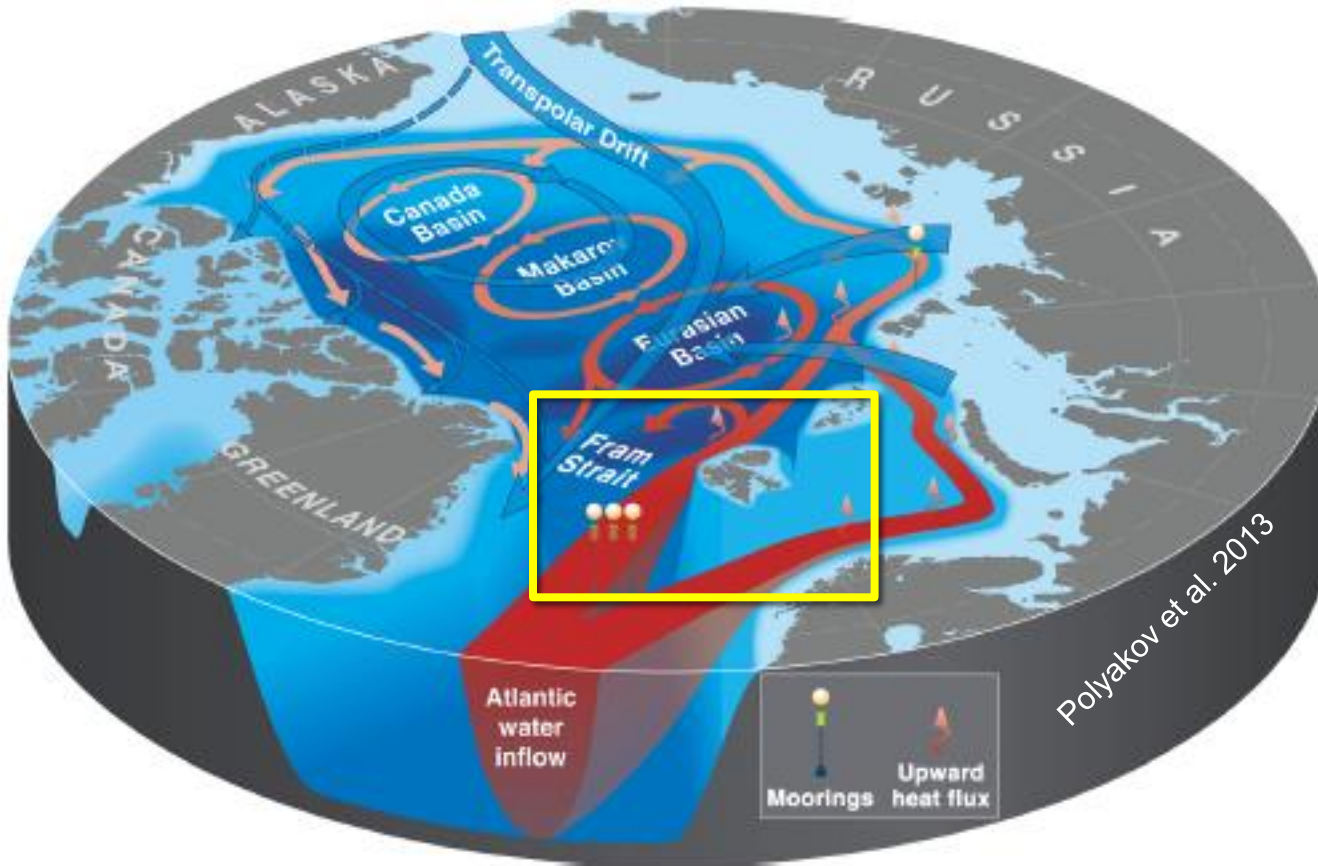


TOWARDS AN A-DBO

On behalf of A-DBO planning group

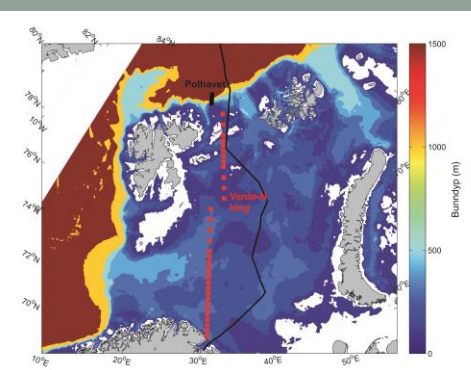
by Bodil Bluhm, UiT – The Arctic University of
Norway, The Nansen Legacy Project

