

Data Products and Visualization Tools







PRESENTERS



The Academy of Natural Sciences









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AGENDA

- Academy of Natural Sciences: Available data, customizable data communications products, and project and metric tracking tools
- Stroud Center: EnviroDIY and WikiWatershed Tools
- **River Network:** Data visualization tools and storytelling



POLL

- Which product(s) are you MOST familiar with? (You've used them, understand them well)
 - ANS available data
 - ANS data products: report card, maps of IBI scores
 - FieldDoc
 - DRWI Dashboard
 - EnviroDIY data capabilities
 - WikiWatershed tools Monitor My Watershed and Model My Watershed
 - Data dashboards with Google Data Studio or Arc Online
 - None of the above
- Which product(s) are you LEAST familiar with? (Have not used them, have not heard of them)
 - ANS available data
 - ANS data products: report card, maps of IBI scores
 - FieldDoc
 - o DRWI Dashboard
 - EnviroDIY data capabilities
 - WikiWatershed tools Monitor My Watershed and Model My Watershed
 - Data dashboards with Google Data Studio or Arc Online
 - Pretty familiar with all of the above

Water Monitoring

- DRWI Protocols
 - Fish/Inverts/Algae (ANS & Stroud)
 - Chemistry (TN, TP, TSS, ions, anions, sensors)
- Data quality tiers
- Citizen Science
- WIKIWatershed: Monitor My Watershed

Project Tracking

- FieldDoc
 - Land protection
 - Restoration
 - Need for internal and external DRWI Tracking

Metrics Tracking

- DRWI Dashboard
- Quantify DRWI Project
 Impacts

GIS

2

3

4

- DRWI Phase 1 (2013 2017)
 - Compile Data
 - Survey: capacity, training, interest
- DRWI Phase 2 (2017 2021)
 - GIS team; Helpdesk
 - Watershed Data Creation

ROLES / TEAMS

- 1. Tech User Group
- 2. Metrics User Group
- 3. Outcome Metrics Committees
- 4. GIS/Modeling Group
- 5. Output Reporting
- 6. Comms / Storytelling
- 7. Impact Assessment Teams

5,6,7

Watershed Modeling

- Stream Reach Assessment Tool
- WIKIWatershed: Model My Watershed
- Future land cover and climate scenarios
- Other "at large" modeling efforts



Project Tracking



Tracking Restoration & Protection with FieldDoc

- Creation and management of projects
- Managing metrics & targets by geography
- Navigating the DRWI Dashboard





Project & Metric Tracking



EZG #53363: Restoring Paulins Kill Floodplain Forests and Functions - Phase 2

Last modified by John Daves on Feb 8, 2019 10:08/12 PM

Program: Delaware River Restoration Fund

-Reston degraded riparian buffers and stabilize ending streambanks by planting tress to reestablish native floodplan forest—expanding active restration in the largest stretch of restorable riparian controls in the Upper Paulins XIU. - Reforested areas will resconce trative riparian habitat, cool water temperatures and reduce enation and numbit to inserve water quality, and will restore floodplain function, opened during Paixs 1 and closed during Paixs 2.







NJDEP-Augusta



No description

Last updated on Jan 25, 2019



Metrics			
	installed To-Date	% installed	
\boldsymbol{I} of public and private funds leveraged by DRWI within focus areas.	77,909.94 dollars of 84,245,00	92.5%	0
Dollars of Federal Farm Bill and state funding leveraged by DRWI within focus areas	28,213,30 dollars of 16,000,00	188.1%	0
# of volunteers	150.00 of 50.00	300.0%	0
Miles of forested buffer restored within focus areas	1.12 minu of 1.12	100.0%	0



Forest Buffer

Forest buffers are linear wooded areas. that help filter nutrients, sediments and...

🔢 🖻 🥓 🍳 🥫 Created on Jan 25, 2019



Forest buffer

Forest buffers are linear wooded areas that help filter nutrients, sediments and...

11 🖪 🖍 💡 🕯 Created on Jan 24, 2019



Forest buffer

Forest buffers are linear wooded areas that help filter nutrients, sediments and...

