

WELCOME!

Monthly EnviroDIY in the DRB User Group Meeting

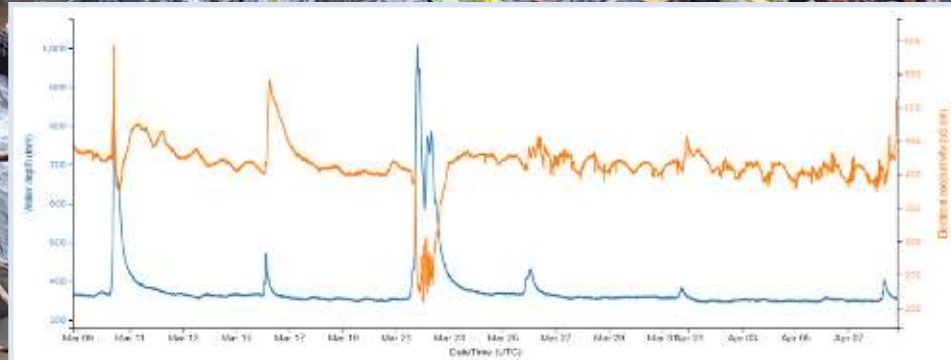
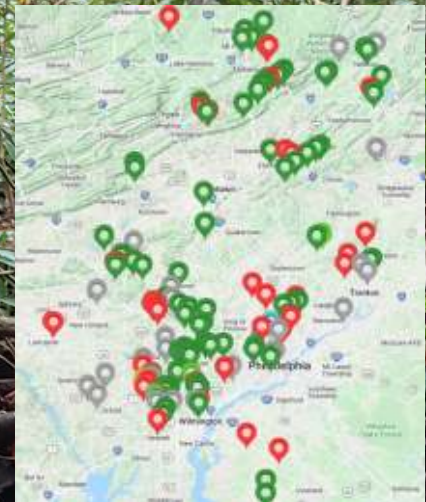
Online, Thursday, July 21, 2022, 2:30-3:30p



