Introduction

In 2024 West Virginia's §319 Program provided technical assistance and financial support to 82 projects ranging from general administration, grant management, outreach, planning, monitoring, and a wide assortment of implementation. Most of our projects focus on *watershed-based plan* (WBP) priority basins; however, success also occurred through our popular *additional grant opportunities* (AGOs), and our statewide partners. Many projects complement the efforts within WBPs while others were standalone projects focusing on local nonpoint source issues. Final reports for AGOs completed in 2024 are available on request. *Table 1* looks at the numbers for ALL projects. Additional details are available in the appendices.

***Table 1**. §319 Program/Project summary*

Federal Fiscal years	2020	2021	2022	2023	2024
§319 allocations	$1,806,000	$1,855,200	$1,855,000	$1,925,500	$1,882,000
§319 funds spent	**$1,555,611**	**$1,065,615**	**$535,940**	**$113,291**	**$8,795**
Funding	86.1%	57.4%	28.9%	5.9%	0.5%
§319 projects	**19**	**17**	**14**	**19**	**13**
Nonpoint	4	3	4	4	6
Nonpoint (AGOs)	6	3	4	8	TBD
Watershed	9	11	6	7	7
Completed projects	**16**	**2**	**1**	**0**	**0**
Projects	84.2%	11.8%	7.1%	0.0%	0.0%
Spending	86.1%	57.4%	28.9%	5.9%	0.5%
Grant expiration	Sep-24	Sep-25	Sep-26	Sep-27	Sep-28
Cancelled §319 projects	2	1	1	0	1

Implementation

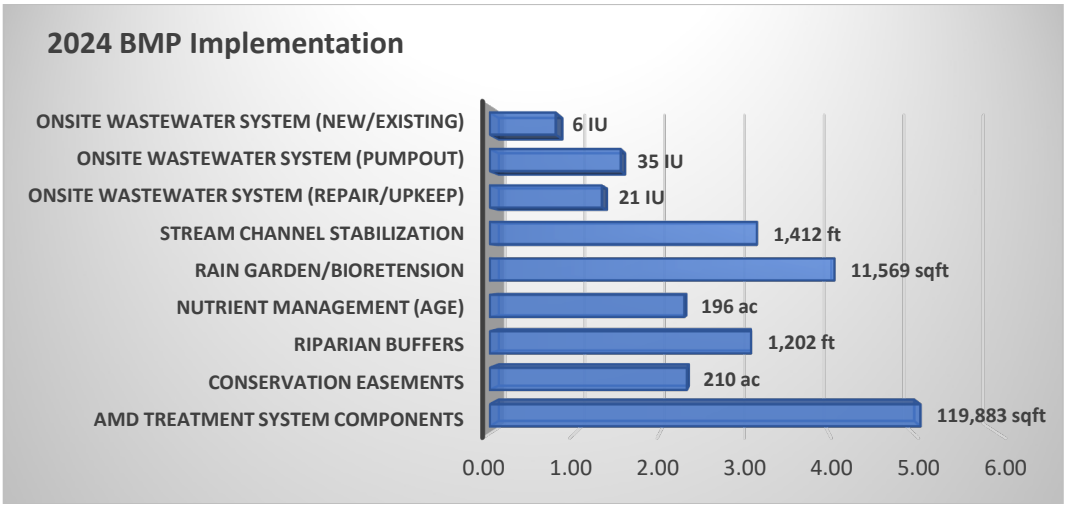
Best management practices and load reductions

The major goal of most §319 projects is the implementation of the best and most effective best management practice (BMP) that will reduce the target pollutants and be easily maintained throughout their lifespan. This maintenance is critical to the project's success, but unfortunately, there is not sufficient funding to support the necessary upkeep. Partners and program managers must often get creative and leverage funding from a wide variety of non-federal sources to maintain treatment systems. The buy-in to this process is important to long-term success.

In 2024 BMP implementation occurred in 28 HUC12 size basins [*Figure 3*]. Overall BMP implementation is also represented graphically in *Figure 1*. Figure 1 compares major categories using a log(n) calculation. Additional details are provided in *Appendix 2*. Most of the agricultural efforts are a result of implementation through WV Conservation Agency's (WVCA) *Agricultural Enhancement* (AgE) Program as well as their efforts in priority basins.

