

Master project with start sometimes in August-September 2020.

### ***Pseudocalanus* complex in the high-Arctic: species composition and population dynamics**

Isfjorden and Kongsfjorden is well- suited for baseline mapping and long-term monitoring of high-latitude ecosystems due to its close location to the University Centre in Svalbard and the marine Laboratory in Ny Ålesund, respectively. Long-term data series is urgently needed to address potential climate impacts on marine ecosystems. This study will contribute with valuable data to our ongoing monitoring project: Isfjorden Marine Observatory Svalbard (IMOS): a long-term hydrography and plankton data series with monthly sampling resolution and the plankton monitoring in Kongsfjorden run by the Norwegian Polar Institute.

In this project the candidate will focus on the copepod genus *Pseudocalanus* spp. which comprises of three species in Svalbard: *P. acuspes*, *P. minutes* and *P. moultoni*. Due to these species similar morphology they are often referred to as *Pseudocalanus* spp. in the literature meaning that we know very little about their species specific population dynamics and biology. Since *Pseudocalanus* spp. are very numerous and thus an important component of high-latitude zooplankton communities species specific knowledge on this genus is critically needed to address its fate with changing climate. This project will involve monthly field sampling in Adventfjorden and lab analyses. Samples from Ny Ålesund will be shipped to UNIS for analyses here. Laboratory analyses comprise of sorting zooplankton – picking out *Pseudocalanus* for DNA extraction, PCR and gel analyses to obtain correct species identification. In the data analyses the candidate is expected to relate the *Pseudocalanus* species composition and population dynamics to the abiotic (hydrography and light) and biotic (algal biomass) environment. Project start: August-September 2020.

This project includes:

Field work – water and plankton sampling from small boats

Laboratory work – zooplankton community analyses, DNA extraction and PCR

Statistical analyses – multivariate statistics

Writing – thesis written as a scientific paper (with extended Materials and Methods section)

Background needed: Bachelor's in biology, familiar with zooplankton and molecular methods is an advantage, and the same is the knowledge to the statistical program R (free software)

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Females of *Pseudocalanus minutus* (upper) and *P. acuspes* (lower). Photo: Slawek Kwasniewski



Monthly sampling from UNIS Polaris will be conducted. Photo: Janne E. Søreide