The Potomac Drinking Water Source Protection Partnership Quarterly Meeting Summary

November 5, 2025

Attendees

Water Suppliers

City of Rockville:
James Boone
Yaolin Fennell

DC Water:
Rabia Chaudhry
Matt Ries
Maureen Schmelling

Fairfax Water:
Anne Spiesman
Greg Prelewicz

Loudoun Water:
Christina Davis
Bradley Schmitz

WSSC Water:
Robin Forte
Laura O'Donnell
Aklile Tesfaye
Priscilla To
Deborah Vacs Renwick
Sydney Williams

State and Local Agencies

DC DOEE:
Kofi Asante-Duah
Lakisa Blocker
Jayne Brown

MDE:
Robert Peoples

WVDH:
Kristen Muller
Monica Whyte

Federal and Regional Agencies

ICPRB:
Lily Bedwell
Renee Bourassa
Heidi Moltz
Serena Moncion
Mike Nardolilli
Renee Thompson
Alimatou Seck
Mary Stack

MWCOG:
Sushanth Gupta
Caitlin Bolton

USACE/Washington Aqueduct:
Audrey Litz
Tayina Tardieu

Non-Governmental Organizations

Water Research Foundation:
Monica Lee-Masi
Julie Minton
Sydney Samples
Harry Zhang

Business Meeting

The November 5th, 2025 Annual Meeting (held quarterly) was held in-person at the Reservoir Center for Water Solutions in Washington, D.C. There were 37 attendees.

Welcome & Introductions

Nicole Horvath, Reservoir Center | Jayne Brown, DOEE

Welcome to Reservoir Center, a space for the water community in DC.

Welcome to the District of Columbia, introductions.

2025 Land Prioritization Mapping for Protecting Drinking Water

Renee Thompson, ICPRB

- Project background and intro
    - This project is an update of 2020 project, supported by funding from the Water Research Foundation & The US Endowment for Forestry and Communities, for 2025.
    - Objective: ranking parcels to protect drinking water quality and their potential to degrade long-term water quality
    - Intended users: water suppliers, land conservation groups, state and local jurisdictions, and others interested in land conservation.
    - Study area expanded from just the Potomac River basin to the entirety of the states of Pennsylvania, West Virginia, Maryland, and DC.
- GIS-based metrics were used to rank parcels based on:
    - proximity to waterways: parcels closer to streams and rivers prioritized
    - percent source water protection area in HUC12* : areas identified as important for source water protection
    - distance from urban areas: areas nearer to urban zones are prioritized due to risks like road salt, spills, and runoff.
    - karst transmissivity: areas with high karst transmissivity are prioritized because they allow for faster contaminant transport
    - future land use: major land use categories are given priority rankings, with lands that are expected to remain forest and AG in 2050 prioritized. This study used the "business as usual" scenario for this metric.
    - Distance to high-quality streams: Areas closer to high quality streams receive a higher priority ranking.
    - Floodplains*: areas closer to floodplains received a higher priority because they are more hydrologically connected to surface water, and vulnerable to events that may impact downstream drinking water quality.

(* = new in 2025)

- Cumulative prioritization, grid: all metrics summed using equal weights (except Karst, which was weighed at 0.5) and normalized 0 – 100, yielding a 30 meter grid cell or ¼ acre resolution
- Cumulative prioritization, parcels: gives higher priority to parcels with more opportunity area within them. Parcels could be more useful to local governments, land trusts, or others who want to interface with specific property owners.

Key takeaways and action items

- "High Priority Parcels" ranked by *county* makes prioritization more locally actionable.
- The mapping layers and dataset can be used to:
    - identify **high-priority parcels** for easements or land protection,
    - support **policy or zoning discussions**,
    - guide **grant applications**,

  - evaluate threats or development pressure,
  - and coordinate **source-water protection planning** across jurisdictions.
- Members are encouraged to:
  - request GIS layers from ICPRB,
  - zoom into their own service areas,
  - apply internal thresholds,
  - and share the tool with their GIS and planning staff.
- ICPRB Land Use Webinar: Land Prioritization Mapping to Protect Drinking Water Quality (2025) Webinar on December 5: register here. Share with your GIS/planning staff.

