The Potomac River Basin Drinking Water Source Protection Partnership

Quarterly Meeting Summary held in person and via webinar on May 3rd, 2023

Attendees

Water Suppliers

Berkeley County PSWD:
Steve DeRidder
Courtney Trivett

DC Water:
Salil Kharkar
Maureen Schmelling

Fairfax Water:
Nicki Bellezza
Jojean Bolton
Doug Grimes
John Kingsbury
Gregory Prelewicz
Niffy Saji
Michele Siminari

Frederick County:
Joshua Smith
Laura Pfeiffer

Loudoun Water:
Thomas Barrack
Catherine Cogswell
Mark Peterson

City of Rockville:
James Woods

WSSC Water
Robin Forte
Julie Karceski
Steven Nelson
Laura O'Donnell
Priscilla To

State and Local Agencies

DC DOEE:
Jayne Brown

Town of Leesburg
Melissa Andrews
Russell Chambers

MDE:
John Anthony
Dominic Capparuccini
Jonathan Leiman

PA DEP:
Dave Bolig
Adrian Bouknight

V DH:
Raven Jarvis

V DEQ
Sara Jordan

WV DEP:
Brian Carr
Mindy Neil

WV DHHR
Monica Whyte

Federal and Regional Agencies

EPA Region 3:
Beth Garcia
Virginia Vassalotti

ICPRB:
Karin Bencala
Renee Bourassa
Christina Davis
Heidi Moltz
Andrea Nagel
Mike Nardolilli
Stephanie Nummer
Jim Palmer (retired)
Carlington Wallace

MWCOG:
Steven Bieber
Lisa Ragain

USACE:
Anne Spiesman

USDA NRCS
Suzy Daubert
Susan Lamb

Business Meeting

The May 3, 2023 Quarterly Meeting was held both in person and via webinar. There were 51 attendees, including the moderator and presenters.

Presentations

Source Water Protection at the Federal Level
Beth Garcia, EPA (presentation)

B. Garcia began her presentation with a brief introduction to source water protection. She explained that the real goal of source water protection is to provide clean and safe water that minimizes treatment expenses and protects public health. To support this goal, the Safe Drinking Water Act (SDWA) was established in 1974, with the State Source Water Assessment Program amendment introduced in 1996. These establish enforceable standards for drinking water quality and require public water systems to monitor and ensure compliance, and states to conduct source water assessments for public water systems. Of those assessments, many identified common sources of potential contamination, including agriculture, commercial/industrial sources, transportation, residential housing, and urban stormwater. However, there is variability in these sources depending on factors like geology and land use.

While the Source Water Protection (SWP) is a voluntary program for PA, VA, MD, DE, and DC, it is mandated by WV state law. However, the program is driven by state and local partnerships, which support collaboration between state agencies and helps to provide many opportunities for the EPA to leverage programs and federal funding opportunities. One example is the EPA's collaboration with NRCS to utilize Federal resources to help improve and protect water quality through voluntary conservation. This collaboration is supported by the 2018 Farm Bill's provision providing targeted conservation practices for source water protection. To effectively leverage the funding from the bill, the EPA is working with two programs; the National Water Quality Initiative (NWQI) and the Environmental Quality Incentives Program (EQIP). They are also beginning to branch out to include forestry programs this year.

B. Garcia noted the success story of the Farm Bill. In 2019, the NWQI had Source Water Readiness Pilots, with one focusing on Maiden Creek in Pennsylvania. The partnership between PA NRCS, PADEP, and SAN working with NWQI on the creek created contributions of additional resources, watershed planning, and monitoring efforts. The result of these contributions was $6.7M in NRCS funding, 13K acres treated, 411 conservation plans, and a drop in nitrate levels.

Another aspect of partnerships is internal coordination and mechanisms. B. Garcia discussed how the EPA has integrated certain tools for clean and safe water. The integration of the CWA/SDWA toolkit and Funding Integration Tool for Source Water (FITS) helps EPA Region 3 meet the needs of source water protection and promote restoration work. Funding mechanisms include EPA's largest grant program, the Clean Water and Drinking Water State Revolving Funds (CWSRF, DWSRF), alongside the CWA's Nonpoint Source and Pollution Control Grants.

These funds aid in restoration and infrastructure improvements. The SRF funds offer unprecedented zero interest loans, with up to 100% loan forgiveness for cases involving emerging contaminants. Examples of eligible projects for these loans include agricultural BMPs, Green Infrastructure, and WQ protection/restoration. Examples of eligible borrowers include public water systems, conservation districts, government entities, and community groups.

