

Pooled Monitoring Forum: Restoration Research to make Science and Regulatory Connections

Friday, June 29, 2018, from 9 AM to 5 PM

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

The Maryland Department of Natural Resources, the Maryland Department of the Environment, the Maryland Department of Transportation's State Highway Administration, the Chesapeake Bay Trust, and other Pooled Monitoring partners are excited to invite 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 impacts, and physical/geomorphic stability of stream restoration. Topics also include the latest science for stormwater management practices and their ability to improve water quality as well as to protect streambanks. The speakers and audience will be charged with discussing how this science is used or could be used by regulators, discussing how the existing scientific knowledge could be translated to be useful for regulators and others, and identifying what questions remain unanswered.

This meeting is 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 the program that is now known as the Pooled Monitoring effort that asks questions through the Restoration Research award program. This forum keeps the promise made following those prior meetings to work towards answering the priority questions. This forum is the 3rd annual event where the Restoration Research awardees present their work to the regulatory audience and practitioners for their use and receive feedback for future research needed to support their work.

Charge to participants

- **Permitters-** Use the information from this Forum to help inform the permit process. Ask the restoration researchers questions that can help with the permit process and help design future research projects to answer lingering questions.
- **Practitioners –** Use the information from this forum to design and build the most effective projects possible from a water quality 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 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 presented. 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 future research.

Agenda

- 9 am to 9:10 am –Pooled Monitoring Initiative – Restoration Research background, current state, and future of the program/science
- 9:10 am to 9:30 am – Key restoration research needs from the federal and state agencies, the state of the science now, and how science can support permit reviews
 - USACE-Baltimore Regulatory Branch, Baltimore District representative, Dan Swenson, Chief
 - MDE representative, Lee Currey, Director of Water & Science Administration

Presentations from the most recent Restoration Research projects will answer the key restoration questions in watershed restoration in Maryland and in the Chesapeake Bay. This work is tailored to be useful to the regulatory and practitioner efforts.

- 9:30 am to 10:00 am – Tom Jordan (Smithsonian Institution), “Regenerative Stormwater Conveyance (RSC) Performance: The Groundwater Connection”
 - Translation of the presentation by Ari Engelberg, Implementation Project Officer Chesapeake and Coastal Service, Maryland Department of Natural Resources
- 10:00 am to 10:30 am –Vyacheslav (Slava) Lyubchich (University of Maryland’s Center for Environmental Science (UMCES), “Optimizing sampling frequency to determine pollutant loads” and Dong Liang (UMCES), “Can we detect effects of stormwater best management practices at watershed scale using two monitoring design types: Before-After-Control-Impact and Before-After (no control)”
 - Translation of the presentation by Jana Davis, Chesapeake Bay Trust
- 10:30 am to 11:00 am – Tess Thompson (Virginia Polytechnic Institute and State University), “Improving the success of in-stream structures and stream restoration practices”
 - Translation of the presentation by Scott Lowe, Director, Environmental Services, McCormick and Taylor
- 11:00 am to 11:30 am – Questions for the Researchers
- 11:30 am to 12:30 pm – Lunch (provided)
- 12:30 pm to 1:30 pm – **Keynote Speaker, Karen Dinicola** (Department of Ecology, State of Washington), “Creating and implementing a new Regional Stormwater Monitoring Program” – this program is similar to the Pooled Monitoring program that pools resources to fund answers to key restoration questions. Karen will share the reason for the program, work done to date and how the information is being used, and where the program is headed.
- 1:30 pm to 2:00 pm –Joe Acord (UMCES), “Quantifying the ecological uplift and effectiveness of differing stream restoration approaches in Maryland”
 - Translation of the presentation by Scott Stranko, Director, Environmental Services, MANTA Director, Resource Assessment Service, Maryland Department of Natural Resources
- 2:00 pm to 2:30 pm – Byron Madigan (Carroll County), “The Self-Recovery of Stream Channel Stability in Urban Watersheds Due to BMP Implementation”
 - Translation of the presentation by Rich Starr, Vice President/Senior Resources Scientist, Ecosystem Planning and Restoration
- 2:30 pm to 3:00 pm – Questions for the Researchers
- 3:00 pm to 3:15 pm – Kevin Wilsey, Deputy Director, Office of Environmental Design, Maryland Department of Transportation, State Highway Administration (SHA), “MD SHA’s perspective for research needs and how the Restoration Research results can be used”
- 3:15 to 4:15 – Karl Berger, Facilitator (Metropolitan Washington Council of Governments, Principal Environmental Planner) - Group discussion: What does this mean for me? What did I hear that I can use and how will I use it? What other research questions would you like to see in the next Restoration Research Request for Proposals that will be released this fall?
- 4:15 pm to 5:00 pm - Optional time to continue the group discussion and network.

