

The width of diet specializations in a trophic generalist, European perch as a model example



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Introduction

Generalist-specialist concept is widely known phenomenon in animal kingdom. However, generalist species can also consist of specialized individuals. This kind of phenomenon was specifically studied on European perch (*Perca fluviatilis*) in post-mining lakes Milada and Most. The width of the trophic spectrum was also investigated there.

Methods and Materials

Total number of 2,515 individuals were examined by gut content analysis using long-term data set. Analysis of specialization was performed using three main diet components: zooplankton, macroinvertebrates and fishes.

Results

- In both lakes all three foraging strategies (zooplanktivory, invertivory and piscivory) were observed there confirming the assumptions of utilizing a wide trophic spectrum (Fig. 1).
- Regarding piscivory, perch showed a high degree of cannibalism in both lakes (Fig. 2).
- Individuals specialized to a great extent only on one type of foraging behaviour (zooplanktivory, invertivory or piscivory) with a small proportion of individuals using more foraging strategies at once (Fig. 3).

Conclusions

- Perch utilized a wide range of trophic spectrum from zooplankton to fish.
- A high percent of individuals used only one foraging strategy (zooplanktivory, invertivory or piscivory).
- Using gut content analysis European perch showed high level of individual specialization in studied lakes Milada and Most.

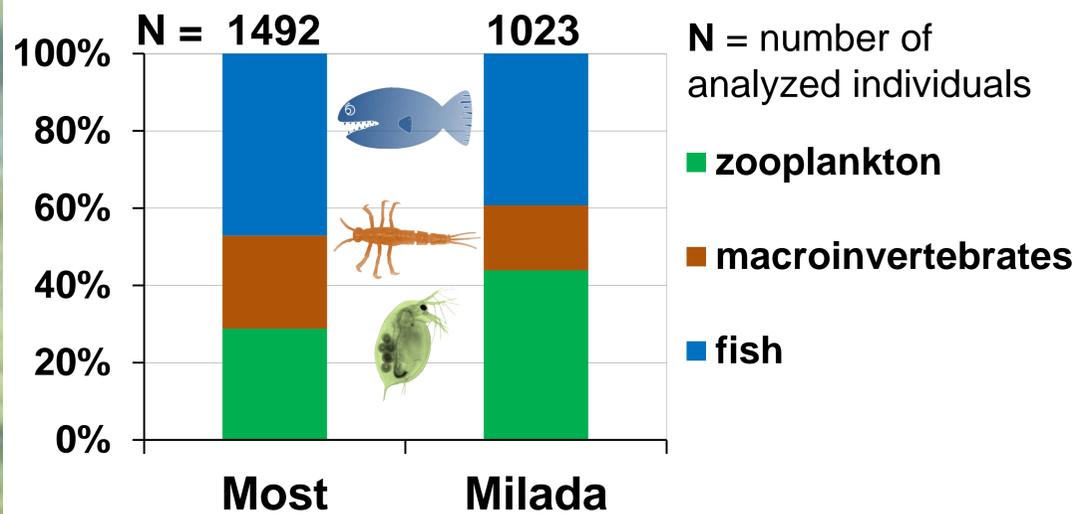


Fig. 1. Average contribution of individual categories in perch diet (blue: fishes, brown: macroinvertebrates, green: zooplankton).

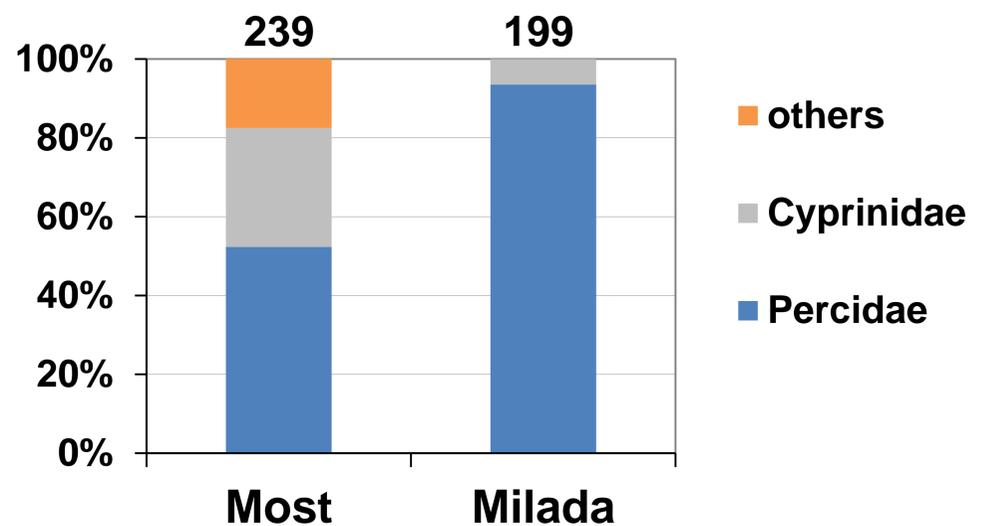


Fig. 2. Dietary preferences of perch for consumption of percids, cyprinids and other species.

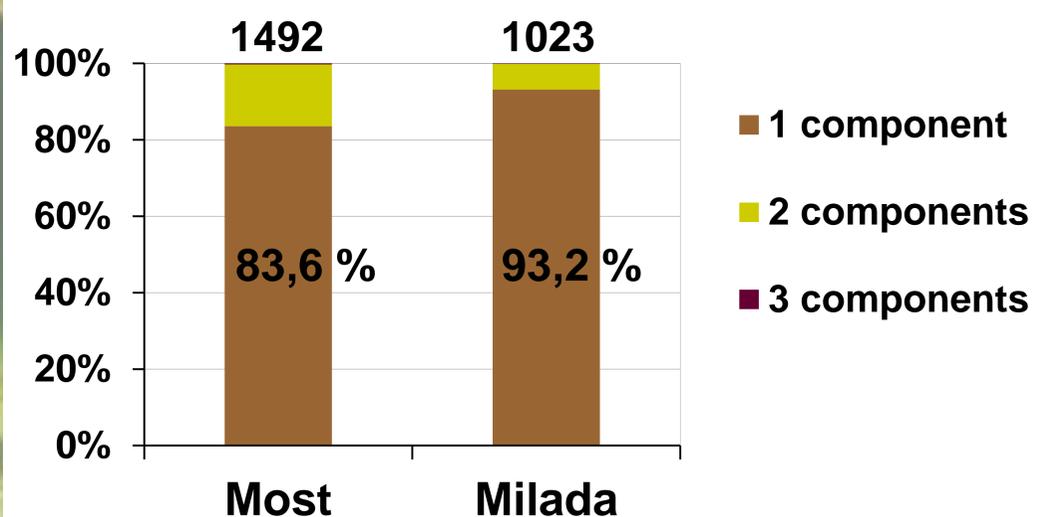


Fig. 3. Relative number of individuals utilizing 1, 2 or 3 categories in their diet.

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