The Flødevigen beach seine survey 1919->

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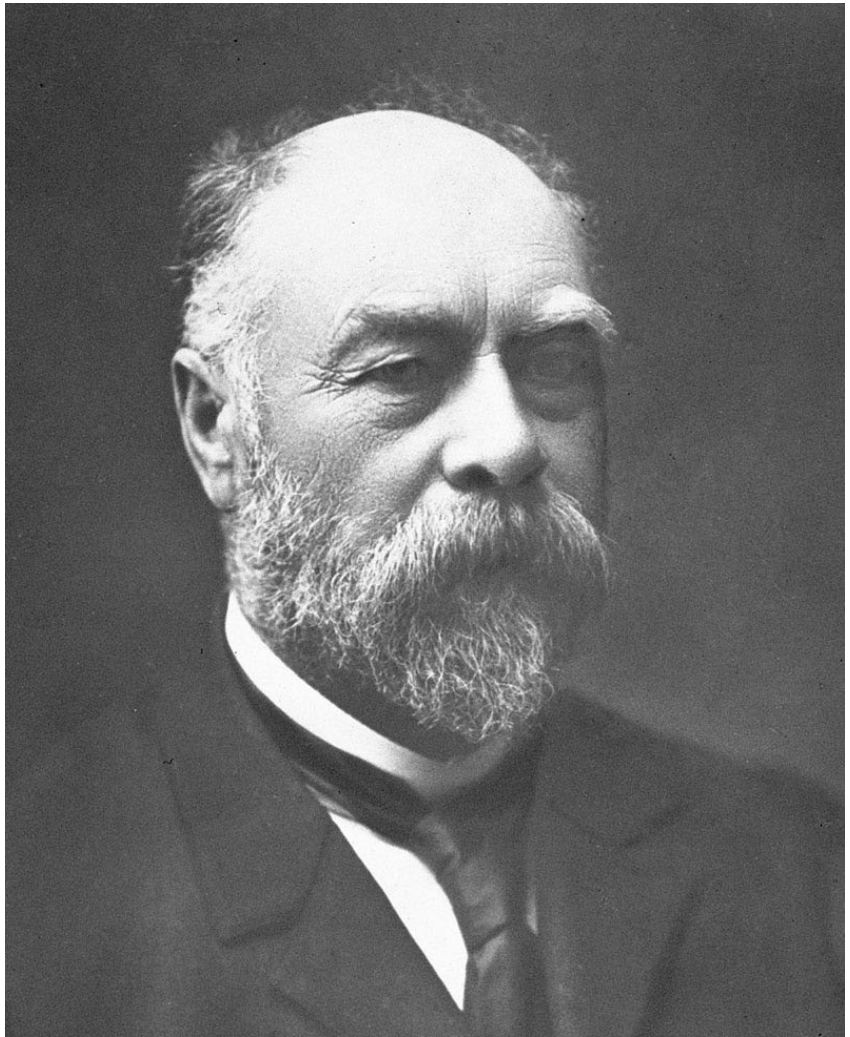
G. M. Dannevig (1841 – 1911)

Bekymret for torskebestanden(e)
langs Skagerrak kysten

Negative trend
(1860’s – 1870’s)

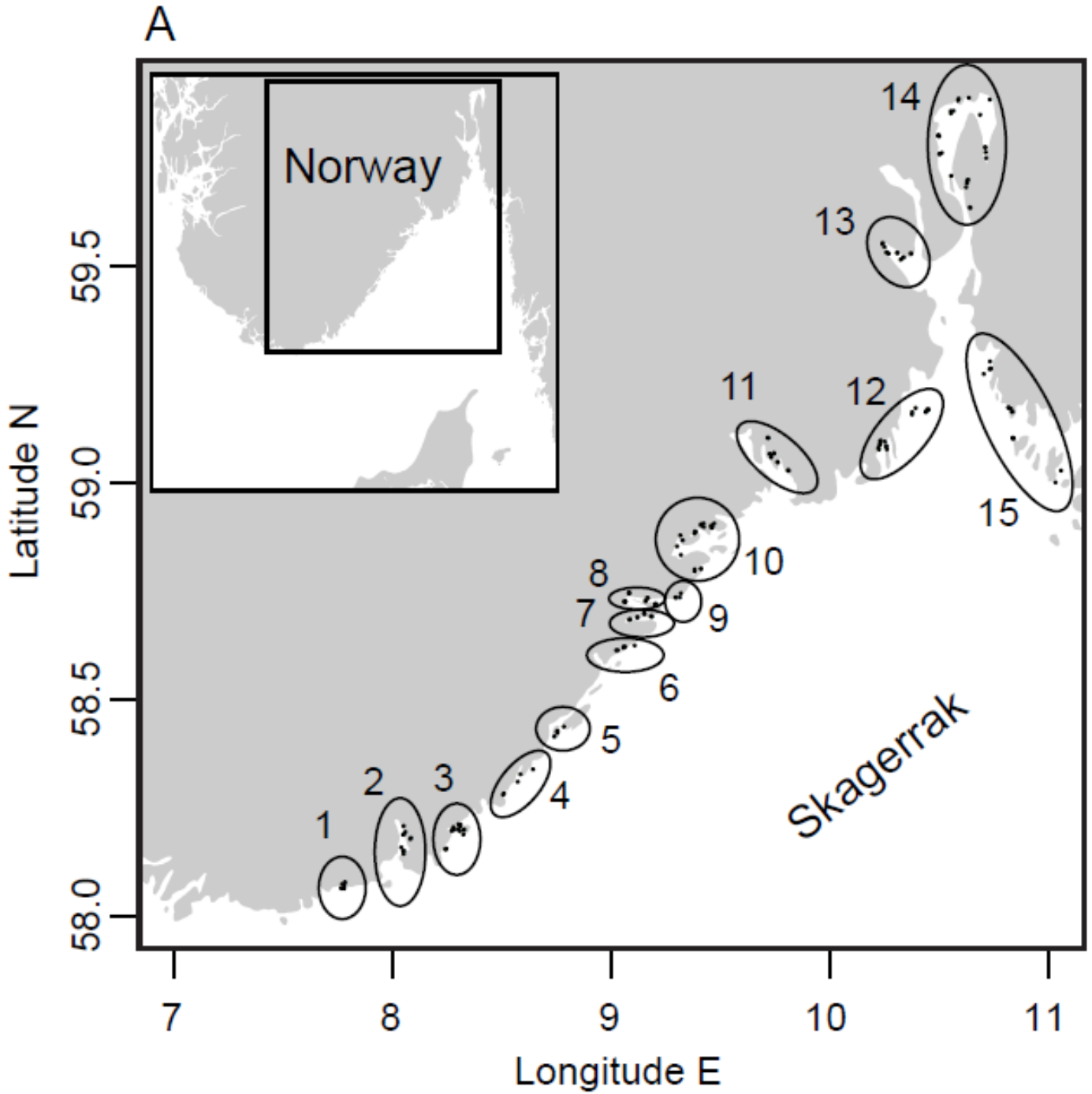
Fisk forsvant fra fjordene – og fiskerne
måtte dra utaskjærs for å få fangst



Dannevig grunnla Klekkeriet av torsk i Flødevigen i 1882


Klekkeriet

Kaptein Gunder Dannevig overbeviste stortinget i 1903 til å finansiere et overvåkningsprogram

