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Springhouse Run Stream Restoration



from **Engineering With Nature: An Atlas, Volume 1.**

by **US Army Engineer Research and Development Center**



Washington, District of Columbia, United States

The U.S. Fish and Wildlife Service (USFWS) selected Springhouse Run, a major tributary of Hickey Run—which in turn feeds into the Anacostia River and eventually into the Chesapeake Bay—as a stream restoration demonstration project after conducting an assessment of the stream and its surrounding area in 2005. The project goal was to restore Springhouse Run into a self-maintaining, fully functional state while integrating it aesthetically with the U.S. National Arboretum (Arboretum). Restoring the stream's natural processes along with its associated riparian (strips of vegetation, including trees, shrubs, and grasses) buffers would enable Springhouse Run to self-regulate its water quality and, as a consequence, improve the water quality of the other water bodies it merges with. The project transformed pollutant-tainted water flowing from urban storm sewers and drainage ditches into a natural stream that self-cleans and removes excess nutrients and sediments by utilizing ponds, pools and riffles, and—in the stream's surrounding environment—native plants, soil, stones, gravel, and wood chips. A testament to the success of the project, the river herring have returned to Springhouse Run from the Anacostia

River. The project was implemented by the Arboretum, USFWS, and the District of Columbia, Department of Energy & Environment, Watershed Protection Division (DOEE) through a U.S. Environmental Protection Agency (USEPA) grant. The work was completed in 2017 by Underwood and Associates using their state-of-the-art Regenerative Design process.

Article cover: A section of restored stream that abuts a mature stand of hardwoods. (Photo by Tim Welp, ERDC)

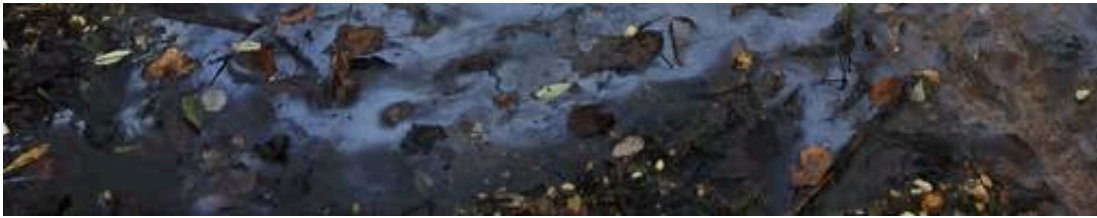
Producing Efficiencies

Restoring Springhouse Run to its natural, self-maintaining state was the principal goal of this project. To reach this state, the stream had to be redesigned to effectively transport and clean the water, while harmonizing aesthetically with the Arboretum. Replacing the soils with stones and gravel helps move the water down into and through the ground, which cleans the water—until the water rises back up out of the ground, at times as a spring, sometimes rejoining the flow of the stream. Applying natural design principles and reconnecting the stream to the adjacent floodplain were other strategies for retuning the stream to its natural state. The successfully restored stream naturally reduces sediment pollution and excess nutrients that would ultimately reach Chesapeake Bay habitats.

Using Natural Processes

The goal was attained by achieving the objective of adding a riparian zone, which acts as a buffer for polluted runoff into the stream; provides wildlife with food and habitat; and helps anchor stream banks. Improving the diversity and quality of instream habitats by adding natural pools and riffles and improving water quality by utilizing design strategies that regulate temperature and sediment are also natural processes that contributed to achieving the goal. Wood chips and tree trunks and limbs were scattered throughout the site to ignite the natural process of generating the organic carbon required for microbial habitats, which regulate nutrients and sediments.





Natural pools and riffles added as part of the Spring House Run Restoration effort.

(Photo by Jeff King, ERDC)

Broadening Benefits

The project will convey a variety of benefits. The restored tributary will prevent erosion while also creating better habitat for wildlife; it will naturally filter the water and prevent upstream pollution from affecting downstream bodies of water, such as the Chesapeake Bay; it is aesthetically pleasing, and it is a source of pride to the local community.



Visitors tour a completed section of Spring House Run Restoration Project.

(Photo by Jeff King, ERDC)

Promoting Collaboration

This project was the result of a relationship-building process that lasted 10 years. The process involved raising general awareness about the problem; building public support for the solution—which was the project; and

working together to achieve project goals. Funded by USEPA, the project was completed by Underwood and Associates through collaboration between USFWS, the Arboretum, and the DOEE.



Adding natural pools and riffles improved diversity and quality of in-stream habitats.
(Photo by Tim Welp, ERDC)



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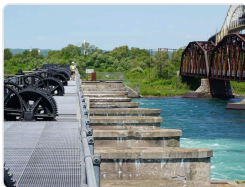
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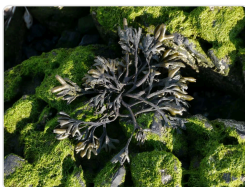
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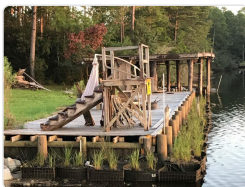
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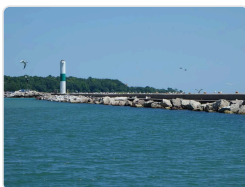
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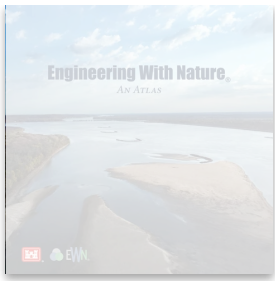


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