Title – Microplastic presence and frequency in crayfish within urban and rural streams

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Abstract: Microplastic pollution of water sources and subsequent impacts on aquatic organisms is an emerging topic in the scientific community. Aquatic organisms often mistake microplastic particulates (MP) as food and inadvertently ingest the particulates, which can biomagnify through the food chain. While the frequency of MP ingestion is well-researched in the marine environment, little is known about the prevalence and consequent impacts of microplastics on freshwater organisms. This research project explores the occurrence of microplastic pollution on an abundant and ecologically important freshwater invertebrate species: crayfish. MP in the digestive tracts of crayfish and stream substrate are collected to: (1) identify MP in the digestive tracts of crayfish; (2) establish a plastic library according to materials collected from both study sites; (3) quantify the MP using analytical chemistry techniques; and (4) consider the physiological and ecological impacts of the microplastic contamination of crayfish species and potential public health risks. It is expected that: (1) the presence and frequency of MP will be confirmed in the substrate samples collected from both study sites; (2) the presence and frequency of MP will be confirmed in the digestive tracts of crayfish collected from both study sites; (3) the plastic library will assist in identifying the contaminants extracted from the crayfish and environmental samples; and (4) the occurrence of

MP in the urban stream will be greater than that of the rural stream due its location near commercial businesses and the dominant thoroughfare.