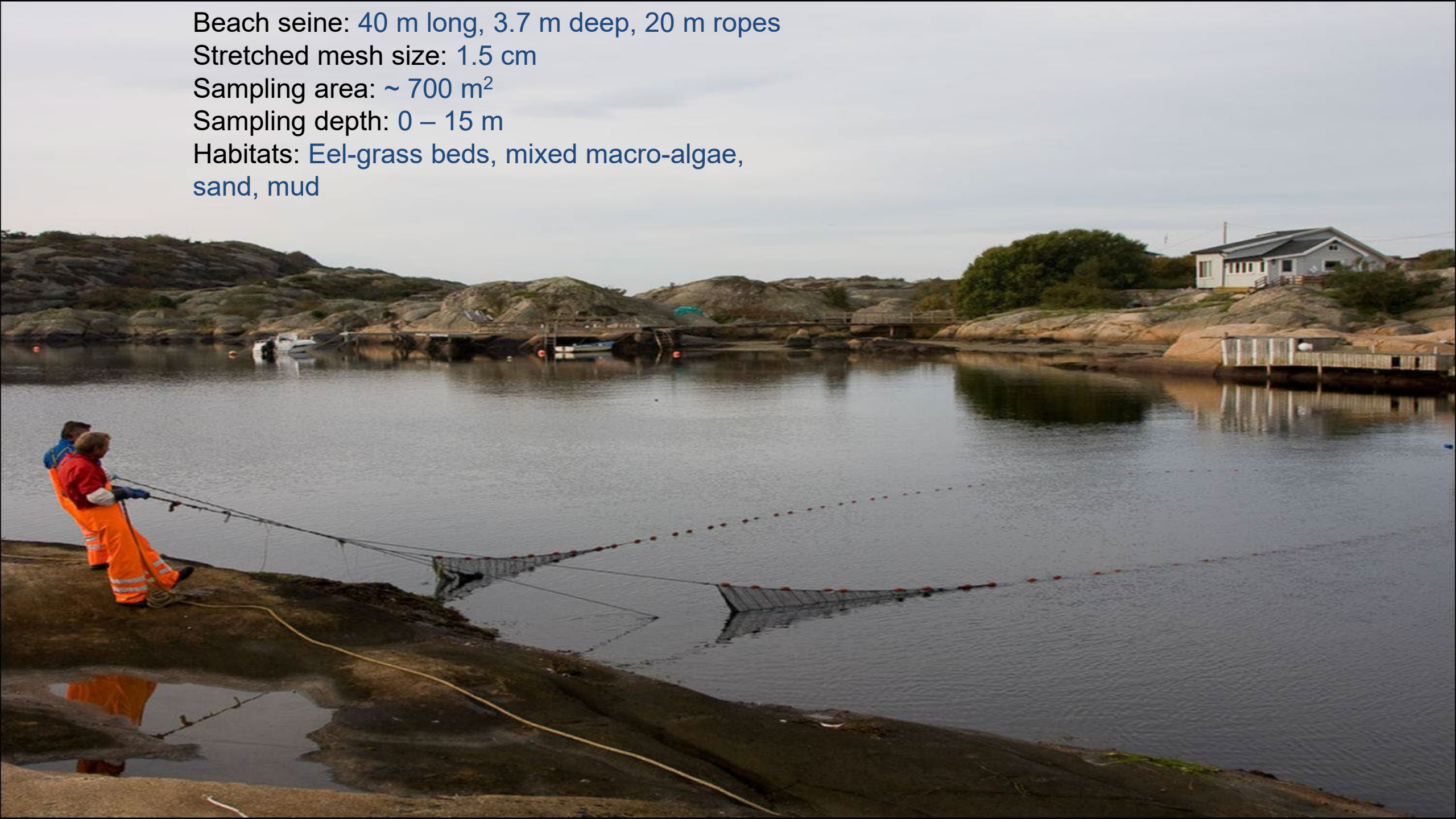


Årlig fra Sep-Oct,1919 –>

Ca 140 statsjoner, Inkludert 36 av se 85 originale fra 1919

Hovedmål var ½ år gammel torsk

Beach seine: 40 m long, 3.7 m deep, 20 m ropes
Stretched mesh size: 1.5 cm
Sampling area: ~ 700 m^2
Sampling depth: 0 – 15 m
Habitats: Eel-grass beds, mixed macro-algae, sand, mud



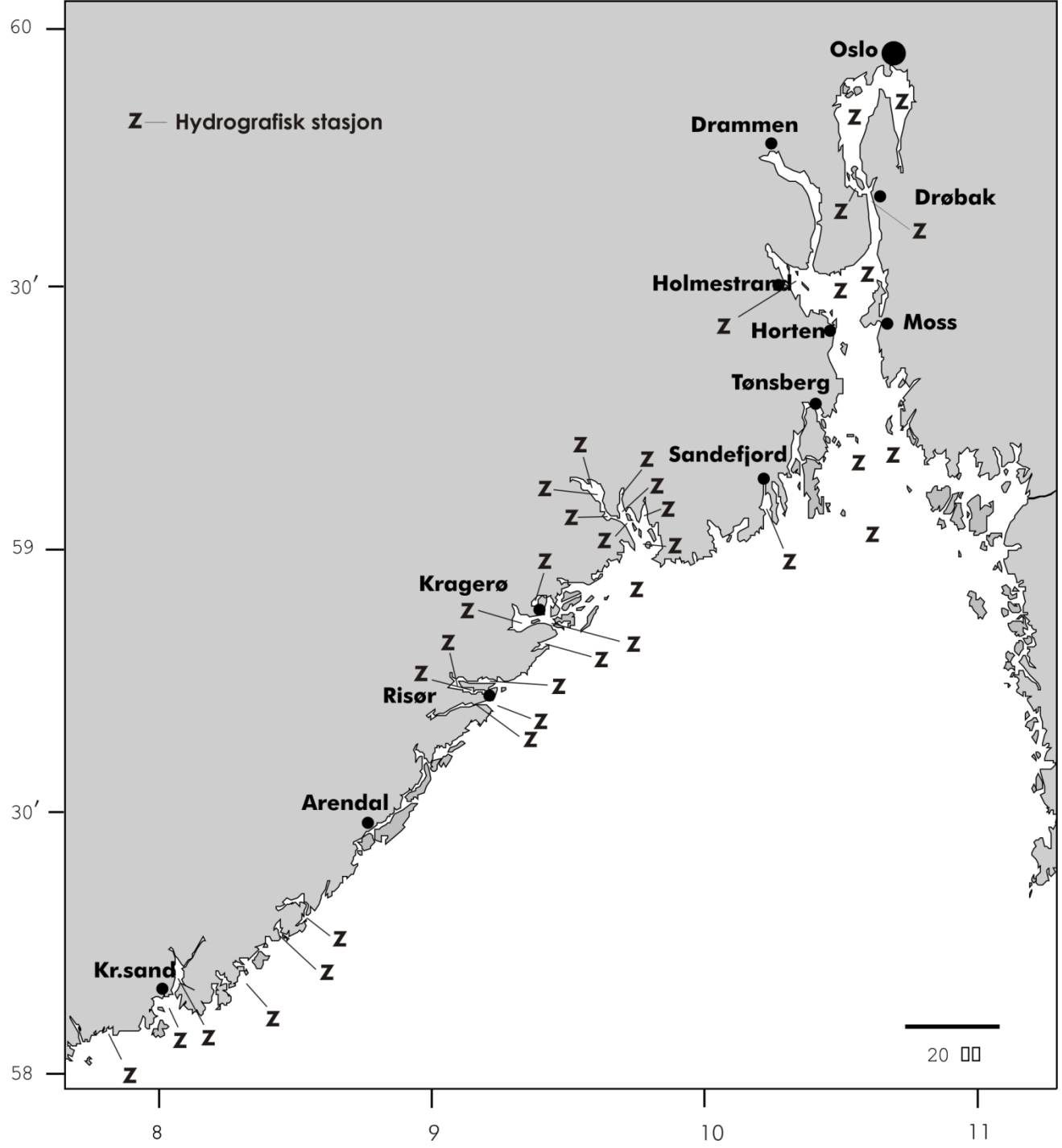
Miljødata

Temperatur

Salinitet

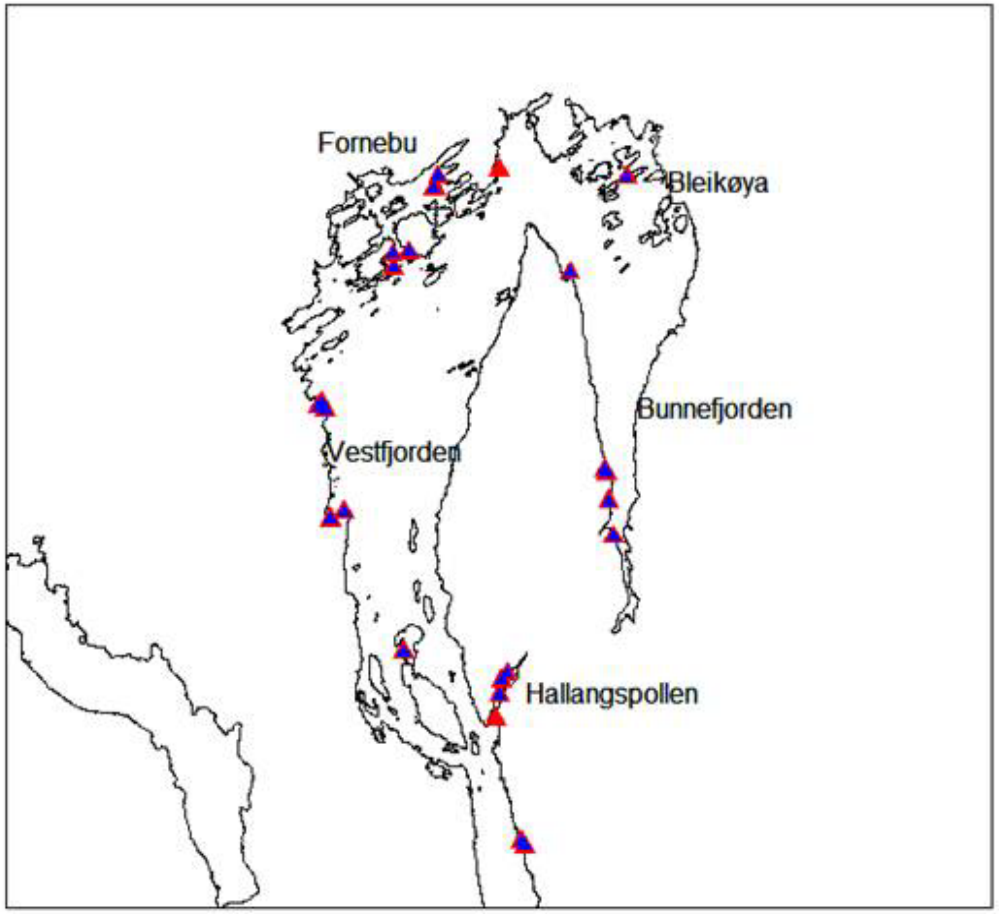
Oxygen

Secchi dybde (sikt)

