

Phenology changes of *Calanus* in the south-western Norwegian Sea, 1993-2014, linked to ocean climate

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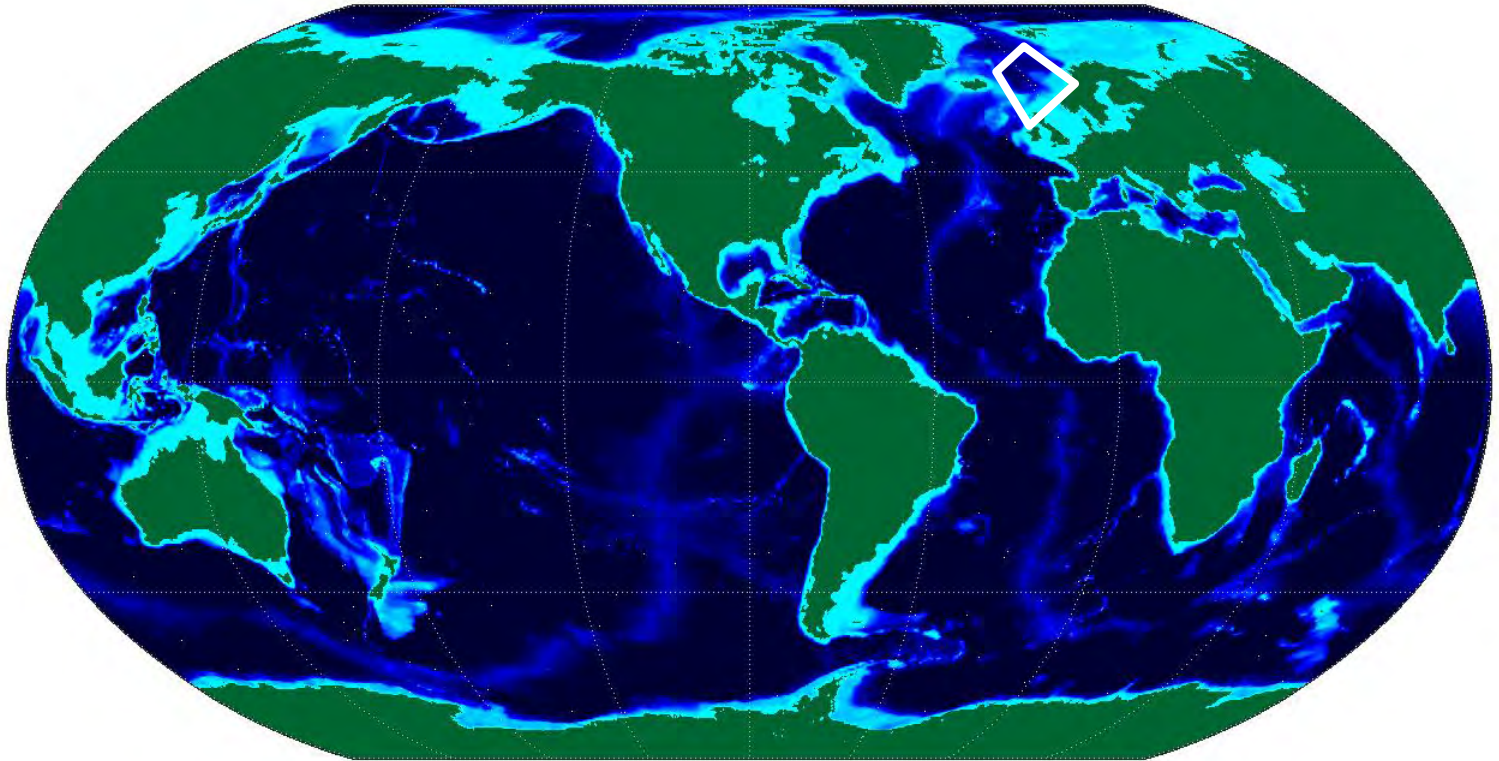


