Introduction

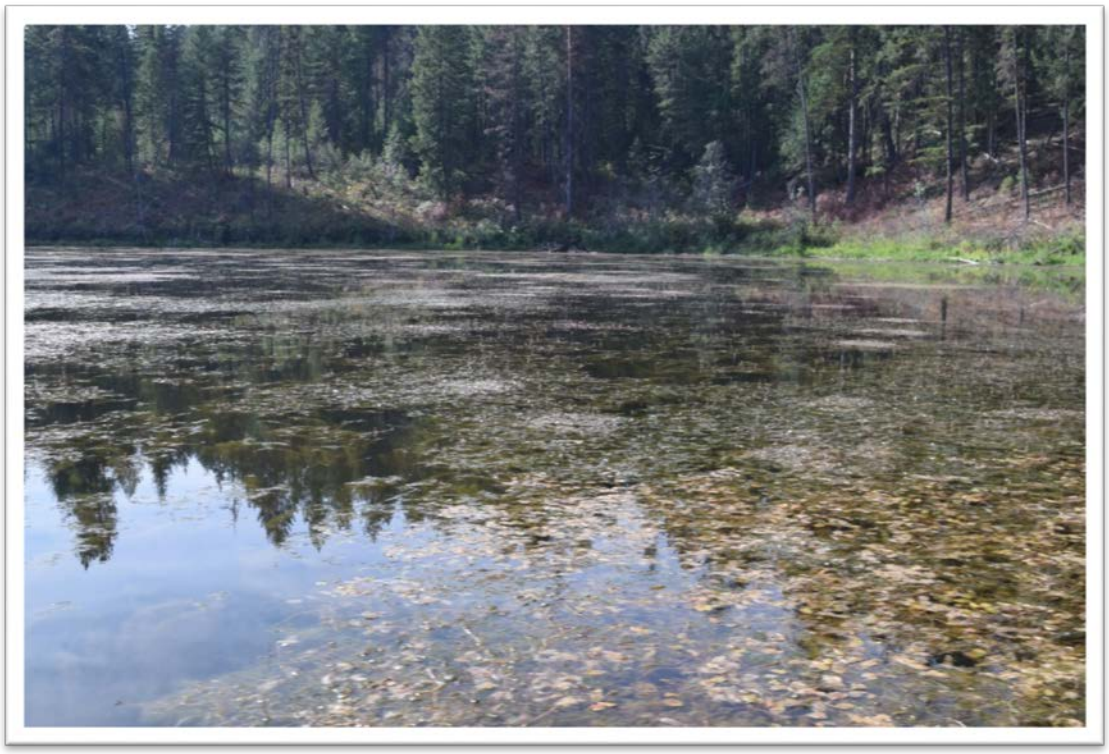
Aquatechnex has been contracted by the City of Lake Stevens for the purpose of controlling the noxious invasive aquatic weed Eurasian Milfoil. During the summer of 2018, our team mapped locations of existing Eurasian Milfoil sites in the lake and recommended a treatment with a systemic herbicide that is target specific for this noxious weed. Renovate OTF granular was applied to these locations in the lake in July of this year.

In late August, the City contacted us on Monday August 27th and indicated that the Eurasian Milfoil Treatment had not been successful. We scheduled an inspection/survey of the lake with Public Works Staff at once and that was performed on Wednesday August 29th.

Results of Survey

Aquatechnex biologists and City Staff met at the City Boat Launch Wednesday August 29th and began an inspection of sites that were the subject of complaints.

Eurasian Milfoil was not detected at any of the locations where citizens were complaining about problem weed growth.



Example of untreated Eurasian Milfoil, picture taken at Little Pend Oreille National Wildlife Refuge, McDowell Lake, August 30th, one day after inspection at Lake Stevens.

Close up of Eurasian Milfoil plants in McDowell Lake, picture taken August 30, 2018.

While there was no Eurasian Milfoil observed in the shoreline areas on Lake Stevens where complaints were logged, there was a significant amount of native aquatic plant growth present in many locations.

