



# LARVAL AND JUVENILE PERCH FEEDING IN SOME ESTONIAN AND LATVIAN STUDY LAKES

Katrit Karus<sup>1,2</sup>, Helen Agasild<sup>2</sup>, Tõnu Feldmann<sup>2</sup>, Arvo Tuvikene<sup>2</sup>, Madara Medne-Peipere<sup>1</sup>, Matiss Žagars<sup>1</sup>, Linda Puncule<sup>1,2</sup>, Priit Zingel<sup>2</sup>

<sup>1</sup>Institute for Environmental Solutions: „Lidlauks”, Priekuļu parish, Priekuļu county, LV-4126

<sup>2</sup>Estonian University of Life Sciences, Institute of Agricultural and Environmental Sciences, Chair of Hydrobiology and Fishery, Centre for Limnology: Kreutzwaldi 5-D119, Tartu 51006

E-mail: katrit.karus@emu.ee

## Study goal:

To study larval perch feeding in littoral and open-water sites of the lakes during their first year of feeding – in spring, summer and autumn, 2019.



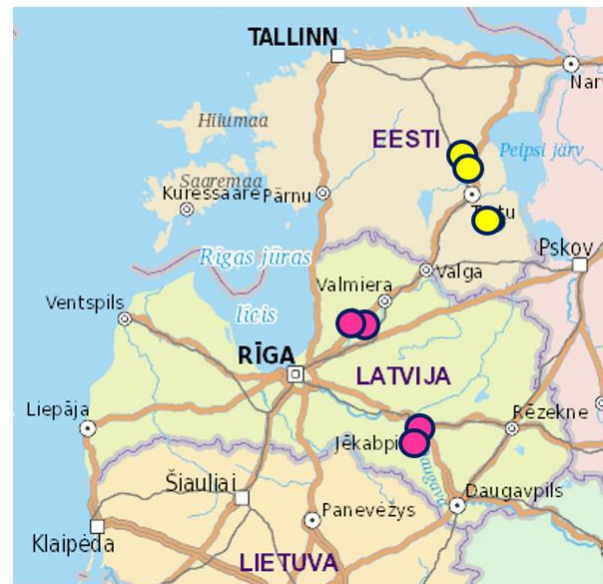
Lake Prossa  
 Lake Kaiavere  
 Lake Akste



