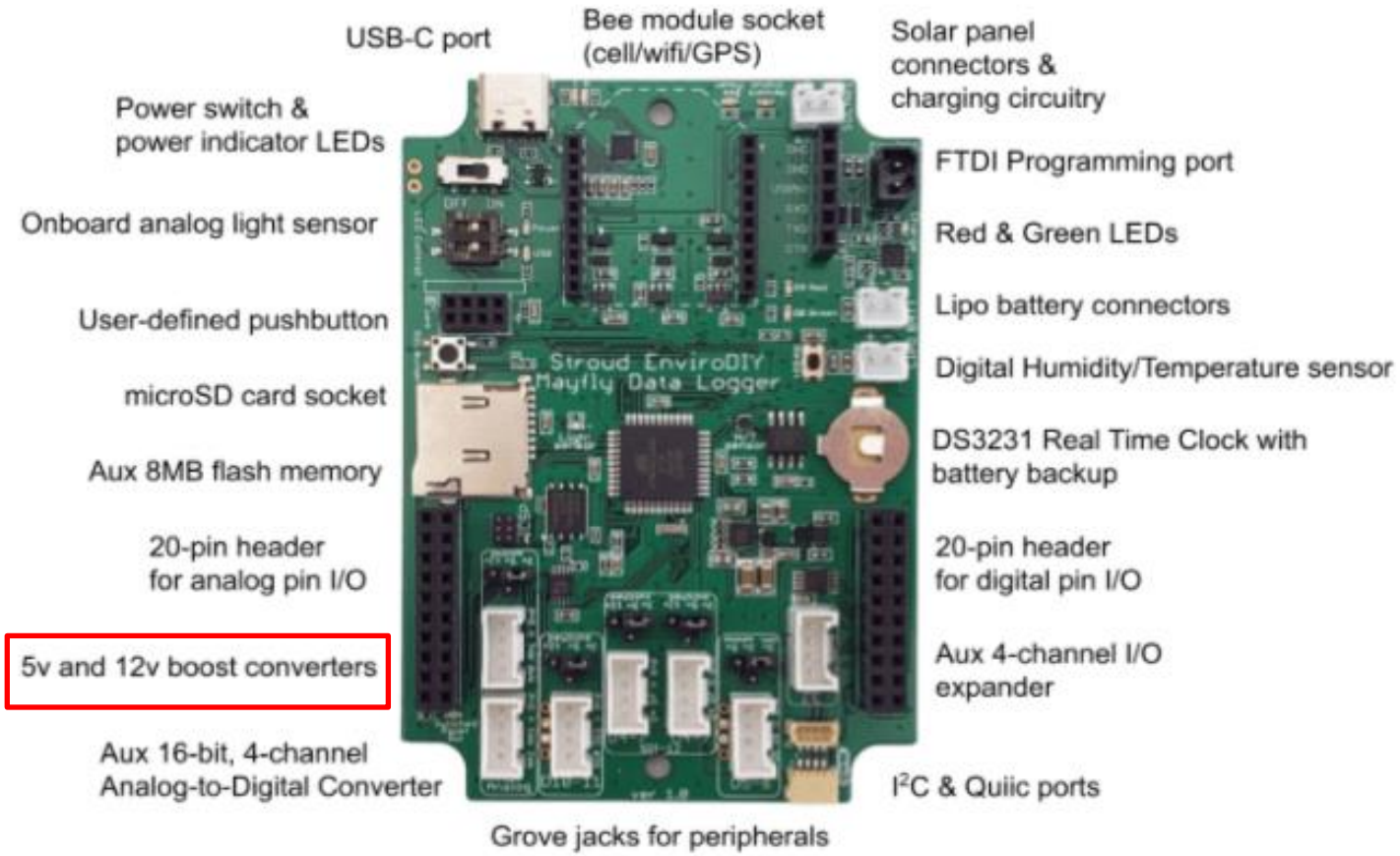
Stroud Center Updates

Features of the EnviroDIY Mayfly Data Logger v1.0



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