

Metal accumulation onto fine sediments in a small urban stream

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Fine sediments can act as a source or a sink for hazardous metals in aqueous environments according to its condition. Especially sediments in urban stream were affected by various anthropogenic activities like input of road deposited sediments by initial rainfall or discharge from waste water treatment facility. The purpose of this study was to evaluate the role of fine sediments in a small urban stream running through the Seoul metropolitan, Korea. Sediment samples were collected from the Yangjae stream in the beginning and the end of dry season. Thereafter, particle size distribution, major components, and environmentally available metals were analyzed. Average diameter of sediment was medium to coarse sand and the fraction of fine sediments ($< 150 \mu\text{m}$) was under 2% except one spot in the studied region. Because water flux in the Yangjae stream maintained by artificial discharge, flow rate showed in a narrow range when there was no effect of rainfall. Therefore, particle size distribution was not significantly changed during dry season. The spot showed higher fraction in fine sediments had inflows from highway runoff. Therefore the distribution of sediments was inferred to be significantly affected by runoff in rainy season. This spot showed low carbon contents, however the spot after joining discharge from wastewater treatment plant showed the highest carbon contents. The concentrations of metals were affected by particle size and inflows. Sediment samples from the upper stream were different with downstream samples. The reason of metal compositions were studied by relating with artificial discharges along the stream. From the results, we will assess the source of metals and its impact.