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The importance of *Daphnia* in determining mortality rates of protozoans and rotifers in lakes

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Abstract

We measured mortality of protozoans and rotifers in three lakes of contrasting zooplankton communities. We also compared protozoan growth in an experiment which controlled *Daphnia* biomass but varied body size. Mortality was determined as the difference between growth rates over 24 h in containers with and without zooplankton. Growth rates of heterotrophic flagellates and ciliates were high in the presence of a small assemblage of zooplankton and near zero or negative when either *Daphnia pulex* or *Daphnia galeata* was the dominant zooplankton species. Growth rates of rotifers were also usually lower in the presence of *Daphnia*. Mortality rates of heterotrophic flagellates, ciliates, and rotifers were positively related to the mean body size of *Daphnia* in comparisons among experiments. In an experiment with equal biomasses but different sizes of *D. pulex*, flagellate growth rates were lower in treatments with large *Daphnia*. High mortality in zooplankton communities dominated by larger species of *Daphnia* appears to be important in determining differences in the abundances of protozoans and rotifers among lakes.