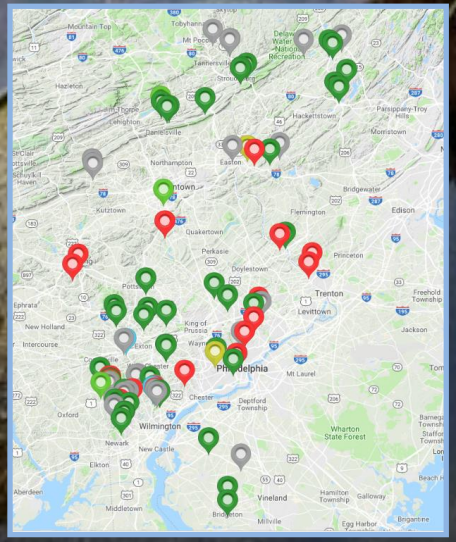
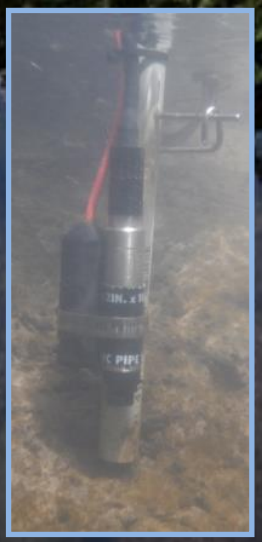
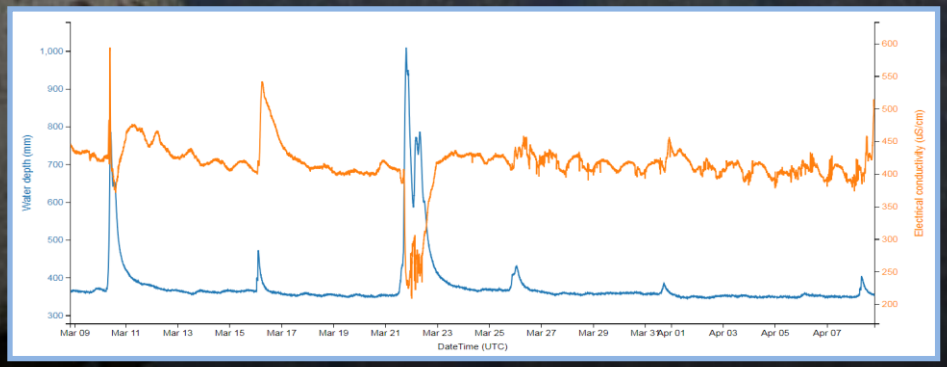
Master Watershed Stewards
EnviroDIY Sensor Station Training
Maintenance and Quality Control

July 20, 2019 at Berks Ag Center

Facilitators: David Bressler, Rachel Johnson, Matt Gisondi, Mitch Evans, George Seeds







WILLIAM PENN FOUNDATION

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Agenda

- 9:00-9:15 – Welcome, refreshments, light breakfast
- 9:15-10:00 – Introduction and overview for the day
- 10:00-10:15 – Break and get ready to go to site
- 10:15-12:15 – On-site training at Unnamed Tributary to Plum Run, break into two groups
- 12:15-1:00 – Lunch
- 1:00-1:30 – Review of online data entry, Monitor My Watershed, and drwisensors.dreamhosters.com
- 1:30-3:00 – Small group organizing sessions
- 3:00-3:30 – Wrap up, distribute equipment and supplies
- 3:30-4:30 – 1:1 meetings as needed

***Everyone does everything, work in pairs**

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A few things

- **Purpose: train, match with stations, and define roles**
- This is a training – stay focused so when we leave everyone is ready to go, ask questions if you're not sure
- We are looking for committed, self-motivated, proactive volunteers, minimum of 3hrs/month
- Each attendee will leave with:
  - Sites to tend to
  - Things to do (maintenance and/or QC)
  - Equipment, supplies, guidance materials
  - Contacts to station owner/manager and mentors

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Goals

- Train Stewards how to:
  - Maintain stations via sensor cleaning, data sheet completion, and online data entry
  - Do quality control (QC) on stations
- Match Stewards up with specific stations
- Determine Steward roles, i.e., maintenance and/or QC
- Set Stewards up with equipment, supplies, and materials (quick guides, contact sheets, etc.)
- Get familiar with online data entry and data portals

- ***Leave training and begin tending to station(s) in collaboration with station owner and mentors**

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Stroud support

- **David Bressler**, Stroud – main contact
- **Shannon Hicks**, Stroud – high level technical support
- **Rachel Johnson**, Stroud – technical support, field assistance, small workshop facilitation
- **Matt Gisondi**, Stroud – data analysis (rating curves, loads), field assistance, 1:1 training
- **Christa Reeves**, Stroud/Musconetcong WA – regional assistance, northern Delaware Basin
- **Carol Armstrong** – PSU Master Watershed Stewards – citizen science volunteer assistance, field maintenance and storm sampling, PSU Master Watershed Stewards mentor
- **George Seeds** – PSU Master Watershed Stewards – citizen science volunteer assistance, field maintenance and storm sampling, PSU Master Watershed Stewards mentor
- **Dave Arscott** (ex dir), **John Jackson** (senior sci), and **Matt Ehrhart** (dir of restoration), Stroud – original project designers

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Context

- Delaware River Watershed Initiative (DRWI), William Penn Foundation
- Citizen Science, Stroud Center facilitation of continuous monitoring using EnviroDIY Mayfly sensor stations
  - ~70 sensor stations deployed across Delaware River Basin
    - Stations owned by watershed groups and schools – grants and private purchase
    - Conductivity, Temperature, Depth (CTD) and Turbidity…and a few with Dissolved Oxygen
    - Solar powered
    - Logging data every 5 minutes
    - Some online, always log to microSD card on-site

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Context

- WHY MASTER WATERSHED STEWARD INVOLVEMENT?
  - Stations take more time to maintain than a lot of groups realized
    - *Opportunity to make significant contributions to the integrity and viability of the data set
    - This is functional and logistical work, not outreach, not engagement

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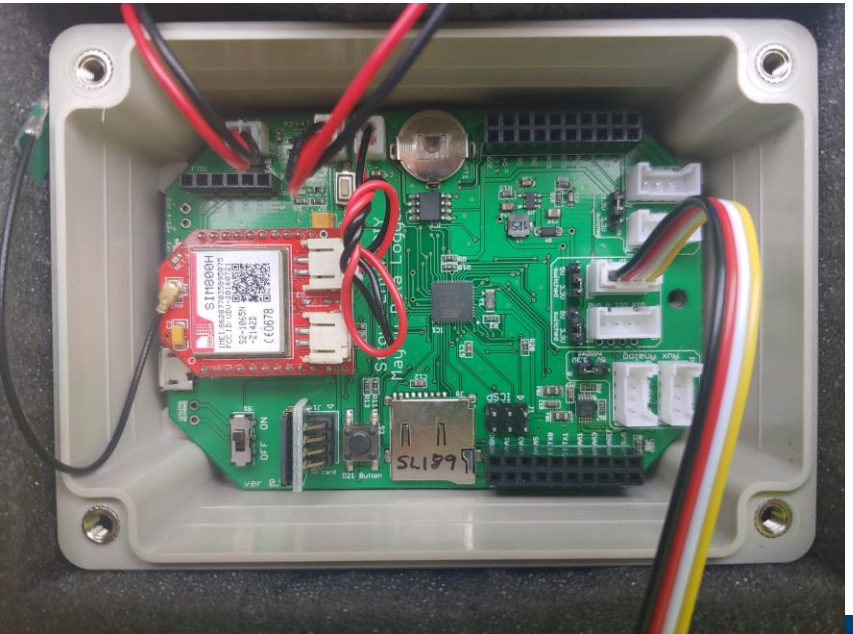


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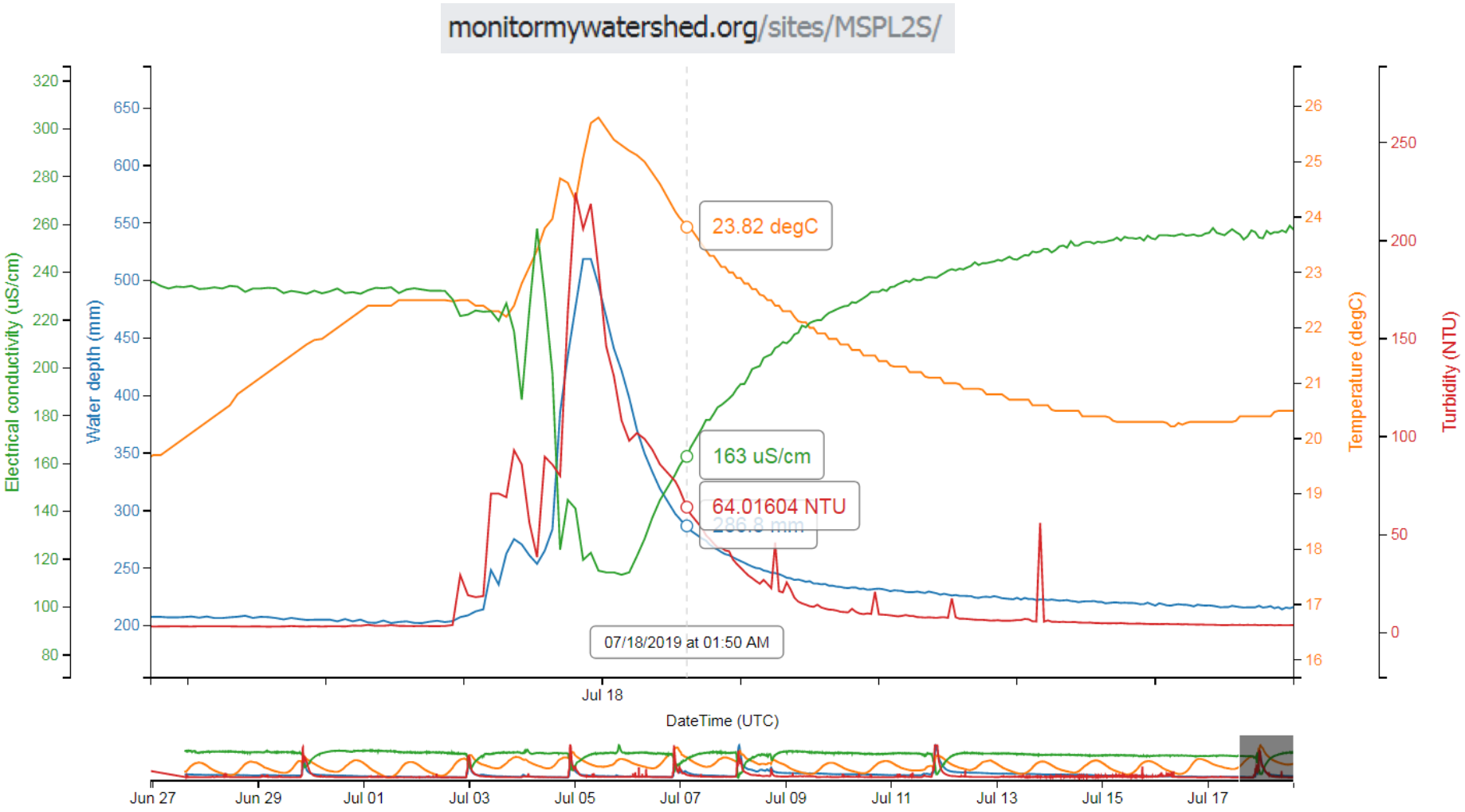
Monitor My Watershed – main data portal



Un-named Tributary to Plum Run (MSPL2S, SL249)

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Recent data usage stories

- The Nature Conservancy, DE – identified illicit and previously unknown oil discharge to stormwater pipes at Concord Mall.
- Montgomery School ongoing investigation of unknown conductivity spikes into Pickering Creek.
- Willistown Conservation Trust identifying flood stage influence on pesticide applications.
- Lopatcong Creek Initiative investigating sources of turbidity spikes during baseflow.
- Primrose Creek Watershed Association tracking water loss due to quarry induced sinkholes.
- Musconetcong Watershed Association – data to comment on dam release issues in Musconetcong River
- Stroud Center analyzing conductivity and temperature data across Delaware Basin – linking to landscape patterns.
    - Possible peer-review publications

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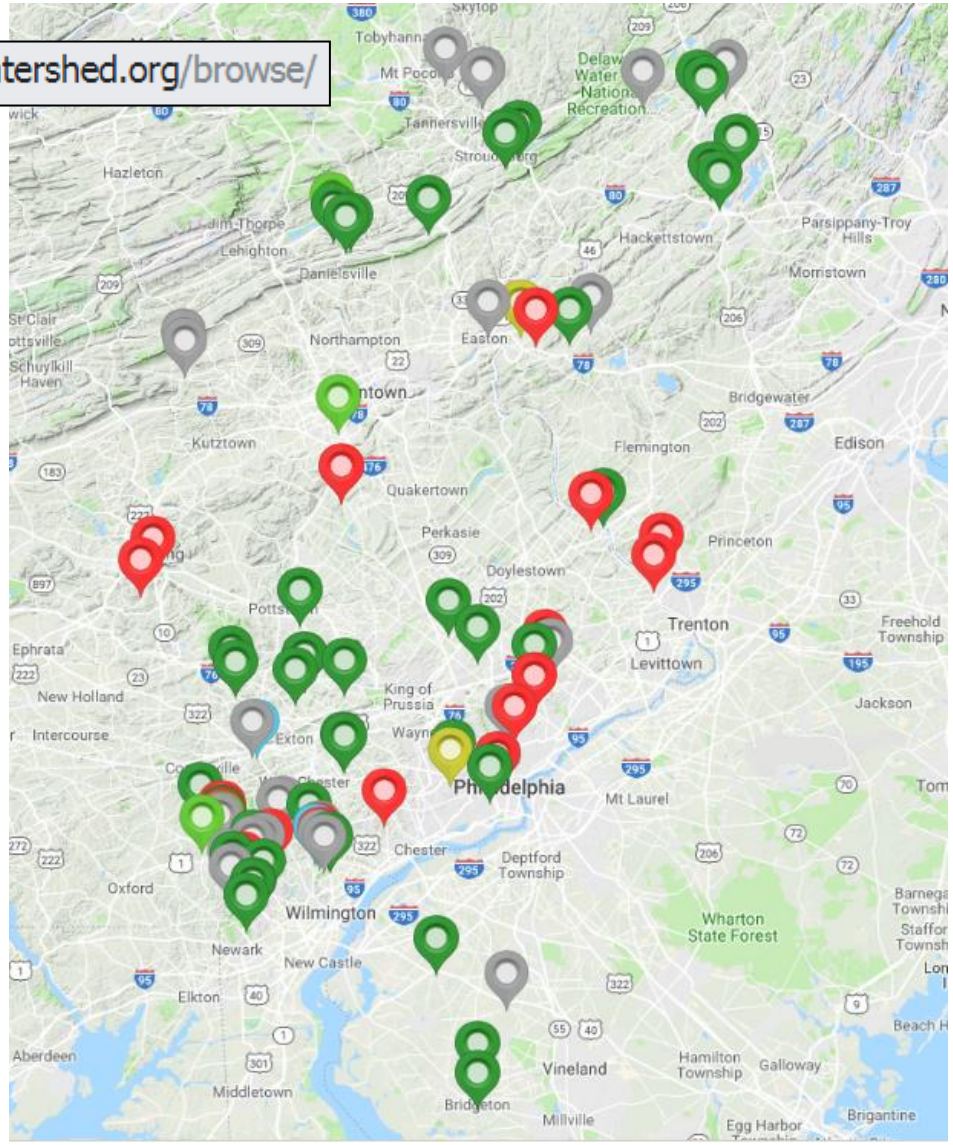
Distribution

monitormywatershed.org/browse/



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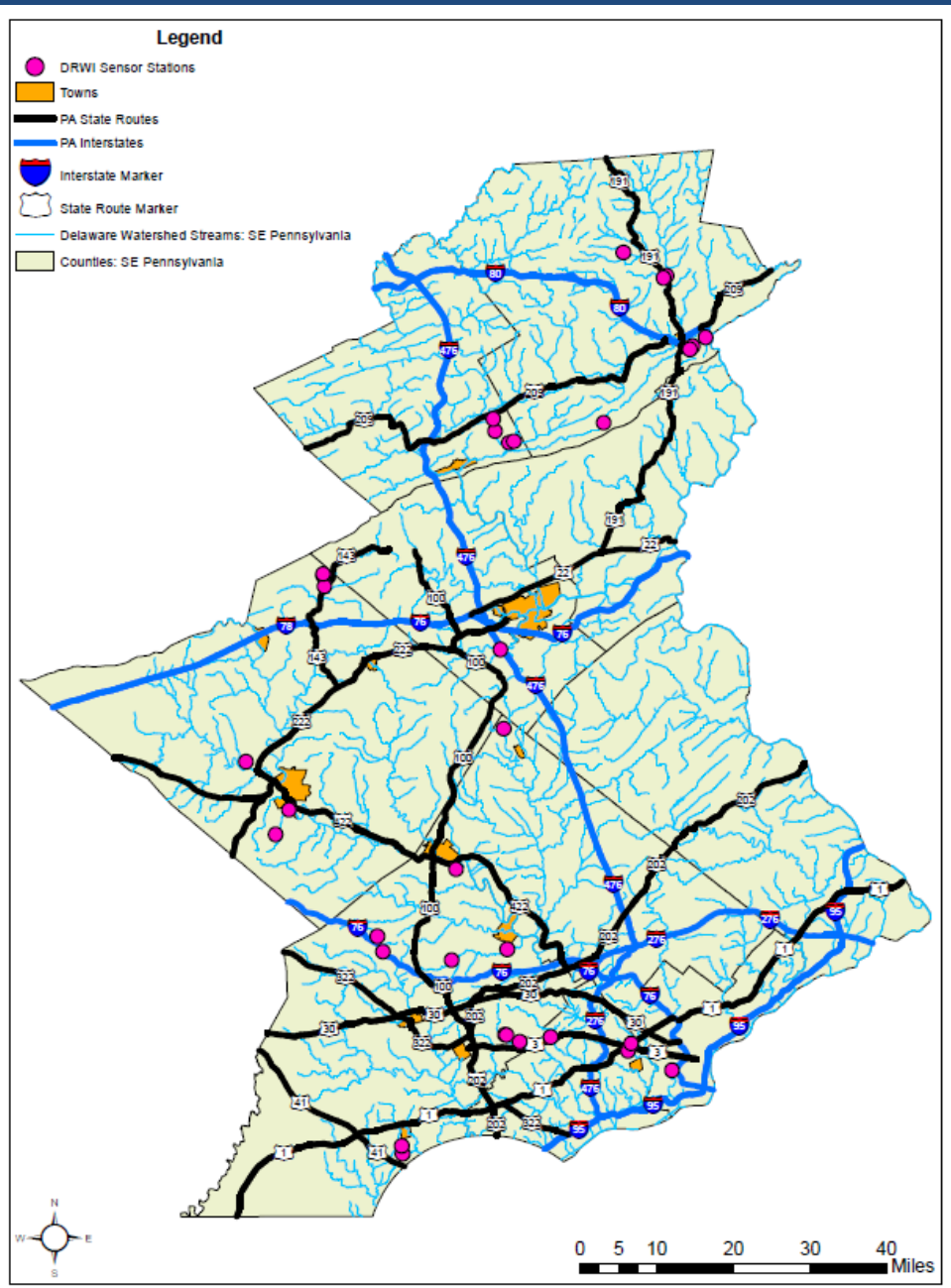

