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Industrial and agricultural pollution contaminate many watersheds. We conducted a 10-week survey of the Upper Enoree River located near Traveler's Rest, SC, to determine if industrial and agricultural development has affected the aquatic ecology of this stream system. Impacted streams near the headwaters of the river had significantly higher levels of zinc, calcium and conductivity, and significantly lower levels of carbonates. There were also significantly lower abundance of fish and aquatic invertebrates at these sites. To determine the impact of the contaminants on the aquatic life, a transplant experiment was conducted. *Notropis lutipinnis* were collected from a control site in a nearby stream and transplanted into control and impacted sites. Survivorship at headwater sites was significantly lower than at downstream and control sites. The results from these experiments provide direct evidence of the negative effects of human activity on watershed health, and point out the need to improve conservation efforts of natural waters.