Lastly, B. Garcia noted that the keys to EPA Region 3's success are partnerships and enhanced collaboration, leveraging existing efforts and resources wherever possible, and being involved with local collaborative efforts.

A Brief on USDA-NRCS National Water Quality Initiative (NWQI) and Source Water Protection (SWP) Actions in Maryland, 2012 to Present
Susan Lamb, NRCS (presentation)

S. Lamb began by giving a brief overview of the past water quality initiatives implemented by the NRCS. The Chesapeake Bay Watershed Initiative was initiated under the 2008 Farm Bill and helped Maryland spend over $41.8 million and Virginia spend over $53.5 million on getting conservation practices on the ground that addressed water quality in the Bay watershed. This is just funds for practices implemented by farmers, it doesn't include the federal staff that work on the programs or other partnerships.

Maryland targeted watersheds that had agriculturally associated high phosphorous and nitrogen loading. Soils with high leaching and runoff potential got additional prioritization. About one-third of the money went to putting nutrient management on the ground, and about one-fifth went to cover crop practices. S. Lamb states that these two are important to note as they haven't been implemented much through Federal programs because farmers are already required to implement plans regarding this on agricultural land by the state of Maryland. In addition, the state is ahead of many others in cover crop initiatives due to the sheer amount of acres available for the practice.

The mechanisms used to target money at local concerns tend to be geographic, but there are several other ways to target, such as resource concerns. S. Lamb notes that the applications for the funding are competitive, with extra weight given to projects involving soil quality within the watersheds with high leaching and runoff potential. Conservation and best management practices that have significant positive effects on the identified resource concerns are also given extra prioritization. Practices that avoid, control, or trap pollutants from leaving the field were emphasized.

S. Lamb then introduced NRCS's planning and conservation process that is applied at large-scale or individual levels. The first step is to analyze the land and assess the resource concerns and what systems might already be in place, functioning well or not. Then they will plan the conservation practices that are going to have positive effects on the resource concerns. S. Lamb then reiterated that an application must include core practices that have a water quality benefit, addressing resource concerns, to be considered.

S. Lamb went into detail about the NWQI. Introduced by the 2014 Farm Bill, the NWQI targets small watersheds through two phases; the planning phase (assessing where they will get the best ROI), and then the implementation phase. In FY2019, the Source Water Protection (SWP) was introduced to expand NWQI's scope to include surface and ground water public systems. Public systems were not originally a prioritization for the NWQI, but through this addition, alongside local partner input, the NRCS was able to begin involving those systems in the process. Areas of focus for the SWP were determined through collaboration with the MDE and included pesticide and herbicide runoff, pathogen contamination, sediment pollution, and algal blooms.

Five watershed areas were given priority in Maryland: Little Pike Creek, Catoctin, Prettyboy, Liberty, and Northeast Creek. One example is the projects in Catoctin Creek. From FY12 through FY22, 38 watersheds received conservation program contracts, with $3.24 million provided for their implementation. This funding is distributed through three pools of funds within the Environmental Quality Incentive Program (EQIP). Projects taking place in the Upper, Middle, and Lower Catoctin Creek watersheds were considered for that pool of funding, as long as they utilized the priority practices of water quality improvement and the Avoid, Control, Trap mechanisms. Additional practices that have been implemented involve grazing management. Fencing, watering systems, spring development, pasture planting, and rotational (prescribed) grazing were applications that supported grazing management. On top of this, erosion control through the installment of grassed waterways, trails, and walkways was implemented. This was supported by streambank stabilization. The third and possibly the largest set of practices involved manure management. Seventy percent of the funds went to roofed waste storage, HUAs, and gutters – keeping the water clean from manure and livestock feed.

Other NWQI agreements and activities included the Little Pipe Creek Readiness Project. Assessments and characterization of the watersheds were implemented to help target conservation practices that "get the most bang for our conservation buck". In the future, Prettyboy Watershed monitoring will take place, as well as source water protection in Northeast Creek and Liberty.

S. Lamb ended the presentation discussing next steps for the NWQI. With the next Farm Bill coming, the NWQI is focusing on projects that show long-term commitments and multi-year budgets.

Agricultural Source Water Protection Efforts on a Local Scale
Steve Nelson, WSSC Water (Presentation)

S. Nelson began his presentation by indicating that this talk will focus on the "bottom-up" approach to source water protection.

He explained that the Patuxent Reservoirs Watershed (PRW) is 132 square miles, with land use and cover about evenly split between agriculture, residential areas, and forests, and is mostly contained within Montgomery and Howard Counties. WSSC owns about 6% (about 5,500 acres) of the area surrounding the reservoirs. While Ag is mostly located in the upper regions of the PRW, they have recently begun an algal bloom monitoring program and found that the issues lie

mainly in that upper region, coming to the conclusion that agriculture may be a contributor or cause to this issue.