EnviroDIY



Monitor My Watershed®



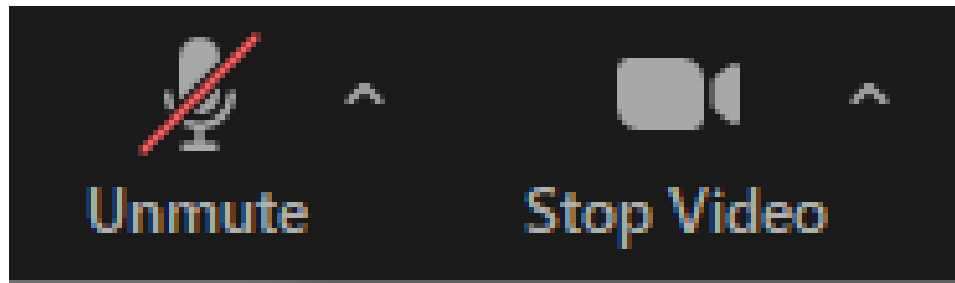
STROUD
WATER RESEARCH CENTER



Zoom Orientation



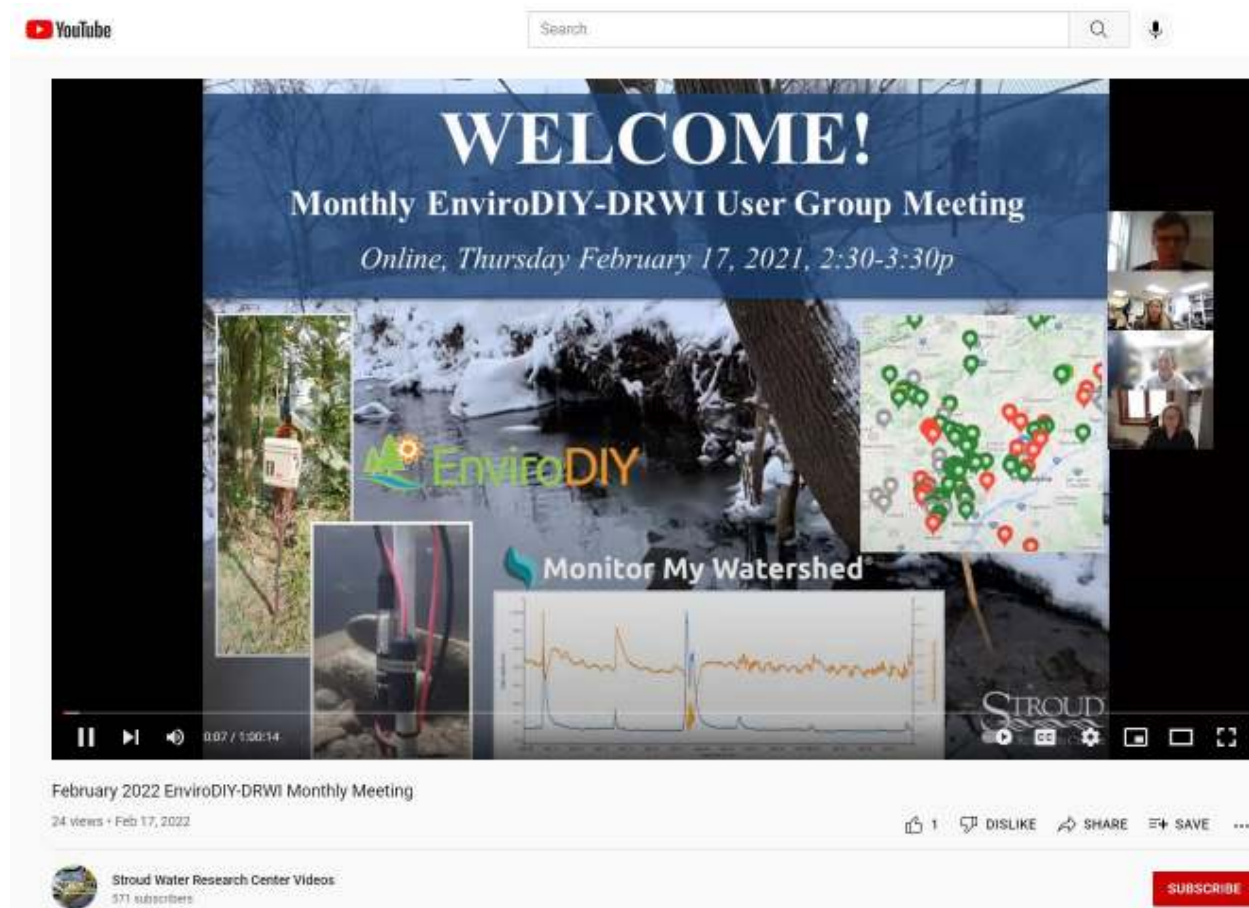
***Meeting is being recorded**



***Mute unless asking question**

These Monthly Meetings

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



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

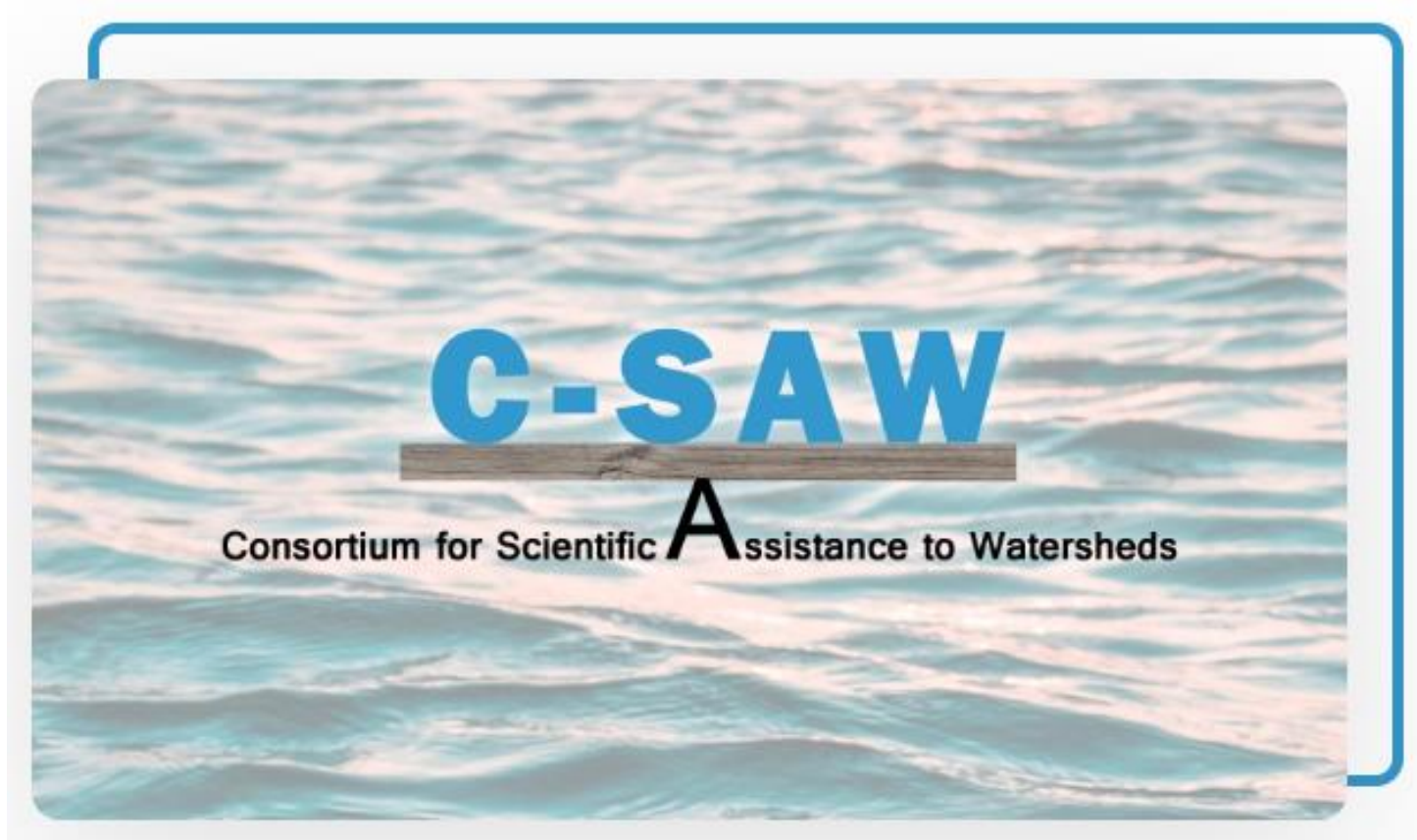
Delaware River Watershed Initiative (DRWI)

<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