Regional context

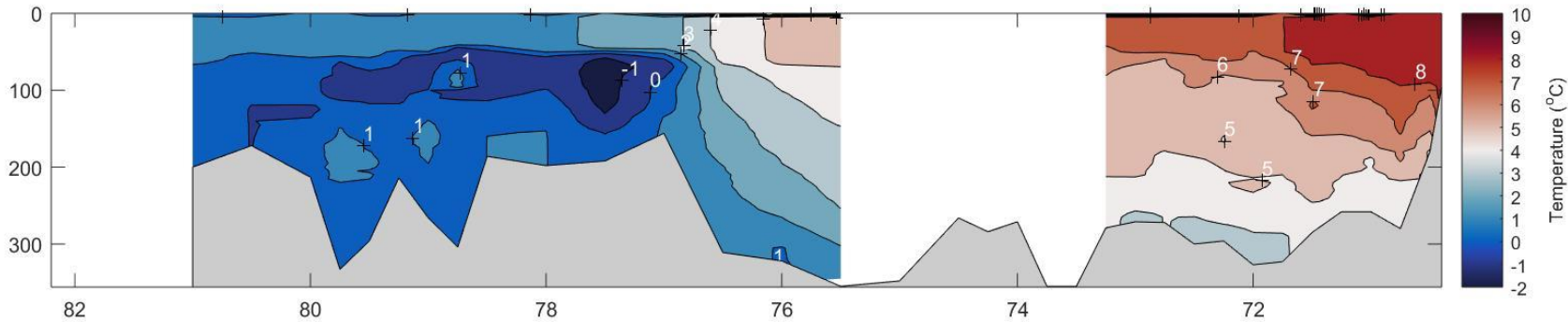


- AW inflow
- Deep shelf
- Fram Strait
- Meeting Arctic water north of Svalbard

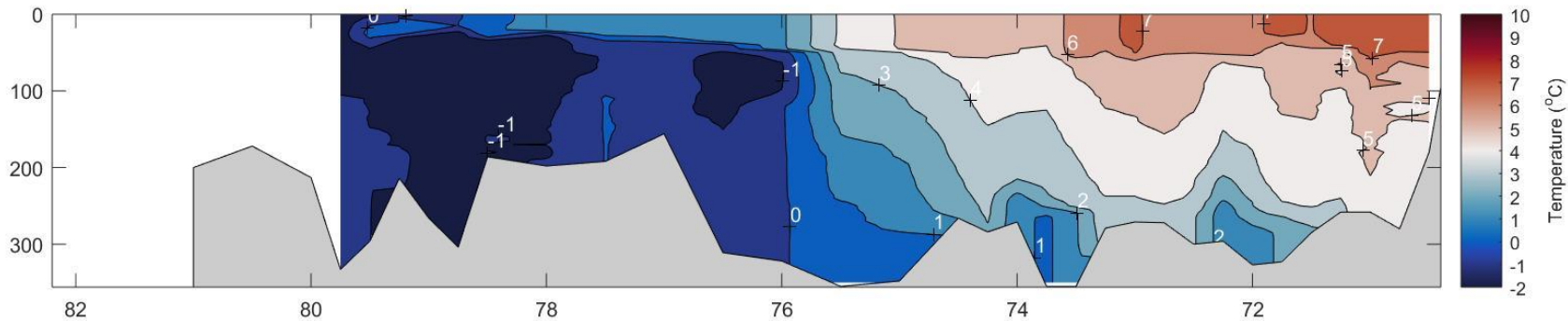
Atlantic-Arctic transition, PF



Temperature late summer 2018



Temperature late summer 2019



Ingvaldsen, IMR

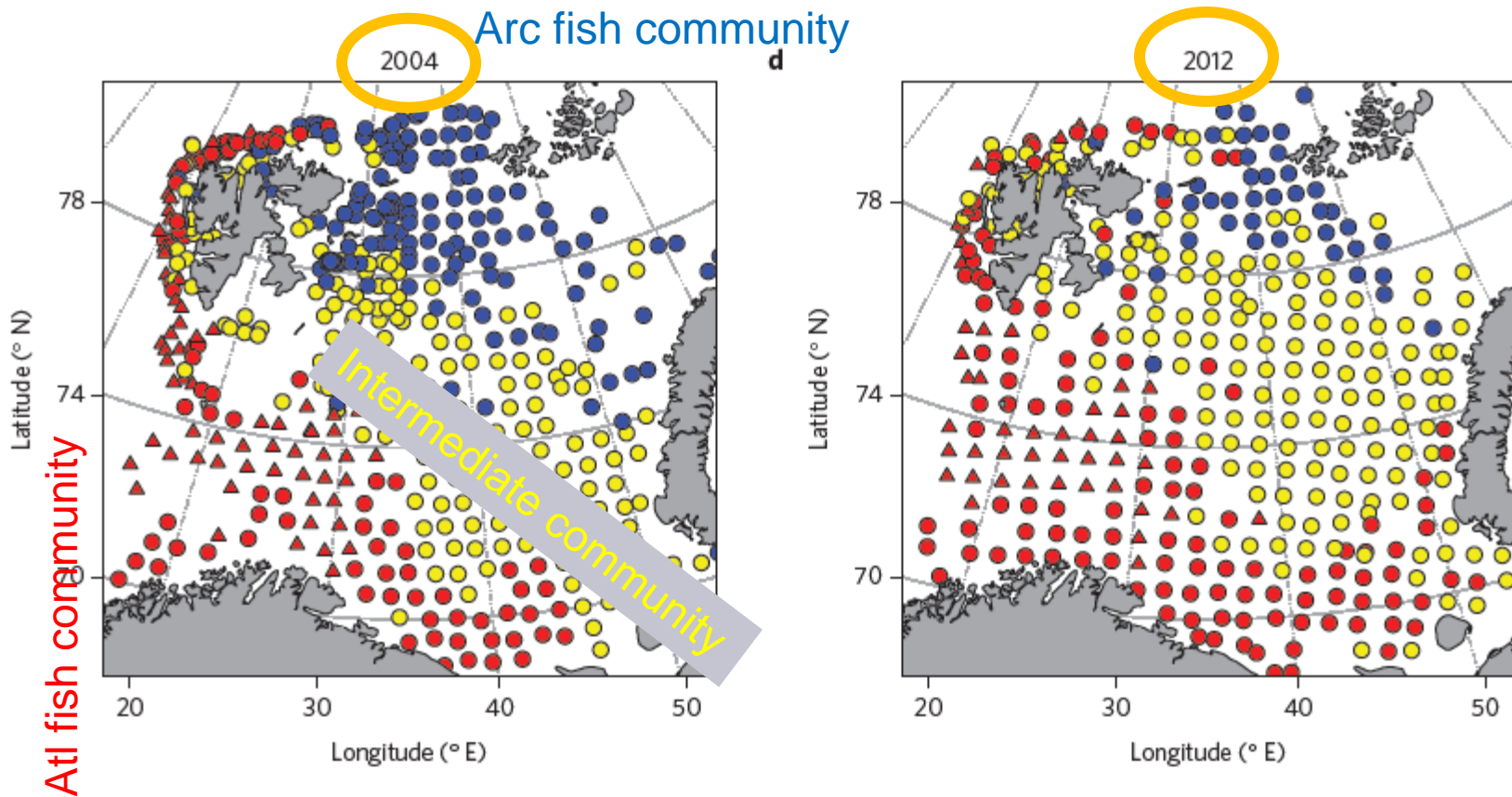
- Sampled annually in late summer for temperature, salinity, nutrients, ocean acidification parameters and mesozooplankton since 2012

Ongoing time series

- Where are time series?
- What is being measured?
- → Basis for proposed A-DBO transects
- Example results

