Microbial Source Tracking for the Musconetcong River Watershed, New Jersey

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Microbial pathogens and indicators have contributed to major part of water quality degradation in the United States. Identifying contamination sources is an essential step when addressing water quality issues. Microbial source tracking tools have been utilized to find potential sources of concern. The objectives of this study were to assess microbial water quality and determine potential sources of fecal contaminations in the Musconetcong watershed in New Jersey, USA. Water samples were collected from fifteen sites throughout the Musconetcong watershed on July 30, 2015 and August 25, 2015. *E. coli* enumeration was performed to determine possible presence of fecal contamination. Human, cow, deer, Canada geese, and horse-specific molecular markers were quantified to identify and allocate potential sources of fecal contamination. *E. coli* was found to be present from all of the fifteen sites from 103 to 449 CFU / 100 mL. Higher percentages of human, geese and deer markers were observed from all of the fifteen sampling sites, indicating human and wildlife are two major sources of fecal contamination in the Musconetcong Watershed. This study demonstrates that microbial source tracking tools can be used to help address microbial water quality impairment issues.