Abstract

In anthropogenically influenced rivers, fishes with lower environmental requirements are supposed to have an advantage over more specialised fish species. Such features include, for example, limited migration and habitat requirements, unspecialised breeding requirements or use of food resources. Guilds of sensitive species that share life history strategies that are highly adapted to specific riverine conditions have declined far more than generalist species that can survive in a wide range of habitats that are not characteristic of natural river ecosystems. In European lowland rivers, several species belong to eurytopic ecological group of fish which are often omnivorous feeders and have lower habitat requirements. It is suggested that these species are favoured by feeding omnivory in contrast to more specialised, rheophilic fishes among whose more specialised feeding can be found. The aim of our study was to evaluate the trophic niche use and interactions among eurytopic and rheophilic fish species. We hypothesized that eurytopic, omnivorous fish will exhibit a broader isotopic niche area (SEAc, TA) and higher trophic position (TP) then specialized rheophilic fish species. Isotopic niche area of species, between species niche overlap and trophic position of species in community were evaluated using stable isotopes of ^{15}N and ^{13}C and Stable Isotope Bayesian Ellipses in R (SIBER). Several community metrics were also evaluated. The results of our study showed that the isotopic niches od species overlaps suggesting sharing of a trophic niche space. Whereas we found larger isotopic niche (SEAc) of eurytophic species as predicted (Adj.p < 0.05), rheophilic fish species has higher trophic positions (Adj. p < 0.05) than eurytopic ones, indicating the ability of rheophilic species to utilize food resources enabling to to maintain their energetic requirements in the presence of eurytopic species. Whilst encouragingly this may imply a degree of trophic plasticity in this species, it also highlights the needs to reinforce the efforts for natural river habitat restorations.

Key words: trophic structure, stable isotopes, freshwater fish, TA, SEAc, $\delta^{15}N$, $\delta^{13}C$