The Ag Reserve in Montgomery County mostly drains into the Potomac and Patuxent Rivers, covering about 93,000 acres (~29% of the county). Results from a 2017 Ag consensus showed that there were about 560 farms residing on 65,500 acres (~21% of the county). Corn and soybean covered the largest crop area with 12,000 and 14,500 acres, respectively.

Proceeding northward to Howard County, there is no agricultural zoning district, but rather agriculture easements and historic easements. S. Nelson states that the county has done a great job, while lacking in ag zones, in protecting or purchasing the development rights from the farmers for the past few decades.

S. Nelson then introduced the Patuxent Ag Cost-Share Program; a collaboration between WSSC Water and the counties that was created back in 1998 and updated recently in 2014. This program would match each counties contribution from the request from each of the conservation districts. This funding meets the need for farmers that are ineligible for State or Federal programs and targets the increasing horse population, which was already at 10,000 in 2017. Originally, the program partly funded a SCD position to focus on the watershed, but now funds BMP implementation. S. Nelson believes that an opportunity for a future agricultural initiative could be a DWSPP Ag Workgroup project. There seems to be a blockade where there is an imbalance between planners and technicians, so finding ways to balance that in each county could be possible.

S. Nelson then moved on to stream restoration, which began as a public-private cooperative effort. He discussed the case of Maple Dell Farm, which he believes is the last dairy farm in Howard County. With a herd of 200 cows and over a mile of stream restoration on the farm, this was a big project that checked several boxes for the county. Funding was able to be leveraged from several sources to make it happen as well. The farm's streams are of particular importance as they flow through Cattail Creek to reach the Triadelphia Reservoir.

Components of the restoration included riparian easement, stream channel restoration, tree planting, and fencing to exclude the dairy herd. The easement was planted with herbaceous and woody vegetation, which was suitable for flooding and created pocket wetlands that would slow and clean the runoff before it reached the stream. In addition, monitoring stations were constructed to keep track of the restoration progress. Upstream/downstream concentrations of nutrients and sediment were tracked over time and showed an opportunity for improvement by the restoration.

S. Nelson ended the presentation covering the summary of the project, emphasizing that the stream channel was restored with the exclusion of the livestock, and vegetation was fully established. A lesson he learned through this project was the importance of getting everything in writing! Making sure that all aspects of the project are included in writing from the beginning will ensure that they get done in the end (and don't derail any progress when it's discovered that something has been forgotten).

He also discussed future ag initiatives put in place by the Patuxent Agricultural Cost-share program that increases BMPs on rented farmland alongside MDA's BMP Verification Assessment that works with both Howard and Montgomery County.

Little Pipe Creek NWQI Planning Phase Watershed Assessment
Stephanie Nummer, ICPRB (*Presentation*)

S. Nummer began by introducing the planning phase that the Interstate Commission on the Potomac River Basin (ICPRB) began for watershed assessments of the 3 sub-watersheds of Little Pipe Creek; Upper, Middle, and Lower Little Pipe Creek (LPC). Located in Carroll and Frederick Counties, Maryland, the sub-watersheds come together to form the Double Pipe Creek, which is a major tributary of the Monocacy River. She states that the sub-watersheds are currently 33.1, 29.5, and 20.7 square miles, respectively.

She then discussed the total maximum daily loads (TMDLs) of different creek segments, including pollutants such as fecal bacteria and phosphorus. She states that there is currently a goal of a 50% reduction in the tons of sediment per year in LPC. There is a 90% reduction goal within LPC for fecal bacteria.

After the team was able to understand the TMDLs of the creek to a greater extent, they then executed a watershed characterization. They broke up the 3-subwatersheds into even smaller drainage areas to give a finer scale to the characterizations. Drainage area, main slope category, main hydrologic soil group, population by area, and percentage of people of color were noted in the characterizations.

In addition, a hydrology and water quality characterization was executed. Drainage area, USGS gage stations, number of water quality sampling sites, and main BIBI rating were noted. S. Nummer pointed out that each of the three sub-watersheds received a poor or very poor BIBI rating.

The next task of the project was to form a resource assessment and source analysis. Using the Chesapeake Bay Program's CAST tool, they were able to find the percentage of conservation implantation or high residue tillage, which averaged out to just above 60% for LPC as a whole. Other measurements included percentages of cover crop, pasture management, and stormwater management practices. The goal of this assessment and analysis was to determine what BMPs to recommend for implementation and where to focus installation for the greatest reductions.