The focus of most of WVCA's watershed projects is bacteria reduction, while the AgE implementation targets nutrients through nutrient and pasture management practices.

Figure 1. §319 2024 BMP implementation



2024

BMPs	Installed	Log(N)
AMD treatment system components	119,883	5.08
Conservation easements	210	2.32
Riparian buffers	1,202	3.08
Nutrient management (AgE)	196	2.29
Rain garden/bioretension	11,569	4.06
Stream channel stabilization	1,412	3.15
Onsite wastewater system (Repair/Upkeep)	21	1.32
Onsite wastewater system (Pumpout)	35	1.54
Onsite wastewater system (New/Existing)	6	0.78

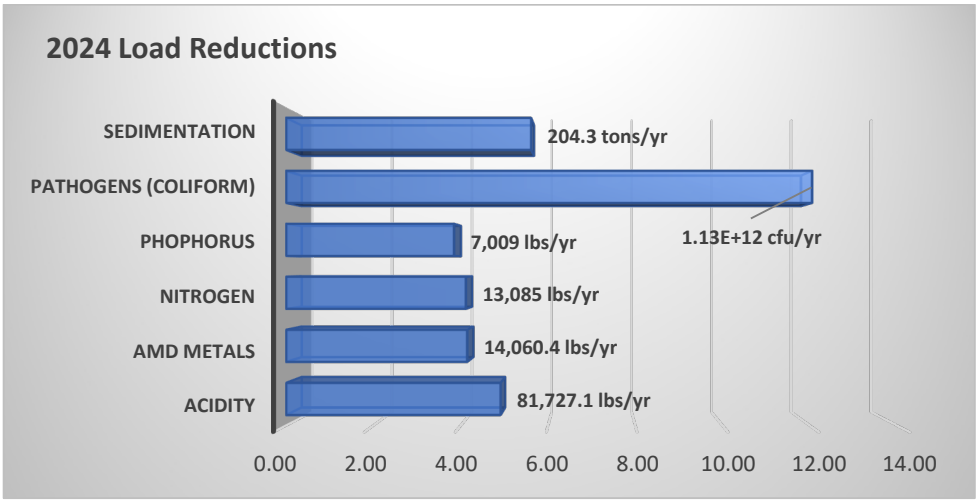
2023

BMPs	Installed	Log(N)
AMD components	278	2.4
Onsite wastewater systems (Pumpout)	98	2.0
Onsite wastewater systems (Repair/Upkeep)	91	2.0
Stormwater	194.4	2.3

Overall BMP implementation increased compared to the previous year. Additionally, lingering pandemic impacts are less of a factor, except for increased costs.

