

# Upper Christina Stream Restoration

Newark, Delaware



from top: Breeding minnows over a spawning nest in the Upper Christina; Immediately after construction; Initial conditions with severely eroded bank

The Upper Christina River is one of only a handful of trout streams within the state of Delaware. With its headwaters in three states—Maryland, Pennsylvania and Delaware—the Upper Christina River watershed presents unique challenges when it comes to managing water quality.

Biohabitats worked with the Delaware Department of Natural Resources and Environmental Control (DNREC) on the restoration of two degraded reaches of

*Stream restoration enhances stability and habitat to stream while restoring peace of mind to residents concerned about steep, inaccessible, eroding banks.*

the Upper Christina. The first reach, which extended 2,500 feet, was located just within the Delaware boundary. The second reach, which measured 800 feet, was located further downstream. Both reaches exhibited an over widening channel with steep eroding banks and diminished habitat exemplified by poor riffles and a general lack of habitat for aquatic organisms. Because the first reach was located on 30 private parcels of land, the restoration required obtaining permission from all of the affected property owners.

Biohabitats approach was to reduce the width of the stream channel, provide a more appropriate slope for the stream banks, and improve aquatic habitat by creating

more stable, desirable riffles and adding woody debris. Biohabitats also created floodplain benches to allow for overbank flooding to reduce downstream flows. This approach slows the velocity of the stream, makes riffles and other stream features more habitable for organisms, and allows sediment to be deposited within the benches rather than in the stream where it inhibits fish spawning. The project greatly reduced sediment from eroding banks and garnered the support of affected property owners.

## SERVICES

- Inventory & Assessments
- Design
- Permitting
- Construction Procurement
- Construction Management

conservation planning  
ecological restoration  
regenerative design



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