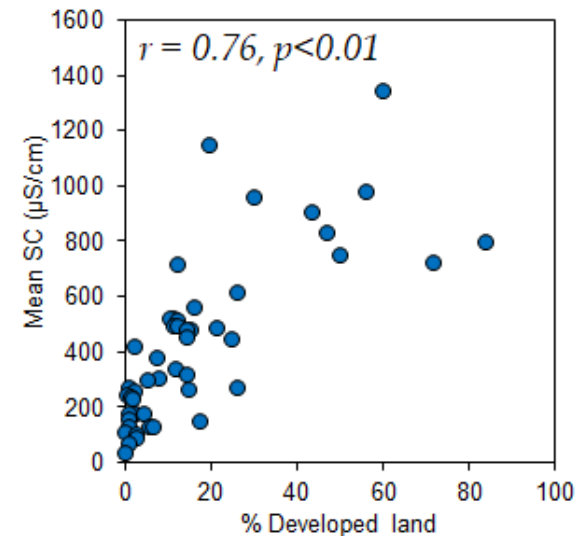
Dr. David Arscott



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: Collaborative project in the Tunkhannock Creek watershed in Monroe Co, PA to monitor a possible nearby warehouse development project,
 - Geoff Rogalsky (Tobyhanna Creek/Tunkhannock Creek Watershed Association) and Alex Jackson (Brodhead Watershed Association)
4. Discussion
5. Conclusion

Stroud Center Updates

- EnviroDIY Monitoring Station Manual has been updated and has a new searchable format

