

Atlantifiseringen av våre arktiske sjøfuglsamfunn

Sébastien Descamps
Hallvard Strøm

NP



Seminar 8 – Asker 28.-29.9.2022

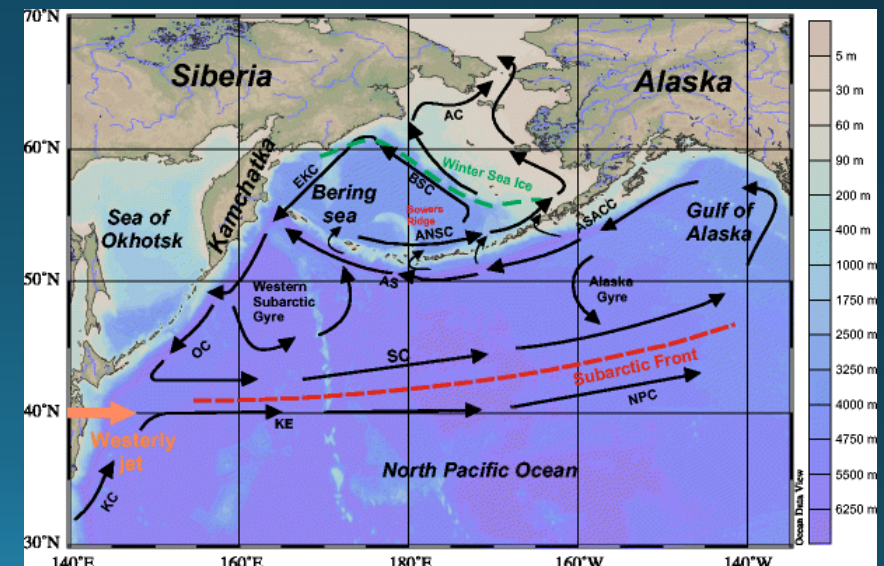
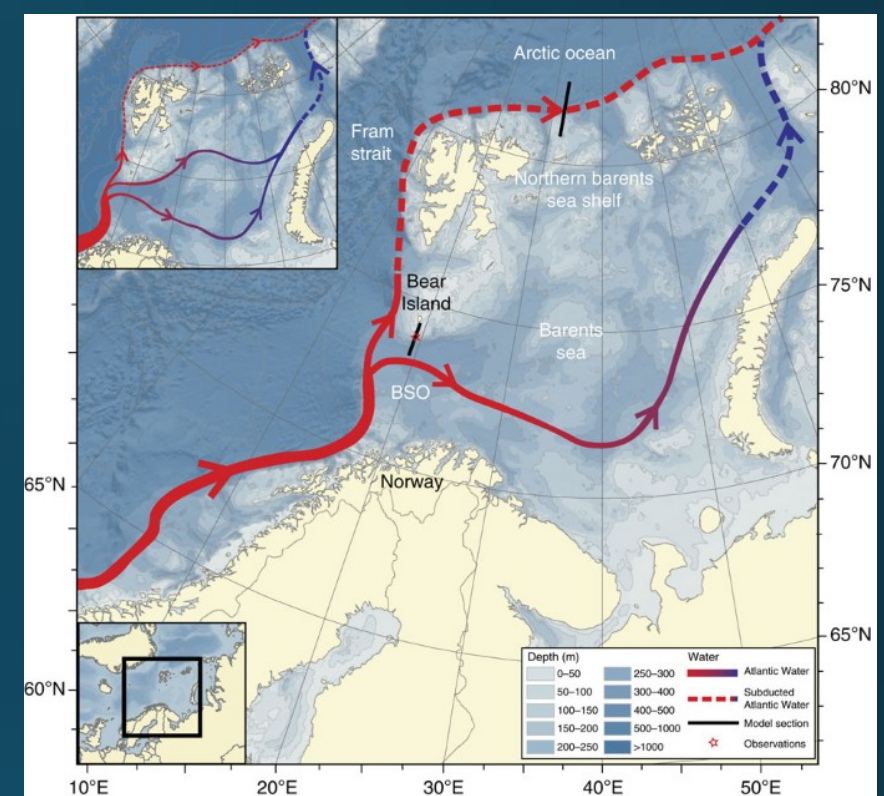
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Atlantifisering vs. borealisering ?

*“ We refer to the changes mediated by increased inflows from the northern North Atlantic and North Pacific as ‘atlantification’ and ‘pacification,’ respectively. We will refer to their joint effect as ‘borealization’ ” Polyakov et al 2021 *Frontiers in Marine Science**

“Atlantifisering” er en prosess som fører til “borealisering” - dvs. endringer fra arktiske til nordlige tempererte egenskaper)





nature climate change **LETTERS**
PUBLISHED ONLINE: 18 MAY 2015 | DOI: 10.1038/NCLIMATE2647

Recent warming leads to a rapid borealization of fish communities in the Arctic

Received: 3 August 2021 | Accepted: 22 September 2021
DOI: 10.1111/gcb.15910

PRIMARY RESEARCH ARTICLE **Global Change Biology** WILEY

Will borealization of Arctic tundra herbivore communities be driven by climate warming or vegetation change?

frontiers in Marine Science

Physical manifestations and ecological implications of Arctic Atlantification

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Review Article | Published: 16 November 2021

Physical manifestations and ecological implications of Arctic Atlantification

Borealization of the Arctic Ocean in Response to Anomalous Advection From Sub-Arctic Seas

frontiers in Marine Science ORIGINAL RESEARCH published: 07 September 2021 doi: 10.3389/fmars.2021.700697

Biomarkers in Ringed Seals Reveal Recent Onset of Borealization in the High- Compared to the Mid-Latitude Canadian Arctic

LIMNOLOGY and OCEANOGRAPHY ASLO
Limnol. Oceanogr. 65, 2020, 1175–1188
© 2019 Association for the Sciences of Limnology and Oceanography doi: 10.1002/lno.11360

Borealization of Arctic zooplankton—smaller and less fat zooplankton species in Disko Bay, Western Greenland

Diversity and Distributions Open Access A Journal of Conservation Biogeography

RESEARCH ARTICLE | Open Access | © | i

Recent warming causes functional borealization and diversity loss in deep fish communities east of Greenland

Contents lists available at ScienceDirect

Science of the Total Environment ELSEVIER
journal homepage: www.elsevier.com/locate/scitotenv

Zooplankton and sediment fluxes in two contrasting fjords reveal Atlantification of the Arctic

