Water Quality of the Klondike River

The Klondike River upstream of Bonanza Creek is one of eleven water quality sampling stations in the Yukon as part of the Canada-Yukon Water Quality Monitoring Network. This site has been monitored on a monthly basis since 2005 and is currently monitored by staff from the Tr'ondëk Hwëch'in Natural Resources Department. The data collected at this station is used to calculate a Water Quality Index (WQI).

Water quality sampling at the Klondike Highway Bridge

Why is monitoring important?

Clean water is an essential element for healthy aquatic ecosystems, but as humans continue to develop the surrounding landscape, the quality of water can become jeopardized. By monitoring surface water throughout the Yukon and Canada, we can assess the current and trending health of lakes, rivers, and streams.

Results

The consistent 'fair' scores from 2005 to 2016 suggests that there had been little change in the water quality and aquatic health at the Klondike River in over a decade, however, the most recent WQI score suggests that the water quality may be improving (see table below). A 'Fair' score means the aquatic life is generally healthy and stable, but at times may be negatively affected by poor water quality conditions. A 'Good' score indicates that the aquatic life is healthy and is rarely affected by poor water quality conditions.

What is the WQI?

The purpose of the Water Quality Index is to provide a general idea of water quality conditions at a site. Every three years, the water quality index for a site is calculated, which produces a single value between 0 (poor) and 100 (excellent). These values are grouped to give an idea of the aquatic health of the site (see WQI categories). The natural water quality and potential concerns differ for each site and therefore different sets of parameters are measured. The set of parameters used to calculate the WQI at the Klondike River are arsenic, copper, lead, nitrogen, pH, phosphorus, silver, temperature, and zinc.

WQI Categories:

Excellent (95-100)	Aquatic life is not threatened or impaired. Measurements never or very rarely exceed water quality guidelines.
Good (80-94)	Aquatic life is protected with only a minor degree of threat or impairment. Measurements rarely exceed water quality guidelines and, usually, by a narrow margin
Fair (65-79)	Aquatic life is protected, but at times may be threatened or impaired. Measurements sometimes exceed water quality guidelines and, possibly, by a wide margin.
Marginal (45-64)	Aquatic life frequently may be threatened or impaired. Measurements often exceed water quality guidelines by a considerable margin.
Poor (0-44)	Aquatic life is threatened, impaired or even lost. Measurements usually exceed water quality guidelines by a considerable margin.

WQI Scores of the Klondike River

	2005-2007	2006-2008	2007-2009	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017
WQI Scores	66.8	66.4	67.4	74.2	74.2	74.2	74	73.8	73.7	73.7	86.6

For more information please contact the Water Resources Branch, Government of Yukon at water.resources@gov.yk.ca or visit https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/water-quality-canadian-rivers.html#AnnexA