



The Potomac River Basin Drinking Water Source Protection Partnership

Annual Meeting Summary held via webinar on November 3, 2021

Attendees

Water Suppliers

Berkeley County PSWD:
Steve DeRidder

City of Rockville:
James Boone
James Woods

DC Water:
Saul Kinter
Dusti Lowndes

Fairfax Water:
Nicki Bellezza
Jamie Hedges
John Kingsbury
Susan Miller
Gregory Prelewicz
Niffy Saji
Joel Thompson

Loudoun Water:
Thomas Barrack
Jessica Edwards-Brandt
Pam Kenel
Bradley Schmitz

Town of Leesburg:
Russell Chambers

Washington Aqueduct:
Rudy Chow
Anne Spiesman

WSSC Water:
Martin Chandler
Robin Forte
Robert Hsu
Priscilla To

State and Local Agencies

Frederick County:
Laura Pfeiffer

Loudoun County:
David Ward

MDE:
Greg Busch
Robert Peoples
Michael Roberts
Rebecca Warns

PA DEP:
David Mittner

VDH:
Raven Jarvis
Dwayne Roadcap
Tony Singh

WV DEP:
John Wirts

WV DHHR:
Brian Carr
Monica Whyte

Federal and Regional Agencies

EPA Region 3:
Virginia Vassalotti
Michelle Wolfgang

ICPRB:
Renee Bourassa
Claire Buchanan
Curtis Dalpra
Christina Davis
Rikke Jepsen
Heidi Moltz
Michael Nardolilli
Stephanie Nummer
Cherie Schultz
Alimatou Seck

MWCOG:
Steve Bieber

USGS:
Brandon Fleming

Business Meeting

Due to social distancing requirements resulting from the coronavirus pandemic, the November 3, 2021, Quarterly Meeting was held via webinar. There were 55 attendees, including the moderator and presenters.

A recording of the webinar is available on the [ICPRB YouTube page](#).

Presentations

Revisiting the 2012 Source Water Protection (SWP) Vision and Roadmap for U.S. Drinking Water Utilities (Water Research Foundation Project #4176)

Chi Ho Sham, AWWA ([presentation](#))

Dr. Sham began by reviewing source water contamination events in the news during the last few years, including the Elk River, WV spill (Jan. 9, 2014); microcystin contamination events in Toledo, OH, Salem, OR, and West Palm Beach, FL; mine tailings spill in central BC, Canada; and PFAS contamination cases. He noted that source water protection is a key component of a sustainable water utility because it reduces uncertainties related to future water quality and treatment, reduces chemical and energy use, and enhances public trust. However, it can be difficult to quantify the benefits of source water protection and prove that source water protection prevents contamination events.

Revisiting WRF Project 4176

The purpose of the Water Research Foundation (WRF) project was to identify the critical elements of a unified source water protection roadmap and to define steps that should be taken to set this roadmap in motion. Project elements included a literature review, water utility interviews of 30 surface water and 30 ground water systems, utility case studies, and a workshop. Washington Aqueduct was a participating utility. Workshop products included articulation of a SWP vision for U.S. water utilities, goals for attaining the vision, benchmarks, and strategies for achieving the benchmarks.

The vision established was articulated as: “Source water protection is essential for providing a reliable supply of high-quality drinking water. By 2025, every public community water supply will be protected by an active source water protection program.” Roadmap themes were categorized as:

- a) Raising awareness
 - by utilities of the role of SWP in the multi-barrier approach
 - by utilities and management of the value of SWP
 - by consumers of the benefits and value of SWP
 - by stakeholders of the importance of protecting drinking water sources
- b) Enhancing coordination
 - across all relevant operational and stakeholder groups so that SWP efforts and programs are better integrated

