

Diel vertical migration (DVM) of marine zooplankton in the polar night: who, how and why?



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Introduction

DVM is the largest movement of biomass on the planet and a component of the biological pump. A classic paradigm of Arctic marine ecology is that most biological processes stop during winter. However, recent research (Berge *et al.* 2009) has proven that this is *not* true and zooplankton do perform DVM during the polar night. We now need to establish the basic biological knowledge behind the DVM patterns and the ecological impacts, which are still poorly understood.

Aim

- Determine the zooplankton species responsible for polar night DVM.
- Identify the prey choice of the abundant migrants.

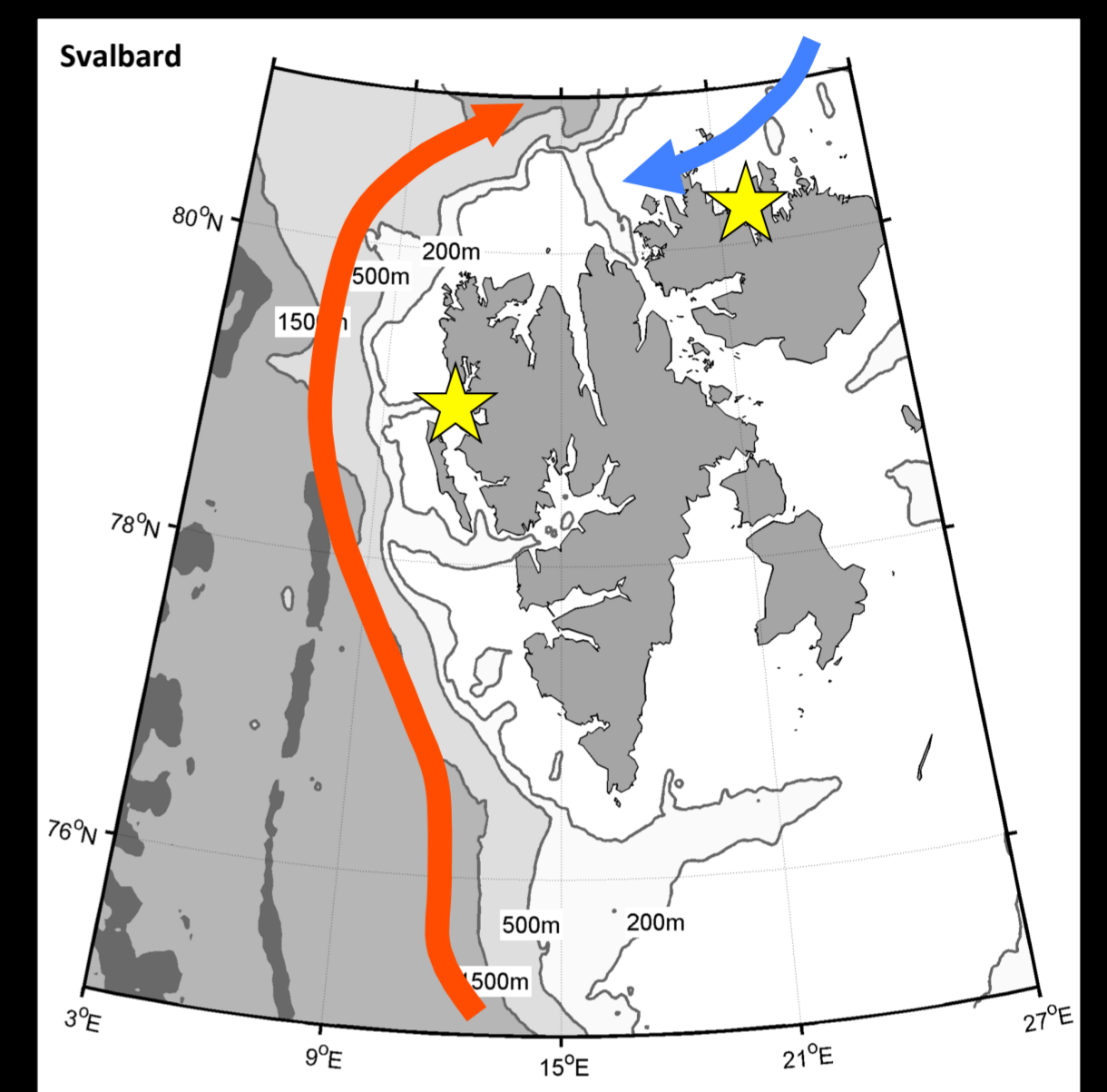


Fig. 1: Study site.