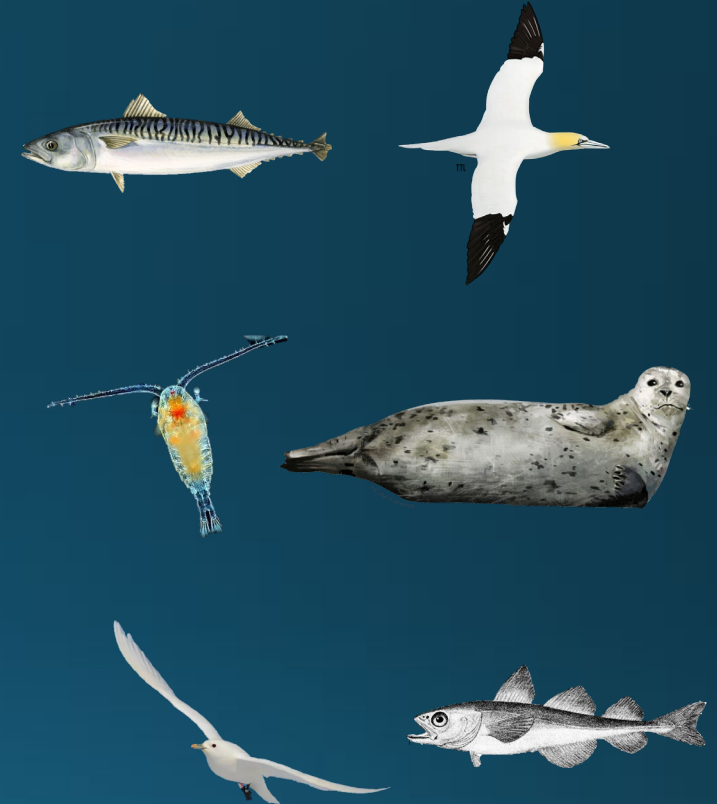
SCIENTIFIC REPORTS

OPEN Black-legged kittiwakes as messengers of Atlantification in the Arctic

For arktiske samfunn betyr dette:



- Etablering av nye arter (f.eks. makrell og havsule på Svalbard)
- Økning i bestandsstørrelse av «boreale» arter (f.eks. *Calanus finmarchicus*, steinkobbe)
- Nedgang i bestandsstørrelse og/eller forskyving i utbredelse hos ekte "arktiske" arter (f.eks. polartorsk, ismåke)



Hva er en ekte arktisk art?...

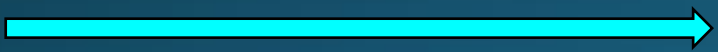
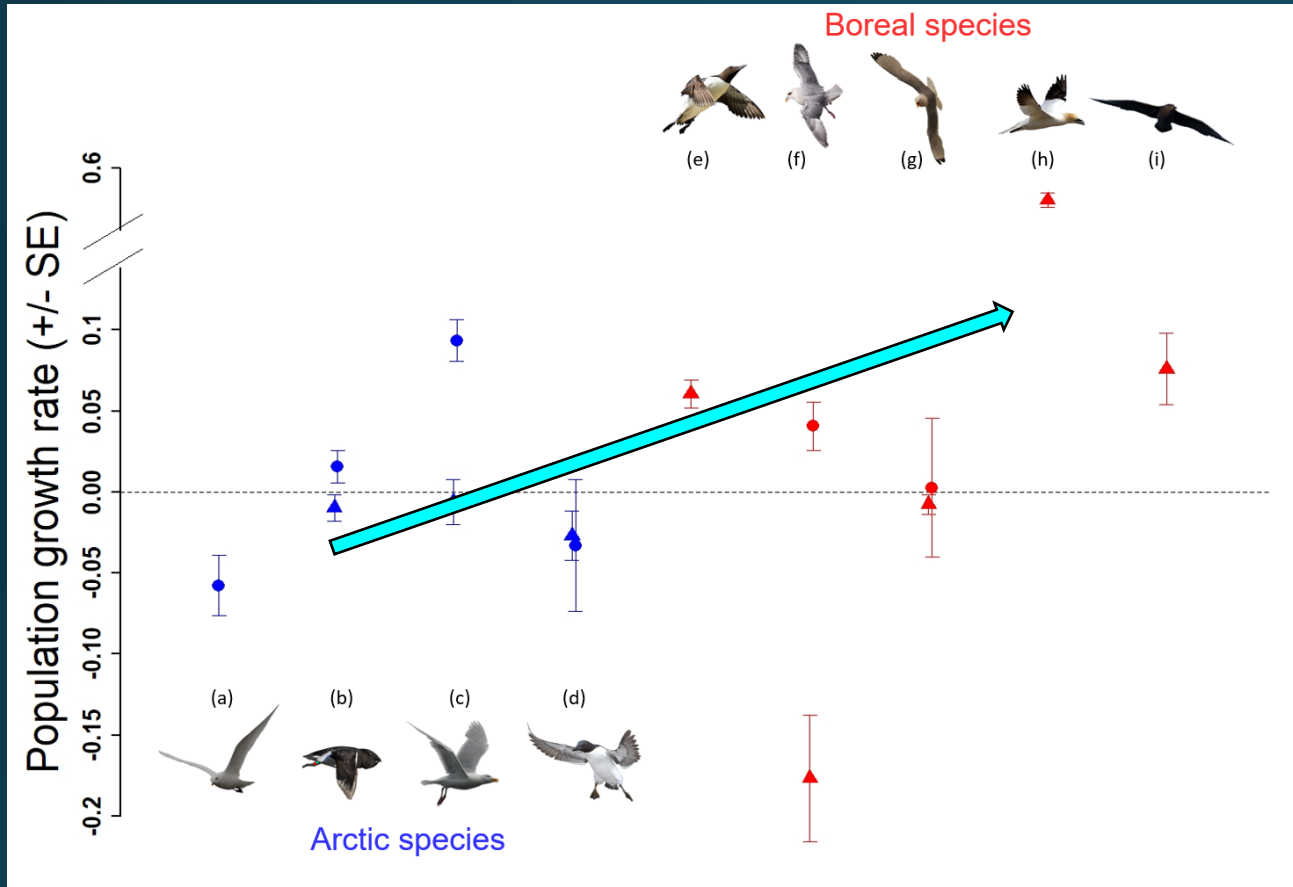


