Pooled Monitoring Forum:

Restoration Research to make Science and Regulatory Connections

June 18, 2025, from 9 AM to ~ 5 PM

Maryland Department of the Environment - 1800 Washington Boulevard, Baltimore, MD 21230

(directions and parking at https://mde.maryland.gov/pages/directionstomde.aspx) and via Zoom

The Maryland Department of Natural Resources, the Environmental Protection Agency's Chesapeake Bay Program Office, Maryland Department of the Environment, Anne Arundel County, Baltimore City, Charles County, Frederick County, Harford County, Montgomery County, Prince George's County, the Maryland Department of Transportation State Highway Administration, Chesapeake Bay Trust, and other Pooled Monitoring partners welcome you to a forum in which the most recent restoration research will be presented and discussed. At this forum, regulatory staff and practitioners will have an opportunity to ask new questions and clarify the current state of scientific knowledge. Topics include efficacy of research practices for water quality and biological resources, potential chemical/physical impacts, climate change impacts, pollutants of emerging concern, and "trade-offs." The speakers and audience will be charged with discussing how this science is used or could be used, discussing how the existing scientific knowledge could be translated to be useful for regulators and others, and identifying what questions remain unanswered.

Background: This Pooled Monitoring Initiative's Restoration Research award program started as a follow up item from a series of similar conversations held in 2012, 2013, 2014, and 2015, when the needs of both regulators and practitioners were articulated, and important questions asked and prioritized. The questions were posed to the research community to garner their help through this Pooled Monitoring Initiative that asks questions through the Restoration Research award program. This forum keeps the promise made as we developed the program to answer these key restoration questions. This forum is the 10th annual event where the Restoration Research awardees present their work to the regulatory audience and a few practitioners for their use and receive feedback for future research needed to support their work. At this forum we will gather additional research questions for future Request for Proposals in the program. Finally, the Pooled Monitoring Program was added as an option in the Maryland MS4 permit BMP Effectiveness Monitoring and Watershed Assessment Monitoring

(Assessment of Controls section) which expands the amount of research the program will support in future years and is an innovative strategy by the state to support and use the latest research results. Learn more about the Pooled Monitoring Initiative and its Restoration Research Award Program including the research projects completed, past forums, and more at: https://cbtrust.org/grants/restoration-research/.

Charge to Participants

- Regulators: Use the information from this forum to help inform the permit process and other regulatory processes. Ask the researchers questions that can help you and your teams to answer lingering questions, ensure the research answers your questions, and design future research projects.

- Practitioners: Use the information from this forum to design and build the most effective projects possible from a water quality, quantity control, and stream ecology standpoint. Ask questions that can help design future research projects that will help determine the types of projects that are most effective, as well as where and how they should be built.

- Researchers: Present your findings that addressed the key restoration question(s) posed in the Restoration Research Request for Proposals. Be specific about the research question(s) identified for the study, previous work done on the subject, the experimental design, the results, the level of uncertainty/confidence in the findings, and most importantly how the audience can use the information you present. Listen to what the audience still needs to know to make management decisions in their respective fields and how you might address their questions in the research.

Pooled Monitoring Forum AGENDA *- as of 6/18/25*	
9:00 am to 9:30 am	Welcome and charge for the day, Sadie Drescher, Vice President of Programs for Restoration, Chesapeake Bay Trust Science Leading the Way - Hear how Maryland Department of Natural Resources uses research to inform priorities and future initiatives. Listen for ways to collaborate on our shared goals. · Speaker introductions & conversation facilitated by Jana Davis, Ph.D., President, Chesapeake Bay Trust · Secretary Josh Kurtz, Maryland Department of Natural Resources
Presentations from recent Pooled Monitoring Initiative's Restoration Research projects to answer the key restoration questions in watershed restoration in Maryland and throughout the Chesapeake Bay. This work is tailored to be useful to regulatory (primary audience) and practitioner efforts.	

