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Do Beaver Impoundments Have Hydrological Impacts to a Developing Piedmont Watershed?

The purpose of this research is to quantify how beaver colonization has affected a McDowell Creek tributary (MC5) watershed. The study watershed is located in the town of Huntersville of Mecklenburg County in the Piedmont region of North Carolina. Maintaining water quality of MC5 and the larger McDowell Creek is important because the stream flows into Mountain Island Lake which is a drinking source for the county and the city of Charlotte. Previously, most of the watershed was rural and raised open pasture beef. In this pasture, the livestock had direct access to the creek and the stream was channelized. In 2012, the MC5 watershed was subject to stream restoration efforts which excluded livestock from the creek, modified the channel pattern, created a riparian buffer 50 ft on both sides, created wetlands and was replanted with native vegetation. In 2016, the eastern portion of the MC5 watershed was cleared and construction for subdivision housing started which still continues today. In early 2018, beavers built an impoundment that blocked the flow of the main channel of the MC5 watershed. How has the water balance and floodplain changed since beavers colonized in the MC5 watershed? Within the water budget model we will use a log of data that starts in March 2013 to find differences in stream flow, evapotranspiration, soil moisture, precipitation, and the water table. Field work will refine groundwater and soil moisture values. We would expect to see reduced streamflow and an increased flood plain during the post impoundment period.