

Introduction

In 2023 West Virginia’s §319 Program provided technical assistance and financial support to 90 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, implementation also occurred through our [additional grant opportunities](#) (AGOs), and from our statewide partners. These projects were often on a smaller scale and timeframe. Many projects complement the efforts within WBPs while others were standalone projects focusing on local nonpoint source issues. Final reports for AGOs completed in 2023 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	2019	2020	2021	2022	2023
§319 allocations	\$1,749,996	\$1,806,000	\$1,855,200	\$1,855,000	\$1,925,500
§319 funds spent	\$1,596,895	\$556,564	\$727,105	\$403,665	\$248,595
Funding	91%	31%	39%	22%	13%
§319 projects	16	19	17	14	11
Nonpoint	3	4	3	4	4
Nonpoint (AGOs)	4	6	3	4	TDB
Watershed	8	9	11	6	7
Completed projects	15	5	1	0	0
Projects	94%	26%	6%	0%	0%
Spending	91%	31%	39%	22%	13%
Grant expiration	Sep-23	Sep-24	Sep-25	Sep-26	Sep-27
Cancelled §319 projects	1	2	1	1	0

Implementation

Best management practices (BMPs)

The major goal of most §319 projects is the implementation of the best and most effective 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. The buy-in to this process is important to long-term success.

In 2023 BMP implementation occurred in 22 HUC12 size basins [[Figure 1](#)]. Overall BMP implementation is also represented graphically in [Figure 2](#). Figure 2 compares major categories using a log(n) calculation. Additional details are provided in the appendix section. 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 AgE Program usually implements practices in the spring so due to the timing of the 2023 §319 award, AgE implementation will not occur until 2024.

The focus of most of WVCA’s watershed projects is bacteria reduction, while the AgE implementation targets nutrients through nutrient and pasture management practices. In 2023 bacteria reductions made up much of the effort.

Figure 1. HUC12 sized basins where §319 project activity occurred in 2023.