% Arktis
↔
% Overlapp i hekkeområde
med arktisk biom

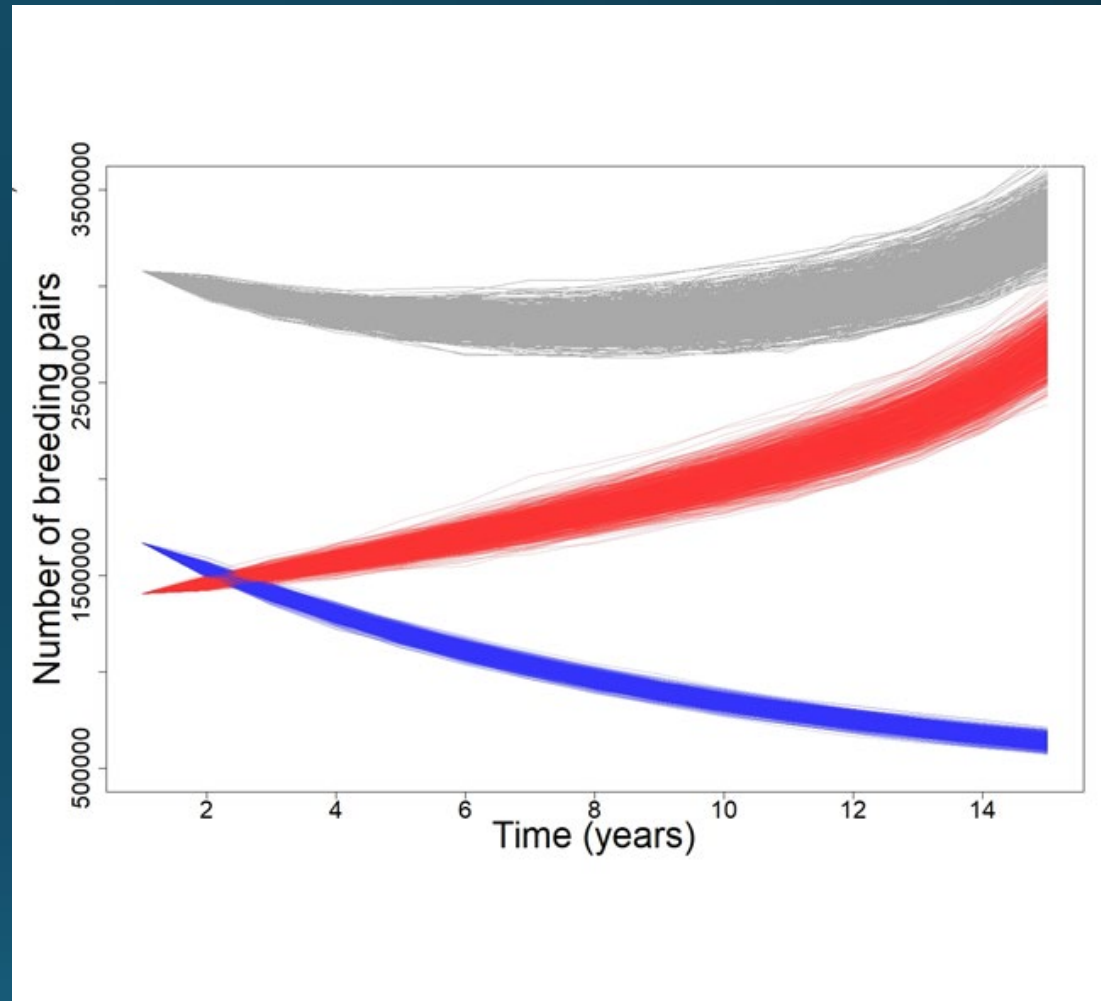
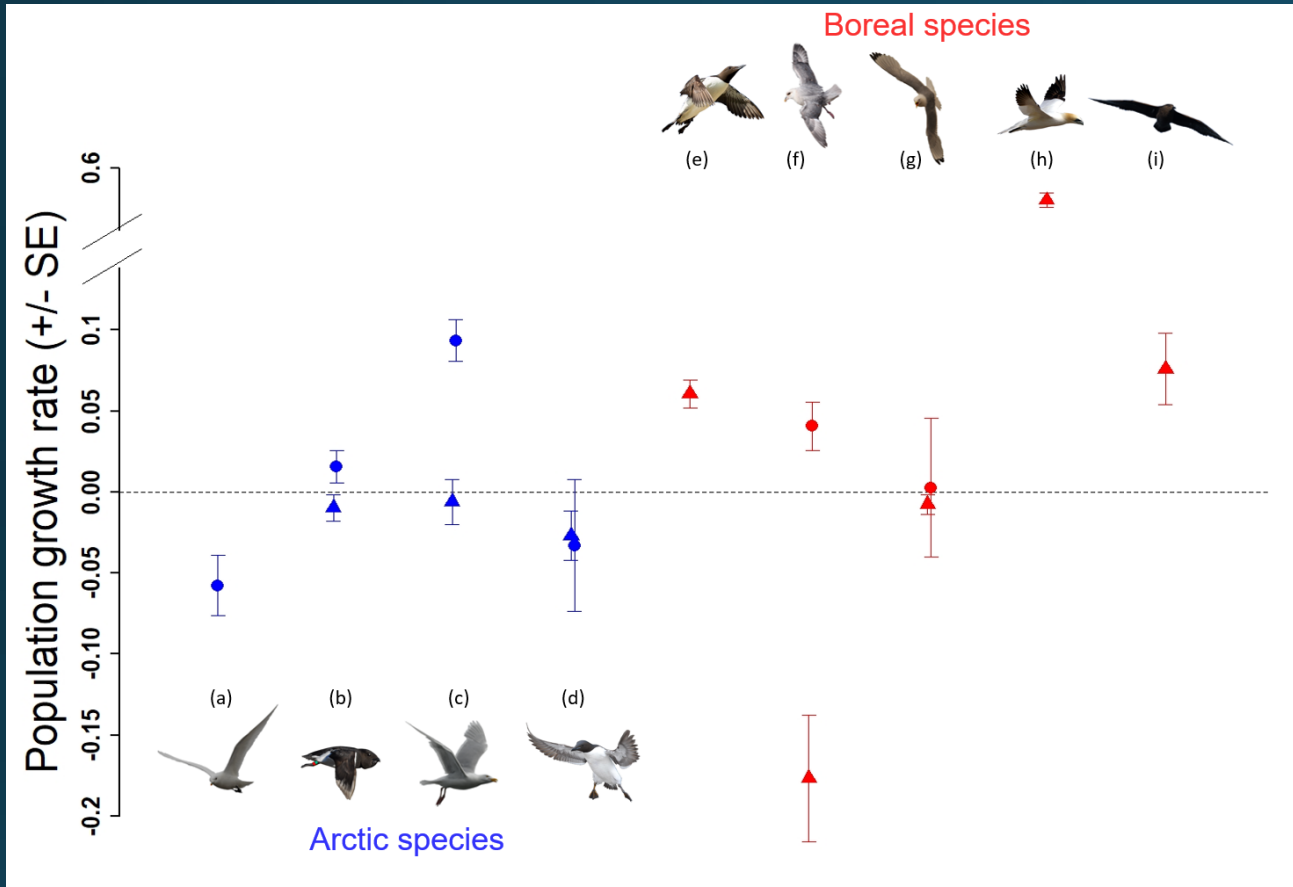
Arter	% i Arktis	% i Høy-Arktis
Ismåke	100	89
Alkekonge	100	89
Polarmåke	100	63
Polarlomvi	98	46
Lomvi	82	15
Havhest	79	27
Krykkje	78	18
Havsule	74	0
Storjo	56	15