9:30 am to 10:00 am	· "Influence of historic and current land use practices on PCB contamination of soils and stormwater sediments in the Chesapeake Bay watershed" Birthe Kjellerup, University of Maryland · Translation of the presentation by Doug Griffith, Anne Arundel County & Breck Sullivan, USGS and EPA CBPO's Scientific, Technical Assessment and Reporting (STAR)
10:00 am to 10:30 am	· "Use of molecular sewage indicator methods to reduce uncertainty in watershed remediation efforts and water contact recreation," Eric Schott, University of Maryland Center for Environmental Science (UMCES) · Translation of the presentation by Kim Grove, Baltimore City Department of Public Works)
	20 MIN BREAK - 10:30 am TO 10:50 am
10:50 am to 11:20 am	· "Assessing the feasibility of assisted macroinvertebrate colonization in achieving ecological uplift in restored streams" Ibrahim Fagbohun (input from *Jon Sweetman* and *Daniel Allen*), The Pennsylvania State University · Translation of the presentation by Craig Carson, McCormick Taylor with input from Scott Lowe, McCormick Taylor
11:20 am to 11:50 am	· "Using eDNA methods to extend biological sampling and identify candidate restorations for species reintroductions," Bob Hildebrand, Professor, Appalachian Laboratory, UMCES · Translation of the presentation by Jay Kilian, Maryland Department of Natural Resources (MD DNR))
11:50 pm to 12:20 pm	**QUESTIONS FOR THE RESEARCHERS**
12:20 pm to 1:20 pm	Lunch Break – Provided by the Chesapeake Bay Trust
1:20 pm to 1:50 pm	· "Work in the Wet Versus Work in the Dry for Stream Restoration: A Comparison of Downstream Turbidity and Sediment Loads," Bryan Seipp (Ecosystem Planning and Restoration) & Carol Wong (Center for Watershed Protection, Inc.) · Translation of the presentation by Ben Green, Frederick County
1:50 pm to 2:20 pm	· "More than dirt: Soil health indices for assessment of floodplain restorations," Joe Galela and *Shreeram Inamdar*, University of Delaware · Translation of the presentation by Sushanth Gupta, Metropolitan Washington Council of Governments
	20 MIN BREAK - 2:20 pm TO 2:40 PM

2:40 pm to 3:10 pm	· "Identifying restoration practices and landscape variables that increase native plant establishment and mitigate plant invasion" Gabrielle Ripa, Virginia Tech, School of Plant and Environmental Sciences · Translation of the presentation by Joe Berg, Biohabitats
3:10 pm to 3:40 pm	· Evaluating Stream Restoration Tradeoffs in Water Quality across Watershed Scales," Sujay Kaushal, University of Maryland · Translation of the presentation by Ari Engleberg, MD DNR
3:40 pm to 4:10 pm	**QUESTIONS FOR THE RESEARCHERS**
4:10 pm to 4:30 pm	Feedback for us as we develop the next Pooled Monitoring RFP and complete these research projects: Facilitated by Sarah Koser, Program Manager, Chesapeake Bay Trust · What did you hear today that was useful? · Any feedback for these researchers as they complete their projects? · What other research do you need? · How can we use this program's findings to make a bigger impact? · Any other feedback for us?
4:30 pm to 4:45 pm	Final thoughts, action items, and call to join us at Checkerspot to continue the conversation
4:45 pm to ?	Continue the conversation at Checkerspot (1421 Ridgely Street, Baltimore, MD 21230) for light appetizers and refreshments, provided by the Chesapeake Bay Trust

We are looking forward to seeing you all at this forum, hearing the recent Pooled Monitoring program findings, and compiling research questions for next year's call for proposals.

More about the Pooled Monitoring Initiative's Restoration Research program speakers:

· Jana Davis, Ph.D., President. Chesapeake Bay Trust. Dr. Jana Davis is the President of the Chesapeake Bay Trust, overseeing our work on watershed restoration, education, outreach, and innovation. Jana has been at the Trust since 2005, first as Assistant Director for Programs and then as Associate Executive Director before assuming the role of President. Jana is trained as a marine ecologist, with a B.S. in biology from Yale University and a Ph.D. in oceanography from the Scripps Institution of Oceanography. Jana shifted from academia to resource management via the American Association

for the Advancement of Science Congressional Science Fellowship program, during which she served in a United States Senate personal office and was sponsored by the American Geophysical Union.

- Secretary Josh Kurtz, Maryland Department of Natural Resources. Secretary Josh Kurtz is a lifelong outdoor enthusiast and conservationist, passionate about the beauty of our state and the natural resources it offers. Governor Wes Moore nominated him to serve as the 12th Secretary of the Maryland Department of Natural Resources on January 18, 2023. As a cabinet partner in the Moore/Miller administration, Secretary Kurtz leads teams across the state to improve water quality and Chesapeake Bay resilience, restore and conserve forested land, expand access to state parks, monitor and slow the spread of invasive species, and ensure the state maintains sustainable fisheries.

Kurtz previously served as the Maryland executive director of the Chesapeake Bay Foundation, where he provided key strategic vision and leadership for the policy/advocacy, litigation, science and terrestrial restoration programs. Kurtz was the primary relationship strategist for key state and federal stakeholders and partners, including the Governor's Administration, Maryland General Assembly, Chesapeake Bay Commission, University System of Maryland, private restoration firms, conservation finance entities, and various coalitions.