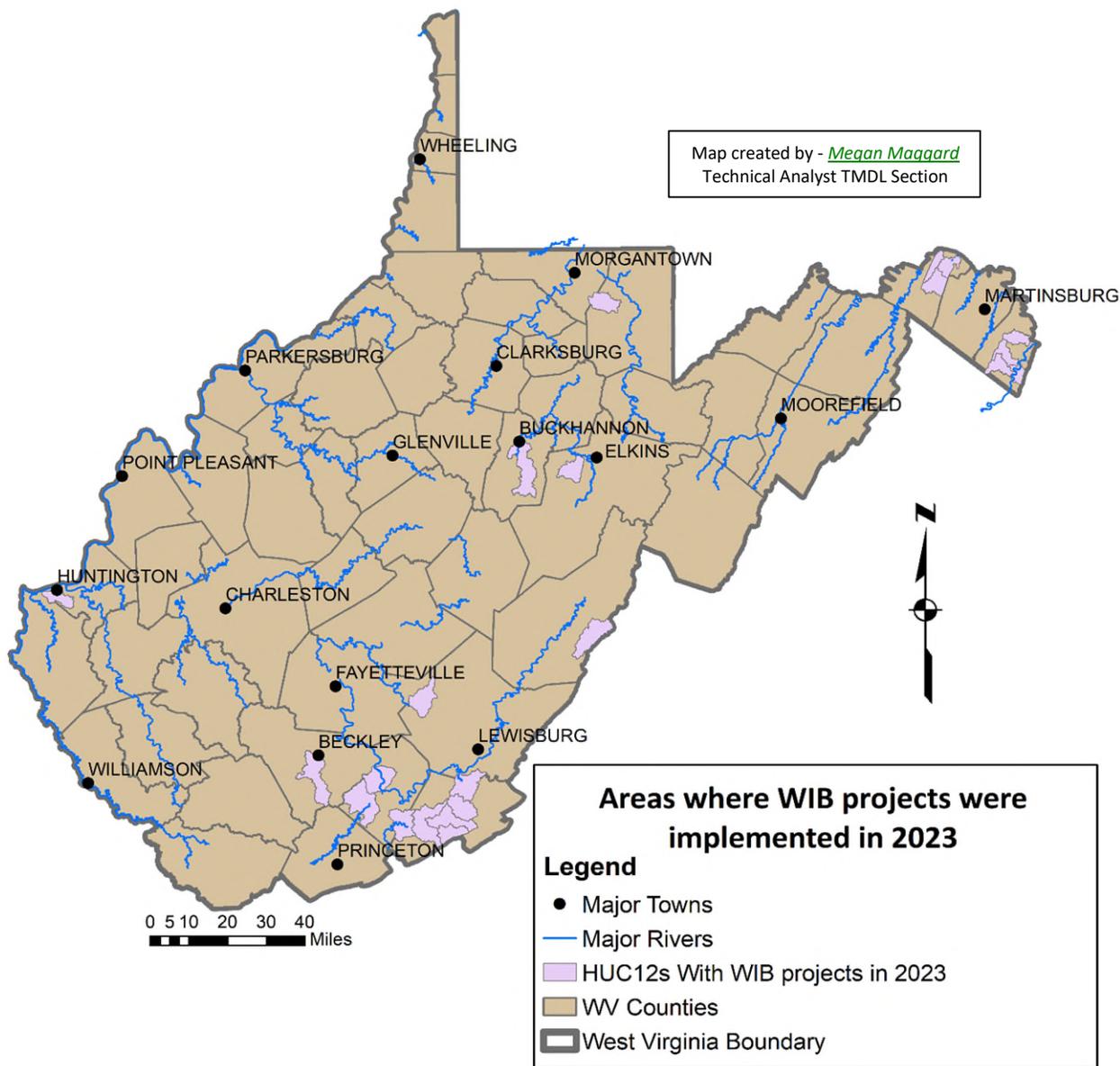
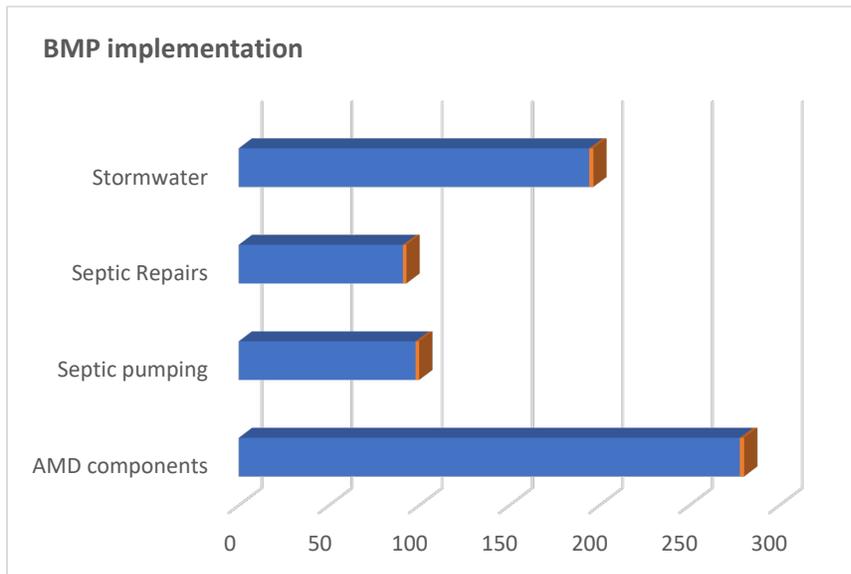


Table 2. HUC12 basin names from the map. **Note:** includes AGOs.

