



Nephrops in Iceland

AG-Fisk: NorwLobster

13 May, 2024

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HAFRANNSÓKNASTOFNUN

Rannsókn- og ráðgjafarstofnun hafs og vatna



Nephrops norvegicus

Only lobster species in Icelandic waters

Western most range of this species

Planktonic larval phase

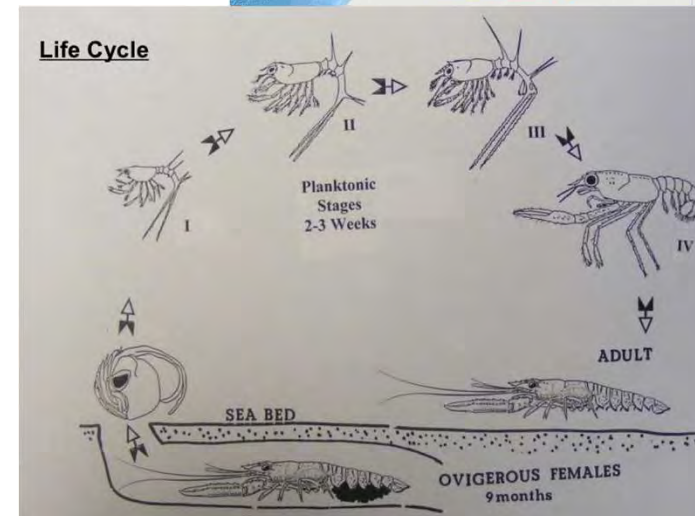
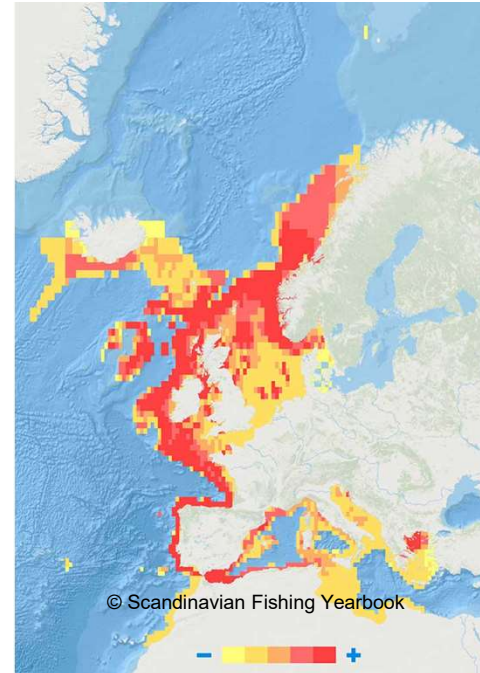
Long lived: 25 years ?

Sexually dimorphic

Males 7-8 cm CL

Females 5-6 cm CL

Biennial spawning in Iceland





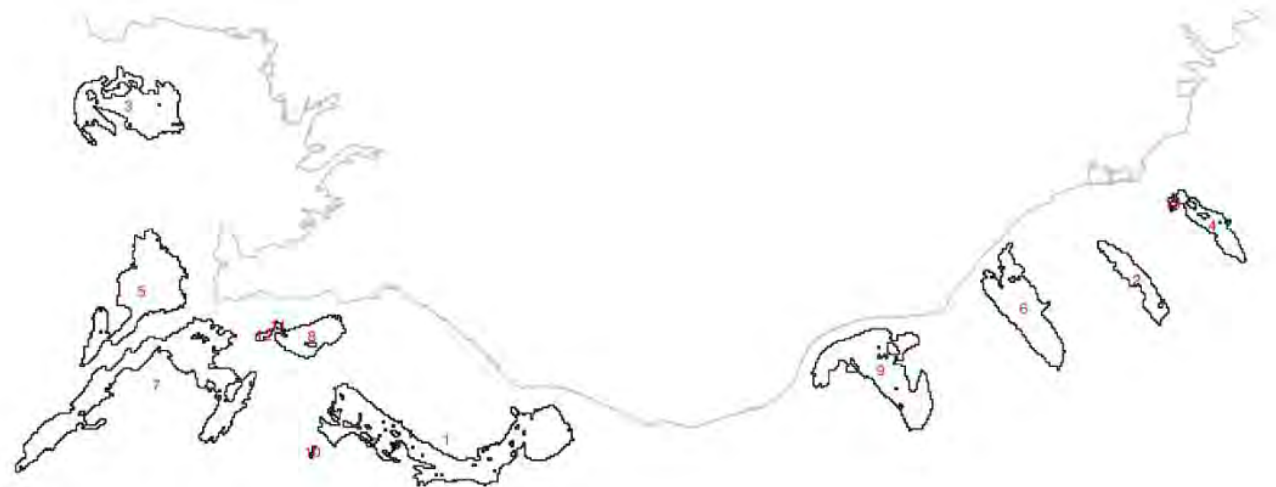
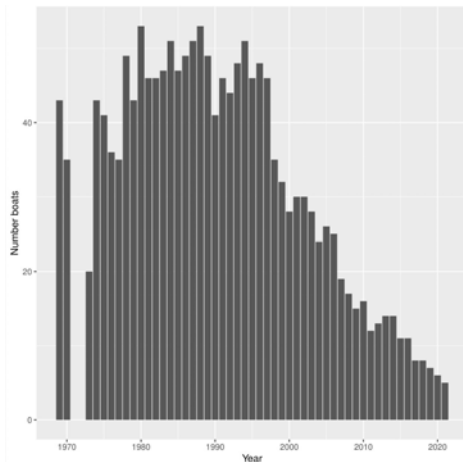
Fishery overview