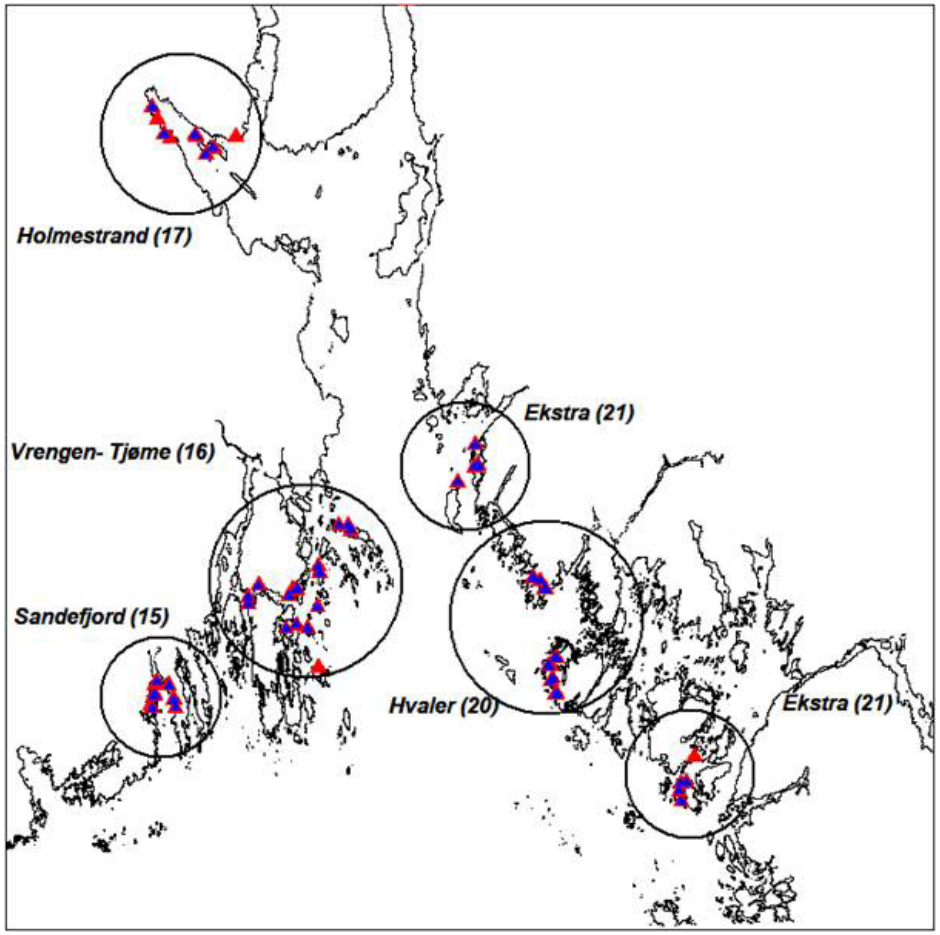


Strandnottrekk i ytre og indre Oslofjord

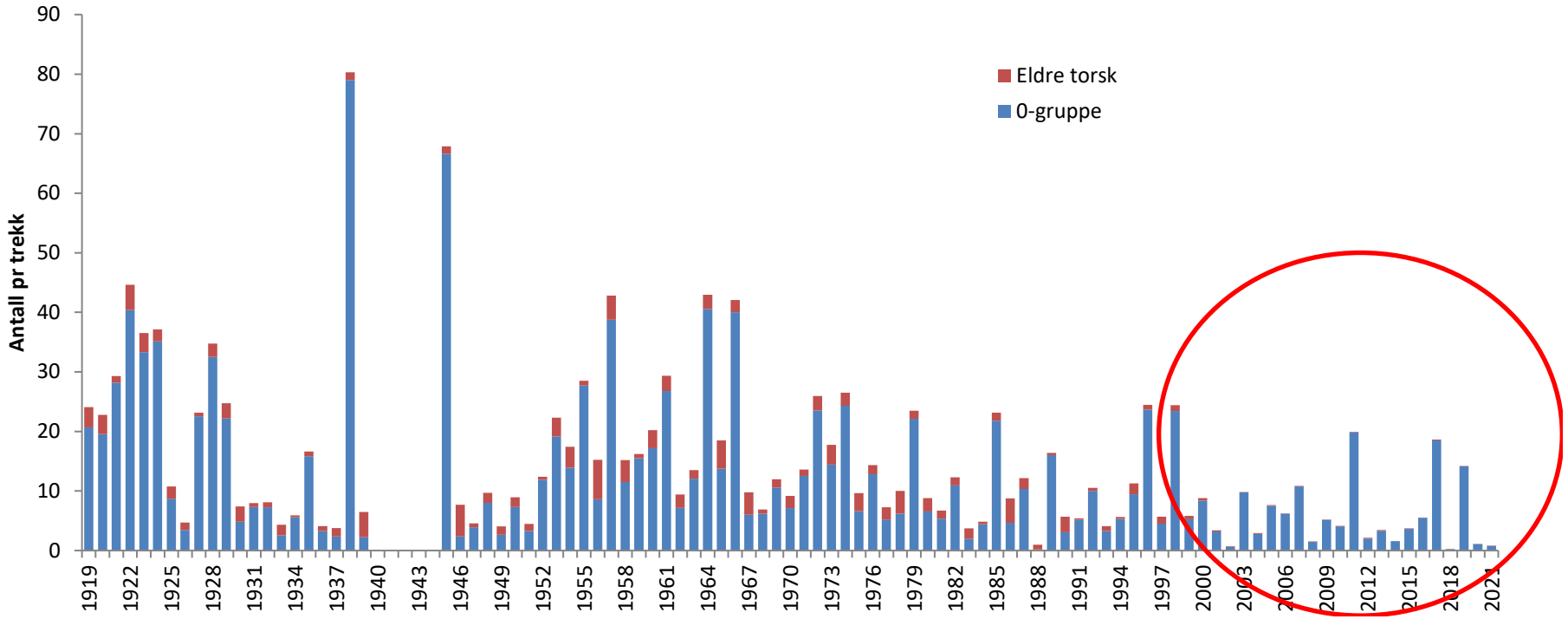
Indre Oslofjord



Ytre Oslofjord



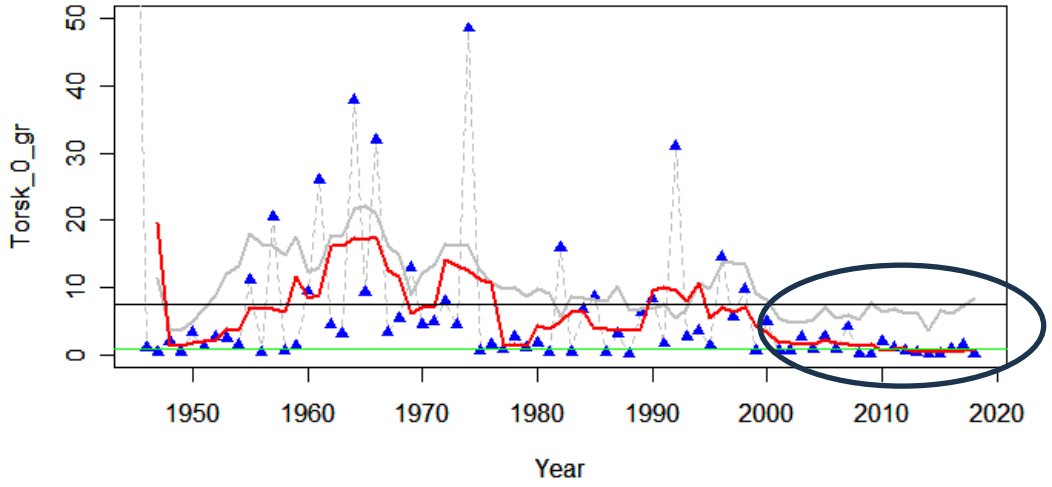
Årets yngel av torsk langs hele Skagerrak – historiske fangster



Torsk

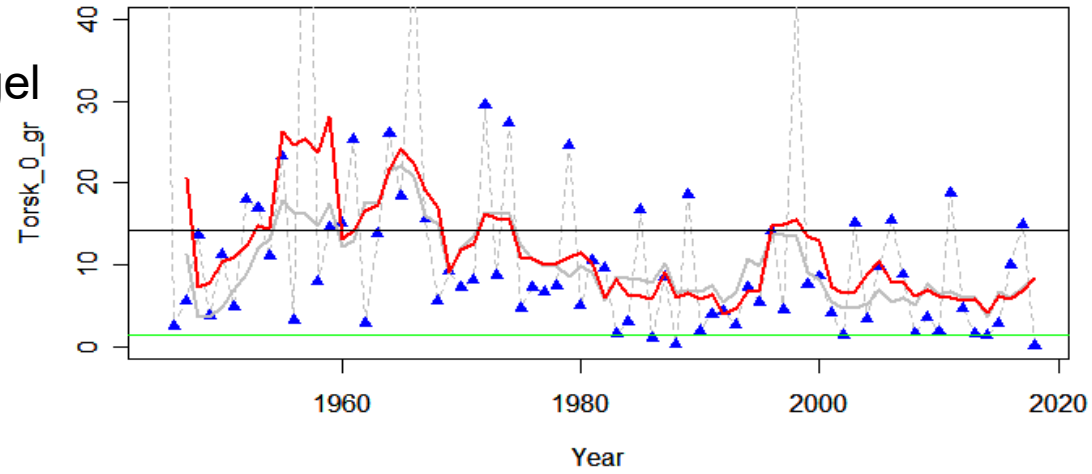
Indre= elendig rekruttering, lite eldre torsk
Ytre= noe bedre rekruttering, lite eldre torsk