Burnside Branch	050500020701	Lower Sleepy Creek	020700040205
Rock Camp Creek	050500020702	Middle Sleepy Creek	020700040203
Upper Indian Creek	050500020703	Headwaters Deckers Creek	050200030201
Middle Indian Creek	050500020704	Warm Spring Run	020700040503
Lower Indian Creek	050500020705	Headwaters Knapp Creek	050500030202
Lower Second Creek	050500030703	Fourpole Creek	050901011006
Mill Creek-Meadow River	050500050605	Tenmile Creek-Buckhannon River	050200010304
Little Bluestone River	050500020909	Madame Creek-New River	050500040201
Headwaters Piney Creek	050500040102	Bullskin Run	020700070301
Roaring Creek	050200010406	Evitts Run	020700070302
Elks Run	020700041107	Furnace Run-Shenandoah River	020700070303

Overall BMP implementation will show a decrease in 2023 due to the timing of AgE practices as mentioned on page 2. Additionally, there are still impacts from the pandemic, but these are beginning to lessen. We do not anticipate any future pandemic impacts.

Figure 2. §319 2023 BMP implementation.



Categories	Total	Log(n)
AMD components	278	2.4
Septic pumping	98	2.0
Septic repair	91	2.0
Stormwater	194	2.3

Units were cubic yards, acres, feet, and individual units. See [appendix 2](#) for more details.

Numbers don't lie, but in this case they might. There was significantly more septic implementation but due to the units they appear as less when compared to the overall.

Load reductions



Figure 3. A portion of the Hinton map showing the one of many potential GI project sites.

We are seeing an increased interest in green infrastructure (GI) and creative stormwater implementation. A major effort occurred in the upper New River basin focused on the riverside city of Hinton. We are coordinating with this small community to develop conceptual designs, which will eventually move towards implementation. A summary of this report begins on page-21 and the full report is available upon request.

In the past, the WVDEP [Clean Water State Revolving Fund](#) (CWSRF) has focused on larger infrastructure projects such as wastewater and water treatment, which is a significant need, but there is an interest and shift to other NPS options. We have had several meetings in 2023 focusing on potential GI projects.

Load reduction (LR) details are available in [appendix 3](#), and the final LR goals presented from the 2019 Management Plan are presented in [Table 4](#). 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 75% of the NPS impairments.

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 nonpoint source 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 to apply federal project funds to the Green Streets, Green Jobs, Green Towns grant program for West Virginia applicants. Seven West Virginia projects were funded this year through this program. The CBP’s Habitat Goal Implementation Team held its fall 2023 quarterly meeting in Kearneysville, WV; field trips to the WV DNR’s brook trout hatchery in Hardy County and Trout Unlimited’s stream restoration project in Hampshire County were well-received.

[Table 3](#) shows historic, recent and WIP3 (goal) loads of total nitrogen and total phosphorus. Modeled progress during the 2022 progress year (July 2021-June 2022) is still dampened due to the expiration of some practices once they reach their modeled lifespan.

[Table 3.](#) WV's progress toward reducing CB pollutants.

Pollutant	Category	2013 Progress (Baseline)	Progress 2022	Progress 2023	WV WIP3 goal
Nitrogen	Agriculture	3.31	3.37	3.37	not specified
	Urban Runoff	1.20	1.21	1.22	
	Natural+Deposition	2.60	2.57	2.58	
	Septic	0.34	0.35	0.35	
	Wastewater+CSO	0.70	0.40	0.40	
	All Sources	8.15	7.89	7.93	
Phosphorus	Agriculture	0.14	0.13	0.13	not specified
	Urban Runoff	0.06	0.06	0.06	
	Natural+Deposition	0.22	0.21	0.21	
	Septic	0.00	0.00	0.00	
	Wastewater+CSO	0.14	0.04	0.04	
	All Sources	0.56	0.44	0.44	

Units: million lbs/yr

Results are from the CAST model, available at: <http://cast.chesapeakebay.net>

Basin Coordinators, 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.

WV Conservation Agency



Figure 4. Photo from one of many field days held across the state. Here participants listening to experts in forestry management in the Greenbrier Valley Conservation District.

