Plankton community structure and role of Oithona similis on the western coast of Greenland during the winter-spring transition - DTU Orbit (12/11/2018)

The cyclopoid copepod Oithona similis is one of the most abundant copepods in the oceans, and has a potentially important role in pelagic food webs. However, there is a lack of knowledge on aspects of Oithona's biology and function in plankton communities. In the present study, we aimed to assess and compare its trophic role in Greenlandic coastal waters during the winter-spring transition, with a focus on its winter behaviour, when large calanoids are not present in the surface layer. Two locations were studied: waters offshore from Godthåbsfjord (Nuuk) in winter, and Qeqertarsuaq (Disko Bay) in spring (bloom and post-bloom period). The potential prey of adult females of O.similis was quantified, and grazing experiments were conducted to determine feeding rates of adult females on phytoplankton and protozooplankton >10µm. The abundance, stage composition, and egg production of O.similis was also investigated. We found that ciliates were the preferred prey for O.similis, which confirms its importance as a link from the microbial food web to higher trophic levels. We observed high egg production rates and efficiencies of O.similis in winter, confirming that it is active and successfully reproductive in food-limiting winter conditions. Our results stress that O. similis is a key component in Arctic and subarctic waters throughout the year, linking the microbial part of the food web to higher trophic levels.