Future Consumptive Use of Data Centers in the Potomac

Alimatou Seck, ICPRB

- About the Washington Metropolitan Area (WMA) water supply system
  - Dr. Seck's research on the consumptive use of data centers is part of the Water Demand and Resource Availability Study.
  - WMA cooperative water supply management
    - The CO-OP utilities (Fairfax Water, WSSC Water, and the Washington Aqueduct) share funding of storage. Upstream reservoirs that are used during drought to augment the Potomac River flow amount to about 17 billion gallons of storage.
    - Coordinated operations during drought to ensure that demand is met and that the 100 Million Gallons per Day (MGD) flow-by at Little Falls is also met.
    - Regular planning studies, which occur every 5 years
- Upstream Consumptive Use: the water that is withdrawn from the system but not returned to the basin due to evaporation, consumption or diversion.
  - Upstream consumptive use reduces river flow and affects availability at WMA intakes.
  - Previous estimates: 107 MGD annual average, 125 MGD in summer.
  - Top Consumptive use categories are irrigation, livestock. Other important users are mining, self-supplied domestic and public water supply.
- About data centers & their cooling technologies
  - Recognizing their growing footprint in Northern Virginia and expanding presence in Maryland and other parts of Virginia, an evaluation of the water use of data centers in the Potomac River basin was included in the current Water Supply Study.
  - Data centers are at the core of the global digital infrastructure, and we rely on them daily. Huge investment in this sector, since the launch of ChatGPT, is resulting in data center infrastructure expansion.
  - Growing concerns about the impacts of data centers on energy, water, air pollution, noise pollution, etc.
- Goal: quantify direct water use from data centers
  - Two main cooling methods were considered:
    1. Water Intensive: evaporative cooling towers

2. Non-water intensive: air cooling

In practice, many data centers may use hybrid cooling. Reclaimed water may also be used by some data centers for their cooling needs. However, for the purpose of the study, we consider that a consumptive use as well, because once that water is withdrawn from the system, it doesn't return to the basin.

- Data center water use data in the basin
  - Average use per facility (obtained from utilities)
    - 38000 gallons per day per facility (Fairfax Water, 2022)
    - 42000 gallons per day per facility (Loudoun Water, 2023)
  - Use per area of facility (gallons per square foot of data center)
  - Use per megawatt: water intensity of a data center in relation to its power demand
- Metric: basin-average WUP (Water Use per unit Power demand), sourced from permitted backup-generator capacity (Virginia DEQ/JLARC), and withdrawal totals per service area
  - Using that data, calculate Consumptive Use.
    - (Consumptive Use = Effective Power Demand x WUP x Consumptive Factor)
- Seasonal data center water use patterns: Summer data center water use can be as high as three times greater in summer, a time when all water users tend to use more, and when flows in the Potomac River can be stressed.

- Data center water use: future projections
  - Currently, about 60% of data centers in the basin use water-cooled technology, and about 40% use air-cooled technology. New technologies, such as immersive cooling, use much less water. Three scenarios, based on the ratio of water cooling to air cooling, reflect the variability of technology adoption:
    - 80-20
    - 60-40
    - 40-60
  - Energy Projections (PJM/JLARC)
    - Reflects uncertainty in growth and power demand
- Current data center water use estimate
  - Withdrawals: top users are hydroelectric, then public water supply, then power plants.
    - Data centers: 0.3%
  - Consumptive use: top categories are livestock, irrigation, public water supply, mining.
    - Data centers: 3%
  - Total consumptive use of data centers on average is about 4.7 million gallons per day
  - Peak consumptive use is about 15 million gallons per day.
  - Relative to WMA:
    - 1% of annual withdrawals

        - 9% of consumptive use
        - 12% of the summer consumptive use.
- Future Data Center Consumptive Use (2025 – 2050)
    - WMA: 4 MGD in 2025 and 22.2 MGD in 2050
    - Upstream: 0.1 MGD in 2025 and 4.6 MGD in 2050
    - The above figures are annual averages. Peak days for the WMA by 2050: 80 MGD, Upstream by 2050: 10 MGD
- Levers for Resilience
    - Policy and reporting measures: requiring disclosure of water use, discharges, energy consumption, and cooling technology in permitting or regional coordination processes
    - Technological measures: encouraging low-water or air-cooled systems, and potentially water treatment and recycling on-site
    - Operational measures: improving efficiency, on-site storage to minimize withdrawals during low-flow or drought periods.
    - Planning measures: locating new centers where reclaimed water infrastructure already exists and balances withdrawals.