11 🖪 🖍 9 🗃 Created on Jan 24, 2019



Project & Metric Tracking





DRWI Data Portal // spring 2021 // Core Features // Map based exploration of DRWI monitoring sites





DRWI Data Portal // spring 2021 // Core Features // Map based exploration of DRWI monitoring sites





DRWI Data Portal // spring 2021 // Core Features // Map based exploration of DRWI monitoring sites





DRWI Data Portal // spring 2021 // Core Features //

Data Portal (upload and download)

Last Name *	
Email *	
Your Field *	
Please let us know what field you're affiliated with	
O Education	
O County Government	
O State Govenrment	
O Federal Government	
O Nonprofit	
O Other	
Organization Name *	

Data Usage Agreement *

By using these data I agree to Blue Water Baltimore's term's of use specified here: https://baltimorewaterwatch.org/termsand-conditions

□ I Wholeheartedly Agree!





DRWI Data Portal // spring 2021 // Core Features //

× Total Phosphorus Pass Integration with FieldDoc Milligrams per Liter Total Phosphorus is a nutrient linked to how much sewage and stormwater pollution are coming from the land. Phosphorus feeds naturally-occurring phytoplankton in the water, which can lead to algae blooms. Common sources of nutrient pollution are fertilizers, leaky sewer and septic systems, urban stormwater runoff, outdated wastewater treatment plants, and burning of fossil fuels. There are no COMAR assessment threshold values for total phosphorus. EZG #53363: Restoring Paulins Kill Floodplain Forests and Functions - Phase 2 Pass 0 ≥ x ≤ 0.2 Fail x > 0.2 Last modified by John Dawes on Feb 8, 2019 10:08:12 PM 0.30 Program: Delaware River Restoration Fund 0.25 establish native floodplain forest-expanding active restoration in the largest stretch of restorable 0.2 floodplain function, opened during Phase 1 and closed during Phase 2. 0.20 TAOS 0.15 0.10 0.05 Metrics -0.05 1/1/14 1/1/16 1/1/18 1/1/20 77,909.94 dollars \$ of public and private funds leveraged by DRWI within focus areas 0 92.5% 28,213.30 dollars Dollars of Federal Farm Bill and state funding leveraged by DRWI within focus areas 0 188.1% 150.00 # of volunteers 300.0% 0 1.12 miles 0 Miles of forested buffer restored within focus areas 100.0%

Data collected for DRWI



Is restoration working ecologically?



Nutrients: Nitrogen & Phosphorus compounds

Total Suspended Solids

Major ions: Ca, Na, Cl, Mg



ANS Database- Data submission & retrieval

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Template for data submission



Email your friendly ANS Science Team at: ANS_watershedsci@drexel.edu

Don't forget...

Your grant mandates you report your monitoring data to ANS! We can't include what we don't have in data products & analyses! Reference the data submission templates for what data to submit!









Data Products in Communications

Pings 🌄 Hey!

A Home



The Academy of Natural Sciences of DREXEL UNIVERSITY

DRWI Data Catalog



C Activity

😳 My Stuff

Q Find

ANS Data products

NEW JERSEY HIGHLANDS

412.722 acres. 40% forested, 26% agricultural, 15% urban, 13% wetland and water

Development

- · Appreximately 3,000 acres/yr converted to urban land + Suburban point and non-point source pollutant from sewage overflow
- · Fertilizer from lawns and sufculture

Owned soulits

These sites have been sampled every five years since 1992. The latest data available fines 2007 show a broad range of exceptions integrity throughout this chaster. 20% of the sites have encodient integrity according to 255 scores, analy 30% have good scores, another 31% are chastled as "bit?" and 21% show communities indicating pror quality. Many of the saves with lower quality computeries are located in the upper reaches, not just the lower reaches. ting the presence of hical stressors on all segments of these waterways, time 1997, 29 state have appertenced declines to block astegray, while 26 attes have tergeround.

441.722 ACRES IT'S INFAMLO STREAMS AIL PROTECTED LANDS

Buck Run Integrative Site Stream Health Report Card Total Nitrogen **Total Phosphorus** Good **Total Suspended Sediments** Macroinvertebrate Index of Biological Integrity 41 145 165 Algae Multi-Metric Index Foor **Fish Index of Biological Integrity** Good Ability to Produce Clean & Abundard Water Good **Riparian Natural Cover** Poor Watershed Protection Poor Major Watershed Stressors: 13% watershed is developed, with 2.8% impervious surface 59% watershed is agricultural.

