



## Lake & Pond Resource LLC

"Providing Professional Resources for Management of Your Lake or Pond"

### Waterford Waterway – Lake Management Plan Addendum for Whole-Lake AIS Management

Tichigan Lake is a natural waterbody that was connected to rest of the Waterford Waterway after installation of the dam. Though it is connected, management for AIS, namely hybrid Eurasian water-milfoil (E/HWM), can take on a targeted approach for Tichigan Lake only. The size of the infestation tends to dictate the type of the treatment. Small treatment areas or beds less than 5 acres are many times consider spot treatments and usually targeted with fast acting ingredients. When there are multiple "spot" treatment areas within a lake, it most often makes more sense from economic and efficacy standpoints to target the "whole" lake for treatment.

This typically entails calculating the entire volume of water within the lake, in acre/feet, and applying a liquid herbicide, such as 2,4-D, at a low dose, lake-wide rate. Current WDNR and Army Corps of Engineer research has shown that herbicide applied to water diffuses off-site due to a variety of environmental and physical conditions including wind, waves, water depth, and treatment area relative to lake volume. Due to these actions, as treatment areas decrease, herbicide retention time needed for impact is lessened due to diffusion off-site because of the small amount of area treated and herbicide applied relative to the entire water volume. To combat this, it is recommended to apply at higher rates when compared to a whole-lake rate or with a combination of active ingredients in hopes to extend contact time.

**Goal:** Manage AIS to improve recreation, increase use opportunities, and maintain native plants by reducing AIS abundance and frequency within the littoral zone. If active AIS management is pursued, the goal should be to maintain the presence of the target species over a 3-5 year period at the following levels:

- 1 year after control: Less than 5% frequency of occurrence
- 2-3 years after control: Less than 15% frequency of occurrence
- 4-5 years after control: Less than 25% frequency of occurrence

The following levels of AIS should be used to trigger active management of the target species, primarily E/HWM:

- Frequency of occurrence over 20% and an average rake density over 1.5.

Or

- Frequency of occurrence over 30% with any average rake density.

**Primary Action:** Continue monitoring for and mapping of AIS.

**Primary Action:** If populations of AIS exceed the above listed triggers pursue active management.

**Possible AIS control Action:** Targeted, whole-lake based control efforts. This may include a variety of active ingredients and be dosed at whole-lake volume rates.

- Application should be completed to time application to early/mid spring when plants are young
- Application may be completed using a variety of active ingredients and rates. Some recommended active ingredients and application rates are as follows:



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- Active ingredient 2,4-D at 0.25-0.40 PPM and active ingredient endothall at 0.6-0.80 PPM at whole-lake volume rates. Due to past used of 2,4-D within Tichigan Lake at whole-lake rates, the E/HWM present is likely tolerant to 2,4-D. Use of this method is likely to see shorter-lasting results than options below
- Active ingredient fluridone at 8-12 PPB whole-lake volume rates with follow-up “bump” applications to maintain 6 PPB in water for 120+ days. Target rates may be reduced by product uptake, loss through water flow out of the lake, and loss through natural degradation. Residual sampling of in-water concentrations should be completed approximately every 21 days after the initial application to properly dose and time “bump” applications.
- Active ingredient florpyrauxifen-benzyl dosed at 5 - 11 PPB within areas of direct application only. Due to the fast-acting nature of florpyrauxifen-benzyl, applications do not need to take into account the entire lake's volume for dosing.
- A whole-lake point intercept survey should be completed 1-year prior to assess conditions and verify they exceed management triggers above. In addition, the survey should be repeated 1-year post control activities to gauge results.

**Possible AIS control Action:** Small-scale EWM control to follow-up whole-lake efforts and maintain low populations of EWM may be a necessary step to ensure the health of the lake. This may include a variety approaches and control methods based on the density and size of small-scale EWM control areas.

- EWM areas less than 0.25 acres
  - Monitoring only through annual surveys
  - Hand pulling by shoreline residents
  - Diver Assisted Suction Harvesting (DASH) for small, denser stands
- EWM areas 0.25 – 0.50 acres
  - Monitoring only through annual surveys
  - Hand pulling by shoreline residents
  - DASH for stands up to moderate density
  - Fast-acting, selective chemical control for stands of moderate density or more.
    - The active ingredients florpyrauxifen-benzyl, diquat, endothall, and/or flumioxazin may be used at appropriate label rates
- EWM areas greater than 0.5 acres
  - Fast-acting, selective chemical control for stands of any density
    - The active ingredients florpyrauxifen-benzyl, diquat, endothall, and/or flumioxazin may be used at appropriate label rates