

Aquatic macrophyte community shifts in five shallow lakes in Sibley County, Minnesota

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ABSTRACT

The aquatic macrophyte community is one of the driving factors that affects the structure and function of freshwater systems. The shallow lakes of Sibley County, Minnesota, have been understudied and the purpose of this study was to describe aquatic macrophyte communities in these lakes and document seasonal changes in community structure in the presence of aquatic invasive plants. Entire lake surveys were conducted on all five lakes using the point-intercept method in both the early growing season and late growing season in 2019. The dominant native macrophyte in Sibley County lakes was sago pondweed [*Stuckenia pectinata* (L.) Böerner], with one lake (Schilling Lake) being dominated by curlyleaf pondweed (*Potamogeton crispus* L.), at least during the early season. Significant shifts in the macrophyte community were found in nearly every lake, and the shifts differed depending on the species composition and the presence or absence of aquatic invasive species. Schilling Lake had the greatest change in mean species richness from 0.69 in the early season to 1.11 in the late season. The presence of curlyleaf pondweed in Schilling Lake was a primary driver for the community shift from early to late season. In Schilling Lake, curlyleaf pondweed had a frequency of 44.4% in the early season, which decreased to 13.9% in the late season. Conversely, sago pondweed had a frequency of 6.3% in the early season, which increased to 63.9% in the late season. Overall, all lakes in this study were relatively species-poor compared to other large lakes in southern Minnesota.

Key words: life history, phenology, point intercept survey, *Potamogeton crispus*, submersed aquatic vegetation, *Stuckenia pectinata*.

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