

Temporal Trends of Contaminants in Yukon Lake Trout

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Objectives

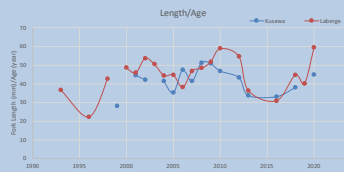
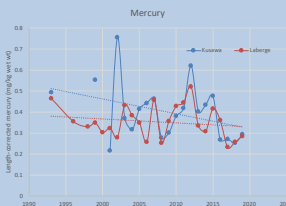
This project aims to monitor contaminant levels in lake trout from two Yukon lakes (Kusawa and Laberge) to assess:

- potential temporal trends of contaminants in lake trout from these lakes;
- contaminant exposure to people consuming these lake trout; and,
- the health of the lake trout populations.

This project has been monitoring contaminants in lake trout from Lake Laberge and Kusawa Lake in the Yukon, since 1993, and annually since 2001.



Mercury concentrations are declining over time in lake trout from both lakes, somewhat more strongly in Kusawa Lake as compared with Lake Laberge. However, since 2007 the temporal pattern is remarkably similar in both lakes, suggesting environmental drivers of mercury concentrations.



Lake trout from both lakes are growing faster in the last few years, indicating some change in the limnology or food web in these lakes (perhaps seen in past years also), which could be affecting the movement of contaminants through the ecosystem.

Key Messages

- Mercury is declining over time in lake trout from Lake Laberge and Kusawa Lake although there is considerable annual variation.
- In 2019, mercury levels in muscle from lake trout from Lake Laberge and Kusawa Lake averaged 0.28 and 0.29 $\mu\text{g}\cdot\text{g}^{-1}$ wet weight respectively, slightly more than half the recommended guideline level of 0.50 $\mu\text{g}\cdot\text{g}^{-1}$ for commercial sale.
- Most organochlorine pesticides are declining over time in lake trout muscle from both Kusawa Lake and Lake Laberge.



Most organochlorines in lake trout from Kusawa Lake and Lake Laberge are declining over time.



Conclusions

Contaminant concentrations are generally declining in lake trout from Kusawa Lake and Lake Laberge, likely due to national and international controls on emissions of pollutants. Annual variation in contaminant concentrations is likely driven by environmental factors, including limnological and food web changes that may be part of natural cycles and may also be affected by climate change.

	Lake Trout		Lake Whitefish		Rainbow Trout		Total
Lake	N	# micro plastics	N	# micro plastics	N	# micro plastics	N
Decadeash	1	0	0	9	0	1	9
Decadeash	0	0	1	1	1	1	3
Decadeash	4	1	1	2	1	1	5
Little Alton			3	0		3	0
Pine			1	1		1	1
Pumphouse Pond			0	3		0	3
Pumphouse Pond					3	1	3
Total	1	1	3	5	3	1	7

The occurrence of microplastics in stomachs from three species of fish collected from five Yukon Lakes in the summer of 2020.