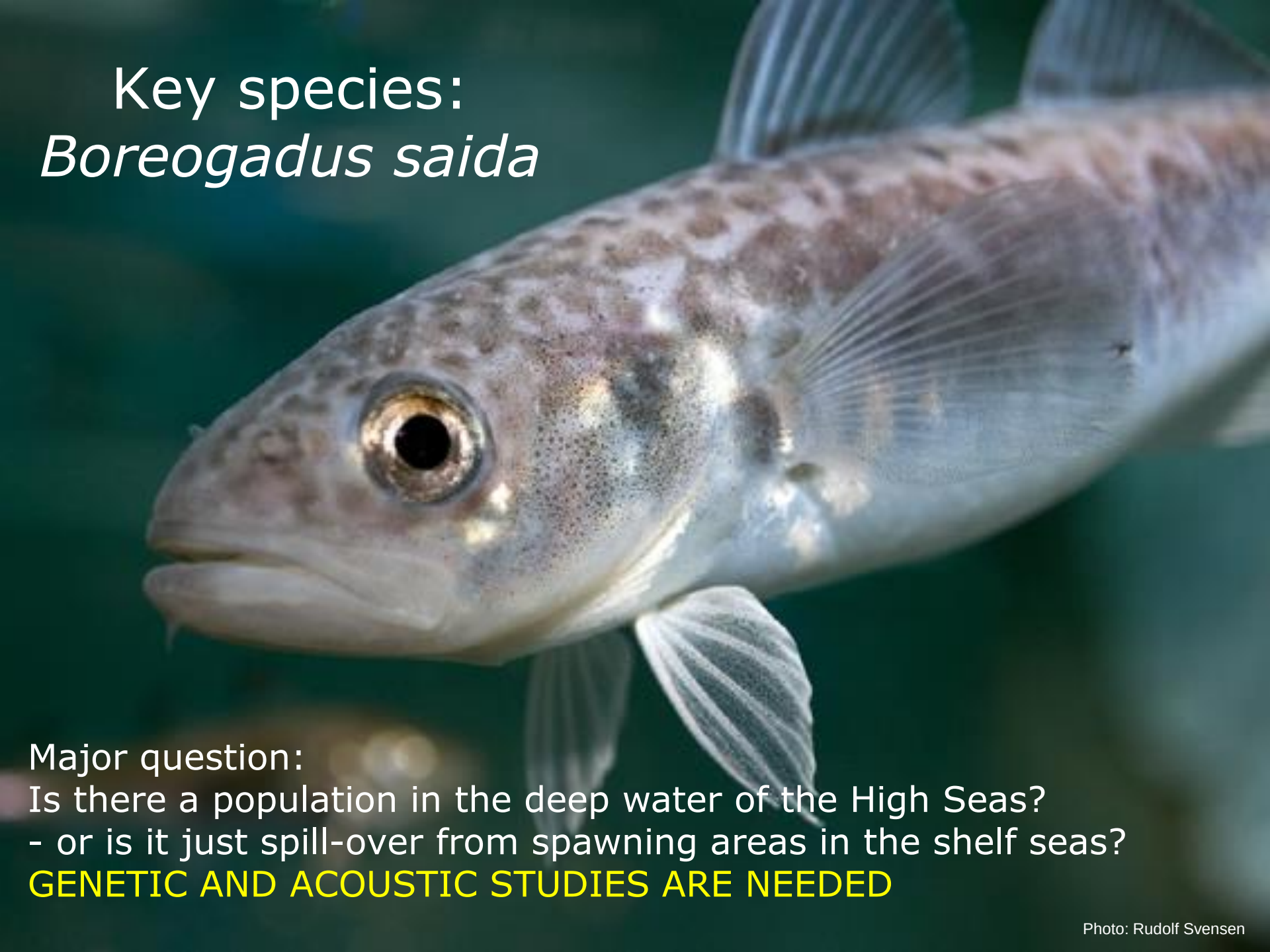


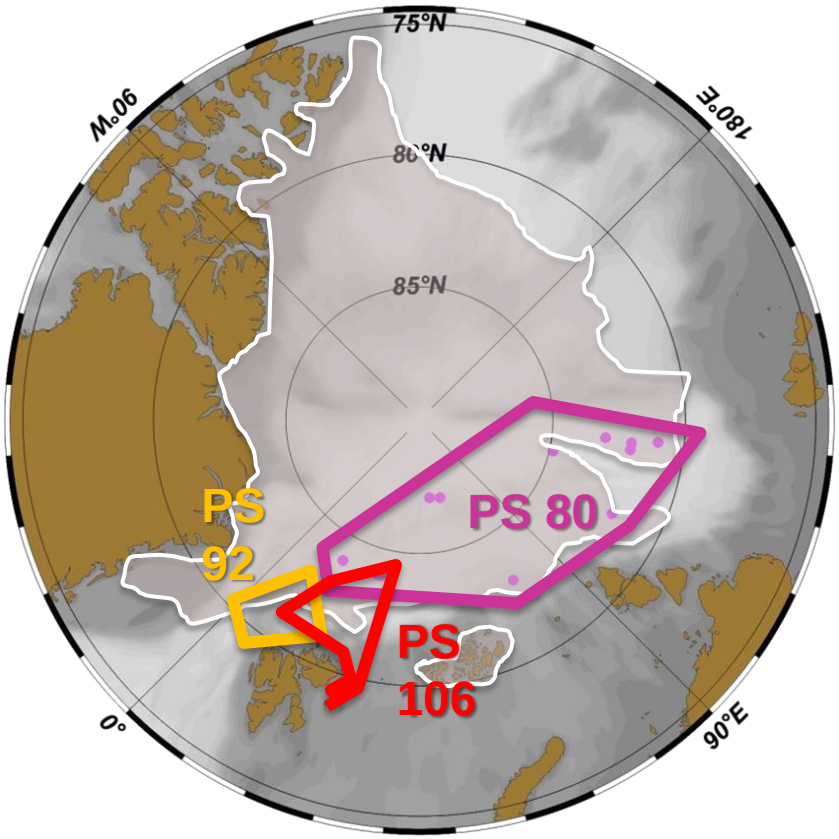
Key species:
Boreogadus saida

Major question:
Is there a population in the deep water of the High Seas?
- or is it just spill-over from spawning areas in the shelf seas?
GENETIC AND ACOUSTIC STUDIES ARE NEEDED