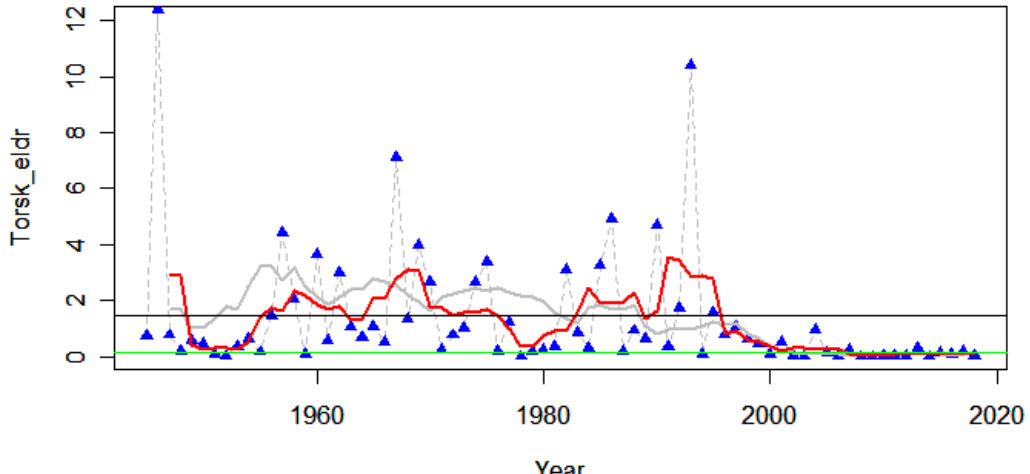
Indre Oslofjord



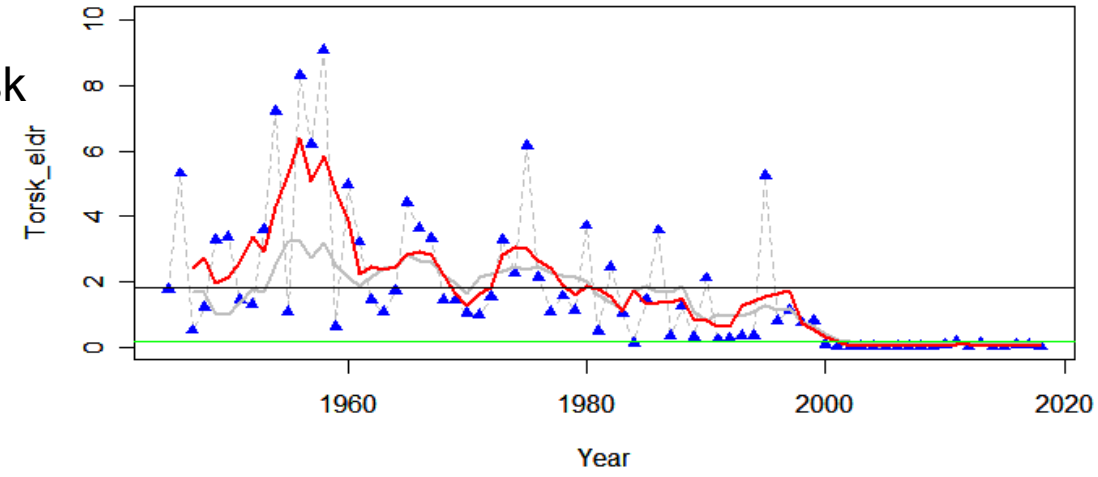
Årets yngel

Ytre Oslofjord

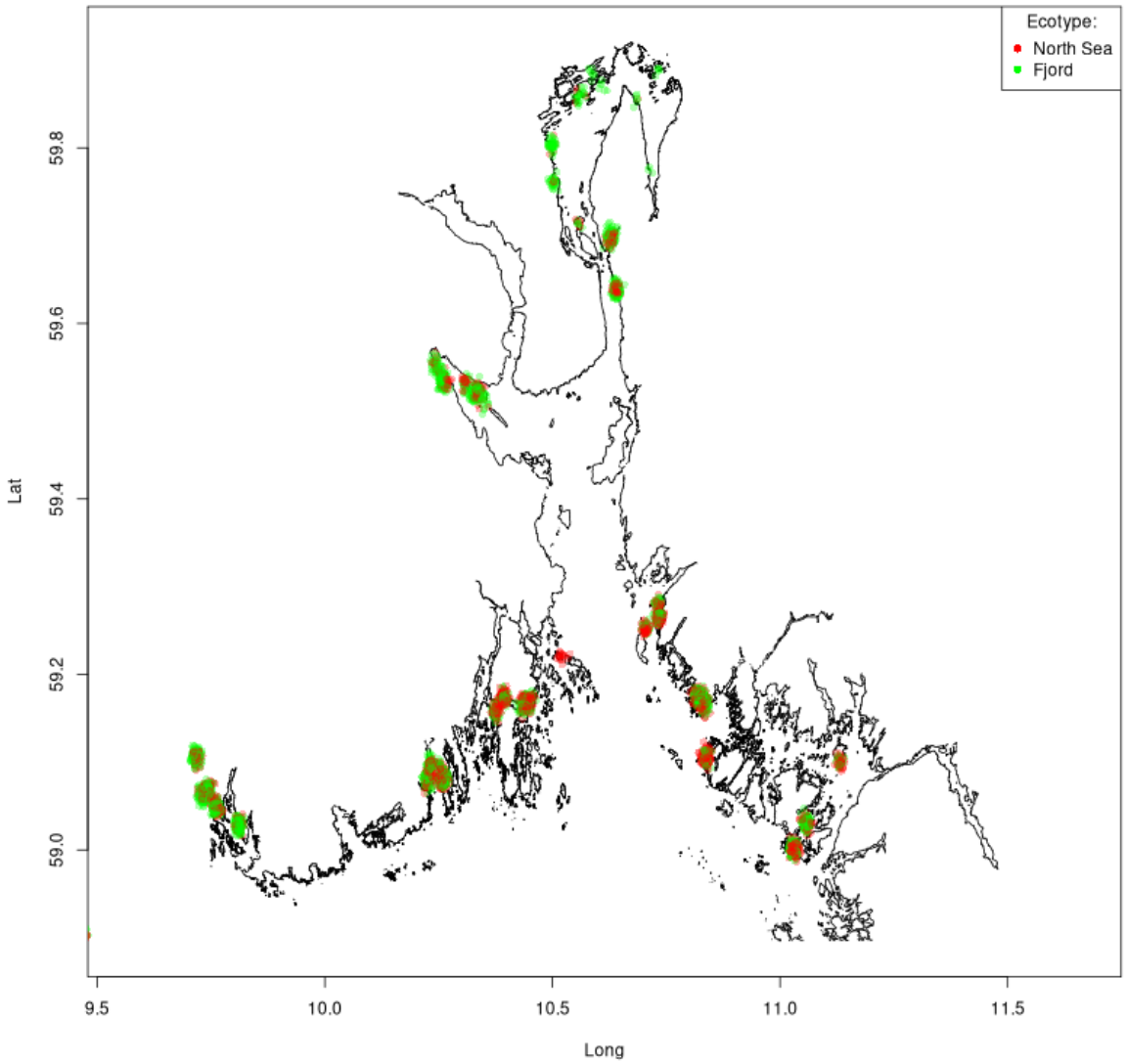




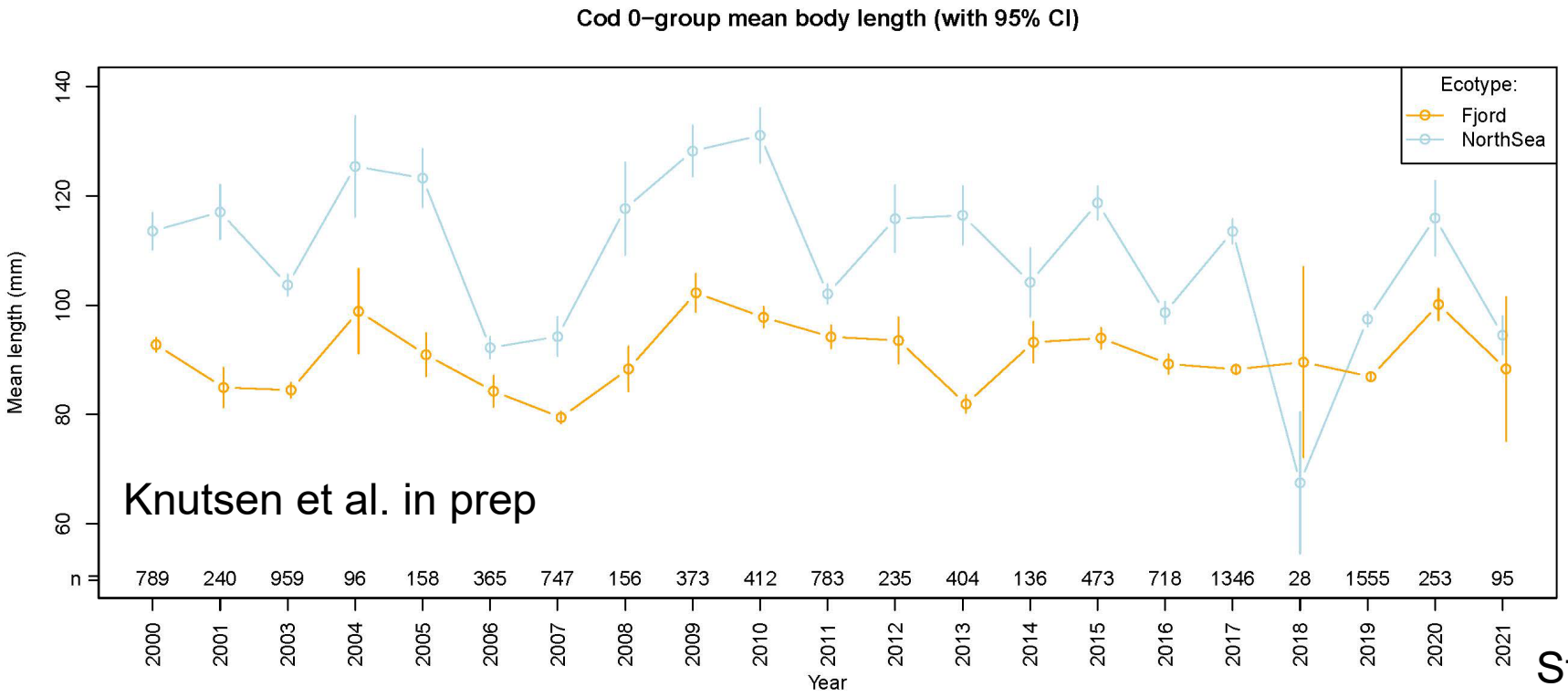
Eldre torsk



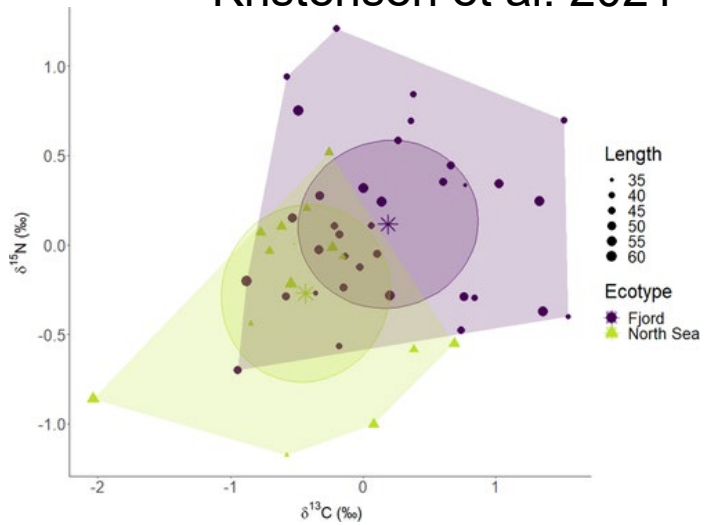
Fordeling av Kysttorsk og Nordsjø/hav-torsk i Oslofjorden (2001-2022)