The dominant species present were:

Flat Stemmed Pondweed https://gobotany.newenglandwild.org/species/potamogeton/zosteriformis/

Leafy Pondweed https://gobotany.newenglandwild.org/species/potamogeton/foliosus/

Grassy Pondweed https://gobotany.newenglandwild.org/species/potamogeton/gramineus/

Floating Leaf Pondweed https://gobotany.newenglandwild.org/species/potamogeton/natans/

Big Leaf Pondweed https://gobotany.newenglandwild.org/species/potamogeton/amplifolius/

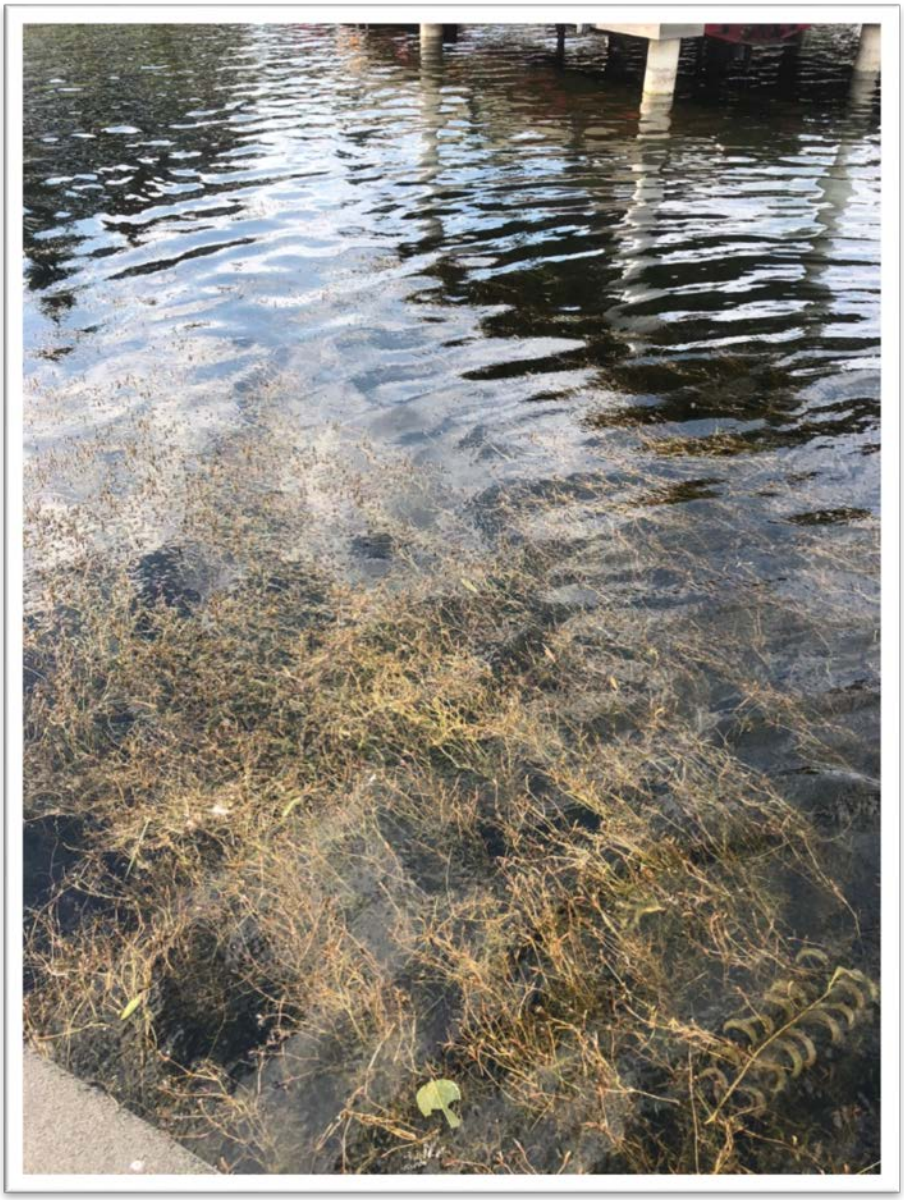
Long Leaf Pondweed https://gobotany.newenglandwild.org/species/potamogeton/nodosus/

