

Designing for Functional Uplift in Degraded Urban Streams

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Urban headwater systems represent an underappreciated opportunity for resource recovery. Stormwater outfalls and gullies represent the link between our uplands and our lowland rivers. Although these systems are highly degraded, we offer a template for rehabilitation and meaningful restoration. Successful projects in this setting are truly transformational. We can create conditions for rare and valuable aquatic life in locations that presently do not support it.

In this session, I will provide an overview of the history of degradation to urban headwaters, including presentation of my research on the history and burial of headwater streams in Washington, DC. I will then introduce and discuss the components of a successful urban stream restoration, with focus on maximizing aquatic habitat in highly constrained, low-flow systems. I will share lessons learned through the lens of a specific project example, including pre-project functional assessment, discussion of design and construction process, and an evaluation of post-project performance. While the location, geology, and techniques are specific to one project, the constraints, goals, and success criteria are broadly applicable and scalable to urban systems and stormwater outfalls nationwide.

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