Trawl fishery

Fishing grounds in the south and southwest of Iceland

Historically > 50 boats, recently fewer

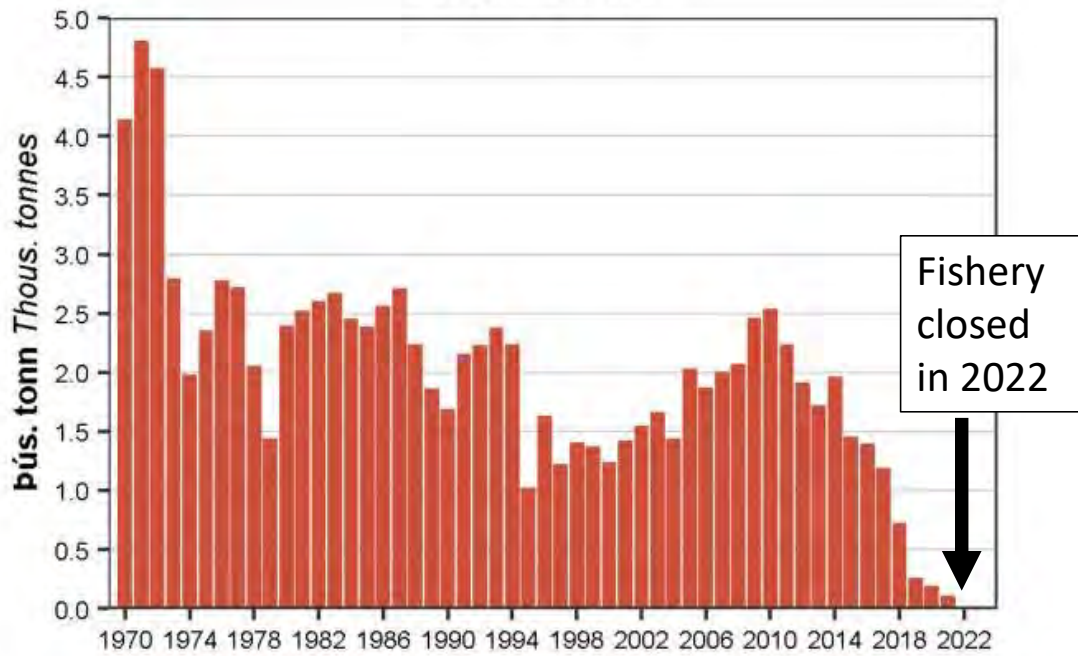
Recent annual landings value € 5,000,000