Small Pondweed https://gobotany.newenglandwild.org/species/potamogeton/pusillus/

Curly Leaf Pondweed https://gobotany.newenglandwild.org/species/potamogeton/crispus/

Najas sp. https://plants.usda.gov/core/profile?symbol=NAGU

These species are native to the region and considered by the Washington Department of Ecology to be beneficial habitat where conditions are such that other beneficial uses are not impacted.



Example of native pondweed species impacting beneficial uses on Lake Stevens shoreline August 30, 2018. No Eurasian Milfoil present.

Example of native pondweed species in Lake Stevens August 30, 2018

There were some very small patches of Eurasian Milfoil observed in the large treatment area on the northwest bay of the lake, these plants were however well below the water surface and showed signs of herbicide injury.

Recommendations for 2018

It should be recognized that the primary objective of our contract to this point has been to manage the noxious aquatic weed Eurasian Milfoil in Lake Stevens. With that focus, we have used aquatic herbicides that are selective for Eurasian Milfoil. Renovate OTF granular has been the primary product applied for Eurasian Milfoil up to this point. This herbicide is systemic and will translocate within the plant killing both the vegetation in the water column and the root systems. Our inspection of treatment areas showed that the July 2018 treatment had very good results in terms of targeting this noxious invasive weed.

Renovate OTF herbicide has a mode of action that is effective on plants in the dicot or broadleaf family of plants. Eurasian Milfoil is one of the very few species that infest lakes that is in the dicot family. As such, it is an ideal tool for targeting and controlling this invasive species while protecting beneficial native vegetation.

The species that are growing in and around the docks in the lake currently are monocots, species in the grass family. In addition to them being native species (non-invasive and not listed on state noxious weed list) they do not respond to the mode of action of Renovate OTF herbicide because they are not dicots.

The Department of Ecology permit that governs the use of aquatic herbicides does allow for the control of native aquatic plants where they are interfering with beneficial uses. The permit is a bit more restrictive in how much vegetation can be removed because of the habitat value of these species.

At this point there is a desire to target and restore beneficial uses along the impacted shorelines. We can perform a treatment with Diquat, a broad spectrum contact herbicide to provide relief from these species. We have sent notification to the shoreline residents that would allow us to perform a treatment early in the week of September 10th.

So to summarize, the Eurasian Milfoil work we have been under contract to perform has worked well. There are emerging problems with native aquatic plants impacting shoreline residents. The City desires to provide relief from this problem at this point. A public information campaign should be launched to let the community know the difference between these species, the regulations that guide control programs and what will be done. We should plan for 2019 with this in mind.

Recommendations for 2019

The US EPA registered ProceallaCOR herbicide for use in the waters of the US this past February and this new herbicide technology is probably the most effective for Eurasian Milfoil that has been developed to date. The Washington Department of Ecology is in the process of amending their permit to allow this product to be used in our state this fall, and it should be ready for use in 2019. Under many circumstances the manufacturer of ProceallaCOR is warrantying control for three seasons. This product should be considered in 2019.

It should also be understood that there has been a species shift in many areas of the lake that had been dominated by Eurasian Milfoil in prior years. Native pondweeds and Najas species are now present at levels that the public considers to be problematic.

A information campaign should take place so the public understands this. The City should decide if treatment of problem native species is something to pursue through the Eurasian Milfoil treatment program. If so we should add a survey and treatment in late June/Early July to target this problem growth. It should also be understood that the Ecology permit is a bit more restrictive in terms of amounts of native vegetation that can be treated in a lake, so the focus should be inside dock lines etc.

Please review this and let me know if you have questions. Thank you for your consideration.