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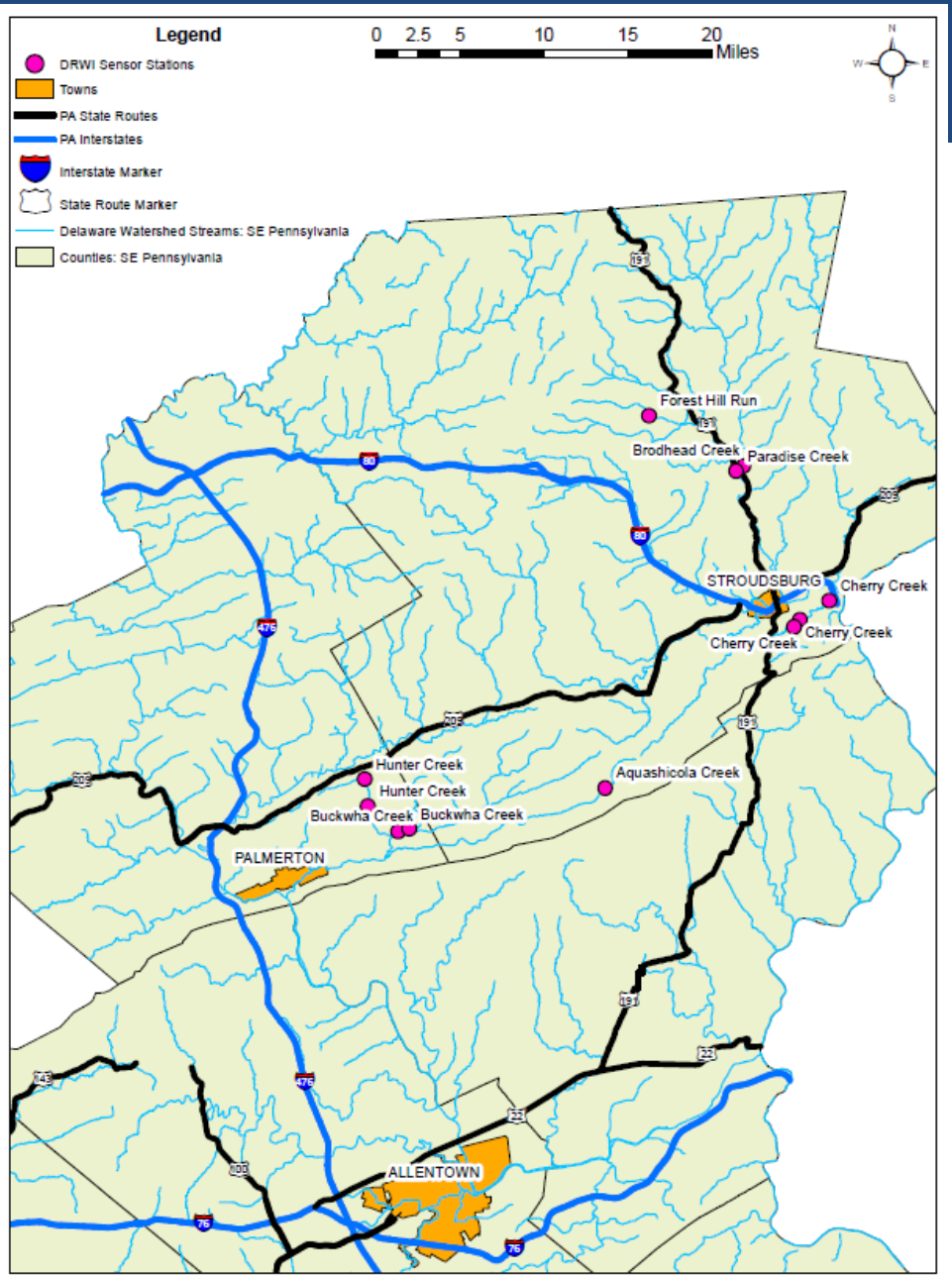

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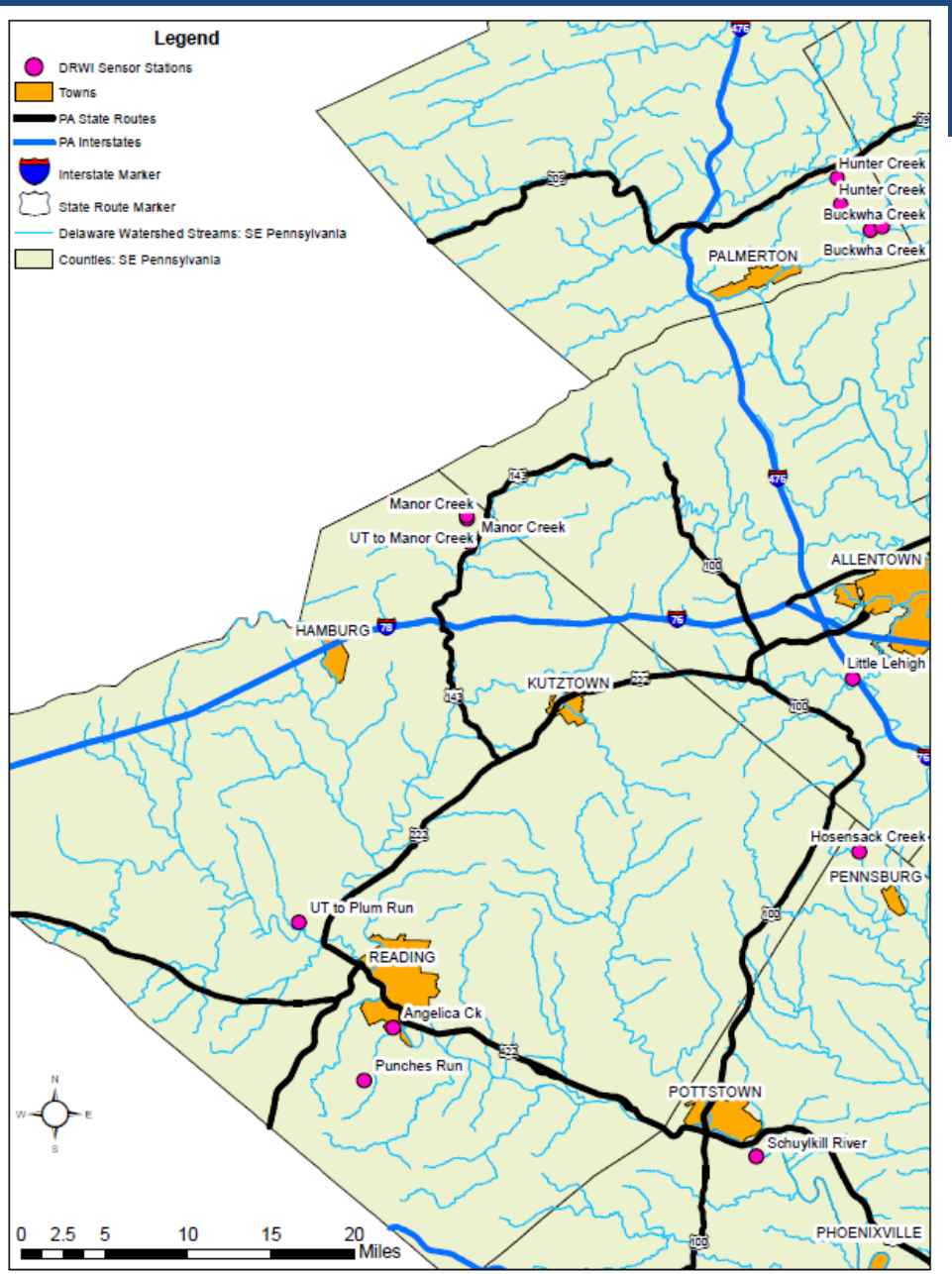

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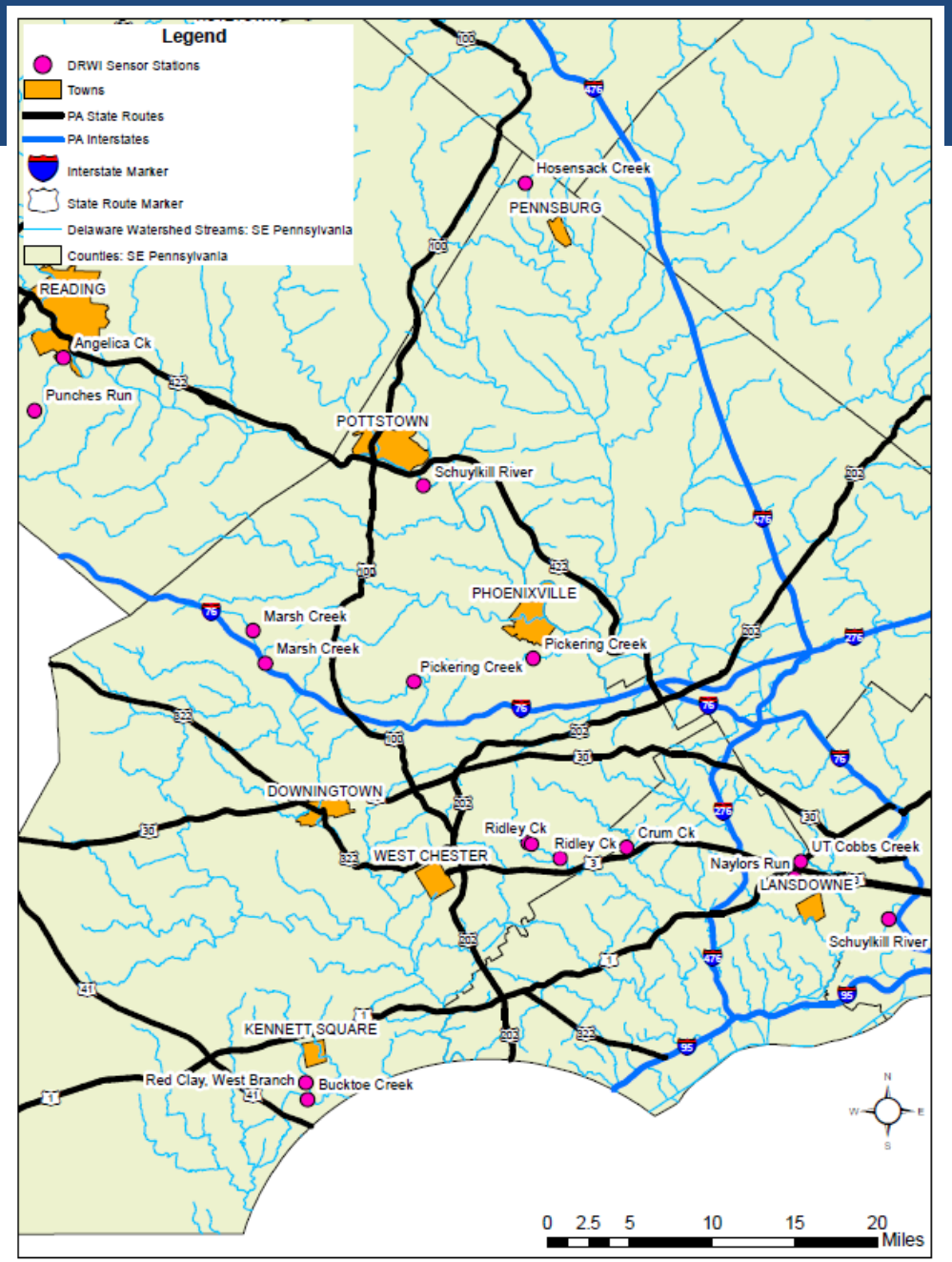

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Master Watershed Steward Sensor Station Contact List

Mentor Contact Info
George Seeds, West Chester, PA; geoseeds@verizon.net; 484-886-9586
Carol Armstrong, Malvern, PA; mnem.np@gmail.com; 610-659-7477
Matt Gisondi (Stroud), Avondale, PA; mgisondi@stroudcenter.org; 215-237-1743
Jerry Griffith, Knauers, PA; jerry.griffith@gmail.com; 717-990-8082

Stroud Contact Info
David Bressler, Avondale, PA; dbressler@stroudcenter.org; 410-456-1071
Shannon Hicks, Avondale, PA; shicks@stroudcenter.org; 302-304-0957
Rachel Johnson, Avondale, PA; rjohnson@stroudcenter.org; 973-557-8995

SiteID	Stream	Location	County	Latitude	Longitude	LoggerID	Lock box code	Group	Contact Info	Deployment Date	Online 2019?	Sensors
MSAC1S	Angelica Creek	Upstream, St Bernadine St	Berks	40.309250	-75.930860	SL167	888	Berks Nature	Michael Griffith (michael.griffith@berksnature.org)	5/8/2018	n	CTD, Turb
ULAQ1S	Aquashicola Creek	Tittle Rd	Monroe	40.863610	-75.337490	SL119	888	Wildlands Conservancy	Kate Ebel (KEbel@wildlandspa.org)	7/26/2017	y	CTD, Turb
PKBH7S	Brodhead Creek	pour point	Monroe	41.073430	-75.218110	SL174	888	East Stroudsburg University	Paul Wilson (pwilson@po-box.esu.edu)	6/7/2018	n	CTD, Turb
BCRC8S	Bucktoe Creek	above WB RCC	Chester	39.812150	-75.717103	SL129	888	The Land Conservancy for Southern Chester County	Carl Hutchinson (stewardshipmgr@tlcforscc.org)	9/28/2017	n	CTD, Turb
ULBC1S	Buckwha Creek	Creyer property, Downstream location	Carbon	40.834990	-75.516390	SL122	888	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited	Jim Vogt (jav45@psu.edu; apwc.nepa@gmail.com), Al Barney (albert.barney@evonik.com), Gerry Madden (gerrymadden@outlook.com)	8/24/2017	y	CTD, Turb
ULBC2S	Buckwha Creek	Christman property, Little Gap Rd, Upstream of ULBC1S (SL122)	Carbon	40.837165	-75.506634	SL152	888	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited	Jim Vogt (jav45@psu.edu; apwc.nepa@gmail.com), Al Barney (albert.barney@evonik.com), Gerry Madden (gerrymadden@outlook.com)	4/10/2018	y	CTD, Turb
PKCV2S	Cherry Creek	Cherry Creek Downstream	Monroe	40.973160	-75.169510	SL103	299	East Stroudsburg University	Paul Wilson (pwilson@po-box.esu.edu)	4/5/2017	y	CTD, Turb
PKCV3S	Cherry Creek	Cherry Creek Upstream	Monroe	40.968620	-75.174760	SL104	299	East Stroudsburg University	Paul Wilson (pwilson@po-box.esu.edu)	5/11/2017	y	CTD, Turb
PKCV4S	Cherry Creek	pour point	Monroe	40.985500	-75.144300	SL169	888	East Stroudsburg University	Paul Wilson (pwilson@po-box.esu.edu)	5/31/2018	y	CTD, Turb
PUCR1S	Crum Creek	Kirkwood Preserve	Chester	39.981482	-75.437663	SL247	888	Willistown Conservation Trust	Lauren McGrath (lbm@wctrust.org)	6/11/2019	n	CTD, Turb
PKFH1S	Forest Hill Run	Fendelander property	Monroe	41.106106	-75.300068	SL154	888	Brodhead Watershed Assocation	Edie Stevens (estevens@ptd.net); Bob Fendelander (bob@guestlinx.com)	4/5/2018	n	CTD, Turb
MSHO2S	Hosensack Creek	Hwy 29	Montgomery	40.425380	-75.526360	SL136	888	Upper Perkiomen High School	Jim Coffey (JCoffeyJr@upsd.org); Dan Moyer (DMoyer@upsd.org)	10/17/2017	y	CTD, Turb
ULHC2S	Hunter Creek	Borger property, Downstream location	Carbon	40.851750	-75.542340	SL121	888	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited	Jim Vogt (jav45@psu.edu; apwc.nepa@gmail.com), Al Barney (albert.barney@evonik.com), Gerry Madden (gerrymadden@outlook.com)	8/24/2017	y	CTD, Turb
ULHC3S	Hunter Creek	Strohl Valley Rd, Upstream of ULHC2S (SL121)	Carbon	40.869140	-75.545200	SL153	888	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited	Jim Vogt (jav45@psu.edu; apwc.nepa@gmail.com), Al Barney (albert.barney@evonik.com), Gerry Madden (gerrymadden@outlook.com)	4/10/2018	y	CTD, Turb
ULLL2S	Little Lehigh	Mill Brook Farms Rec Area	Lehigh	40.539630	-75.531920	SL131	888	Wildlands Conservancy	Kate Ebel (KEbel@wildlandspa.org)	10/3/2017	n	CTD, Turb
MSMC6S	Manor Creek	Manor Ck. (Brown property)	Berks	40.644910	-75.866600	SL107	200	Berks County Conservation District	Kent Himelright (kent.himelright@berkscd.com)	4/26/2017	n	CTD, Turb
MSMC7S	Manor Creek	Manor Ck. (Derkin property)	Berks	40.629630	-75.863830	SL108	200	Berks County Conservation District	Kent Himelright (kent.himelright@berkscd.com)	4/26/2017	n	CTD, Turb
BCMC3S	Marsh Creek	Moore's Rd	Chester	40.126760	-75.764730	SL149	888	Great Marsh Institute	Jim Moore (jom@marshlands.org)	3/15/2018	y	CTD, Turb
BCMC4S	Marsh Creek	Fairview Rd	Chester	40.104790	-75.753880	SL150	888	Great Marsh Institute	Jim Moore (jom@marshlands.org)	3/15/2018	y	CTD, Turb
PUNR1S	Naylors Run	Downstream, Drexel Garden Park	Delaware	39.960990	-75.290820	SL151	888 (additional lock: 33-11-33)	Easter DE Co. Stormwater Coal., Villanova-WPF	Jamie Anderson (jamiea98@yahoo.com); Heather Gosse (heathergosse@gmail.com)	3/19/2018	y	CTD, Turb