PICES

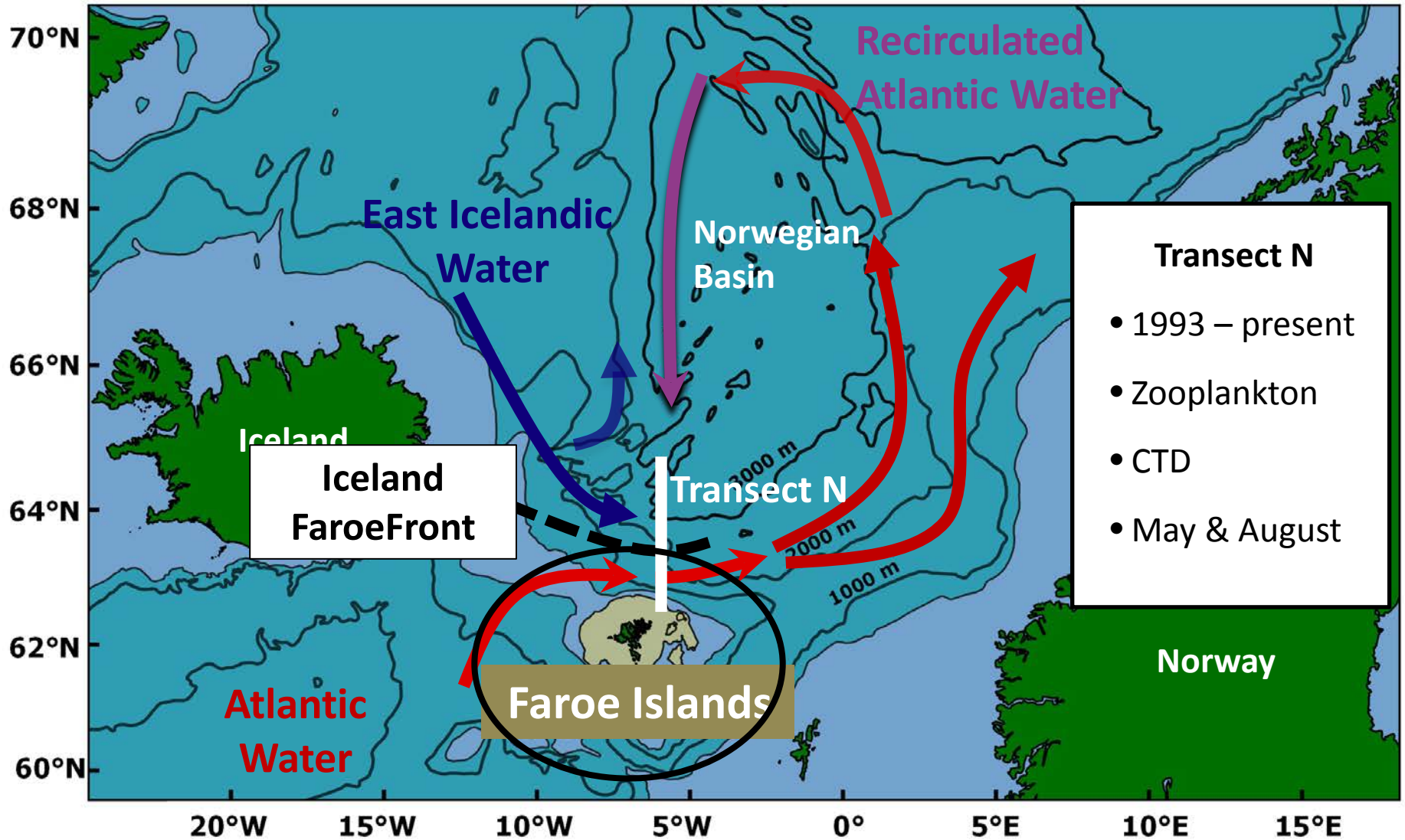
Aims

1. Introduce the time series at Transect N
2. Describe the phenological change of *C. finmarchicus* & *C. hyperboreus*
3. Investigate how these changes might be linked to hydrographic conditions

Where are we?