Lake Auciema  
 Lake Riebinu  
 Lake Laukezers  
 Lake Varzgunē

## Study site:

● Latvian lakes      ● Estonian lakes

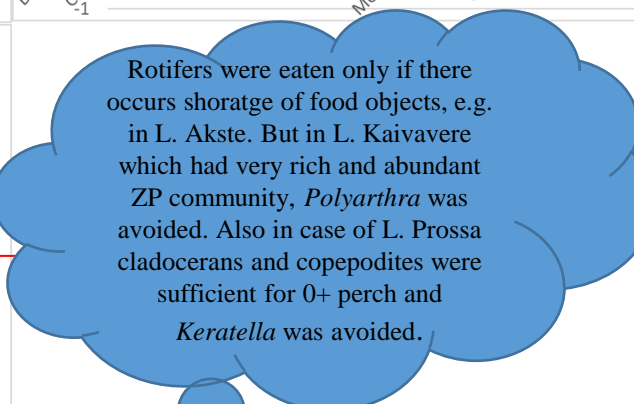
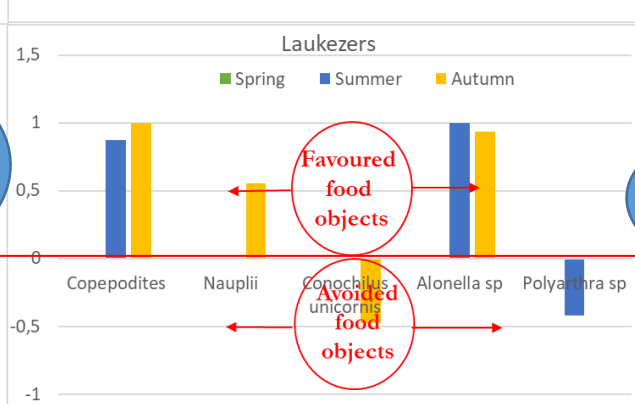
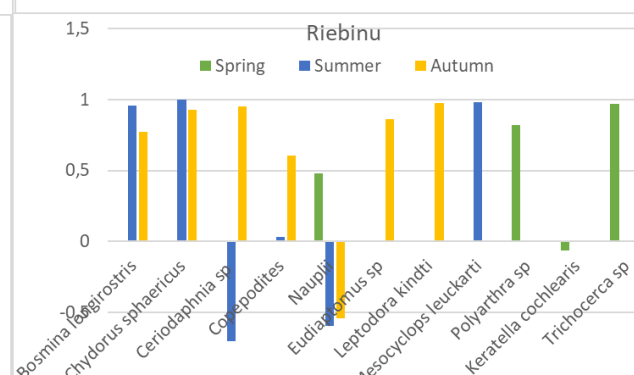
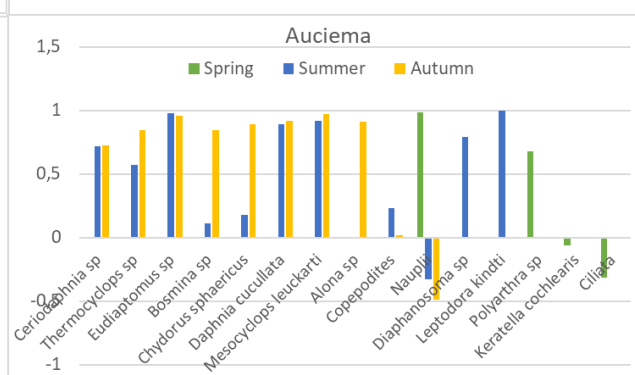
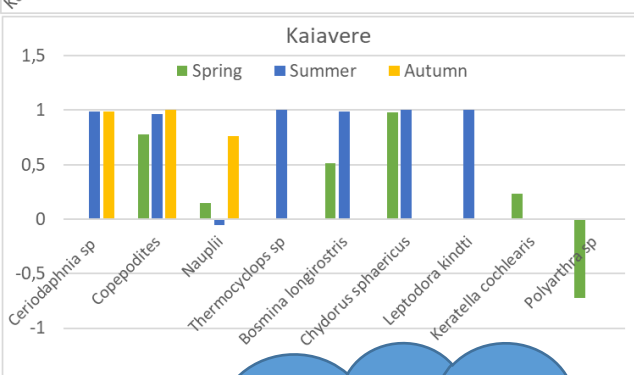
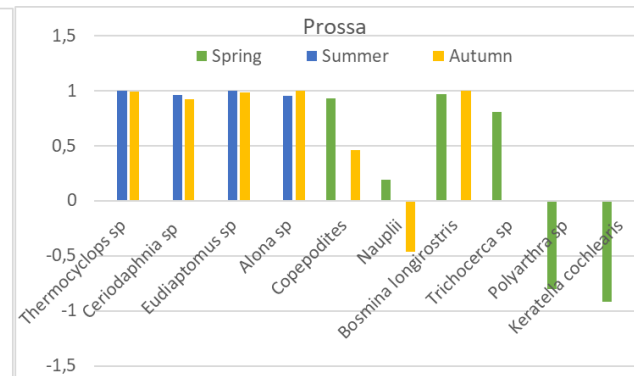
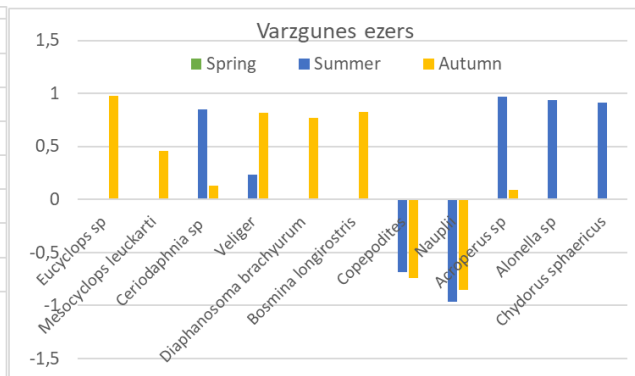
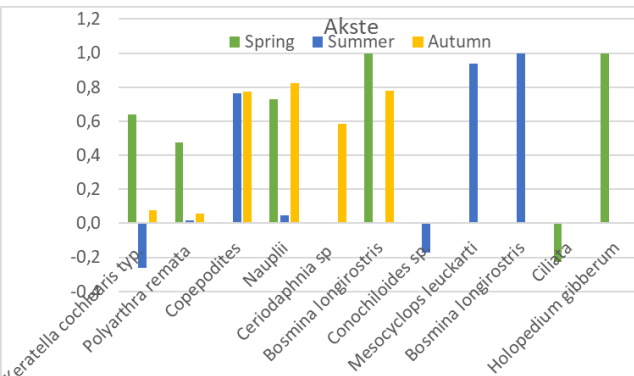