The screenshot displays the EnviroDIY website interface. At the top, a dark blue header contains the EnviroDIY logo (a green tree and orange sun) and a navigation bar with links: About, Participate, Mayfly, Blog, Forums, Videos, Shop, Help, Register, and Log In. A search icon is also present. Below the header, a light blue banner reads "An Initiative of Stroud Water Research Center". On the right side of this banner are links for "Subscribe" and "EnviroDIY on GitHub". The main content area features a large orange gear icon on the left and a welcome message: "Welcome to EnviroDIY, a community for do-it-yourself citizens, conservation practitioners, municipal decision makers. Want to get involved? Join us today! Want to know more about EnviroDIY? [Start here](#)". In the center, a dropdown menu is open, listing "Getting Started", "Hardware", "Software", "Forum", and "Monitoring Station Manual and Appendices" (which is highlighted in dark grey). To the right of the dropdown, text states: "EnviroDIY is part of [WikiWatershed](#), a web toolkit designed to help students advance knowledge and stewardship of fresh water. **New**". At the bottom right, a section titled "UPCOMING EVENTS" lists an event for April 27-28: "Hybrid Workshop: Building an EnviroDIY Monitoring Station".

EnviroDIY

About ▾ Participate ▾ Mayfly ▾ Blog Forums ▾ Videos Shop ▾ Help Register Log In

An Initiative of Stroud Water Research Center

Subscribe EnviroDIY on GitHub

Welcome to EnviroDIY, a community for do-it-yourself citizens, conservation practitioners, municipal decision makers. Want to get involved? Join us today! Want to know more about EnviroDIY? [Start here](#)

Getting Started

Hardware

Software

Forum

Monitoring Station Manual and Appendices


EnviroDIY is part of [WikiWatershed](#), a web toolkit designed to help students advance knowledge and stewardship of fresh water. **New**

UPCOMING EVENTS

APR 27 April 27 - April 28 Hybrid Workshop: Building an EnviroDIY Monitoring Station

Stroud Center Updates


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



About ▾Participate ▾Mayfly ▾BlogForums ▾VideosShop ▾HelpRegisterLog In

An Initiative of Stroud Water Research Center

SubscribeEnviroDIY on GitHub



Welcome to EnviroDIY, a community for do-it-yourself environmental science and monitoring. EnviroDIY is part of [WikiWatershed](#), a web toolkit designed to help citizens, conservation practitioners, municipal decision-makers, researchers, educators, and students advance knowledge and stewardship of fresh water. **New to EnviroDIY?** [Start here](#)

Search the Knowledge Base

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

[View all](#)

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 Sensors
- 6. Field Supplies Checklist
- 7. Maintenance Checklist
- 8. Supplemental Sampling, Rating Curves, Loads

[View all](#)

Stroud Center Updates

<https://www.envirodiy.org/envirodiy-monitoring-station-parts-list/>

EnviroDIY Monitoring Station Parts List

This is the comprehensive parts list for building an EnviroDIY Monitoring station. Detailed instructions can be found in the EnviroDIY Monitoring Station Manual and Appendices available in the [knowledge base](#).

Items with (*) in the Product Name are included in the [EnviroDIY Monitoring Kit](#).

Please email webmaster@stroudcenter.org if you have trouble viewing this table.

