

Krill ingestion rates in the St. Lawrence estuary: feeding experiments with natural zooplankton and phytoplankton communities

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Northern krill community is composed of many species exhibiting diverse morphology and ecology. Although these species play a key role in the boreal and Arctic ecosystems, providing energy transfer through the food web, only a few studies quantified trophic interactions between krill and the lower trophic level. In the St. Lawrence estuary, two krill species (*Meganyctiphanes norvegica* and *Thysanoessa raschii*) coexist and dominate the macrozooplankton biomass. Our objective was to quantify, if the functional response of the feeding rate on phytoplankton and mesozooplankton differ among these two dominant krill species. Thus, we performed two feeding experiments using natural phyto-/zooplankton community originating from St. Lawrence estuary in autumn 2015. Ingestion rates of the two krill species on six phytoplankton concentrations were tested as well as on five concentrations of zooplankton prey in the presence and absence phytoplankton. Results showed that both krill species have a Holling type III functional response on phytoplankton and zooplankton. Surprisingly, higher ingestion rates on phytoplankton were found in *M. norvegica*, than in *T. raschii*, which is more considered a herbivorous than *M. norvegica*. Ingestion rates on zooplankton in the presence and absence of phytoplankton will be presented and discussed in regard of prey choice, herbivore and omnivore feeding behavior of both species, providing data to trophic ecosystem modeling.

Keywords: functional response; feeding rate; Selectivity; Northern krill; coexistence; St. Lawrence estuary.

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