## Fieldwork & laboratory methods:

Larval and juvenile perch samples were collected by specifically targeted nets: beach-seines and scoopnets in littoral of the lakes and a bongonet in open-water sites. Larval and juvenile fish diet was estimated by a gut segmentation analysis via epifluorescence microscopy. Index calculations: Ivlev, IRI

# Study results: calculation of different indices of dietary importance

Ivlev's index of selectivity ( $E$ ) shows which food objects are favoured and which avoided by 0+ perch larvae and juveniles.

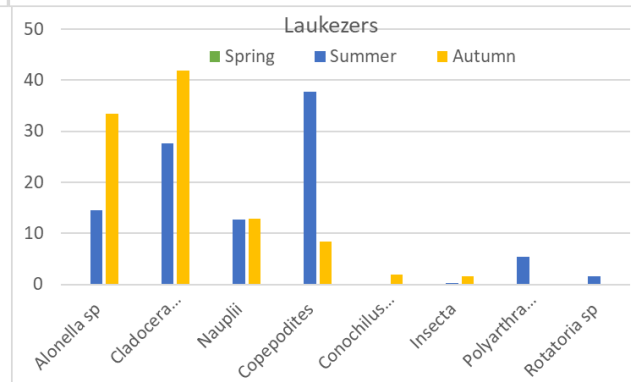
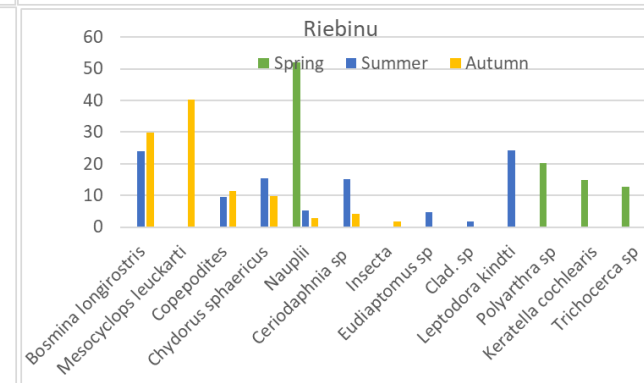
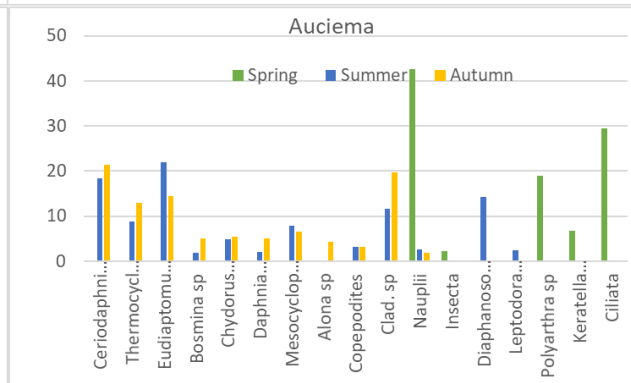
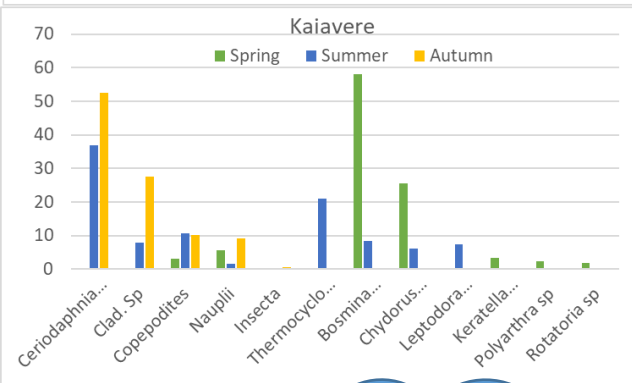
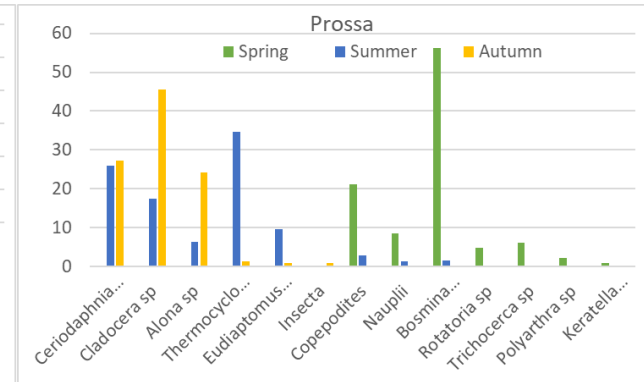
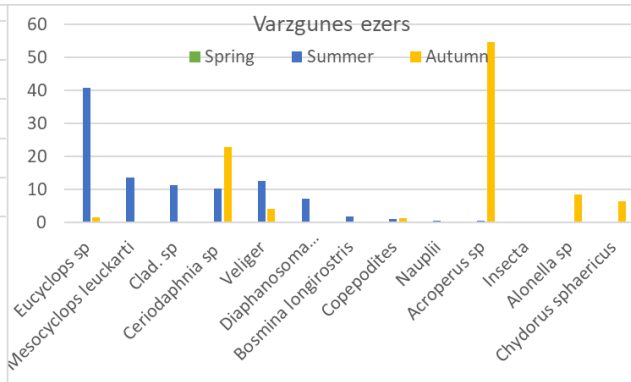
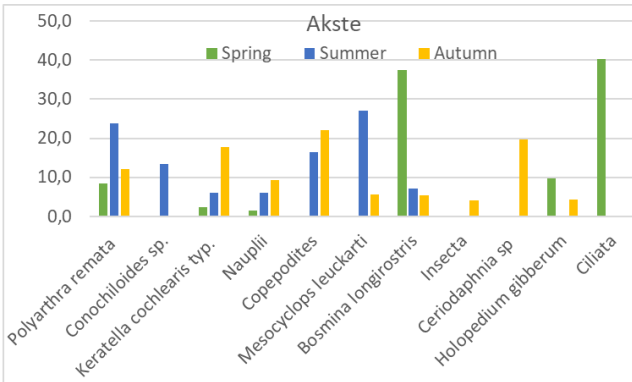


