

Characterization of microplastics in sediments and surface waters of a headwater catchment

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Project Description

- Water and sediment samples from headwater streams and reservoirs/lakes will be collected and processed using modified NOAA methodology sampling of large lake sampling.
- As this research continues, we will refine and develop standardized procedures for
 - field sampling streambed sediment,
 - riparian soil,
 - stream water, and
 - lake water samples.

Project Significance

- Plastic, including microplastics, is the most prevalent type of particulate pollution found in our oceans and Great Lakes.
- The need for study of microplastics in freshwater environments and municipal water supplies has been more recently recognized.
- Humans, are ingesting microplastics when they drink and eat foods prepared by using tap water and consume meat sourced from the local foodchain.
- Understanding the source and accumulation of microplastics beginning at the headwaters of major watersheds is vital for implementing future local and state regulations regarding microplastics in municipal water supplies.



Microplastics are a growing problem in our drinking water.

Testing for microplastics in headwater municipal reservoirs of Cambria County.



Project Deliverables

- Field sample collection will be conducted in spring of 2021.
- Sample pre-processing for microplastic extraction will be conducted within a few days of sample collection in both Pitt-Johnstown and Penn State Altoona teaching labs.
- Samples will be sent for spectroscopic identification to the Organics Lab within the Energy and Environmental Sustainability Laboratory at Penn State-University Park.
- It is anticipated the students will complete their portion of the research as senior research projects in the Fall 2021 with data processing, mapping, and manuscript preparation to be completed by Spring 2022.



Potential Impact

- Freshwater riverine ecosystem microplastic science is in its infancy and will develop with this research.
- It is the goal to continue this research as an on-going long-term investigation based on a series of repeated measurements made to detect a baseline condition (e.g. number and types of items) and temporal changes in microplastics content on both sides of the eastern continental divide.

