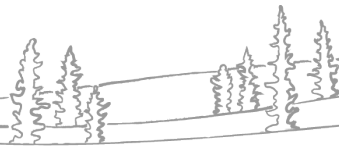




# Iron Bacteria in Surface Water



## **Rusty-Brown Substance in Surface Waters**

Occasionally in recent years, rusty-brown masses have been observed in the Peel, Arctic Red, and Mackenzie Rivers. These large masses have not been observed previously. When they appear, they typically occur between mid-July and mid-August. From sampling conducted so far, the substance has been identified as iron bacteria. As a result, GNWT Environmental Health, in cooperation with Environment and Climate Change (ECC), has developed this fact sheet.

## **What are iron bacteria?**

Iron bacteria are long thread-like bacteria that “feed” on iron. Unlike most bacteria, which feed on organic matter, iron bacteria feed by oxidizing ferrous iron into ferric iron. When ferrous (dissolved) iron is converted to ferric iron, it becomes insoluble and forms a rusty-brown colored sheen on the water’s surface. Additionally, as iron bacteria die and decompose, they release a rusty-brown deposit onto the surface water.

## **Are iron bacteria harmful?**

Iron bacteria are not a threat to human health. They naturally exist in soils and water in low numbers and thrive when



*Peel Channel at Aklavik (Billy Archie; August 2017)*



*Peel River at 8 Mile (Andrea Czarnecki; July 2020)*

more iron is present. Although iron bacteria are not harmful to your health, the water can look and taste bad. When you are out on the land, it is recommended to use water from upstream of visible iron bacteria growth.

In the Northwest Territories, water treatment plants are capable of removing iron bacteria before it reaches your tap.



### What causes iron bacteria?

Iron is a common element in soil. In general, wherever there is oxygen and iron-rich rock, soils near surface water have the potential for iron bacteria growth. Iron bacteria are natural and thrive when conditions are favorable. The growth of bacteria in water may vary from year to year, particularly during the summer months, depending on weather conditions and temperature. The increased presence of these masses in recent years is likely due to slumping and warmer temperatures in the region.

### How can we identify iron bacteria?

Rusty-brown masses are often the first indication that iron bacteria are present. These masses are often mistaken for petroleum sheens. Unlike petroleum sheens that stay intact, the iron bacteria sheens will break apart (almost 'shatter' like glass), when disturbed.

Petroleum on surface water also pose a health risk. Never drink water with a sheen present.

### Next Steps?

Environment and Climate Change (ECC) will continue to work with community members in Aklavik, Tsiigehtchic, and Fort McPherson this summer to confirm results. Next summer, water samples will also be tested for different kinds of algae.

### Who to Contact?

If you have any health-related questions,

please email/phone:

[Environmental\\_Health@gov.nt.ca](mailto:Environmental_Health@gov.nt.ca) (867-767-9066 ext 49262)

If you observe the masses, please report the observation to your local Renewable Resources Council and/or ECC:

- Aklavik: Aklavik HTC at [aklavikahtc@gmail.com](mailto:aklavikahtc@gmail.com) (867-978-2336);
- Fort McPherson: Tetlit RRC at [rrccordinator@tgcouncil.ca](mailto:rrccordinator@tgcouncil.ca) (867-952-2330);
- Tsiigehtchic: Gwichya Gwich'in RRC at [gwichyarrcb@hotmail.com](mailto:gwichyarrcb@hotmail.com) (867-953-3608);
- Yellowknife: ECC at [nwtwaterstrategy@gov.nt.ca](mailto:nwtwaterstrategy@gov.nt.ca). (867-767-9234 ext 53122).

*Residents may be more familiar with the term "Tsaii" which in Tetl'it Gwich'in translates to "ochre". Ochre is a natural clay earth pigment that ranges in colour from yellow to brown. Traditionally, Tsaii was used to paint snowshoes and it was collected in the Rock River Area, where the Tetl'it Gwich'in stayed to harvest the Porcupine Caribou. When collected it was very important to leave some form of payment.*

*~ Norman Snowshoe (February 2024)*