Cladocerans were the most favoured food objects in all the study lakes where they were present and ciliates were always avoided by 0+ perch.

Rotifers were eaten only if there occurs shortage of food objects, e.g. in L. Akste. But in L. Kaiavere which had very rich and abundant ZP community, *Polyarthra* was avoided. Also in case of L. Prossa cladocerans and copepodites were sufficient for 0+ perch and *Keratella* was avoided.

# Study results: calculation of different indices of dietary importance

**Percent index of food items relative importance (%IRI)** is calculated on the basis of three different indices – numbers, mass and frequency of occurrence. It shows which food objects are relatively the most important concerning all these three indices.



## Acknowledgements

The research is a part of the project „Fish feeding conditions in lakes with different planktonic food web structure and macrovegetation “(MICROFISH), No.1.1.1.2/VIAA/1/18/301. Agreement with State Education Development Agency of the Republic of Latvia No. Programme number 1.1.1.2/16/I/001. The project has received funding from the European Regional Development Fund, from the State budget of the Republic of Latvia, from the foundation „Institute for Environmental Solutions” and from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 951963  
Greatest thanks to PhD Priti Zingel.

Cladocerans were very important in 0+ perch diet. Ciliates were important only when they accounted more than 30% from total ZP biomass, then they formed important food source for 0+ perch. Rotifers were mainly not important, except *L. Auciema*.