

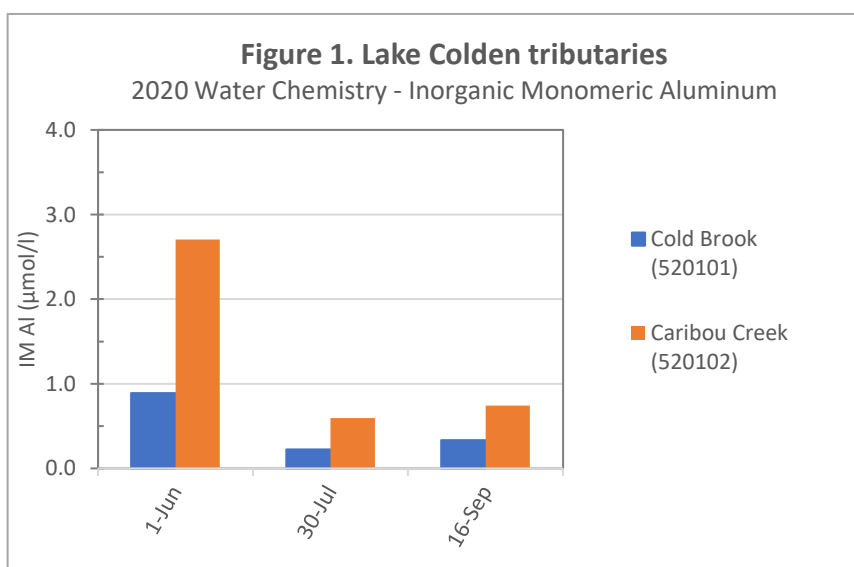
Lake Colden Tributaries Water Chemistry Surveys # 520101, 520102
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As part of the ongoing monitoring of waters in the Lake Colden area as they recover from acidification, two Upper Hudson watershed streams were surveyed in 2020. Water samples were collected and analyzed by the Adirondack Lakes Survey Corporation throughout the 2020 field season from Cold Brook (H-543-P706-1) and Caribou Creek (H-543-P706-2) (Table 1). Both streams are tributaries to Lake Colden that begin high up in the MacIntyre Range, within the High Peaks Wilderness, and enter the lake on the west shore. Earlier electrofishing surveys in 2019 revealed a self-sustaining population of brook trout in Cold Brook but found no signs of fish life in Caribou Creek.

Table 1. Selected water chemistry variables for Cold Brook and Caribou Creek in 2020.

Water Name	2020 Date	Air Equilibrated pH (pH units)	Acid Neutralizing Capacity (ANC) (µeq/l)	Inorganic Monomeric "toxic" Aluminum (µmol/l)	Base Cation Surplus (BCS) (µeq/l)	Conductivity (µmhos/cm)
Cold Brook (520101)	6/1	5.53	14.01	0.89	-33.94	10.37
	7/30	6.26	21.00	0.22	17.65	13.62
	9/16	6.22	21.94	0.33	16.90	13.12
Caribou Creek (520102)	6/1	5.33	16.90	2.71	-10.88	9.60
	7/30	6.21	22.17	0.59	19.95	10.63
	9/16	6.15	24.05	0.74	13.49	10.90

Though the chemistry metrics for the two streams are similar, Cold Brook values are generally superior, especially for inorganic monomeric aluminum (Figure 1). Inorganic monomeric aluminum is the toxic form of aluminum and is a direct cause of mortality in brook trout. It may be the most critical variable when assessing a water's ability to sustain brook trout. As is typically the case, the highest aluminum levels coincide with the period of maximum snow melt in the spring. The June sample for Caribou Creek is the only one to exceed the preferred threshold of less than two µmol/l.



The habitat of both streams looked very favorable for trout with streambeds of boulders, cobble, and gravel along with interspersed step pools. It is unlikely that water temperature is an impediment in these high elevation streams, so it seems probable that acidity levels remain the limiting factor for fish survival in Caribou Creek. The general trend is for improving acidity levels across the Adirondack region, so there is reason for optimism that Caribou Creek is simply lagging behind the recovery of Cold Brook and will soon be able to support fish life.