- among Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) regulators for more effective implementation of existing CWA regulations so that drinking water interests are more immediately and completely addressed
- c) Providing support
 - experienced water industry peers
 - state and federal funding agencies, so that SWP needs are sufficiently addressed
 - municipal officials, who can influence public support of regulatory and financial measures to implement SWP
 - customers, through water rates
- d) Increasing recognition of issues and efforts related to SWP
 - by the public and drinking water community of successful SWP efforts
 - by state and federal regulators of inconsistencies and shortcomings of existing regulations that should more effectively ensure SWP

Identifying progress made under the roadmap themes

Dr. Sham described obstacles and progress on the roadmap themes as follows:

- a) Raising awareness
 - Obstacles: lack of awareness of the need for SWP action, lack of awareness of SWP significance among external stakeholders, and difficulty ascribing value to SWP
 - Recommended Actions:
 - i. Increase use of regional and statewide organizations for raising awareness.
 - 1. formation of collaboratives, such as DWSPP. There is a need to spread the word further and expand the effort in a bottom-up/grassroots fashion
 - ii. Perform knowledge gap analyses for individual water utilities and stakeholder groups.
 - 1. WRF project workgroups
 - 2. American Water Works Association (AWWA) with US Forestry Service (USFS) and US Endowment for Forestry and Communities (USEFC) quantified land use and treatment costs
 - iii. Take a more proactive approach with the media (less reactive).
 - iv. Recognize and educate utility management on quantification of SWP.
 - 1. need to invest more resources to make a business case and introduce concepts such as triple bottom line
 - v. Re-package available information on the “true value of water.”
 - 1. need a consistent message developed across stakeholders
- b) Enhancing coordination
 - Obstacles: ineffective existing regulatory framework to protect water supplies, leaving no one to coordinate or lead the charge on SWP
 - Recommended Actions:
 - i. Fix gaps to improve integration of CWA regulation and SWP.
 - 1. collaboration between EPA and state programs
 - 2. coordination between SDWA and CWA staff within states

- ii. Identify ways the CWA can do a better job at protecting **high quality** drinking water sources.
 1. deployment of Healthy Watershed Program (under CWA), managed by USEFC
 2. assessments of federal and state anti-degradation and other regulations under CWA
 3. use of CWA funding (Section 319) to support protection of high-quality watersheds
 - iii. Leverage CWA and other state and federal regulations and programs to protect drinking water.
 1. using CWA and Drinking Water State Revolving Fund (DWSRF) funds for SWP
 2. availability of Natural Resources Conservation Service (NRCS) funds for SWP, possibly for planning, implementation, and education
 - iv. Build on SWAs in the early 2000s to move from assessments to protection.
 1. some progress has been made, including DWMAPS
 - v. SWP coordinator position
 1. a coordinator position was established by USEFC
- c) Providing support
- Obstacles: no organized mechanism for utilities to teach and support staff, utility personnel do not sufficiently understand the impact of certain contaminants on source water
 - Recommended Actions:
 - i. Create education and training programs for utilities with (1) monitoring, (2) research, and (3) training/audits.
 1. training programs need consistent messages and certification/accreditation.
 2. research to address impact of newer contaminants like PFAS and cyanotoxins
 3. simple to use framework for SWP (AWWA Standard G300)
 4. national organization should provide guidance on emerging issues.
 - a. Info continues to be reactive. Comprehensive guidance on pharmaceutical and personal care products (PPCPs), microbes, disinfection byproducts (DBPs), spills, terrorism, and climate change. Some good progress has been made on forestry and land use issues. More coordination is needed to accelerate this process through the Farm Bill and AWIA.
- d) Increasing recognition
- Obstacles: insufficient acknowledgement and recognition of SWP
 - Recommended Actions:
 - i. Develop an award program to recognize successful, high-quality SWP programs. AWWA G300 standard can be used as the basis of award Boston University criteria, but buy-in is needed.

- ii. Promote recognition at national organizations, watershed/aquifer councils, interstate commissions, and local/state legislative bodies.

Assessing additional efforts to advance source water protection in the U.S.