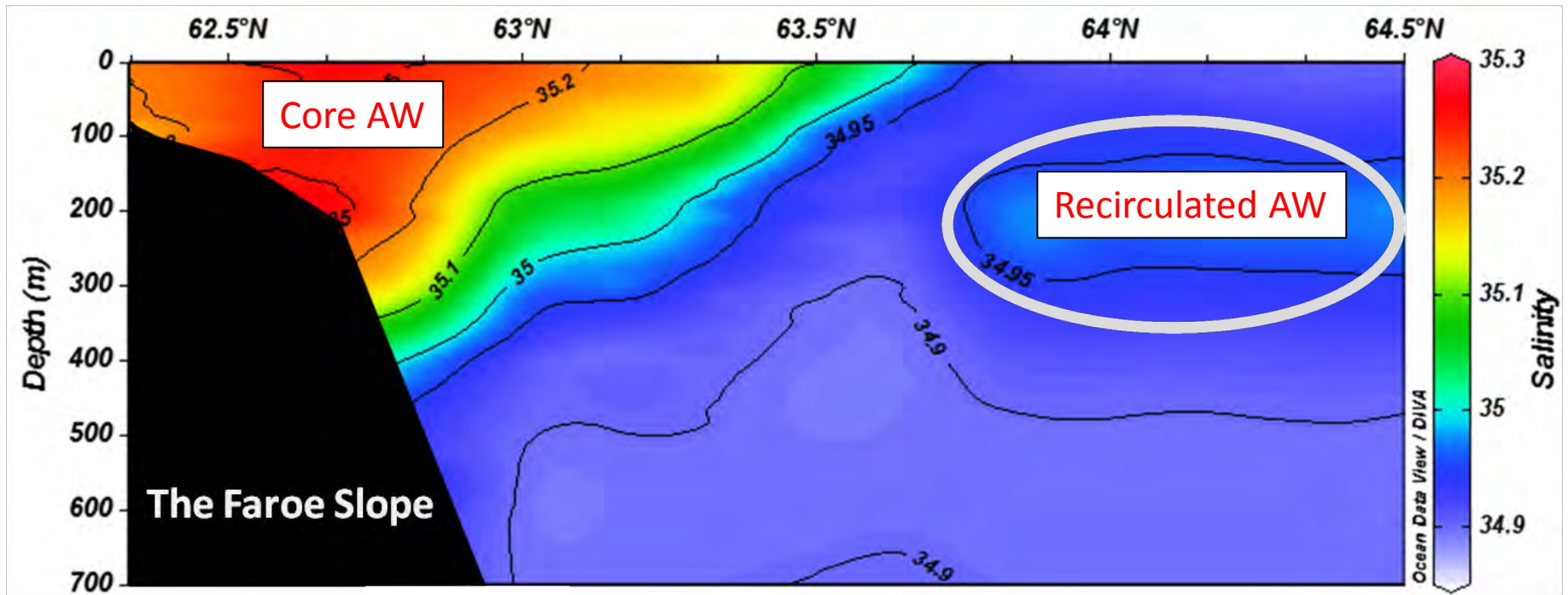


Oceanic environment

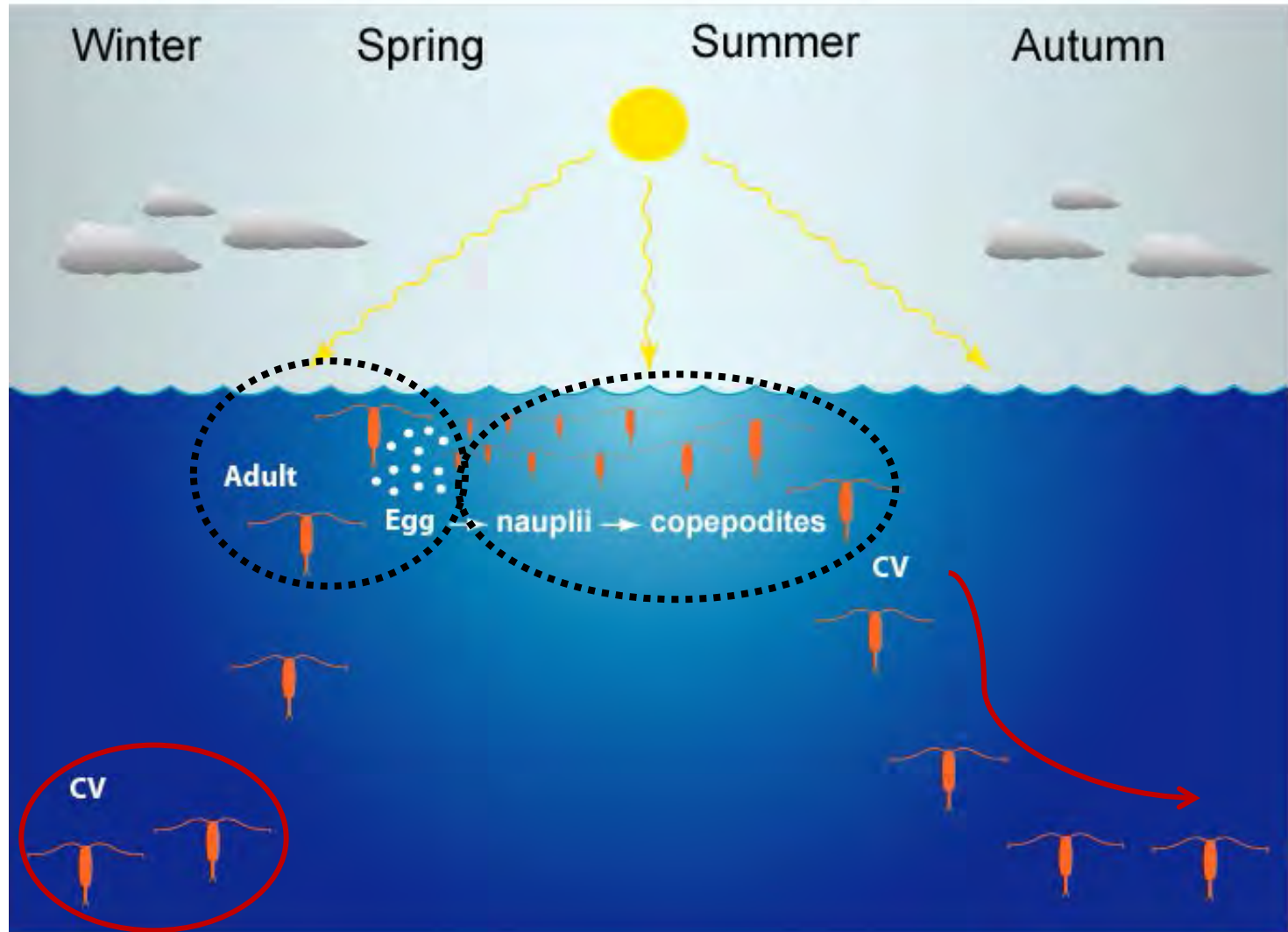


Transect N

Mean Salinity (Feb & May)



