

The influence of fish farming intensification on taxonomic richness and biomass density of macrophyte-dwelling invertebrates in French fishponds



Fishponds are man-made ecosystems where fish farming may strongly interfere with biodiversity. Intensified practices could be suspected to have a negative impact on animal and plant communities. We investigated the hypothesis that, in French fishponds, taxonomic richness and biomass density of macrophyte-dwelling macro-invertebrates could be influenced by fish stock density and pond fertilization. With a sample of 95 water bodies from three of the most important fishpond regions, studied in 2000, 2001 or 2002, we compared a series of models in which macrophyte cover (in three classes), emergent shore vegetation (in % of pond area) and invertebrate biomass in pond sediment were also considered. Among explanatory variables, macrophyte and helophyte abundance were included in the best models explaining variation in invertebrate taxonomic richness and in biomass density. Taxonomic richness was lower when abundance of both macrophytes and emergent shore vegetation was low (<10% and <7.5%, respectively). Biomass density was higher when macrophyte cover was $\geq 10\%$ provided that emergent vegetation was abundant ($\geq 7.5\%$). We conclude that fish farming intensification in French fishponds may affect aquatic invertebrate communities, mainly

through its impact on the development of aquatic vegetation.

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