EnviroDIY Parts List (PUBLIC) - Dynamic List

Product Name	Section In EnviroDIY online manual	Manufacturer	Vendor	Vendor Link	Unit Cost	Quantity	Unit x Quantity	Model Description
EnviroDIY Mayfly Wireless Data Logging System								
EnviroDIY Monitoring Station Kit	Section 3.5	Stroud Water Research Center	EnviroDIY	Link	\$475.00	1	\$475.00	The EnviroDIY Monitoring Station Kit contains: Mayfly Data Logger and microUSB cable for connection with computer, EnviroDIY LTE bee, Hologram Global SIM card, 2 microSD cards and standard SD card adapter, vertical microSD clock, waterproof Pelican case with pre-cut foam and pre-drilled holes for cable glands (one for holding logger inside the Pelican case, 6-volt 3.5-watt solar panel with mounting bracket, Mayfly Data Logger, 2 waterproof cable glands: 1 small (3/8" NPT for cables 0.08" - 0.24"), 1 for mounting the waterproof box on a post, Grove cable and a Grove-to-3.5 mm jack adapter and stainless steel retaining pin for attaching sensor bundle to steel rebar (rebar not included).
EnviroDIY Mayfly Data Logger Starter Kit		Stroud Water Research Center	Amazon / EnviroDIY	Link	\$130.00	1	\$130.00	Includes waterproof enclosure with clear lid, 0.5-watt solar panel, Custom microSD connector adapter, 1-meter microUSB cable, and 2 Grove cables.
CR1220 12mm Diameter - 3V Lithium Coin Cell Battery *	Section 4.4	Panasonic - RSG	Digi-Key	Link	\$1.01	1	\$1.01	lithium batteries for the Mayfly board so they'll retain the clock time after programming
Lithium Ion Battery Pack - 3.7V 4400mAh (recommended size)	Section 6.1	Adafruit Industries LLC	Adafruit	Link	\$19.95	1	\$19.95	This lithium ion pack is made of 2 balanced 2200mAh cells for a total of 4400mAh capacity
Lithium Ion Battery Pack - 3.7V 4400mAh (recommended size)	Section 6.1	Adafruit Industries LLC	Digi-Key	Link	\$19.95	1	\$19.95	optional vendor
EnviroDIY LTE Bee *	Section 6.1	Stroud Water Research Center	EnviroDIY		\$50.00	1	\$50.00	Bluetooth, Cellular 4G LTE CAT-M1 (AT&T/Verizon) Transceiver Module Antenna Not Included
Cellular LTE antenna *	Section 6.1	Pulsar, Arsen Antennas	Digi-Key	Link	\$4.50	1	\$4.50	4G LTE cellular antenna with U.FI connector
Hologram Global SIM Card *	Section 6.1	Hologram	Hologram	Link	\$5.00	1	\$5.00	SIM card required for 2G or 3G communication
Medium 6V 2W Solar panel *	Section 6.4, 7.3	Voltaic Systems	Adafruit	Link	\$29.00	0	\$0.00	Standard for CTD sensor install
Grove 4Pin Cables 20cm (5PACK) *	Section 6.3	Sesad Technology Co., Ltd	Digi-Key	Link	\$3.20	1	\$3.20	Grove series Cable Assembly
Term Block Plug 2POS STR 2.5mm(connector for solar panel cable) *	Section 6.2	Phoenix Contact	Digi-Key	Link	\$0.96	1	\$0.96	2 Position Terminal Block Plug, Female Sockets 0.098" (2.50mm) - 180° Free Hanging (In-Line)
Grove to sensor adapter boards for CTD (Grove to 3.5mm stereo jack) 5 pack *	Section 6.2	EnviroDIY	EnviroDIY	Link	\$35.00	1	\$35.00	to connect CTD sensor to board via grove socket to headphone jack connector

Stroud Center Updates

- Reminder to request assistance via the EnviroDIY Service Request Form
 - <https://wikiwatershed.org/drwi/>



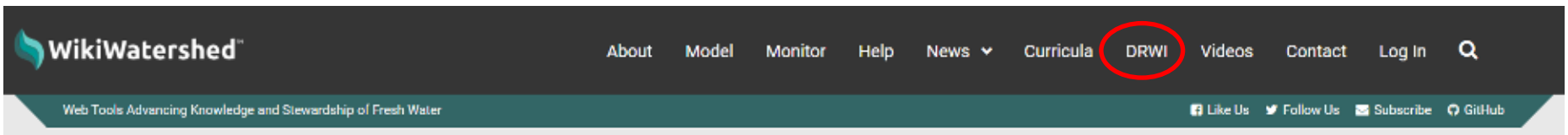
EnviroDIY Monitoring Station Service Request Form

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 Center Updates

- Reminder on resources available at <https://wikiwatershed.org/drwi/>
- <https://wikiwatershed.org>



Use the links below to jump to a specific section of this page.

