

Experiences from the Chesapeake Bay - Regenerative Stormwater Conveyance (RSC) Principles and Adaptations in Urban Stormwater Retrofitting and Stream Restoration

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Possibly suited best for discussion under Urban Hydro-modification as a technical bridge between green infrastructure (GI) implementation and stream restoration, Regenerative Stormwater Conveyance (RSC) also lends well to productive discussion with regard to community resiliency goals, collaborative design, stakeholder communication, and innovative use of techniques. RSC systems offer a platform to address water quality treatment, infiltrate runoff where applicable, and convey stormwater flows more effectively than using more traditional conveyance systems, such as pipes or other hardened stormwater infrastructure. RSC may be approached in several different ways – as a formal GI retrofit practice, eroded outfall stabilization, or as part of an ecosystem restoration methodology. The applicability of the principles of RSC may be useful in a diverse set of circumstances; however, each scenario may require its own variations depending on drainage area scale, surrounding land use, permitting issues, long-term maintenance considerations, ultimate water quality / quantity goals of the project, and so on.

In the mid-Atlantic United States, RSC and similar techniques have become a useful tool for Municipal Separate Storm Sewer (MS4) permittees as localities seek aggressive water quality improvement projects for credit towards their Chesapeake Bay Total Maximum Daily Load (TMDL) reduction goals. Oftentimes RSC may be paired with traditional infrastructure projects or as a component of urban stream restoration projects. It is in these complex urban MS4 environments that provide some of the best proving grounds for long-term use and adaptation of the practice.

In this session, past experiences and observations from several design and implementation projects in the Commonwealth of Virginia will be reviewed. Topics will include:

- Design applications and variations*
- Long-term and Stakeholder considerations*
- Potential permitting aspects*
- Procurement & construction issues*

Biography

Glenn Muckley is a senior water resources engineer and project manager for watershed-based assessment, planning, and design solutions at Stantec. Glenn has consulted to a host of MS4 localities supporting pollutant reductions for the Chesapeake Bay TMDL, been lead engineer for urban stream restoration projects, and is deputy PM on Stantec's recent award for New York City Department of Environmental Protection's Stream Management Program contract for sustainability and infrastructure resilience initiatives

within the “West of Hudson” watershed that supplies ~90% of NYC’s drinking water. Glenn is a graduate of the University of Illinois, Urbana-Champaign, and a licensed PE in Florida, New York, and Virginia.