Detection of Coliforms in Adam's Canyon Watershed

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Coliforms are ubiquitous and are known to be opportunistic pathogens such as Escherichia coli (E. coli). Large amounts of these coliforms in water supplies are harmful and it is important to understand the effect that humans and their pets potentially have on the environment. The stream tested for the presence of these coliforms was the North Fork Holmes Creek located along Adam's Canyon trail, a 3.8-mile hike with 1,900 feet in elevation located in Layton, Utah. The stream was easily accessible to people and animals as indicated by the observed animal feces and trash found along the bank. It was hypothesized that higher traffic areas along the trail would have a greater number of coliforms. 100 mL water samples were collected from seven different locations along the trail's watershed. The samples were tested via an IDEXX Colilert kit to detect total coliforms and E. coli. Results of the test were entered into the IDEXX Colilert bench sheet which calculated the Most Probable Number (MPN) for total coliform and total E. coli. Analysis showed a general trend of streams located in higher traffic areas having an increased total coliform count. MPN ranged from 115 to 1140 with higher numbers were found at locations with easier access. This study shows that greater numbers of coliforms and E. coli are prevalent due to human/animal interaction. Potential environmental concerns with high bacterial counts include an increase of Biochemical Oxygen Demand which results in toxic water conditions for the environment and people.

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