SiteID	Stream	Location	LoggerID	Group
ULBC1S	Buckwha Creek	Creyer property, Downstream location	SL122	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited
ULBC2S	Buckwha Creek	Christman property, Little Gap Rd, Upstream of ULBC1S (SL122)	SL152	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited
ULHC2S	Hunter Creek	Borger property, Downstream location	SL121	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited
ULHC3S	Hunter Creek	Strohl Valley Rd, Upstream of ULHC2S (SL121)	SL153	Aquashicola/Pohopoco Watershed Conservancy, Trout Unlimited
PUSR2S	Schuylkill River	Bartrams Garden	SL176	Bartrams Garden
MSMC6S	Manor Creek	Manor Ck. (Brown property)	SL107	Berks County Conservation District
MSMC7S	Manor Creek	Manor Ck. (Derkin property)	SL108	Berks County Conservation District
MSMC17S	UT to Manor Creek	Josh Brown home, upstream	SL173	Berks County Conservation District
MSAC1S	Angelica Creek	Upstream, St Bernadine St	SL167	Berks Nature
MSPR2S	Punches Run	Nolde State Forest	SL168	Berks Nature; Nolde Forest Environmental Education Center
PKFH1S	Forest Hill Run	Fendelander property	SL154	Brodhead Watershed Assocation
PUCC2S	UT Cobbs Creek	McCall Golf and Country Club	SL137	Darby Creek Valley Association
PKBH7S	Brodhead Creek	pour point	SL174	East Stroudsburg University
PKCV2S	Cherry Creek	Cherry Creek Downstream	SL103	East Stroudsburg University
PKCV3S	Cherry Creek	Cherry Creek Upstream	SL104	East Stroudsburg University
PKCV4S	Cherry Creek	pour point	SL169	East Stroudsburg University
PKPC3S	Paradise Creek	pour point	SL175	East Stroudsburg University
PUNR1S	Naylors Run	Downstream, Drexel Garden Park	SL151	Easter DE Co. Stormwater Coal., Villanova-WPF
BCMC3S	Marsh Creek	Moore's Rd	SL149	Great Marsh Institute
BCMC4S	Marsh Creek	Fairview Rd	SL150	Great Marsh Institute
MSPL2S	UT to Plum Run	Berks County Conservation District office	SL249	Master Watershed Stewards, Berks Co.
SHPK5S	Pickering Creek	Montgomery School	SL135	Montgomery School, Green Valleys Association, Stroud Center
SHPK6S	Pickering Creek	Phoenixville YMCA	SL138	Montgomery School, Green Valleys Association, Stroud Center
MSSR2S	Schuylkill River	Towpath Park, Pottstown	SL191	Schuylkill River Greenways
BCRC8S	Bucktoe Creek	above WB RCC	SL129	The Land Conservancy for Southern Chester County
BCRC7S	Red Clay, West Branch	Bucktoe Preserve	SL130	The Land Conservancy for Southern Chester County
MSHO2S	Hosensack Creek	Hwy 29	SL136	Upper Perkiomen High School
ULAQ1S	Aquashicola Creek	Tittle Rd	SL119	Wildlands Conservancy
ULLL2S	Little Lehigh	Mill Brook Farms Rec Area	SL131	Wildlands Conservancy
PUCR1S	Crum Creek	Kirkwood Preserve	SL247	Willistown Conservation Trust
PURC1S	Ridley Creek	Upstream of Ashbridge Lake, Ashbridge Preserve	SL155	Willistown Conservation Trust
PURC3S	Ridley Creek	Ridley Creek Garret Mill	SL248	Willistown Conservation Trust
PURC2S	Ridley Creek	Downstream of Ashbridge Lake, Ashbridge Preserve	SL156	Willistown Conservation Trust

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Group 1 – Dave Bressler and Mitch Evans

Kathy Brown – Aquashicola, others (Cherry, etc)?

Sue Bittner – Aquashicola, others (Cherry, Buckwha/Hunter, etc)?

Richard Cattermole – Manor Derkin, Manor Brown, UT to Manor

Rebecca Williams – Manor Derkin, Manor Brown, UT to Manor

Anna Leigh – Hunter/Buckwha, Manor Derkin, Manor Brown, UT to Manor

Jerry Griffith – Manor Derkin, Manor Brown, UT to Manor, Punches

Simon Molloy – Little Lehigh, Hosensack

Jacquline Wolf Tice – Little Lehigh, Hosensack

David George – Schuylkill Pottstown, Angelica, Punches

Meghan Clark – Schuylkill Pottstown, Angelica, Punches

Susan Drake – Schuylkill Pottstown, Angelica, Punches

Steve Tricarico – Angelica, Punches, UT to Plum

Cindy Murdough – Angelica, Punches, UT to Plum

Jim Keller – Angelica, Punches, UT to Plum

Anna Leigh – Angelica, Punches, UT to Plum

Kevin Lugo – Angelica, Punches, UT to Plum

Bethany Ayers Fisher – Angelica, Punches, UT to Plum

Karin Wulkowicz – UT to Plum

Group 2 – Matt Gisondi and George Seeds

Elizabeth Ianelli – W Br Red Clay, Bucktoe, Naylors

Robert Ianelli – W Br Red Clay, Bucktoe, Naylors

Diane McGovern – W Br Red Clay, Bucktoe

Dale Weaver – Ridley Ashbridge Preserve US and DS, Naylors

Richard Mooney – Ridley Ashbridge Preserve US and DS, Naylors

George Seeds - Ridley Ashbridge Preserve US and DS

Lori Moore – Marsh Moore's, Marsh Fairview

Gary Grahl – Marsh Moore's, Marsh Fairview

Tom Kalusky – Marsh Moore's, Marsh Fairview

Lisha Rowe – Angelica, Punches, UT to Plum, Marsh Moore's, Marsh Fairview

Robert White – Pickering Montgomery School, Pickering Phoenixville YMCA

Patricia Haug – Pickering Montgomery School, Pickering Phoenixville YMCA

MWS Sensor Station Training - Station/Steward Matrix

Legend: x (yellowback) = top priority for that Steward, x = next priority, x = last priority, x = special case

SiteID	Stream	Location	Maintenance/QC	Kathy Brown	Susan Bittner	Elizabeth Iannelli	David George	Richard Cattermole	Lori Moore	Jerry Griffith (mentor)	Diane McGovern	Meghann Clark	Dale Weaver	Simon Molloy	Robert Iannelli	Susan Drake	Gary A. Grahl	Jacqline Wolf Tice	Richard Mooney	Tom Kalusky	George Seeds (mentor)	REBECCA WILLIAMS	Steve Tricarico	Cindy Murdough	Jim Keller	Lisha Rowe	Anna Leigh	Kevin Lugo	Bethany Ayers Fisher	Robert White	Patricia Haug	
MSAC1S	Angelica Ck	Upstream, St Bernadine St	MQ				x			x		x				x	x					x	x	x	x	x		x			12
ULAQ1S	Aquashicola Cree	Tittle Rd	MQ	x	x																											2
PKBH7S	Brodhead Creek	pour point	MQ	x	x																											2
BCRC8S	Bucktoe Creek	above WB RCC	Q			x					x				x																	3
ULBC1S	Buckwha Creek	Creyer property, Downstream loc	Q		x																						x					2
ULBC2S	Buckwha Creek	Christman property, Little Gap Rd,	Q		x																						x					2
PKCV2S	Cherry Creek	Cherry Creek Downstream	MQ	x	x																											2
PKCV3S	Cherry Creek	Cherry Creek Upstream	MQ	x	x																											2
PKCV4S	Cherry Creek	pour point	MQ	x	x																											2
PUCR1S	Crum Ck	Kirkwood Preserve	?										x						x		x											2
PKFH1S	Forest Hill Run	Fedelender property	Q	x	x																											2
MSHO2S	Hosensack Creek	Hwy 29	MQ											x				x														2
ULHC2S	Hunter Creek	Borger property, Downstream loc	Q		x																						x					2
ULHC3S	Hunter Creek	Strohl Valley Rd, Upstream of ULH	Q		x																						x					2
ULLL2S	Little Lehigh	Mill Brook Farms Rec Area	MQ											x				x														2
MSMC6S	Manor Creek	Manor Ck. (Brown prop.)	MQ					x		x												x					x					4
MSMC7S	Manor Creek	Manor Ck. (Derkin prop.)	MQ					x		x												x					x					4
BCMC3S	Marsh Creek	Moore's Rd	MQ						x								x			x						x				x	x	6
BCMC4S	Marsh Creek	Fairview Rd	MQ						x								x			x						x				x	x	6
PUNR1S	Naylors Run	Downstream, Drexel Garden Park	Q			x							x		x				x													4
PKPC3S	Paradise Creek	pour point	MQ	x	x																											2
SHPK5S	Pickering Creek	Montgomery School	MQ																		x									x	x	3
SHPK6S	Pickering Creek	Phoenixville YMCA	MQ																		x									x	x	3
MSPR2S	Punches Run	Nolde State Forest	MQ				x			x		x				x	x					x	x	x	x	x		x	x			12
BCRC7S	Red Clay, West B	Bucktoe Preserve	Q			x					x				x																	3
PURC1S	Ridley Ck	Upstream of Ashbridge Lake, Ashl	MQ										x						x		x											3
PURC3S	Ridley Ck	Ridley Creek Garret Mill	?										x						x		x											2
PURC2S	Ridley Ck	Downstream of Ashbridge Lake, A	MQ										x						x		x											3
MSSR2S	Schuylkill River	Towpath Park, Pottstown	MQ				x					x				x	x			x												5
PUSR2S	Schuylkill River	Bartrams Garden	?			x							x		x				x													4
PUCC2S	UT Cobbs Creek	McCall Golf and Country Club	?			x							x		x				x													4
MSMC17S	UT to Manor Cre	Josh Brown home, upstream	MQ					x		x												x					x					4
MSPL2S	UT to Plum Run	Berks County Conservation Distric	MQ					x		x							x					x	x	x	x	x		x				8
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Master Watershed Steward Sensor Station Training, July 20, 2019 at Berks Ag Center

Questions to support matching Stewards up with stations and defining roles (use one sheet per person):

1. Name:
2. How much time on a weekly or monthly basis will you be able to allocate to this work?
3. Are there any times of year that you won't be able to do the work?
4. What would you like to do? Maintenance and/or QC?
5. Are you ok with the site(s) you've been assigned? What others would you like to tend to (if any)?

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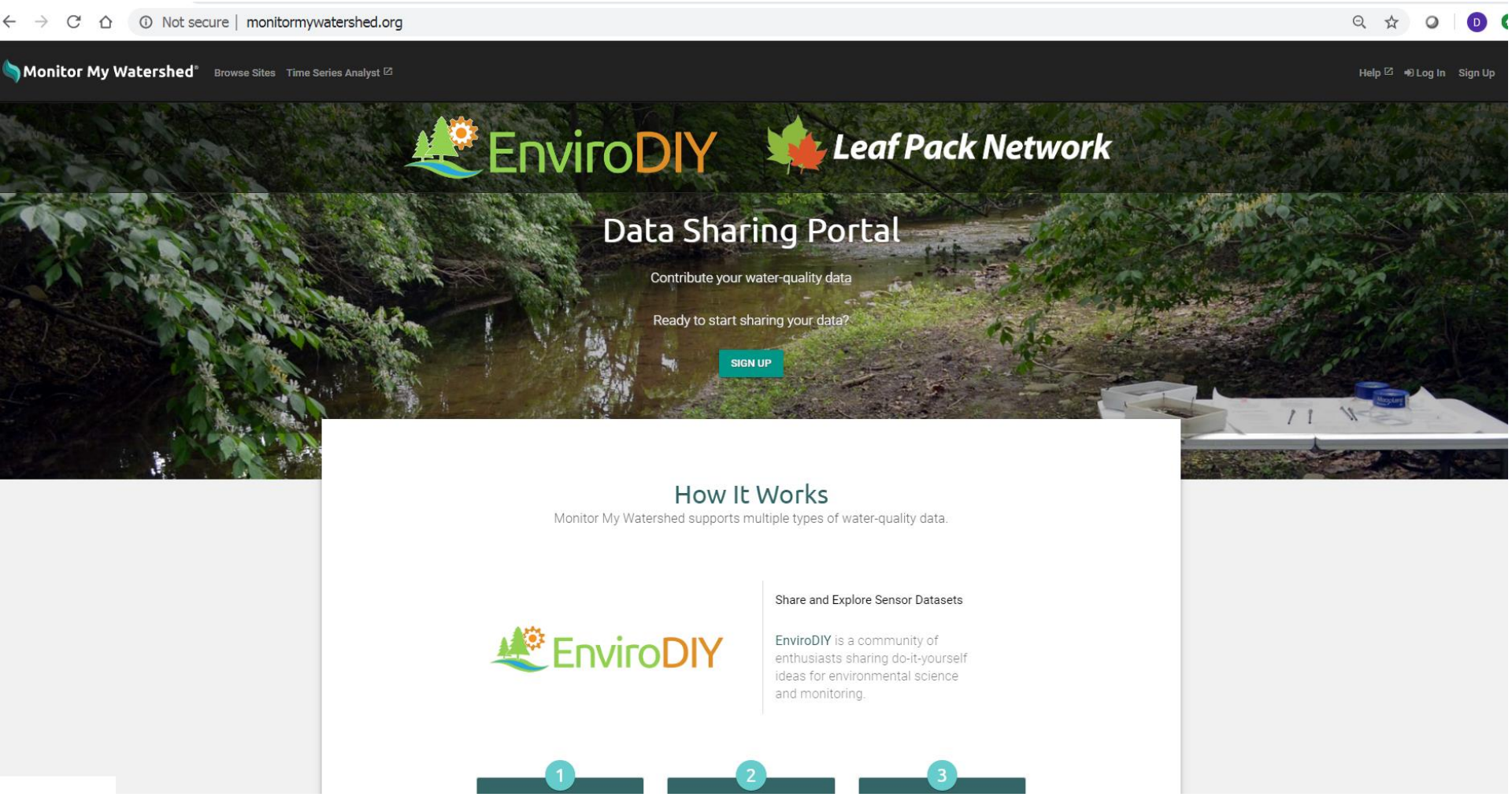
Monitor My Watershed – main data portal