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 Best Management Practices (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 nationwide 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.

Outreach activities include youth expos, the annual small farms conference, statewide soil tunnel trailer and multiple agricultural and forestry field days. Examples of technical assistance include nutrient management planning, cover crops, soil sampling, critical area planting, invasive species removal and more. WVCA provided outreach to more than 1,500 participants and provided technical assistance to more than 400 landowners and other interested stakeholders.

Northern Basin

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 maintained records of BMPs and load reductions in GRTS and attended the National Nonpoint Source Conference.

The watershed groups and other partner 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) a variety of agency partners and other NGOs. The primary issue for most of these partners was acid mine drainage (AMD).

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The NBC has also supported and provided advice and assistance to the SBC and worked with Friends of the Tug Fork River (FotTFR) on their first §319 effort.

Southern Basin

Sara Prior came on board in May 2023, as the Southern BC (SBC). She works in a diverse basin with a wide range of issues. She learned quickly with visits and assistance from the NPS Coordinator, NBC, and others. The SBC provided procedural advice, technical assistance and performed many hours of outreach throughout the basin.

The SBC worked with a wide range of watershed groups (WGs), agency partners and other NGOs. These include the [Piney Creek Watershed Association](#) (PCWA), [Friends of the Tug Fork River](#) (FotTFR), [Greenbrier River Watershed Association](#) (GRWA), [Plateau Action Network](#) (PAN), Marshall University, WV Rivers Coalition (WVRC), WV Conservation Agency (WVCA) and the city of Hinton. As mentioned above the basin has a wide range of issues including bacteria pollution, AMD, sedimentation, and a variety of stormwater issues.

Western Basin

The Western BC (WBC) Tomi Bergstrom works in the most urban region of the state with two of the largest urban areas. She provides technical assistance, helps with planning, grant writing and performs a tremendous amount of outreach not only in the western basin but statewide due to her Project WET Coordinator position.

The SBC worked with a wide range of partners and WGs including the [Coal River Group](#) (CRG), [Fourpole Creek Watershed Association](#) (FCWA), [Twelvepole Rising](#), [Morris Creek Watershed Association](#) (MCWA), [Davis Creek Watershed Association](#) (DCWA), [Coalfield Development Corporation](#) (CDC), the cities of Charleston and Huntington stormwater departments and many others – see the Project WET section. She also manages multiple summer interns, which were hired to assist with the workload.

Cy Pres

Six watershed groups in the impacted area of the Elk River chemical spill on January 9, 2014, received \$105,142 in January of 2022 to implement watershed improvement projects within their basins. To 2023, five of the groups have initiated projects including septic replacement in Davis Creek and Fourpole Creek basins, and streambank and erosion control projects along Morris Creek and the Coal River, and a major litter cleanup from a large flood on Buffalo Creek.

Potomac Basin

The Potomac (PBC) Alana Hartman facilitated in-person meetings, coordinated field trips, performed outreach, provided a wide variety of grant management, technical assistance, and monitoring support. Her focus is the many moving parts of the Chesapeake Bay (CB) Program, but she still manages to support all the other activities within her basin.

The PBC works with the Tuscarora Creek Project Team, the newly formed Town Run WG, [Warm Springs Watershed Association](#) (WSWA), [Sleepy Creek Watershed Association](#) (SCWA), Cacapon Institute (CI), Canaan Valley Institute (CVI), the city of Martinsburg and Romney, Eastern Panhandle Conservation District, and many more. She also serves a variety of CB workgroups and is the main contact for [WV's Tributary Team](#).

BC Joint Efforts

All BCs served on the [WV Watershed Network](#) committee, which hosts a quarterly newsletter, training, and a statewide gathering, hosted in September of 2023 in Canaan Valley. All BCs assisted with the EPA Wetland Program Development Grant by filming a segment on the one or more assessable [wetlands](#) in their basin. This also included creating factsheets, updating the wetland resources page on WVDEP's website, and installing signs at each of the wetland sites. The new [VISTA Program](#) was launched in 2023 and each BC supervised and supported the VISTAs watershed work in their basin.

