DYNAMICS OF PREDACIOUS NEMATODES AND THEIR PREY POPULATIONS IN INTERTIDAL SEDIMENTS

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Over the last 10 years, several – mainly microcosm – studies have highlighted the potential importance of top-down control by predacious nematodes on the abundance, dynamics and structure of their prey nematode assemblages. Direct field evidence for such top-down control is, however, scant. It is also unclear whether effects of predatory nematodes are constant or fluctuate over time. This depends both on the population dynamics and on the feeding behaviour of the predatory nematodes. Based on recent evidence from field samples, natural carbon and nitrogen isotope ratios, and lab experiments, we hypothesized that the abundant predator *Enoploides longispiculosus* at the Paulina tidal flat (Schelde Estuary, the Netherlands) has a strongly seasonal reproduction and shows seasonal changes in feeding behaviour and even trophic level. We expect that this species hibernates as juveniles exhibiting only limited predatory activity, and rapidly proliferates during spring and summer in one or two generations. We also expect that this is reflected in the top-down effect of this predator on its prey. We are currently performing an intensive temporal sampling to follow the in situ population development of *Enoploides* and of other nematodes in relation to seasonal environmental fluctuations at the Paulina tidal flat. We used the opportunity of a harsher and longer than usual winter season allowing a clear delineation of the onset of spring conditions. This sampling is accompanied by laboratory experiments looking at the predation rate and metabolic activity of the predatory nematodes, and by analysis of their natural isotope ratios to assess resource utilization. Our first data indeed indicate a fairly rapid growth and maturation of *Enoploides* in the first weeks of spring, along with an increase in predation rate. We will present a complete picture of the dynamics of this predator in relation to its prey for the period March-May.

Keywords: top-down control, predacious nematodes, nematode assemblages, tidal flat, *Enoploides*.