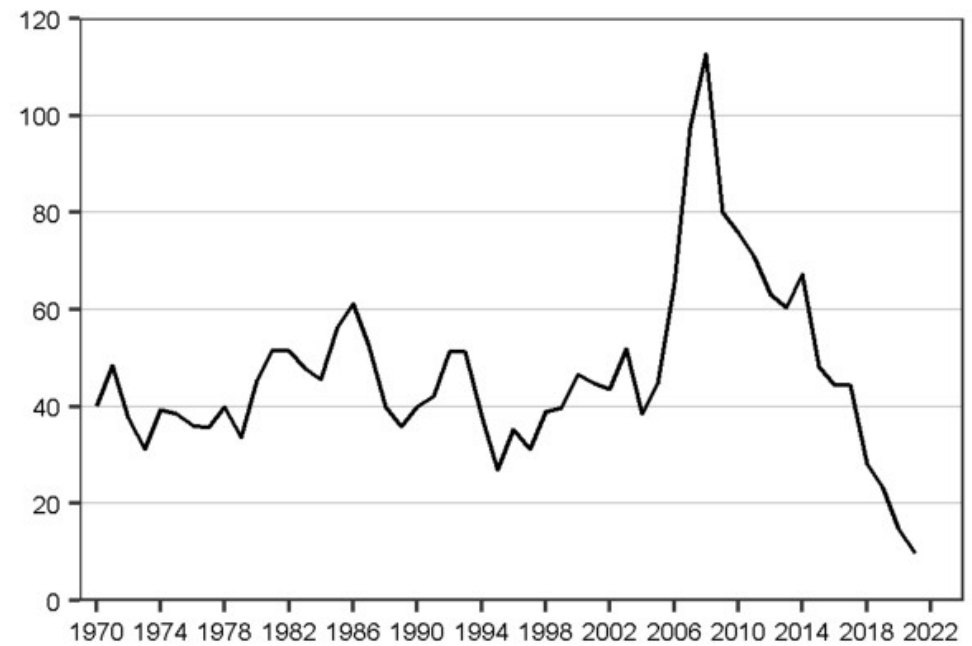


Catch and CPUE

Afli Catches



Afli á sóknareiningu CPUE





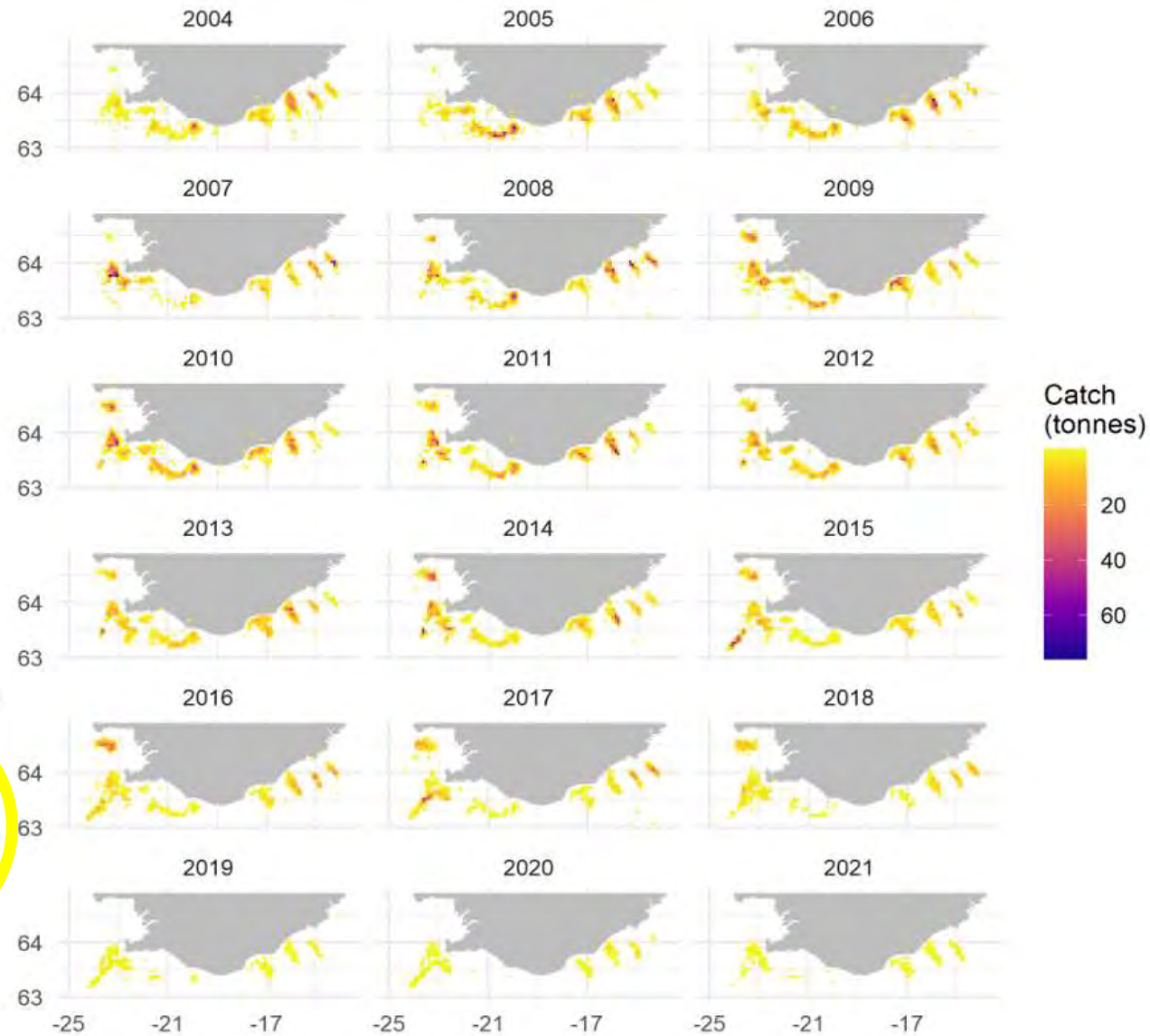
Catch areas

Expansion in fishing areas

Catch declined

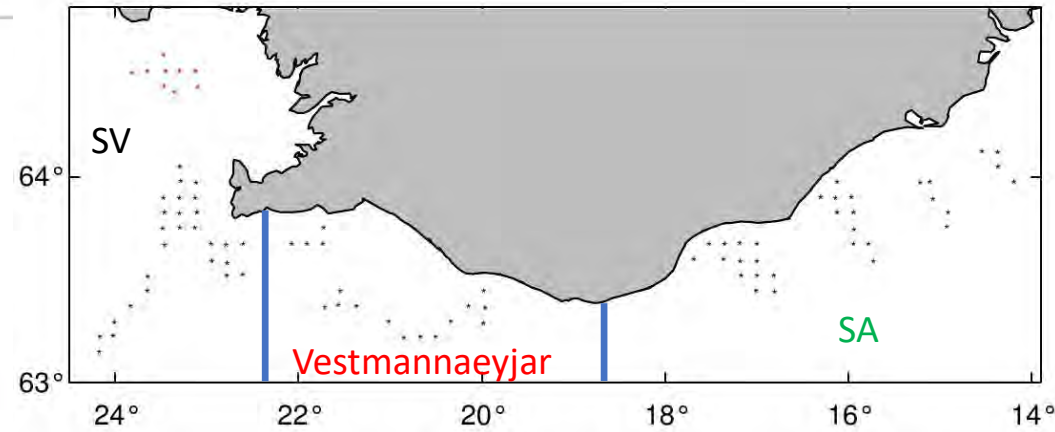
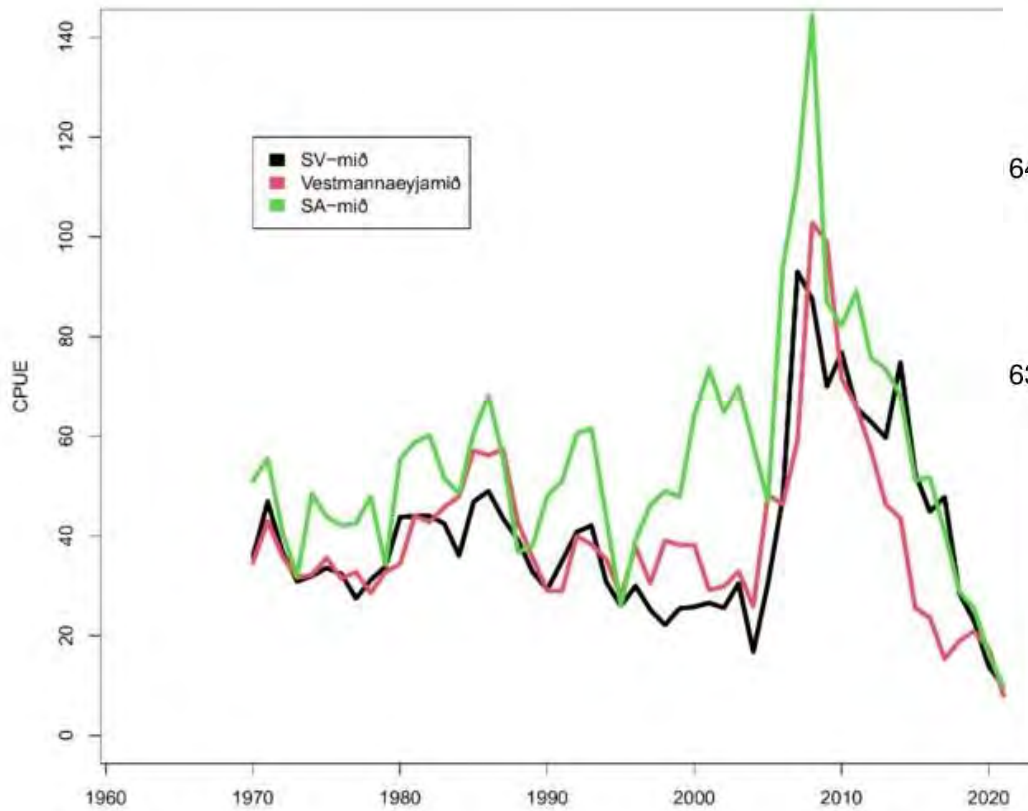
2022 moratorium