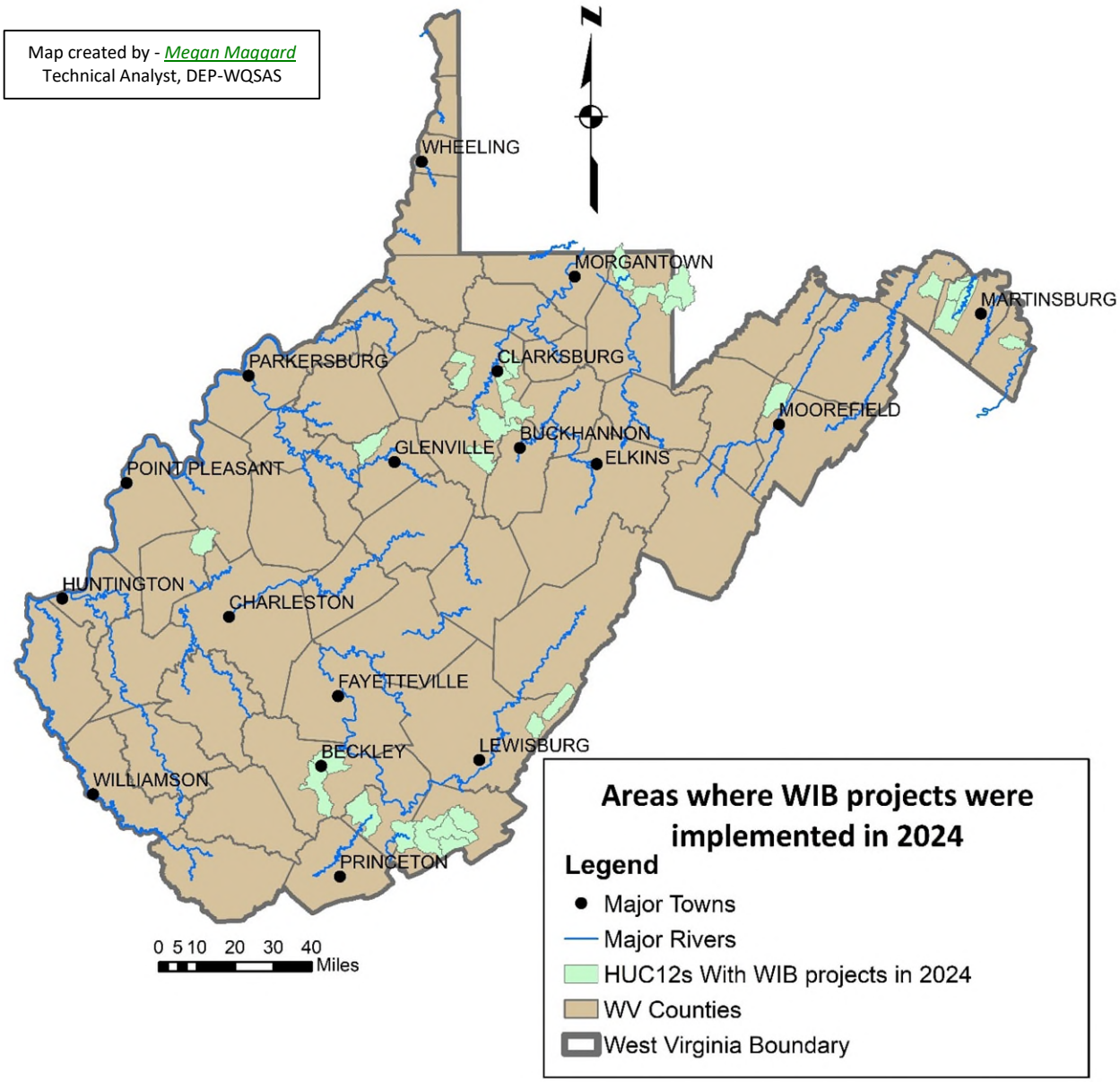
The load reduction (LR) details are available in *Appendix 3*. The largest contributor to nonpoint source (NPS) pollution in West Virginia is bacteria, primarily from failing septic systems and agriculture runoff, as well as acidity and metals from abandoned mine lands. These two together account for approximately 70% of the NPS impairments. The table below shows the LRs achieved in 2024.

Figure 2. §319 2024 load reductions achieved.



The load reductions achieved in 2024 contributed more than the previous year towards the pollution reduction goals of West Virginia's Nonpoint Source Management Plan (NPSMP). See the table in *Appendix 5* for more details.

Figure 3. HUC12 sized basins where §319 project activity occurred in 2024



Chesapeake Bay Program

West Virginia's Chesapeake Bay (CB) Tributary Team partners continue to work on nitrogen and phosphorus reductions for the CB TMDL. Our partners implement NPS strategies from the *Phase 3 Watershed Implementation Plan* (WIP), such as stream restoration, cattle exclusion with riparian buffer planting, and stormwater management practices, which achieve local benefits while reducing nutrient loads. The wastewater strategy has largely been implemented and is focused on holding the line. In 2022, WVDEP began partnering with Chesapeake Bay Trust (CBTrust) to apply federal project funds to the Green Streets, Green Jobs, and Green Towns grant program for West Virginia applicants. Seven West Virginia projects were funded this year through this program. In 2024, the WVDEP and CBTrust partnership continues to develop as we have funded 12 projects including conceptual plannings, engineered designs, and community greenings.