We are looking forward to a productive discussion with you!

Presenter Bios

Tom Jordan, Ph.D., Principal Investigator, Senior Staff Scientist, Smithsonian Environmental Research Center (SERC), Tom's research investigates the transport and transformation of nitrogen and phosphorus in ecosystems. Since starting at SERC in 1980, he has studied the sources of nutrient releases from watersheds, the uptake of nutrients by wetlands and riparian forests, and the fates and effects of nutrients in estuaries, especially in Chesapeake Bay and its watershed. Tom has a B.S. in Biology from Bucknell University and Ph.D. in Biology from Boston University.

Vyacheslav (Slava) Lyubchich, Ph.D., Assistant Research Professor, Chesapeake Biological Laboratory (UMCES), Slava joined the UMCES as a research assistant professor and a founding member of the Environmental Statistical Collaborative. He devotes the major part of his time to research questions in time series analysis, forecasting, nonparametric inference for spatio-temporal processes and random networks. Slava has a Ph.D. in Statistics from Orenburg State University (Orenburg, Russia) and worked on a three-year post doc at the University of Waterloo, Canada, at the Department of Statistics and Actuarial Science.

Dong Liang, Ph.D., Assistant Research Professor, Chesapeake Biological Laboratory (UMCES), Dong's research investigates the statistical issues in synthesizing environmental data sets collected at various places, frequencies, accuracies, and ways. He often uses Bayesian hierarchical models and geo-spatial tools to fuse information from survey design and multiple sources. His collaborators study fisheries, ecosystem science, restoration ecology, environmental health, spatial epidemiology and social science. He is a founding member of the [Environmental Statistics Collaborative](#), which is hosted at the Chesapeake Biological Lab. Dong has a Ph.D., in Statistics from the University of Iowa.

Tess Wynn Thompson, Ph.D., Associate Professor Biological Systems Engineering, Virginia Polytechnic Institute and State University (VT), Tess's research interests are stream and wetland restoration, urban watershed management, and streambank erosion. Tess has a BS in Agricultural Engineering from VT, MS in Civil Engineering from NC State University, and a Ph.D. in Biological Systems Engineering from VT.

Keynote, Karen Dinicola, LG, LHG, EIT, Hydrologist/Engineer in the Water Quality Program of the Washington State Department of Ecology. Karen has worked in water science, management, and policy for over 30 years and specifically on stormwater manuals, stormwater permits, and stormwater monitoring around Washington State for the past 16 years. Karen provides support and policy guidance for the stakeholder and technical groups that make recommendations for regional monitoring to Ecology and other key agencies. Karen received her B.S. in Mechanical Engineering from Duke University and her M.S. in Civil Engineering from the University of Texas.

Joe Acord, Graduate Research Assistant, Appalachian Laboratory (UMCES), Joe is currently working towards a Master's Degree in Applied Ecology and Conservation Biology with a number of years' experience as a Laboratory research technician in water chemistry, as well as, field technician for Maryland Biological Stream Survey. Joe's research interests are in stream ecology, watershed management, and Entomology.

Byron Madigan, Water Resources Supervisor (Carroll County, Maryland), Byron has supported clean water efforts in Carroll County for the last 10 years in various roles, and currently oversees the activities of the Water Resource Division related to the County's NPDES MS4 monitoring and assessment requirements, watershed restoration projects, as well as several other project specific and grant funded monitoring programs. Byron is also an adjunct professor in the Environmental Studies Department at McDaniel College, and has served as a board of director for the Maryland Water Monitoring Council since 2016. Byron has a BS in Environmental Science from Shippensburg University of Pennsylvania.