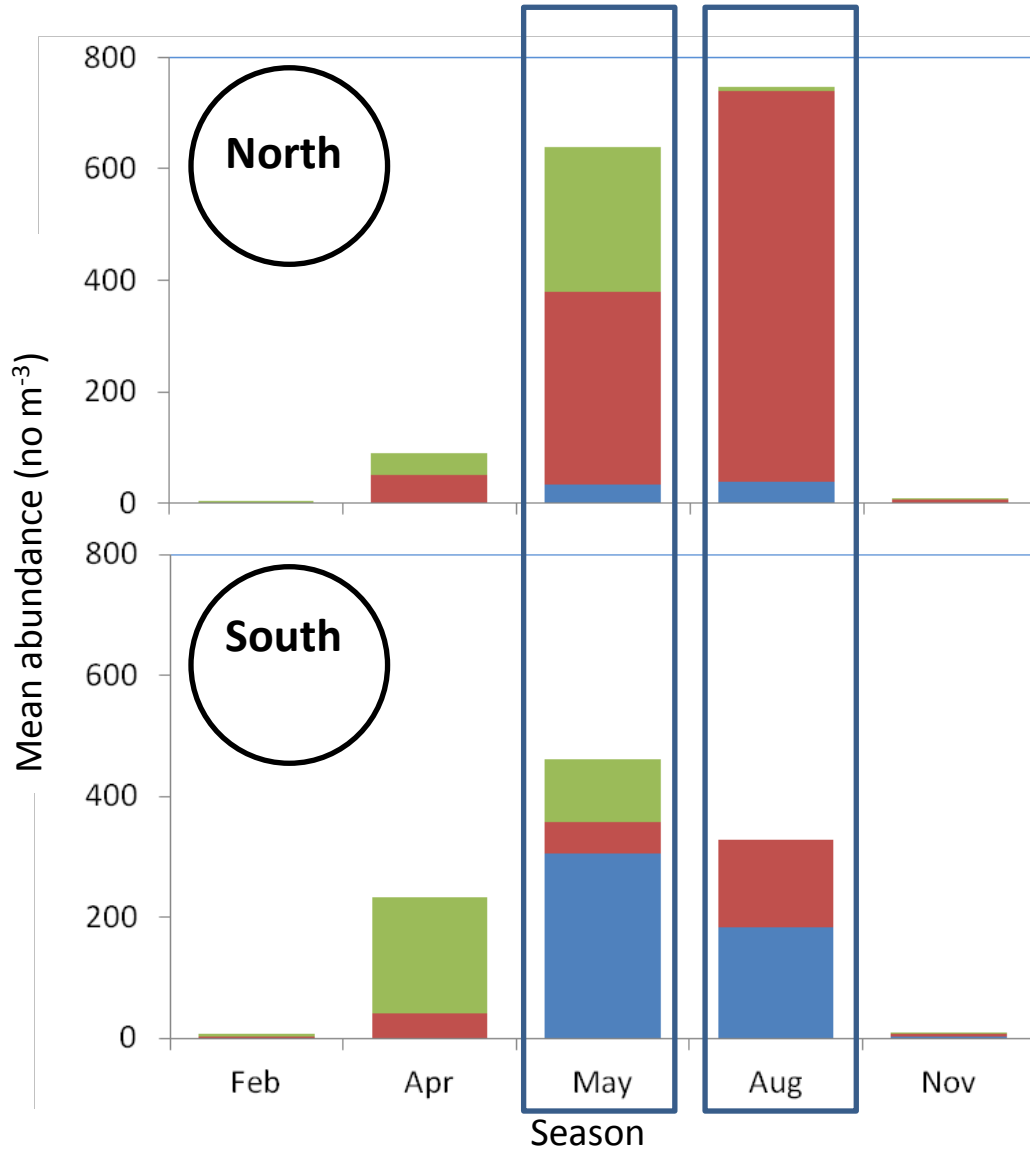
C. finmarchicus life cycle



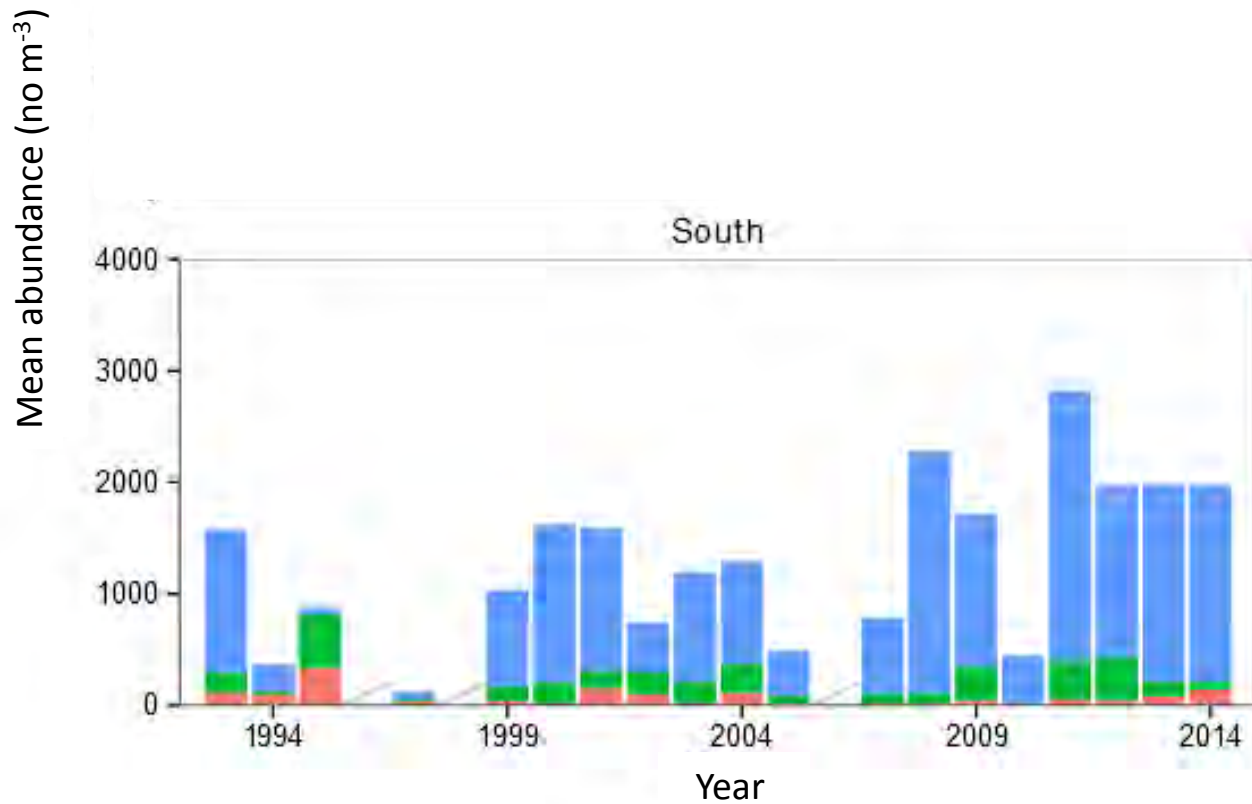
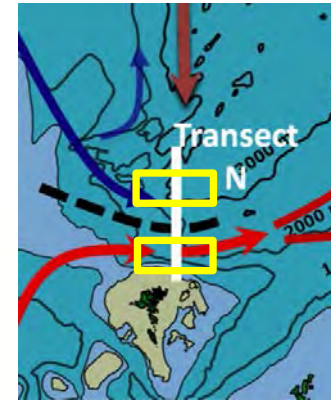
Seasonal Variation in 1995