Table 2 shows historic, recent and WIP3 (goal) loads of total nitrogen and total phosphorus. Modeled progress during the 2024 progress year (July 2023 - June 2024) is still dampened due to the expiration of some practices once they reach their modeled lifespan.

***Table 2**. WV's progress toward reducing CB pollutants.* *Units - million lbs/yr*

Pollutant	Category	2013 Progress (Baseline)	Progress 2023	Progress 2024	WV WIP3 goal
Nitrogen	Agriculture	3.30	3.21	3.18	2.98
	Urban Runoff	1.19	1.23	1.24	1.17
	Natural+Deposition	2.60	2.58	2.57	2.58
	Septic	0.33	0.35	0.35	0.34
	Wastewater+CSO	0.70	0.41	0.45	0.64
	All Sources	8.12	7.78	7.79	7.71
Phosphorus	Agriculture	0.14	0.12	0.12	0.09
	Urban Runoff	0.06	0.06	0.06	0.05
	Natural+Deposition	0.21	0.20	0.20	0.19
	Septic	0.00	0.00	0.00	0.00
	Wastewater+CSO	0.14	0.04	0.04	0.06
	All Sources	0.55	0.42	0.42	0.39

All results are from the CAST model, available at *http://cast.chesapeakebay.net*

Basin Coordinators, WIB Programs and WVCA highlights

WIB staff and our internal and external agency partnerships are critically important to the success of West Virginia's NPS Program. We rely heavily on the personalities and knowledge of everyone to deliver our program to those who need it most. We understand there are still many that can use our services, and we will continue to strive to deliver those, especially to underserved areas.

It is important to note that several staff positions have been vacant for the majority of 2024. This includes the Potomac and Southern Basin Coordinators (BC's), the Stream Partners Program Coordinator, and our Watershed Coordinator Jennifer Pauer who retired following 25+ years of service. Jennifer managed the CB Program and supervised multiple BC's. Current staff, the Western BC, Save Our Streams Coordinator and the NPS Coordinator have been performing much of the duties associated with these vacant positions. We expect to fill many of the vacancies sometime in 2025.

WV Conservation Agency

The *WV Conservation Agency* (WVCA) remains the primary entity responsible for the implementation of the West Virginia agriculture and construction components of §319 Nonpoint Source (NPS) Program and for coordinating and implementing water quality improvement projects statewide. The WVCA develops WBPs in priority watersheds and in most cases WVCA's conservation specialists act as project

managers for §319 projects within their districts. WVCA also provides a wide variety of technical information and assistance to landowners, state and federal agencies, watershed groups, conservation districts, and others in the selection of BMPs to protect the natural resources of the state. WVCA is governed by the State Conservation Committee (SCC).

WVCA works closely with the *14 Conservation Districts* (CDs) for administration of various programs and provides administrative and technical support to the CDs through staffing. The role of CDs is to coordinate assistance from all available sources—public and private, local, state, and federal to develop locally-driven solutions to natural resource concerns. To assist with BMP implementation, CDs offer equipment rental and keep stock of various products that are available for landowner purchase.

Technical assistance was provided to 239 cooperators in ten different priority watersheds. This assistance included septic programs, fencing, tree canopy expansion, alternative livestock water, and conservation easements. Outreach/education was provided to more than 400 participants on implementation of BMPs to reduce the effects of the drought. Those practices included but were not limited to reseeding of feeding areas and rotational grazing. Assistance was also provided for District field days related to soil sampling and WVCA programs.

Northern Basin

BRWA volunteers constructing a "flow-pipe" flow monitoring system for an acid mine drainage source in the Buckhannon River watershed.

The Northern Basin Coordinator (NBC) Martin Christ supported subgrantees in the Northern Basin of West Virginia with advice, information, and assistance with data collection and quality assurance. He also aids in maintaining records of BMPs and load reductions in GRTS, attended the regional NPS Conference, and helped to develop several quality assurance project plans (QAPPs). Note: The NBC takes a lead role in our QAPP approval and training processes.