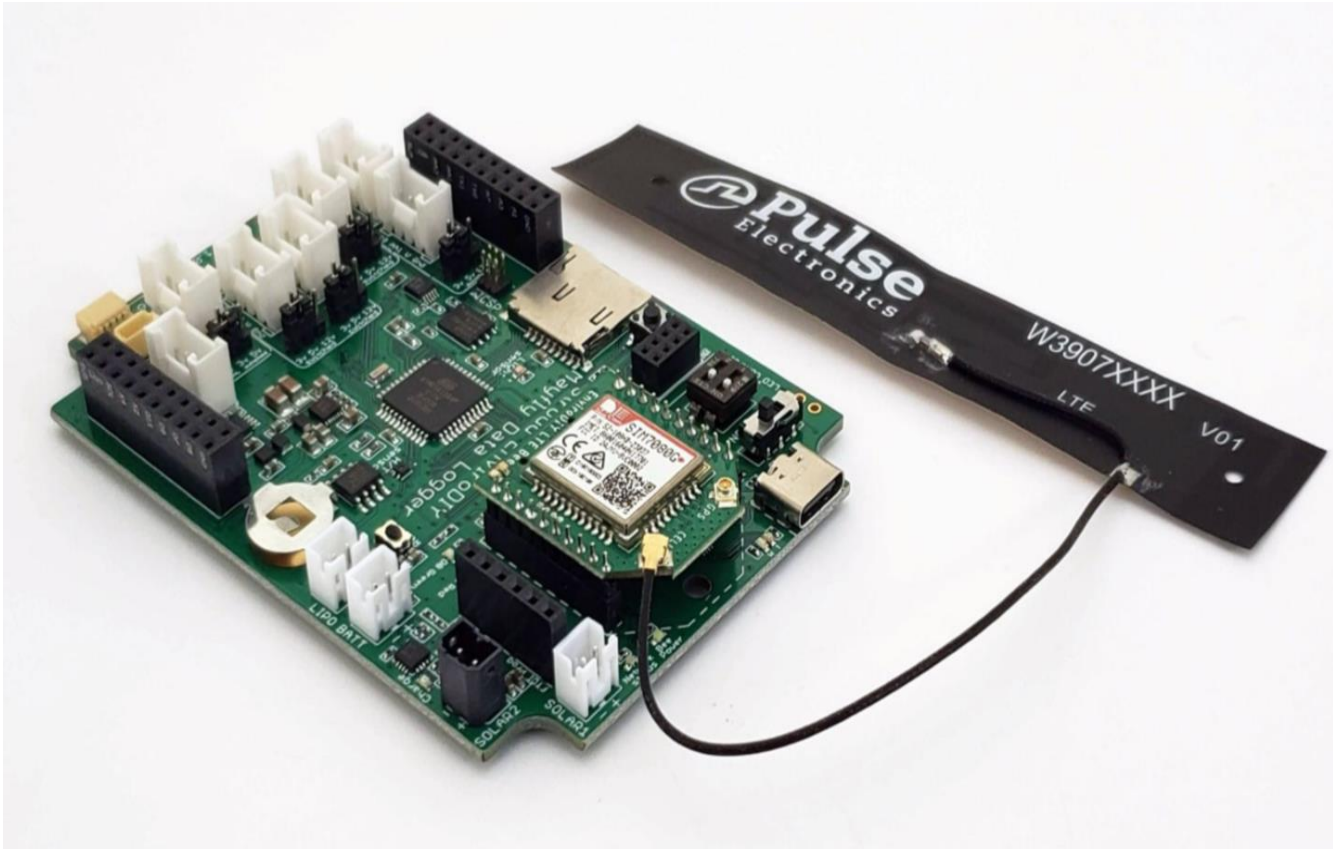
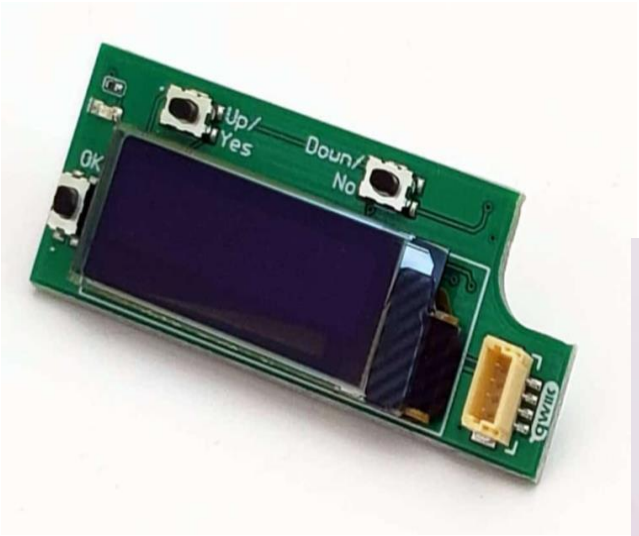
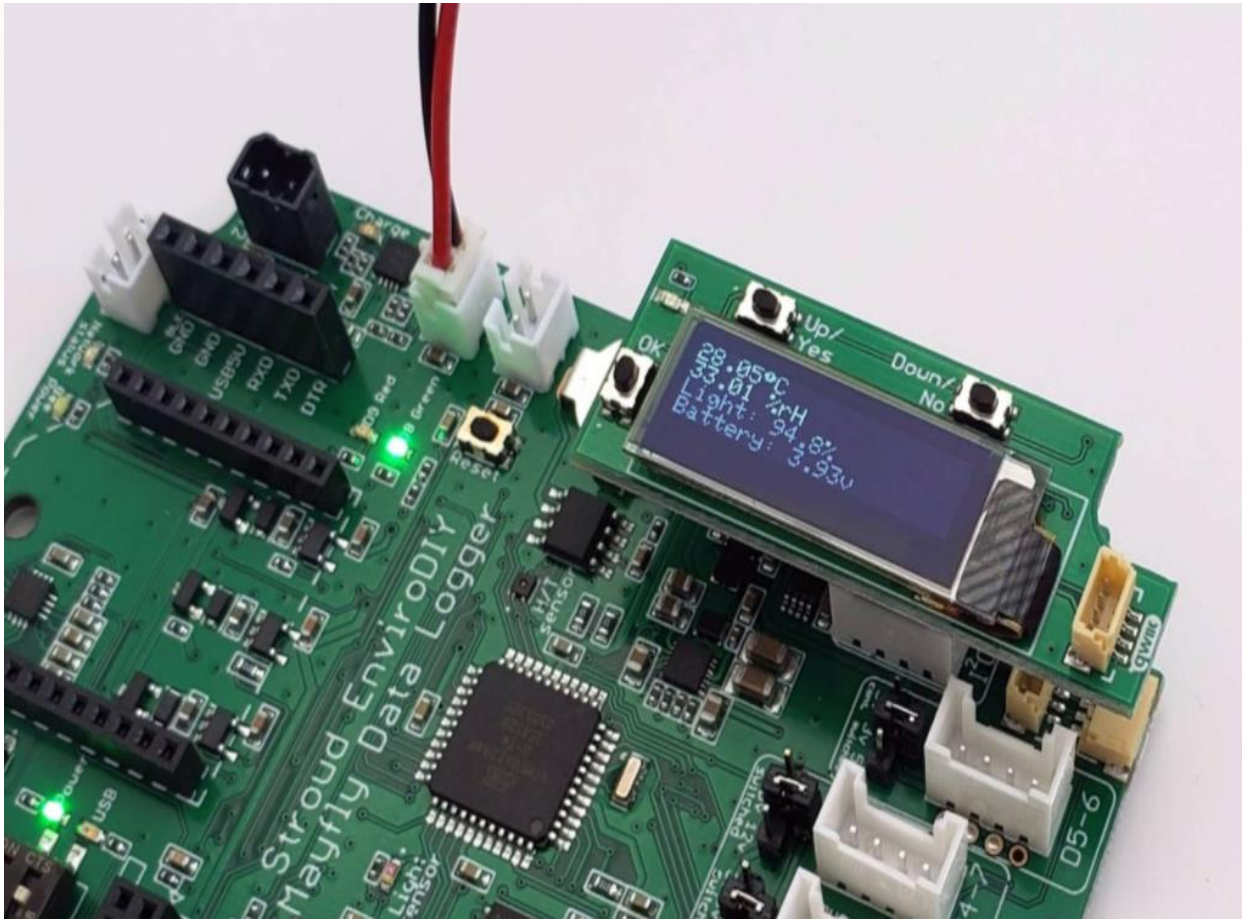
Stroud Center Updates