No Nephrops or bottom trawl here



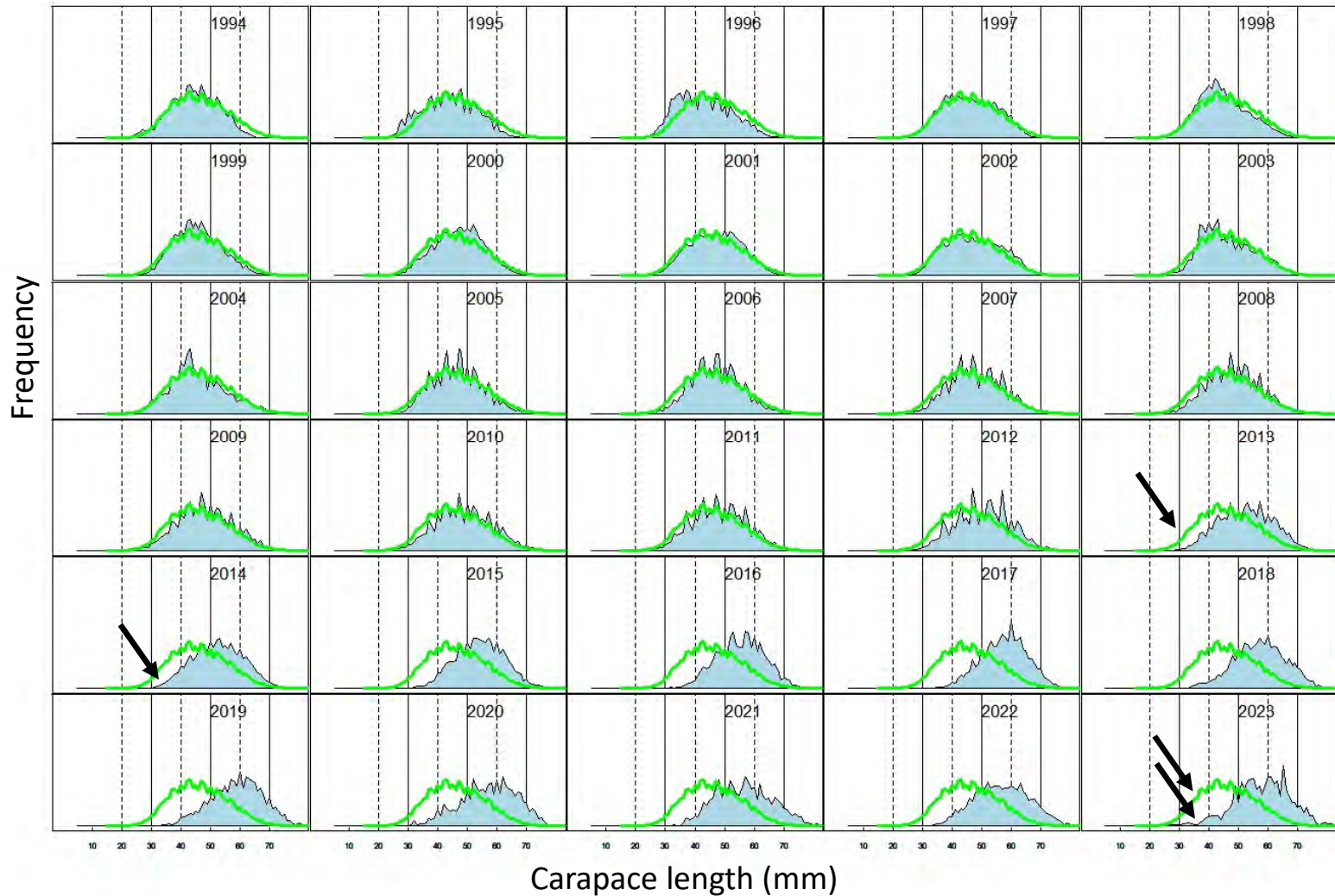


CPUE change in all areas





Recruitment failure length surveys



Carapace length distributions
of males (mm)