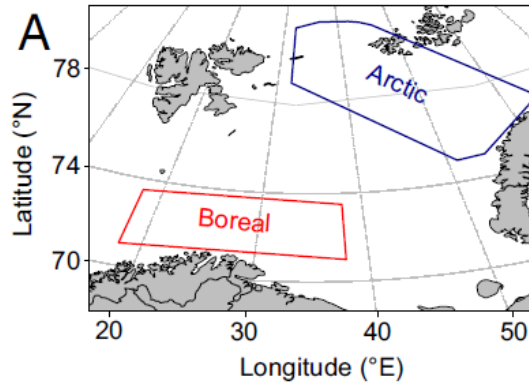
Fisheries surveys show borealization

- Annual survey, Institute of Marine Research

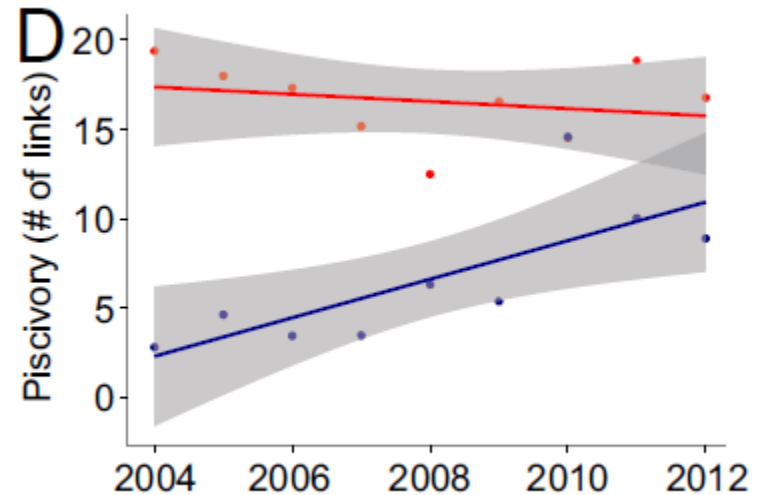
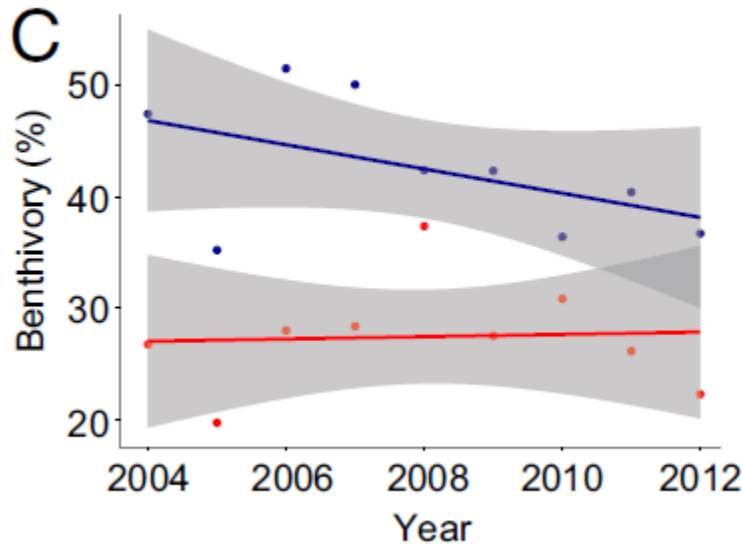


Fish, bottom T, Epibenthos from 2009

... And associated functional shifts

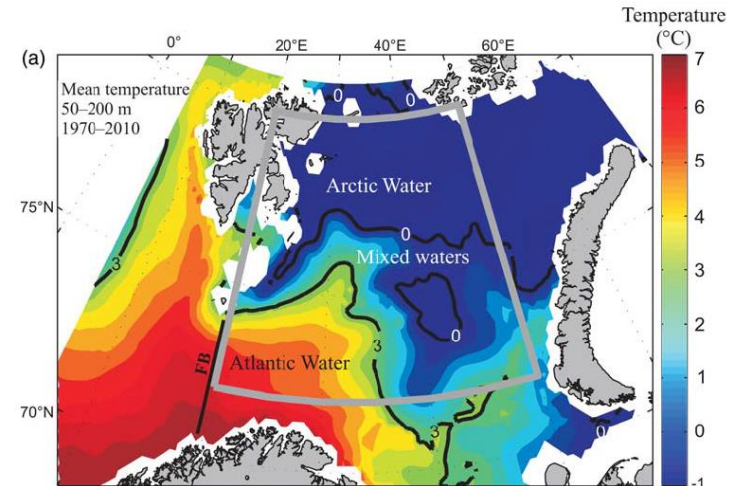
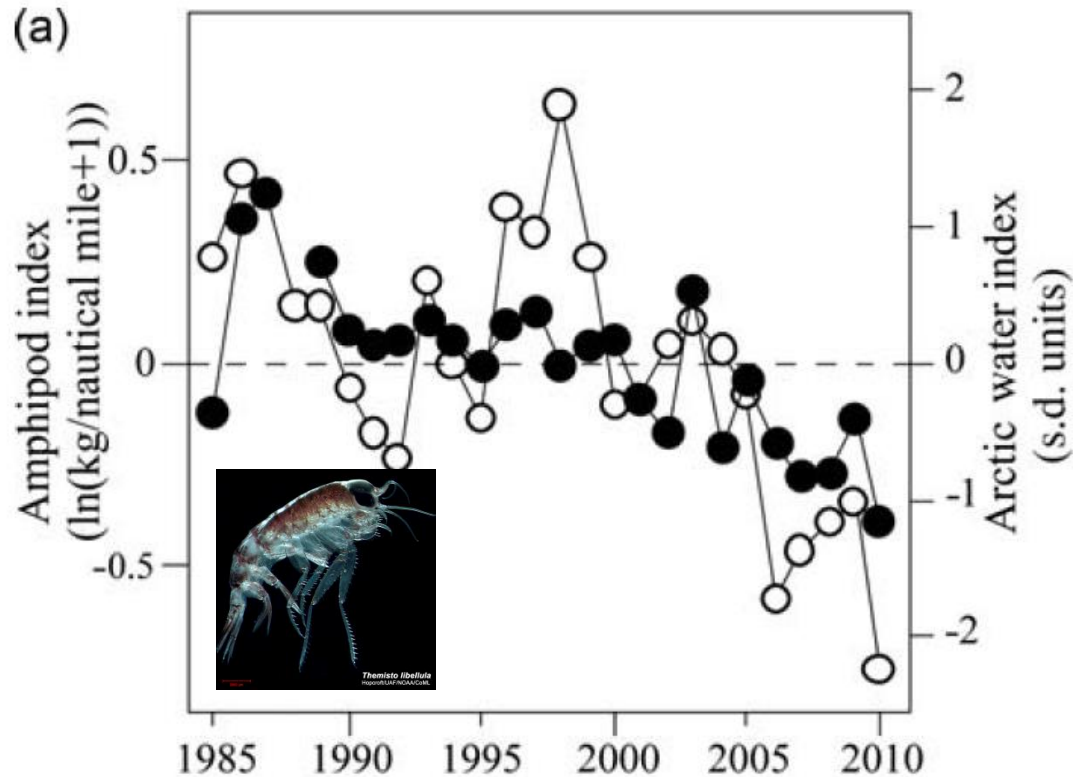