1 sewage treatment plant within watershed

NEW JERSEY HIGHLANDS

High matation to machinesephenic 198 access indicates the taillustors of descine

stresson with rarying degrees of impact at certain times. These variations may also tadicate that a different set of indicators, such as algue, selamanders, fish or macrosis vertabrate assemblages radius than radices, will be necessary to fully explain stressors. A long-term picture of how stangets are related to dimate and charges to human activities over time will be essential for taking further actions to protect were qual-





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MIDDLE SCHUYLKILL

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Explore the WikiWatershed Toolkit

<u>WikiWatershed</u> is a web <u>toolkit</u> designed to help citizens, conservation practitioners, municipal decision-makers, researchers, educators, and students advance knowledge and stewardship of fresh water.







- EnviroDIY is a community for do-it-yourself environmental science and monitoring. EnviroDIY is part of <u>WikiWatershed</u>, a web toolkit designed to help citizens, conservation practitioners, municipal decision-makers, researchers, educators, and students advance knowledge and stewardship of fresh water.
- *These are the folks who are building the monitoring stations
 - Data from these stations can be uploaded or transmitted (e.g., via cell signal) to Monitor My Watershed





About v Participate v

icipate 🗸 Mayfly 🗸 Blog Forums 🗸 Videos Help Dave Bressler 🗾

An Initiative of Stroud Water Research Center

Subscribe O EnviroDIY on GitHub

Q



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

Mayfly for Monitoring

Our EnviroDIY Mayfly Data Logger is user programmable and Arduino IDE compatible.

Learn More

Program Your Mayfly

Get sketches, libraries, and documentation to help you program your Mayfly.

Get Started

Stream Your Data Online

Share your data and access data from around the world on Monitor My Watershed®.

Learn How

Get Answers on the Forum

Have a question about DIY environmental monitoring? Share it with EnviroDIY members.

Ask a Question



COMMUNITY ACTIVITY



Dave Bressler replied to the topic Beaver/Muskrat Damage? Vandalism? in the forum Mayfly Data Logger 16 hours. 42 minutes ago

I spoke to Jim Moore (@w3asa) today and he is going to write up a blog detailing his method for protecting wires from rodent damage (and maybe from people damage like Jake's?). But I don't think this will help in situations like Christa's. Sorry Christa 😟

How to deal with severe vandalism like this is a tough one. Christa and I were di...[Read more]





Shannon Hicks replied to the topic Status of 2G network? In the forum Infrastructure and Equipment 21 hours add

T-mobile is the only provider of 2G service that works with the GPRSbee modules that many people are using with the Mayfly, including about 40 stations managed by Stroud. T-Mobile plans to deactivate the network by the end of 2020, so anyone wishing to modernize their Mayfly's cell technology will need to replace the GPRSbee with a 4G LTE board.....[Read more]



Robert S replied to the topic MMW Data Outage? in the forum Monitor My Watershed 21 hours ago.

@shicks

Okay. I misunderstood.

I thought you were saying that ONLY 2G stations were affected. I did see that the Punches Run station was back up this

BLOG POSTS

SEE ALL ACTIVITY >





Building a Continuous Temperature Logger with the EnviroDIY Mayfly © 2020-05-11

BLOG COMMENTS

John S on Monitoring Coastal Streams With the Mayfly Data Logger and Atlas Scientific Sensors



Mayfly Data Logger

















CTD sensor – <u>C</u>onductivity, <u>T</u>emperature, <u>D</u>epth

> Conductivity (Electrical Conductivity)(uS/cm, microsiemens per centimeter)

- A measure of how well water conducts electricity
- Directly related to the concentration of dissolved ions in the water
- · Is an indicator of water quality





Turbidity sensor

- Measures the clarity of the water in Nephelometric Turbidity Units (NTU)\
- A measure of material suspended in the water (not dissolved)