Blue area: current year

Green line: long-term
average

Shift to larger animals

Few small animals observed



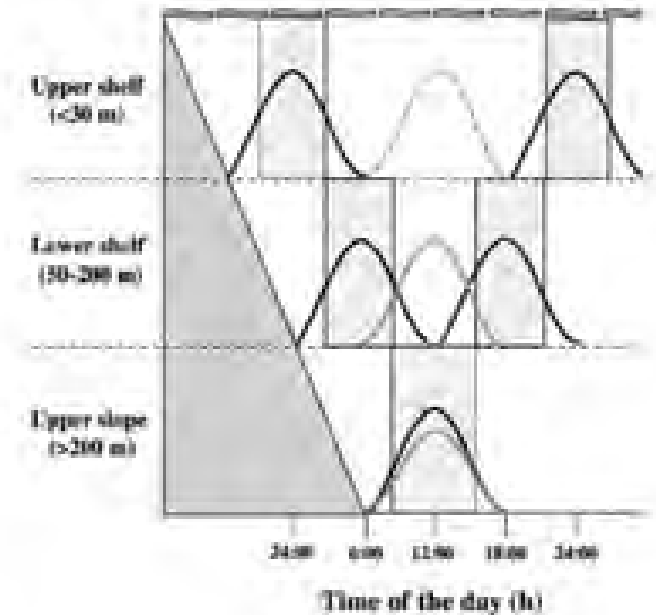
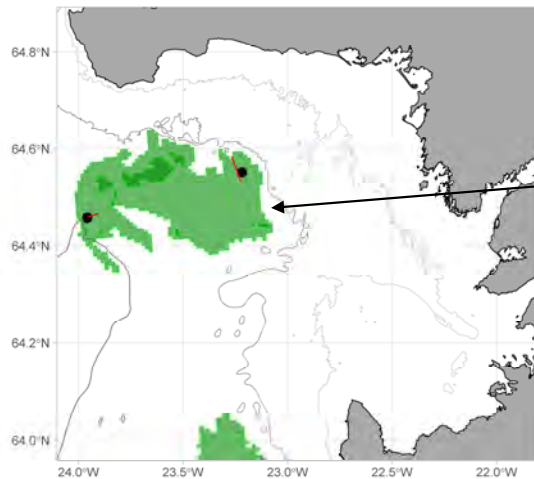
Catch surveys are unreliable

Large diurnal fluctuations in catches in other systems

Needed to monitor behavior of *Nephrops* with acoustic tags

Inspired by Tuck et al. 2015 on *Metanephrops challengerii* in New Zealand

Experiments carried out on RV Bjarni Sæmundsson (HF 30) autumn 2020



(Aguzzi & Sardá, 2008)



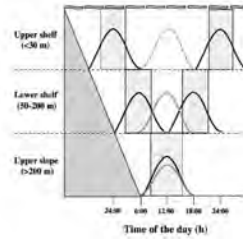


Bring them safely down !



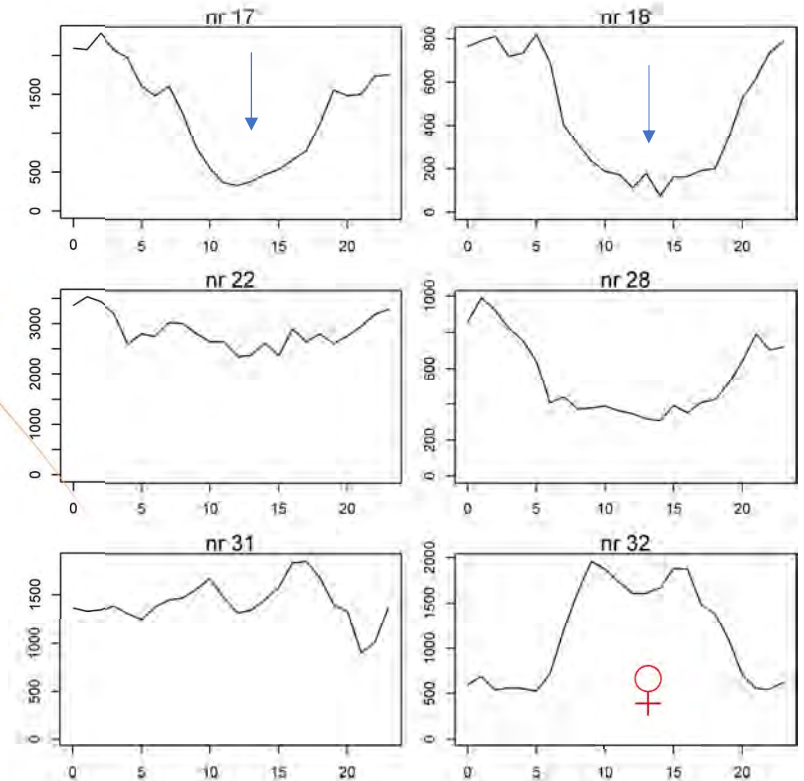
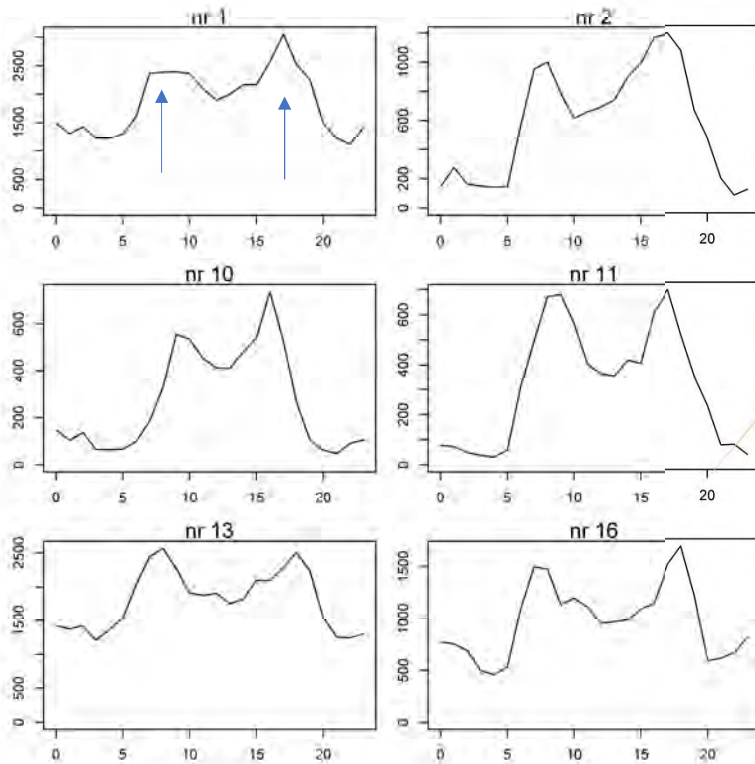