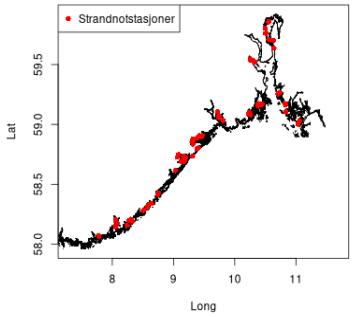
De to økotypene av torsk er ganske ulike biologisk (vekst, energiomsetning, vandring)



Kristensen et al. 2021

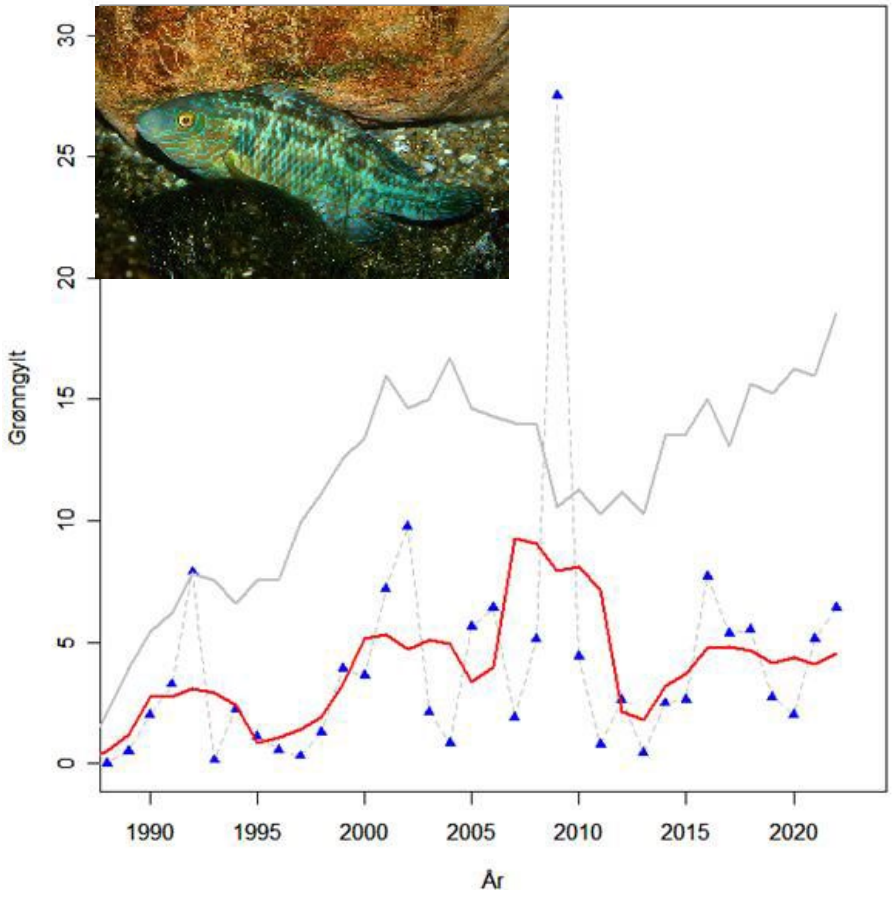


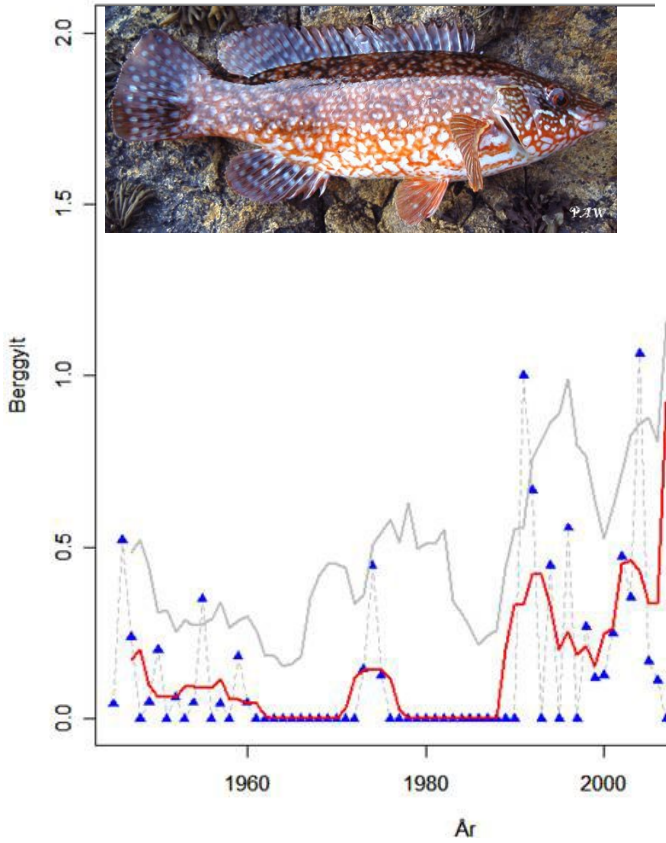
Stabile isotoper
Fjordtorsk: mer bunnlevende diett
NS torsk: mer pelagisk diett

