

ABSTRACT

THESIS: Microplastic Pollution in Indiana's White River: An exploratory study

STUDENT: Lindsay Hylton

DEGREE: Master of Science

COLLEGE: Sciences and Humanities

DATE: December 2017

PAGES: 102

Plastic material is now a ubiquitous source of aquatic pollution, most of which originates from sources on land, including surface waters. Microplastics- tiny plastic pieces that are often not visible to the naked eye, are a recent growing environmental concern in both marine and freshwater ecosystems. While many studies have proven the abundance and danger of microplastics in the world's oceans, far less research has been done on their presence and impact in freshwater ecosystems. This exploratory quantitative study aims to build on the findings of recent freshwater microplastic studies by reporting on the abundance and types of microplastic pollution found in the West Fork of Indiana's White River. Fifteen surface water samples were taken from three bridge sites along the river over a four-month period (August-November 2015). Samples were collected with a custom adapted net and analyzed using NOAA's recommended laboratory methods for the analysis of microplastics in the marine environment. Analysis revealed a variety of microplastic particles at all three sampling sites, to varying extents, with synthetic fibers being the predominant plastic type collected. A total of 145.5 plastic pieces were collected from the White River over the duration of this study, from all 15 samples (which were averaged with duplicates). The average microplastic concentration in the White River, based on the average concentrations of the three sites sampled, was 0.71 items/m³. These findings help to

fill the large knowledge gap in microplastic research on freshwater, especially fluvial, environments and guide researchers in better understanding the extent to which these synthetic particles are polluting U.S. surface waters as a whole.