© 2020 THE LABORATORY PEOPLE



EnviroDIY



Continuous Data – data point every 5 minutes

DataTima	TimeOfficet	DataTimel/TC	Decagon_CTD-	Decagon_CTD-	Decagon_CTD-	Campbell_OBS	Campbell_OBS	EnviroDIY_May	EnviroDIY_May	Digi_Cellular_	Digi_Cellular_
Daterime	rimeonset	Daterimeorc	to_bepth	To_temp	10_Cond	5_1010-1	3_1010-2	riy_temp	ny_batt	RSSI	SignalPercent
9/18/2019 11:15	-5:00	9/18/2019 16:15	303.3	17.3	403.8	4.61499	4.07552	23.5	4.078	-57	90
9/18/2019 11:20	-5:00	9/18/2019 16:20	304.5	17.1	409.3	3.8014	3.22395	24	4.078	-45	109
9/18/2019 11:25	-5:00	9/18/2019 16:25	303.3	17.1	410.7	5.06607	4.5499	24.5	4.078	-45	109
9/18/2019 11:30	-5:00	9/18/2019 16:30	304.7	17.1	410.5	5.55909	5.05835	24.5	4.078	-57	90
9/18/2019 11:35	-5:00	9/18/2019 16:35	302.7	17.2	414.8	6.5625	6.07589	24.75	4.078	-57	90
9/18/2019 11:40	-5:00	9/18/2019 16:40	301.2	17.2	413.8	6.3067	5.8192	25	4.078	-57	90
9/18/2019 11:45	-5:00	9/18/2019 16:45	299.7	17.2	413.5	9.61286	9.25615	25.25	4.154	-45	109
9/18/2019 11:50	-5:00	9/18/2019 16:50	301.2	17.3	413.8	11.156	10.90822	26.25	4.154	-57	90
9/18/2019 11:55	-5:00	9/18/2019 16:55	300.8	17.3	414.5	9.28674	8.92836	29	4.139	-45	109
9/18/2019 12:00	-5:00	9/18/2019 17:00	302.5	17.3	414.2	2.80841	2.1842	28.75	4.109	-57	90
9/18/2019 12:05	-5:00	9/18/2019 17:05	302.8	17.32	412.8	1.59383	0.91303	28	4.094	-57	90
9/18/2019 12:10	-5:00	9/18/2019 17:10	301.7	17.4	413.7	1.39442	0.71011	27.75	4.094	-45	109
9/18/2019 12:15	-5:00	9/18/2019 17:15	300.7	17.4	408.8	12.71542	12.49092	27.25	4.094	-57	90
9/18/2019 12:20	-5:00	9/18/2019 17:20	301.3	17.4	409.7	1.82901	1.16912	27.25	4.094	-57	90
9/18/2019 12:25	-5:00	9/18/2019 17:25	302.5	17.42	408.8	1.31029	0.61832	27.75	4.094	-57	90
9/18/2019 12:30	-5:00	9/18/2019 17:30	303.3	17.5	414	1.27918	0.58451	27.75	4.094	-57	90
9/18/2019 12:35	-5:00	9/18/2019 17:35	301.2	17.5	413.7	1.22848	0.5362	29	4.124	-57	90

MSAC2S_TimeSeriesResults.csv

Site Code: MSAC2S Site Name: Angelica Creek, Berks Nature, downstream of The Nature Place



- <u>https://www.envirodiy.org/</u>
- https://www.envirodiy.org/help/

Problems with registration? First, please be patient. It can sometimes take five minutes for the activation email to be delivered. If you don't receive it, check your spam folder. If you don't find it there, <u>contact the webmaster</u> so she can activate your membership.

<u>Visit the Participate page</u> for help with EnviroDIY community functionality like editing your profile, changing your email notification settings, using the forum, and connecting with other members and groups.

For questions about the Mayfly Data Logger, visit the <u>Getting Started</u>, <u>Hardware</u>, and <u>Software</u> pages. If you don't find the answers there you can help the community out by posting on the dedicated <u>Mayfly Data Logger forum</u>. There is also a <u>manual</u> to help you build an EnviroDIY Mayfly sensor station.

For questions about sharing your data on the Monitor My Watershed data portal, visit the <u>Sensor Data Help page</u> on WikiWatershed.org. You'll find links to a quick reference guide and in-depth manual, video tutorials, the GitHub issue tracker, and more.



Monitor My Watershed®

- What is Monitor My Watershed?
 - Monitor My Watershed® is a data portal that allows you to share and explore do-it-yourself environmental monitoring data. It currently hosts <u>EnviroDIY</u>[™] sensor data and <u>Leaf Pack Network</u>® macroinvertebrate data. Monitor My Watershed is part of the WikiWatershed® toolkit.