The partners that the NBC worked with included WVU's *West Virginia Water Research Institute* (WVWRI), *Save the Tygart Watershed Association* (STTWA), *Buckhannon River Watershed Association* (BRWA), *Guardians of the West Fork* (GWF), *Friends of the Cheat* (FOC), *Friends of Deckers Creek* (FODC), *Friends of Blackwater* (FOB), *Buckhannon River Watershed Association (BRWA)*, the *Wheeling Creek Watershed Alliance* (WCWA) plus a variety of agencies and others.

Planning and Implementation

- Identifying, planning, carrying out, and recording data for maintenance of past projects built by WVWRI and BRWA.
- Participating in drafting applications for matching grants for AMD projects.
- Summarizing for BRWA the current state and next steps required for two NPS Watershed Projects and two NPS Program projects.
- Monitored Bull Run for fecal coliform bacteria with BRWA.
- Wrote and reviewed outreach documents concerning water quality in the Bull Run watershed and in the Buckhannon River watershed.
- Advised FOB about completing two NPS watershed projects.

- Assisted in drafting a Request for Proposals (ROPs) to procure an engineer for an FOB NPS project.
- Performed final inspections for two completed NPS projects for FOC.
- Advised FODC concerning the timing of their work on NPS projects.
- Advised the GWF on procuring a surveyor for the Lambert Run 4 project, and planned Lambert Run Sites 4, 7, and 8.
- Oriented engineers to projects in the Roaring Creek watershed for STTWA.

Outreach and Education

- Presented information about Glenns Run to stakeholders at a tour of water quality issues convened by the WCWA.
- Demonstrated water quality monitoring at a Watershed Day carried out by GWF.
- Participated in a demonstration stream monitoring event with STTWA for Grafton High School.
- Coordinating a series of webinars about NPS to fecal coliform pollution.
- Teaching and testing aquatic science knowledge for the West Virginia Envirothon.
- Teaching watershed science and West Virginia Senior Conservation Camp.
- Teaching watershed science at the Water Explorers Camp.

Western Basin

The Western BC (WBC) Tomi Bergstrom provides technical assistance, helps with planning, grant writing and performs a tremendous amount of outreach statewide due to her Project WET Coordinator position. The WBC worked with a wide range of partners and WGs, but was especially involved with *Coal River Group* (CRG) and *Fourpole Creek Watershed Association* (FCWA) as they completed their 319 projects and submitted a watershed based plan, respectively. She also provided technical assistance to *Friends of the Tug Fork River* on their draft WBP. She also manages the rain garden as the WVDEP headquarters and hired a summer intern to assist with the outreach requests and workload.

Cy Pres

Photo of Morris Creek before and after

Six watershed groups in the impacted area of the Elk River chemical spill on January 9, 2014, received $105,142 in January of 2022 through a federal order to implement watershed improvement projects within their basins. Three groups have completed their projects: 1) *Morris Creek Watershed Association* (MCWA) with a streambank erosion and channel project, 2) *Davis Creek Watershed Association* (DCWA) with a septic replacement project, and *Buffalo Creek Watershed Improvement Association* with a stream habitat rehabilitation project. CRG is nearing completion of their streambank restoration project. *Paint Creek Watershed Association* (PCWA) is partnering with the WVCA to install stream

structures and the FCWA has replaced multiple septic systems and are now working with the Marshall University Engineering Department to have students design an infiltration trench for a large dog park on the hillside of Ritter Park.

Project WET

As part of the *Project WET* (Water Education Today) Program, the WBC certified 102 educators in various Project WET Curriculum Guides, including stipends and supplies for wetland education through an EPA Wetland Development Grant. She reached over 3,000 students, teachers, and citizens of West Virginia with outreach events at Water Explorers STEAM Summer Camps, WV Envirothon, Berkeley County Youth Fair, Earth Day events, Wetland Master Naturalist Program, Camp WALDO, World Water Day events, and others. Over 1,280 students were reached through programming conducted at *Water Festivals* across the state.