Key takeaways and action items

- Regional, basin-scale analysis of data center water use.
- Current impact: modest at basin scale, but data centers are emerging as a district water use sector.
- Future impacts: substantial growth likely by 2050; outcomes will depend on cooling technology adoption and power demand trajectories.
- Resilience will require balancing energy, water, regulation, and infrastructure constraints under high uncertainty.
- November 6 Webinar on the Water Impacts from Data Centers. Access the recording.

Workgroup Highlights & Transitions

Anne Spiesman, Fairfax Water

- Introduction to DWSPP, primer for 2025 self-assessment
    1. Did I learn something new about watershed protection?
    2. Did I contribute to regional efforts?
    3. Did DWSPP prevent degradation of source water quality?
- Workgroups:
    1. Urban & Industrial Issues Workgroup:
        - NPDES permit reviews: workgroup members reviewed and discussed permit renewals, shared draft letters of comment from DWSPP member utilities
        - Reviewed and shared information on EPA's draft human health criteria for PFAS
        - CERCLA/Superfund: workgroup reviewed:
            1. Hidden Lane Landfill (VA) remediation

2. Allegany Ballistics Laboratory (WV)
3. Status of DOD site assessments for PFAS use/release

- FY2026 planned activities:
  1. Permit review expansion
  2. PFAS monitoring advocacy
  3. Salt monitoring update
  4. Regulatory and Review updates
  5. Advancing use of WaterSuite contaminant tracking tool for source water protection

2. Reaching Out
   - Annual Source Water Protection Week (September 28 – October 4): supported efforts of watershed protection groups (government, NGOs, others) in highlighting source water protection
   - Small Water Systems Roundtable – Western Maryland (May 21st)
   - Publications:
     1. Source Water Protection Brochure
     2. Annual Report
     3. Source Water Protection Newsletter
   - Plans for 2026:
     1. Source Water Protection Week (share your #SourceWaterSelfie for 2026)
     2. Small Systems Roundtable
     3. Annual Report for 2025
     4. Partnering with other workgroups on projects
3. Early Warning/Emergency Response
   - In 2025:
     1. Reinvigorated the workgroup, expanded to over 50 members
     2. Updated Spill Response Plan
        - Spill Contacts
        - First Hours Checklist for utilities
     3. Learned about ICPRB's spill modeling capabilities
     4. Previewed and beta tested ICPRB's Travel Time Tool
   - In 2026:
     1. Spill exercise planning for 2027
        - Colonial Pipeline?
        - Lab component? Using EPA resources.
4. Agricultural Issues
   - Workgroup transition to focus on non-point source pollution from agriculture, forestry, and rural development, excluding point source discharges and urban stormwater

1. Promote voluntary, incentive-based practices to protect source water
2. Integrate GIS, remote sensing, and other tools for watershed analysis
3. Support agroforestry, riparian restoration, and forest conservation as BMPs
4. Collaborate with regional and national partners (e.g., NRCS, VDH, Southeastern Partnership for Forests and Water)

- Renaming and presenting new workgroup to DWSPP membership in 2026

5. Water Quality/Data needs/mapping
   - Chair: volunteer needed
6. PFAS Ad Hoc workgroup
   - Objective: to advance PFAS source reduction through a concentrated DWSPP focus on improving data tools, strategic research, and outreach

