Effects of predation and food on the population dynamics of the raptorial cladoceran Leptodora kindtii

Vijverberg, Jacobus, Hans Peter Koelewijn, Wim L. T. van Densen

ABSTRACT: We assessed the trophic status of *Leptodora kindtii* in the food web of a shallow, eutrophic lake in which 0+ age group fish were the main predators. The mean biomass of 0+ fish during three successive years varied from 0.39 g dry wt m^{-2} in the first year to 0.05 g dry wt m^{-2}2 in the second year to 2.49 g dry wt m^{-2} in the third year. In the years with high fish biomass, densities of small-bodied (<1-mm) cladocerans (e.g., *Bosmina* spp., *Chydorus sphaericus*) were relatively high, whereas in the year with low fish biomass, densities of large-bodied *Daphnia galeata* were high, and densities of small-bodied cladocerans were lower. During the three study years, the predation pressure of juvenile fish and biomass and production of *Leptodora* were negatively correlated. Despite the low 0+ fish biomass in the second year, the *Leptodora* population densities were high only during the first part of the growing season. The elevated *Leptodora* mortality in July coincided with the lowest observed densities of smallbodied cladocerans, preferred prey items of *Leptodora*, and with an abundance of large-bodied *Daphnia*, the preferred food for 0+ fish. We conclude that the population dynamics of *Leptodora* during the growing season is predominantly regulated by direct predation effects.

Article Links

Download Full-text PDF

Return to Table of Contents

Please Note