- Fish in north now more piscivorous, less benthivorous
- Increase in connectivity (network analysis, Kortsch et al. 2015) through generalist feeders (cod)



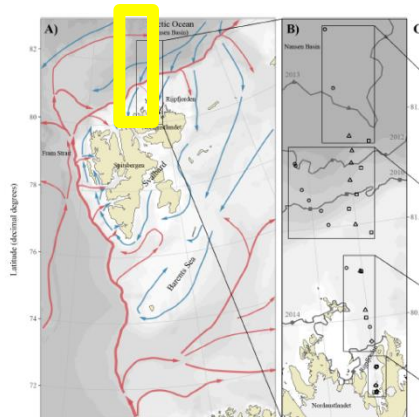
Frainer et al. 2017

Hydrography-bio links

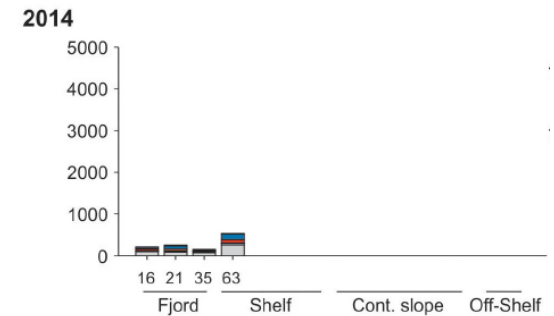
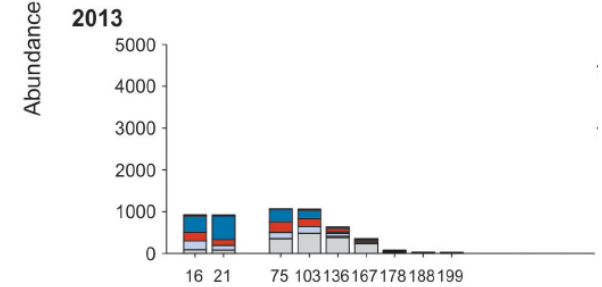
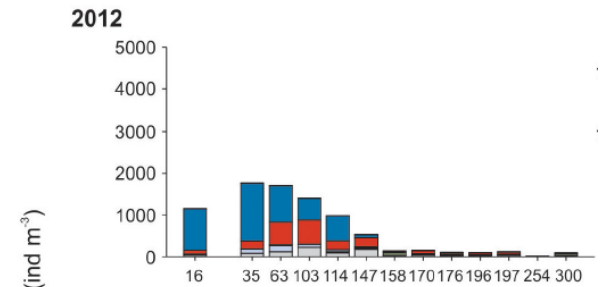
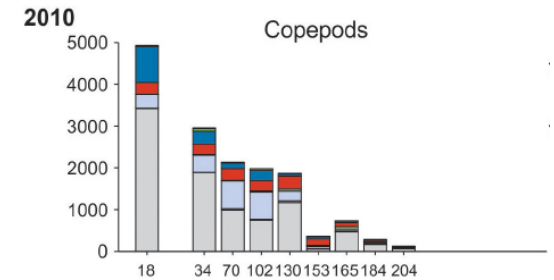
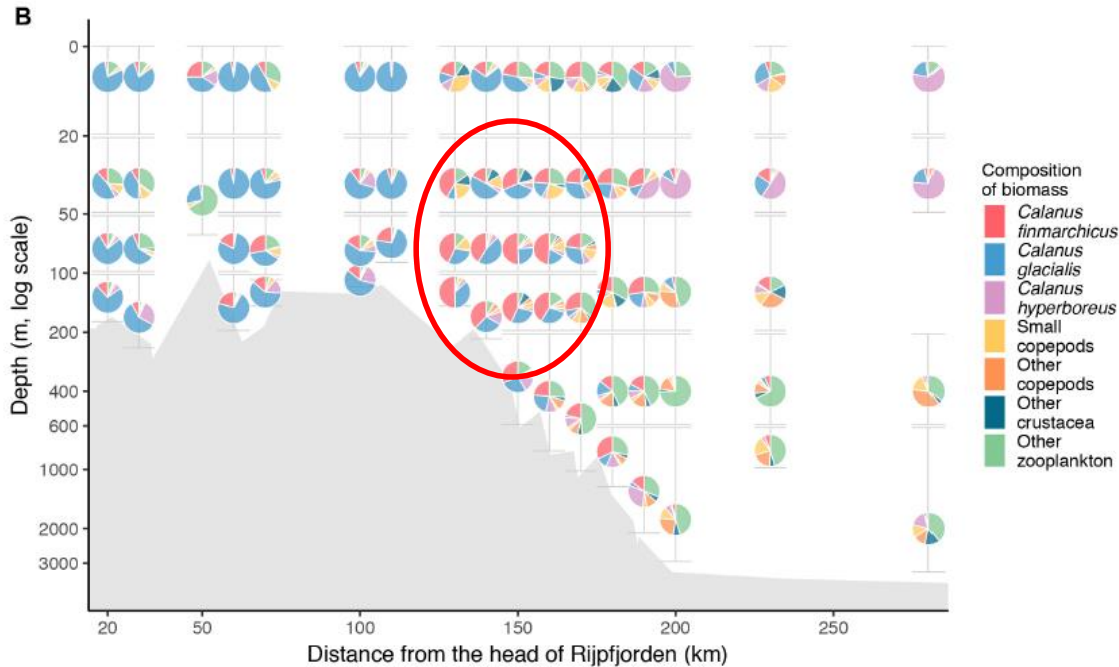


- Arctic water area & zooplankton reduced, implications for *Boreogadus*
- Krill increased, positive for young cod and capelin

