

County Line Lake General Biological (Survey #520068)

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County Line Lake (UH-P274) is a 21-acre waterbody located on the boundary of the Shaker Mountain Wild Forest and the Silver Lake Wilderness in Fulton and Hamilton counties, respectively. The lake can be reached via a 3.2-mile hike on the Pinnacle Valley Trail from the Pinnacle Lake Trailhead in the town of Bleecker. The lake was stocked with brook trout from 1956-1975; however, stocking was discontinued in 1976 after a fisheries survey was conducted and no fish were captured. The absence of fish at that time can likely be attributed to acidic conditions resulting from acid precipitation. Water quality sampling in 1992 and 1999 confirmed continued acidic conditions in the pond.

Relatively recent improvements in acid/base chemistry have been documented in numerous Adirondack waters. Certain waters, such as Brooktrout Lake (B-P874) that were once deemed fishless due to acidic conditions now support naturally spawning populations of brook trout. In 2017 a water sample was collected from County Line Lake and submitted to the Adirondack Lake Survey corporation for advanced chemical analyses to identify if the water was naturally recovering from the effects of acid precipitation and if it could potentially support a brook trout population (Table 1). Additional water sampling for advanced chemical metrics occurred in 2019 at which time values were found to be approaching threshold levels for brook trout survival. Epilimnetic inorganic monomeric "toxic" aluminum levels were found to be just below the 2.0 threshold value that is considered lethal to brook trout. The ratio of base cations to strong organic anions (BC/RCOOs) was found to be at or above the threshold level of 1.5.

Table 1. County Line Lake water chemistry variables from 1992 to 2019.

Year	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 ($\mu\text{mhos/cm}$)
2020	5	5.3	5.8				7
2020	30	5.4	7.9				8
2019	5	5.0	0.6	1.89	-27.7	1.5	8
2019	25	5.1	-1.7	4.59	-27.7	1.7	10
2017	0	4.9	-9.1	2.17	-27.7	1.3	9
1999	0	4.7	-10.5	-	-	-	18
1992	3.3	4.6	-22.7	-	-	-	24

In 2020 water samples were drawn for basic analysis to keep track of the status of the water quality in the lake. Although advanced metrics were not determined, a significant improvement in air equilibrated pH and acid neutralizing capacity was observed between the 2019 and 2020.

The Shaker Mountain Wild Forest Unit Management Plan (NYSDEC 2006) specifically lists “restore brook trout to County Line Lake” as a management action. With the observed improvements in water quality in County Line Lake and the re-establishment of brook trout populations in nearby “recovered” waters we propose reinstating a brook trout stocking policy. County Line Lake flows into Duck Lake which has a barrier to fish migration on its outlet; both waters are considered fishless at this time. An annual air-stocking policy of 675 Little Tupper strain fall-fingerling brook trout should commence in the Fall of 2023. Fish will be adipose fin clipped prior to annual stocking and a survey will be conducted in 5-7 years post stocking to determine if fish are surviving and/or reproducing naturally in the pond.

Literature Cited

New York State Department of Environmental Conservation, 2006. Shaker Mountain Wild Forest and Northville Boat Launch Unit Management Plan & Environmental Impact Statement.