Stroud Center Updates





Stroud Center Updates

- Shannon is testing wipered Yosemitech turbidity sensor

- Campbell's new Clarivue Turbidity sensor is now available

Any questions before we move on?

Today – Open Discussion

- July survey feedback example suggestions for open discussion:
  - "…you might consider having multiple 5 (10 max) minute presentations by attendees…they could talk about their pet project without having to do a formal PPT for the discussion."
  - "I wonder if there is any way to facilitate more conversation after the presentations among the participants/presenter: a time where folks might reflect, consider how the presentation affects their own work, etc. Just a little bit deeper conversation than we get into during a quick Q&A after presentations. Although prompting conversation like this is especially difficult on Zoom, so I understand the challenge of this suggestion."

Future meetings

- November 18, 2021 – Tech updates from Shannon Hicks? Winter salt presentation??

- December 16, 2021 – Ideas???

STROUD WATER RESEARCH CENTER

Reminder: Resources to Support the Work

https://wikiwatershed.org/drwi/

General Resources

- EnviroDIY Field Visit Data
- EnviroDIY Monitoring Station Help Resources
- Data and Data Visualization Resources
- Volunteer Management Guidance Materials
- WikiWatershed Toolkit
- Project Updates

Meetings, Workshops, and Conferences

- Monthly EnviroDIY-DRWI User Group Meetings
- User Support Workshops and Trainings
- Conference Presentations
- Watershed Ecology Workshops

STROUD WATER RESEARCH CENTER

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
- **Station owners/managers organize volunteers/others to attend and share Zoom link**

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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

STROUD WATER RESEARCH CENTER

Resources to Support the Work

- **Delaware Basin EnviroDIY Monitoring Stations**, private online group (https://wikiwatershed.org/groups/delaware-basin-sensor-stations/)

  - Pose questions to the user group community
  - Check for updates and new posts
  - Set it for daily or weekly email updates

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Conclusion

Next month's meeting will be on:

Thursday November 18, 2021
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
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