



## **BACKGROUND : Water quality results for July 2020 – Hay and Slave Rivers**

### **How does high water affect water quality?**

When there is more water in a river, the water flows more quickly and stirs up sediment from the stream bed and erodes sediment from the river banks, carrying it downstream. This causes the water to become cloudy or muddy (turbid). As rain saturates the surrounding land, more water flows directly into lakes and streams, which can also increase turbidity. Higher turbidity can result in higher levels of metals, nutrients and hydrocarbons which are attached to the silt and clay particles in the river.

### **Which substances were found in higher than normal concentration in the Hay and Slave Rivers in July?**

In July 2020, levels of turbidity in these rivers were higher than previously recorded by the Government of the Northwest Territories (GNWT). Not surprisingly, several metals that are typically associated with turbidity were also high and revealed new July maximum values for certain metals, including total arsenic, barium, cesium, chromium, iron, molybdenum, thallium, vanadium and zinc. Almost all other parameters not associated with turbidity (i.e. substances dissolved in the water), such as calcium, sulphate and several dissolved metals, were within the range of what has been measured historically on these rivers.

- For full results, visit: [www.enr.gov.nt.ca/en/services/water-management-and-monitoring/water-quality-monitoring-networks](http://www.enr.gov.nt.ca/en/services/water-management-and-monitoring/water-quality-monitoring-networks)

### **Where are the high total metal concentrations in the Hay and Slave Rivers coming from?**

These substances may be the result of natural processes, such as geological weathering or atmospheric deposition, or they may be generated by human activities. While we can't pinpoint exactly where these metals are coming from, given that both the Slave and Hay Rivers are showing similar trends due to high water, these results are likely due to the increased flows and water levels rather than a single source of pollution.

### **Are these substances harmful to aquatic life?**

The toxicity of a metal depends on the form in which it occurs. While the concentrations of several substances measured in July exceeded the Canadian Council of Ministers of the Environment (CCME) Guidelines for the Protection of Aquatic Life values, the metals found in highest concentrations in the Hay and Slave Rivers are not likely to affect aquatic organisms, as they occur in a form that is attached to suspended solids (dirt) in the water. In this form, the metals are not easily absorbed by fish and other aquatic life. Concentrations of dissolved metals, which are more likely to affect the health of aquatic organisms, were slightly elevated but were generally within the range of what we have seen on these rivers in past years.



**Is the water safe to drink?**

Yes. Daily water treatment steps including removal of harmful substances through filtration for sediments and chlorination for bacteria and other harmful microbes. Routine testing of municipal drinking water is done to ensure water is safe to drink. Residents should use caution when using water from a source other their municipality: untreated water should always be boiled at a rolling boil for at least one complete minute to remove harmful microbes.