

34-O Interspecific and intraspecific isotopic niche variation of invasive mysids in Lake Constance.*Elizabeth Yohannes, Karl-Otto Rothhaupt**Limnological Institute, University of Konstanz, Konstanz, Germany¹*

Limnomysis benedeni and *Katamysis warpachowskyi* are highly invasive species originating from the Ponto-Caspian region of Eastern Europe and were first observed in Lake Constance in 2006 and 2009, respectively. In a previous study, using stable isotopes carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$) and sulphur ($\delta^{34}\text{S}$) signatures, we provided evidence that both species maintain differentiated feeding niches by feeding on distinct components of the available food resources (predominantly seston by *L. benedeni* and periphyton by *K. warpachowskyi*). This pattern was consistently found at several sampling sites on Lake Constance and the river Rhine. One conspicuous outcome of the previous study was the high $\delta^{13}\text{C}$ niche variability of the mysids, especially of *L. benedeni*. This finding prompted us to study the isotopic niches in more detail and to look for intraspecific patterns with age (juvenile and adult), sex (male and female), reproductive state (gravid and non-gravid) and seasonal cohort (large spring shrimps and small summer shrimps). We applied two approaches for isotopic niche calculations: standard Bayesian ellipses and convex hull; and conventional analysis of variances. Moreover, we measured the relative contribution of seston and periphyton to the diet of different mysid groups using Bayesian mixing models. Our results show that body size differed significantly between winter and summer generations in *L. benedeni*. The two mysid species differed in their isotopic niche width and partition resources by feeding on distinct components of the available food resources (predominantly seston by *L. benedeni* and periphyton by *K. warpachowskyi*). Overall, smaller $\delta^{13}\text{C}$, $\delta^{15}\text{N}$ and $\delta^{34}\text{S}$ niche width was found for *Katamysis*. Gravid females of both species had largest $\delta^{15}\text{N}$ niche width, and non-gravid female held the smallest $\delta^{15}\text{N}$ after male *Katamysis*. In conclusion, interspecific and intraspecific feeding niche differentiation might facilitate the coexistence of invasive mysids in their 'new' environment by minimizing direct resource competition. On the other hand, such a concerted resource use pattern may aggravate the impacts that invasive mysids have on affected communities.

34-P Alien species among Chironomids: a new topic on which direct our interest. *Angela Boqgero*¹ - Valeria Lencioni ² - Bruno Rossaro ³*Institute of Ecosystem Study, ISE CNR, Verbania, Italy¹ - Museo delle Scienze, MUSE, Trento, Italy² - Dept. Agrifood And Urban Systems Protection, University of Milano, Milano, Italy³*

Non-indigenous alien species are considered one of the main threats to biodiversity all over the world, and their negative ecological and economic effects have been extensively documented. Usually, researches on alien and invasive species in aquatic ecosystems were mainly directed towards the study of economically important and larger species, whereas small taxa or groups have rarely been considered. Non-biting midges (Chironomids), inhabiting in relatively large number different type of habitats (mainly freshwaters, but also brackish and marine waters, as well as terrestrial lands) are well studied under the morphological, ecological, physiological and molecular point of view and often dominate the aquatic insect community. Unfortunately, very few studies concerning their alien character has been carried out so far. Following the general definition of alien: deliberately or inadvertently introduced in an area by human activities and with a distribution not including the territory under study before the discovery of the New World by Columbus in 1492, we are to date, not able to say if they are present on the national territory and how many they are. Their natural distribution is difficult to determine because the larvae are difficult to identify at species level and the adults are short-living forms. In addition, in Italy, many are the habitats not adequately monitored for their presence, such as lakes in insular Italy or high altitude streams and lakes.

We know their potential impact as nuisance pest during swarms, as vectors of pathogenic species or of allergy, as threat to agriculture in newly flooded rice-fields, or as competitors with native species. Among them, examples of alien species around the world are present, but very few is known about Italy. Usually, species captured and described outside the West Palearctic are potential candidates to be considered alien, like the Afrotropical *Polypedilum nubifer* (Skuse 1889), recently found in Italy.

Detailed studies on chironomids have to be performed to find out alien species presence and their spread, because chironomids are key organisms in aquatic ecosystems, so could represent a puzzle and a potential problem in the near future.