

# MICROPLASTICS IN YUKON'S FRESHWATER: PILOT MONITORING PROJECT



**Figure 1.** Microplastic particles taken under 10x magnification. Picture taken by Bruce Porter.



**Figure 2.** Microplastic sampling at Takhini River Confluence. Picture by Sruthee Govindaraj.

## Project summary

Microplastics in fresh water is a growing concern for which there is little data. Currently, there are no standardized protocols for microplastic sampling (other than for microbeads) in Canada. Core Geoscience Services (CoreGeo) was retained by Yukon Government's Water Resource Branch to design and execute a pilot sampling program for microplastics in freshwater in winter, under ice.

We collected water from Tàgé Cho Gé, Yukon River in March 2021, upstream of the Takhini River confluence. Water samples were filtered for microplastics using sieves and a pump with in-line filters. Snow samples were also collected.

## Results

Microplastics are in the water and in the air, and it is very difficult to collect samples without any contamination. Microplastics were found in the blanks and in the control samples, despite numerous precautions. There were challenges with laboratory methods to differentiate microplastics from other particles. The best technique was using a fluorescent dye to detect microplastics. Nonetheless, results show that microplastics are likely present in the Yukon River downstream of Whitehorse, but in very low quantities (between 7 and 37 microplastic particles per litre). Most particles are in the 10µm to 100µm size range.

## Recommendations

Microplastics are present in the Yukon. Future studies are recommended to better understand: 1) how common microplastics are in Yukon Rivers, 2) the amount of microplastics in Yukon Rivers, and 3) the fate of microplastics in the environment. It is important to start monitoring background concentrations of microplastics in the Yukon and to decrease the source of plastics in rivers.

## What can we do to reduce our impact?

- Use lint traps, and Cora balls to reduce the release of microfibers into our water systems;
- Use clothing made of natural fibers over synthetic;
- Be mindful of the products we buy and consume. Choose products with less packaging.

## Community partners

- We would like to thank Bruce Porter for his involvement and valuable help, and Neil Hawkes of Council of Yukon First Nations for helping with field work.
- We would also like to thank Bureau Veritas (BV) and ALS Laboratory (ALS) for providing discounted rates in support of this research project.

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