Arktiske arter

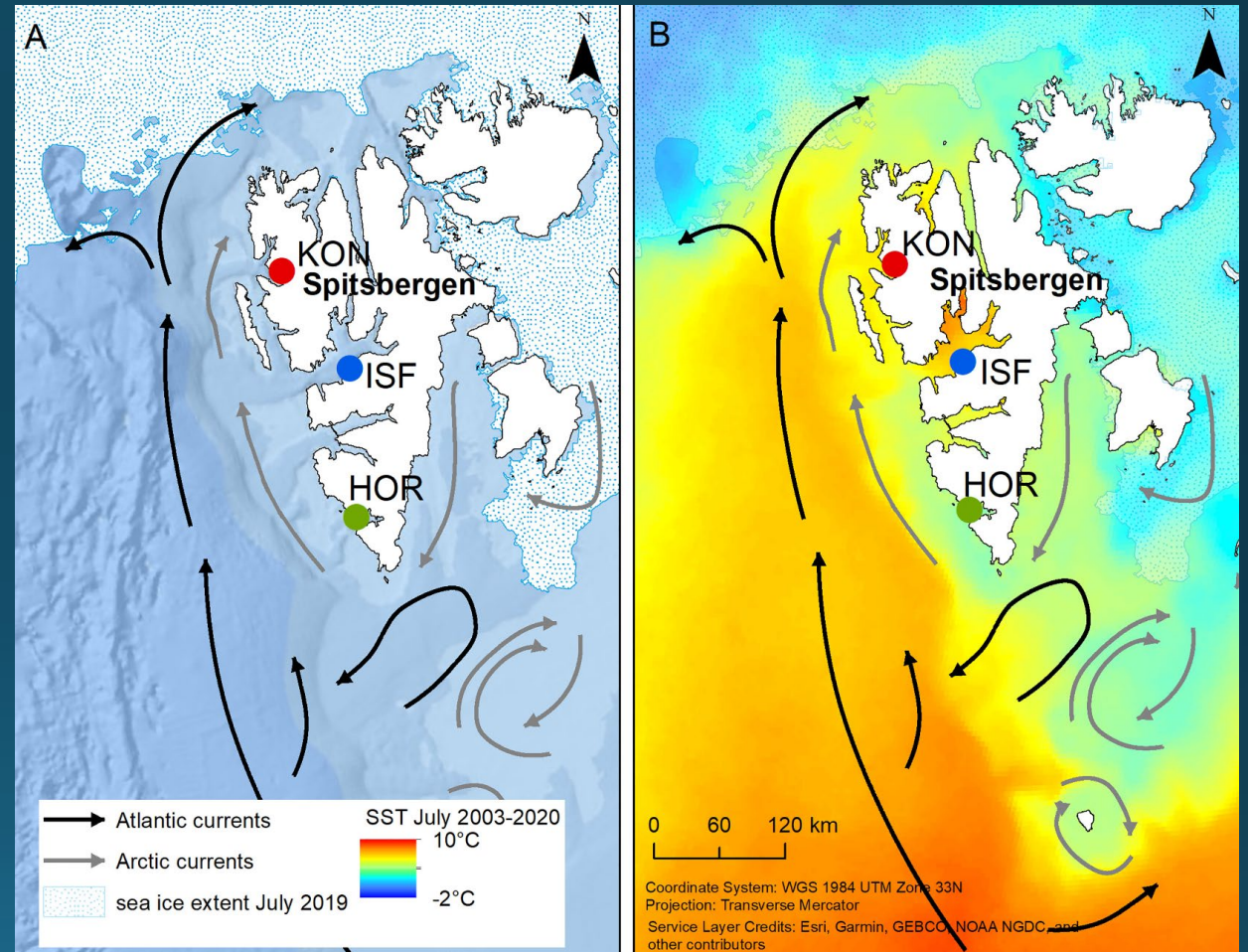
Boreale arter

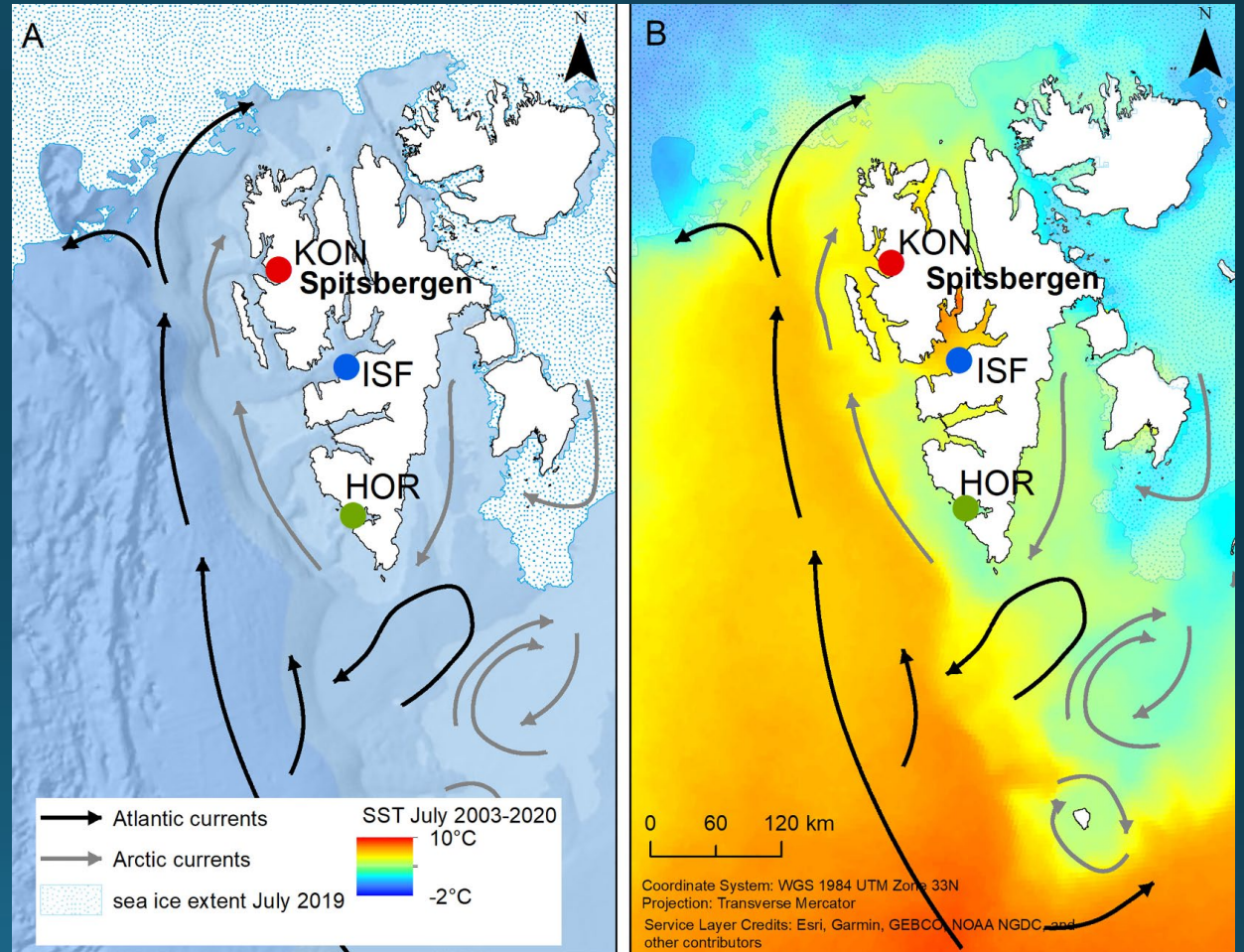
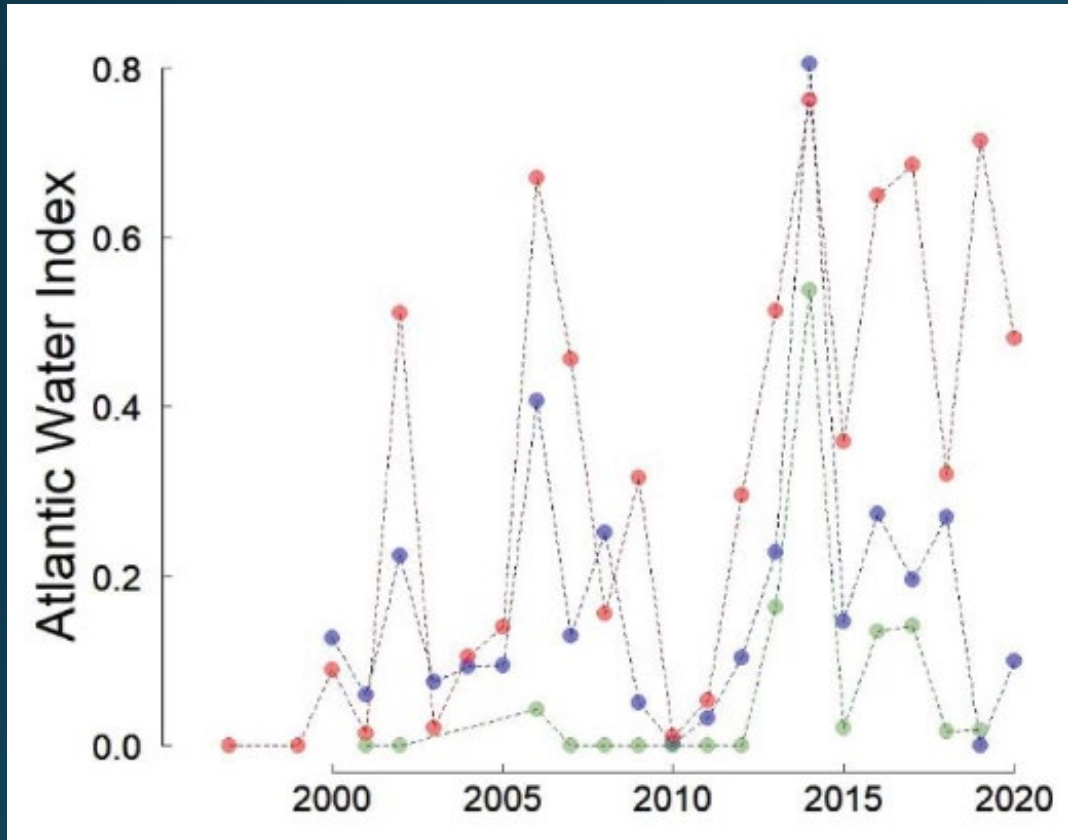