C. finmarchicus

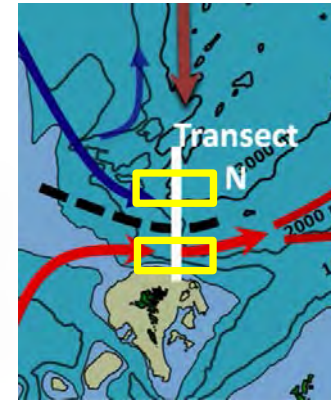


C. finmarchicus stage composition May

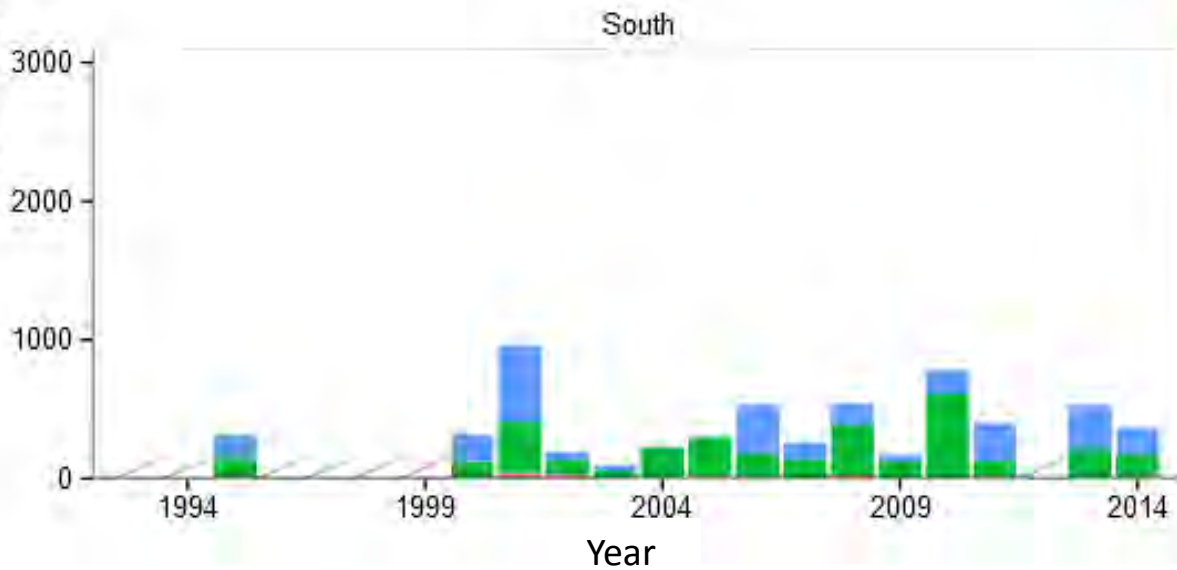


Sudden shift in 2003

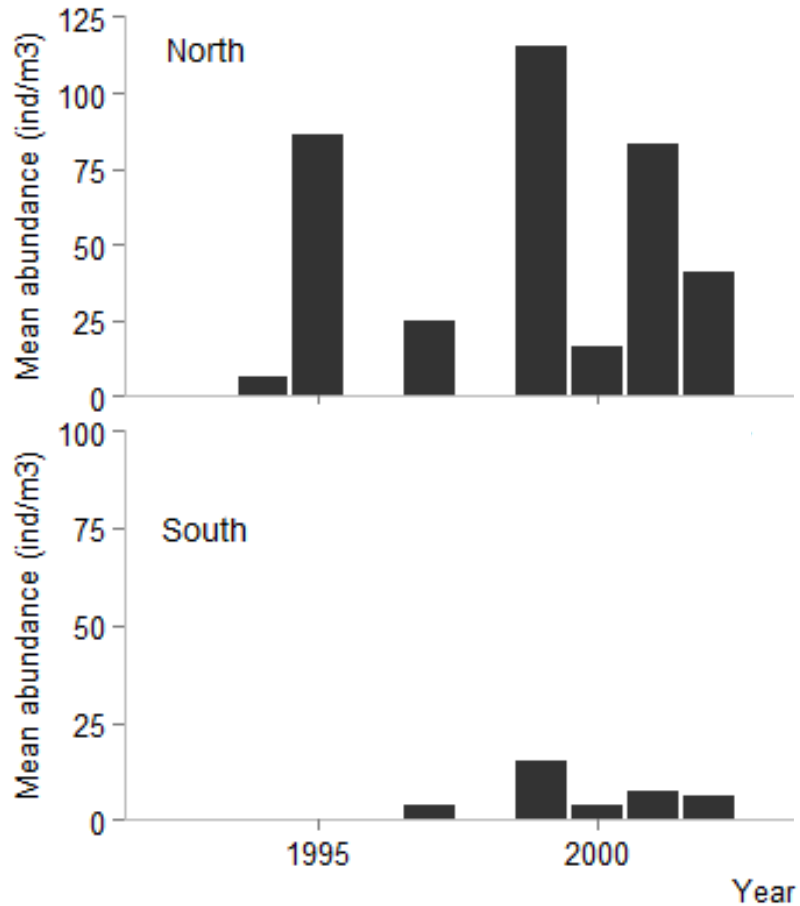
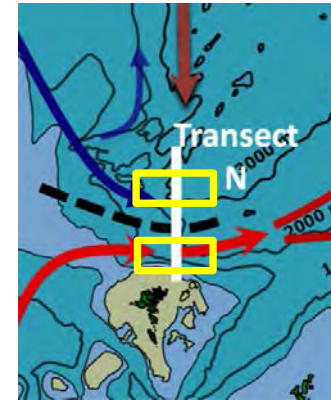
C. finmarchicus stage composition August



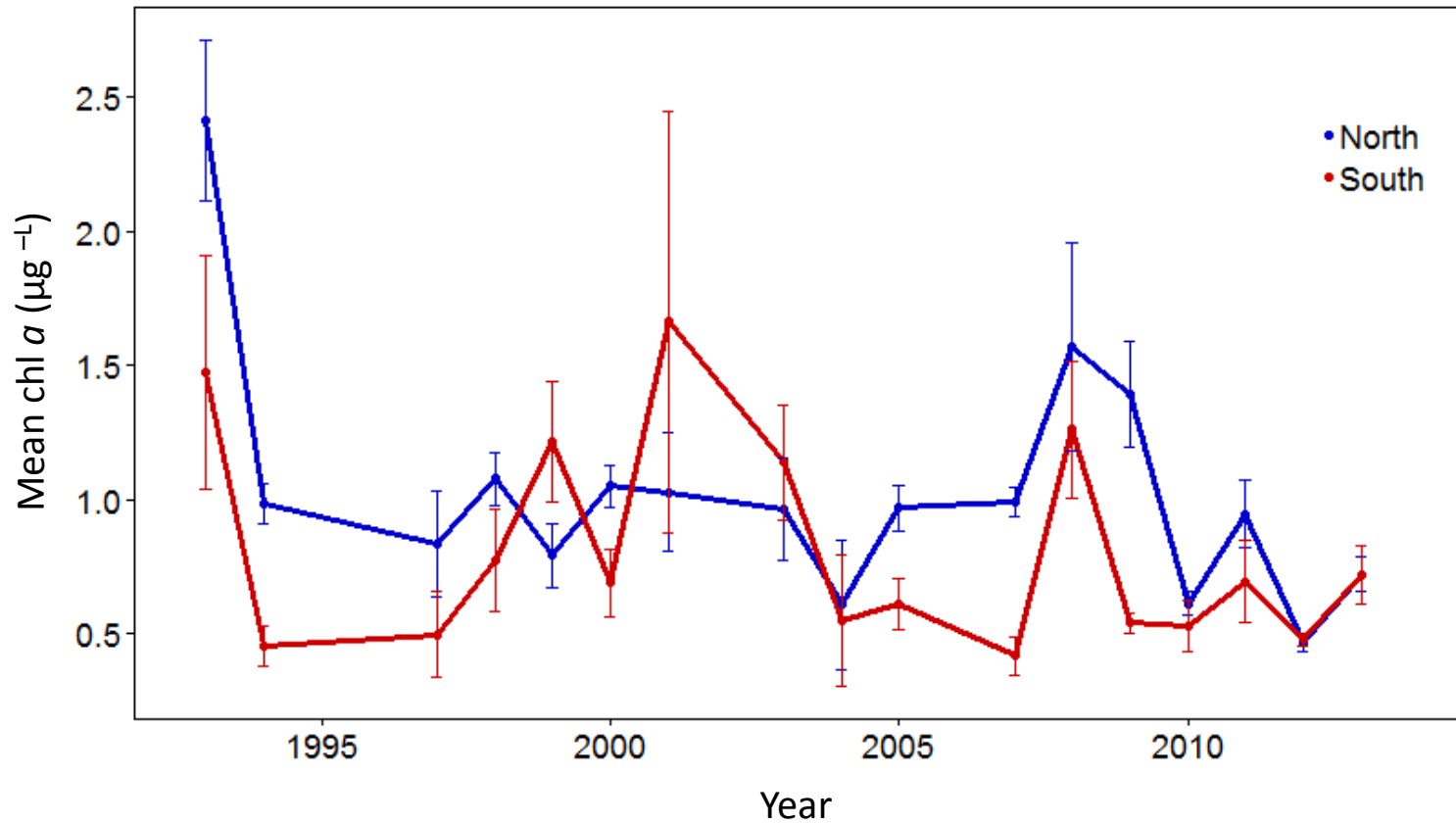
Mean abundance (no m⁻³)