The first step in determining where BMPs will have the greatest impact was determined to be areas that were more susceptible to sediment erosion and nutrient loss. Overall, 78 target areas were identified through LiDAR and topography. These areas may or may not meet the reduction goals with the application of BMPs, however S. Nummer emphasized that they are a great starting point.

After combining the target areas with land cover data, they were able to determine the dominant land use in each target area, which aided in determining the correct BMP. They found that cultivated crops were the dominant land use for about 65% of the target areas, and hay/pasture for about 35%.

Taking all of this into consideration, they were able determine which BMPs the producers were most likely and willing to install. Nutrient application management for nitrogen and phosphorous, conservation or high residue tillage, soil and water conservation plans, barnyard runoff control, and livestock and poultry waste management systems were all found to have high willingness of installation. Looking at the costs associated with the willingness, they were able to determine the ideal BMP for implementation in each target area for each land use type.

The next task was to begin making recommendations. By combining resource assessment/source analysis and TMDL goals aided in producing relevant recommendations for each of the 3 LPC sub-watersheds. This process took four steps. Step one included calculating needed reductions from LPC sub-watersheds to reach Double Pipe Creek TMDL goals. Step two included comparing those to reductions estimated for ideal BMPs applied to target areas. Step three included comparing goals to reductions estimated for ideal BMPs applied to all available lands every 25% of implementation beyond current level of application. Step four included comparing goals to reductions estimated by implementing the most efficient BMP applied to all available lands every 25% of implementation.

S. Nummer concluded that the recommendations made for the three sub-watershed assessments showed that there would need an almost 100% implementation of both the ideal BMPs (conservation or high residue tillage for croplands and precision intensive rotational/prescribed grazing for hay and pasture areas), and the most efficient BMPs (grassed buffers) to all available lands to work toward the TMDL reduction goals set for phosphorus. For the TMDL reduction goals set for phosphorus, there would need to be at least a 75% implementation. She reiterates that this shows we need to take a comprehensive approach with multiple BMPs to have the desired impact.

S. Nummer closed out the presentation with an outreach plan to increase implementation of the BMPs once funding is granted. Identified strategies included direct mail, peer-to-peer outreach by producers, sponsored creek clean-up days with community groups, and citizen science water quality monitoring programs.

General Updates

MDA Black Fly Larvicide
Priscilla To, WSSC Water
Maryland Department of Agriculture has been applying larvicide by helicopter to the Potomac with an active ingredient of the bacterial strain *Bacillus thuringiensis israelensis (Bti).*

- According to entomologists at WHO and the EPA, the pesticide is safe and nontoxic to humans, mammals, birds, and fish due to digestive system toxicity.

The issue of permits has been brought up regarding pesticide regulations under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

- MDE issues NPDES Pesticide General Permit (17-PE) for aerial discharges from application of pesticides in or near State waters.
- More information about this can be found through the MDE website.

Another issue brought up is the presence of non-active ingredients.

- This includes the allegation of PFAS within the application, pushed by some citizens with concerns about the chemicals. The explanation for this, verified by an outside lab, is interference of a "bio acid". There should be no PFAS contamination within the application.

The third issue brought up was notification of the applications.

- Since the application has been done since 2016, why are people only finding out about it now, in 2023?
- It's good to see that on the larvicide application webpage there now is a place to sign up for notifications, and ICPRB has made the information available as well through the spills notifications listserv.

PFAS Partner Discussion

Priscilla To, WSSC Water

If the proposed PFAS MCL stays where it is, WSSC Water (and other providers that draw from the Potomac River) will remain in compliance.

- However, given the limitations in size of their dataset, detection is difficult and there is room for improvement for capturing the potential variations.

A collaborative watershed PFAS monitoring system is in the works for the Potomac River.

- Objective: further understand watershed PFAS distribution and variation.
    - Desired outcomes: understanding PFAS variations and the development of source monitoring needs and mitigation strategies.
    - Not an outcome: PFAS compliance and voluntary monitoring by individual utilities.
- Needs: increased knowledge of potential PFAS sources in the watershed, technical expertise, collaborative relationships between regions, and knowledge of source mitigation tools.

Project Structure:

- The team will be made of PI and Co-PI, collaborating utilities, associate utilities, and non-utility collaborators.
- The timeline will go from 2023 (securing funding and project design) and continue on through 2024 with the initiation of monitoring.
- The starting estimate of the budget will be about $300,000.

CSAWWA Source Water Protection Committee

Virginia Vassalotti, EPA

CSAWWA Source Water Protection Committee is interested in coordinating with Maryland NRCS to see how they can better align the programs and leverage resources they have access to.

