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Woodridge Lake Recreational Weed Control Plan



(June 2014 – Curley Leaf Pond Weed @ Sunset Beach)

**Submitted to Woodridge Lake
Property Owners' Association
Board of Directors**

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INTRODUCTION

Plan for Control of Invasive Weeds in Woodridge Lake

No one disputes that Woodridge Lake is the nucleus of our community, a valuable asset that must be preserved and protected for the benefit of all members. The lake is used for a variety of activities by many, and appreciated by everyone.

In 1995 the Woodridge Lake Property Owners' Association (Association) commissioned a comprehensive limnologic investigation of our lake. The study contained the alarming fact that our lake had been infected with an invasive species of vegetation; "high density of milfoil in the southern end of the lake, with definite potential for expansion"¹. Recognizing the importance of addressing this issue, active remediation efforts began in 2001 with the stocking of milfoil weevils, a bug that feeds on the invasive plant.

Fifteen years have passed since that first step was taken to control the expansion of milfoil. In that time many methods have been employed to battle the plant, but we have yet to develop, implement and commit to a multi-year invasive weed management plan that is acceptable to the majority of our membership. The lack of sustained consensus and effort has allowed the invasive weed problem to expand. Invasive plants now infest approximately 30% of the total surface area, which unfortunately includes the clubhouse and satellite beaches, North Cove and the marina.

In February 2015 the Board of Directors asked the Lake and Dam Committee (LDC) to develop and propose competing, multi-year weed control plans. Last July each group made presentations to the association membership. Subsequent to these presentations the Board commissioned a survey of the WLPOA membership to further understand the community views on the issue of weed control. This proposed weed management plan contains aspects derived from the LDC presentations as well as WLPOA membership views as expressed by the survey results.

The goal of the plan is to ensure a healthy lake and to provide for its many recreational uses. We believe that the methodologies proposed herein are acceptable to the membership and can be provided at a reasonable, defined cost. It is not the intent of this plan to eradicate the non-native invasive weeds in our lake, nor is that possible. Development of this plan relied, in part, on the following analysis provided by Ken Wagner, our consultant:

*"With the invertebrate herbivore experiment seemingly over for at least the foreseeable future, the most acceptable option for plant control that could provide desirable conditions would be to expand mechanical harvesting operations. This carries some risk of spreading EWM further, but that risk appears small in light of current EWM distribution. Mechanical harvesting could keep key areas of the lake open for swimming and boating, areas now threatened by both EWM and curlyleaf pondweed, and in some cases by clasping leaf pondweed. This is a maintenance intensive approach, not without considerable operating cost, but one that appears acceptable to the WLPOA membership as a whole and one that could provide relief from dense plant nuisances. It will not eliminate any of the target species, and can be expected to be needed on a regular basis all summer every summer; other lakes that run such programs have dedicated staff and operate the harvester for 30-40 hours per week at costs on the order of \$50,000 per year. Yet goals for lake utility have been achieved by such maintenance programs, and this may be the only option open to the WLPOA without considerable internal division."*²

¹ Ken Wagner, Furgo East

² 2015 Woodridge Lake Summary Report – page 3

Our lake is constantly evolving and subject to the influences of man and nature. As such this multi-year weed control plan must maintain flexibility to adapt to changing conditions during the course of the maintenance effort.

Mechanical Harvesting

The Association owns and operates a mechanical harvester that is capable of clearing both nuisance and invasive aquatic weeds. The harvester operates in the same principle as a lawn mower by cutting and removing the weeds on and near the surface of the lake in targeted areas. The removal of this vegetation, or bio-mass, by our harvester is the most economical way to improve the recreational use of the water for a variety of activities. Any method to eliminate vegetation that resulted in significant bio-mass left to decay on the lake bed may result in reduced water quality and other complications. The mechanical harvester will be used in all areas of the lake on an as needed basis. Cutting and clearing operations will intensify beginning with the emergence of the invasive curly leaf pond weed in May/June and continue throughout the summer. At this point in time we will use a second collection boat to remove any of the “clipped” weeds that are not captured by the harvester. Guidelines for the operation of the harvester are as follows;

- 1) The mechanical harvester will not operate in areas shallower than 5'-0”, with the exception of harvesting within the North Cove and marina as required.
- 2) The mechanical harvesters will be operated between 8:00 AM and 5:00 PM, Monday through Friday and it will return to storage in the clubhouse marina area at the end of each work week.
- 3) In recognizing that the continued and consistent use of the harvester is critical to this plan, the WLPOA staff shall maintain it in excellent working order. If necessary, staff will be increased with trained operators.
- 4) The disposal of the weed bio-mass (“debris”) will be coordinated by our staff to area local farms who have expressed an interest in receiving the material.
- 5) When operating in the north cove of the lake the harvester use will be staged out of Sunset Beach. The weed "debris" will be hauled from this location and the harvester will be moored offshore during midweek clearing.