Fjord to basin transect

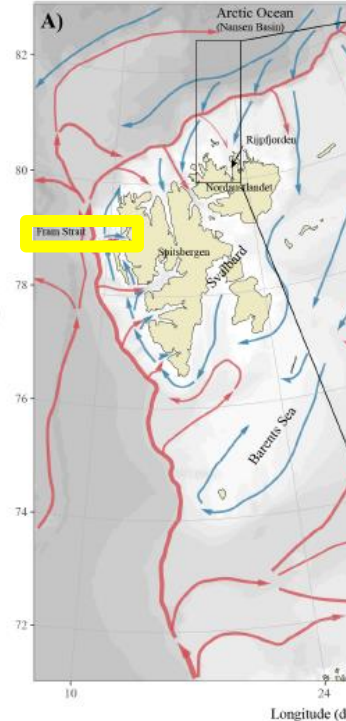
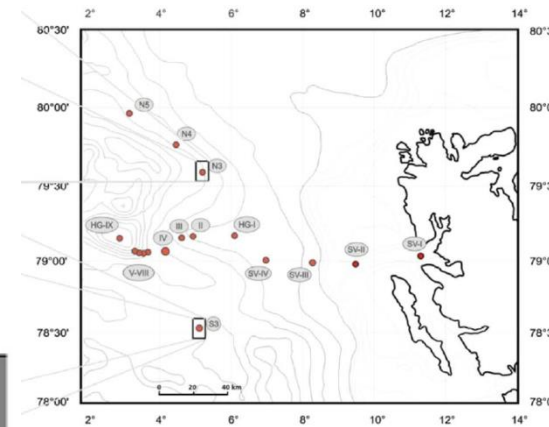
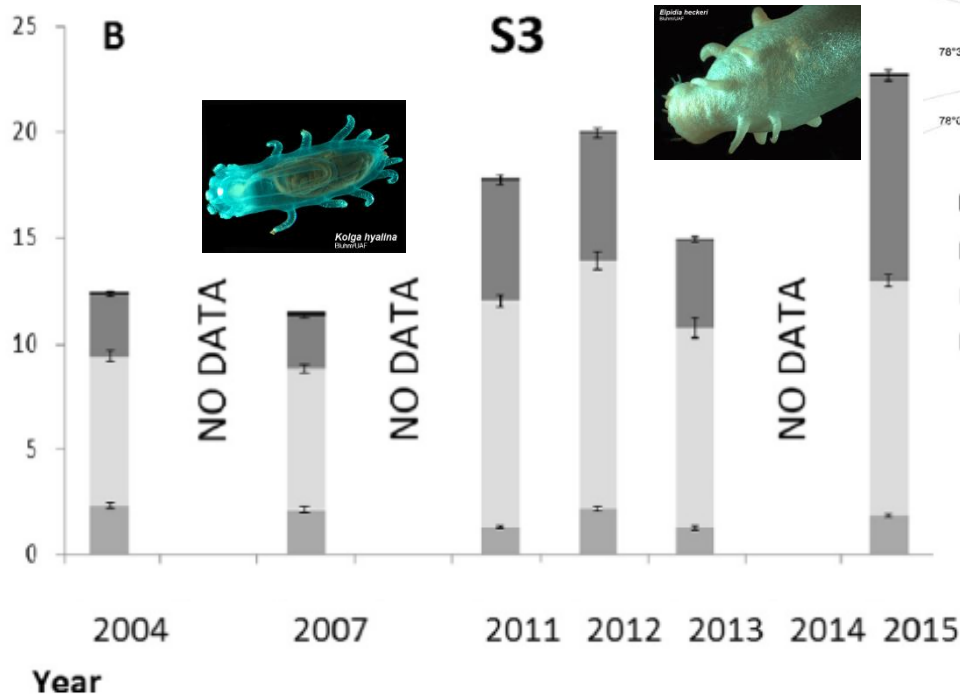


AW tracer copepod



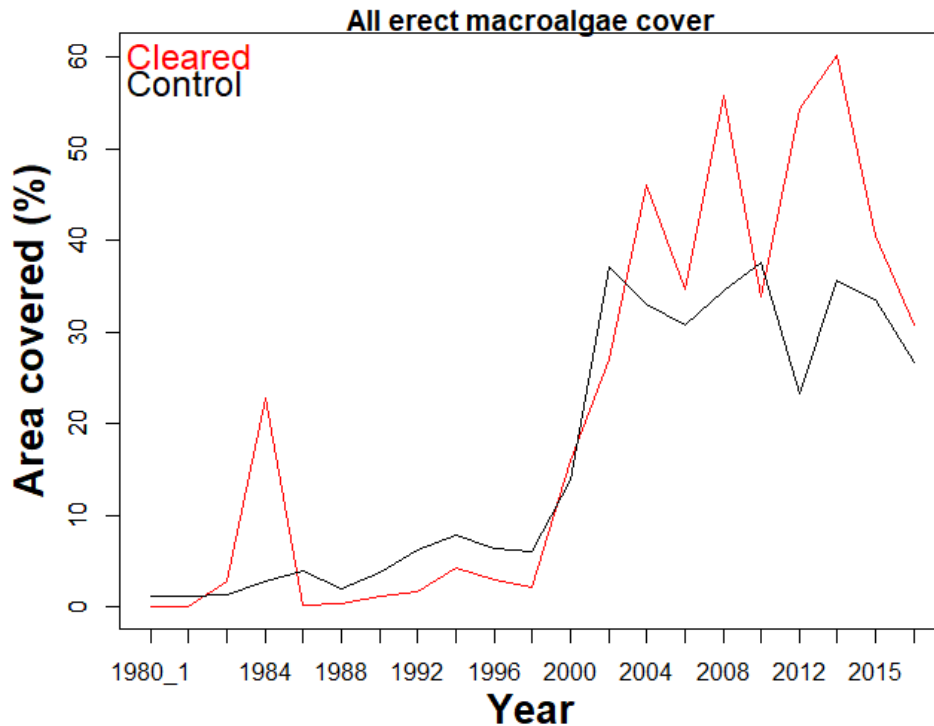
Kongsfjorden to deep Fram Strait transect

- NPI (Kongsfjorden)
- AWI (Hausgarten)

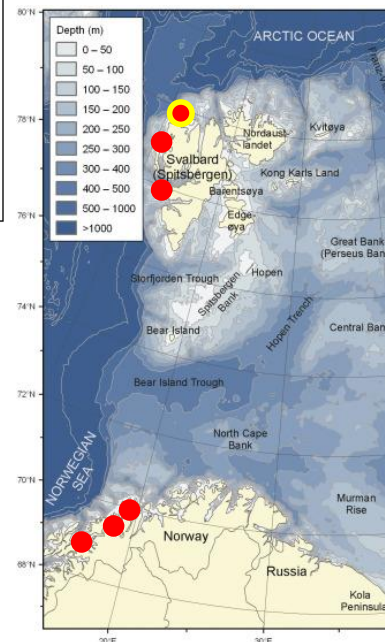


Deep-sea cucumber increases in various ecosystems around the globe, tied to above average vertical flux