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](#)

Meetings, Workshops, and Conferences

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

EnviroDIY Field Visit Data

[EnviroDIY Field Visit Data Form \(Online\)](#)

Stroud Center Updates

- Reminder on standard first step in troubleshooting station if it has gone offline:
 - Check battery power is $>3.5\text{v}$
 - If yes proceed to next step
 - If no, swap in new battery
 - Turn station off
 - Swap SD cards (if station is offline)
 - Turn station on
 - See if problem resolves
 - Send SD card file and description of key issue(s) to the Stroud Center and continue troubleshooting process



Stroud Center Updates

- New model (generation 2) of the Hydros 21 CTD sensor by Meter Group is now available

HYDROS 21
Conductivity, Temperature,
Depth Sensor



*** Need to change SDI-12 address (“channel”) from 0 to 1**

Stroud Center Updates

- **Technology Updates**

- Bluetooth Sensor Interface, <https://www.metergroup.com/en/meter-environment/products/zsc-bluetooth>

ZSC
Bluetooth Sensor Interface








Qty	Item	Tax	Rate	Amount
1	40416 ZSC Bluetooth Sensor Interface for use with ZENTRA Utility Mobile stereo connector ZSC Bluetooth Sensor Interface, stereo		\$79.00	\$79.00
				Subtotal \$79.00
				Shipping & Handling \$14.00
				Tax Total (0%) \$0.00
				Total (USD) \$93.00

Stroud Center Updates

- Bluetooth Sensor Interface, <https://www.metergroup.com/en/meter-environment/products/zsc-bluetooth>
 - Useful functions:
 - **Viewing CTD sensor data**
 - **Changing CTD SDI-12 address (“channel”)**
 - **Other useful info**
 - **Status window that can warn of freeze damage**