Key points about Solution My Watershed®

- Data portal, data visualization, and data summarization platform
- Publicly accessible no account or login required to access all data
- Receives continuous data from EnviroDIY data loggers (and LeafPack Network)
 - 1. Online and real-time via cell transmission of data
 - Online but not real-time via manual data upload of continuous data files (from loggers that are not transmitting via cell signal)

Monitor My Watershed®



Strowse Sites Time Series Analyst 🗹 Browse Sites Time Series Analyst

Help 🖾 🐠 Log In Sign Up

EnviroDIY Leaf Pack Network

Data Sharing Portal

Contribute your water-quality data

Ready to start sharing your data?

SIGN UP

How It Works

Monitor My Watershed supports multiple types of water-quality data.



Stress Time Series Analyst 🖉 🐘 Monitor My Watershed

Browse Data Collection Sites

that site. 53 - CLEAR 0 Map Satellite Q Search sites... Auto Zoom Quebec City BRUNSWICK Miquel PRINCE EDWARD ISLAND Montreal 🙆 Data Types . Ottawa MAINE SOUTH NOVA SCOTIA VERMONT Toronto EnviroDIY 442 Chicago Leaf Pack 10 IOWA. NEBRASKA RI ✓ Legend ILLINOIS IND **United States** Organizations Data Age: as City Indianapolis WEST Has data within the ADO Sensor data KANSAS Washington MISSOURI last 6 hours out of date Q Search Organizations... Has data within the Sensors have KENTUCKY last 72 hours no data Nashville Has data within the Only Leaf American Littoral Society 2 NORTH Pack data OKLAHOMA TENNESSEE last 2 weeks CAROLINA Charlotte ARKANSAS Ownership: Aquashicola Pohopoco 2 SOUTH CAROLINA MISSISSIPPI Dallas Watershed Conservancy Sites you own GEORGIA iso 0 Sites you do not own TEXAS BTW Company 2 +onville Austin

Browse all sites that have been registered in the database by all users. Clicking on a site shows its details and provides a link to view the data collected at

Valley Creek at Valley Creek Park (SHVC2S)

8 Deployment By	Al Renzi
Organization	Valley Forge Trout Unlimited
Registration Date	June 22, 2020, 2:42 a.m.
🖾 Deployment Date	June 25, 2020, 5:45 p.m.
1 Latitude	40.0592068
↔ Longitude	-75.5303564
t Elevation (m)	-
Elevation Datum	MSL
象 Site Type	Stream



Stress Time Series Analyst

Water depth	Provisional	C	۵	⊞	Electrical co	nductivity Provisional		Z	۵	⊞
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Temperature Provisional

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Turbidity Provisional

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Monitor My Watershed®

- https://monitormywatershed.org/
- https://wikiwatershed.org/help/sensor-help/

Resources

- Monitor My Watershed Manual (step-by-step instructions for sharing sensor data online)
- Quick Guides
 - Monitor My Watershed Quick Reference Guide
 - Filling Data Gaps for Real-Time Stations
 - Data Patterns Quick Guide
- Monitor My Watershed Instructional Video Playlist
- <u>Curricula</u>
- <u>Getting Started with the Mayfly Data Logger</u> (hardware details, software instructions, sensor station manual)

Model My Watershed®

Wiki Watershed

Development Team:

Collaborators at Stroud Water Research Center, Academy Nat. Sci. & Drexel U., LimnoTech, Shippensburg U., U. Wash., Utah State U., Azavea



About Help Projects darsc

Jump to location or HUC

Model My Watershed®



Model My Watershed is a watershed-modeling web app that enables citizens, conservation practitioners, municipal decision-makers, educators, and students to

- Analyze real land use and soil data in their neighborhoods and watersheds
- Model stormwater runoff and water-quality impacts using professional-grade models
- Compare how different conservation or development scenarios could modify runoff and water quality

What is 🗳 Model My Watershed®?

