

**Meco Lake Chemistry Survey #519081:  
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Meco Lake (UH-P276) is a very remote pond located in the Silver Lake Wilderness in Hamilton County, and is accessed by an approximately 7-mile walk on the Northville Lake Placid Trail. It has a surface area of 12 acres, a maximum depth of 23 ft and an average depth of 4.6 ft. In the 2019 survey there was sufficient dissolved oxygen for trout to a depth of 14 feet and the late August temperature at that depth was 56 degrees F. The existence of a fish barrier on the outlet of Meco Lake is unknown. Brook trout were stocked here between 1966 and 1968. A 1969 survey failed to capture any fish and the brook trout stocking policy was cancelled because the pond was chemically unsuitable. Similarly, when the pond was surveyed in 1987 by Adirondack Lakes Survey Corporation (ALSC), no fish were captured.

In 2017, water samples were drawn from 15 selected waters including Meco Lake, to perform advanced chemical analyses by ALSC to identify waters recovering from the effects of acid precipitation that may once again support native fish communities. Relatively recent improvements in the acid/base chemistry of some Adirondack waters have already been documented, and some of these waters, such as Brooktrout Lake (B-P874), now contain self-sustaining brook trout populations. The 2017 chemistry values were such that an experimental stocking policy for 350 Temiscamie x Domestic brook trout fingerlings was initiated for the fall of 2019. There was a chance to gain additional information from Meco Lake in 2019 as a survey of nearby Silver Lake (#519080) was being conducted. In this 2019 survey, samples were drawn for analysis from both shallow and deep water, and a dissolved oxygen/temperature profile was generated.

Table 1. Meco Lake selected water chemistry values 2015 and 2019.

Date	Depth (feet)	Air Equilibrated pH (pH units)	Acid Neutralizing Capacity ( $\mu\text{eq/L}$ )	Inorganic Monomeric "toxic" Aluminum ( $\mu\text{M/L}$ )	Base Cation Surplus ( $\mu\text{eq/L}$ )	BC/ RCOOs-	Conductivity ( $\mu\text{mhos/cm}$ )	Silica $\text{mg L}^{-1}$	Sodium $\text{mg L}^{-1}$
8/28/19	5	5.36	14.4	1.48	-2.9	1.8	9.0	1.9	0.40
8/28/19	15	6.08	27.6	1.33	19.8	2.8	10.9	2.8	0.51
8/22/17	0	5.43	8.0	1.16	-11.0	1.9	9.8		

As one might expect, most of the chemistry values were similar to those found in 2017. However, ANC and BCS values were somewhat improved but the level of inorganic monomeric "toxic" Aluminum was slightly increased when compared to the 2017 values. Although, this level of or "toxic" aluminum did remain below the critical summer threshold of  $2 \mu\text{M/L}$  for brook trout survival.

Additional chemical metrics such as the Base Cation Surplus (BCS) and the ratio of Base Cations to Strong Organic anions (BC/RCOOs) give a deeper understanding regarding the ability of this water to sustain brook trout populations. The BCS provides a useful tool for the evaluation of recovery from acidification in the presence of increasing dissolved organic carbon and the BC/RCOOs helps to quantify the strength of “naturally acidic conditions” found in some Adirondack waters. These advanced metrics were again such that it appears brook trout should survive. Brook trout survival in Meco lake has not yet been evaluated but angler reports and/or a follow-up survey will be used to evaluate the success of the stocking.