Project WET

As part of the [Project WET](#) (Water Education Today) program, the WBC certified over 240 educators in Project WET Curriculum. She reached over 4,410 students, teachers, and citizens of West Virginia with outreach events at the [WV Science Teachers Association](#) Conference, Ice Cream & the Arts, Water Wonders STEAM Summer Camp, Dive into Water STEAM Summer Camp, WV Envirothon, Berkeley County Youth Fair, [Wetland Master Naturalist Program](#), Camp WALDO, World Water Day events, and others.

Over 1,700 students were reaching through programming conducted at Water Festivals across the state. As part of an EPA Wetland Development Grant, she created the WV Wetland STEAM Booklet, which was printed and utilized at summer camps and wetland educator courses. Tomi Bergstrom received the 2023 Project WET Coordinator of the year award at the National Project WET Coordinators Conference.

WV Save Our Streams

In the calendar year 2023, the [WV Save Our Streams](#) (SOS) Program Coordinator led five vernal pool workshops, thirteen SOS workshops, and participated in 23 outreach events. The spring vernal pool workshops had 90 participants. The [WV Vernal Pool Monitoring Program](#) was developed in partnership with state/federal agencies via EPA's Wetlands Program Development Grant.

The WV Save Our Streams program hosted 13 water quality monitoring workshops across the state. They included four in the northern basin, four in the Potomac basin, four in the southern basin and one in the western basin. A wide variety of new and seasoned groups participated. Additionally, the SOS Coordinator participated in 23 outreach events, providing stream ecology and water quality education to a wide range of audiences.

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.

The SOS Coordinator is working with the [Chesapeake Monitoring Collaborative](#), the Virginia Institute of Marine Science, and WVDEP colleagues to upgrade the SOS [Volunteer Assessment Database](#) to align 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.

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

Images from the field

Potomac Basin



Figure 5. In May 2023, the Tuscarora Creek Project Team attendees visited an in-progress stream restoration project on Tuscarora Creek, funded through §319 and other sources.

Northern Basin



Figure 6. FODC works hard to maintain one of many acid mine drainage (AMD) treatment sites.

Southern Basin



Figure 7. The SBC is leading an activity at the 2023 Water Celebration Day held at Moncove Lake State Park.

Western Basin

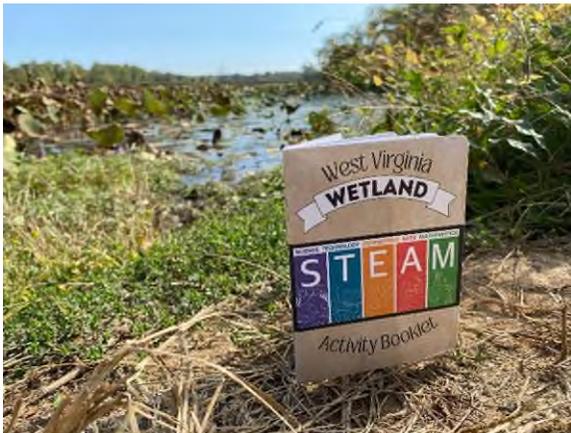


Figure 8. One of many WV wild wonderful wetlands.

Save Our Streams



Figure 9. The Envirothon winning team received aquatics training from WIB staff in preparation for the national competition.

Stream Partners VISTAs



Figure 10. WIB’s Stream Partner Program VISTAs.

In 2023, a VISTA program was created to support watershed groups and the Stream Partners Program housed in the WV DEP’s Watershed Improvement Program. The goal is to increase environmental stewardship, community revitalization and organizational capacity to selected watershed groups across the state.

A storymap highlighting their successes is coming soon. Learn more about WV Stream Partners Program [here](#).