In his role as policy and government relations director for The Nature Conservancy in Maryland, Kurtz created and led campaigns leveraging strong relationships with partners and industry leaders to build support for policies regarding conservation and climate change in both the Maryland General Assembly and the DC City Council. Appointed by the secretary of the U.S. Department of the Environment, Kurtz served on the Maryland Climate Change Commission Mitigation Working Group from 2020 to 2022.

Kurtz holds a master's degree in public policy from George Mason University and a bachelor's degree in wildlife conservation from the University of Delaware. More information at: https://msa.maryland.gov/msa/mdmanual/21dnr/html/msa18506.html.

- Birthe Kjellerup, Ph.D., Professor, Civil and Environmental Engineering, University of Maryland and Chair of the Diversity, Equity, and Inclusion Committee. Ph.D., Her research interests are: 1) diversity and activity of microbial biofilms in complex microbial systems such as sediment, stormwater, soil, groundwater, and the human body ; 2) biodegradation and bioremediation of persistent organic pollutants incl. polychlorinated biphenyls (PCBs), Chlorinated solvents (PCR/TCE) and polycyclic aromatic hydrocarbons; 3) Wastewater Based Epidemiology (WBE): SARS-CoV-2 in wastewater; 4) biocorrosion in drinking water and oil distribution pipelines; and 5) invertebrate host-pathogen model Caenorhabditis elegans for in vivo biofilm infections. She has a Ph.D. from Aalborg University and a M.Sc. from Aalborg University. More information at: https://cee.umd.edu/clark/faculty/274/Birthe-Kjellerup.

- Eric Schott, Ph.D., Associate Research Professor, Institute of Marine & Environmental Technology, University of Maryland Center for Environmental Science at the Institute of Marine and Environmental Technology (IMET), UMCES. Eric is active in science education and watershed preservation, and has served on the boards of related nonprofits since 2006. Over the summer of 2016 he hosted local high school teachers learning about biodiversity in Baltimore Harbor and mentored a high school intern who studied blue crab health. He has made presentations to state legislative committees on matters related to Bay health in 2014 and 2016. He has served on the **Maryland Oyster Advisory Commission** since 2010.

The Schott lab research focuses on understanding aquatic health, particularly the discovery and tracking of estuarine pathogens in the blue crab and other shellfish. Eric also collaborates with numerous researchers and stakeholders, applying molecular methods to monitor the health and biodiversity of Baltimore Harbor. His research interests are: 1) health and disease of aquatic organisms; 2) use of molecular methods to discover and monitor marine pathogens, especially viruses of invertebrates; and 3) science communication with nonscientists in urban and fishing communities. He has a B.A. from Reed College, Portland OR and his Ph.D. in genetics from Harvard University Medical School, Boston, MA. More information at: https://www.umces.edu/eric-schott.

- Ibrahim Fagbohun, Ph.D., Rotimi is a Doctoral Researcher and Freshwater Ecologist with Penn State University. He is pursuing a Ph.D. in Ecology from Penn State University and has both a Masters and Bachelors in Ecology from Obafemi Awolowo University. More information at: https://ecosystems.psu.edu/directory/irf5076.

- *Jon Sweetman, Ph.D.*, Assistant Research Professor of Aquatic Science, Department of Ecosystem Science and Management, Penn State University. Jon's research interests are freshwater ecology, aquatic invertebrates, paleolimnology, and climate change. He has a Ph.D. from Queen's University, MS, from University of Alaska Fairbanks, and BSc from University of Regina. More information at: https://ecosystems.psu.edu/directory/jfs6745.

- *Daniel Allen, Ph.D.*, Associate Professor of Aquatic Ecology, Department of Ecosystem Science and Management, Penn State University. Dan is an aquatic community ecologist who focuses on streams and rivers and the invertebrates that live in them. Dan's areas of expertise are the relationship between community structure and ecosystem processes in rivers and streams, and factors which influence this relationship across local, landscape, and regional spatial scales. Dan has a BA in Biology from Macalester College and Ph.D., in Ecology and Evolutionary Biology from the University of Oklahoma. More information at: https://ecosystems.psu.edu/directory/dca5269.

- Robert H. Hilderbrand, Ph.D., Associate Professor, University of Maryland Center for Environmental Science Appalachian Laboratory. Areas of Expertise: Ecology and conservation biology of running waters; Watershed and stream habitat restoration; and Linking landscapes and populations. His areas of expertise are Stream ecology and conservation, stream assessment and monitoring, stream restoration, watershed responses to land use, benthic invertebrates, and stream fishes. Bob has a Ph.D. from Utah State University: (Ecology), a M.S. from Virginia Tech (Fisheries Science), and a B.S.

from Frostburg State University (Wildlife & Fisheries; Minors – Chemistry, Biology). More information at: https://www.umces.edu/robert-hilderbrand.

