

A COMPARISON OF TWO TIMED SEARCH METHODS FOR COLLECTING FRESHWATER MUSSELS IN GREAT LAKES COASTAL WETLANDS

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ABSTRACT

Given the catastrophic losses of freshwater mussel diversity across the Laurentian Great Lakes, the identification and protection of remnant assemblages are priority conservation actions. In contrast to riverine mussels, there has been little evaluation of different sampling gear and strategies to support the design of coastal wetland inventory or monitoring programs. We compared timed-search (qualitative) collections from 21 Lake Ontario coastal wetlands using clam rake and visual/tactile methods. Live mussels were collected with visual/tactile searches from 90% of wetlands sampled, and from 71% with the clam-rake. A total of 756 live mussels (representing nine species) were collected. Collections included three mussel species at risk: *Ligumia nasuta*, *Quadrula quadrula*, and *Toxolasma parvum*. Compared to clam-raking, visual/tactile searches collected more than twice as many live individuals and fresh shells, a broader range of sizes and significantly more species (and at a faster rate). Estimates of live mussel abundance and species number associated with each method were imprecise ($CV > 0.35$). The concordance of variation in mussel assemblage structure among wetlands (as described by each method) was not consistent or in strong agreement. Based on our findings, we recommend visual/tactile searches for future coastal wetland sampling efforts.

KEY WORDS Unionid, Dreissenids, Clam rake, Visual/tactile, Wetlands, Monitoring