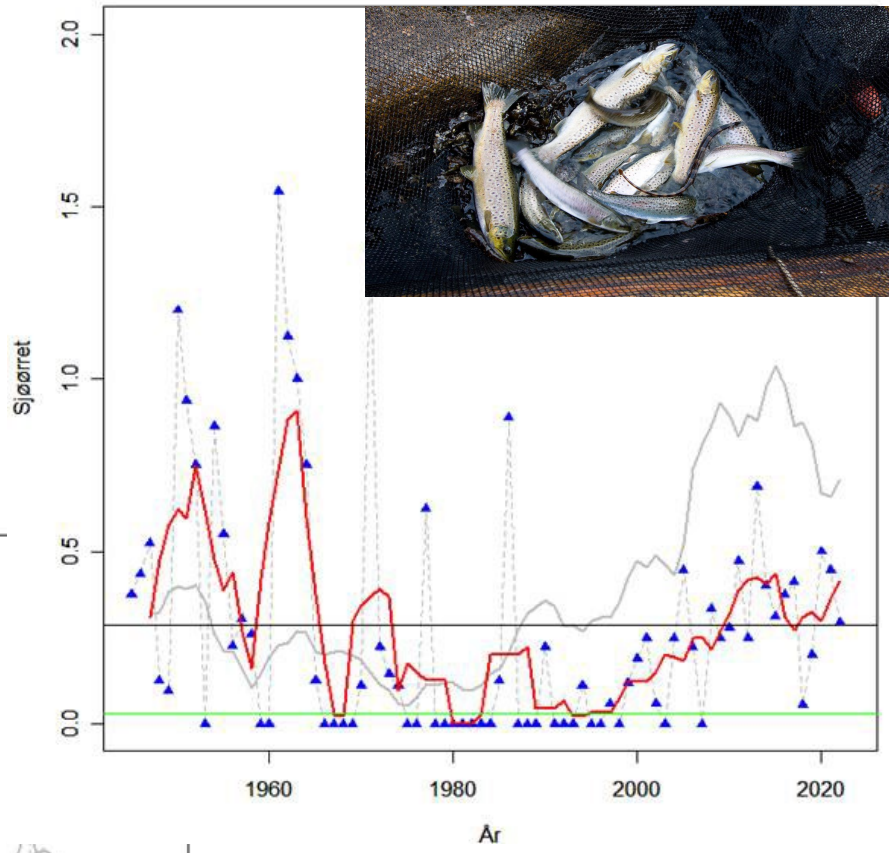


Indre Oslofjord

Disse artene gjør det ok, men lavere enn snittet
(GRÅ=Skagerrak)