- Bryan Seipp, Senior Environmental Scientist/Forester and Project Manager, Ecosystem Planning and Restoration (EPR). Brian has over 22 years of expertise in forest land management, watershed assessment, and stormwater management. At EPR Bryan is charged with the strategic leadership and execution of environmental restoration and research projects, often collaborating with interdisciplinary teams. Bryan has experience in project development, execution, and product delivery and has successfully managed diverse environmental and natural resource projects encompassing upland stormwater green infrastructure, forest management, TMDL planning and implementation, stream and wetland restoration, watershed planning, and mitigation banking. Bryan also has extensive experience in monitoring the performance of constructed restoration and green infrastructure projects. Bryan has a BS in Forest Resource Management; is the Chairman of the Sustainable Forestry Council and the Catoctin Land Trust; and is an ISA Certified Arborist as well as a Licensed Professional Forester.

- Carol Wong, P.E., Senior Water Resources Engineer, Center for Watershed Protection (the Center). At the Center Carol prepares construction drawings, engineering and pollutant reduction calculations, materials and cost estimates, permitting applications, and construction oversight and inspection for stormwater management projects; plans for potential stormwater retrofits; develops monitoring plans; provides trainings on bacteria and IDDE monitoring; analyzes monitoring data for trends and correlations; and provides green infrastructure training on construction, maintenance, and inspection for the Clean Water Certificate Program, an ANSI accredited workforce development program. Prior to joining the Center, Carol worked for the private sector as a consultant, managing environmental research and development projects. Carol has experience in program management, bioretention research, BMP design and permitting, construction inspection, and water quality monitoring. Carol is a Maryland native and joined the Center in 2014. She graduated with a B.S. in Mechanical Engineering from the University of Maryland and a M.S. in Environmental Engineering from Stanford University.

- Joe Galella, Ph.D., Postdoctoral Research Associate, University of Delaware. Joe received his Ph.D. from University of Maryland in Geological Sciences. His Ph.D. research focused on investigating freshwater salinization effects on biogeochemistry. At UD, Joe investigates the use of stable nitrogen (N) isotopes of soil sediments as a metric for denitrification N removal in floodplain sediments.

- *Shreeram Inamdar, Ph.D.*, Professor of Watershed Hydrology and Biogeochemistry, Plant & Soil Sciences Department, University of Delaware. Shree received his BE degree in Civil Engineering, MS in Agricultural Engineering from University of Kentucky and his Ph.D. in Biosystems Engineering from Virginia Tech. His research interests are in studying hydrologic and biogeochemical processes in riparian zones, sediments and watersheds. More information at: https://sites.google.com/a/udel.edu/inamdar/ and https://www.udel.edu/academics/colleges/canr/departments/plant-and-soil-sciences/faculty-staff/shreeram-inamdar/.

- Sujay Kaushal, Ph.D., Professor, University of Maryland. Sujay is an Associate Professor in ESSIC and Department of Geology at the University of Maryland, College Park. His areas of expertise are Biogeochemistry and Hydrology. He completed a B.A. in Biology (concentration in Ecology and Systematics) at Cornell University, and he completed his PhD in Biology (concentration in Biogeochemistry) at the University of Colorado, Boulder. He completed his postdoctoral research at the Cary Institute of Ecosystem Studies (2003-2005). Before he joined University of Maryland, College Park, he was an assistant professor at the University of Maryland Center for Environmental Science from 2005-2010. His research interests are for land use and climate impacts on water resources, increased salinization and alkalinization of fresh water, urban watershed continuum approach, urban evolution, watershed restoration, and applications of geochemical tracers to ecology. More information at: https://www.geol.umd.edu/sujaykaushal.

- Gabrielle Ripa, pursuing a Ph.D. in the School of Plant and Environmental Sciences in the College of Agriculture and Life Sciences and affiliate with the Global Change Center and Fralin Life Sciences Institute at Virginia Tech. Her research interest are wildlife habitat and management and anthropogenic impacts on communities. She has a BS from Auburn University and a MS from Mississippi State University in Wildlife, Fisheries and Aquaculture. More information at: https://globalchange.vt.edu/graduate/people-of-the-igc/current-fellows/ripa-gabrielle.html.

- Sadie Drescher (your emcee), Vice President of Programs for Restoration, Chesapeake Bay Trust. Sadie and her team lead restoration programs that use innovative partnerships to work with and engage watershed organizations and community members in our work. The Trust's mission is to engage and empower diverse groups to take actions that enrich natural resources and local communities of the Chesapeake Bay region. She has a M.S. in Environmental Studies from the College of Charleston and a B.S. in Environmental Biology from Tennessee Technological University. Sadie using the latest science and best practices, to benefit the water and people in the Chesapeake Bay. Connect with me at: www.linkedin.com/in/sadiedrescher.