

Feeding by *Calanus glacialis* over the annual cycle in an arctic fjord

Alison C Cleary, Tove M Gabrielsen, Janne E Søreide

Calanus spp. copepods are important components of Arctic marine food webs, where they are the numerically dominant zooplankton grazers and serve as important prey for fish, seabirds, and other predators. These copepods are typically considered to be phytoplanktivorous, yet little is known of their diet outside of the spring bloom period. To investigate this, we analyzed feeding by *Calanus glacialis* over an annual cycle in a seasonally ice covered arctic fjord using next generation sequencing of 18S rDNA in gut contents. During the spring bloom, diatoms, particularly *Thalassiosira* spp., were important contributors to the dietary sequence reads. In addition to diatoms, Chytridiomycetes, fungal parasites of diatoms, also made up a large proportion of dietary sequence reads during this season. Just prior to the spring bloom chaetognath sequences dominated the gut contents reads, suggesting potential predation by *C. glacialis* on early life stages of these predatory worms. Other indications of omnivorous feeding outside of the spring bloom period included polychaete sequences in *Calanus* gut contents in summer, and sequences from *Metridia* spp. copepods from winter *Calanus* gut contents. Incorporating such predation into our understanding of *Calanus* behavior may help refine our understanding of life history patterns, and potential responses of *C. glacialis* to ongoing climate change.