1) Sources can be stopped
   a. Enhance ability to consolidate and analyze PFAS source information and sample results (Lead: Laura)
      - In 2025, we became more familiar with the various sources of PFAS data.
      - In 2026, ICPRB will lead DWSPP in digging into the various GIS tools and features to help us realize the value of existing tools.
   2. 1B) Improve structures for continued project collaboration (Lead: Priscilla)
      - In 2025, the Utility Committee convened several times to consider various funding and research administration options. Utilities prioritized research needs at the Oct research prioritization workshop.
      - In 2026, the Utility Committee will budget for and consider trialing one approach.
2) Opportunities for Outreach
   a. Communicate DWSPP strategic research priorities (Lead: Christy Davis)
      - In 2025, DWSPP engaged The Water Research Foundation to conduct a very successful research prioritization workshop on 10/15-10/16. We heard from source water and research experts, and created priority project descriptions.
      - In 2026, DWSPP will get the word out to research, utility and industry partners through multiple venues.

b. Identify DWSPP strategic outreach opportunities (Lead: Lisa Ragain)
    - In 2025, DWSPP MD and VA utilities individually engaged legislative and regulatory stakeholders through legislative sessions and a regional PFAS biosolids policy summit. The Urban & Industrial Issues workgroup tracked potential sources.
    - In 2026, the PFAS workgroup will revisit strategic outreach needs.

7. Contaminants of Emerging Concern (updates in following section)

PFAS Monitoring & Research

Bradley Schmitz, Loudoun Water

- WRF 5269: Understanding the Factors Affecting PFAS Variability in the Potomac River Watershed
- Background: "Understanding our problem" in a collaborative way before planning to address/treat PFAS
- Project design
    1. Now on "task 3" of 4: data evaluation to determine statistical relationships between PFAS and factors responsible for variability
    2. Ahead: task 4: Perspectives Workshop
        - Objective: document potential mitigation strategies and BMPs
        - Deliverable: potential mitigation strategies and BMPs to limit PFAS contamination
- Moving forward:
    1. Results workshop in December 2025
    2. January 2026 statistical analysis
    3. February final BMP workshop
- Continuation of monthly sampling in 2026: prioritizing 20 sites
- Future steps:
    1. Phase 1: Understanding the Factors Affecting PFAS Variability in the PRB
    2. Phase 2: Establishing Source Water Monitoring Program
    3. Phase 3: Determining relationship of PFAS between source water and treated water
    4. Phase 4: Prioritizing Source Water Control Strategies
- Knowledge gaps & questions
    1. Other matrices of PFAS other than water: solids, foam
    2. Other contaminants associated with PFAS?
       How to use data for potential source tracking?

3. How are other regions monitoring for PFAS?

- "Applying Environmental Forensics to Characterize PFAS and Precursor Compounds in Source Water" awarded by the Water Research Foundation
    1. PFAS forensics at 4 sample sites: water, sediment, algae, & foam
    2. Fingerprinting
        - Non-targeted analysis (NTA)
        - Profiling & discharge identification
    3. Project design
        - National case study interviews of PFAS surface water monitoring
        - PFAS & precursors in source water, sediment, foam
        - Non-targeted compounds
        - Statistical evaluation for indicators and/or sources
        - Guide for long-term monitoring
    4. Tailored Collaboration is a 1:1 match. MWCOG, DWSPP utilities, WRF, and DWSPP/ICPRB (in-kind) have all contributed, and other utilities from around the nation have contributed letters of support.
- WRF RFP 5355: "Developing a Robust Framework for PFAS Source Identification and Characterization" (PI: Dr. Kirin Furst)
    1. Building out a modeling aspect
    2. Asking participating utilities:
        i. support PFAS fingerprinting exercise
        ii. NTA data sharing, assistance with sample collection
        iii. Share experience with PFAS sampling, source tracking, provide financial contribution
    3. Cash gap of 90,000 to support a post-doc to build model.
    4. Pre-award utility survey.