Methods

A combination of depth-stratified net hauls and moored acoustic doppler current profilers (ADCPs). Respiration experiments and molecular (PNA-PCR & qPCR) gut analysis of the abundant migrants.

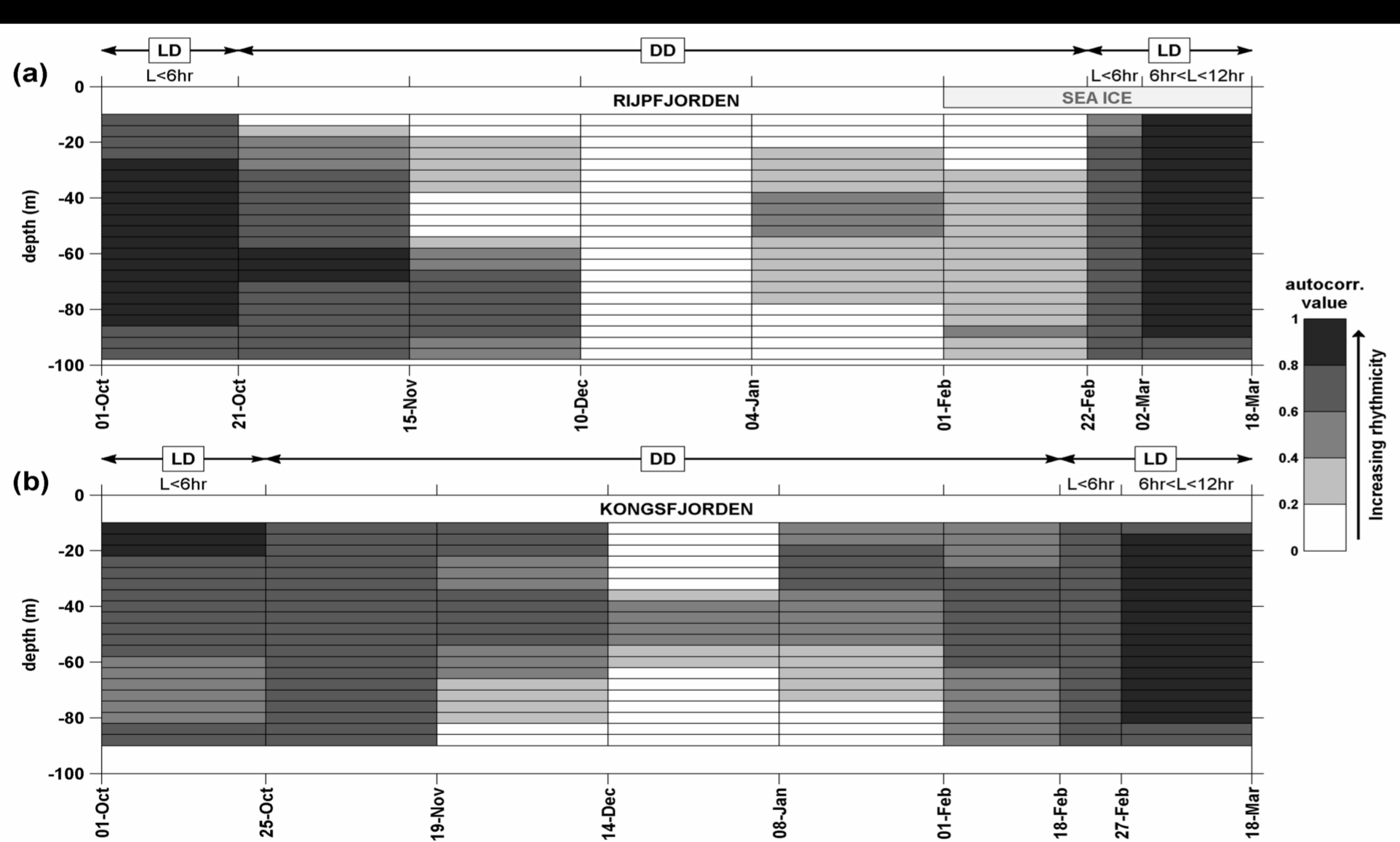


Fig. 2: DVM signal strength based on acoustics. LD = light dark, DD = dark dark (Berge *et al.* 2009)