They had a meeting on May 11th to discuss what exactly they want to accomplish through collaboration and any other opportunities for the future.

In April, Maryland NRCS had a state technical committee meeting that focused on "climate smart" practices. They are interested in learning from this meeting to see which practices may also meet source water protection goals as well.

Workgroup Updates

Agricultural Issues
Pam Kenel, Loudoun Water

- The workgroup was restarted in 2018 coincident to the 2018 Farm Bill.
- The workgroup focus over the last few years has been to work with the NRCS entities in WV, MD and VA to understand how they set priorities and see how the DWSPP can aid in getting the funds targeted for source protection to Ag producers in those states.
- EPA's longstanding relationships with the states has been very helpful to the workgroup.
- The attendance of Maryland NRCS staff at the meeting is appreciated.
- The workgroup looks forward to moving the Little Pipe Creeks project to the Implementation Phase.
- The workgroup is looking for new members.

Contaminants of Emerging Concern (CEC)
Brad Schmitz, Loudoun Water
The Contaminants of Emerging Concern Workgroup recently met on April 24, 2023, and discussed the following:

- PFAS
  - Gather data from UCMR5 to share with workgroup
  - Consider a study to test PFAS in Potomac River
- Microplastics
  - ICPRB & Loudoun Water is discussing sampling upstream around intake to gather preliminary data
  - 20 samples = ~$16,000 (noted to be incredibly cheap for microplastics)
    - Extraction, count, FTIR, spectral interpretation

Early Warning & Emergency Response (EWER)
Doug Grimes, Fairfax Water, & Julie Karceski, WSSC Water
Recently the Early Warning & Emergency Response Workgroup has been working on:

- Planning a spill exercise for early October that will most likely end up being a virtual event.
  - ICPRB will help facilitate the event.
- Working with new sensors that allow a quicker response time.
  - Will continue to work and share information on those.
- Julie has agreed to take the lead of the group from now on as Doug steps down.

- At the last EPA area/Coastguard committee meeting, updating the geographic response plan was discussed.

Reaching Out & Source Water Protection
Virginia Vassalotti, EPA & Lisa Ragain, MWCOG
The Reaching Out Workgroup has been working on:

- A work plan was created that is a guiding document containing what they hope to achieve this year. It can be found on the workgroup's Samepage site.
- To reiterate what they have planned for the year:
    - Continue collaboration with the water quality workgroup – PFAS monitoring by water utilities in the basin.
    - Support all DWSPP workgroups in their communications and messaging.
    - Soliciting new individuals to join the Reaching Out workgroup.
        - They hope to host a Small Water Systems Roundtable (May 9 in Romney, WV) to help build membership and reach out to smaller systems in other parts of the basin and provide those smaller systems with more resources.
            - Here is the link for the Eventbrite. Lunch is provided! Topics of discussion include the Bipartisan Infrastructure Law (BIL) Funding through State revolving Fund (SRF) and PFAs tools for small systems.
- Annual Source Water Protection Week is September 24-30. They hope to hear from water utilities and government agencies about their plans and how they can collaborate and coordinate their activities. They will be putting together a guidebook for others to adapt their messaging.

Urban and Industrial Issues
Greg Prelewicz, Fairfax Water
Recently the Urban and Industrial Issues Workgroup has been working on:

- Tracking NPDES Permits
- Serving as a primary interface for the GIS WaterSuite tool
    - They're planning to have a joint meeting on how to leverage that tool for watershed studies.
- Looking into management practices to reduce salinization of freshwater.

Water Quality (WQ) Monitoring
Niffy Saji, Fairfax Water
Recently the Water Quality Workgroup worked on:

- Creating a PFAS Map
    - Contains publicly available data and shows the location where the data is collected, who collects it, and the date of collection.
    - Map will be updated until there is clarity on regulation and monitoring requirements (for more information contact ICPRB)

    - Published on the DWSPP website: https://www.potomacdwspp.org/priority-issues/pfas-in-the-potomac-river-basin/
- Utility Lab Capabilities spreadsheet
    - Last updated in 2020.
    - A request to update was sent to all DWSPP utilities.
        - The information requested: raw water data analytical capabilities and point of contact.
    - The updated spreadsheet will be made available on Samepage.
- Collecting monitoring data
    - Created a map of monitoring locations for salt (sodium, chloride surrogates) in the Potomac Watershed
    - Update the existing map on HAB monitoring locations in the Potomac Watershed

Administration Updates
Christy Davis, ICPRB
The next Quarterly Meeting will take place on August 4, 2023. The meeting will have a virtual option.