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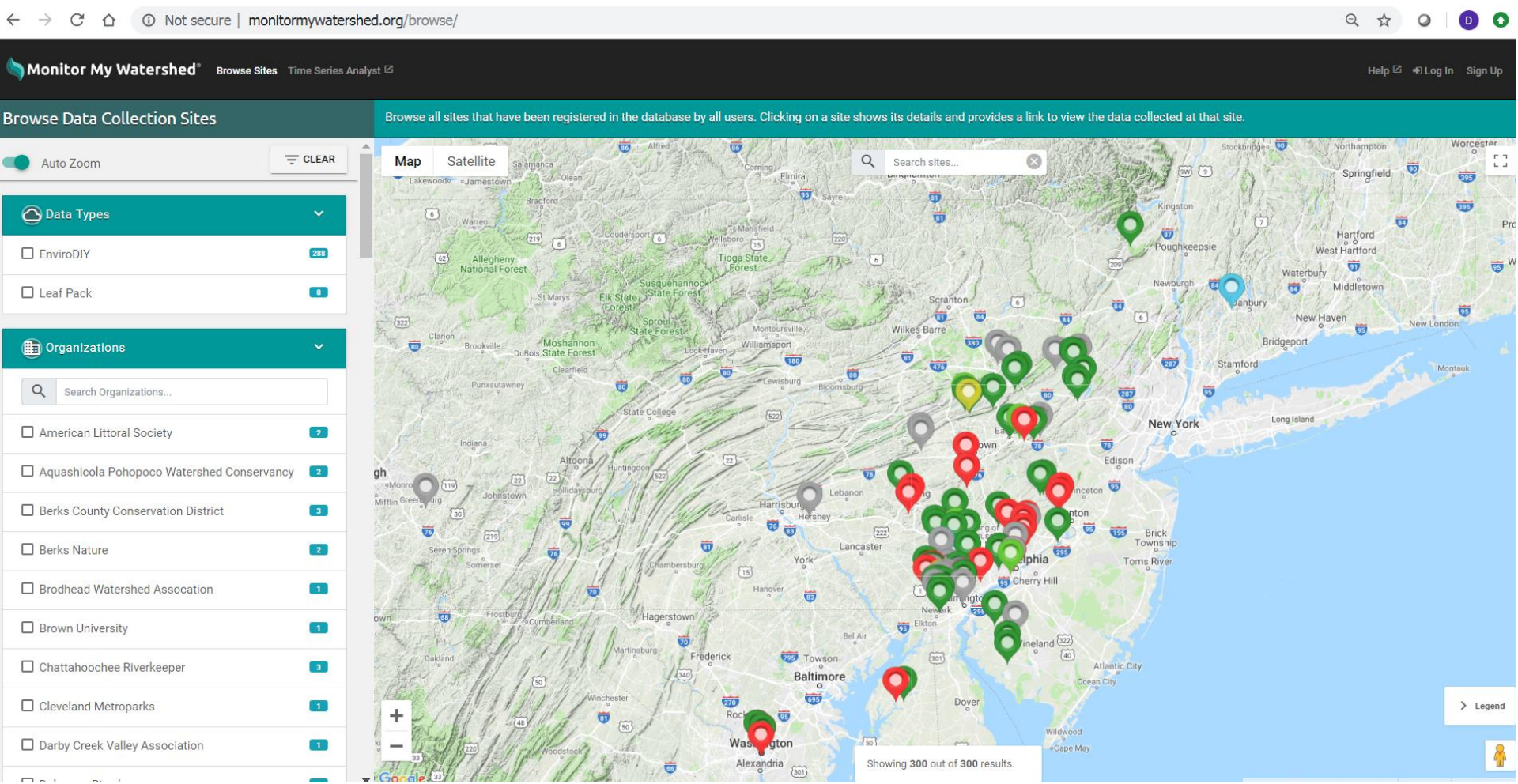
Monitor My Watershed – main data portal



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Monitor My Watershed – main data portal

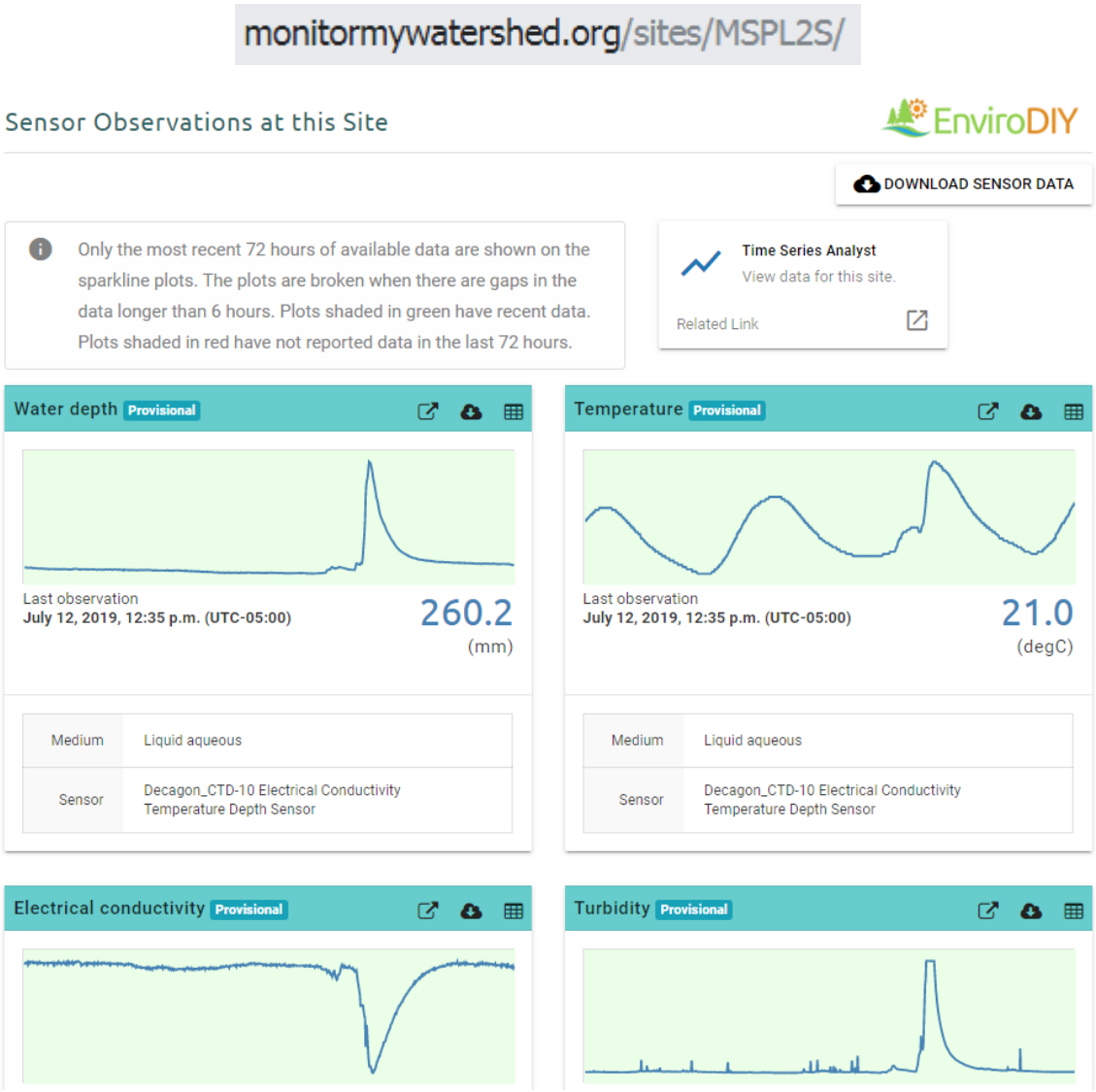
monitormywatershed.org/sites/MSPL2S/

Un-named Tributary to Plum Run (MSPL2S)

Deployment By	Karin Wulkowicz
Organization	Pennsylvania State University Extension - Master Watershed Steward Program
Registration Date	June 25, 2019, 8:52 p.m.
Deployment Date	June 26, 2019, 4 p.m.
Latitude	40.378635
Longitude	-76.012667
Elevation (m)	76.0
Elevation Datum	MSL
Site Type	Stream
Stream Name	-
Major Watershed	Delaware
Sub Basin	Plum Run
Closest Town	-
Notes	SL249 - Berks County Conservation District office

STROUD WATER RESEARCH CENTER

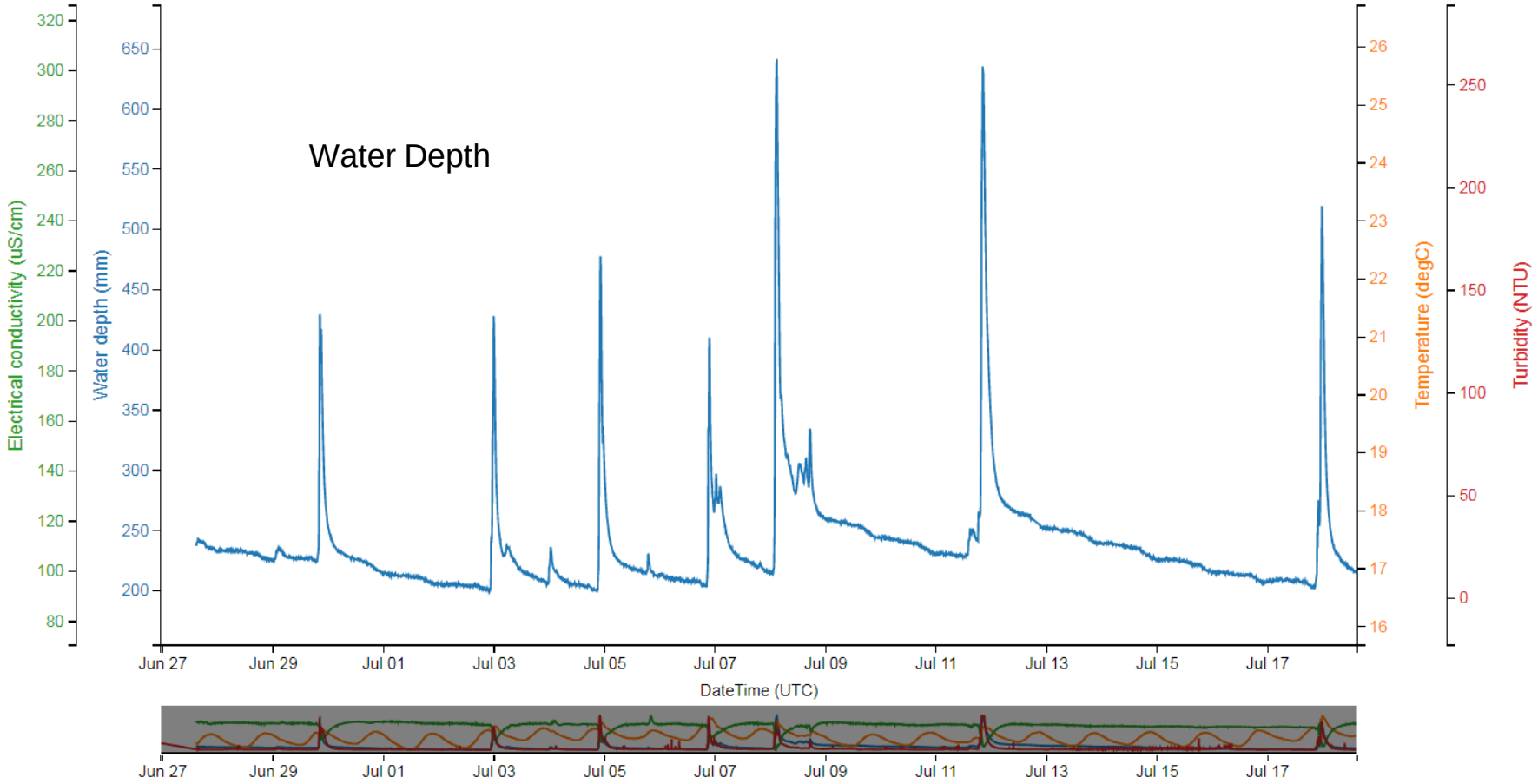
Monitor My Watershed – main data portal



STROUD WATER RESEARCH CENTER

Monitor My Watershed – main data portal

monitormywatershed.org/sites/MSPL2S/



Un-named Tributary to Plum Run (MSPL2S, SL249)

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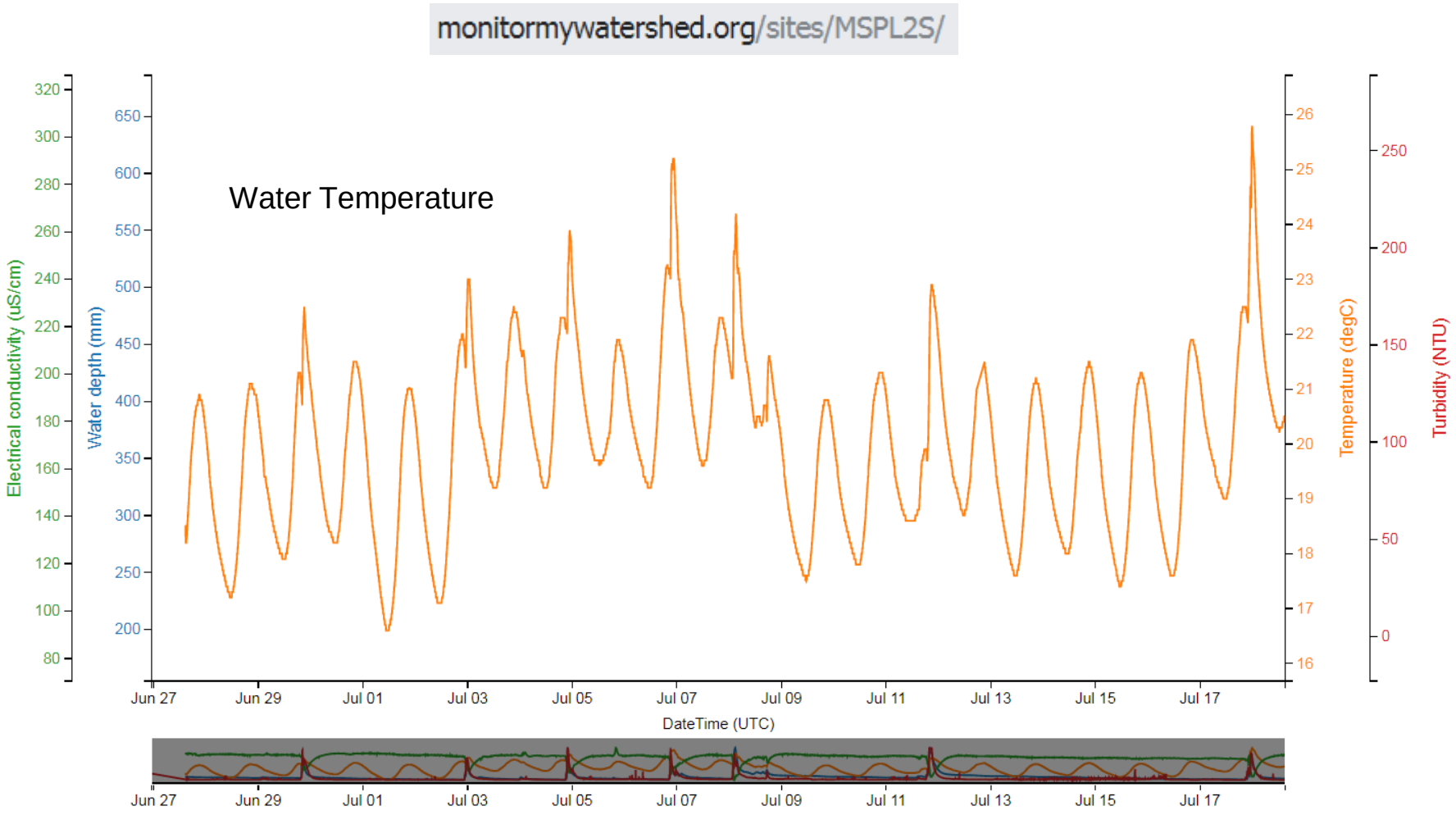
Monitor My Watershed – main data portal



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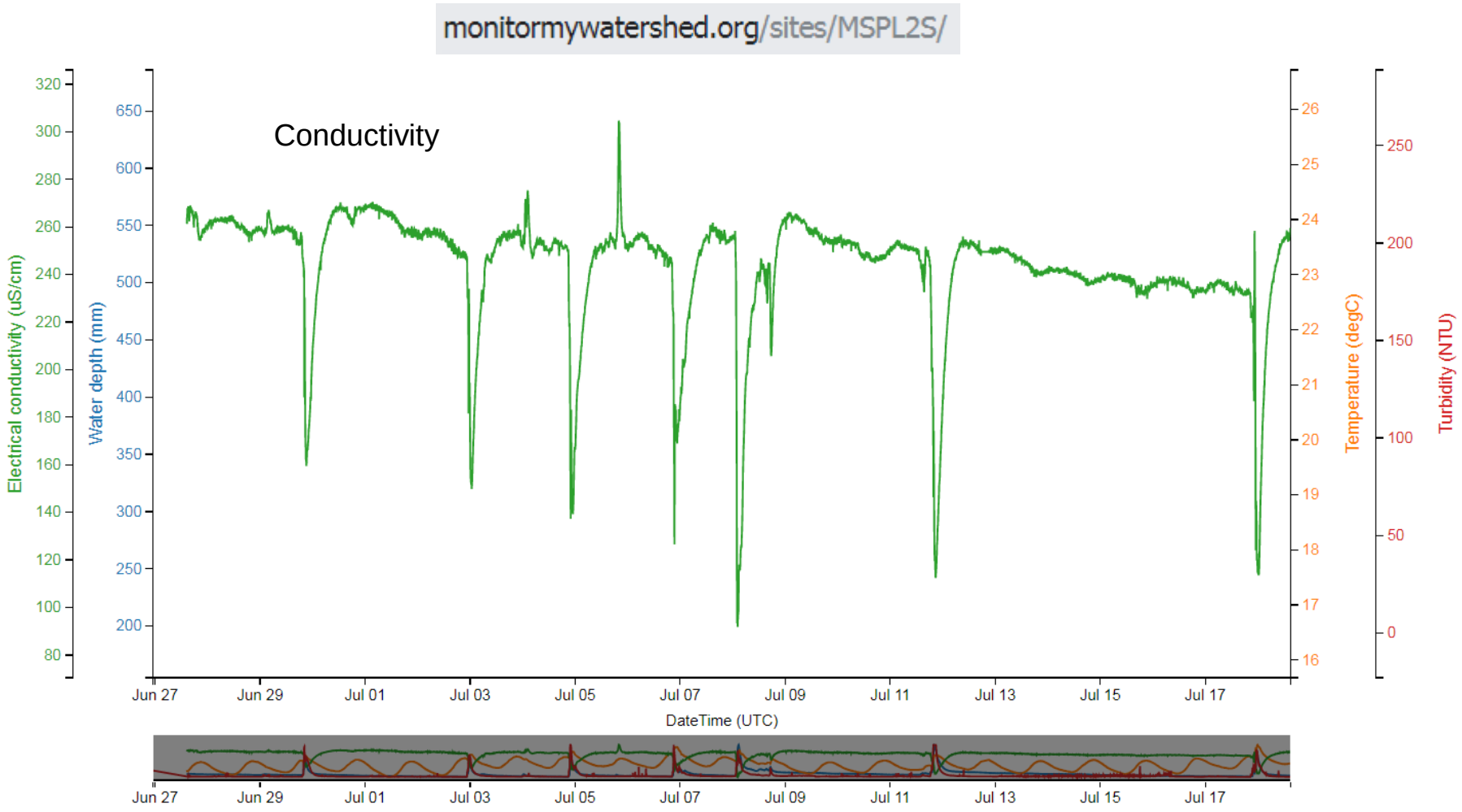
Monitor My Watershed – main data portal