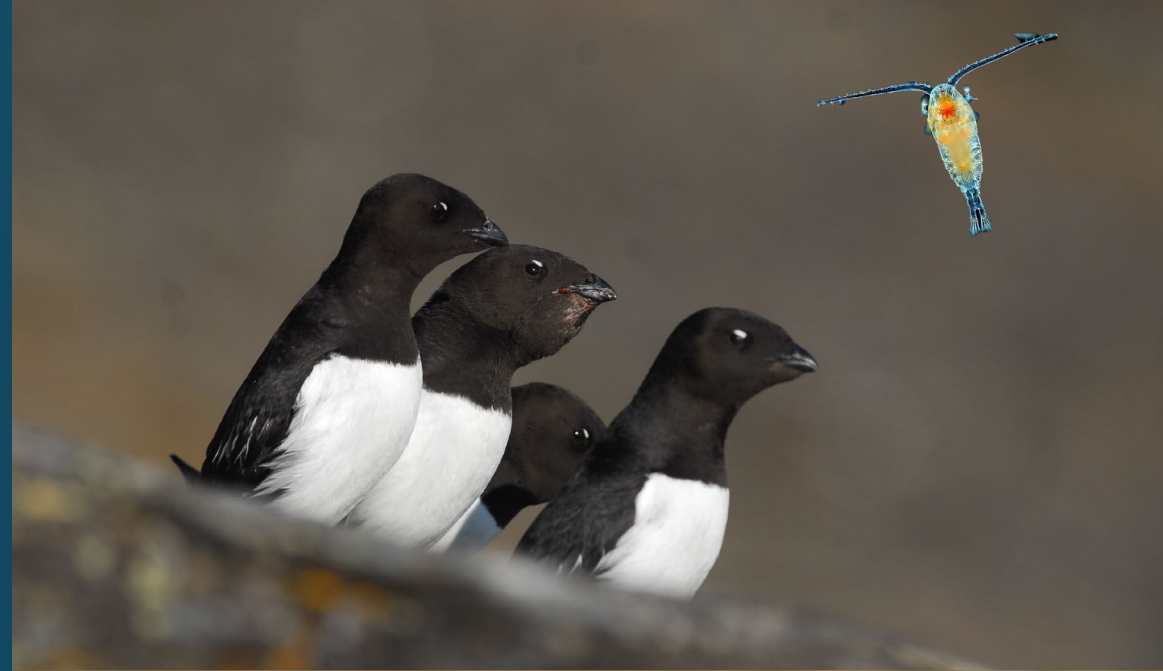
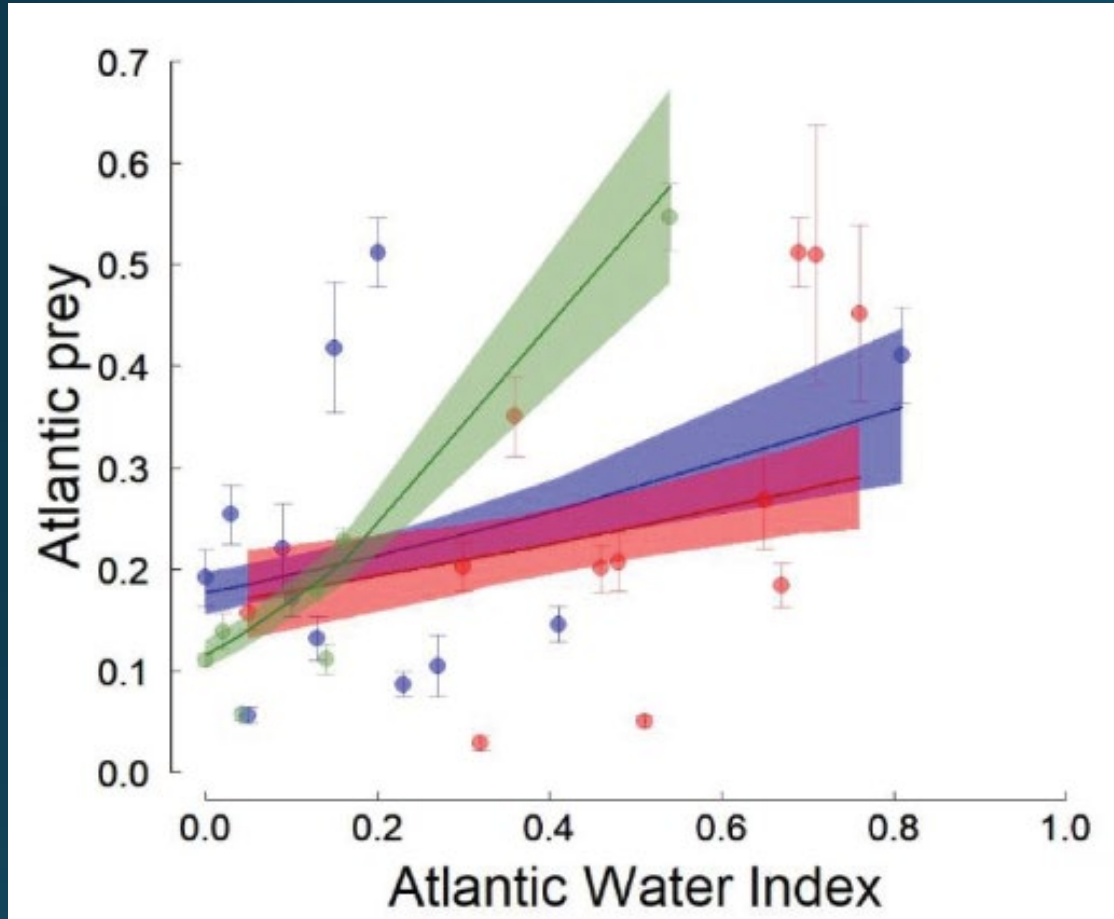
% Temperate

