

Biological Control of Eutrophication in Lakes

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Eutrophication of lakes, expressed as excess growth of planktonic algae, is caused by excessive inputs of phosphorus and can be mitigated by many mechanisms, including grazing. However, it has been hypothesized that grazing becomes ineffective with even modest increases in P input. We tested this contention directly by fertilizing lakes that had contrasting food webs. A lake with zooplanktivorous fishes and small grazers accumulated algal biomass as predicted by Vollenweider's model of eutrophication. A lake with piscivorous fishes and large grazers accumulated about half the algal biomass predicted by the model. However, blue-green algae bloomed in both lakes. Grazing may effectively control total algal biomass over a relatively wide range of P input rates, but may not suppress irruptions of nuisance algae.