

Dissolved Ion and Bacterial Analysis of Roadside Springs in Central New York

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Two naturally occurring freshwater springs located in the communities surrounding Ithaca, NY are a popular source of water for drinking and other household uses among local residents and visitors. These springs are not monitored, regulated, or treated by any state or local government agency. The New York State Department of Health warns against consumption of unregulated water, as contaminated water poses long term threats to humans, including kidney failure and nerve damage (NYSDH 2014). Thus there is a potential threat to the health of those that drink from these springs. The goal of this research was to determine the quality of the water from an artesian spring in Slaterville Springs, NY and a natural spring in Lisle, NY. Between Fall 2015 and Fall 2016, we monitored dissolved inorganic solids and tested for the presence of coliform bacteria. Environmental conditions and flow rate were recorded for each sample on site, along with the conductivity and water temperature, measured with a conductivity meter. Dissolved anion content including concentrations of chloride, phosphate, nitrite, nitrate, and fluoride were measured using ion chromatography. A set of samples was analyzed by ICP-OES to determine dissolved metal concentration. The presence and amount of fecal coliform bacteria in each sample was analyzed using the EPA approved membrane filter technique. Our analysis of the Slaterville Springs artesian well did not show evidence of any concerning contamination, however the Lisle spring samples consistently showed elevated levels of nitrate (14-16 ppm) as well as positive fecal coliform tests. Further research is being done to determine the change over time in the amount of fecal coliform in the water and if *Escherichia coli* is present in the water.