- Following the PFAS Monitoring & Research presentation, participants asked for additional clarification on the study's progress, data scope, and analytical methods. The project team explained that all 12 months of surface water sampling had been completed and processed, and that the statistical evaluation phase had just begun. Attendees expressed interest in how PFAS data from different laboratories would be compared, prompting the team to highlight that the project had achieved an unusually high degree of inter-laboratory comparability—likely among the closest in the country—enabling more reliable regional comparisons. Additional questions focused on PFAS behavior in other environmental media such as solids, foam, and sediments, with the project team noting these matrices can help strengthen source identification.
- Discussion also addressed how PFAS "fingerprinting" and non-targeted analysis (NTA) would support source tracking, and how lessons from other regions would be incorporated through national case studies. Participants asked about next steps and opportunities to support the newly awarded PFAS forensics project, which will include intensive sampling at four representative sites. The project team emphasized the ongoing

need for utility participation in sampling, data sharing (including NTA datasets), and potential financial support to fill remaining funding gaps.

DWSPP Research Strategy & Workshop Outcomes

Christy Davis, Loudoun Water & Robin Forte, WSSC Water

- Motivation: growing challenges in the Potomac watershed, climate and land use pressures. DWSPP members can benefit from a unified strategy to pursue priority projects in order to provide safe water to customers.
- Summer 2025 DWSPP questionnaire results
    1. Algal blooms monitoring and prediction and PFAS monitoring and management were the top identified needs for research
- Overview of Research Workshop
    1. Day 1: learning
        - State of the science: algae, PFAS, salinity, microplastics, and cross-cutting issues on the horizon such as AI, climate
        - 3 ongoing research projects in the Potomac basin, funded by WRF:
            1. Understanding the Factors Affecting PFAS Variability in the Potomac River Watershed
                - Objectives: Identify the factors affecting the presence and variability of PFAS and precursor compounds in the Potomac River and serve as a model for regional source water monitoring to inform mitigation strategies
            2. One PFAS: A One Water Approach to Managing PFAS Pollution Fairfax Water Occoquan
                - Objectives: create an equitable, least-cost intervention portfolio for PFAS across drinking water, wastewater, stormwater in Occoquan watershed
            3. Assessing Changing Salinity in Water Sources
                - Objectives: synthesize current knowledge of salinity impacts on U.S. water systems and provide the water sector with scientific tools and educational strategies
    2. Day 2: in-person workshop
        - Survey results from the end of day 1
        - Reflection on day 1 expert presentations by DWSPP member panel: Greg Prelewicz, Brad Schmitz, Tayina Tardieu, Robin Forte
        - Breakout groups topics included: Algae, PFAS, Salinity, Microplastics, and “On the Horizon” topic which encompassed climate change, AI, and other topics that didn’t fit into other categories. 3 phases:
            1. Initial brainstorming & needs identification
            2. Concept prioritization

3. Objective setting & project design
- Top two concepts (21 responses):
  1. Development of an algal predictive modeling tool for the Potomac watershed
  2. Streamlining of algae data sharing capabilities across the Potomac watershed

3. Facilitated Research Program (FRP) next steps
   - Utility budget planning: interested utilities should include funding for the research project in their 2026 source water protection budget
   - Project identification among DWSPP members
   - Request for proposal: draft a project description
   - Formation of project advisory committee
   - Research team selection by advisory committee
   - Funding coordination

Key takeaways and action items:

- All members, regardless of whether you were present at the research workshop: please complete the survey.

DWSPP 2026 Work Plan & Budget

Renee Thompson, ICPRB

- DWSPP workplan task categories:
  1. Administration and logistical support: Managing meetings, membership lists, workgroup logistics, and document coordination.
  2. Communications and outreach: Website updates, public engagement, report development, and event representation.
  3. Technical services: Data analysis, mapping, project support, technical coordination, and grant support.
- FY 2026 Budgeted expenses total about $120,000
- Dues for 2025 collected from all utilities and states except Pennsylvania.
  1. The plan includes an option for a voluntary commitment of additional funds. It is requested that Partnership members advise ICPRB on additional contributions to ensure correct invoicing.
  2. Inform Renee Thompson and Lily Bedwell if your organization's fiscal representative has changed in the past year.

Members Open Discussion

Renee Thompson, ICPRB | Jayne Brown, DOEE

- Participants engage in open dialogue to share insights and improve future DWSPP initiatives. Members discussed workgroup transitions, overlaps and gaps.