Chesapeake Bay Analyst

This position was created and filled in October 2024. The position combined the duties of the Urban BMP Specialist (Formally the Stormwater Specialist role) and the Chesapeake Bay Technical Analyst duties of the Potomac BC. The Chesapeake Bay Analyst (CBA) provides technical assistance for regulated and unregulated urban stormwater management by promoting low impact development (LID) and BMPs. The CBA works with stakeholders to reduce the amounts of nitrogen, phosphorus, and sediment delivered to the Bay. This includes the collection, verification, submission, and analyzing of BMP data utilized in the Chesapeake Assessment Scenario Tool (CAST) model. The position is funded through the Chesapeake Bay Regulatory and Accountability grant. The CBA represents WVDEP's interests in the urban stormwater workgroup (WG), watershed technical WG, modeling WG, land use WG, and any additional CB Program meeting.

- Planning and Implementation: The CBA provided technical assistance to several local governments and NGOs to promote adequate implementation of BMPs and to ensure LID in the first place. Collaboration with the CB Trust resulted in multiple projects being funded for planning, engineered designs, or implementation. The CBA verified and reverified the occurrence and function of stormwater treatment/runoff reduction BMPs for the CBP. Additional BMP information was collected and QA/QC from partners to submit to the CBP.
- Outreach and education: The CBA attended Region 8 Planning Commission meetings and other events to promote adequate stormwater management through LID. Local governments were contacted and encouraged to participate in the Division of Forestry Tree City USA program. The CBA participated in a tree maintenance presentation at the Romney Middle School, co-taught an environmental class for the Hampshire County 4H, and cohead a WVDEP booth at the Cacapon Riverfest.
- §319 Program: The CBA has provided guidance on several current and potential future §319 projects.

BC Joint Efforts

BC's have been working together to provide technical assistance in their area of expertise to watershed groups until vacancies have been filled. They each hosted a regional watershed group gathering with support of the *WV Watershed Network* (WVWN) and helped run the WV Envirothon Aquatic station with the leadership of the SOS Coordinator. The Stream Partners VISTA Program is offering additional support to watershed groups in each basin and BC support and partner with the VISTAs on the work in their respective basin. *Learn more about the VISTA's here*.

WV Save Our Streams

A workshop participant uses the SOS guides to identify benthic macroinvertebrates in Evitts Run in Ranson and Charlestown.

In the calendar year for 2024, the *WV Save Our Streams* (SOS) Coordinator led five *WV Vernal Pool Program* workshops, 17 SOS workshops, and participated in 11 outreach events. The spring vernal pool workshops taught 115 participants how to identify and evaluate ephemeral wetlands in West Virginia. Workshop locations include the WV Botanic Garden, Fort Mill Ridge Wildlife Management Area, Kanawha State Forest, New River Gorge National Park, and Cranberry Mountain Nature Center. The WV Vernal Pool Monitoring Program was developed in partnership with the WVDEP Water Quality Standards and Assessment (WQSAS), WVDEP-WIB, WV Division of Natural Resources, and US Geological Survey Amphibian Research and Monitoring Initiative via a USEPA Wetlands Program Development Grant.

1. In the Northern Basin, six workshops were held, including the Middle Fork River in Barbour County at Audra State Park, Blackwater River at Canaan Valley State Park, Waddles Run of Wheeling Creek at Oglebay Schrader Environmental Education Center, Left Fork of Files Creek in Tygarts Valley River watershed, Morgan Run of the Cheat watershed and Keith Fork of Skin Creek in West Fork watershed.
2. In the Eastern Panhandle, SOS hosted five training workshops: on Opequon Creek in Bunker Hill with Blue Ridge Community & Technical College and City of Martinsburg Stormwater Dept., Evitts Run with Ranson Community Garden, North Fork South Branch of the Potomac at Seneca Rocks with U.S. Forest Service staff and AmeriCorps members, Town Run in Shepherdstown, and Indian Run in Sleepy Creek watershed at Cacapon State Park with Cacapon Institute's Stream Scholars Camp.
3. In the Southern Basin, the SOS program held three training workshops, including the Gauley River in Webster County at WV State Conservation Camp at Camp Caesar, Piney Creek with the Master Naturalists, New River Gorge National Park staff, *Plateau Action Network* (PAN), and *Piney Creek Watershed Association* (PCWA), and Second Creek with WWCA staff.
4. In the Western Basin, the SOS program held three SOS workshops on Davis Creek with the DCWA and the WVDEP summer interns, Hughes River with the Mid-Ohio Valley Master Naturalists at North Bend State Park, and on the Little Kanawha River with Glenville State University.

