

Chautauqua Lake & Watershed Management Alliance

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STAKEHOLDERS TAKE FIRST STEPS TO MANAGE INVASIVE STARRY STONEWORT

Invasive species early detection and rapid response are key parts of the coordinated lake workplan that is implemented by Chautauqua Lake and Watershed Management Alliance Member organizations each year. These programs seek to identify and address new threats to our local waterways, and were led this year by the Chautauqua Watershed Conservancy (CWC), Chautauqua Lake Association (CLA), Audubon Community Nature Center, and the Chautauqua County Soil and Water Conservation District. In the summer of 2022, stakeholders encountered a new challenge following detections of the invasive species starry stonewort in Chautauqua Lake. If left unaddressed, this invasive has the potential to spread to new areas of the lake, impede recreation, crowd out native plants and animals, and negatively impact game fish species. In addition, a recent study from nearby Ontario indicates that extensive growth of starry stonewort may have a profound impact on oxygen and phosphorus levels to the degree that it can promote harmful algal blooms in certain situations. By taking action early, stakeholders are hoping to learn more about these new populations and assess management options.

Although it is technically a macro algae, starry stonewort can easily be mistaken for an aquatic plant at first glance. Native to Europe and Asia, starry stonewort first made its way to North America in 1974 via the St. Lawrence River. Since then it has spread to lakes across the Northeast, due to its ability to regenerate from small fragments that hitchhike on watercraft and waterfowl. The algae is identified by its thin grass-like branches, which grow in whorls around a central stem. Starry stonewort can appear green or brown in color, may be crunchy to the touch, and can be mistaken for native lookalikes like muskgrass. A few key features make this invasive a concern. Starry stonewort can form dense stands in late-summer/early-fall, and can be difficult to detect before this growing season. The algae also reproduces via bulbils—small, white star-shaped structures that are produced on the branches and drop off onto the sediment just before most of the algae dies back over the winter. Between the bulbils, which form a seed bank in the sediment, and the fact that even a small algal fragment can grow into a new colony, this species can rapidly colonize a waterbody and survive during winter.

Like other invasive species such as water chestnut, a number of different programs are in place to address this algae. Watercraft stewards were stationed on public launches in 2022 thanks to a local program led by the CLA. These stewards check boats entering and leaving the lake for any sign of invasives, and work with boaters to ensure that proper procedures are followed to prevent new infestations. Surveys of the lake's plant communities are also performed by different stakeholders each year, in order to help monitor changes in existing and new populations. The CWC's Aquatic Invasive Species Early Detection Volunteer Taskforce also

performs targeted surveys to detect new populations of invasives and responds to new detections. This program, organized by CWC's Director of Conservation Twan Leenders, identified two significant populations of starry stonewort in 2022, along Ashville Bay and Prendergast Point.

Starry stonewort had been detected in relatively small amounts during lakewide plant surveys dating back to around 2009, but the populations identified by Leenders in 2022 are much larger, covering a combined area exceeding seven acres. These two areas are now almost complete monocultures of starry stonewort, with little to no native plants remaining in the affected areas. A primary concern is the fact that these stands are located near a public boat launch at Prendergast Point and two marinas. Boat traffic can fragment starry stonewort, increasing the likelihood of spread. After assessing these two populations, Leenders began to discuss management options with experts from Buffalo State University, the Western New York Partnership for Regional Invasive Species Management (PRISM), and local organizations.

Because starry stonewort has become a relatively recent challenge for stakeholders across the Northeast, best management practices are still being developed and tested. Chemical, mechanical, and manual management options exist. Each is expected to have its own set of regulatory and feasibility related considerations that can vary on a case-by-case basis. Because starry stonewort is an algae rather than a plant, chemical management can utilize different compounds than those used to treat invasives like Eurasian watermilfoil or curly-leaf pondweed. Common methods of manual removal include techniques like diver-assisted suction harvesting, or DASH.

Considering these different options and the early stages of starry stonewort growth in the lake, Leenders organized a pilot effort to assess the feasibility of a variety of removal methods in Ashville Bay on September 30. Representatives from CWC, CLA, the Alliance, Soil and Water, the Chautauqua-Conewango Consortium, and Audubon were joined by volunteers at the site. These efforts began by performing visual assessments of the infestation and then hand pulling the species from the water. Cold temperatures, a high lake level, and low water clarity offered some challenges to those in attendance. Volunteer Vince Liuzzo provided a barge, which was used as a platform to remove and store starry stonewort in dewatering bags. The group performed manual removal with a variety of tools including rakes, screens, and baskets, which were deployed to help evaluate available options for removal. After around four hours of work, the manual removal team had gathered approximately 12 large bags of starry stonewort (approximately 750 pounds of material to be disposed of).

Joining the group mid-morning were a skimmer and harvester that were kindly deployed to the area by the CLA. These machines ran passes along the large 2-acre stand of starry stonewort in order to determine the feasibility of mechanically harvesting these new infestations. While starry stonewort does not have true roots, it does grow close to the lake bottom and attaches itself there via thread-like filaments. This may present challenges for removal by harvesters, which are often used to cut and remove above-ground plant material closer to the water's surface.

"Starry stonewort is clearly not just another nuisance in the lake. It is an invasive that has been implicated in bringing about ecosystem-level changes in other lakes where this algae was able to spread" says Leenders. "It is so new to our region that nobody has a ready-made management solution available. We have a lot to learn still and not a lot of time to do so. Based

on how fast starry stonewort has spread in the two areas I monitored this summer and knowing that it is already present in low densities in other parts of Chautauqua Lake, I would say that preventing starry stonewort from becoming systemic should be a top priority for the lake. Prevention, early detection, and rapid action are key elements of a successful integrated invasive species management program. I am so glad that we found these outbreaks in their early stages. And I am very appreciative of our partners who recognized the importance of our discovery and made it a priority to share their experiences and help experiment with possible management actions to benefit the health of Chautauqua Lake.”

Following the pilot removal, stakeholders are continuing to assess their findings, consult with outside experts, and collaborate to determine the best path forward to manage starry stonewort in the lake. These local programs have been made possible thanks to generous funding through the Alliance provided by The Lenna Foundation, the Ralph C. Sheldon Foundation, and the Chautauqua Region Community Foundation. For more information please contact Leenders at Twan@chautauquawatershed.org.



CWC Director of Conservation Twan Leenders is pictured in a kayak in Ashville Bay during the first pilot removal effort of starry stonewort on September 30.



Vince Liuzzo is pictured removing large clusters of the invasive algae with laundry baskets.



Starry stonewort can be identified by its green whorls. Pictured center frame is a reproductive bulbil.



A Chautauqua Lake Association harvester gathers stony stonewort mats in Ashville Bay.