

**SUMMARY OF THE  
HAMPTON ROADS REGIONAL ENVIRONMENTAL COMMITTEE  
MAY 1, 2025 at 10:00 A.M.  
Virtual Meeting on Zoom**

**1. Summary of the April 3, 2025, Meeting of the Hampton Roads Regional Environmental Committee (REC)**

The summary and attendance of the April 2025 meeting were included in the agenda. There were no edits.

**2. Environment Virginia Symposium Recap**

HRPDC staff shared their takeaways from the 2025 Environment Virginia Symposium held April 8 – 10 at the Virginia Military Institute in Lexington, VA. They shared the focus areas communicated by regulatory agency heads and reviewed technical sessions they helped organize, participated in, or attended.

State agency directors shared that most have yet to observe impacts in Virginia from the ongoing federal funding and program changes. Only the VA Department of Forestry noted reductions in state funding resulting from federal funding cuts.

HRPDC staff participated in various technical sessions on water quality best management practices for unregulated lands, improving resilience through flood risk management planning, considering different approaches to future stormwater management, and discussing use cases of land cover datasets from different sources. They also shared additional highlights from other technical sessions where the Chesapeake Bay restoration, resilience, and energy issues were discussed.

Meeting attendees were encouraged to attend next year's Environment Virginia Symposium, tentatively scheduled for March 31 through April 2, 2026. The HRPDC staff successfully developed themed technical sessions and panel discussions for the 2025 symposium and are eager to integrate locality presentations into ideas for future sessions.

**3. Microplastics Study**

HRSD Environmental Scientist Dr. Chris Burbage presented an overview of the fate of microplastics in wastewater treatment and described the microplastics study for the Sustainable Water Initiative for Tomorrow (SWIFT). He reviewed plastic waste sources and the various types, shapes, and compositions of microplastic contaminants in the environment. HRSD researchers are targeting plastics less than 100 micrometers (uM) in size because of the ability for particles of this size to find their way into drinking water supplies.

Dr. Burbage reviewed past and ongoing microplastic studies for SWIFT. HRSD microplastics investigations began in 2016 when the SWIFT pilot testing was conducted at the York River wastewater treatment plant (WWTP). Plastics of various types were the dominant material used in constructing that pilot facility. Subsequent studies were conducted after the SWIFT pilot studies were moved to the Nansemond WWTP's SWIFT Research Center (SRC). The second phase of microplastics studies included more robust quality assurance and quality control (QA/QC) measures. Enhanced QA/QC improved confidence in interpreting the results on

microplastics fate in the SWIFT process. The analytical method HRSD uses for microplastics measurements was changed from Raman spectroscopy to laser direct infrared (LIDR) spectroscopy to improve analytical efficiency. LIDR generates microplastics data for particles 20  $\mu\text{M}$  or larger in minutes, whereas Raman spectroscopy yields microplastics data down to 1  $\mu\text{M}$  particles in a process that takes multiple days. HRSD microplastics samples are analyzed in the Virginia Institute of Marine Science (VIMS) labs. Ongoing HRSD studies aim to assess the fate of microplastic fibers and particles in the SWIFT process by collecting and analyzing grab samples at two points in the SWIFT process: downstream of the granular activated carbon reactor and after ultraviolet and chlorination disinfection processes, before injecting SWIFT water into the ground.

Attendees asked Dr. Burbage when results are expected, if there are any concerns with the loss of data for particles less than 20 $\mu\text{M}$  after making the change in analytical methodologies, and whether chemical analytes could be useful for measuring microplastics. Dr. Burbage expects data from recent experiments to be available this summer. The loss of the < 20  $\mu\text{M}$  particle size data was not a big concern because most of the plastic particles found in wastewater are fibers of larger size. Dr. Burbage acknowledged that fibers could be reduced in size through the treatment process and that those processes are poorly understood at this time. Others studying microplastics have used pyrolysis to measure the volatile organic compounds produced by burning plastics in that analytical process. Those methods are under consideration by HRSD, especially for longer-term studies they have planned.

#### **4. Resilient Stormwater Best Management Practices (BMPs)**

HRPDC Chief Resilience Officer Mr. Ben McFarlane presented outcomes from evaluating stormwater BMP effectiveness in conditions experienced in the Coastal Plain under future climate scenarios. The work was one of several projects by the HRPDC to study flood impacts and resilience improvements across the region using 2023 grant awards from the Community Flood Preparedness Fund (CFPF). The study built upon previous HRPDC reports on Land and Water Quality Protection in Hampton Roads, developed with funding from Coastal Zone Management Program (CZMP) grants. The previous effort identified BMPs that perform effectively in the Coastal Plan, but did not consider future conditions expected with climate change.

