Bureau of Fisheries Technical Brief #tb621604

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

South Pond Brook Trout Survey (Survey #621604)

Anne Resseguie, Region 6 Fisheries

3/15/2022

South Pond (ONT-19-40-P493-32-16-P582) is a 40-acre, approximately 30-foot-deep body of water set in the Pigeon Lake Wilderness, Town of Webb, Herkimer County. Located a short distance from Twitchell Lake, South Pond is accessible via a narrow band of New York State land originating halfway up the southwest shore of Twitchell. In 1984, the Adirondack Lakes Survey Corporation (ALSC) conducted a sampling survey, including both water chemistry and biological sampling, with no fish caught. This data is posted on the ALSC website (www.adirondacklakessurvey.org). New York State Department of Environmental Conservation (NYSDEC) did not conduct a chemical or biological survey of South Pond until 2018.

The 2018 biological and a chemical survey resulted in the catch of 35 brown bullhead and revealed water chemistry that should support a brook trout population, according to ALSC's second draft of the new classification model for summer sampled brook trout waters (unpublished). This classification model is driven by the analysis and interpretation of base cations (i.e., calcium) to acid anions. ALSC's classification model uses a base cation surplus (BCS) metric, as well as the acid neutralizing capacity which has historically been used by NYSDEC to evaluate ecosystem recovery from acid deposition (Roy et al. 2013). NYSDEC began an annual stocking of South Pond in fall 2019 with 700 Temiscame hybrid strain brook trout. This was the first recorded stocking of South Pond. Stocking also occurred in 2020 and 2021.

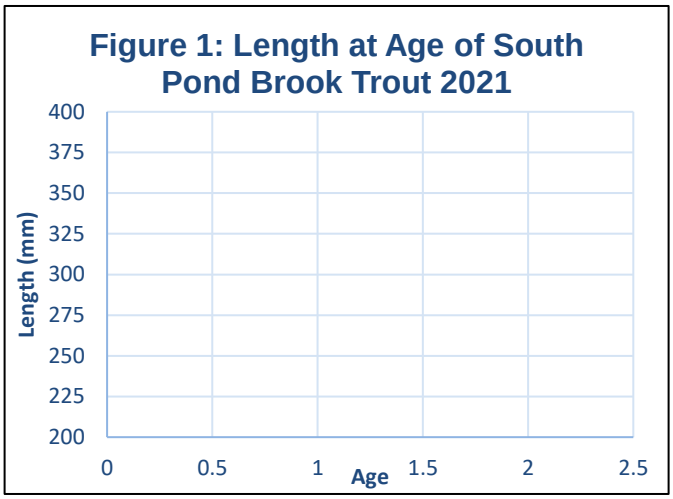

Figure 1: Length at Age of South Pond Brook Trout 2021

On 7 July 2021, a biological survey was conducted on South Pond to evaluate the presence/absence and condition of the brook trout stocked in 2019 and 2020. One 150ft redden experimental gill net, one 25-foot minnow net and one minnow trap were set overnight. The nets captured five stocked brook trout and over 75 brown bullhead. The brook trout were marked with an adipose fin clip and ranged in size from 244mm-377mm (9.6in.- 14.8in.). Otoliths were collected from all brook trout for age interpretation. Three fish were 1-year-old brook trout, averaging 250.6mm (Figure 1; 9.9 inches; 2018 year class stocked in 2018) in length, and two were 3-year-old trout, averaging 370.5mm (14.6 inches; 2019 year class stocked in 2020).

In addition to the biological survey, a water chemistry sample was taken and sent to the ALSC lab for analysis. PH and acid neutralizing capacity (ANC) are both key indicators of quality water for brook trout stocking. According to the 1990 final GEIS report the ideal threshold for reliming an acidified lake or pond is when the pH is at 6 and and the ANC is 25 (i.e., marked by the solid