Coastal hard-bottom benthos: NW Svalbard & Norwegian coast



- Macro-algal increase since 2000 (1990s KF)
- In line with elsewhere at Arctic rocky coast



- Associated with structural and functional shifts

Keck et al. in prep. Smeerenburgfjorden
Kortsch et al. 2012 Kongsfjorden

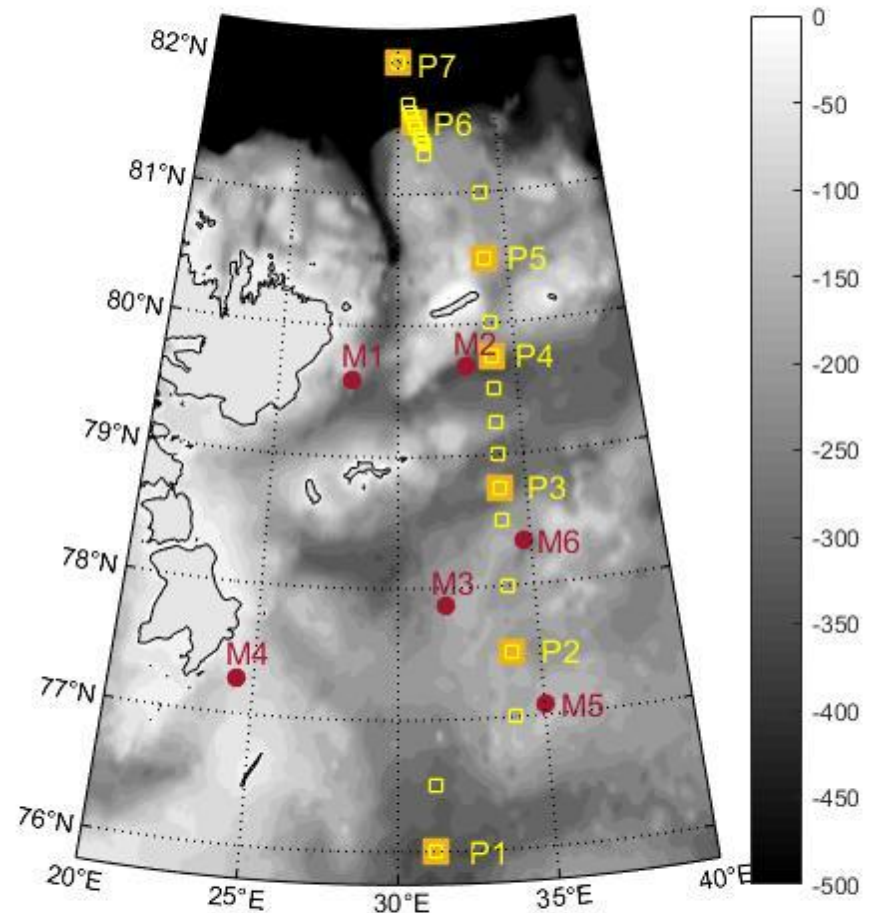
Hydrographic time series along coast

Nansen Legacy, CAO

the
Nansen
LEGACY



- Seasonal and inter-annual variation in **processes**
- Phys, bio, chem, palaeo
- ice, water, seafloor
- OA, contaminants, multi-stressor experiments, production, vertical flux, respiration, grazing, climate prediction ...
- 50 PhDs & post-docs
- 360 ship days over 6 years



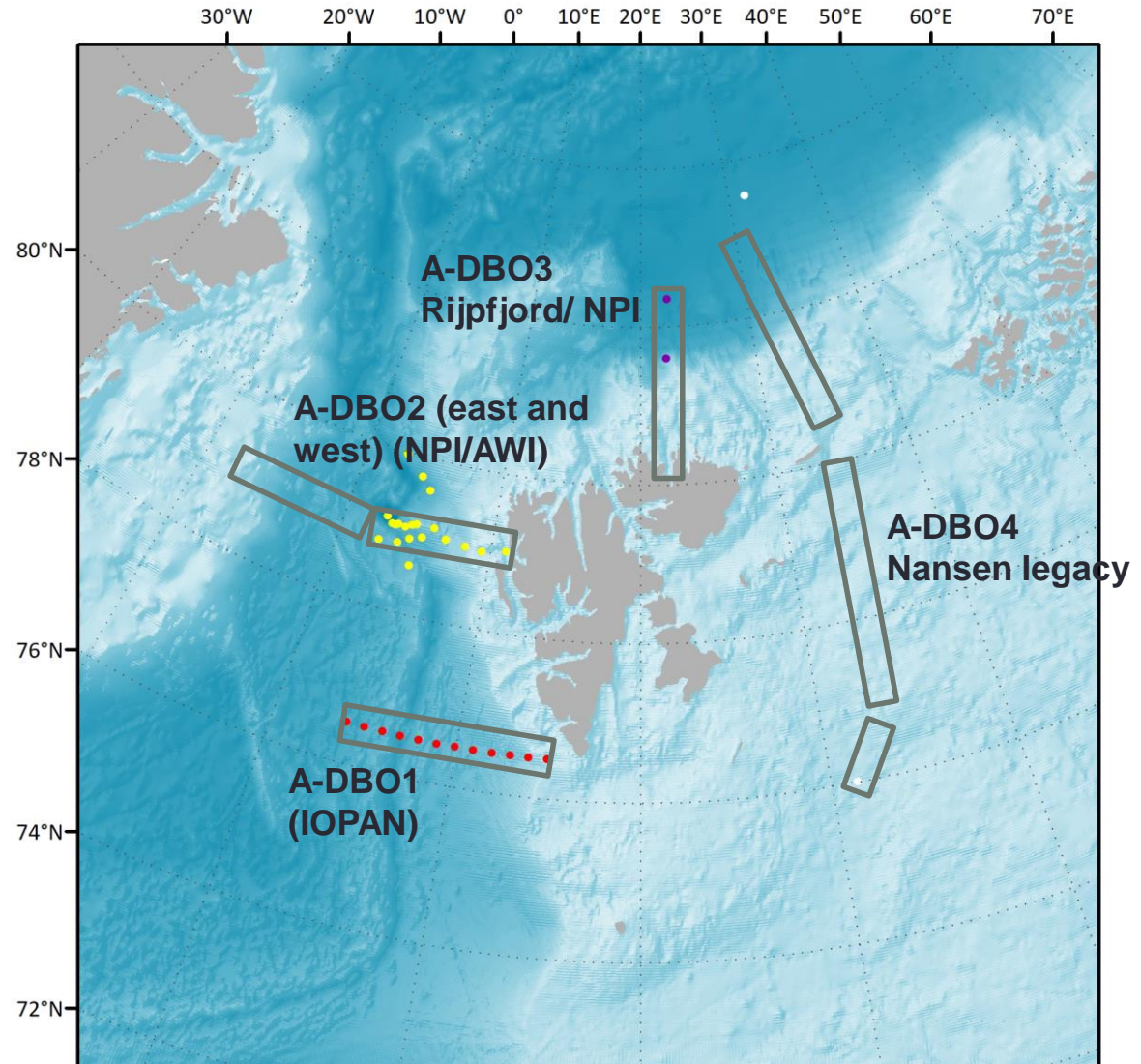
Reigstad, Gerland, Eldevik et al.