- a) Raising awareness
 - Provide good news regarding efforts to protect drinking water.
 - i. Enhance SWP Week.
 - Enhance coordination.
 - i. Develop SWP summit to maximize efforts across different programs.
- b) Providing support.
 - Leverage funding and coordinate efforts to prioritize programs at local, regional, and national levels.
- c) Increase recognition.
 - Celebrate work by utilities and collaborators on protecting source water and public health sustainably.

Year in Review

Steve DeRidder, Berkeley County PSWD ([presentation](#))

The accomplishments of 2021 and the workplans for 2022 were highlighted for each of the seven workgroups.

Early Warning & Emergency Response (EW/ER)

The workgroup accomplished the following in 2020:

- Cooperated with Water Quality Workgroup to update the Spill Plan and conduct a communications exercise and an Occoquan Spill exercise.
- Contacted firms about booming capabilities and interest in presenting to the Partnership.
- Updated the monitoring and alarm capability spreadsheet, including alarming the toxicity parameter at Fairfax Water.
- Worked with COG Water Security Monitoring Workgroup and USGS on additional sondes.

Water Quality Workgroup

The workgroup accomplished the following activities:

- Completed a revision to the Utility Spill Response Plan and hosted a webinar to review the plan.
- Collaborated with the EW/ER Workgroup to execute a spill communications exercise.
- Continued to track monitoring locations for salt, HABs, and SAV.

Contaminants of Emerging Concern

The workgroup accomplished the following in 2020:

- Tracked UCMR4 data from periodic updates released by the U.S. EPA. Prepared summaries of Potomac River Basin results, including patterns of detection (HAAs, manganese) and non-detection (cyanotoxins, germanium).
- PFAS
 - a) Established a new subcommittee.
 - b) Gathered data on PFAS occurrence, monitoring, and sources in the Potomac River basin.
 - c) Tracking state and national PFAS issues, fate and transport, UCMR5, research, legislation, and regulation (i.e, MCLs).
- HABs and Cyanotoxins: tracked a HAB in the Potomac River in July as well as one in the Shenandoah North Branch in July-August
- Microplastics
 - a) Established a new subcommittee.
 - b) Convened a workshop webinar with national and international microplastics experts.
 - c) Subcommittee will continue to track regional efforts include a planned pilot monitoring study.
- Continued tracking EDC issues in the Potomac River.

Urban and Industrial Issues

The workgroup accomplished activities in the following categories:

- Support and coordination with the MWCOG WaterSuite program
- Deicing/Winter Chemicals:
 - a) Participated in NSF research on Occoquan watershed.
 - b) Participated in metro DC regional salinization monitoring and education efforts.
- Review NPDES discharge renewals/permit applications/issues:
 - a) Allegany Ballistics Lab (WV)
 - b) Pactiv Plastics (VA)
 - c) Ft. Detrick (MD)
 - d) WMATA Silver Line (VA)
 - e) Proctor and Gamble / BCPSSD (WV)
 - f) VA WQS Triennial Review (VA)

The workgroup's goals and objectives for 2022 include:

- Monitor, review, and comment on applicable NPDES or equivalent state discharge permit renewals to advise regulators about drinking water source water concerns and impacts.
- Explore ways to standardize NPDES permit language requiring downstream notification of spills in the Potomac or its tributaries.
- Continue efforts to research, monitor, and promote best management practices to reverse the long-term salinization of drinking water supplies.
- Prioritize urban and industrial entities with whom to begin a dialogue on source water protection issues. These should be identified based on proximity, density, potential for protection, potential for contamination, or other parameters.
- As applicable, track all information related to facilities of significance using the WaterSuite Source Water Protection GIS tool.

Agricultural Issues

The workgroup accomplished activities in the following categories:

- Supported ICPRB in obtaining funding for planning phase water assessments for the impaired Little Pipe Creek watersheds in Frederick and Carroll Counties, MD.
- EPA Region 3 collaborated with VA – NRCS to update source water priority areas for 2022 through the use of the DWSPP land prioritization tool.
- Supported an application with eight technical, conservation, and government partners for NWQI funding in WV.
- Worked with AWWA to continue developing understanding of Farm Bill funding for SWP.