Photo: Rudolf Svensen

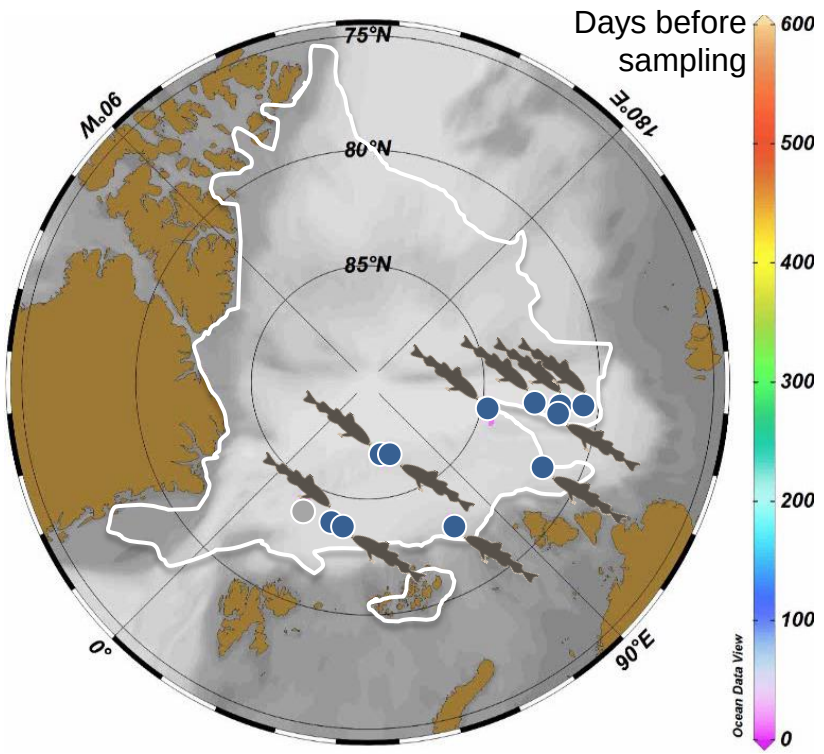
Polarstern Surveys

- PS80 (2012)
  - Under-ice nets
- PS 92 (2015)
- PS 106 (2017)
  - Under-ice nets
  - Pelagic nets (RMT)
  - Acoustic surveys (EK60)
  - Drift station (PS 106.1)



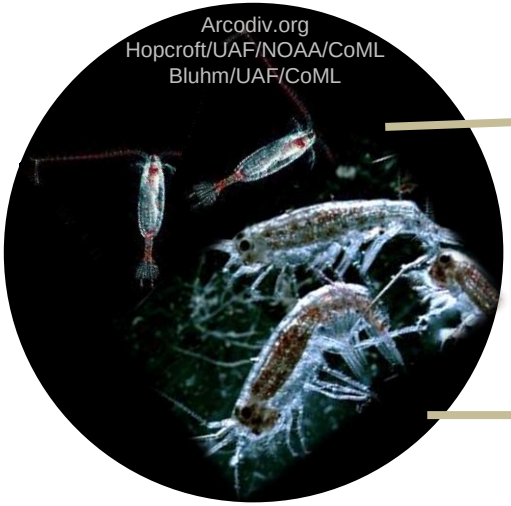
Polar cod

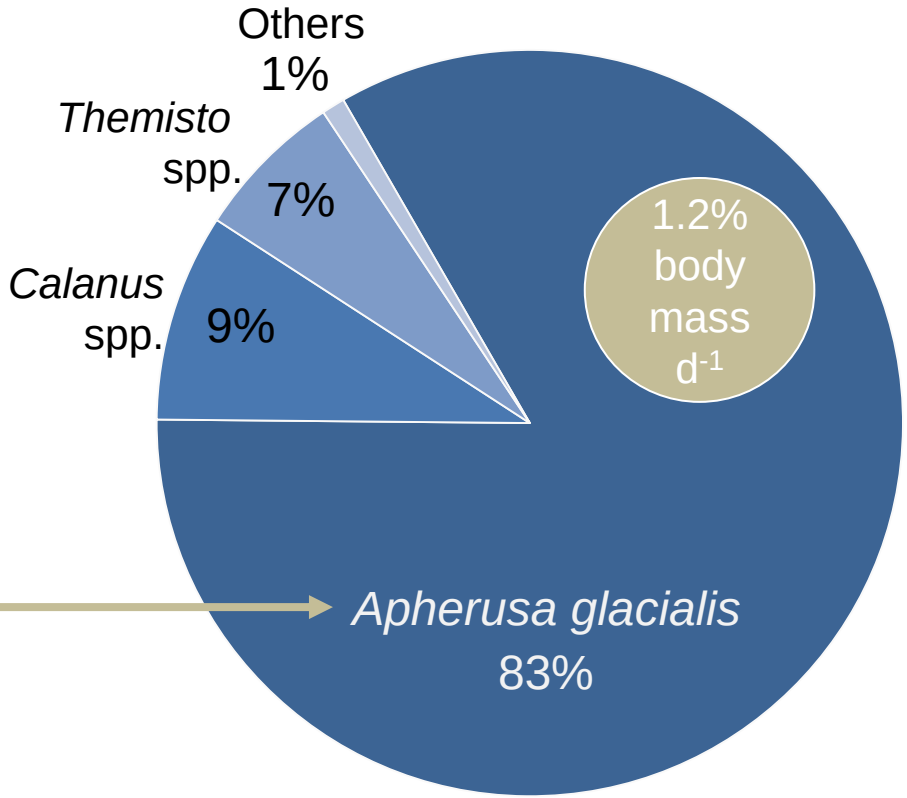
Hypothesis:
Sea ice provides high-energy food for young polar cod to succesfully cross the CAO