Cumulative pings per hour



115m

195m



Time of day

Time of day



Catch surveys are not reliable

Nephrops in Iceland exhibit some diurnal movement patterns

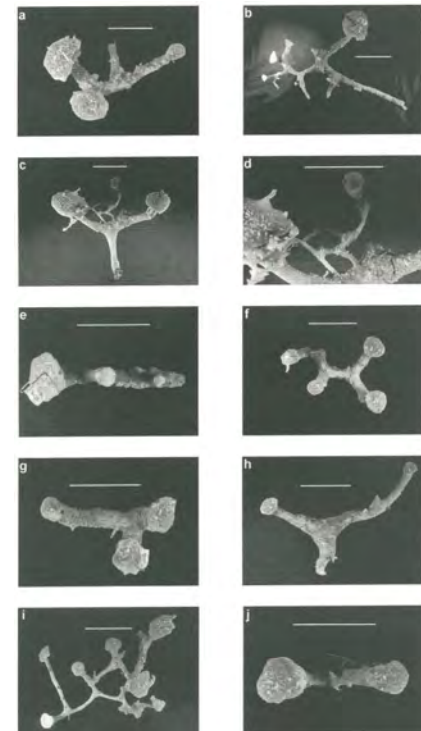
Not as predicted by previous studies

Trawl surveys are do not provide a reliable index on which to base the assessment

Started UWTV survey 2016

One animal per burrow complex (*Farmer, 1974; Rice and Chapman, 1971*)

Stock assessment = Burrow counts !





Research ships and UWTV

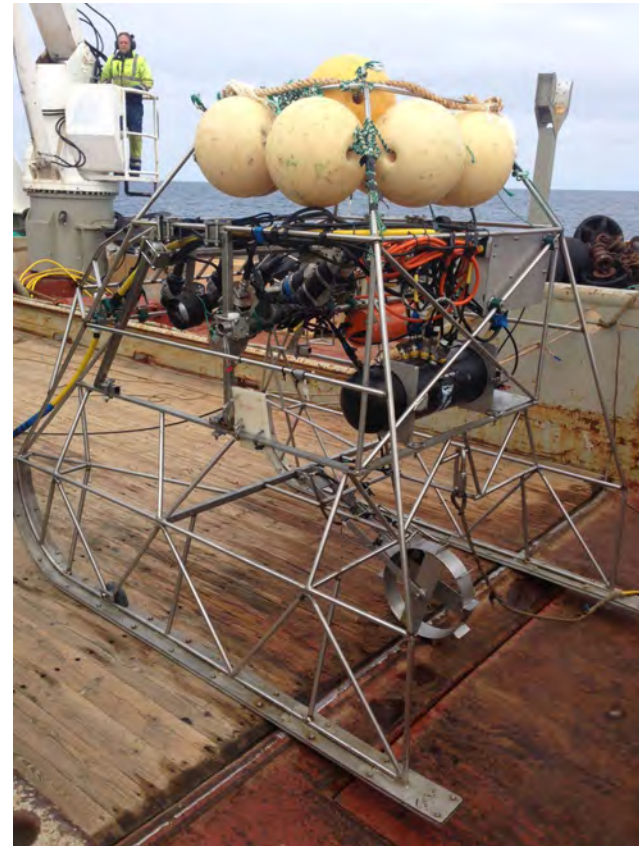
Bjarni Sæmundsson (HF-30), built in 1970, 56 m length