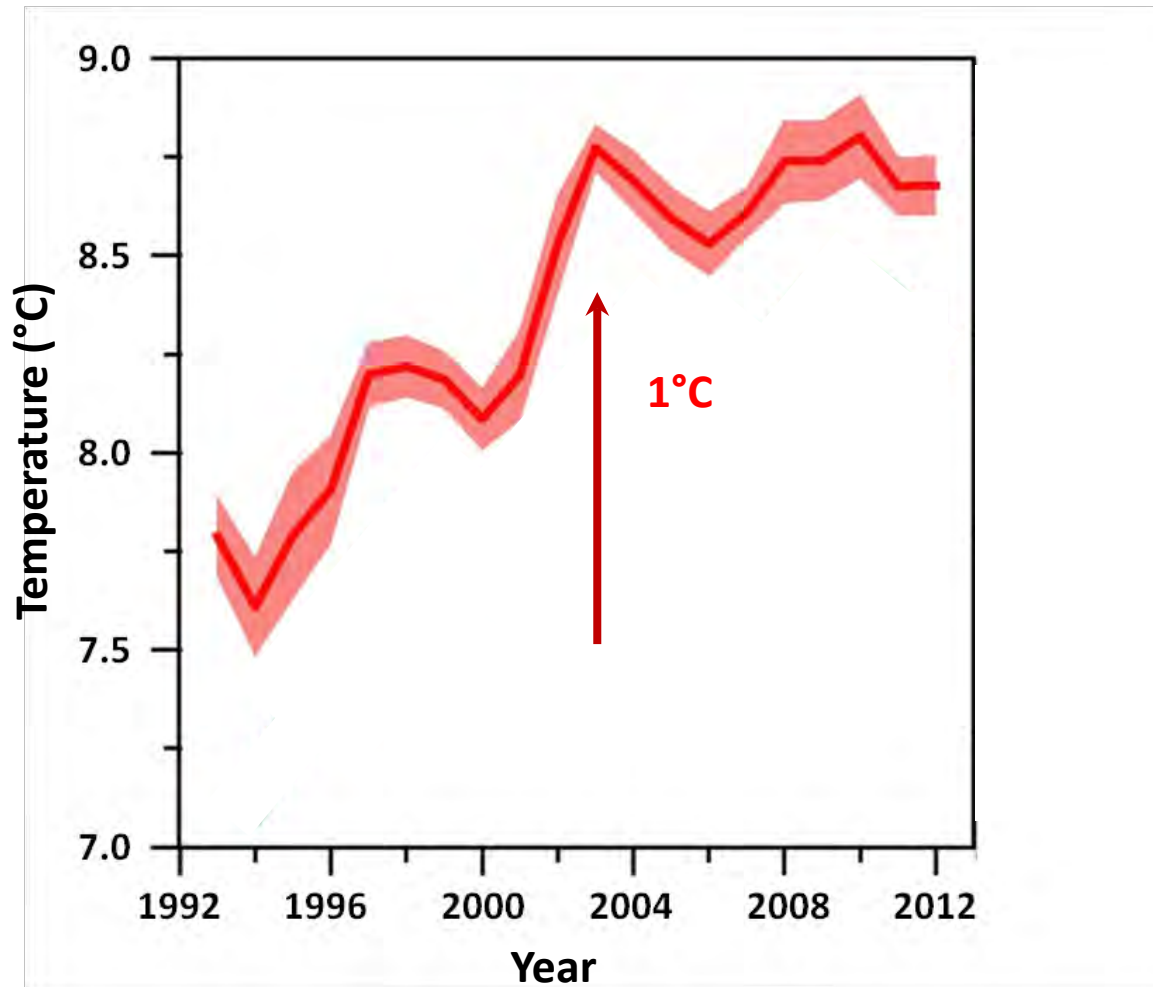
C. hyperboreus abundance May



Phytoplankton biomass in May

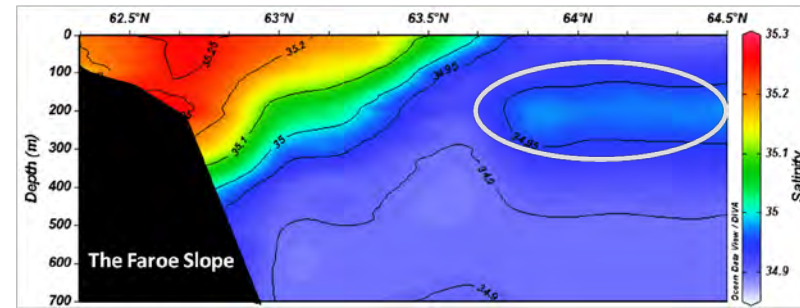


Atlantic Water

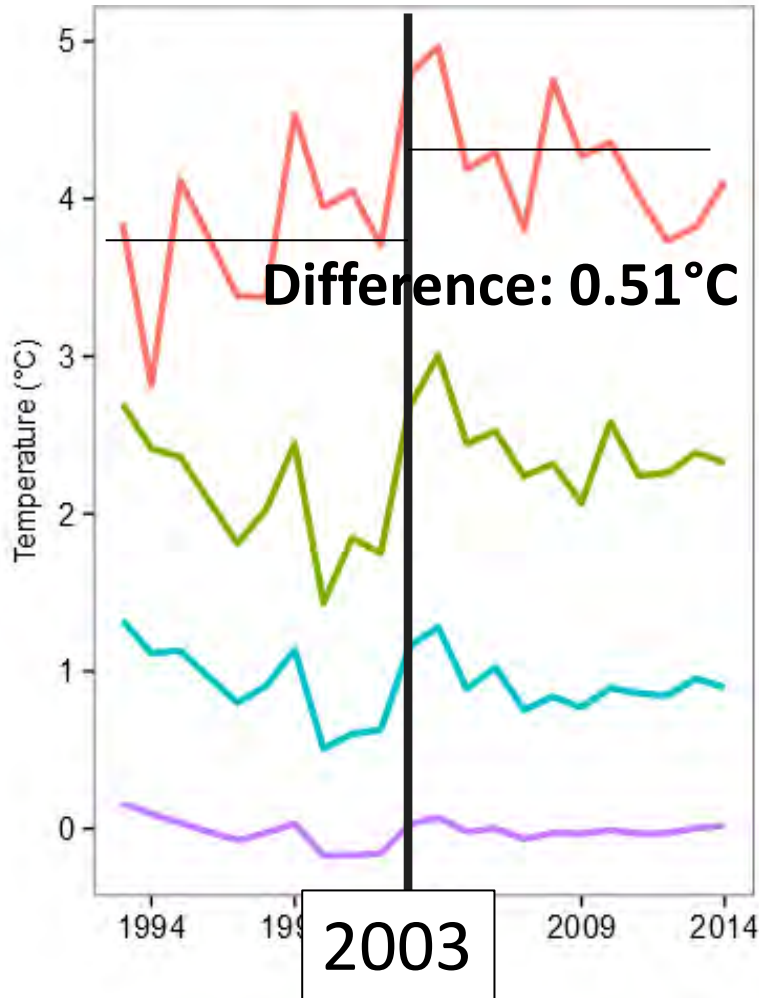


Hansen *et al.* (in prep)