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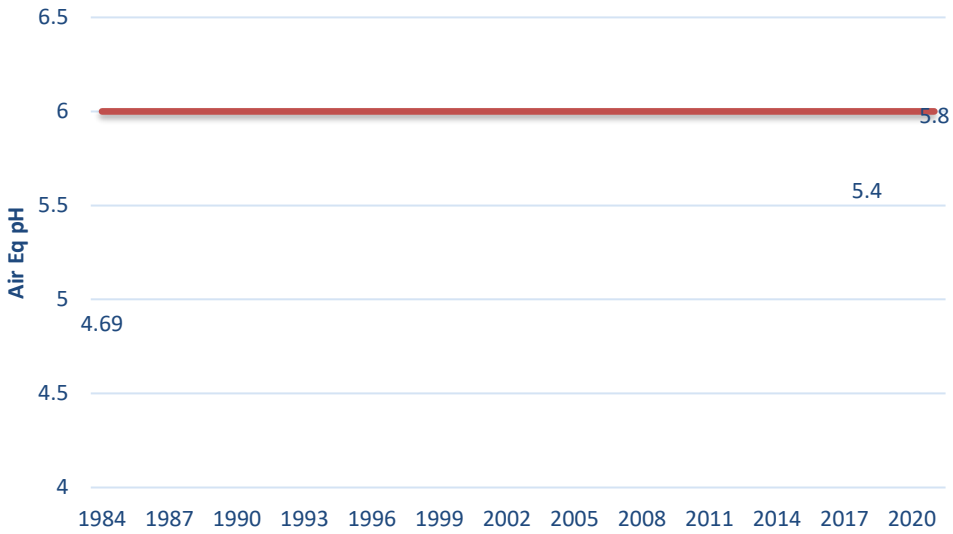
red line in Figures 2 and 3). Both the pH and ANC of South Pond improved to 5.8 (Figure 2) and 9.2 (Figure 3), respectively. However, the new classification of Adirondack ponds, being developed by ALSC as a tool to aid in brook trout stocking decisions, also takes BCS values into consideration. This leads to four potential classifications. Based on a summertime water collection and analysis, Class 1 waters can handle brook trout stocking, Class 2 waters may be able to handle brook trout stocking, and Classes 3 and 4 should not be stocked. Based on this classification model South Pond is a Class 2 water.

Initial surveys indicate good growth and survival of stocked fish. We will continue to stock this water to provide angling opportunities for the public that were not available prior to stocking.

Figure 2: South Pond Air Equivalent pH



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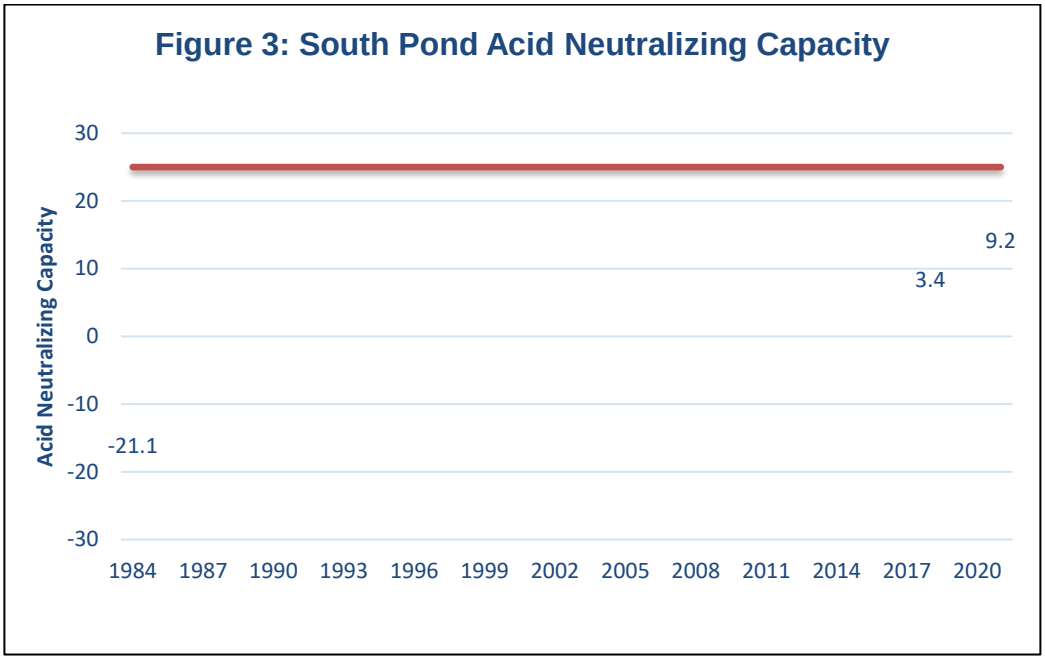

Literature Cited:

Roy, K., Dukett, J., Houck, N., and Lawrence, G. 2013. A Long-Term Monitoring Program for Evaluating Changes in Water Quality in Selected Adirondack Waters. New York State Energy Research and Development Authority Final Report No. 15-24. Albany, NY.