

## Food web analysis of meiobenthos in estuarine seagrass beds

Anna-Maria Vafeiadou<sup>1</sup>, Patrick Materatski<sup>2</sup>, Helena Adão<sup>2</sup>, Marleen De Troch<sup>1</sup> and Tom Moens<sup>1</sup>

<sup>1</sup>*Ghent University, Marine Biology Section, Krijgslaan 281/S8, 9000 Ghent, Belgium*

<sup>2</sup>*Évora University, c/o IMAR, Apartado 94, 7002-554 Évora, Portugal*

Despite the key role of meiofauna in seagrass ecosystems, little is known about their resource use and trophic position at a genus/species level. This study provides novel information on the position of meiofauna in an estuarine food web, using stable carbon and nitrogen isotope analysis of samples collected from *Zostera noltii* beds at the Mira estuary (SW Portugal). The relative contribution of each source to meiofauna diets was estimated via an isotope mixing model.

A dataset of isotopic compositions of 22 nematode taxa and three copepod families was obtained. Benthic microalgae were among the main sources for most meiofauna, however, seagrass detritus and epiphytes were dominant sources for some taxa. The isotopic data demonstrate a predominant reliance on chemoautotrophic, sulphur-oxidizing bacteria for the nematodes *Terschellingia* and the copepods Cletodida, providing some of the first records of the use of chemoautotrophic carbon by estuarine meiofauna. A predatory feeding mode is suggested for *Paracomesoma* and other Comesomatidae, which were generally considered deposit feeders according to their buccal morphology. Therefore, we clearly demonstrate that the traditional feeding type classifications of nematodes can be misleading and should be combined with empirical information, such as from stable isotopes, for reliable conclusions. Moreover, we found considerable variation in both resource use and trophic level among genera from the same feeding type, showing that morphology-based feeding types provide very artificial functional groupings.

Keywords: stable isotopes, food web, meiofauna, *Zostera noltii* beds