

Assessing watermilfoil invasion effects on native macrophyte communities in North American lakes using a novel approach for macrophyte sampling



Aquatic invasive species are among the greatest threats to freshwater biodiversity. The aim of this study was to understand the effects of two invasive watermilfoil species (*Myriophyllum heterophyllum* Michx. and *Myriophyllum spicatum* L.) on native macrophyte communities and to assess community response to a range of invasion intensities as well as examine the influence of canopy types. We hypothesized that some communities would be more sensitive to invasion, and that some canopy species would facilitate watermilfoil presence. We used a novel approach to give better representation of the 3D aspect of the community which involved employing a modified quadrat approach to sample at two Connecticut lakes. Results show that watermilfoil invasion has a significant negative effect on native species richness. Floating canopy does not vary with invasion intensity, but submerged canopy does. One species, (*Utricularia purpurea* Walter), was associated with high native species richness and rarely occurred with invasive species. The results identify potential species that are disproportionately threatened by invasive species, as well as identifying

invasion indicator species. The examination of canopy effects is uncommon in aquatic invasion ecology, and this study suggests that this aspect may have significant effects on resilience to invasion and overall community dynamics.

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