The Board and the LDC recognize there are sensitive areas in the lake where the use of the harvester could negatively impact the lakes ecology and as such the mechanical harvester will not be used in the following areas:

- The shoreline areas running from the concrete spillway, along the earthen dam to an area to the west of the island to where there are no shorefront homes.
- Specific fish spawning areas as determined in the beginning of May of each year by a member of the LDC. These areas will be identified on a lake map and provided to the WLPOA General Manager.
- Any other areas as determined to be off limits by the WLPOA Board.

Diver Assisted Harvesting (DAH)

DAH is an effective and appropriate technique for removing invasive and nuisance weeds in targeted areas of congestion. This plan utilizes underwater divers to clear weeds and their root systems by hand from the lake bed. With the use of the harvester, we are removing large quantities of bio-mass from the lake to prevent the decay and decomposition that would result in additional problems. After the mechanical harvester removes the major bio-mass, the divers will be deployed in the primary recreational areas of the lake, which are the beaches and the boat launch area in the marina. The

intent is to clear a boundary around the designated areas the first year of the plan and then continue with a less intensive harvesting effort in subsequent years.

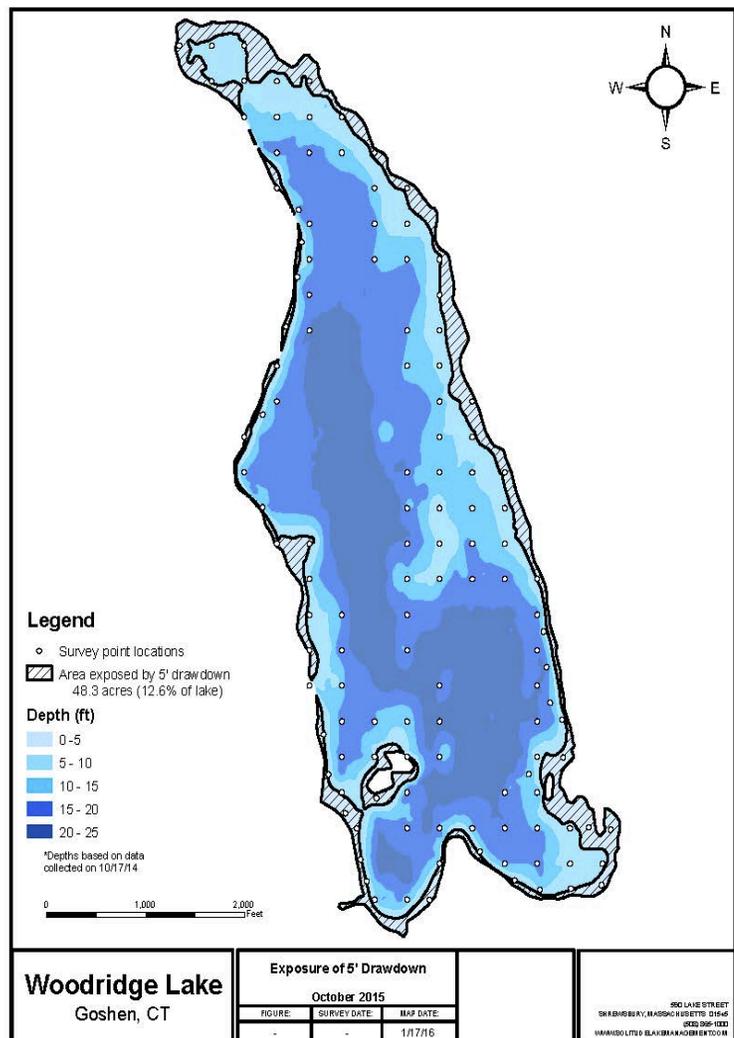
Funds will be allocated each year for a DAH effort. Once the primary recreational areas are clear of nuisance weeds, additional areas will be remediated after mechanical harvesting removes significant bio-mass. An advantage of diver harvesting is that the roots of the invasive plants are removed, which will prolong the intended effect of the effort, however it is expected the invasive will re-establish themselves in short order and therefore this will likely be a continuing maintenance effort.

It is the intent of this plan to hire a diving crew to begin a 2 week “sweep” of the primary recreational areas in middle of June and then follow this up with a second (and possible 3rd) sweep later in the summer as deemed necessary.

Drawdowns

Historical data indicates that the practice of lowering the lake level as a method to remove vegetation varies widely in effectiveness. Sustained weekly freezing temperatures are critical. Much consideration was given to the actual benefits and harmful effects that have been experienced by drawdowns of various depths. It was decided that a drawdown depth of 5.0’ is the appropriate balance between weed management and lake ecology. There is limited risk of a late lake re-fill at this depth, which we believe protects both the ecological and recreational uses of the lake, while providing a purposeful and effective weed management tool. The map on the right shows the areas that will be effected by a 5.0’ drawdown, which touches 98% of the lake shore front and exposes 48 acres of lake bed to a potential freeze.