- Analysis of:
 - Land Cover, Protected Areas, Active River Area (NE & Mid Atlantic), Soil, Climate, Elevation, Slope, Animals, & Point Source Data for Selected Areas
- Community: Save, Share, & Compare your work as "My Projects"
- Models:
 - Site Storm Model Package
 - Runoff from TR55 + Robert Pitts' urban small storm algorithms in WinSLAMM
 - Water Quality from EPA STEP-L
 - Watershed Multi-year Model Package
 - Hydrology & Water Quality data from MapShed model (https://wikiwatershed.org/help/model-help/mapshed/)
- Ability to Create & Compare Scenarios of Modeled Changes to Land Cover and Best Management Practices

Model My Watershed[®]

Model My Watershed

Explore Human Impacts on Your Watershed

Analyze mapped watershed data, visualize monitoring data, and run model simulations of human impacts on water quality.

Select Area and Analyze

Explore map layers and select your area of interest. Analyze land cover, hydrologic soil groups, permitted point source discharges and other natural and human influenced features.

Monitor My Watershed®

Search for monitoring data in various data repositories. Share your monitoring data to view in WikiWatershed.

Model My Watershed®

Run one of two models to compare impacts of different conservation and development scenarios on water quality. Share your modeling results for others to find, copy, and edit.

Get started ->



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Select Area

Explore mapped layers, such as streams, land cover, soils, boundaries and observations, using the layer selector in the lower left of the map. See our documentation on layers.

Select an Area of Interest in the continental United States, using the suite of tools below, to analyze the factors that impact water in your area and to begin to model different scenarios of human impacts. Different modeling options for using these tools are described in the technical documentation.

Select boundary

Choose a predefined boundary from several types

Draw area

Free draw an area or place a square kilometer

Delineate watershed

Automatically delineate a watershed from any point

Upload file



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7/13/2020



documentation.

Se	lect	boundary	

Choose a predefined boundary from several types

Draw area

Free draw an area or place a square kilometer

Delineate watershed

Automatically delineate a watershed from any point

Upload file

P Type here to search



Model My Watershed®

- Site Storm Model <u>24hr storm estimates</u>
 - Water Quantity infiltration, runoff, evapotranspiration
 - Water Quality Total Supended Sediment, Total Nitrogen, Total Phosphorus
- Multi-year Model <u>one year estimate</u>, based multiple years (30yrs) of data
 - Water Quantity infiltration, runoff, evapotranspiration
 - Water Quality Total Supended Sediment, Total Nitrogen, Total Phosphorus

ModelMW – 24hr storm estimates

Model My Watershed

Analyze Monitor Model

Delaware High Resolution 9,013,703 ft²

Streams Land Soil Terrain Climate Pt Sources Animals Water Qual

±

~

Land cover distribution

Land cover distribution

Related Layer: National Land Cover Database X Turn off Source: National Land Cover Database (NLCD 2011) ()



Change area



About Help Projects dbressler -

ModelMW – 24hr storm estimates

Compare

Runoff Water Quality

Scenarios





Predominantly Forested

Current Conditions New Scenario





- Change land use and/or conservation practices and see it affects water quantity and quality and how it compares to current and forested conditions
- *Here a high density residential development was added (~30 acres)

ModelMW – yearly estimates

Un

hodel My Watershee	d"								About Help Pr	ojects d
Untitled Project -	Details			Analyze	Monitor	Model			Share	New
Current Conditions	🕹 Export GM	s							O Add char	nges to th
Hydrology Water Quality				1-	1	1 ph	A Part	Y	of the	1
Average annual loads from Related Layer: Weather Stations Source: USEPA National Climate Simulated by the GWLF-E (Maps	30-years of s used in this i e Data () Shed) model (f daily fluxe model. 🗹 1	es furn on	they	5	Long		3×	\sim	k
Sources	Sediment	Total Nitrogen	Total Phosphorus		\$		1 7	199		No.
Total Loads (lb)	17,922.9	997.7	61.2	~ ~	F			a part		T
Loading Rates (lb/ac)	188.88	10.51	0.65		F			XC	ht	3
Mean Annual Concentration (mg/L)	46.21	2.57	0.16	1	1 -	25		The second	11 .	
Mean Low-Flow Concentration (mg/L)	58.12	4.33	0.55	1	1			Y		
Mean Flow: 6,213,538 (ft³/year) and 0.2 (ft³/	s)		2	sont .			Sh	s.	
Lownload this data				ayers	^	-1-0		A	11	99 -
				≋ III ⊘	6 9		mana	VIX	0 2	۰ ۹
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ModelMW – yearly estimates



