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The Role of Macrobiota in Aquatic Nutrient Cycling

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Message from the Guest Editors

Macrofauna is an important driver of aquatic nutrient cycling. Fish and birds supply and translocate nutrients via direct (excretion) and indirect pathways (bioturbation, sediment resuspension, predation). Consumer-mediated recycling may support a large fraction of the nutrients requirements by primary producers. Fish and birds also alter the relative availability and ecological stoichiometry of nutrients (N, Si and P), with cascade effects on species composition and ecosystem functioning. Macrophytes retain nutrients in biomass via uptake processes and favor their burial and long term retention within sediments. Rooted macrophytes produce indirect effects on pore water nutrients, by stimulating via radial oxygen loss biogeochemical processes (e.g., nitrification-denitrification and precipitation). These effects vary along environmental gradients, such as nutrient and organic matter availability, ecosystem size. This Special Issue targets contributions focusing on the effects of macrofauna, on nutrient cycling with the goal of providing a more comprehensive understanding of their importance among diverse aquatic systems.

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