**Zooplankton module indicates top-down effects on eutrophication: Implications for lake restoration by biomanipulation**

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Eutrophication seriously threatens the ecological quality and biodiversity of running waters. Top-down control of the foodweb by manipulating fish biomass successfully applied in lakes, offers a promising approach to mitigating the effects of eutrophication in small water ecosystems. Meanwhile, systematic analyses estimating effects of zooplankton across a wide range of studies are absent, limiting the potential use of top-down control measures in lake restoration. The present study was therefore to evaluate such impact experimentally using mesocosms and process-based ecological model in Sutla River, Croatia. To manipulate the biomass of fish more casually, we build a one-dimensional lake ecology model WET (new name comes from PCLake) using the datasets of mesocosm experiment, which quantifies the dynamic effects on zooplankton. The fish in the model are all planktivorous fish. The modeled results showed that the decrease of fish increased the total biomass of zooplankton, then decreasing the annual average concentration of chlorophyll a, so it is feasible to reduce phytoplankton by removing fish. However, for different zooplankton species, decreased fish biomass positively affected cladocerans, enabling a notable decrease of cladocerans abundances, inversely rotifer and copepod. Hence, the effects of zooplankton should be taken into account in management and restoration as three species of zooplankton respond differently to fish changing, which is informative in top-down control measures in small water ecosystems.