

Lower Booker Creek, Eastwood Lake & Cedar Fork Subwatershed Studies

Chapel Hill, North Carolina



Flooding south of Ridgefield pool.

Biohabitats completed GIS analysis, water quality modeling, and investigation of three subwatersheds in Chapel Hill.

SERVICES

Conservation Planning
Ecological Restoration
Water Strategies

The Booker Creek watershed lies entirely within the Town of Chapel Hill except for a small area in the headwaters. The watershed is highly developed, is on the NC 303d Impaired Water Bodies list, and is subject to problematic flooding during larger rain events. Biohabitats, as part of a team, conducted watershed assessments in the Lower Booker Creek, Eastwood Lake and Cedar Fork subwatersheds from 2016 through 2021. Biohabitats' analysis was focused on the following areas:

Pre-survey Desktop Screening-A GIS analysis of residential street right-of-way (ROW) characteristics determined green infrastructure retrofit opportunities to increase survey efficiency. Green infrastructure opportunities were located using factors such as road width, ROW width, slope, catch basin locations and tree canopy coverage. Analysis of outfalls 18 inches and larger and impervious areas larger than one-half acre were also identified in GIS to find feasible candidates for retrofits.

Water Quality Modeling-Existing water quality conditions were modeled and compared to the proposed stormwater retrofits scenario to estimate water quality benefits.

Engineering Field Investigation and Stream Walks-intermittent and perennial streams in the subwatersheds were assessed for geomorphic stability, stream channel characteristics, riparian buffer condition, aquatic habitat quality and buffer/stream restoration opportunities. Outfalls to the stream channel 12 inches or greater were documented and described. All data was georeferenced in GIS.

Biohabitats also participated in public information meetings to present findings and answer stakeholder questions. The team provided the Town of Chapel Hill with a multi-faceted plan for improving water quality in the subwatersheds, which could potentially provide enough ecological uplift to remove Booker Creek from the 303d list.