

## **Non-Technical Project Summary**

Microplastics in beach sediment: Collecting baseline data for microplastic contamination around Iqaluit, Nunavut, and developing tools for effective community-based monitoring

Marine plastic pollution is a significant global issue. Plastics do not biodegrade, yet many can breakup into smaller fragments and be easily transported in both water and air. Microplastics, which are defined as plastic particles less than five millimeters in diameter, can enter the environment through various different sources and are of particular interest as they can be ingested by many different organisms. Microplastics have become recognized as an environmental concern, however, data does not exist for many areas, and understanding how microplastics move around the environment is still a topic that needs to be investigated further. Furthermore, there remains a lack of standardized monitoring tools for plastics in the environment, and it is very important to standardize tools so that monitoring can occur all across Canada, including in the north.

This study aims to answer two main research questions. First, what is the current concentration of microplastic contamination in beach sediment around Iqaluit, Nunavut? And second, are current methods for community-based monitoring of microplastics in sediment samples effective? The objectives for this study are: to collect and analyse beach sediment samples for microplastics in order to create a baseline dataset of microplastic pollution in beach sediment around Iqaluit, Nunavut; and to assess two current beach sediment sampling methods and develop tools for effective community-based monitoring of microplastics in beach sediment.

Beach sediment samples will be collected in September 2019 during the Wildlife Contaminant Workshop in Iqaluit, NU in association with the Environmental Technology Program at the Nunavut Arctic College (September 23 – 27, 2019). Three replicates of approximately 500 g of sediment will be collected at each location where beach surveys will be conducted for plastic debris. Sample collection will replicate the methods used to collect previous beach sediment samples from Qikiqtarjuaq, NU, and Herschel Island, YT, and will involve filling glass jars with sediment using a metal spoon. The samples will be collected with the Environmental Technology Students at the Nunavut Arctic College as part of a week-long workshop on plastics. All of the students are Nunavut residents, and will participate in the sampling. We do not foresee any impacts on the environment, wildlife or people as a result of this study or the sample collection. We will not collect any sediment that is being used by wildlife, and if at any time there is a threat to disturbing wildlife, all sampling will stop.

All data, including meta-data, will be archived on the Polar Data Catalogue and open for use. This way we can ensure the data is available for uses beyond this study. The following year, the results will be presented back to the class and the students who participated in the sample collection. The research results will also be shared at the ArcticNet meeting in December 2019, and research summaries will be shared with all participating communities, including Iqaluit.