FREQUENTLY ASKED QUESTIONS ABOUT USING WEEVILS TO CONTROL EURASIAN MILFOIL

After several years of study by members of the Eight Point Lake Improvement Board (LIB) and interviews with other lake boards and associations, the LIB has decided to add the stocking of tiny underwater weevils to our efforts to control Eurasian Milfoil. The deployment will entail the use of divers to stock portions of the lake that have Eurasian Milfoil with the weevils while the balance of the milfoil will be treated with traditional herbicides. Each year as new areas are stocked with weevils the area treated with herbicides will decline. The goal of this process is to totally eliminate the use of herbicides and the stocking of weevils after a period of 4 years which would be better for the ecology of the lake and would save thousands of dollars in tax assessments.

We will be working with our long time aquatic management team from LakePro, and with EnviroScience Company. LakePro will manage the overall project and will do the herbicide applications while EnviroScience will handle the weevil stocking. EnviroScience is the industry leader in this technology and has recently opened a field office in Mt. Pleasant.

1. How were weevils discovered? Dr. Sallie Sheldon of Middlebury College in Vermont discovered that this little aquatic beetle was responsible for milfoil control in one of the university ponds. After 10 years of research, a program for the biological control was developed and proved very effective in extensive field trials. Since 1998, EnviroScience has continued large-scale stocking projects and has achieved success in nearly 200 lakes across the United States and Canada. In addition, EnviroScience supports university research at institutions in both the U.S. and Canada.

2. Will we be infesting our lake with an exotic species by introducing the weevils? No. The weevils are native to the United States and Canada. In fact, our biologists find indigenous populations of weevils in most lakes, so there is a high possibility that weevils are already living in our lake. The weevil's original host plant is a native species called Northern water milfoil; however, once Eurasian water milfoil was introduced in the 1940s, weevils switched preference to the exotic species over its original host plant. The scientific name for the weevils is Eurhychiopsis Lecontei.

3. If we already have weevils, why do we need to add more? Native populations are usually too small or too scattered to keep up with the rapidly growing Eurasian milfoil – (the milfoil can grow up to an inch a day). By stocking relatively large numbers of weevils all the same age in close proximity, the adult weevils more easily find each other and the population is able to reproduce faster. By jumpstarting the natural populations in this way the weevils are able to achieve higher numbers more quickly and gain lake-wide control of the milfoil.

4. Will the weevils become a nuisance? Specifically, do they bite or swarm homes in the fall? No, the weevils remain on the plants in the water until some adults go to shore in late fall to hibernate in the winter very close to the shoreline. The weevils not only rely exclusively on milfoil for their food, but also for completion of their entire life stages. Without the plant, the weevil

cannot survive. Thus, there is zero chance of the weevil leaving the shoreline to swarm around homes or live on your pets.

5. How many weevils are needed per acre of milfoil? The goal for all Milfoil Solution® programs is to establish a self-sustaining weevil population that keeps milfoil below nuisance levels. Each ecosystem responds differently, so weevils are not stocked on a per acre basis. Instead, weevils are stocked based on the size of the infestation, and to some extent how rapidly control is desired. Once a self-sustaining population is achieved, management costs drop significantly and only occasional monitoring of the weevil and milfoil levels should be necessary. Long-term monitoring is an important component for any milfoil management program and should be considered when deciding on a management strategy.

6. What is defined as long-term control of milfoil? Milfoil can never be eradicated from a water body once introduced, not even with herbicides or harvesting. However, as the natural predator of milfoil, the weevil will return every spring and spread around the lake in search of more food (milfoil). Visible signs of long-term control is a vast decrease in abundance of milfoil, maintenance of any remaining stems below the lake surface at a non-nuisance level and the increase in native plant species where milfoil once-dominated.

7. How long will it take to achieve lake-wide milfoil control? Many factors play a role in determining the time needed for control, including lake size, quantity and density of the milfoil, and the number of weevils stocked. However, in most stocked lakes, lake-wide control (not eradication) has been achieved in two to five years.

8. What time of the year is best for stocking? Mid-May through early August is best. Stocking weevils by midsummer allows several generations to establish a good healthy population before over wintering on the shoreline. In addition, each generation will cause significant damage to the milfoil, effectively reducing the plant's ability to grow.

9. When the levels of the Eurasian water milfoil weed collapse because of predation by the weevils, what will the weevils eat then? As a predator/prey relationship, the weevil population in the lake will decrease naturally as the quantity of its food (milfoil) decreases. As mentioned, the weevil is also restricted to certain types of milfoils (Eurasian water milfoil, Northern water milfoil and a hybrid of the two) because it relies on the plant for food and completion of its life stages. The weevil will sustain its population in balance with the milfoil. Moreover, the weevil will begin to rebuild its population to control any resurgence of milfoil for years after stocking.

10. Does fish predation affect weevils? No. They are not a preferred food choice and are only incidentally found in the stomachs of bluegills. In 2006 EnviroScience did a large study in New York and an independent consultant did a similar study in 2007 where the gut contents of sunfish in weevil stocking areas were examined. In both studies, very few weevils were found in the guts of these fish, indicating that predation levels are very low. In addition, sunfish are common components of the fish community in virtually all of our project lakes.

11. I heard that weevils don't work in lakes with many seawalls, developed shoreline and with high boat-traffic. Is that true? No. EnviroScience has stocked weevils in a variety of lakes most of which have heavily developed shoreline and high boat traffic and have experienced great success. Weevils are resilient insects that do not need specific types of shoreline to survive the winter. We

will be marking stocking areas with buoys during the first season to minimize prop damage in the immediate area for a few weeks after stocking while the weevils are getting established.

12. Does someone need to come out to visit the lake before the stocking? Yes. EnviroScience and LakePro will conduct an extensive survey of the lake and will use GPS technology to map the locations of milfoil. There will also be post-treatment surveys to monitor the success of the program.

13. Are there any permits necessary for stocking weevils? The permits for stocking weevils are not the same for herbicides. EnviroScience applies and maintains all the permits necessary for each state at no cost to the client.

14. How big are these weevils? They are about the size of a sesame seed.

15. Why are weevils better for the lake than herbicides? First, they are a natural solution rather than using hundreds of pounds of expensive and caustic herbicides each year. Second, the weevils eat the milfoil. When we use herbicides there are many tons of dead plants that lie on the bottom of the lake and rot generating silt and negatively impacting the water quality. Last, in the long term the weevil solution should cost far less. Many lakes that have used this solution no longer put anything in their lake to control the milfoil which saves them thousands of dollars each year.

16. How many weevils will we be putting in the lake? The current plan is to stock 10,000 weevils in 2012 with a total of 65,000 over 4 years.

17. What will this project cost? The incremental annual cost (above what we are currently spending on herbicides) will be approximately $13,000 or $30 - $40 for each waterfront lot for the next 4 years.

18. What will the effect be on my assessment? The LIB has the authority to assess up to $90 per lake front lot. The current assessment of $40 will increase to $75 to fund this project.

19. What if it doesn't work? The progress will be closely monitored with a series of surveys each year. The contracts with LakePro and EnviroScience both give the LIB the right to cancel either relationship completely at the end of each and any season if we are not satisfied with the progress. In that unlikely event, we would revert back to using herbicides unless another alternative was available.

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Additional information can be found at www.enviroscienceinc.com/category/milfoil-solution/