

Zooplankton community in the Pärnu Bay (Baltic Sea) is dominated by two small calanoid copepod taxa - *Eurytemora* and *Acartia*. Although similar in size, these two copepod taxa exhibit slight differences in physiology and behavior, e.g. have different temperature preferences, movement patterns and feeding mode. Using long-term (1957-2013) high frequency (weekly to biweekly) monitoring data from Pärnu Bay, we show the taxon-specific differences in seasonal and long-term patterns of *Eurytemora* and *Acartia*. Common to both taxa were the higher early summer abundances after mild winters, but *Eurytemora* exhibited additionally a markedly changed seasonality with up to one month earlier peak abundance after mildest winters, while the seasonal pattern of *Acartia* remained relatively stable over the 4 decades of observations. *Eurytemora* was also sensitive to top-down control – expressed by negative relationship with the abundances of invasive invertebrate predator *Cercopagis pengoi* in late summer, while *Acartia* showed rather positive association with *C. pengoi*. Lack of negative effect on *Acartia* could indicate either lower predation pressure on *Acartia*, or stronger effect of similar environmental preferences, e.g. the higher water temperature. Taxon-specific temporal patterns and responses to external drivers shown here support the notion that the species composition is at least as relevant variable as the total abundances of small copepods in the food web and climate change research.