

CUB CREEK STREAM SEDIMENTATION ABATEMENT

The Town of Wilkesboro has implemented a stream restoration and stormwater mitigation project that is drastically reducing the amount of sediment entering the Yadkin River; which is a drinking water source for many municipalities.

Cub Creek, a tributary of the Yadkin River, extends approximately 11,300 linear feet through the town of Wilkesboro. It has a lengthy border with Cub Creek Park. Prior to restoration, severe streambank erosion had occurred on approximately 80% of its total length, primarily as a result of stormwater flow. On one 1,500 reach, for example, approximately 5,000 tons of soil per year eroded into the creek and flowed into the Yadkin River.

Cub Creek was a problem for the park due to flooding caused by the stormwater, and unsightly streambank erosion. In an effort to halt the erosion and improve park aesthetics, the Town of Wilkesboro obtained funding to restore a 3,000 linear foot stream section. Additional phases have since been implemented for a total of 7,500 lf of stream restoration and sedimentation abatement to date. More phases- totaling approximately 3,800 lf- are planned. Various stream restoration methods have been used including channel realignment, riparian vegetation plantings, floodplain establishment, and in-stream structures. By preventing erosion and/or trapping sediment, each method reduces the stream's sediment load; thereby improving source water quality.

In addition to repairing the damaged streambanks, addressing the cause of the flooding and erosion has been a vital aspect of this project. Two wetlands were constructed to receive stormwater flow from the Cub Creek watershed. Because the wetlands release the stormwater into the creek slowly, the streamflow volume does not reach levels that would cause bank erosion. Materials detrimental to source water quality- such as metals, nutrients, and fecal coliform bacteria- are filtered out by the wetlands before the stormwater reaches the creek. For example, studies show that stormwater wetlands can remove 40-55% of nitrogen and phosphorus.

Innovative & efficient use of resources

Much of the restoration and wetland work has been accomplished using the Town's own workforce and equipment. The total value of the Town's in-kind and cash contribution so far has been approximately \$300,000. This approach has given the Town work crew experience with stormwater wetland construction and stream restoration practices, which will increase efficiency and quality in future phases. Their knowledge will likely be applied in other projects related to Yadkin source water protection. The experience has been relevant even in their routine work (which frequently occurs along streams) as they have learned to apply best management practices while working in a riparian environment.

Outreach

The project has included educational components. Practically the entire project is highly visible to park users, who benefit from an attractive, natural feature. Access points to the creek through the riparian vegetation were intentionally created. Informational kiosks have been constructed which describe the project and its significance to water quality, including source water protection. One is located along a walking trail that surrounds a stormwater wetland. The entire project site has been used in educational tours for college students, design professionals, and participants in a leadership training program.

Community involvement & partnerships

DENR's Division of Water Resources and the North Carolina Clean Water Management Trust Fund provided funding for the project. Evidence of improved water quality was seen in studies conducted by the North Carolina Wildlife Resources Commission (WRC) showing that Cub Creek could support mountain trout. This finding prompted the WRC to begin stocking the stream, which led to the exceptionally popular "Take a Kid Fishing Day", held twice a year in the park. Trout Unlimited is a sponsor of the event. Tyson Foods, another project partner, has initiated a stream litter cleanup program.

Project continuation

Cub Creek and the stormwater wetlands are inspected after every storm event. All features have remained intact and continue to be functional. Grant applications have been submitted for the final two phases. Given the success of the existing phases, the grant proposals are compelling and certain to be implemented if funded. Work on those phases would begin in Fall 2015.