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Relative importance of nutrient availability and food chain for size and community composition in phytoplankton

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In a field experiment, algal community structure and size distribution were assessed at different grazing pressure and nutrient supply. Our aim was to study the interactive effects of food web composition and nutrients on algal community structure. High grazing reduced algal biomass and cell numbers, but had no consistent effect on algal size, except at extremely high *Daphnia* abundance, which promoted large, filamentous, algal forms. At high fish predation, the grazer assemblage altered towards small, less efficient grazers (copepods, *Bosmina*), but no trend in algal size was recorded. In enclosures with low grazing and low nutrient supply, algal cell concentration, but not chlorophyll, was as high as in corresponding enclosures with nutrient supply, indicating the importance of food web structure. Algal size was reduced by nutrient supply, which promoted dominance by small, fast growing, algal forms.

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