But ...

- Lack of coordination
- Planning workshop 2017

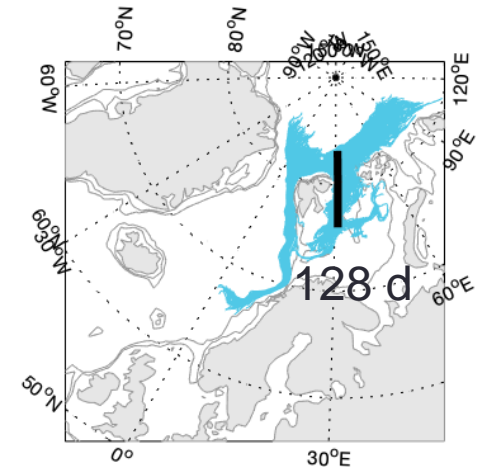
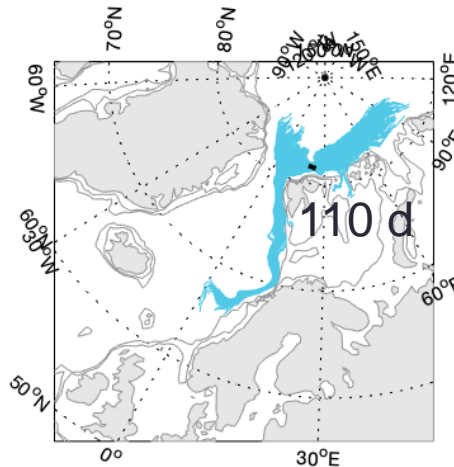
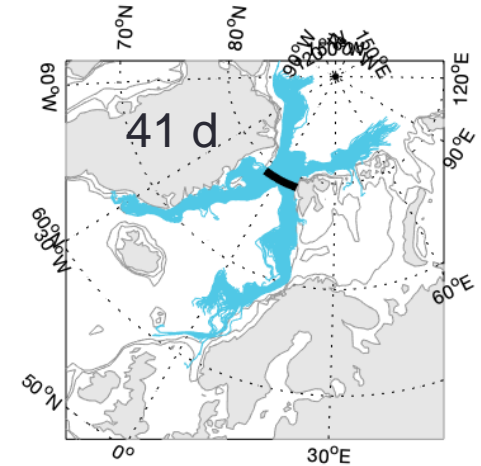
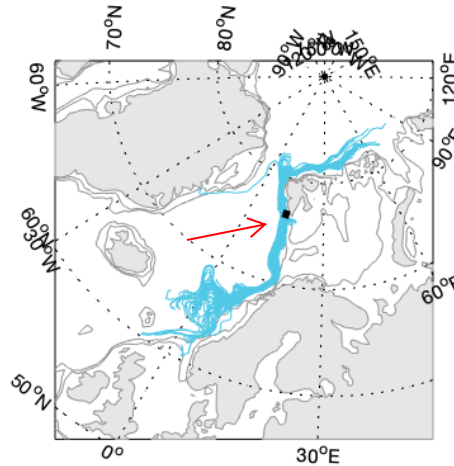
A-DBO planning: coordination

- Planning ongoing of coordination
- Building on long-term multi-national transects
- Ongoing efforts to find support for coordinator and web-based joint platform