Limited drawdowns of approximately 5.0’ in depth will continue to be utilized. This depth will help expose the beaches and marina to a winter freeze as well as allowing shore front property owners with access to maintain their erosion control measures.



The drawdowns will start the last week in October and the lake will be lowered approximately 2” per day until the desired depth of 5’ is reached. The upper gate will remain open and the lower gate adjusted to maintain the required minimal outflows. The upper gate will be closed in the last week of January, as weather allows.

The WLPOA will limit the use of drawdowns to alternate years, coinciding with Tyler Lake's drawdown program.

Consideration was given to increasing the depth of the drawdown to greater than 8.0' for a more impactful effect on the invasive weeds and determined to be inappropriate at this time due to ecological impacts and increased risk of a late lake re-fill.

Benthic Barriers

The WLPOA has authorized the use of benthic barriers for shore front property owners to install a weed control barrier adjacent to their docks. There are specific limitations to size and maintenance requirements that must be followed that are further explained in the Environmental Control Committee (ECC) informational packet posted on the Associations web site.

Herbivore Project

The promise of remediation through a natural process using plant-eating insects was not fully realized. There was minimal documented progress toward the 3 year goal of a 70% reduction in milfoil at the time that the WLPOA Board requested research into alternate methods. The decision to use methods that would provide more immediate relief was based, in part, on Paul Lord's June/July 2015 survey. In an email dated July 7, 2015, Mr. Lord stated "The compiled data for June confirms modest progress towards our goal of increasing the populations of milfoil herbivorous insects".

The status of the herbivore program is well stated in the 2015 Woodridge lake Summary report prepared by WRS;

*"The insect herbivore experiment did not achieve the desired level of EWM control due to inability to sufficiently reduce the sunfish population. Greater stocking of walleye has been suggested as necessary, but it should be remembered that dense stands of EWM protect small fish from predation, so having more predators to eat the sunfish to allow larger insect herbivore populations to reduce EWM may only work if there is an initial and separate effort to reduce EWM to allow access by the predator fish to the sunfish. Insect herbivory is worth encouraging, as the fish stocking program also enhances fishing, and additional surveys may be warranted if and when reduced sunfish density appears to have been achieved."*³

Continuing Alternative – Grass Carp

The possible utilization of grass carp as a supplemental weed control method is being pursued with the CT DEEP. These fish, which eat all types of vegetation, have been approved for use in other water bodies in Connecticut. Should Woodridge Lake obtain permission to stock this sterile fish, we intend to proceed stocking them at very conservative levels. Once their value and effect has been observed we can supplement the effort with subsequent additional stocking. By limiting their numbers we hope to determine the population required to be maintained to produce optimum results. There are numerous logistical and lake quality issues that require more analysis and discussion prior to a stocking. A permit application for stocking grass carp was submitted to the CT DEEP and has been denied at the initial review. It is the intent of the Board, with the LDC's assistance, to continue pursuing this desirable, natural alternative. The LDC shall enlist the assistance of professional consultants in furthering this application.

³ 2015 Woodridge Lake Summary Report – page 30

Program Cost

Description	2016	2017	2018
Diver Harvesting	\$ 45,000	\$ 35,000	\$ 30,000
Mechanical Harvesting	\$ 40,000	\$ 40,000	\$ 40,000
Consultants			
ACT (Lake Surveys)	\$ 6,000	\$ 6,000	\$ 6,000
WRS (Ken Wagner)			
Lake Management & Water Quality	\$ 2,000	\$ 8,500	\$ -
Annual Report	\$ -	\$ 4,500	\$ -
Subtotal	\$ 93,000	\$ 94,000	\$ 76,000
Grass Carp Application			
Grass Carp Application	\$ 3,500	\$ 3,500	\$ -
Grass Carp Engineering	\$ 3,500	\$ 3,500	\$ -
Totals	\$ 100,000	\$ 101,000	\$ 76,000

Monitoring of Program

This invasive weed control plan is a three year proposal that is intended to maintain Woodridge Lake's recreational use with a cost-effective sustainable program. The LDC is charged with monitoring its effectiveness, with on-going annual interim reports and a final summary report in 2018 to the Board and membership. The LDC will continue to utilize the consultants to monitor its effectiveness and make ongoing improvements as deemed appropriate.

Aquatic Plant Sampling

Aquatic Control Technologies will continue to monitor the location and density of both natural, invasive and nuisance plants. The Committee will continue with the past practice of completing a June invasive weed reconnaissance survey to define the summer's remediation priorities and will conduct a year end (October) comprehensive survey.

Membership Report

In the Fall, the Board and LDC will provide a report on the progress and effectiveness of the weed control plan.