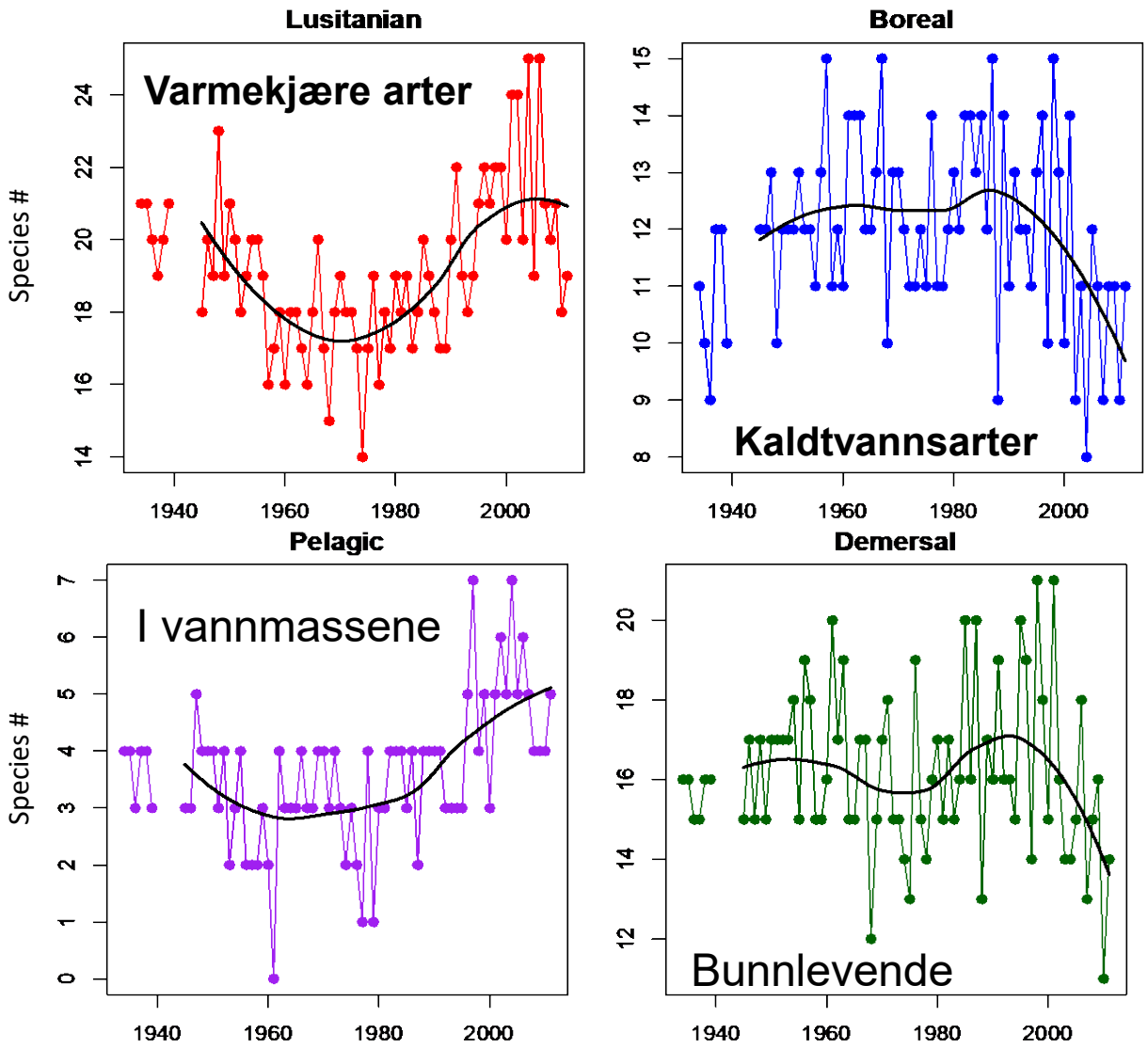




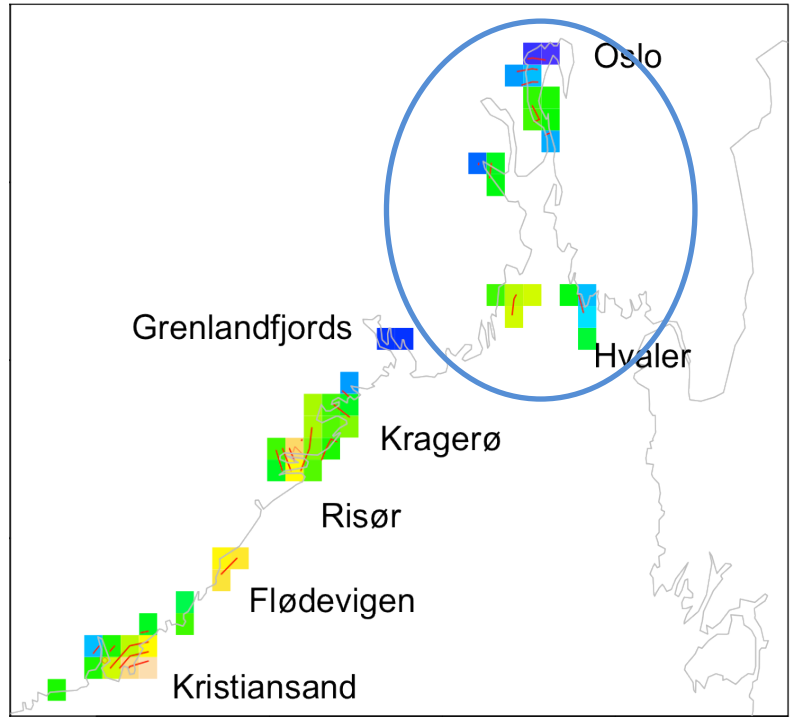


Ytre Oslofjord

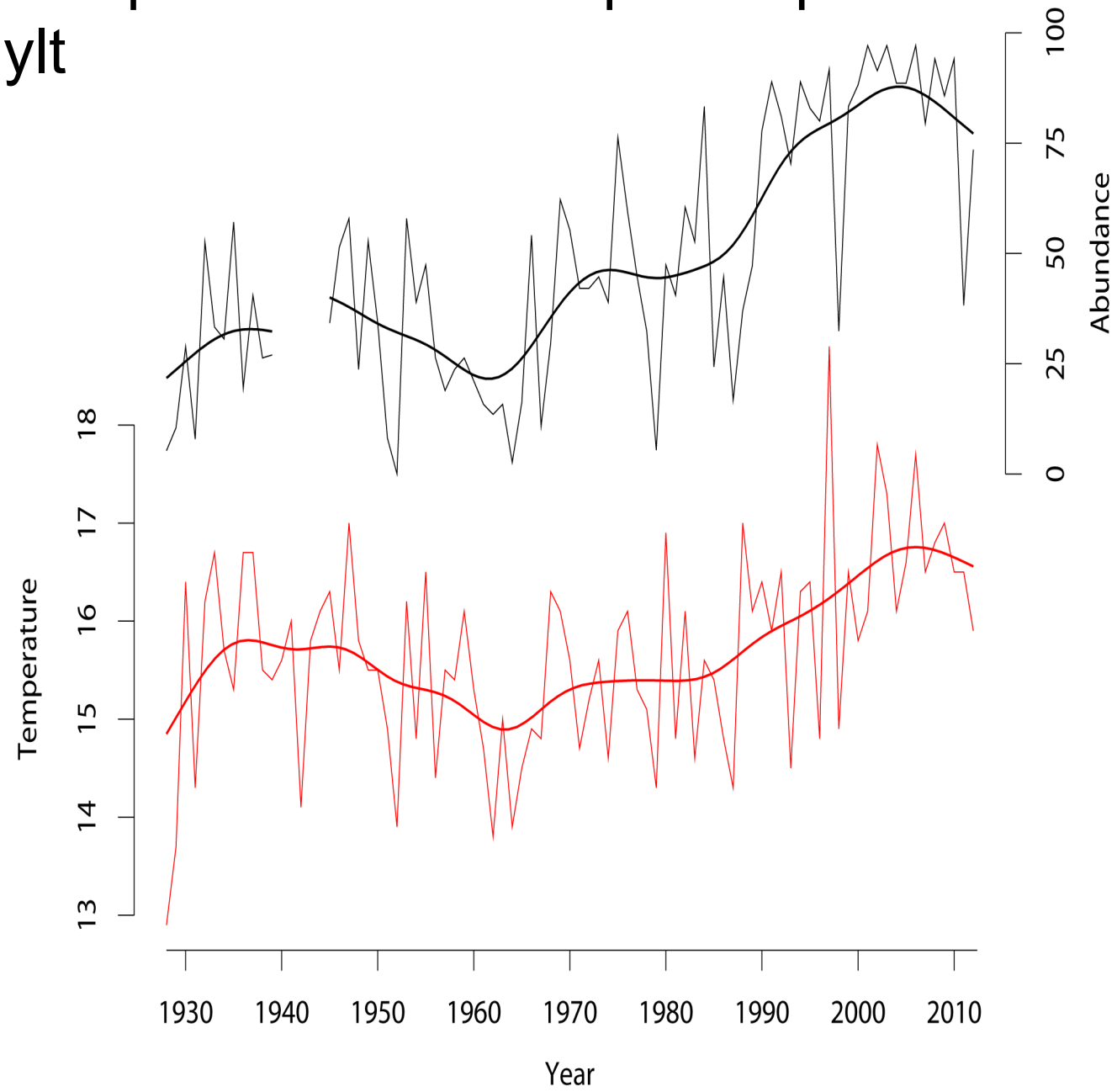
Kystartene I Skagerrak – generelle mønstre gjennom dataserien



