Minnesota Aquatic Invasive Species Research Center

Hybrid Watermilfoil

How genetic analyses can inform management and support research

What is hybrid watermilfoil?

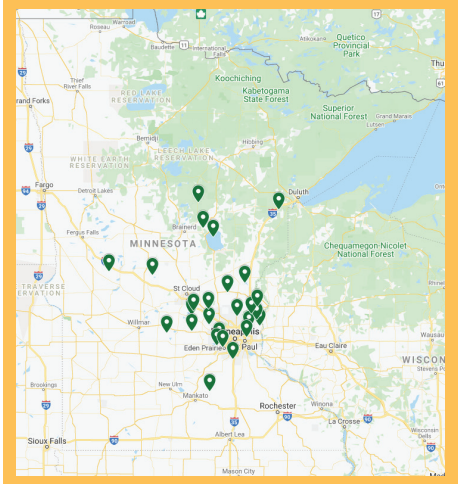
Hybrid watermilfoil (*Myriophyllum spicatum x Myriophyllum sibiricum*) is a hybrid of invasive Eurasian watermilfoil (*Myriophyllum spicatum*) and native, northern watermilfoil (*Myriophyllum sibiricum*). Though similar in appearance to Eurasian watermifoil, in terms of impacts, invasiveness, and difficulty of control, hybrid watermilfoil may be an even greater threat. Researchers at the Minnesota Aquatic Invasive Species Research Center (MAISRC) have found strong evidence of hybrid vigor, the term for when hybrid offspring exhibit more vigorous growth, increased fertility, and decreased sensitivity to stressors than its parents. The scientists documented greater surface matting, earlier and more abundant flower production, and greater tolerance to chemical control in hybrid milfoil compared to Eurasian watermilfoil.

High genetic variability can impact treatment efficacy

An added complexity to managing hybrid milfoil is its high genetic diversity, with some hybrid genotypes being less responsive to the herbicides and application rates used to treat invasive watermilfoils. Herbicide resistant strains of hybrid watermilfoil have already been found in Michigan and evolution of resistant strains locally is a serious concern. In Minnesota, researchers have found 66 different hybrid milfoil genotypes so far. Lakes may contain a single or multiple genotypes. And, though many lakes have unique genotypes of hybrid milfoil, some genotypes are found across multiple lakes. Research to assess how different genotypes respond to chemical treatments is on-going and depends on information-sharing from cooperators. In particular, knowledge sharing about treatment outcomes in lakes with common hybrid genotypes can help us advance research-based management recommendations.

Genotyping hybrid milfoil from your lake can help you make more informed management decisions and support research advances in invasive milfoils

Knowing how many, and which, genotypes of milfoil you have in your lake can assist with management planning and evaluation (e.g., interpreting results of herbicide treatments). Collecting milfoil samples and sending them to a lab for genetic analysis is the first step towards understanding the infestation at your lake and may be helpful in planning which herbicide to use. This analysis costs about $50 per sample and is currently done by MAISRC Co-investigator Dr. Ryan Thum at Montana State University. Staff from the Newman Lab at the University of Minnesota can provide technical support and assist with sample processing and shipment logistics to the Thum lab.



Learn about hybrid watermilfoil, including its known distribution in MN: **www.MAISRC.umn.edu/hybrid-distribution**

For more information, contact:

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Environment and Natural Resources Trust Fund

Learn more about invasive milfoil research at MAISRC:
www.MAISRC.umn.edu/eurasianwatermilfoil-research