Un-named Tributary to Plum Run (MSPL2S, SL249)

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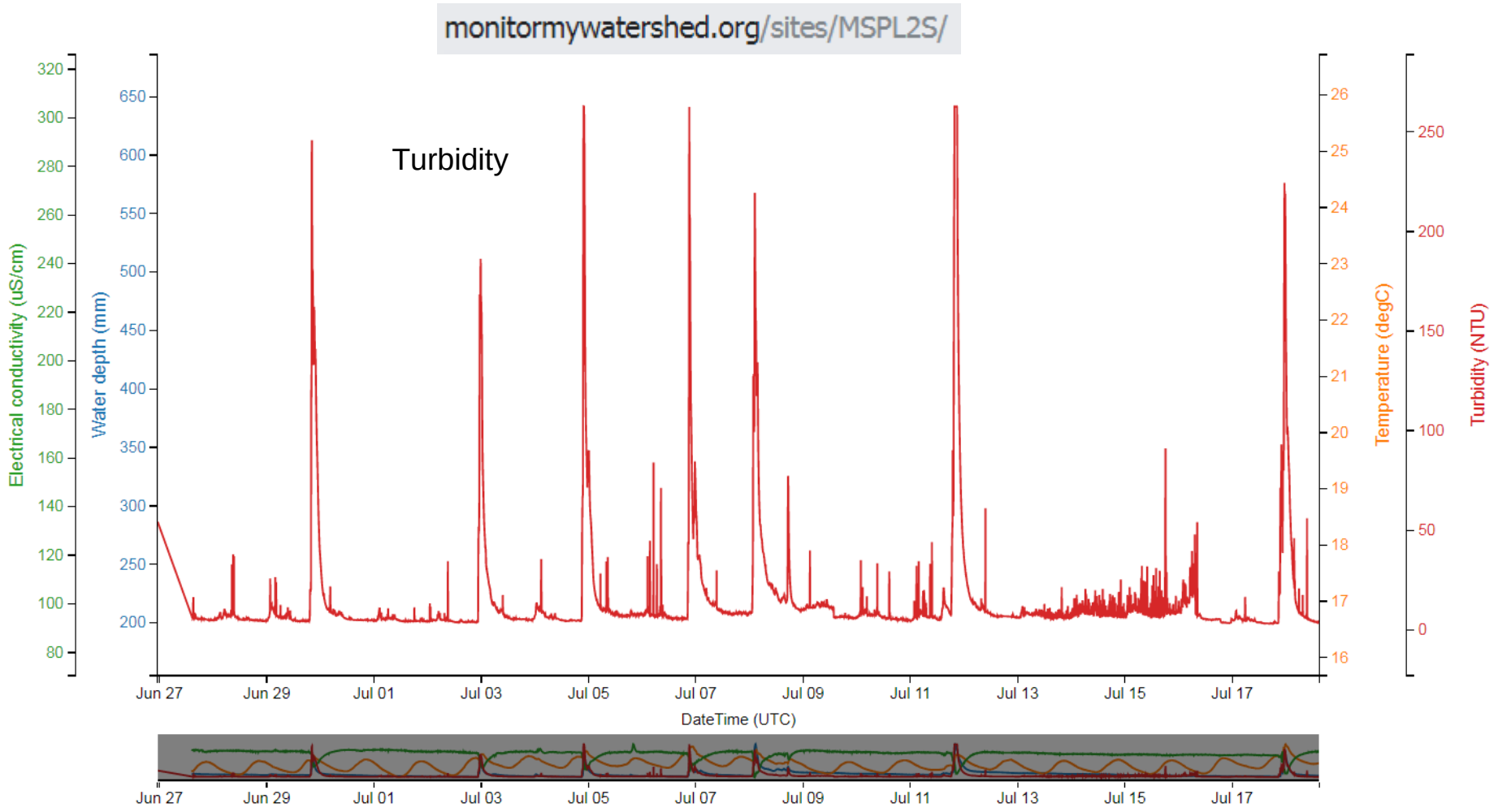
Monitor My Watershed – main data portal



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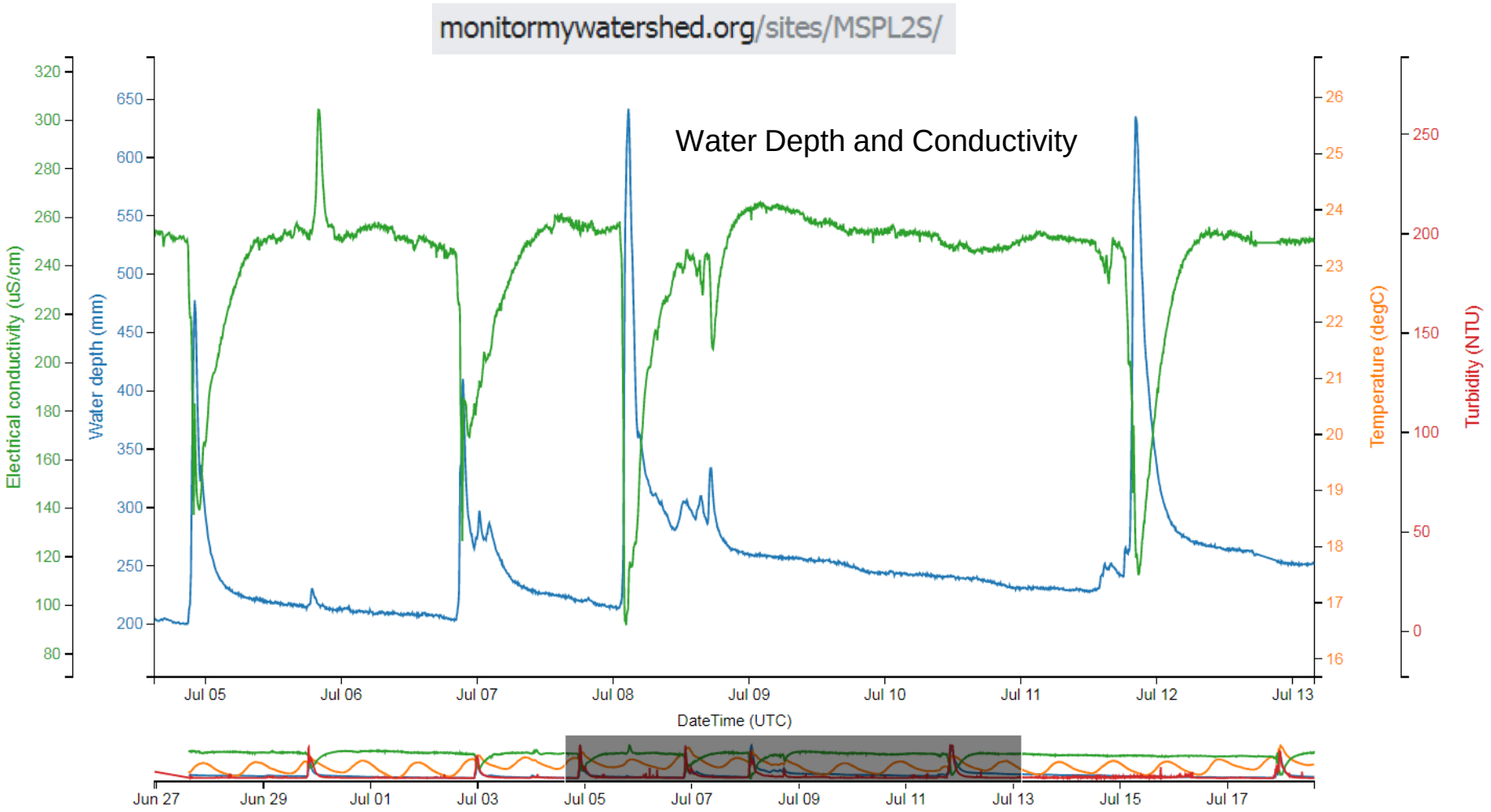

Un-named Tributary to Plum Run (MSPL2S, SL249)

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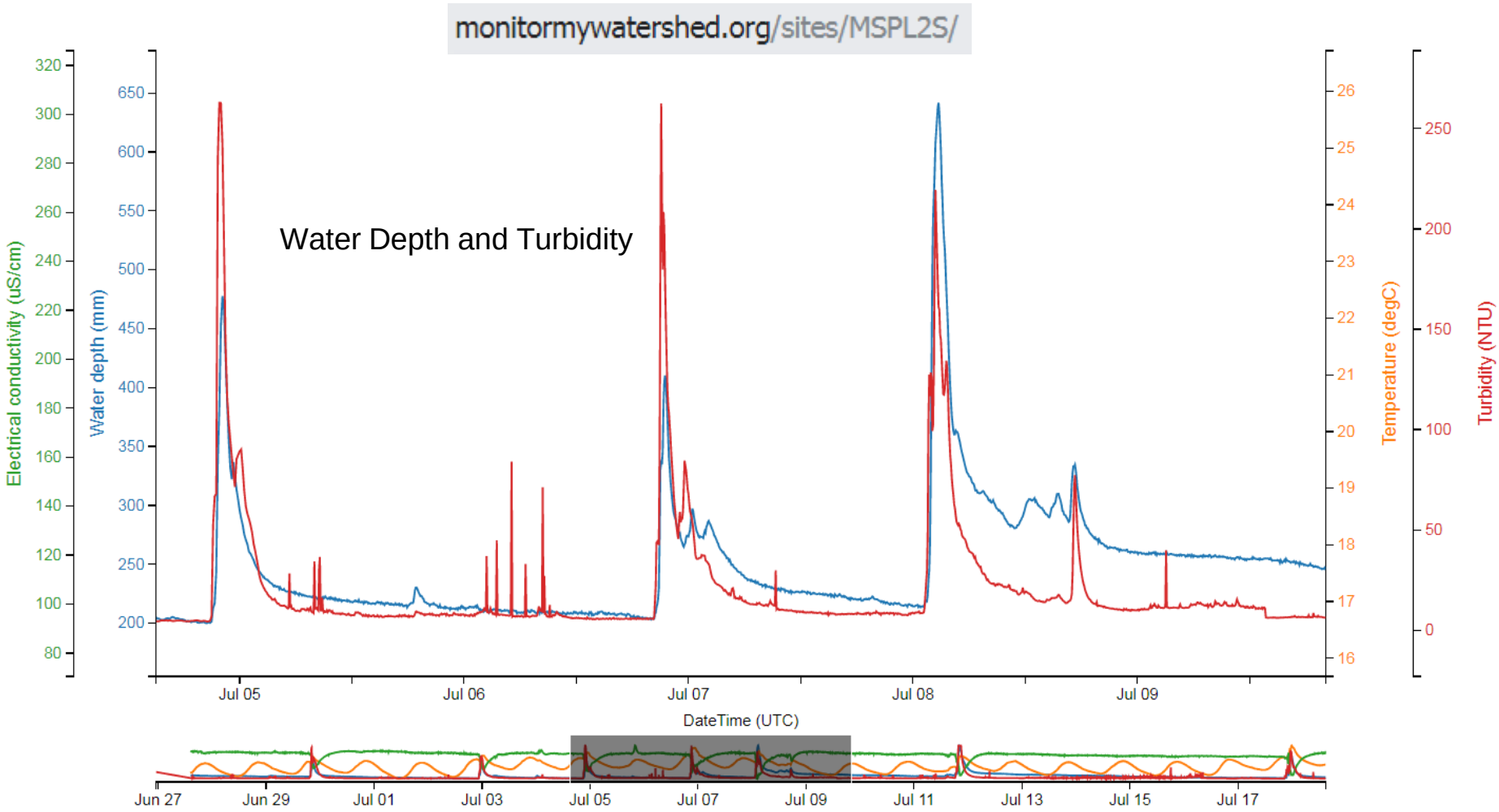

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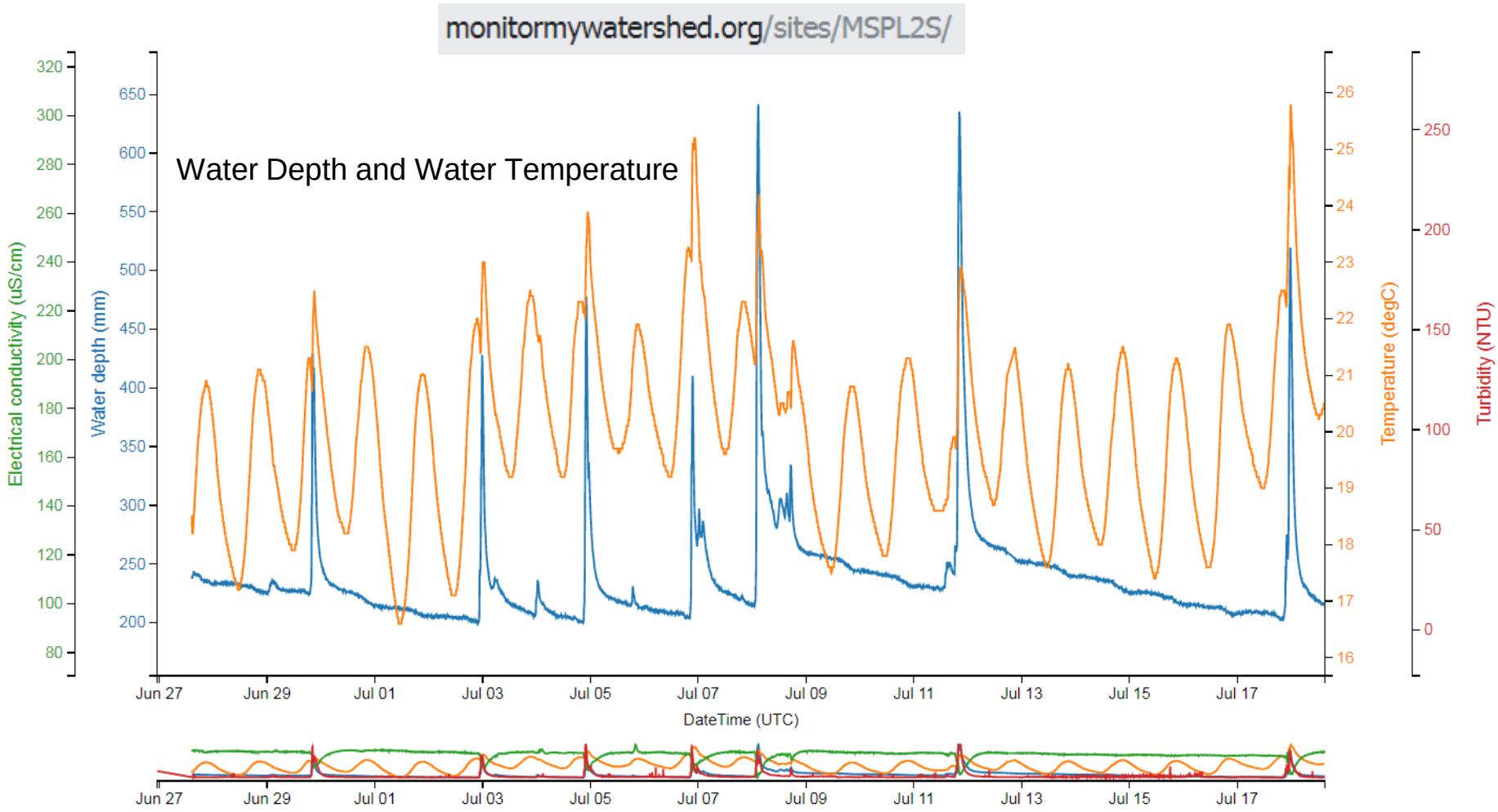

Un-named Tributary to Plum Run (MSPL2S, SL249)

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Monitor My Watershed – main data portal

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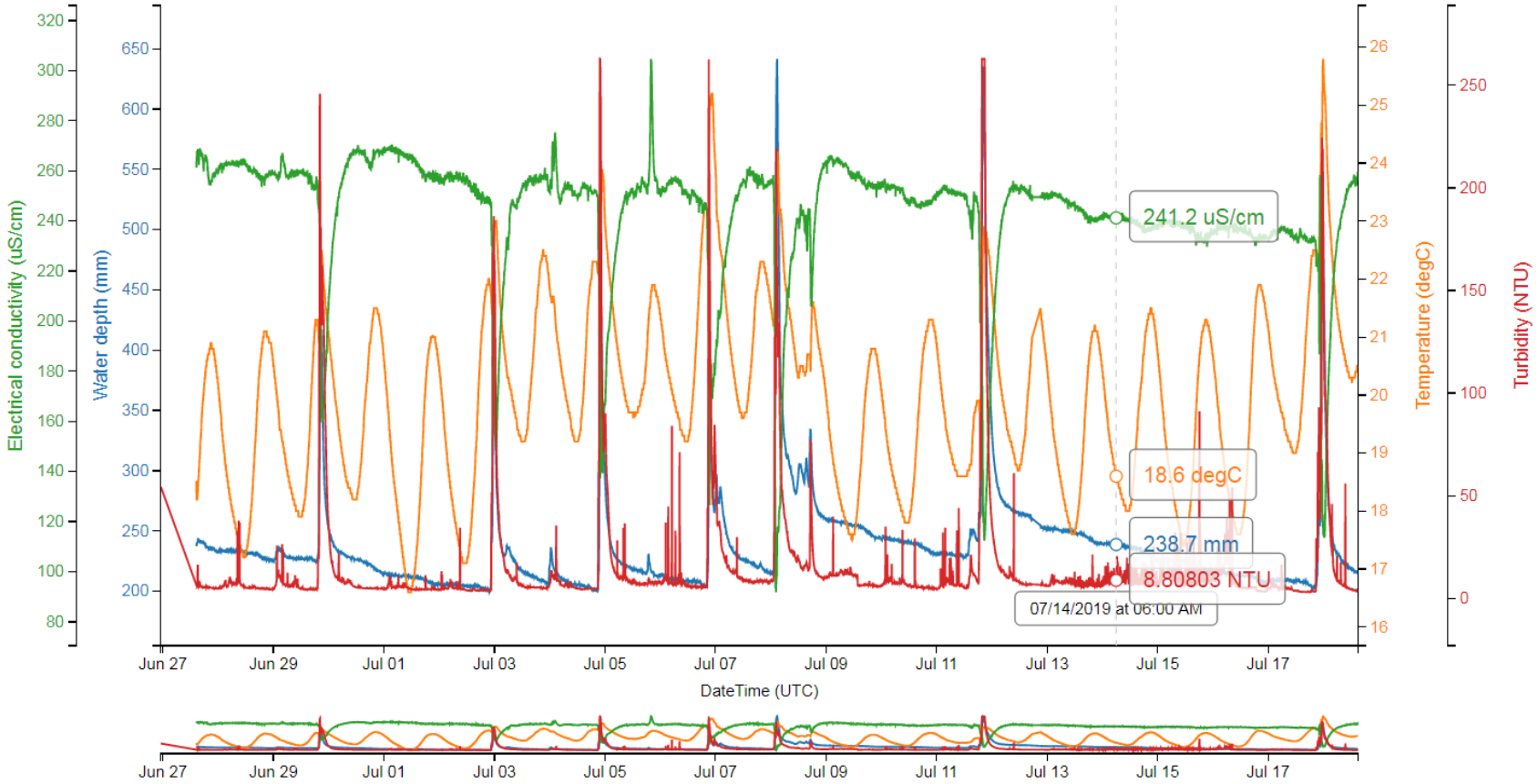

