

Abstract:

Urban streams are influenced by number of human activities. Diploma thesis discusses the impact of urban drainage (specifically storm water drains) on toxic metal concentrations, of, in one of Prague's minor creeks – Zátíšský Creek. Zátíšský Creek flows from the right side to the Vltava River. The creek is 3080 m long with a natural flow $1.9 \text{ m}^3/\text{s}$. The creek is affected by seven storm water drains and three rain settling tanks.

The creek was monitored from April 2009 to June 2010 during this period six sampling campaign was conducted. The samples were collected from seven remote sampling points, located both upstream and downstream from the storm water drains and rain settling tanks. The impact of storm water drains was assessed based on monitoring of toxic metals content in different parts of the aquatic environments, samples of water, sediment and aquatic biota (benthic organisms and attached algae) were collected and analyzed. The sediment samples and organisms were dried by lyophilisation (freeze dry), and digested in a microwave oven using a solution of nitric acid and hydrogen peroxide. Metal concentrations were determined by Atomic Absorption Spectrometry utilizing instrument Solaar S. Overall nine metals were identified: cadmium, lead, nickel, chromium, copper, zinc, aluminum, manganese and iron.

In both water and sediment testing, the results show that the most significant pollutant discovered was caused by copper. Other metal concentrations were found mostly within the Environmental quality standards. The most likely sources of copper pollution are algicide applied in the open air pool of Zátíšský Creek. The other source can be local buildings featuring copper guttering which feed the storm water drains that then empty into Zátíšský Creek.