Reaching Out

The workgroup accomplished activities in the following categories:

- Created the 2020 Annual Report.
- Started a monthly “Members Only” newsletter to keep members up to date on DWSPP member and workgroup activities between quarterly meetings.
- Created a special newsletter and shared social media posts celebrating the inaugural SWP Week.
- Assisted other workgroups with outreach projects.

Land Prioritization Implementation

In 2021, the workgroup focused on the importance of marketing this new tool to entities most likely to take advantage of it (i.e., land trusts and governments). The geospatial files have been provided to more than 12 entities including land trusts, county governments, state governments, and EPA Region 3. Interested parties can learn more by visiting the DWSPP website. In 2022, ICPRB plans to make the tool available for online viewing.

Mapping the Potomac River with topo-bathymetric lidar: Acquisition, validation, and science application

Roger Barlow, Jeff Danielson, and John Young, USGS

Prior to the USGS presentation, Dr. Cherie Schultz (ICPRB) provided an introduction to the history of the project and funding sources, including \$50,000 donated by DWSPP via the DOEE.

Roger Barlow explained the first survey phase which was flown in October 2019 from Little Falls up to Leesburg, then the upstream portion from near Leesburg to Shepherdstown. This survey also captured a small 4 to 5-mile segment of the Shenandoah River from its confluence with the Potomac up to Millville Dam. The second survey from Shepherdstown to Hancock was acquired on October 3, 2021.

The contractor for both projects was Dewberry. Roger described the airborne topy-bathymetric LiDAR project parameters and the point classification system. Flow and turbidity gages at various points on the river were monitored to ensure that parameters were compatible with a

successful survey. Roger went on to share examples of data and images captured during the survey. The data are expected to be delivered in the summer of 2022.

Jeff Danielson spoke about the significance of the 3D Elevation Program (3DEP). Validation of the first survey indicated very good performance of the bathymetric survey in both shallow and deeper areas of the river.

John Young then discussed use cases for topo-bathymetric data. Habitat attributes that can be derived from the data include floodplain and channel form, bottom elevations and slope, flow velocity (modeled), depth (modeled), substrate type, meso-habitats, bottom roughness and geophysical structure, and riparian characteristics.

Application of the GNOME oil spill model to the Potomac River ([presentation](#))

Alimatou Seck, ICPRB

Dr. Alimatou Seck gave a presentation on the development of a two-dimensional (2D) fate and transport model of oil and other floating contaminants for the Potomac River. The goal of this project is to develop a tool to estimate arrival times of floating contaminants (specifically oil) at downstream water supply intakes during spill events. The 2D model aimed to predict both the longitudinal and transverse movement of oil, taking into account 2D river flow patterns and the effects of wind. The model used high-resolution light detection and ranging (LiDAR) bathymetric data collected in 2019 in a joint project by ICPRB and the USGS. The modeled area covers a 69-mile stretch of the Potomac River. Different hydrodynamic modeling frameworks were explored including Delft3D-FM, IRIC (International River Interface Cooperative). Oil transport was modeled using GNOME (General NOAA Operational Modeling Environment). Flow models captured well the spatio-temporal variability of river flow and water velocities. The GNOME model was used to conduct a simulation of the 1993 Colonial Oil Spill.

Updates

Financial Updates

Michael Nardolilli, ICPRB

Mike Nardolilli provided an update on the DWSPP FY21 and FY22 budgets. Membership fees remain the same in FY22.

Administrative Updates

Christy Davis, ICPRB

Christy Davis reviewed the 2022 Workplan Priorities, which include:

- Land prioritization tool implementation
- Spill response
- SWP in MD, WV, and VA through collaboration with federal and state partners

- Tracking research and policy or regulatory developments on PFAS, road salts, and microplastics
- Relationships with partners and collaborators
- High-risk facility outreach

A survey regarding 2022 priorities is available for members to complete.