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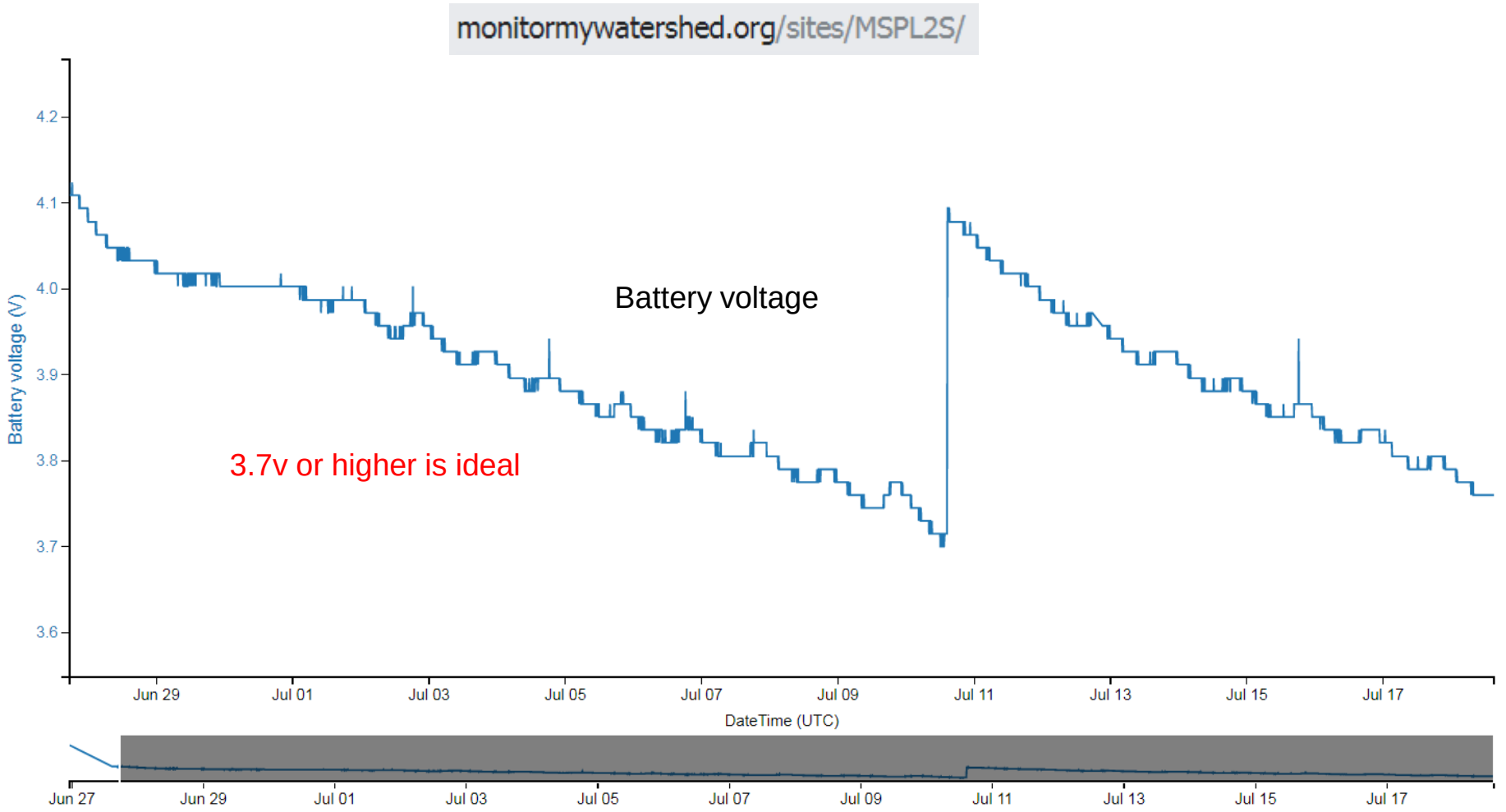

Un-named Tributary to Plum Run (MSPL2S, SL249)

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Drwisensors.dreamhosters.com – alternate data portal

drwisensors.dreamhosters.com/charts_main_SL191.php

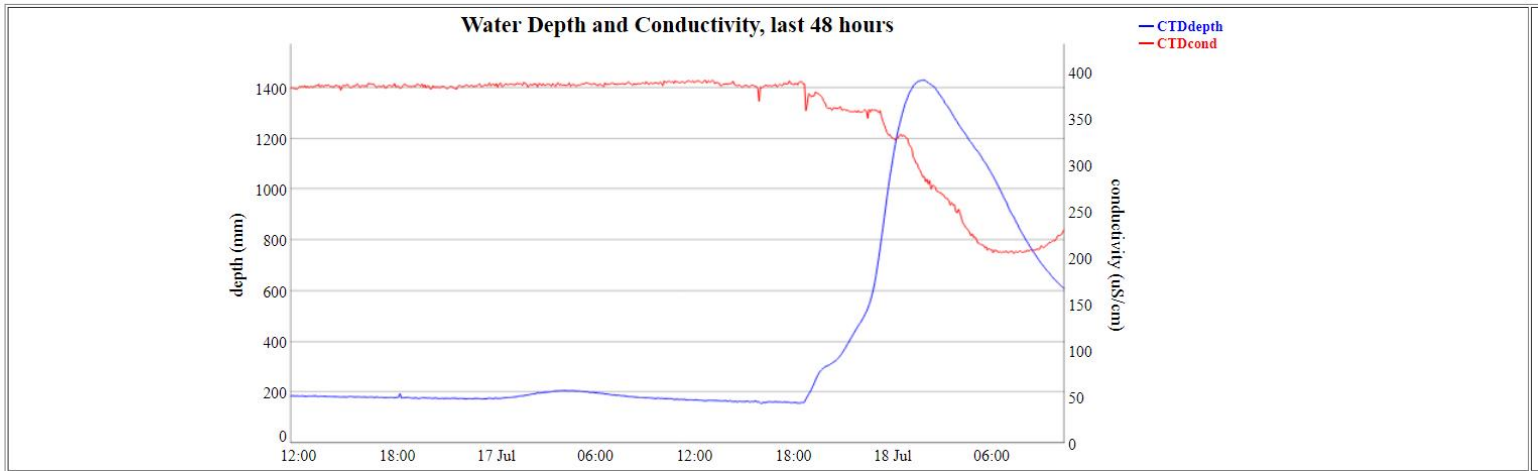
SL191 Turbidity/CTD Logger

This is data from logger SL191.
The logger is equipped with a Decagon CTD which measures water conductivity, temperature, and depth;
and a Campbell Scientific OBS3+ which measures turbidity in two ranges.

Show all data in the database as table or as CSV text
Get raw CSV text file

Latest readings:

At 2019-07-18 10:25:43 EST:
CTD Depth= 609.7mm, CTD Temp= 24.3 degreesC, CTD Conductivity= 231 uS/cm
Turbidity Low= 29.7 NTU, Turbidity High= 30.7 NTU, Board Temp= 27.5 degreesC; Battery= 4.06 volts



Historic Data

Water depth

Conductivity

Schuylkill River at Towpath Park, Pottstown (MSSR2S, SL191)

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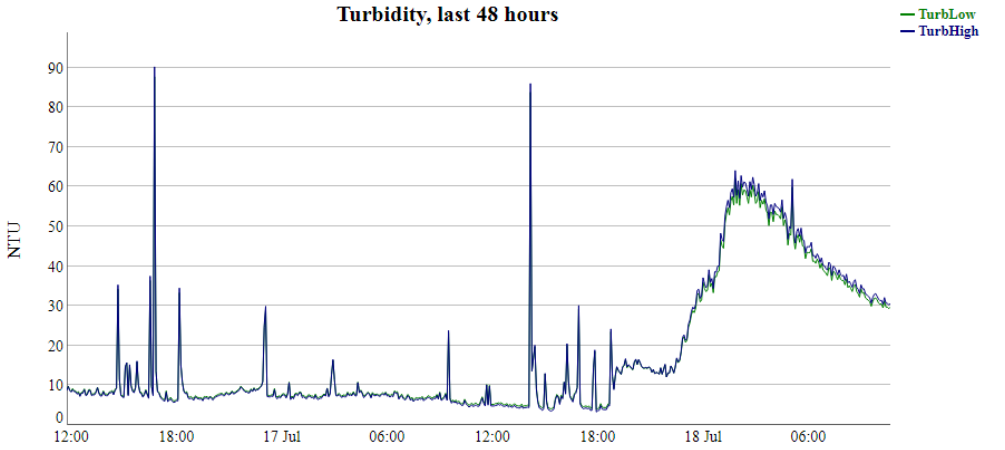
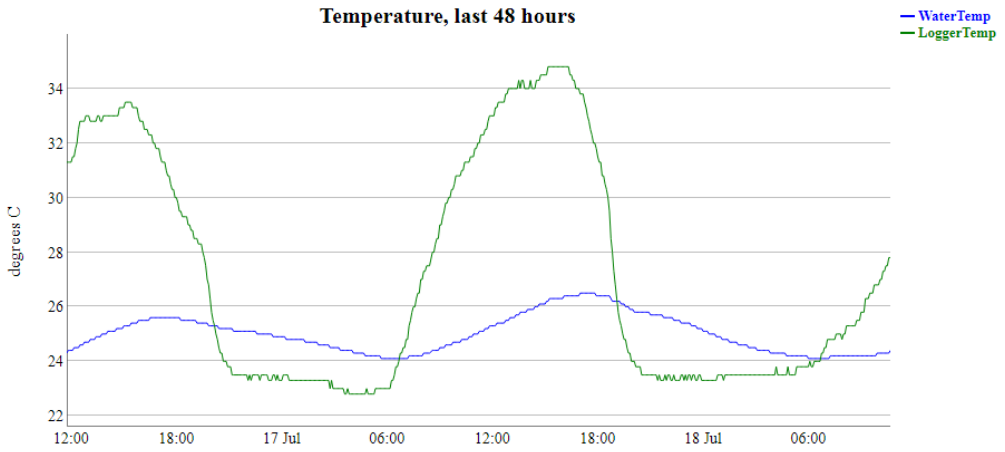
Drwisensors.dreamhosters.com – alternate data portal

drwisensors.dreamhosters.com/charts_main_SL191.php



Turbidity



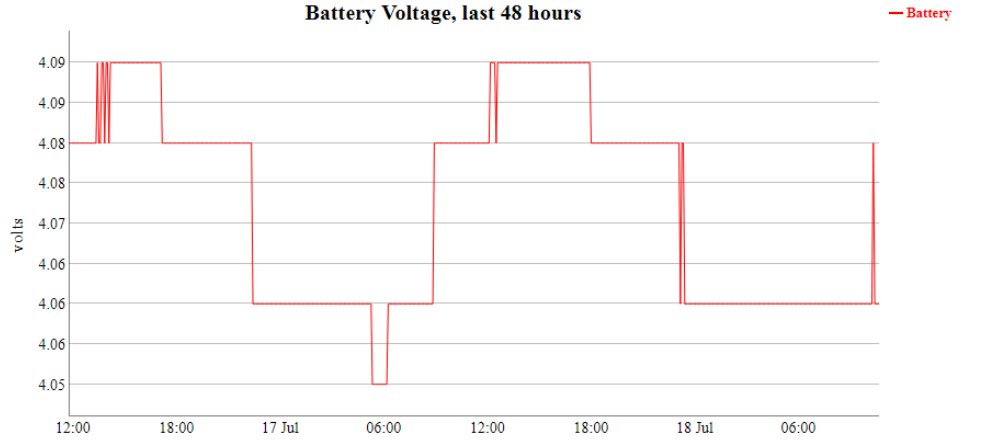
Temperatures

Schuylkill River at Towpath Park, Pottstown (MSSR2S, SL191)

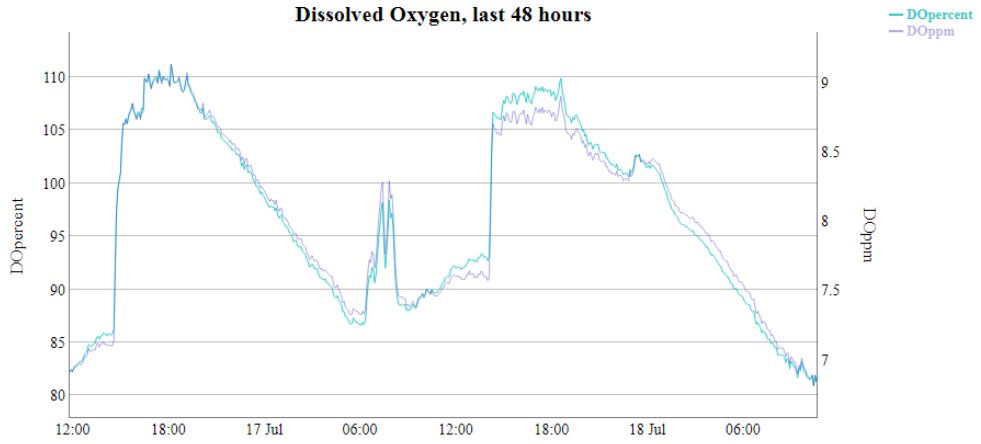
STROUD WATER RESEARCH CENTER

Drwisensors.dreamhosters.com – alternate data portal

drwisensors.dreamhosters.com/charts_main_SL191.php



Battery volts



Oxygen

Schuylkill River at Towpath Park, Pottstown (MSSR2S, SL191)

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Resources

- **Data and data visualization**
  - Monitor My Watershed **(**http://monitormywatershed.org/)
  - http://drwisensors.dreamhosters.com/
- **Guidance**
  - **Maintenance Quick Guide**
  - **QC Quick Guide**
  - Field Visit Data Sheet tutorial
  - DRWI operation manual, https://docs.google.com/document/d/17iWKFOjD6tSFT6-a5mItXlgO8uhXjsA_voGDVRxEBTI/edit?usp=sharing
  - Comprehensive manual, https://www.envirodiy.org/mayfly-sensor-station-manual/
- **Other**
  - Delaware Basin Sensor Stations online group (private group via https://wikiwatershed.org/)
  - Presentations, videos, workshop materials: https://wikiwatershed.org/drwi/ (pass: drwi)
  - EnviroDIY (https://www.envirodiy.org/)

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Important Field Work

- **Maintenance –** ***every two weeks, at minimum once a month***
  - Clean sensors
  - Clean around logger
  - Complete Field Visit Data sheet
  - Other site observations, upkeep, photos, etc.
  - Enter data online - https://wikiwatershed.org/drwi/; pass: drwi

- **Quality Control –** ***quarterly, or more frequently if needed***
  - Clean sensors
  - QC Depth
  - QC Chemistry
  - Swap SD cards (data download)
  - Enter data online - https://wikiwatershed.org/drwi/; pass: drwi

