

Abstract

Eutrophication belongs among the most serious factors threatening freshwater ecosystems. Eutrophication is a result of excessive nutrient loading which comes mostly from both the point-source and diffuse pollution and agriculture, increased sediment loading from soil erosion, but also due to a presence of various types of impoundments, which, particularly in some areas, represent a significant part of nutrient supply. Although the effect of eutrophication on freshwater fish communities has been thoroughly studied in standing waters, very little attention has been paid to running water ecosystems. Among the processes with the most pronounced impacts on fish communities are increased phytoplankton growth and loss of macrophytes, low oxygen levels or anoxia, occurrence of toxic forms of nitrite and ammonia and elevated turbidity and subsequent light reduction. Whilst the diversity of fish communities is not usually affected, changes in structure of fish communities and decreased ecological quality has been detected with the increasing level of eutrophication. The most sensitive fishes are salmonids as they have high oxygen demands and are very sensitive to toxic forms of nitrogen. Moreover they are visual predators highly affected by the increased turbidity of water environment. Percids are mainly threatened by the loss of macrophytes which they use as a refuge during foraging, shelter from predators, and also a spawning substrate. Species with the ability to feed at low light intensities, utilize detritus and phytoplankton as a food source and tolerant to low oxygen concentrations prevail in eutrophic ecosystems. These include mainly cyprinids (bream, crucian carp) and ruffe. Among predators that are well adapted to life in eutrophic ecosystem belong pike, zander or catfish. Their occurrence further depends on the habitat structure and the level of eutrophication.