- Participants emphasized the need to better communicate DWSPP's scientific work—PFAS, salinity, algae, spill response, and other projects—especially in a time of reduced funding and increased uncertainty.
- Members noted that DWSPP continues to produce authoritative, high-quality data that supports regional decision-making.
- Several participants highlighted the importance of strengthening communications capacity, suggesting that the Reaching Out Workgroup expand to include communications professionals from member organizations.
- The goal is to better translate technical work into clear, compelling stories for the public, stakeholders, and decision-makers.
- Discussion also focused on workgroup structure, transitions, and gaps.
- The Emergency Response workgroup has expanded workgroup membership beyond the regular DWSPP participants. Perhaps other workgroups (Reaching Out Workgroup) could do the same, especially to help in communicating the importance of our work in uncertain times.
- Rabia Chaudhry: Communications is critical. Pure Water DC launch on November 19
- Anne Spiesman: Consolidating data for DWSPP (through an ad hoc mapping workgroup)
    - Data management (options will be provided by ICPRB)
- Members recommended renaming the Water Quality Workgroup to an Environmental Data Workgroup to reflect a broader mission centered on data management and mapping. There was agreement that DWSPP needs a clearly defined home for data consolidation, GIS support, and mapping coordination across workgroups.
- The PFAS Ad Hoc Workgroup will continue for one more year before sunsetting at the end of 2026, with tasks to be redistributed to appropriate workgroups.
- Participants expressed appreciation for DWSPP's strong collaborative culture and encouraged leveraging this strength as workgroups evolve.
- Priscilla To: Encouraged DWSPP members to actively explore new opportunities to leverage funding, partnerships, and visibility across the region. She suggested looking beyond traditional DWSPP venues and tapping into broader regional forums—such as engaging with the Chesapeake Bay leadership structures coordinated through MWCOG—and sharing DWSPP's work at external events, including the Maryland Water Monitoring Council's Annual Conference in November. These types of platforms, she noted, can help amplify DWSPP's work, build new collaborations, and attract resources that benefit multiple partners. Remarks by Aklile Tesfaye, WSSC Water: Given the importance of protecting our valuable water resources, we should not be limited by funding resources. Thank you to DWSPP and ICPRB leadership, and to WSSC Water staff who are present today and remain engaged with DWSPP.

Key points and action items

- A suggestion was made to assign the mission of data management and mapping to a specific workgroup.
- Discussion around renaming the "Water Quality" workgroup to better reflect its broader data focus (e.g., "Environmental Data Workgroup"). The Water Quality workgroup also has a vacancy for chair.

Chair Transition and passing of the Gavel

Jayne Brown, DOEE | Aklile Tesfaye, WSSC Water

- Jayne Brown offered remarks of appreciation, thanking the group for their work and acknowledging the contributions of colleagues across DWSPP. She highlighted the dedication of the team and expressed gratitude for the partnership and collaboration demonstrated throughout the year.
- Aklile Tesfaye offered warm remarks upon receiving the DWSPP chair position, beginning by expressing sincere appreciation to outgoing chair Jayne Brown for her leadership and guidance over the past year. He emphasized that WSSC Water is honored to take on the role and looks forward to supporting the Partnership's mission.
- Tesfaye praised the 20+ years of strong regional collaboration within DWSPP, noting that the accomplishments presented during the meeting reflect the strength and effectiveness of this partnership. She highlighted the importance of the ongoing work on PFAS, land prioritization, and other regional research efforts and expressed enthusiasm for continuing to build on those efforts during the coming year.
- A key theme of his remarks was the need for creativity and persistence in overcoming funding limitations. He questioned why critical source water protection work should ever be constrained by funding and suggested that DWSPP could improve communication and explore new avenues to tap additional financial resources. He stressed that protecting the Potomac River is vital and should be supported at a level that reflects its importance.
- Tesfaye also extended appreciation to ICPRB staff—especially Renee Thompson—for their leadership, technical support, and coordination, and acknowledged the engagement of WSSC Water colleagues and government partners. He closed by expressing excitement about the upcoming year and the shared responsibility to address complex challenges through collaboration, research, and continued joint problem-solving.
- WSSC Water's new division manager for water resources management, Katie Foreman, who has 25 years of experience in national source water protection, will take the DWSPP chair position.