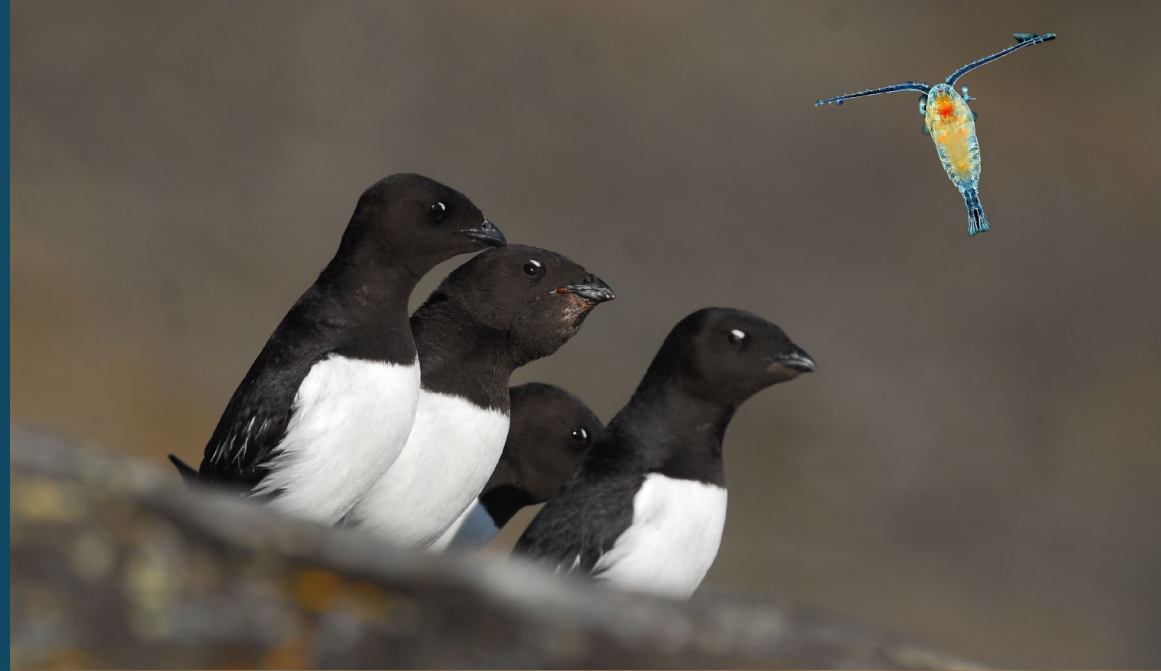
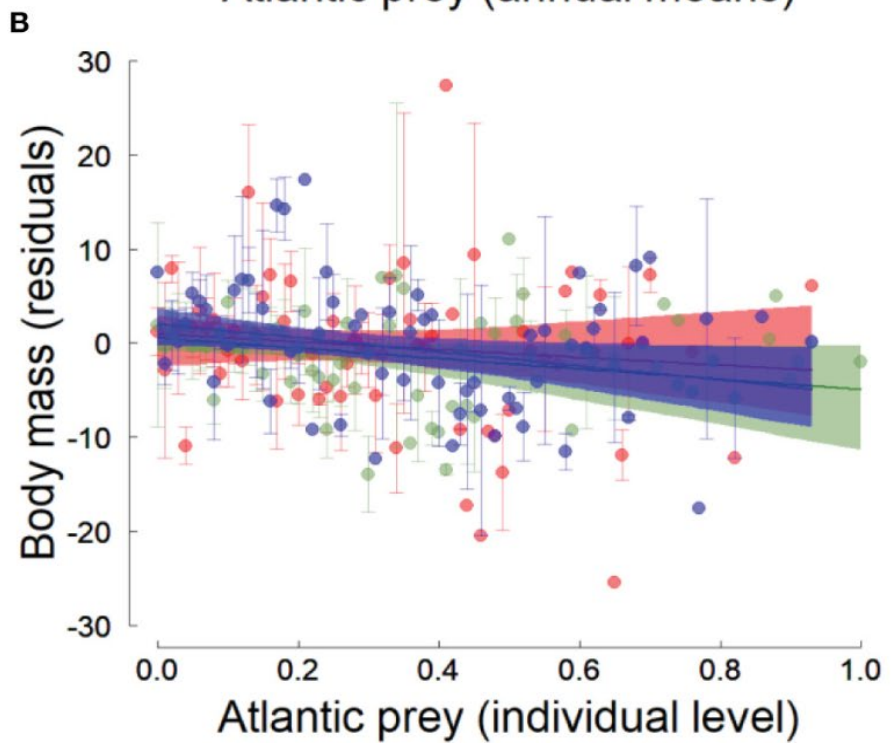
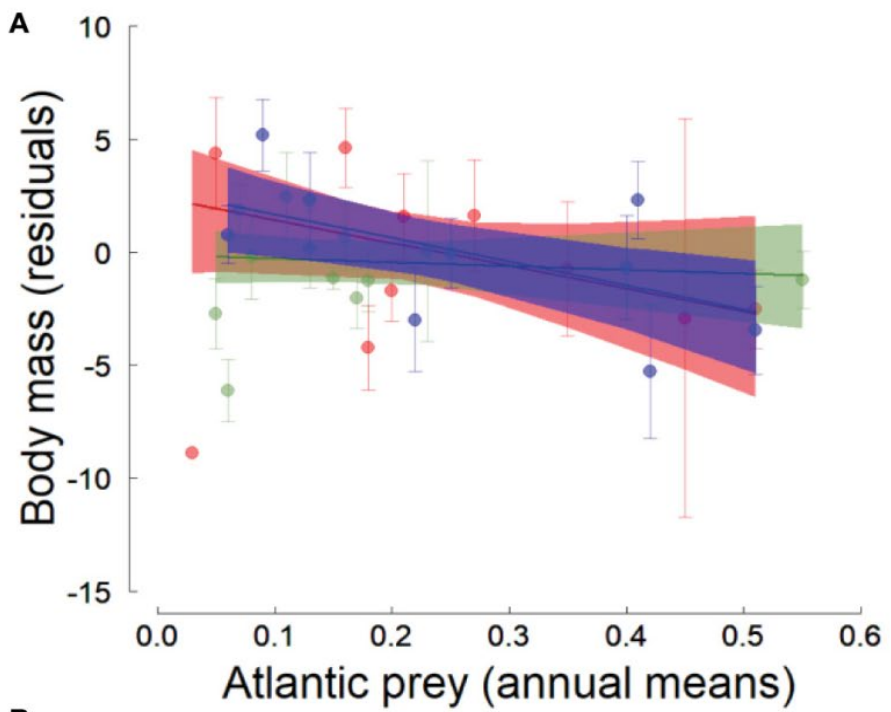