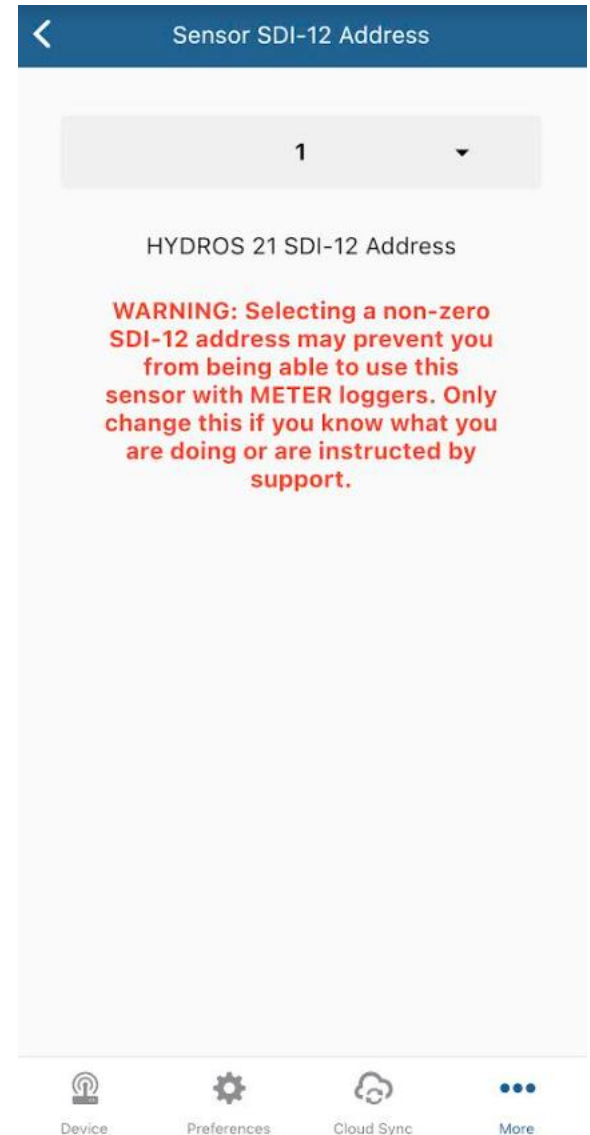
Stroud Center Updates

- Viewing sensor data

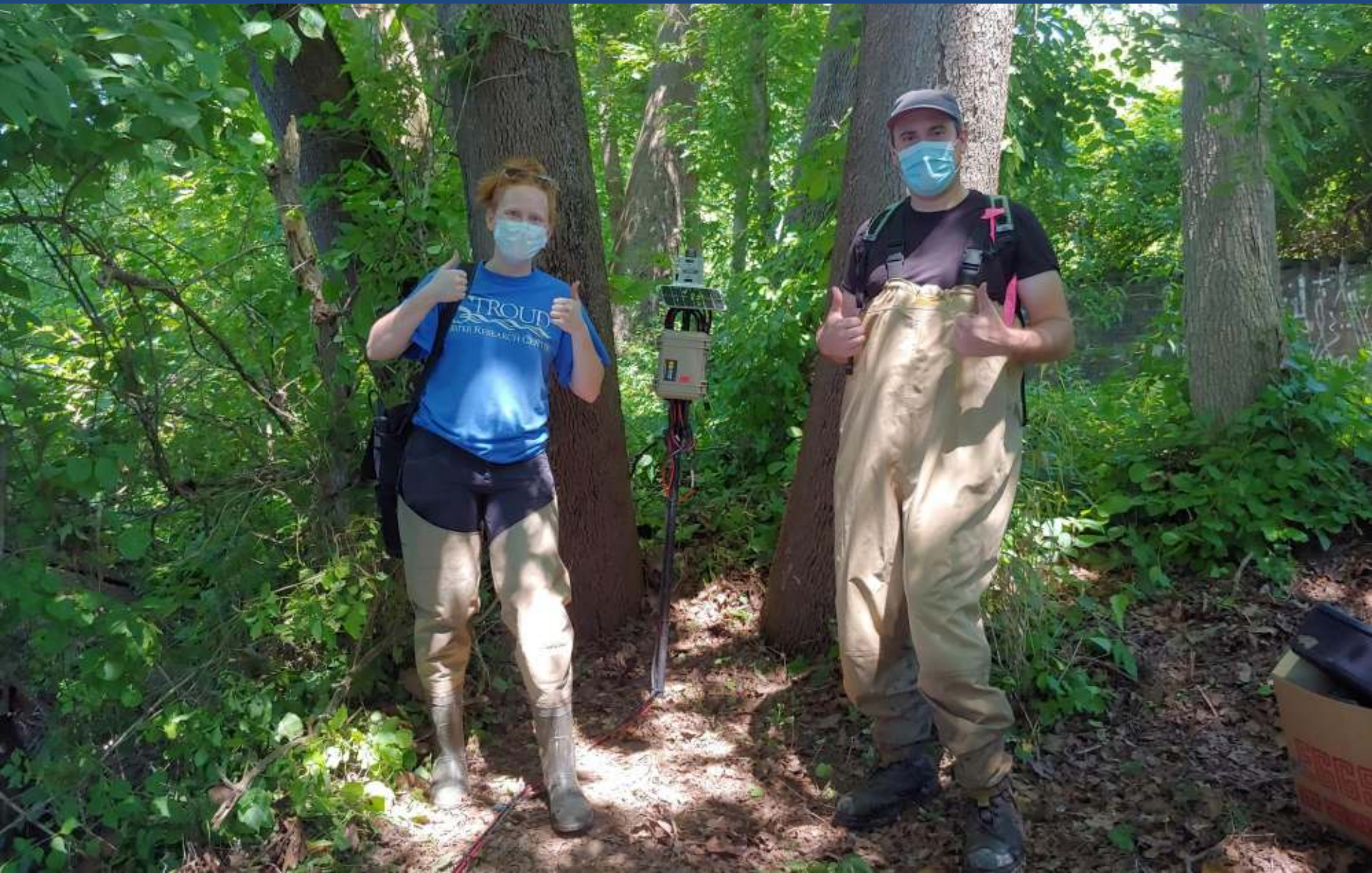
< ZSC60387 HYDROS 21	
Sensor Information	
Name	HYDROS 21
Firmware	5.04
Serial Number	H21G200000296
Status	✓
Extra Value	N/A
Measurements	
Water Level	13 mm
Water Temperature	27.8 °C
EC	0.002 mS/cm
	
 Device	 Preferences
 Cloud Sync	 More

Stroud Center Updates

- Changing sensor SDI-12 address (“channel”) - change from 0 to 1 for Hydros21 CTD
 - Click More -> sensor tools -> Sensor SDI-12 Address ->



Any questions before we move on?



Presentation

- Continuous monitoring in the Tunkhannock Creek watershed in anticipation for possible warehouse development



Geoff Rogalsky, President,
Tobyhanna Creek/Tunkhannock
Creek Watershed Association



Alex Jackson, Executive Director,
Brodhead Watershed Association

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 August 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
- George Seeds, geoseeds@verizon.net, 484-886-9586