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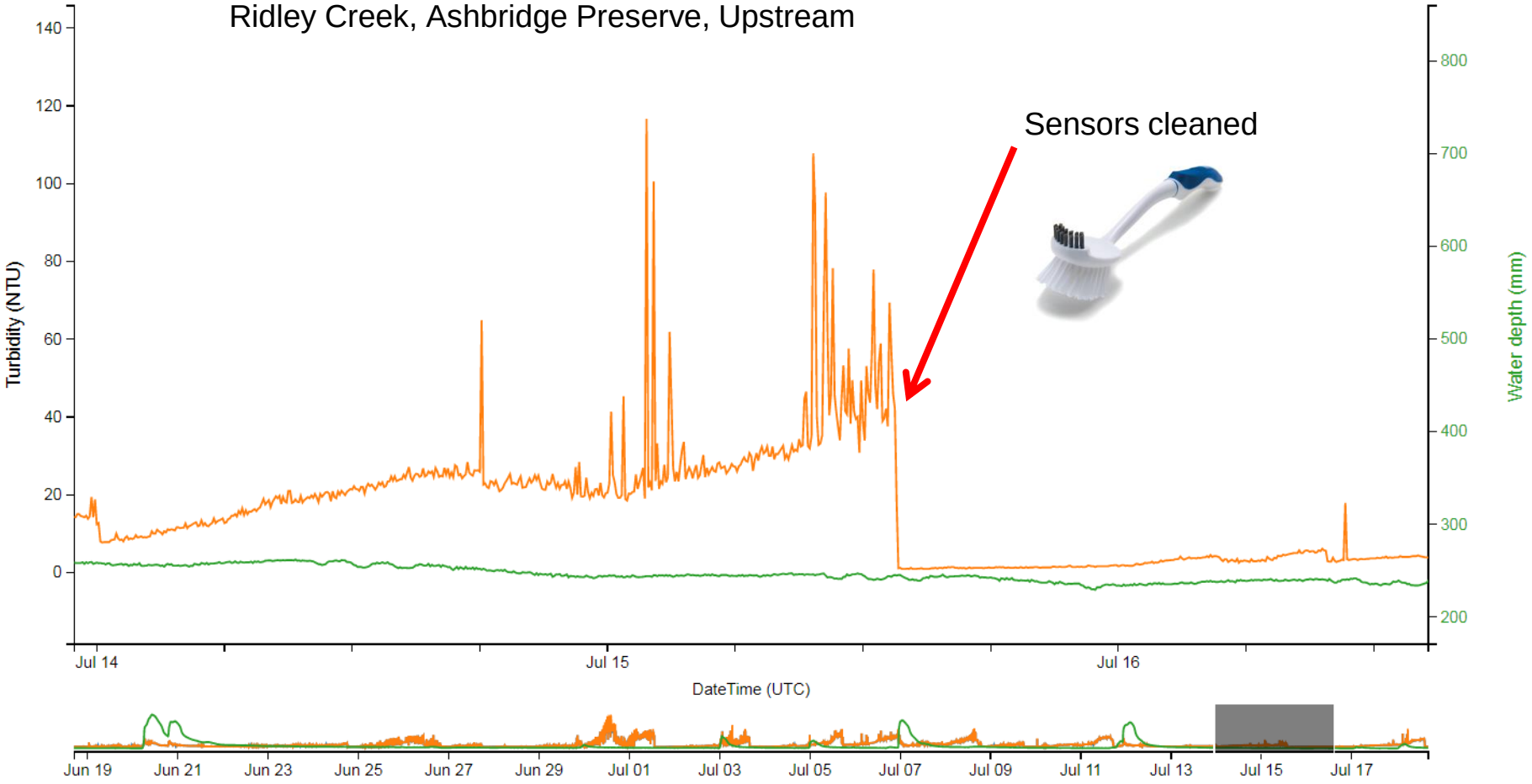
Importance of sensor cleaning and QC



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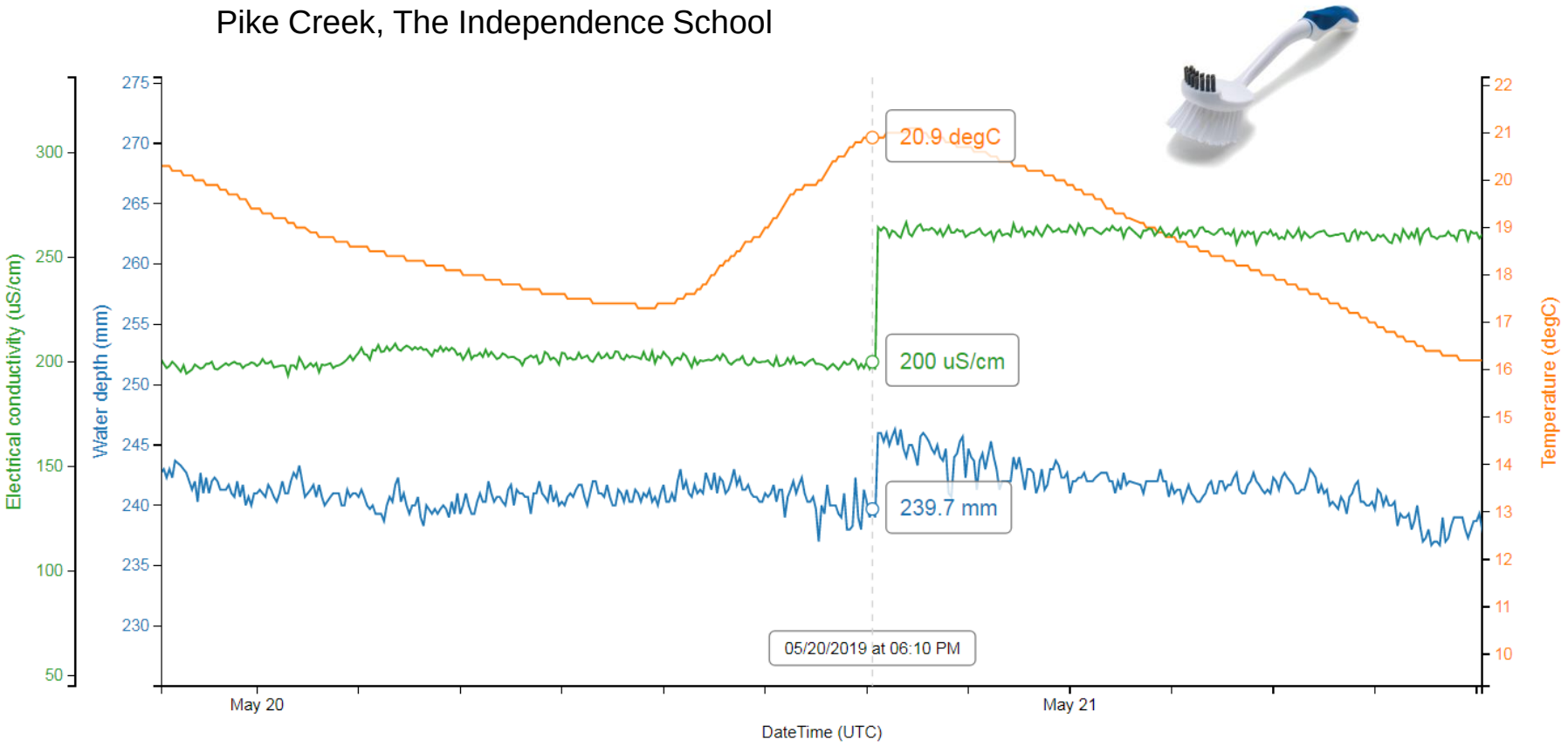
Importance of sensor cleaning and QC

Pike Creek, The Independence School



Conductivity, temperature and depth readings *before* cleaning

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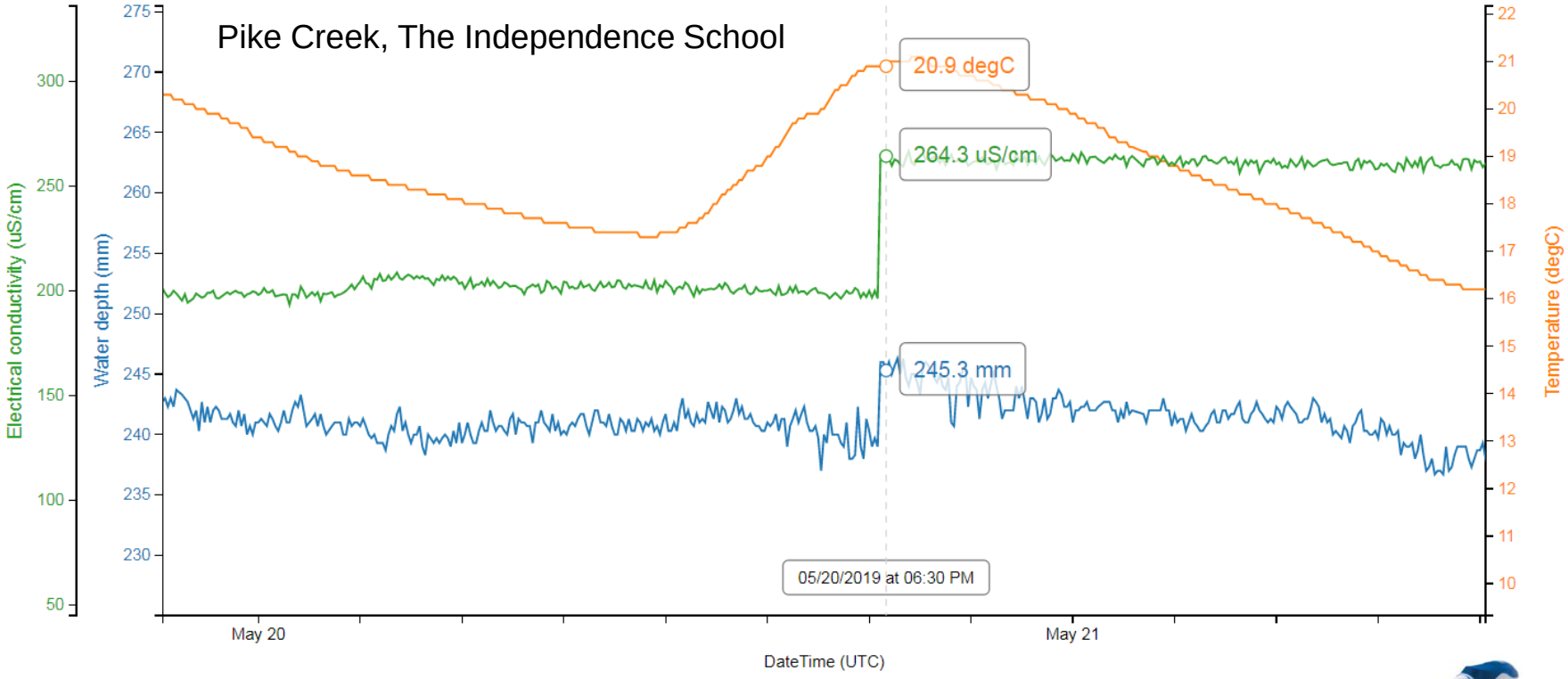
Importance of sensor cleaning and QC



Conductivity, temperature and depth readings *after* cleaning

Conductivity change of ~60 uS/cm
Depth change of ~5mm;
Temp change of 0 deg C

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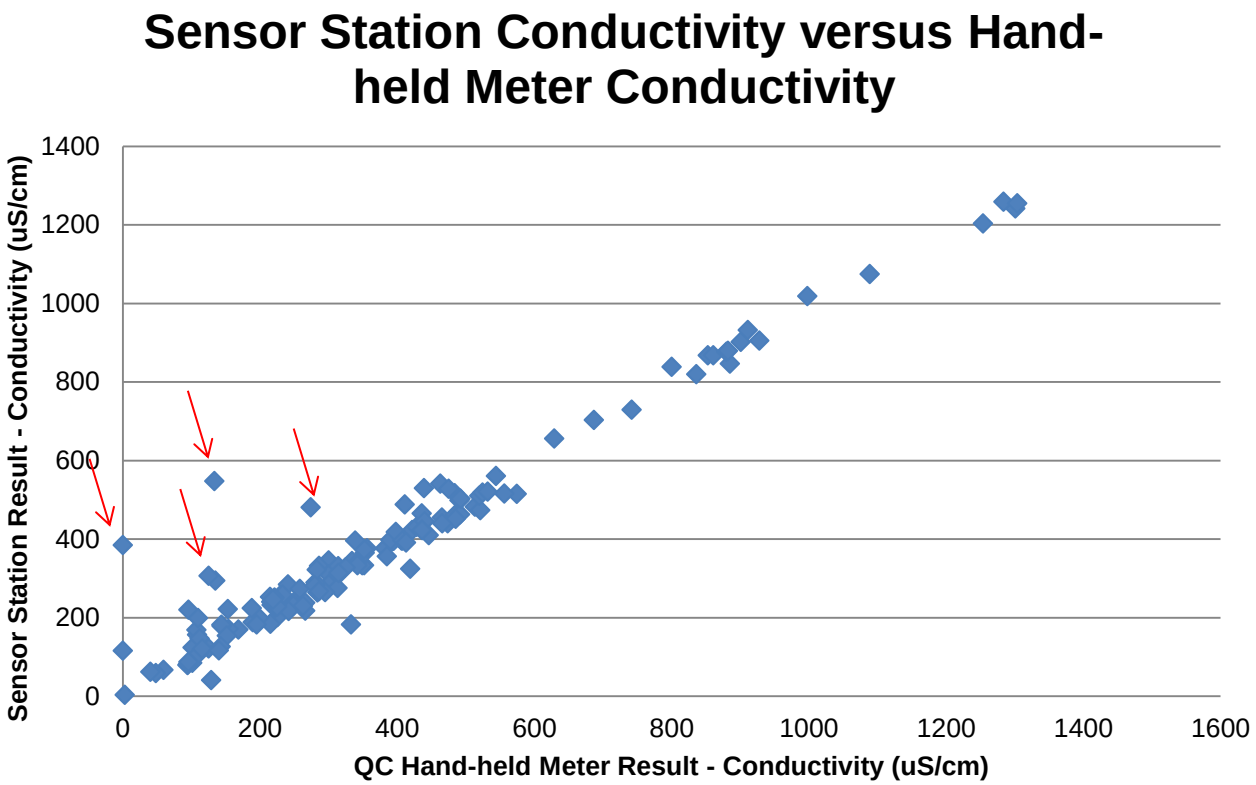
Importance of sensor cleaning and QC



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Quick Guides

- Maintenance Quick Guide
- Quality Control Quick Guide

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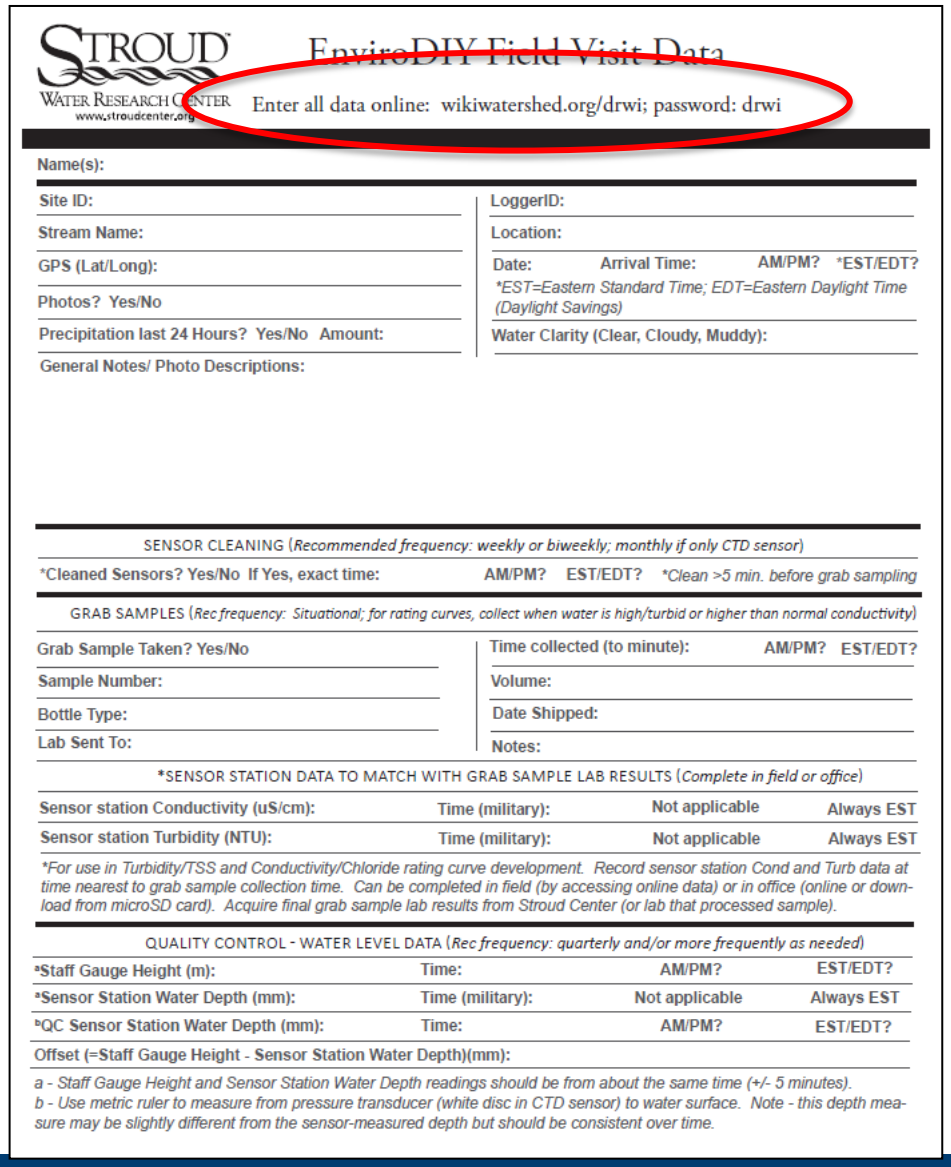
Data entry: Wikiwatershed.org/drwi



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www.stroudcenter.org

~~EnviroDIY Field Visit Data~~

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

Name(s):

Site ID:	LoggerID:
Stream Name:	Location:
GPS (Lat/Long):	Date: Arrival Time: AM/PM? *EST/EDT?
Photos? Yes/No	*EST=Eastern Standard Time; EDT=Eastern Daylight Time (Daylight Savings)
Precipitation last 24 Hours? Yes/No Amount:	Water Clarity (Clear, Cloudy, Muddy):
General Notes/ Photo Descriptions:	

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

GRAB SAMPLES (*Rec frequency: Situational; for rating curves, collect when water is high/turbid or higher than normal conductivity*)

Grab Sample Taken? Yes/No	Time collected (to minute): AM/PM? EST/EDT?
Sample Number:	Volume:
Bottle Type:	Date Shipped:
Lab Sent To:	Notes:

*SENSOR STATION DATA TO MATCH WITH GRAB SAMPLE LAB RESULTS (*Complete in field or office*)

Sensor station Conductivity (uS/cm):	Time (military):	Not applicable	Always EST
Sensor station Turbidity (NTU):	Time (military):	Not applicable	Always EST

**For use in Turbidity/TSS and Conductivity/Chloride rating curve development. Record sensor station Cond and Turb data at time nearest to grab sample collection time. Can be completed in field (by accessing online data) or in office (online or download from microSD card). Acquire final grab sample lab results from Stroud Center (or lab that processed sample).*

QUALITY CONTROL - WATER LEVEL DATA (*Rec frequency: quarterly and/or more frequently as needed*)

[a]Staff Gauge Height (m):	Time:	AM/PM?	EST/EDT?
[a]Sensor Station Water Depth (mm):	Time (military):	Not applicable	Always EST
[b]QC Sensor Station Water Depth (mm):	Time:	AM/PM?	EST/EDT?

