

Stockbridge Bowl Association



RESTORING STOCKBRIDGE BOWL

Where are we now and where are we going?

The original goal of the 3-D plan, as approved by the relevant Massachusetts agencies, was to pursue a 5.5 foot winter drawdown of the lake. It would have frozen and killed the invasive Eurasian watermilfoil growing out to a depth of 5.5 feet. (Beyond that depth, the milfoil could continue to grow unimpeded to a water depth of 16 feet.)

Those efforts were stymied this winter by the Massachusetts National Heritage Endangered Species Program (NHESP), which is responsible for protecting marginal species of plants and animals. NHESP reversed its earlier approval of both a 5.5 foot drawdown and our proposed dredging plan. Instead, NHESP recommended that Stockbridge use an herbicide, specifically fluridone, to control milfoil. The NHESP informed the SBA that it had concluded, based on an updated study, that a 5.5 foot drawdown would threaten the habitat of the rare and endangered *M. lustrica* snail.

Given NHESP's position, the SBA has shifted its strategy for the lake management plan to include three simultaneous efforts:

1. Application of the NHESP-recommended herbicide to treat and rid the entire lake of the invasive milfoil;
2. Selective hydro raking to manage the density of water lilies and sediment removal in the southwestern part of the lake; and
3. Modified dredging behind Kwuniikwat Island and in the outlet to prevent those areas from becoming a bog

This approach will facilitate the restoration of the lake, benefit the largest population of constituents, and allow the outlet to have adequate water flow. These steps will proceed after filing a Notice of Intent with the Town and the State, as required by Massachusetts regulations.

The Herbicide : The selected herbicide treatment for milfoil is fluridone (sold under many different brand names--Sonar, Avast, Whitecap). A Submersed Aquatic Vegetative Study commissioned by the SBA from Solitude has just been completed, giving us a complete picture of the weeds in the lake. The first priority is to treat the milfoil, which is the most abundant weed. The study showed three other invasives in the lake, but in significantly smaller amounts.

What is Fluridone/Sonar? Fluridone is an organic compound known as an aquatic herbicide. It was registered with the EPA in 1986. See below for more information on its chemical composition.

Where is it currently used? Herbicides, including fluridone, have been safely used for decades in more than 300 Massachusetts lakes and ponds to control milfoil. (This includes Lakes Onota and Pontoosuc in Pittsfield, Richmond Pond, Goose Pond in Lee and Otis Reservoir) plus thousands of lakes in other states.

How does it work? Fluridone breaks down the plant's photosynthesis process. Specifically, fluridone inhibits the formation of carotene, a plant pigment, causing the rapid degradation of chlorophyll by sunlight, preventing the formation of carbohydrates necessary to sustain the plant. It is absorbed from the water by the plant's shoots and from the hydrosol during the growth phase of the plant. A slow dying-off of plants (i.e., 30-90 days) reduces the instantaneous oxygen demand that would have been caused by plants dying and decomposing all at once. The herbicidal effects of fluridone usually begin to appear within 7-10 days.

How do the active ingredients break down? The time it takes for half of the active ingredients to break down is 4 to 97 days depending on the water flow and temperature. The water flow reduces the concentration as does the plants' absorption of the treatment.

What are the post application restrictions? Other than a 30 day restriction on irrigation, there are no restrictions on swimming, drinking, or eating fish from treated lakes. It is prudent practice to close the lake on the day of application (that is, only one day).

How often will the lake require this treatment: We anticipate a whole lake early spring application of fluridone and one or two booster treatments within 45-60 days of the initial application. Expected control is for 1 - 2 growing seasons beyond the year of initial treatment. We anticipate that the lake would receive annual monitoring and smaller scale control options in subsequent years.

Summary:

Based on nearly four decades of experience, NHESP and the EPA have concluded that herbicides, and in particular the recommended herbicide fluridone, are safe for fish, people and non-target plants, and they are specifically safe for *M. lustrica*, the endangered snail.

Research by the SBA included conferring with many Berkshire lake managers to learn their experience with herbicides--no adverse consequences were reported. The State agency responsible for protecting marginal species of plants and animals, the Natural Heritage Endangered Species Program, specifically recommended that we use fluridone to control milfoil. Our independent lake expert, Dr. Ken Wagner, confirms the efficacy and safety of herbicides, including fluridone, to control milfoil.

Although some have questioned how fluridone might interact with chemicals previously used more than three decades ago in the Bowl, there is no evidence that any residue from those chemicals still remains in Stockbridge Bowl, as recently determined by sediment samples taken from over 50 locations around the lake and the outlet. The herbicides widely used nationwide, including fluridone, have been applied in many lakes previously treated by a wide assortment of other herbicides and we are aware of no reported adverse interactions with fluridone.

In 2016, Cornell Cooperative Extension released a paper confirming the safety of fluridone which included citations from the New York State Federation of Lakes, the Washington State Department of Health, the federal EPA, the Department of the Army, and the Weed Science Society of America.

The SBA will continue to work to preserve Stockbridge Bowl for the future by simultaneously pursuing the safe application of herbicide, hydro raking and modified dredging.

Next Steps (permitting and dredging plans) and Timelines

Herbicides- SBA to file Notice of Intent with Town and State with a plan to implement full lake application early in the growing season (approximately April 2019)

Hydro Raking-Confirm with Solitude Lake Management the time frame in coordination with herbicide treatment. Based on the lilies' growing cycle, hydro raking would commence in Fall 2019. Permit already in place..

Dredging - Awaiting revised plan from GZA for hydraulic dredging. To be followed by applicable permitting process and anticipated project to begin Summer/Fall 2020

Additional information:

<http://ccetompkins.org/environment/aquatic-invasives/hydrilla/management-options/herbicides/fluridone/fluridone-faq>