In 2019 a self-sustaining brook trout population was documented in Lake Colden (#519087), a water that has recently recovered from very poor acid-base chemistry. This survey was performed to see if the values of different chemical metrics throughout the water column could be related to fish survival, particularly during the spring snowmelt pulse of acidity.

Water samples were collected at various depths and were analyzed for pH, ANC, BCS, BC/ROOs and ALIM (inorganic monomeric "toxic" aluminum). Enclosed cages containing brook trout were hung at various depths coinciding with water samples that were also collected. Brook trout are known to avoid lethally acidic shallow water by moving to greater depths during acidic episodes (Van Offelen, 1994).

Unfortunately, ice and trail conditions prevented staff from checking the live cages in this remote water in time to gain useful information. The spring chemistry metrics did show that there was a slight gradient in the water column at some sample sites with improving acid-base chemistry at greater depths. In general, the "toxic" aluminum, and other metrics associated with greater acidity, were notably reduced when compared to the 2019 metrics. Very few of the values for "toxic" aluminum were above the threshold for brook trout survival of 2 μML^{-1}. Likely, the improvements in water chemistry were due to the vagaries of weather, snowpack, etc. Water samples were also drawn at the mouths of Caribou and Cold Brooks. While both brooks had high silica readings (a groundwater indicator), Cold Brook continues to be much less acidic, easily reaching the chemical thresholds for brook trout survival.

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