Pórunn Þórðardóttir (HF-300), delivery in October 2024, 70 m length



UWTV sled





Images from SW Iceland – MFRI







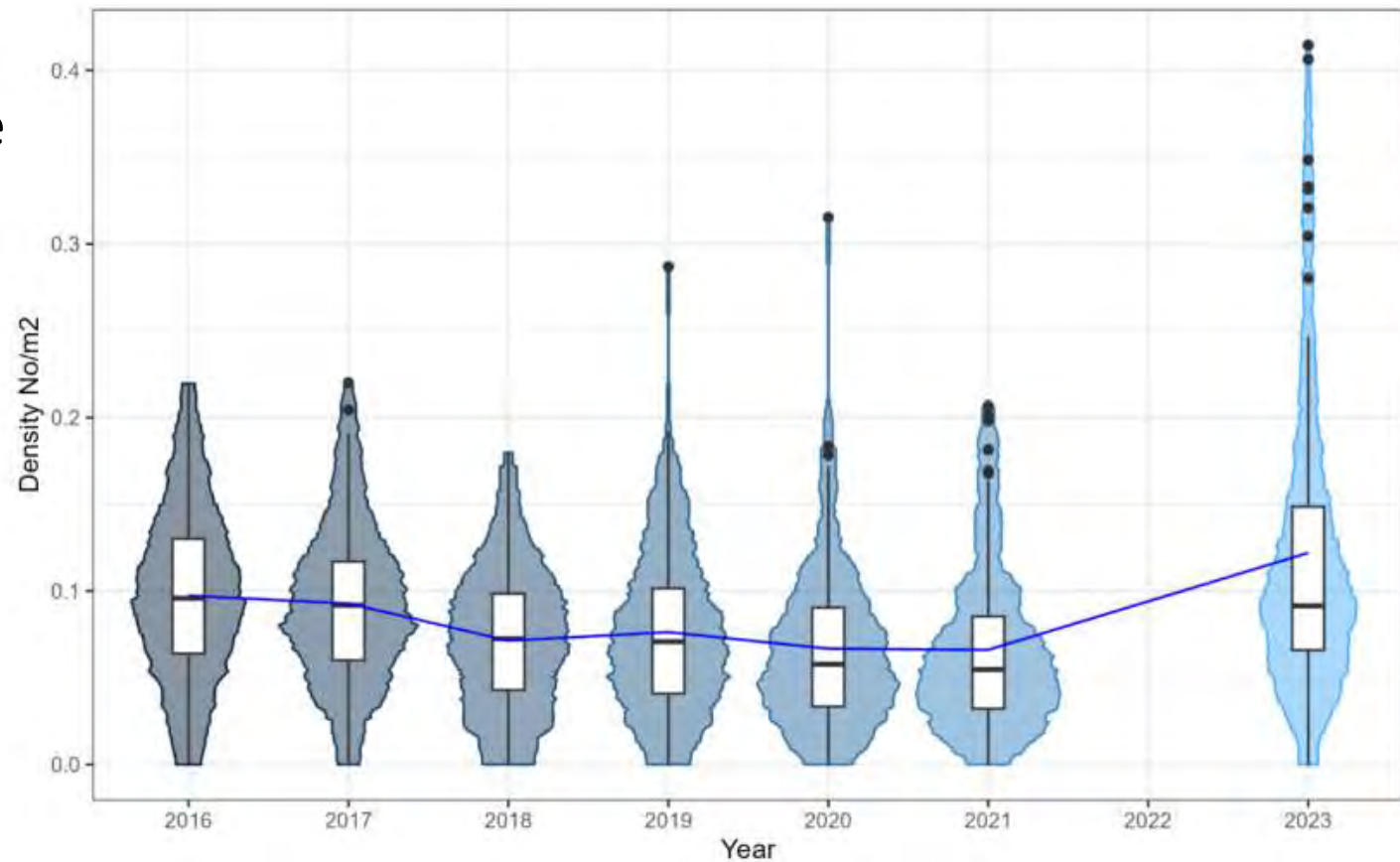


Estimated burrow density

Burrow density increase

No UWTV surveys 2022
and 2024

Does burrow density
differ among fishing
grounds?



