

Bacteriological Analysis of Logan's Branch Rowan County, Kentucky Utilizing Membrane Filtration Method

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Abstract : Logan's Branch, within the Triplett Creek Watershed of Rowan County, Kentucky, is a waterway located near important agricultural and residential areas. Part of Logan's Branch flows over an exposed black shale formation with elevated radioactivity and heavy metals. Three sites were chosen in relation to the formation and sampled five times over a thirty-day period during the recreational season. A fourth site in North Fork in Rowan County, Kentucky was also sampled periodically as it too has contact with the shale formation. These sites were then sampled monthly. All samples are analyzed for concentrations of *Escherichia coli*, heterotrophic bacteria, and total coliform bacteria utilizing the membrane filtration method and various culture media. Current data suggests that the radioactivity of the shale formation influences the bacteriological growth present in the waterway; however, further data will be collected and compared with that of my colleagues to confirm this trend.

Keywords : bacteriological analysis, *Escherichia coli*, heterotrophic bacteria, radioactive black shale formation, water quality

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