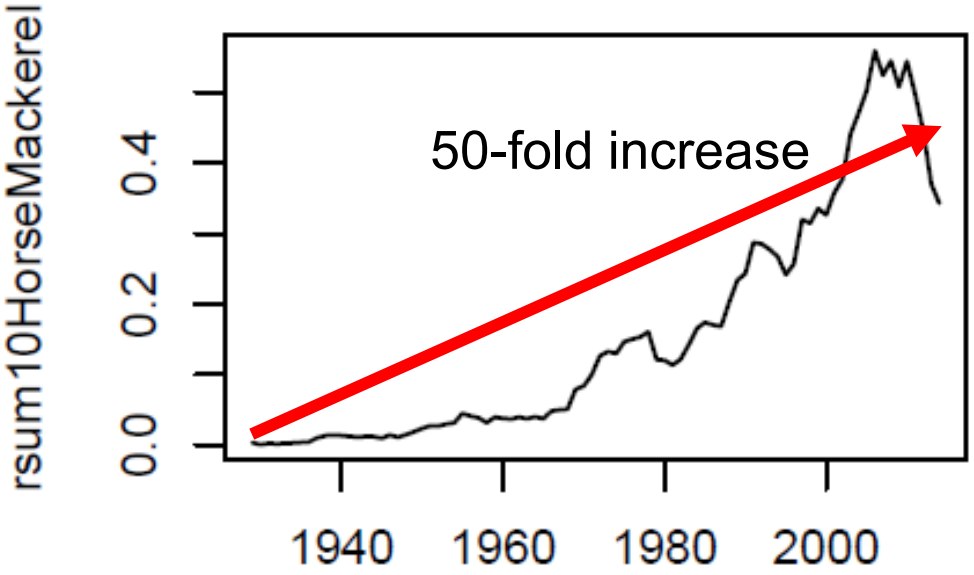
Lav biodiversitet i indre Oslofjord



Flere arter responderer direkte på temperatur
Ex: grøngylt

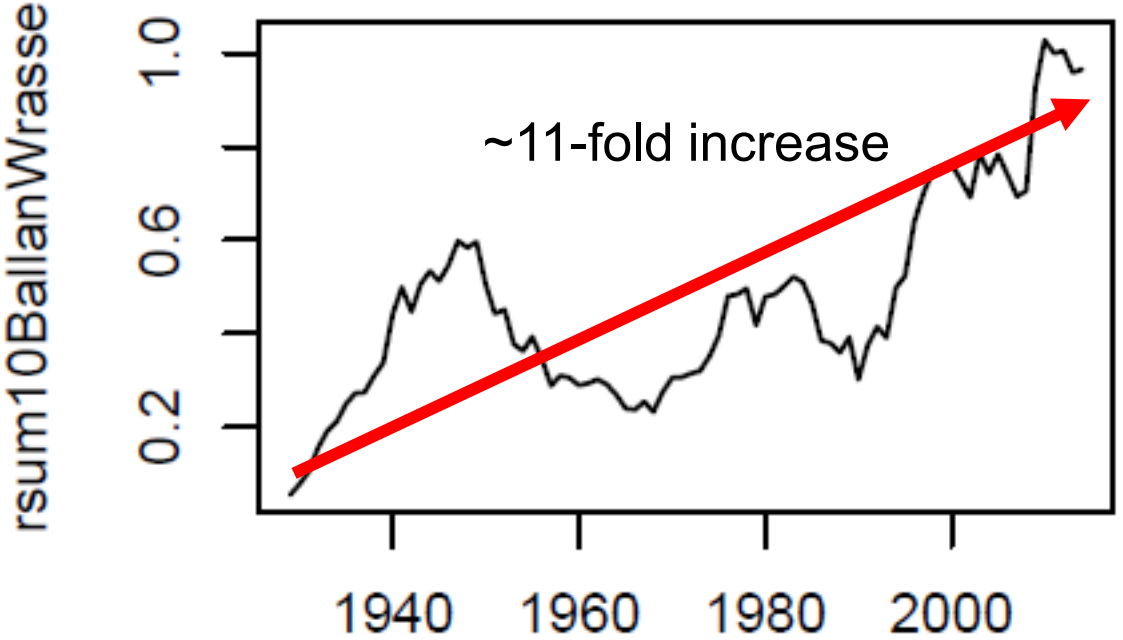


Source: Institute of Marine Research



Taggmakrell

Bergylt



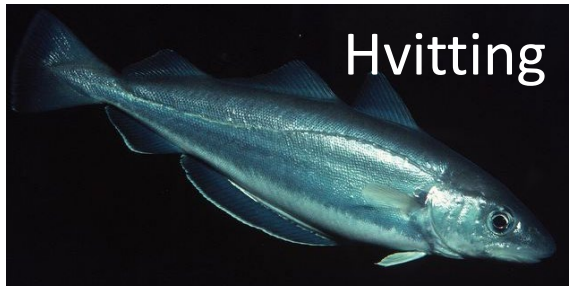
Nye arter i nota siste 30 år

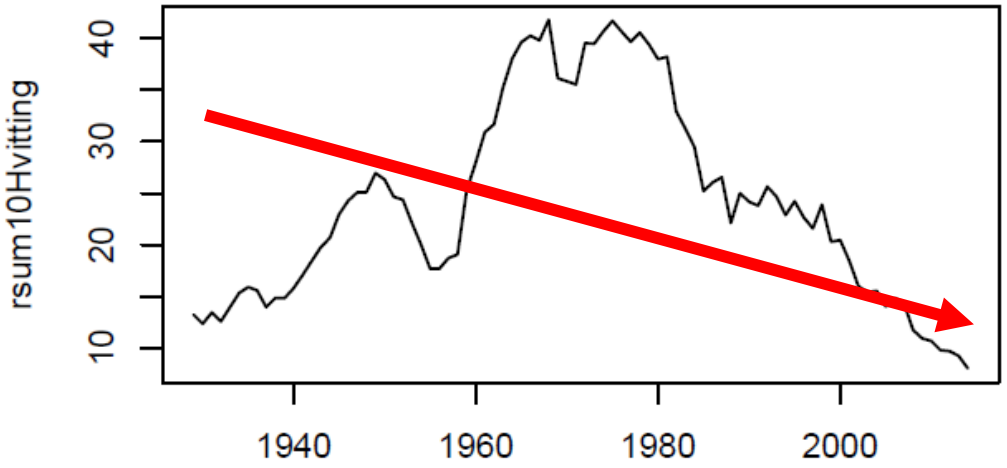
Ansjos

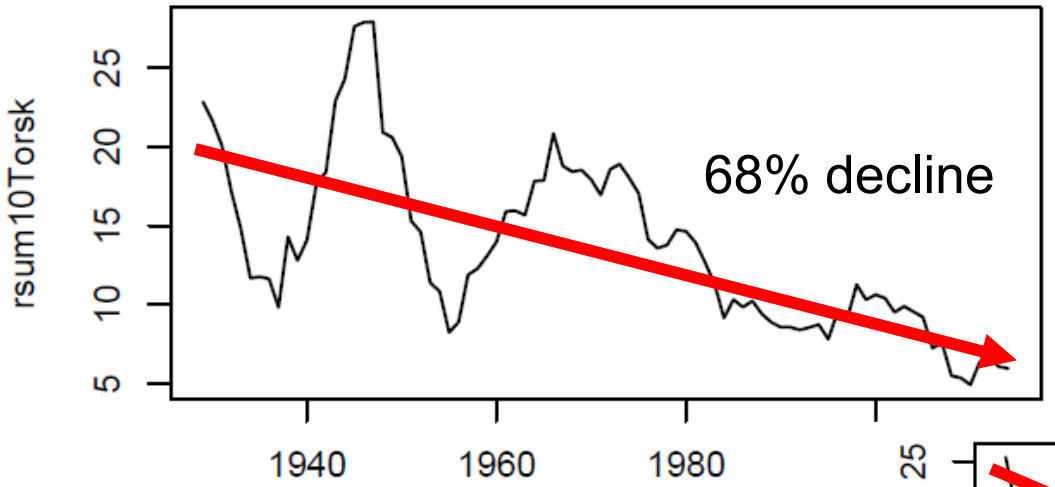
Litersvis med Ansjos, Oslo


Rødmulle – vanligere siste 20 år

Ribbemaneten Mnemiopsis Leidyi, varmtvanns art

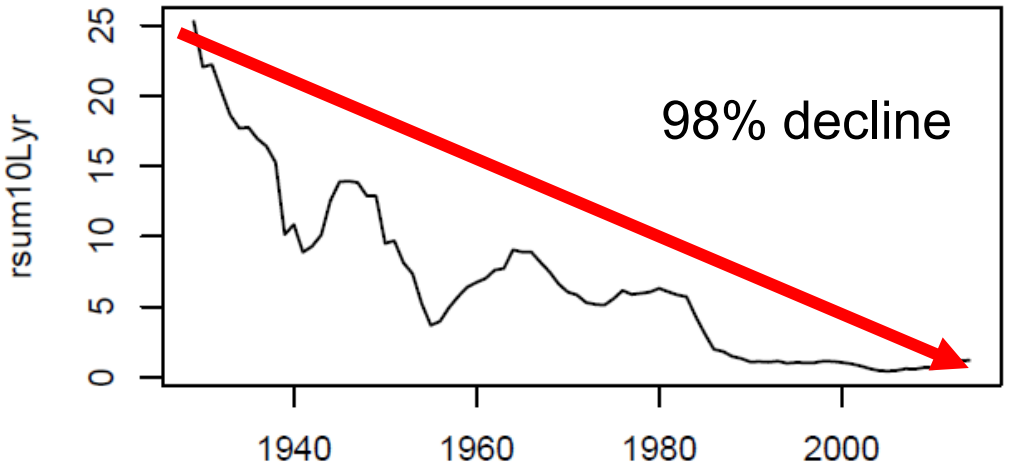

Hvitting


rsum10Hvitting
10
20
30
40
1940
1960
1980
2000


rsum10Torsk
5
10
15
20
25
68% decline
1940
1960
1980


Torsk

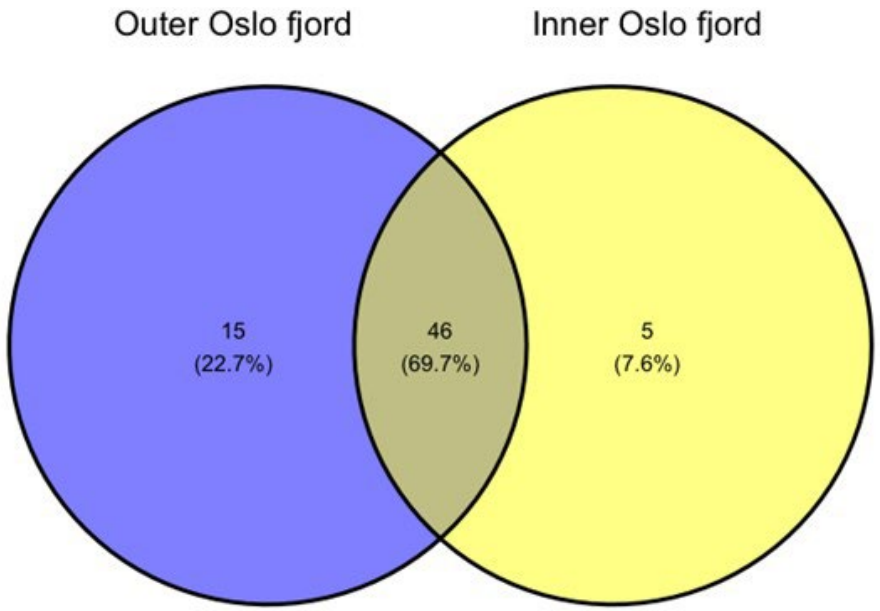
Lyr

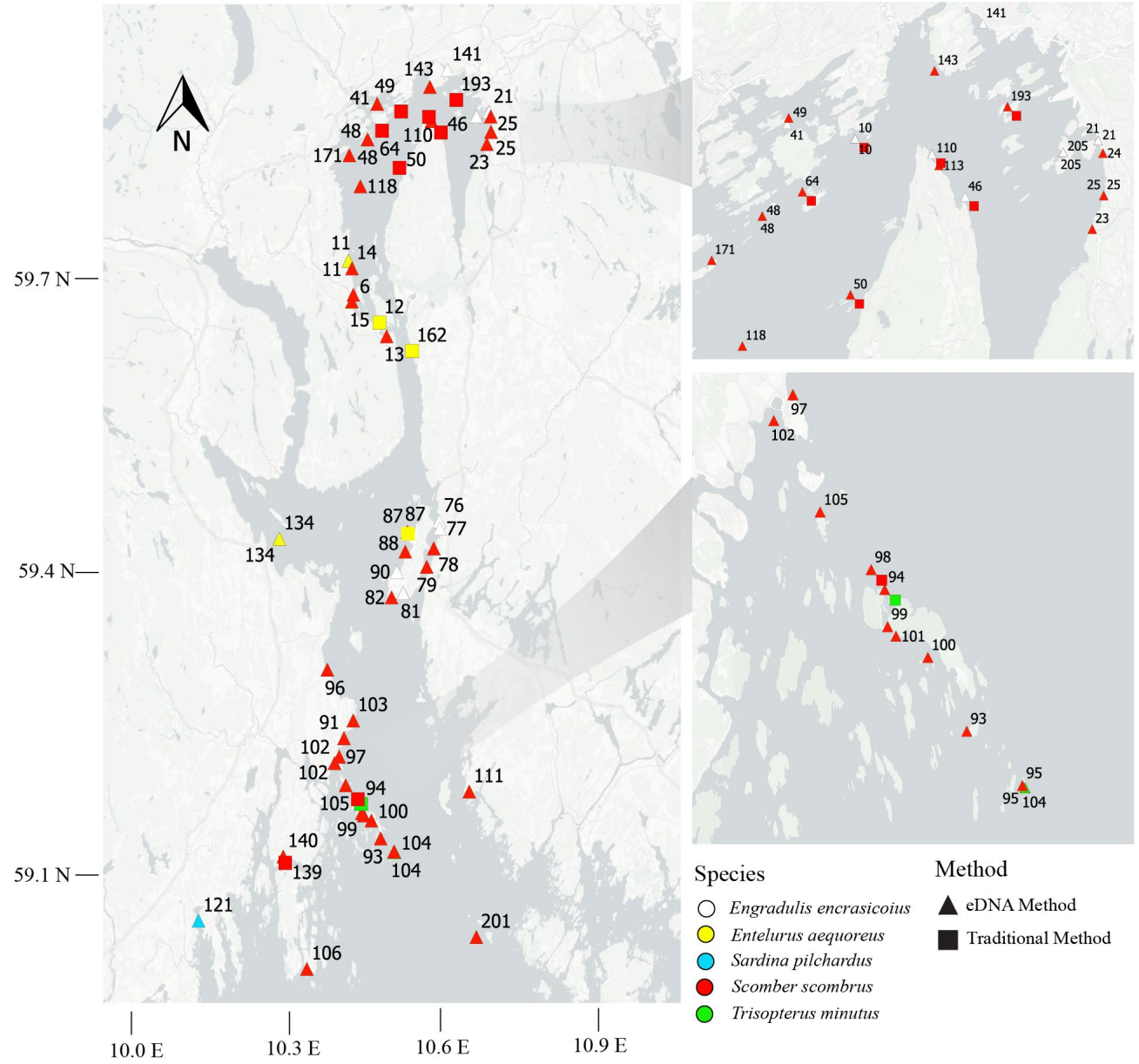

rsum10Lyr
0
5
10
15
20
25
98% decline
1940
1960
1980
2000

Title: Integration of Citizen Science and eDNA reveals novel ecological insights for Marine Fish Conservation

Authors: Lone Kvalheim[1], Eivind Stensrud[1,2], Halvor Knutsen[3,4], Olli Hyvärinen[1], Alexander Eiler[1,2,5#]

eDNA (watersamples)





Oppsummering

- **Elendig rekruttering av flere fiskearter i indre Oslofjord**
- **Store torskefiskene er borte**
- **Klar nedgang av bunnlevende og kaldtvannsarter**
- **To typer torsk!!! Svært ulike tilpasninger**
- **Lav diversitet!**
- **Nye og flere av de varmekjære artene**