

## Memorandum

Date: January 9, 2020

From: Glenn P. Sullivan, Certified Lake Manager, SOLitude Lake Management

To: Chautauqua Lake Partnership, Town of Ellery, Town of Ellicott, Village of Celeron, Village of Lakewood, Town of Busti, Town of North Harmony

Re: Comments on Racine-Johnson's 2019 Status of Chautauqua Lake's Aquatic Macrophyte Community Determined by a Late Summer/Early Fall Survey and Estimates of the Associated Invertebrate Community

Racine-Johnson's 2019 Status of Chautauqua Lake's Aquatic Macrophyte Community Determined by a Late Summer/Early Fall Survey and Estimates of the Associated Invertebrate Community (Report) summarizes the results of an aquatic plant and invertebrate survey conducted in late September and early October, 2019. In addition to presenting the survey data, Racine-Johnson uses the Report Cover and Introduction to editorialize on the Fall plant community, and present their perspective on what influenced it, and its predicted impacts. SOLitude Lake Management takes issue with several of the comments and positions presented by Racine-Johnson's Report, and submits the following comments:

1. SOLitude does not dispute the aquatic plant data collected by Racine-Johnson. In fact, in a cursory survey by Glenn Sullivan in mid-August, the lack of aquatic plant coverage in the Burtis Bay section of the lake, as well as the dense plankton bloom were noted, and led to the decision to delay SOLitude's Point-Intercept Plant Survey in that section of the lake until Spring 2020 to more accurately assess invasive plant coverage for potential 2020 management.
2. The Report refers to the timing of the Racine-Johnson survey (9/17-10/1) as "perfect", and the "recommended time to evaluate a spring herbicide application in New York State". These comments illustrate an inexperience with aquatic herbicides in general, as the numerous herbicides and active ingredients have different application strategies and display a variety of control durations. The Racine-Johnson survey occurred more than 4 months after herbicide application. Princeton Hydro's Post-Treatment Plant Study occurred ~ 1 month after treatment, which allowed for control and degradation of plants by both herbicides, without undue impact from other variables, and was appropriately timed to assess the results and impacts from the application of the use of Navigate and Aquathol K herbicides. The Princeton Hydro survey documented the continued presence of native plants both within and outside the treatment areas. The Racine-Johnson survey allowed for an additional 3 months of other variables, in particular dense algae growth and poor clarity, to impact the plant community. While Racine-Johnson may consider the timing of their plant survey "perfect", it does not reflect the actual impact of the herbicide applications.

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3. Regarding the Princeton Hydro study, the Racine-Johnson Report compares the post-treatment concentrations of sites CTR4 (Control), TRT4 (Treatment) & DFT4 (Drift) as evidence of widespread herbicide impacts, and calls CRT4 and TRT4 "paired". It correctly points out that CTR4 and TRT4 are ~4 miles apart. It ignores two things; CRT4 is downstream and much closer (~1 mile) to the Arnold Bay treatment area, and based on flow and distance, CRT4 has no correlation to TRT4. Furthermore, the herbicide concentrations found at CRT4 of 101 ppb 2,4-d is ~5% of the lowest label recommended application rate for Navigate, and 57 ppb endothal k is ~10% of the lowest application rate of Aquathol k. By 21 days after treatment, sample results were either undetectable or less than 2.5 ppb. These concentrations and exposure times were likely insufficient to adversely impact non-target plants.
4. The Report characterizes Chautauqua Lake's macrophyte community as "overwhelmingly dominated by desirable native plant species". This is true in terms of the number of native species compared to the number of invasive species. It is far from true when based on the abundance of plants in the upper water column and at the water surface, which is dominated by the two invasive plants Eurasian watermilfoil and curlyleaf pondweed. The Report also suggests that the lake's invertebrate herbivore community (the weevil, the moth, the midge, and the caddis) provide successful, and more importantly desirable control of Eurasian watermilfoil. SOLitude's 2018 rake-toss survey of the littoral zone in the southern half of the lake (1301 sample sites) documented Eurasian watermilfoil as the dominant aquatic plant species of the 25 aquatic plant species found, occurring at 42% of the sample sites. Eurasian watermilfoil was also the dominant plant species in the Town of Ellicott (the majority of Burtis Bay), where it occurred in 89% of the sample sites. The plant survey data does not support that herbivores are providing adequate control, and the interest in alternative control methods such as herbicides by the Towns and Villages around the lake reinforces that assessment.
5. Racine-Johnson's Report noted that cyanobacteria is common and expected in Chautauqua Lake, and previous SOLitude plant surveys in 2017 & 2018 indicate the presence of algae blooms during the surveys. Racine-Johnson notes in the 2019 Report that the south basin had a thick algal scum on the surface during their September-October survey. But where the Report's assessment fails is that it does not make the logical connection between the dense algae growth, the lack of clarity and the subsequent reduction of macrophytes. The prolonged algae bloom, which the Report indicates had begun as early as July, and then persisted through August and September, would have undoubtedly inhibited growth of aquatic plants throughout the southern section of the lake. The Racine-Johnson Report is incorrectly pointing at the herbicide application as the key causal agent for "almost total plant removal" in the southern half of Chautauqua Lake, when post-treatment survey performed by Princeton Hydro one month after the application documented that this was in fact not the case.

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