David et al. (2016) *Polar Biol*

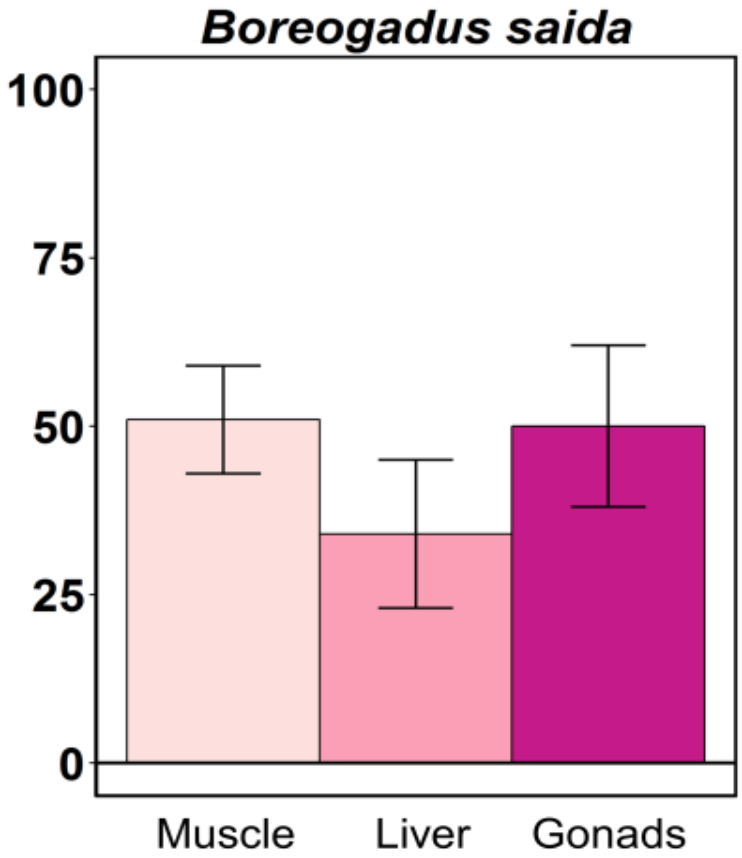
Polar cod diet





Proportional diet composition by mass (%)

Polar cod diet



- Sea ice provides sufficient high-energy food for young polar cod to grow
- Critical dependency on ice algae-produced carbon
- Young polar cod particularly vulnerable to changes in sea ice habitat structure
- Impacts of sea ice change on higher predators likely

Kohlbach, Schaafsma, ..., Flores et al.
Prog in Oceanogr
Doi: 10.1016/j.pocean.2017.02.003