A-DBO planning: connectivity

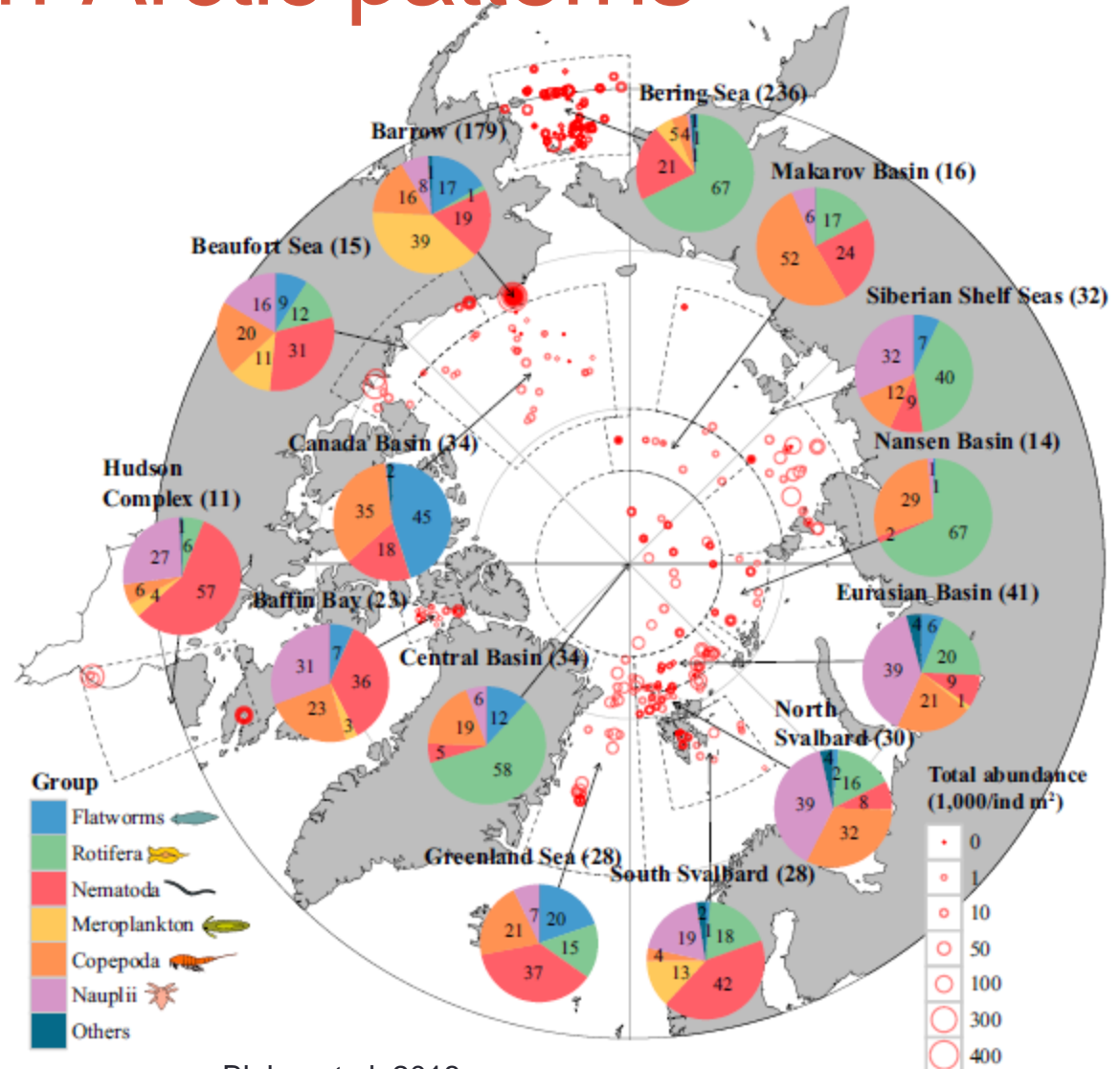
- Particle tracking exercise shows AW passes through all proposed A-DBO lines
- Released at A-DBO1



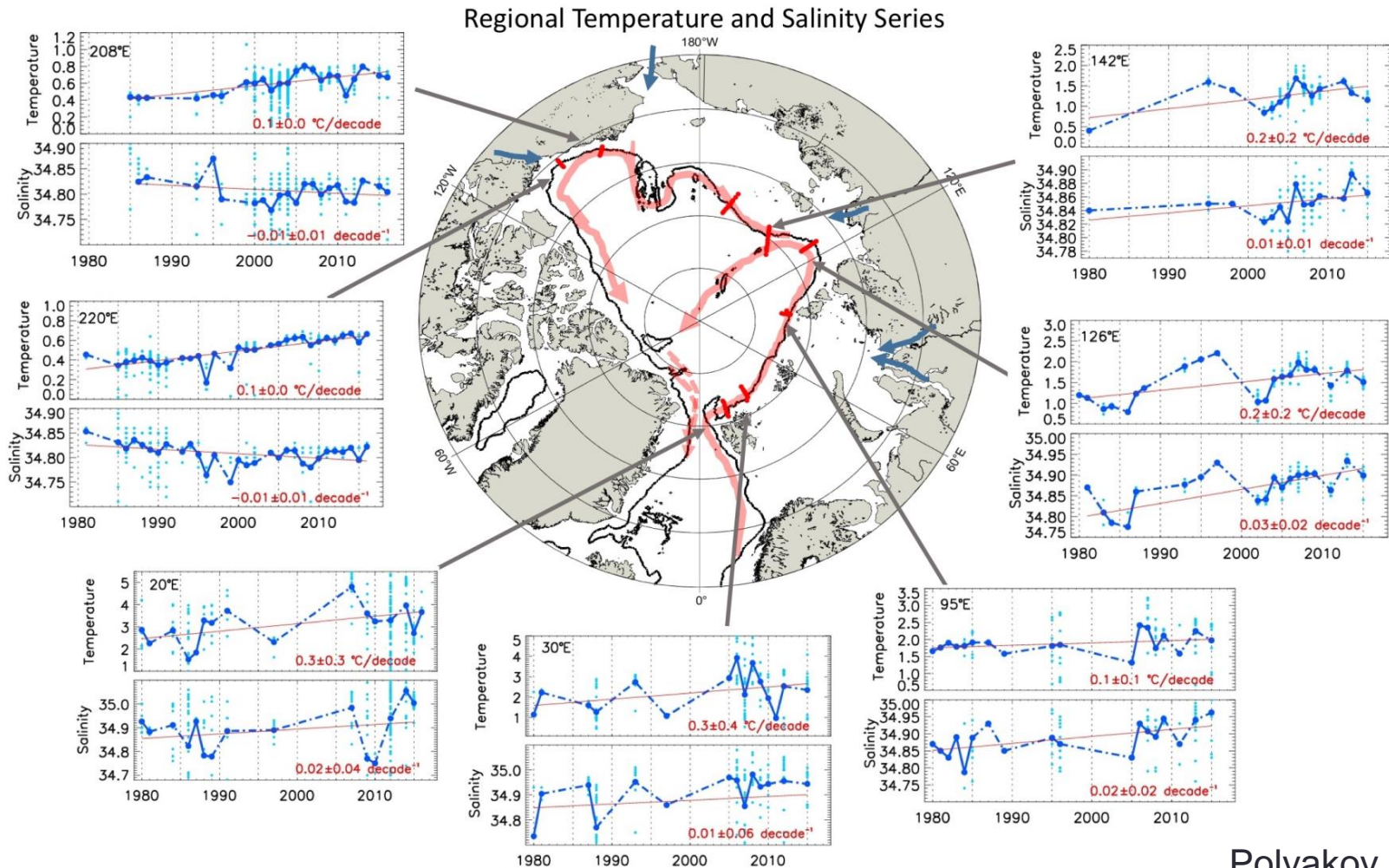
Courtesy Neil Banas, Univ Strathclyde, SINMOD, 0-50 m

Towards: pan-Arctic patterns

- Conservation of Arctic Fauna & Flora



Towards: pan-Arctic change



Polyakov et al.

Pan-Arctic special issue *Frontiers in Marine Science*, ongoing