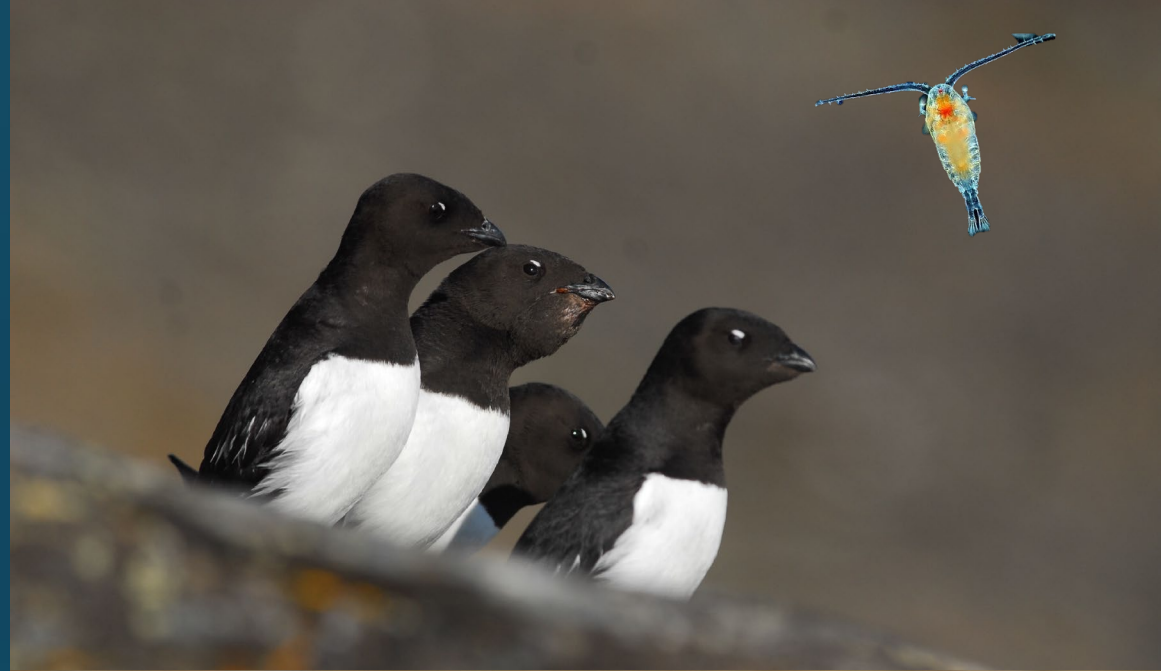
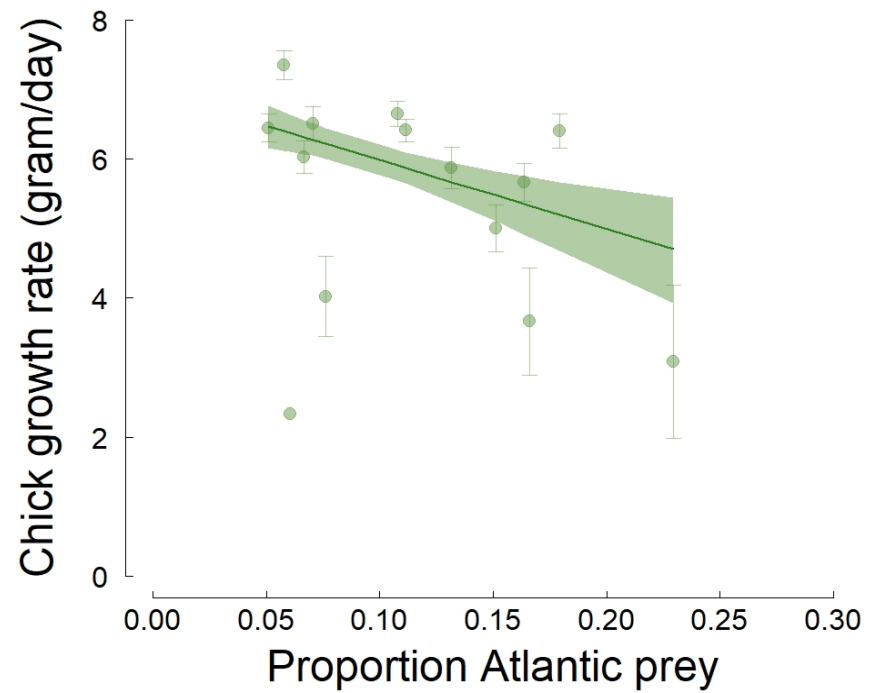
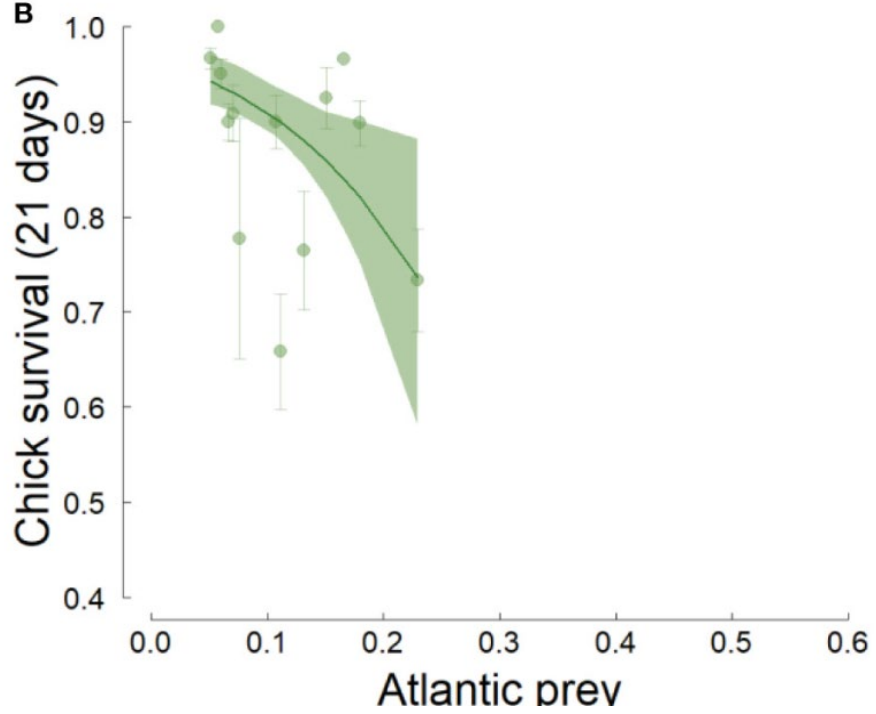
Mekanisme? Alkekonge-eksemplet:











Mekanisme? Alkekonge-eksemplet:



- Den pågående atlantifiseringen av Svalbard har negativ effekt på kroppstilstand og hekkesuksess hos alkekonge
- Effekter mediert av endringer i deres hovedbyttedyr
- Små effektstørrelser: alkefugler kan delvis tilpasse seg pågående endringer (plastisitet)

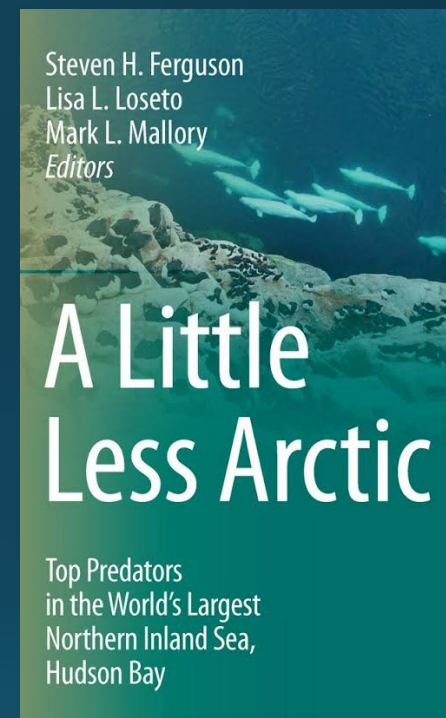
Konklusjoner

- Sjøfuglsamfunnet på Svalbard er i endring
- Endringer i byttedyr er sannsynligvis en viktig driver
- Ukjente konsekvenser for økosystemets funksjon



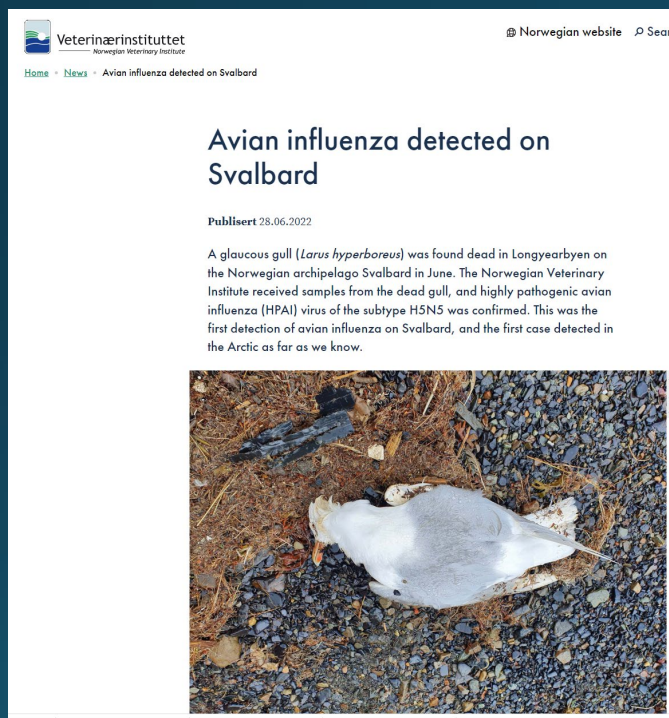
Konklusjoner

- «Borealisering» av sjøfuglsamfunnet skjer ikke bare på Svalbard...
- Kan vi forvente lignende endringer på fastlandet?...



Konklusjoner

- Borealisering kan være knyttet til endringer i forekomst av sykdommer og/eller parasitter...





Takk for oppmerksomheten!



SEAPOP Seminar 8 – Asker 28.-29.9.2022