Additionally, the SOS Coordinator participated in 11 outreach events, providing stream ecology and water quality education to a wide range of audiences in West Virginia. Events included the inaugural Appalachian Fly Fishing Festival, Water Explorers Camp with National Youth Science Academy, Adventure Pocahontas school programming, Forks of Coal Water Festival, WV Envirothon Teacher Training and Competition, Leading Creek Elementary School's World Water Day, and the West Virginia Science Teachers Conference. In total, SOS outreach education reached nearly 1,200 individuals across the state.

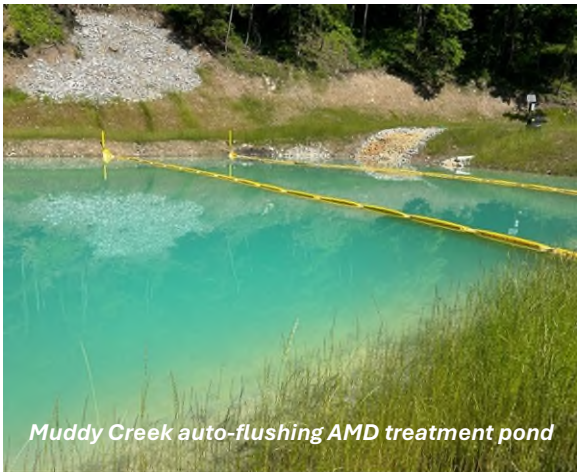
Workshop participants conduct chemistry and physical tests on Davis Creek at Kanawha State Forest.

The SOS Coordinator serves as the Education Committee Co-Chair for the *West Virginia Envirothon* competition, a statewide competition for high school students. The winning team competes at the national competition and receives scholarship awards to go toward college education. The SOS Coordinator leads the WV Envirothon Aquatics Team and participates in teacher training and team training events.

The SOS Coordinator is working with the *Chesapeake Monitoring Collaborative*, the Virginia Institute of Marine Science, and WVDEP colleagues to upgrade the Volunteer *Volunteer Assessment Database* (VAD) so that it aligns with the *Chesapeake Bay Data Explorer*. The new platform will better serve volunteer water quality monitoring organizations across the state of West Virginia and allow water data to be easily shared and utilized by the public and partner organizations. The SOS Program Coordinator looks forward to the continuing success of the SOS program in 2025 and beyond.

To learn about all WVDEP's Watershed Improvement Branch Programs go to: *https://go.wv.gov/wib*

Nonpoint Source Management Plan updates



Muddy Creek auto-flushing AMD treatment pond

The current Nonpoint Source Management Plan (NPSMP) was extended by one year, and a revised management plan was submitted to the EPA in the fall of 2023. Reviews are currently underway. The NPSMP progress was evaluated several years ago, and an update is provided in *Appendix 4*.

West Virginia's NPS Program has achieved 4 of 6 of the goals established for the pollutant categories (*Appendix 5*). These targets are based on an assessment of previous years as well as future projections. Without the pandemic years my confidence is high that all targets would have been met. There may have been other factors that contributed to the underperformance of projects but those are unknown at this time. Moving forward, evaluating our processes earlier will likely improve results. In 2024 we are already seeing improved results, as load reductions and BMPs implementation increased by 67% from the previous year.

2024 §319 Tours

On June 4th and 5th 2024 representatives from WVDEP-WIB in coordination with our partners FOC and FODC hosted EPA Region III and guests on a tour of §319 project sites. Most of the sites were acid mine drainage treatment systems, both active and passive, plus a few future sedimentation projects. A map, photos and a summary of the tour sites are provided *here*.