Using Microbial Source Tracking Techniques to Identify Fecal Indicator Bacteria in the Horse Creek Watershed in Aiken, SC

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Introduction
The presence of fecal pollution in water bodies is a significant health concern. Contamination can result in infectious disease outbreaks and ultimately death. In 2005, the Environmental Protection Agency (EPA) released a report which concluded that the Total Maximum Daily Load (TMDL) present in Horse Creek exceeded the determined water quality standard. Wildlife, grazing animals, failing septic systems, and urban nonpoint sources were listed as potential sources of fecal coliforms. However, not all fecal coliforms are from fecal contamination. Many are actually common contaminants from nonfecal sources. Therefore, our lab initiated a study to determine if fecal contamination was present in the Horse Creek watershed.

Methods
Aim 1

Hypothesis
Coliforms present in the Horse Creek waterway are the result of fecal contamination.

Aim 2

Determine if fecal indicator bacteria, such as Escherichia coli, are present in the Horse Creek waterway.

Results

Coliform Counts in the Horse Creek Waterway

- Figures 1-5 illustrate the methodology and results of the study.
- Table 1 summarizes the identification of control and environmental isolates.
- The summary and conclusions highlight the importance of identifying the source of fecal contamination.
- Future experiments aim to determine host-specificity of the E. coli isolates to identify the source as either human or animal.