Temporal Changes in Dissolved Calcium in Stream and River Waters in Western Kentucky Watershed

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Abstract

Calcium is a naturally occurring heavy alkali earth metal and it is an essential element for aquatic and terrestrial animals including humans. The specific aim of this study was to determine dissolved calcium levels in stream and river waters in western Kentucky. The concentrations of Ca^{2+} in water samples were correlated with the emergence of Zebra Mussels (*Dreissena polymorpha*) in Kentucky Lake. Surface and bottom water samples were collected during the Kentucky Lake Long-Term monitoring cruises as well form selected locations in the Ohio River and various streams in the region. The samples were filtered using 0.45 µm filters and analyzed for Ca^{2+} using an Atomic Absorption Spectrometer. Calcium levels and Long-Term monitoring data on chloride levels in Kentucky Lake were examined for temporal trends. A gradual and steadily increasing trend was discernable especially during the past decade. Increasing levels of these calcium and chloride ions may play a role in the elevated occurrences of Zebra Mussel colonies in Kentucky Lake.