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Rocky Mountain Pure? Fountain Creek's Journey Through the Pikes Peak Region

The project's purpose was to assess how urban development affected the overall health of Fountain Creek. The experiment's dependent variables were dissolved oxygen (DO), nitrate, phosphate, temperature, coliform bacteria, and the aquatic macro invertebrates in the creek. The independent variable was the amount of urban development. Urban development gradually increased as I moved downstream from my initial testing site. My first site (control) was just above Manitou Springs where virtually no human-caused contaminants have entered the creek, making it the ideal water quality. I continued testing at four sites passing through downtown Colorado Springs, to south of the water treatment plant, near the southern-most intersection of Route 24 and I-25. I tested for DO, phosphate, nitrate, and temperature in the field, but collected water samples for coliform testing and macro invertebrate identification. In the lab I conducted coliform tests and identified macro invertebrates. I hypothesized that as I moved downstream, into higher urban development, levels of "bad" dependent variables (phosphate, nitrate, group 3 macro invertebrates, temperature, coliform bacteria) would rise while "good" dependent variables (DO, group 1 macro invertebrates) would drop, causing the overall health of Fountain Creek to drop. My testing confirmed the hypothesized results, although not all variables conformed to a uniform pattern. The results suggest that prevention measures to address non-point source pollution make environmental and budgetary sense, because post-pollution expenditures on water treatment and on lawsuits over downstream water quality together yield only marginal quality both for the Colorado Springs and downstream environs.