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Effect of Water Quality on Aquatic Invertebrates

There are many places where pollution and water quality may affect aquatic invertebrates in the Cache la Poudre River. After initial research I focused my experiment on an area where a gravel pit was depositing cloudy water into a ditch and into the river. My hypotheses were that water in the ditch and below the ditch would have a different water quality than water in the rest of the river. I also hypothesized that there would be fewer aquatic insects and less biodiversity in and below the ditch than in the rest of the river. For my experiment I collected aquatic invertebrates from two sites above the ditch, a site in the ditch, and two sites below the ditch using a kick net. At each site, I measured flow, temperature, depth, width, conductivity, hardness, pH, and alkalinity. Back in the lab, I separated the invertebrates into orders or families, counted them, and analyzed the data. My hypotheses were correct. The water quality in the ditch and below the ditch was different than the water quality above the ditch, especially in hardness and conductivity. This change in water quality affected the biodiversity of invertebrates. Upstream of the ditch very sensitive invertebrates such as Ephemeroptera and Trichoptera were more abundant and those sites had a greater biodiversity. Downstream of the ditch, only invertebrates that were more tolerant of poor water quality thrived (e.g. black fly larvae and Chironomids). I concluded that water quality does affect aquatic invertebrates.