

Big Spring Run Floodplain Restoration

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Problem:

Big Spring Run, a headwater tributary of the Conestoga River, was characterized by severe streambank erosion and degradation. The stream valley had been filled in by nutrient-rich sediments generated by historical land-use practices, including 19th century milldams located along the stream. Streambank erosion was contributing to over 60 percent of the sediments suspended in the stream flow. The release of nutrient-rich sediments was impacting downstream water quality.



Floodplain before restoration

Solution:

The floodplain restoration was designed to return the bottom of the stream valley to its historical conditions by removing legacy sediment and establishing a wetland-meadow valley bottom complex. The restored area is no longer a sediment source. It now traps fine sediment and has improved water quality on-site and downstream, provides additional storage for flood water, and improved groundwater recharge.

The project helped establish Chesapeake Bay protocols by defining reductions in pollutant loads through individual floodplain restoration.



Functioning floodplain after restoration

Photo credit: LandStudies, Inc.

Key Project Facts

Project Location: Lancaster County, PA

Type of Project: Floodplain restoration

Scale: 3,100 linear feet of stream restoration; 1,500 linear feet of valley restoration; 15 km² drainage area

Pollutants Removed:

- ~22,000 tons of legacy sediment
- 26,346 lbs of sorbed Phosphorous and 263 lbs water extractable Phosphorous
- 63,670 lbs total Nitrogen and 263 lbs of nitrate-N

Collaborators: Franklin & Marshall College, Pennsylvania Department of Environmental Protection, Land Studies Inc.

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What is Legacy Sediment?

The Environmental Protection Agency (EPA) defines legacy sediment as soil “that was eroded from upland areas after the arrival of early settlers and over the centuries of intensive land uses”, such as agriculture. This sediment accumulates along stream corridors, building up higher and higher as the years pass, altering the natural course of the stream and burying floodplains and wetlands. Instead of a gently-sloped stream bank, you end up with a steep, easily eroded bank.

When communities and their local governments work together to solve big problems like stormwater runoff, that’s a story worth telling!