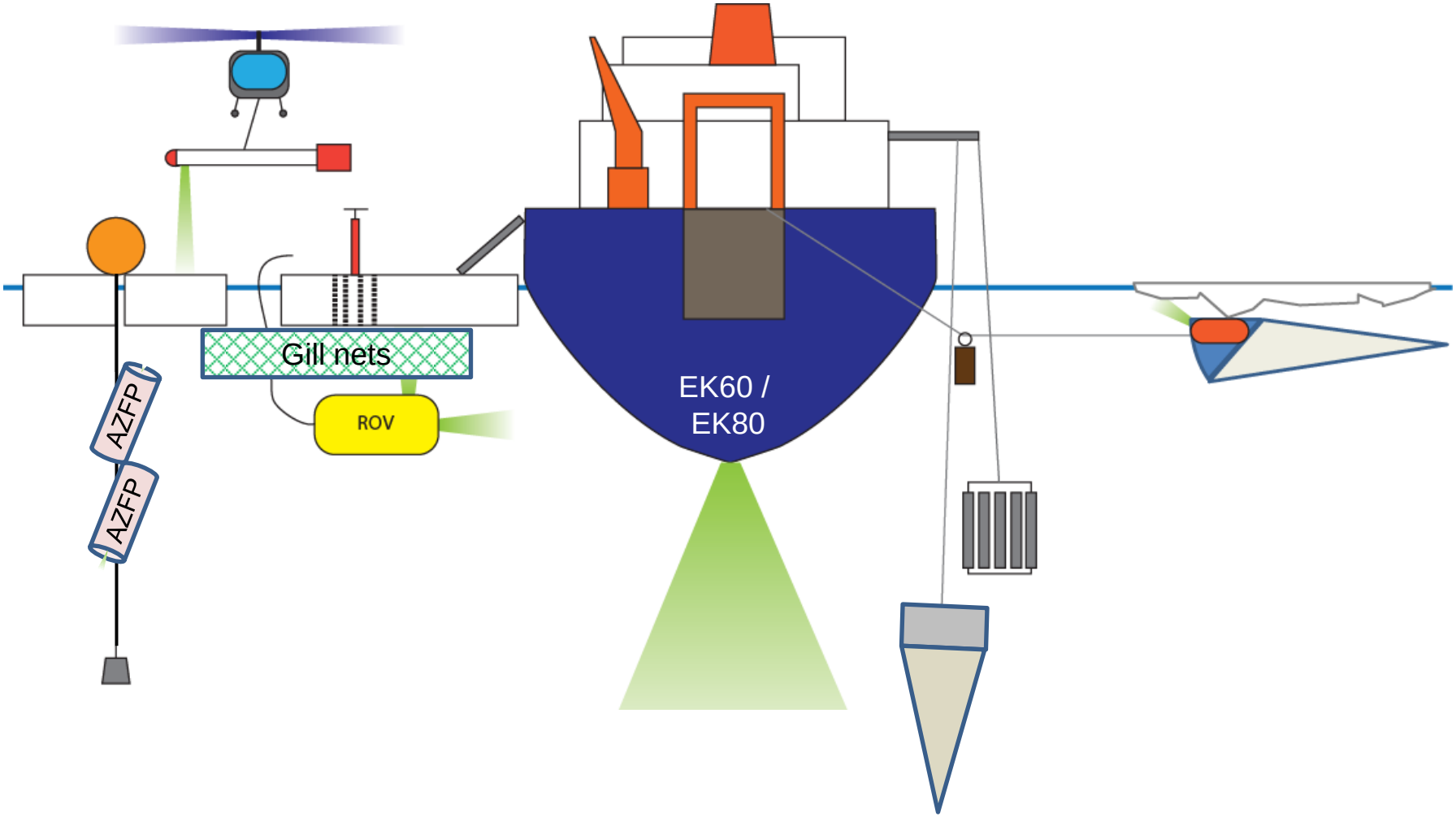
MOSAiC

Multidisciplinary drifting Observatory
for the Study of Arctic Climate

2019-2020

Well-prepared (targeting fish)
High-resolution data (more pings)
Ship stationary (no disturbances)
Year-round measurements

MOSAiC observatory



Challenges

- There is at least one (polar cod) fish population at the North Pole
- The CAO suffers from lack of information at all trophic levels, e.g. mesopelagic / benthic fish unknown
- The ecosystem faces critical changes - drastic and unprecedented
- Very difficult to predict how the future Arctic ecosystem will function

Conclusions:

- Binding regulations are necessary (also for the shelf seas)
- THE CAO needs an international EPA, ICES, BONUS, etc.
- Example: CCAMLR
- The best thing would be to make the Arctic High Seas one big MPA
- The international political processes are far too slow

Thank you for your attention!