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To: Joanna Bilotta; President; Lake Shirley Improvement Corp.

From: Gerry Smith; President/Aquatic Biologist

Re: Report on Inspection at Lake Shirley

On Wed., Aug. 29th, you along with Jackie Ramondelli and I, examined the weed growth throughout Lake Shirley. This was not a comprehensive lake-wide survey but we did inspect a substantial number of shoreline areas and coves in all three basins of the lake where residents were reporting abundant plant growth. Our more comprehensive late summer plant survey will follow sometime in September. From shore out to water depths of about four feet, there was generally little or sparse growth of tapegrass or naiad but beyond four feet to depths of about 7 or 8 feet, the density increased.

The tapegrass is easily recognized by the "curley-cue" plant part that extends from the base of the plant, up towards the water surface, where a small, white colored flower may appear. The narrow, fairly long, green colored leaves found at the base of the plant, may not be visible from the water surface. Both species grow well in bottom types of sand or fine gravel mixed with silt or muck. Given the excellent water clarity of the lake during our survey, we also traveled over expansive areas of the lake's shoreline where there was little or no nuisance plant growth.

The upshot of our inspection is that the growth of tapegrass/wild celery (*Vallisneria*) and secondly, spiny naiad (*Najas minor*) are moderate to abundant in a number of coves. Tapegrass or wild celery is a common native species while spiny naiad is non-native. The growth of these two species was most widespread in the northern end and coves of the north basin. More frequent patches of fanwort than in previous years were also seen scattered throughout portions of these coves.

Throughout the middle lake basin, the growth of these two species was far less, however, we saw considerably more fanwort than in previous years, especially from the marina, heading west towards Les Smith's home.

Tapegrass/wild celery and spiny naiad were also found in low to moderate abundance throughout most the lake's southern basin, however, in the far southern cove, both species were found to be moderately widespread. The matted, filamentous algae that had developed during July in "Millionaire's Cove," was no longer seen nor a problem. Overall, that cove looked "good" relative to plant and/or algae growth.

We can understand why residents in some of these coves where the tapegrass and naiad are more abundant would be concerned. Based upon the rather shallow depth of Lake Shirley, the existence of at least three species of invasive weed species and the reported nutrient loading that enters it, the lake is going to support a certain level of either nuisance microscopic algae and plant growth. Spiny naiad can be fairly readily and economically chemically treated. The tapegrass may not respond as well to treatment.

Chemically treating large areas of the lake targeting these weed species needs to be carefully considered and discussed. In our opinion, the summer's now "winding down", therefore, chemical treatment makes no sense at this time, seeing how these weeds would likely re-grow next summer

anyway. Targeted chemical treatment next summer in some of the most heavily infested and widely populated/used coves next summer is likely to be recommended, however, we caution against widespread treatment throughout too much of the lake for fear that nutrient release in early July (when these two weeds start to appear) would potentially fuel the growth of nuisance algae. Trading less weeds for more algae may not be a desirable trade-off.

A deep, sustained drawdown this fall/winter should help some to control the tapegrass. On the other hand, the naiad reproduces by seed and the seeds are generally resistant to the affects of freezing and drying. The almost unprecedented mild temperatures and lack of snow/ice cover experienced last winter, likely limited the effectiveness of the drawdown in controlling rooted plant growth this past summer. Given an extended cold winter and a maximum drawdown this winter, we may see some better control of the tapegrass next summer.

There are a number of issues to discuss with you and the Board. I understand the Board will meet on Wed., October 3rd. I could likely attend that meeting if you like. Thank you.