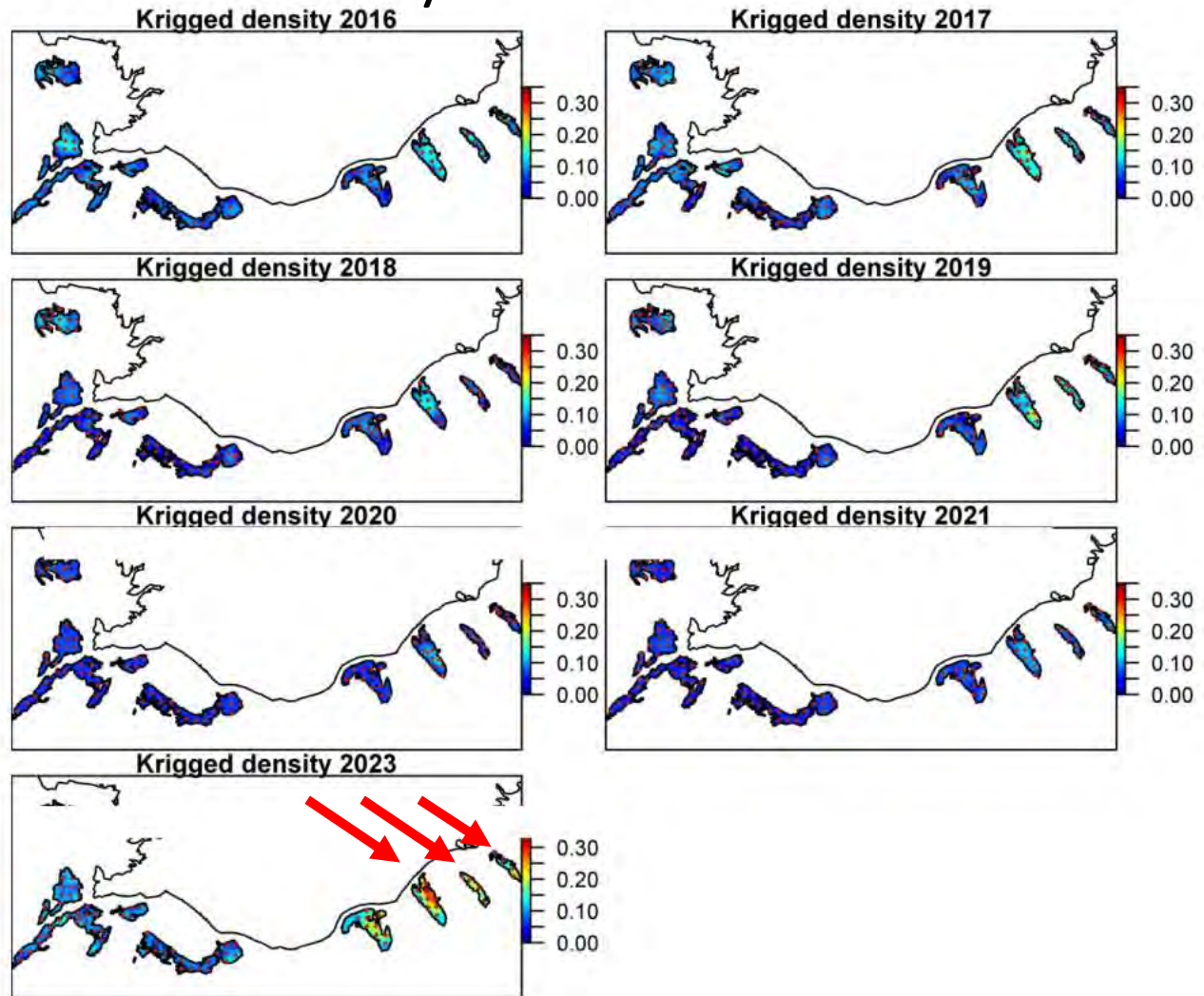


Estimated burrow density

Estimated density increased after moratorium

Larger increase in east

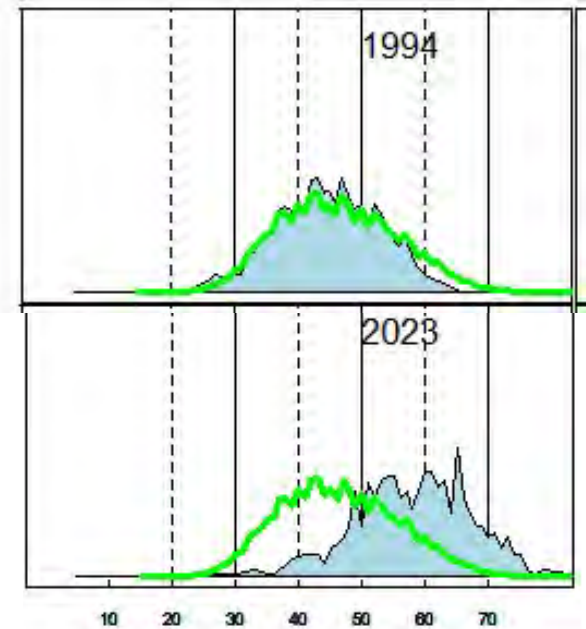
Coincidentally, no bottom trawling in 3 areas





Moratorium extended

Moratorium extended for two more years
While burrow density increased, recruitment
has not responded or very little
Length survey in starts on Wednesday
What if burrow increase is due to lack of
disturbance and not increase in
abundance?





Thank you

Funding:

Ministry of Industries and Innovation

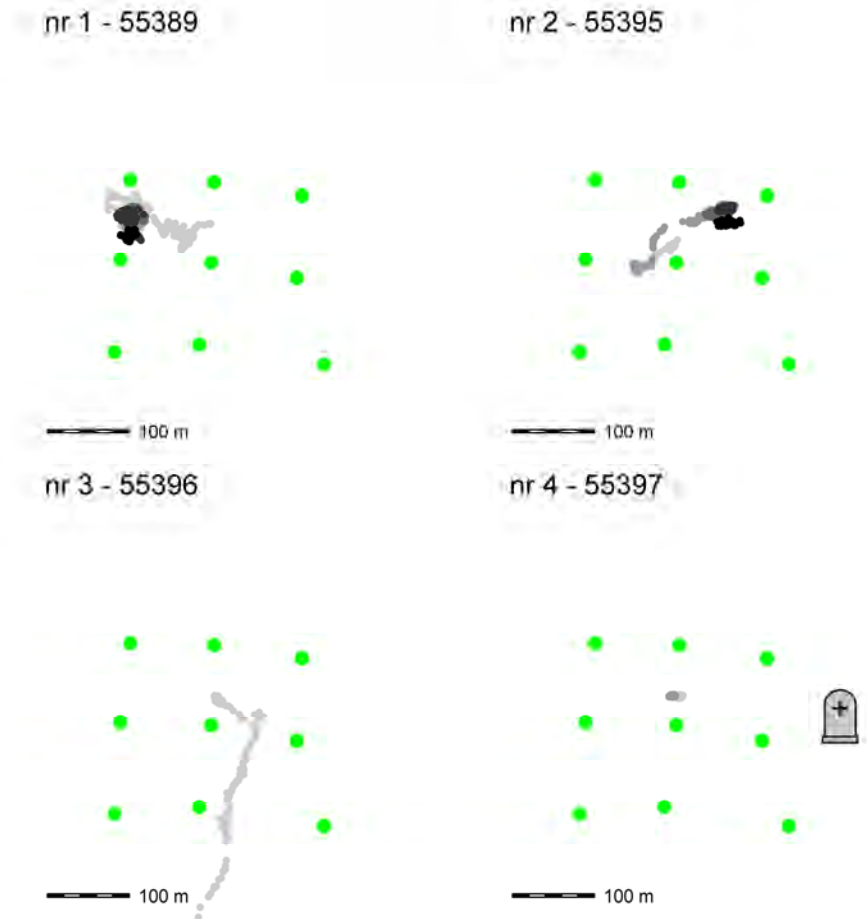
AG-Fisk



Results

Movements shallow (115m)

Nephrops 1 to 4 (of 16)
Darker grey means later
into the experiment



- week 35-36, • week 37-39, • week 40-42,
- week 43-45, • week 46-48



Shallow area (115 m) – movements (alive animals)

2020-08-28



100 m