Offset (=Staff Gauge Height - Sensor Station Water Depth)(mm):

a - Staff Gauge Height and Sensor Station Water Depth readings should be from about the same time (+/- 5 minutes).
b - Use metric ruler to measure from pressure transducer (white disc in CTD sensor) to water surface. Note - this depth measure may be slightly different from the sensor-measured depth but should be consistent over time.

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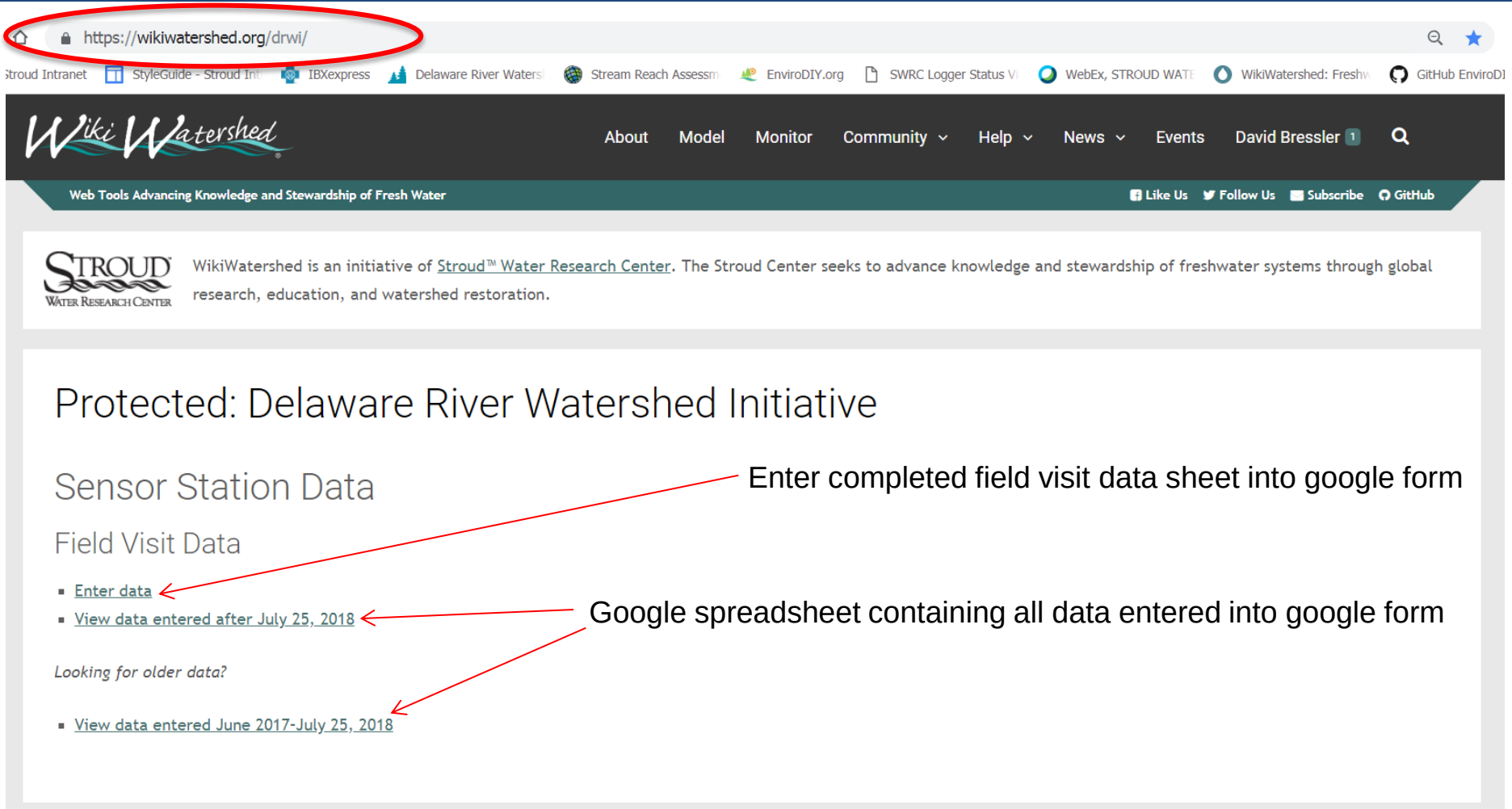
Data entry: Wikiwatershed.org/drwi



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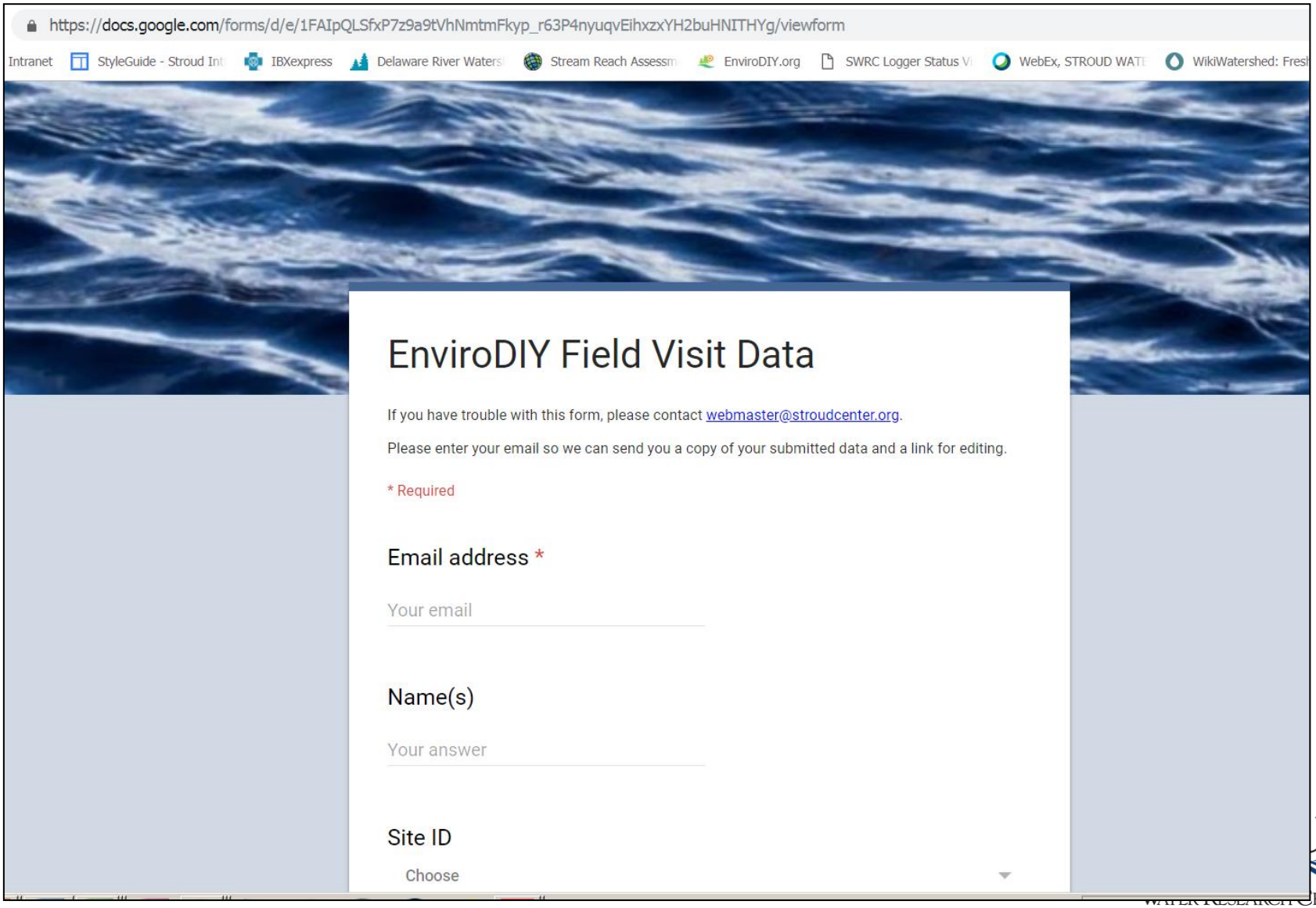
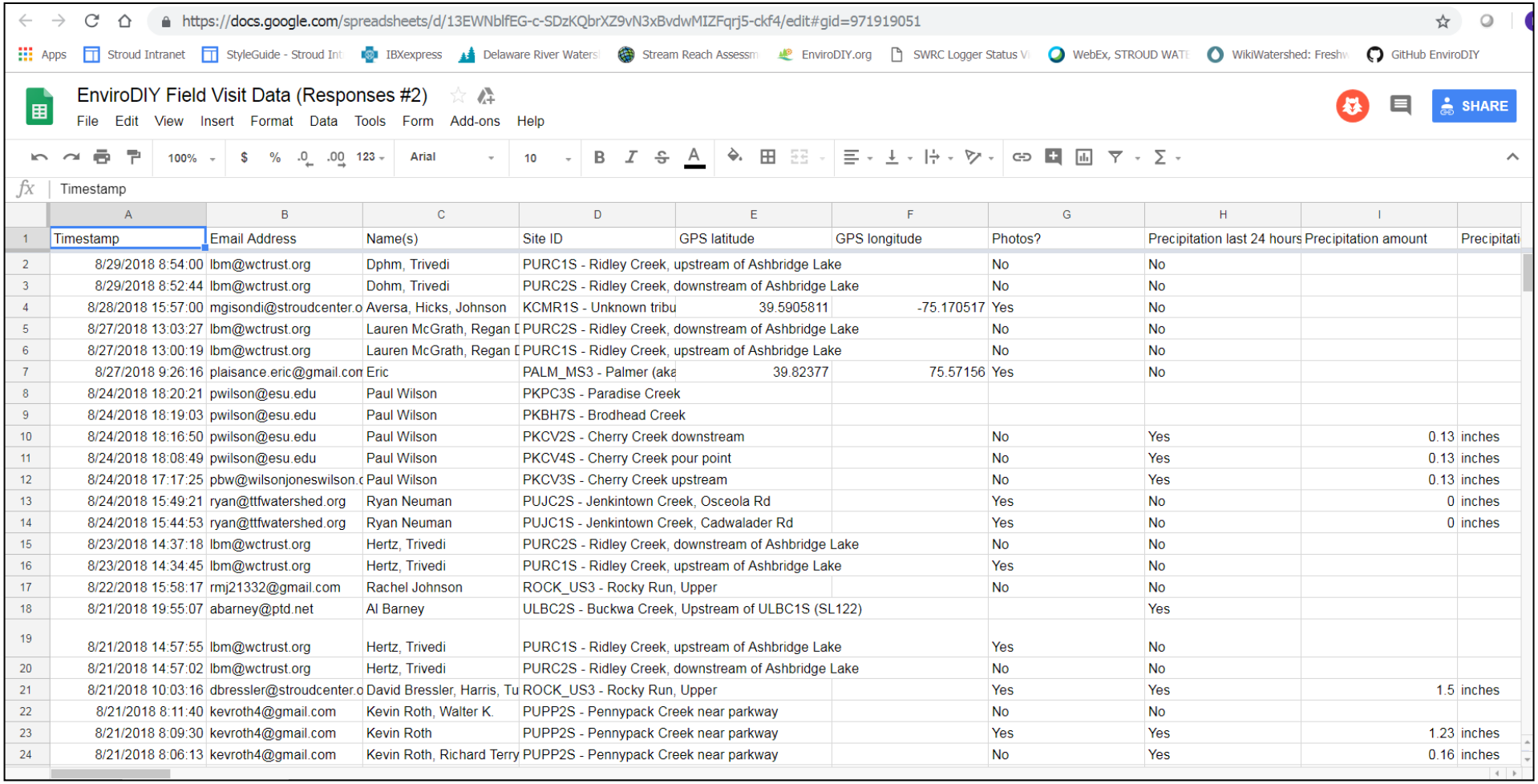
Wikiwatershed.org/drwi – google form



Wikiwatershed.org/drwi – google summary spreadsheet



https://docs.google.com/spreadsheets/d/13EWNblfEG-c-SDzKQbrXZ9vN3xBvdwMIZFqrj5-ckf4/edit#gid=971919051

Apps | Stroud Intranet | StyleGuide - Stroud Int | IBXexpress | Delaware River Waters | Stream Reach Assessm | EnviroDIY.org | SWRC Logger Status Vi | WebEx, STROUD WATE | WikiWatershed: Freshw | GitHub EnviroDIY

EnviroDIY Field Visit Data (Responses #2)

File Edit View Insert Format Data Tools Form Add-ons Help

SHARE

Timestamp

	A	B	C	D	E	F	G	H	I	
1	Timestamp	Email Address	Name(s)	Site ID	GPS latitude	GPS longitude	Photos?	Precipitation last 24 hours	Precipitation amount	Precipitati
2	8/29/2018 8:54:00	lbm@wctrust.org	Dphm, Trivedi	PURC1S - Ridley Creek, upstream of Ashbridge Lake			No	No		
3	8/29/2018 8:52:44	lbm@wctrust.org	Dohm, Trivedi	PURC2S - Ridley Creek, downstream of Ashbridge Lake			No	No		
4	8/28/2018 15:57:00	mgisondi@stroudcenter.o	Aversa, Hicks, Johnson	KCMR1S - Unknown tribu	39.5905811	-75.170517	Yes	No		
5	8/27/2018 13:03:27	lbm@wctrust.org	Lauren McGrath, Regan [	PURC2S - Ridley Creek, downstream of Ashbridge Lake			No	No		
6	8/27/2018 13:00:19	lbm@wctrust.org	Lauren McGrath, Regan [	PURC1S - Ridley Creek, upstream of Ashbridge Lake			No	No		
7	8/27/2018 9:26:16	plaisance.eric@gmail.com	Eric	PALM_MS3 - Palmer (aka	39.82377	75.57156	Yes	No		
8	8/24/2018 18:20:21	pwilson@esu.edu	Paul Wilson	PKPC3S - Paradise Creek						
9	8/24/2018 18:19:03	pwilson@esu.edu	Paul Wilson	PKBH7S - Brodhead Creek						
10	8/24/2018 18:16:50	pwilson@esu.edu	Paul Wilson	PKCV2S - Cherry Creek downstream			No	Yes	0.13	inches
11	8/24/2018 18:08:49	pwilson@esu.edu	Paul Wilson	PKCV4S - Cherry Creek pour point			No	Yes	0.13	inches
12	8/24/2018 17:17:25	pbw@wilsonjoneswilson.c	Paul Wilson	PKCV3S - Cherry Creek upstream			No	Yes	0.13	inches
13	8/24/2018 15:49:21	ryan@ttfwatershed.org	Ryan Neuman	PUJC2S - Jenkintown Creek, Osceola Rd			Yes	No	0	inches
14	8/24/2018 15:44:53	ryan@ttfwatershed.org	Ryan Neuman	PUJC1S - Jenkintown Creek, Cadwalader Rd			Yes	No	0	inches
15	8/23/2018 14:37:18	lbm@wctrust.org	Hertz, Trivedi	PURC2S - Ridley Creek, downstream of Ashbridge Lake			No	No		
16	8/23/2018 14:34:45	lbm@wctrust.org	Hertz, Trivedi	PURC1S - Ridley Creek, upstream of Ashbridge Lake			Yes	No		
17	8/22/2018 15:58:17	rmj21332@gmail.com	Rachel Johnson	ROCK_US3 - Rocky Run, Upper			No	No		
18	8/21/2018 19:55:07	abarney@ptd.net	Al Barney	ULBC2S - Buckwa Creek, Upstream of ULBC1S (SL122)				Yes		
19	8/21/2018 14:57:55	lbm@wctrust.org	Hertz, Trivedi	PURC1S - Ridley Creek, upstream of Ashbridge Lake			Yes	No		
20	8/21/2018 14:57:02	lbm@wctrust.org	Hertz, Trivedi	PURC2S - Ridley Creek, downstream of Ashbridge Lake			No	No		
21	8/21/2018 10:03:16	dbressler@stroudcenter.o	David Bressler, Harris, Tu	ROCK_US3 - Rocky Run, Upper			Yes	Yes	1.5	inches
22	8/21/2018 8:11:40	kevroth4@gmail.com	Kevin Roth, Walter K.	PUPP2S - Pennypack Creek near parkway			No	No		
23	8/21/2018 8:09:30	kevroth4@gmail.com	Kevin Roth	PUPP2S - Pennypack Creek near parkway			Yes	Yes	1.23	inches
24	8/21/2018 8:06:13	kevroth4@gmail.com	Kevin Roth, Richard Terry	PUPP2S - Pennypack Creek near parkway			No	Yes	0.16	inches

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Follow up after today

- We will email you:
  - Station contact list
  - Site project summaries
  - Field Visit Data sheet tutorial
  - Manual
  - Site maps
  - Field Visit Data sheet
  - Attendee list and contact info from today's training
- Also, we will:
  - Add you to Delaware Basin Sensor Stations online group
  - Send introduction email to you and station owner
  - Begin lining up mentors to assist on site visits

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