Model My Watershed®

- <u>https://modelmywatershed.org/</u>
- https://wikiwatershed.org/help/model-help/

Documentation

- Model My Watershed Technical Documentation
- Model My Watershed Site Storm Model Guide
- Model My Watershed Runoff Simulation Guide

General Resources

- How do I connect/ log in/ create a Model My Watershed account?
- Model My Watershed FAQ
- <u>Release notes</u>
- <u>GitHub repository</u>
- Video tutorials and webinar recordings
- <u>Curricula</u>
- Model My Watershed Terms of Use, Privacy Policy, and Cookie Policy: go to <u>https://ModelMyWatershed.org/</u>: menu.

Site Storm Model Resources

- Model My Watershed Site Storm Model Guide
- Site Storm Model technical documentation
- <u>Curricula</u>

Watershed Multi-Year Model Resources



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novative Technology

Web Tools Advancing Knowledge and Stewardship of Fresh Water

WikiWatershed is an initiative of Stroud * Water Research Center. The Stroud Center seeks to advance knowledge and stewardship of freshwater systems through global STROUD research, education, and watershed restoration. WATER RESEARCE CENTER

Welcome to WikiWatershed, a web toolkit designed to help citizens, conservation practitioners, municipal decision-makers, researchers, educators, and students advance knowledge and stewardship of fresh water. Learn more

Explore the WikiWatershed Toolkit



Available for free online

http://WikiWatershed.org

- https://ModelMyWatershed.org
- https://MonitorMyWatershed.org
- https://EnviroDIY.org
- Swagger API endpoints
 - https://modelmywatershed.org/api/docs/

Why develop custom tools?

- 1. Tell specific stories of your watershed and your restoration work.
- 2. Deploy visualizations on your websites.
- 3. Get greater use from your hard-earned data.



How are custom DV tools supported in the DRWI/Delaware?

1. Machine readable datasets

SITE_ID	DATE	WTEMP	DO	PH	ТР
В	2012-08-01	23	10		0.0031
В	2013-08-01	23.5	8	8	0.003
В	2014-08-01				0.0088
В	2015-08-01		6		0.0137
В	2016-08-01	22.5	11	8	0.0053
D	2013-08-01	24	9	8	0.0046
D	2014-08-01	23	10	8	0.0078
D	2015-08-01	22	8	8.5	0.0098
D	2016-08-01	22.5	13	8	0.0036
N	2012-08-01	26	13		0.037
N	2013-08-01	22	11	9	0.0903
N	2014-08-01	23.5	10	8.5	0.0564





How are custom DV tools supported in the DRWI/Delaware?

- 2. Data-to-Action Training and Support
 - Webinars
 - In-depth trainings
 - One-on-one support
 - Shared models



What kinds of tools are available?

*Free/non-profit license *No code required *Deployable on web properties

Data

Dashboards/Reports Hwy 163 West Jefferson Select date range Page 3 of 4 Conductivity (umbos/c Conductivity Google Data Studio CSERC Water Quality Monitoring E. coli levels were relatively low across sites (< 100 MPN/100 mL) in February of 2018. Click on the sites in the map to see carbonate compounds 3 ogen is essential for all living trings as it is a component of protein. Nitrogen exists in the environment in many forms and changes forms as it moves ArcGIS cycle. However, excessive concentrations of nitrate-nitrogen or nitrite-nitrogen in drinking water can be hazardous to health, especially for infants and pregnant rinking water limit for Nitrate-nitrogen (N03-N) of 10 mg/t NO2.NO3.N (mg/L) NH3.N (mg/L) Nitrate-nitrogen (NO2-NO3-N) ilil

Mapping Applications/Story Boards



POLL

- Which specific product(s) would you be interested in learning more about?
 - ANS available data
 - ANS data products: report card, maps of IBI scores
 - FieldDoc
 - DRWI Dashboard
 - EnviroDIY data capabilities
 - WikiWatershed tools Monitor My Watershed and Model My Watershed
 - Data dashboards with Google Data Studio or Arc Online
 - Storytelling tools

THANK YOU!

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- Colleen Walters: <u>cwalters@rivernetwork.org</u>