Summary and future work

- A more distinct DVM signal in February due to more light (vs. January)
- Krill are the most abundant migrants
- Analyze the gut contents of migrants from 2013
- Respiration experiments (with postdoc Gérald Darnis)
- Video plankton recorder (VPR)

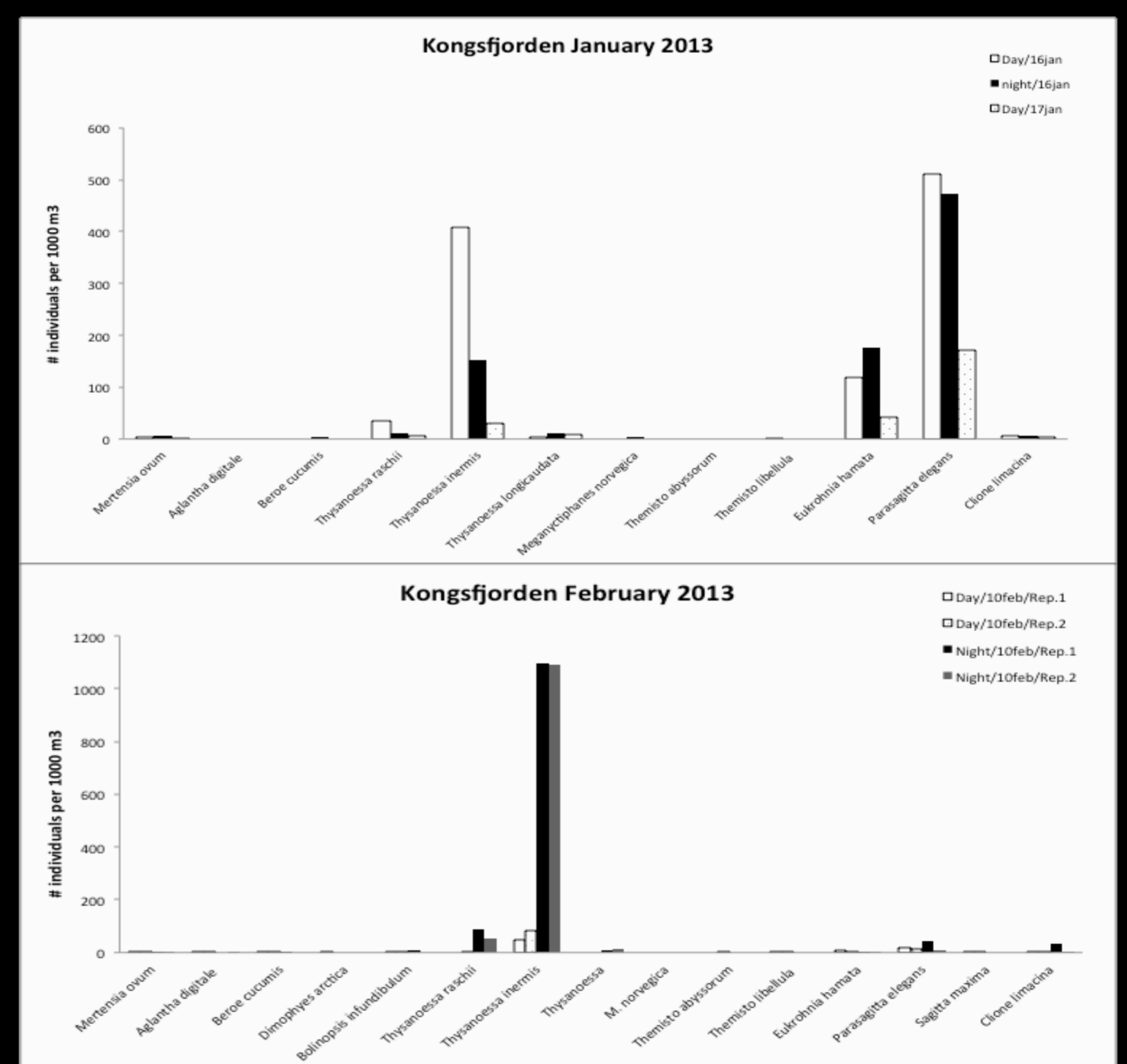


Fig. 3: Species abundance (30 m) in Kongsfjorden (Grenvald *et al.* unpubl.).



Acknowledgements

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