The CFPF-funded BMP study incorporated an analysis of anticipated climate impacts, reassessing BMP vulnerability under projected conditions. Newer BMPs not identified previously were added to the study, and design modifications to reduce the climate vulnerabilities of BMPs in the previous report were also considered. BMPs were assigned to one of three classes using metrics developed for Coastal Plain suitability analysis: 1) preferred, functions as designed; 2) accepted, functions with design modifications; or 3) restricted, not expected to perform as designed. For the resiliency analysis, BMPs were ranked as having a low, medium, or high vulnerability to future climate conditions, including higher groundwater tables, tidal flooding, increased precipitation, storm surge, salt exposure, and drought. Multiple BMPs were identified as widely feasible and have a low to medium vulnerability to anticipated climate impacts. These BMPs included living shorelines, oyster BMPs, blue roofs, floating treatment wetlands, coagulant-enhanced treatment, active management of wet ponds, wet swales, constructed wetlands, and submerged gravel wetlands. Additionally, three design modifications were proposed to enhance BMP performance: soil amendments, planting salt-tolerant and wet-footed plants, and incorporating underdrains. HRPDC recommends using the findings to select BMPs based on resilience, suitability, and nutrient reduction efficiencies. Mr.

McFarlane emphasized that collaboration with neighboring states, universities, and other researchers drives progress in identifying effective BMPs. Those efforts must be coupled with Chesapeake Bay Program and Department of Environmental Quality approvals of newer or modified BMPs to see the successful implementation of resilient BMPs in the Coastal Plain.

HRPDC will continue with related efforts, including developing new tools and products to support effective BMP implementation, advocating for adopting regional resilient design guidelines, and guiding discussions on how best to “future-proof” stormwater management.

## 5. DCR's Flood Resilience Planning Update

Ms. Carolyn Heaps-Pecaro, Senior Resilience Planner for the Virginia Department of Conservation and Recreation (DCR), provided updates on State-led flood resilience planning efforts. She reviewed the charges of the DCR resilience office and noted that they are responsible for producing the Virginia [Coastal Resilience Master Plan](#) (CRMP) and the [Virginia Flood Protection Master Plan](#) (VFPMP). Phase I of the CRMP was released in 2021; the second phase is in the final stages of development. The VFPMP is in development, targeting completion by the end of 2025. The VFPMP goals are to mitigate current and future flood risks statewide, advance lasting and unified strategies to address flood risk, and capture additional benefits by implementing flood resilience strategies. Phase II of the CRMP entails the development of rainfall-driven flood data and models with a Model Use Case guide, completing an inventory of resilience projects, initiatives, and funding, and identifying next steps for implementing recommendations from the Coastal Resilience Technical Advisory Committee. Both plans identify near-term strategies to increase resilience, and DCR intends to develop a roadmap for implementing projects to improve longer-term flood resilience.

Committee members were introduced to flood mapping data and tools developed by DCR contractors for assessing rainfall-driven (pluvial) flooding impacts. They developed modeled rainfall-driven flood data for analyses and maps that assess compound inundation impacts from riverine flooding, sea level rise, and pluvial flooding scenarios. The improved model is available for 57 cities and counties across Eastern Virginia, divided into 1830 sub-catchments of 10 square miles or less. DCR produced multiple data derivatives, including maps of flood depth, graduated floodplain, dominant rainfall duration, flood types present, and dominant flood types. Ms. Heaps-Pecaro emphasized that data represent the worst-case condition for areas with stormwater infrastructure because that infrastructure was assumed to be non-functional in the DCR models. The models also lack some detailed modeling elements, such as stream inflows. There are many use cases for the data in stormwater management, resilience planning, emergency management, and public safety. Use cases vary in complexity. Users can access the use case guide and data products through the [DCR Flood Resilience Open Data Portal](#). A DCR [Office of Resilience Planning ArcGIS REST Services Directory](#) is also available.

There are opportunities to get involved with the DCR resilience planning efforts. A [public survey for the VFPMP](#) is open now through August 2025. A virtual feedback session on the VFPMP implementation roadmap is set for July 24, 2025, from 10:00 – 12:00, and committee members were encouraged to contact DCR for the link to participate. Public webinar and comment dates will be announced for the CRMP when the plan is released. Interested parties can stay informed by [signing up for the DCR email list](#).

## **6. Other Business**

Chesapeake Bay Foundation participants shared weblinks to register for their [Climate Lecture Series](#) and [Clean the Bay Day](#).

DCR is seeking candidates to fill an open resilience planner position.