

Size-selective microzooplankton grazing on the phytoplankton in the Curonian Lagoon (SE Baltic Sea)

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Abstract

In this study we applied dilution technique and phytoplankton size-fractionation to experimentally evaluate the differences in microzooplankton and phytoplankton community structures, grazing and growth rates between the freshwater (Nida) and brackish water (Smiltyne) parts of the Curonian Lagoon (SE Baltic Sea). We found that the microzooplankton community was able to remove up to 78% of nanophytoplankton (2–20 µm) standing stock and 130% of the total daily primary production in the brackish waters of the lagoon, and up to 83% of standing stock and 76% of the primary production of picophytoplankton (0.2–2 µm) in the freshwater part. The observed differences were attributed to the changes in ciliate community size and trophic structure, with larger nano-filterers (30–60 µm) dominating the brackish water assemblages and pico-nano filterers (<20 µm and 20–30 µm) prevailing in the freshwater part of the lagoon.

Keywords: Ciliates, pico- and nanophytoplankton, dilution experiments, phytoplankton pigments, predator-prey interactions.