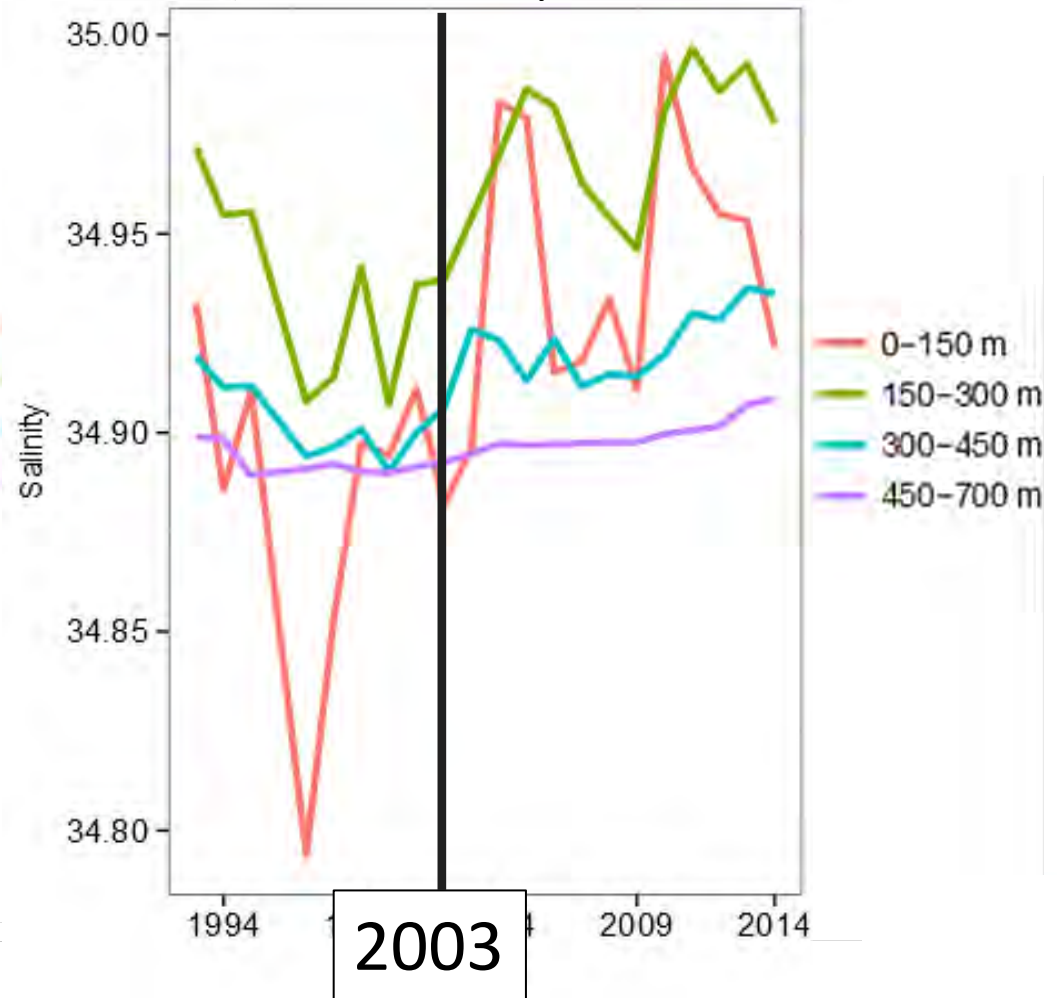
Subarctic Waters



Temperature

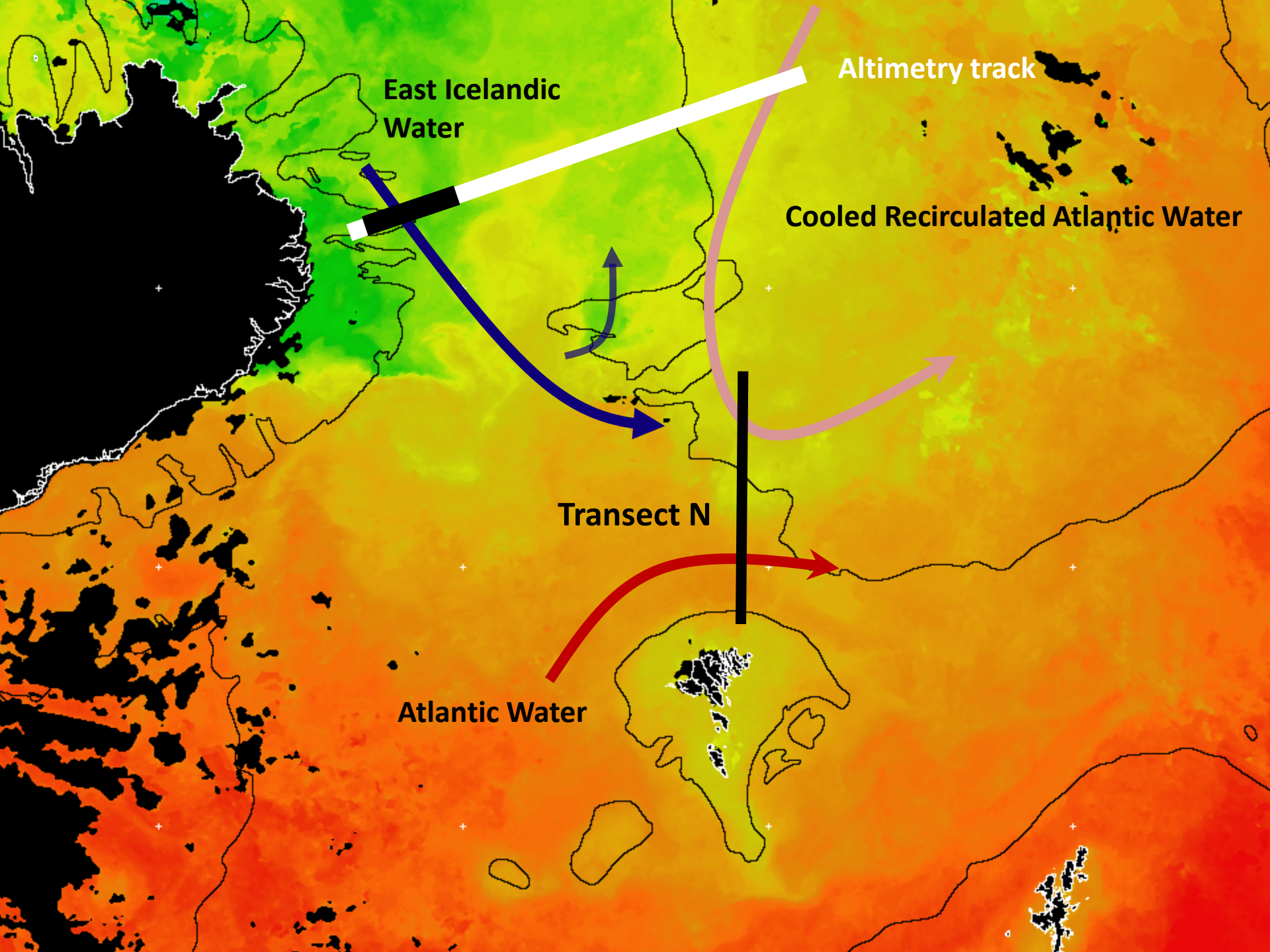


Salinity



Hypothesis

Is the phenological change in *C. finmarchicus* & the disappearance of *C. hyperboreus* related to a **decreasing presence of EIW?**



**East Icelandic
Water**

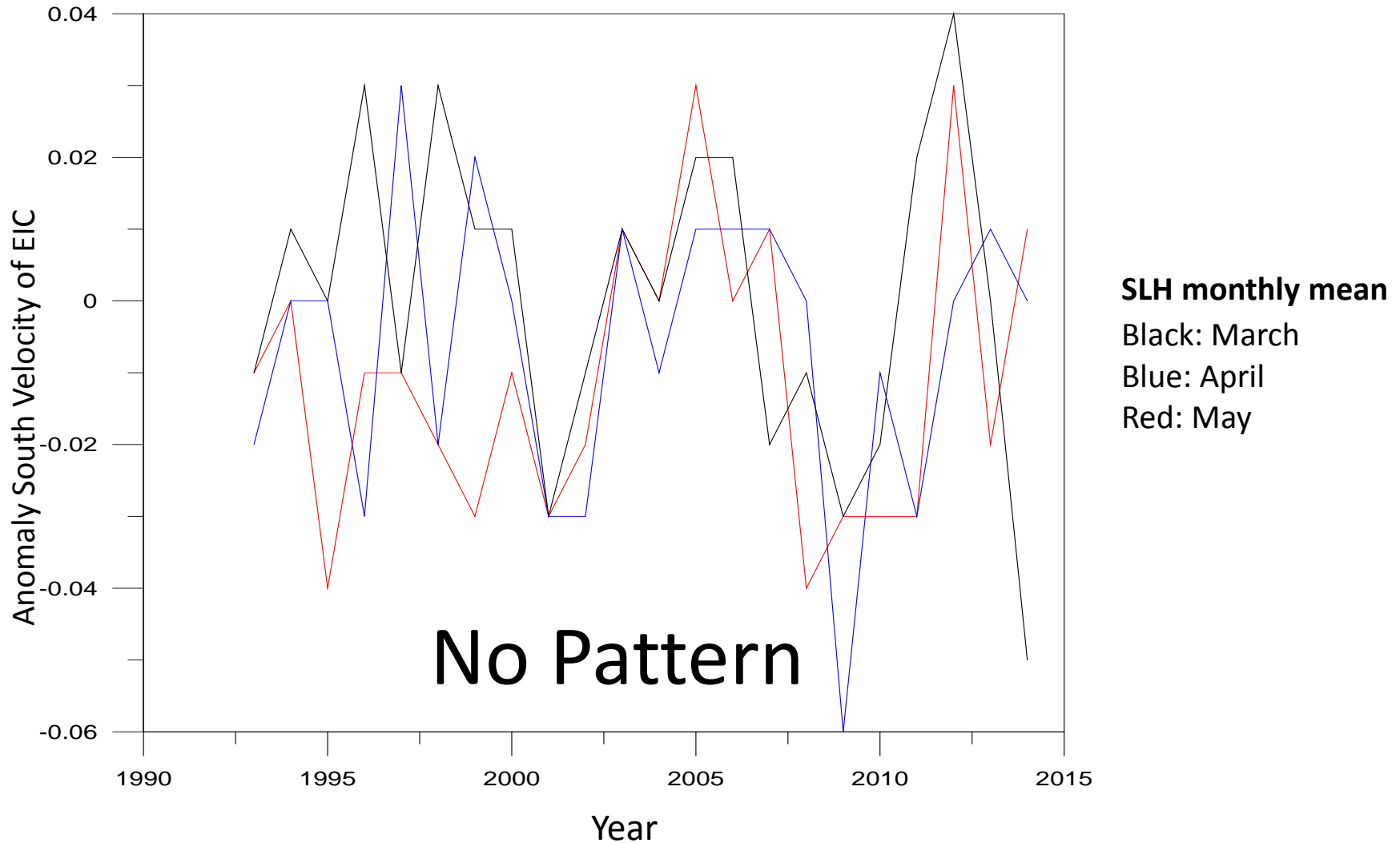
Altimetry track

Cooled Recirculated Atlantic Water

Transect N

Atlantic Water

Transport in the East Icelandic Current



Conclusion

- **Clear shift in zooplankton communities around 2003**
 - Phenological changes in *C. finmarchicus*
 - Disappearance of *C. hyperboreus*
- **This coincides with a marked shift in the hydrography**
- **Cannot pinpoint a direct mechanism causing these changes**

