EVALUATION OF FECAL INDICATOR BACTERIA CONCENTRATIONS AND EXPORTS IN THE BOATHOUSE CREEK PORTION OF THE LOWER WHITE OAK RIVER

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The Boathouse Creek portion of the Lower White Oak River is listed as an impaired water because of elevated fecal indicator bacteria (FIB) concentrations. It has been estimated that 61% of the bacteria is delivered via urban storm water runoff. The goal of this project was to gain a better understanding of the spatial and temporal variability of FIB in the Boat House Creek watershed and determine if FIB concentrations posed environmental health threats. Monthly water quality monitoring began in March 2015 and ended in April 2017 at 8 locations within the watershed. Six stormflow samples were also analyzed. Monitoring included the analyses of stream samples for *Escherichia coli (E. coli)* and enterococci. In addition, physical and chemical parameters were also monitored, including: pH, temperature, dissolved oxygen, oxygen-reduction potential, specific conductivity, stream velocity, stream discharge, and turbidity. Concentrations of *E. coli* and enterococci frequently (> 75% of times sampled) exceeded recommended water quality standards. FIB concentrations in streams were typically higher closer to the estuary and stormflow concentrations of FIB were elevated relative to base flow concentrations for each sampling location. Microbial source tracking analyses indicated

that animals were the most likely origin of the bacteria. Stormwater best management practices including a rain garden, water control structures (5 installed total), rock check dams (4), and various drainage way modifications were implemented in the watershed. More stormwater BMP implementations and educational outreach activities are suggested to improve water quality at the watershed-scale.