International Bottom Trawl Survey of the North Sea 2020 - IBTSQ3 with R/V Kristine Bonnevie (2020614)

Report generated by: Johanna Fall, cruise coordinator

28/09/2020

Contents

1 Survey description and data availability **3**

2 Cruise tracks and stations **4**
2.1 Predefined IBTS squares for sampling by the Norwegian vessel . . . 4
2.2 Realised cruise track and sampling locations . . . 5
2.3 Sampling depth for trawl hauls . . . 6

3 Catch composition **7**
3.1 Species diversity . . . 7
3.2 Max catch rate by species for the 20 species with highest catch rates . . . 8
3.3 Spatial variation in catches of common species . . . 9
3.4 Length-weight relationships . . . 14
3.5 Length-age relationships . . . 15

4 CTD **16**
4.1 Summary of measurements . . . 16
4.2 Spatial variation in temperature and salinity . . . 17

4.3 Density in the water column (all cross-sections) 19
4.4 Light in the water column (all cross-sections) 20

1 Survey description and data availability

The International bottom trawl survey (IBTS) of the North Sea is conducted by research institutions in Scotland, England, Denmark, Sweden, Norway and Germany, and is coordinated through the ICES working group IBTSWG. The survey collects biological data on demersal and pelagic fish (26 species used in ICES assessments), selected invertebrates and marine litter.

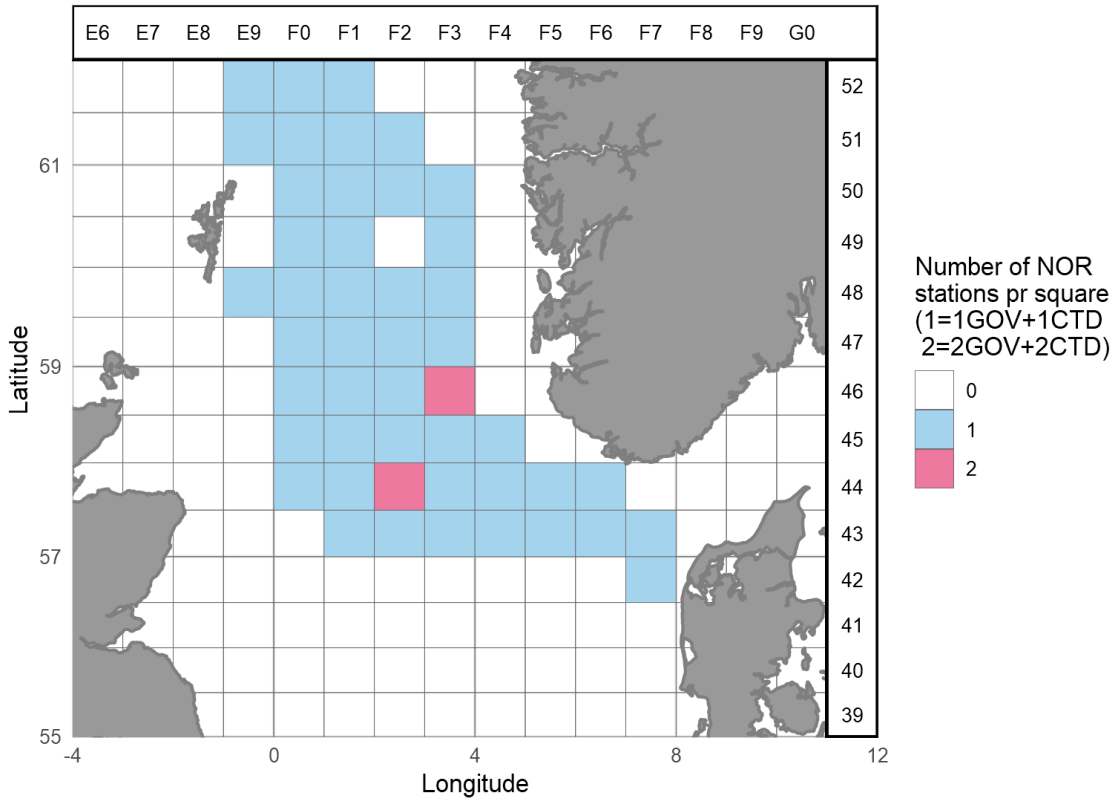
This report gives an overview of the data collection during the IBTS Quarter 3 (IBTSQ3) cruise with the Norwegian research vessel R/V Kristine Bonnevie from 16.07.2020 to 09.08.2020. The cruise was divided into two legs, with a change of scientific staff in Bergen on the 28th of July. The cruise was conducted as planned within the allocated time. Six squares allocated to Germany/Scotland were also covered to help the German and Scottish vessels that were short on time (see *Realised cruise track and sampling locations* below).

Trawl data from the survey will be published in the ICES DATRAS database (https://datras.ices.dk/Data_products/Download/Download_Data_public.aspx), where it is publicly available. CTD data is available upon request to **datahjelp@hi.no**.

2 Cruise tracks and stations

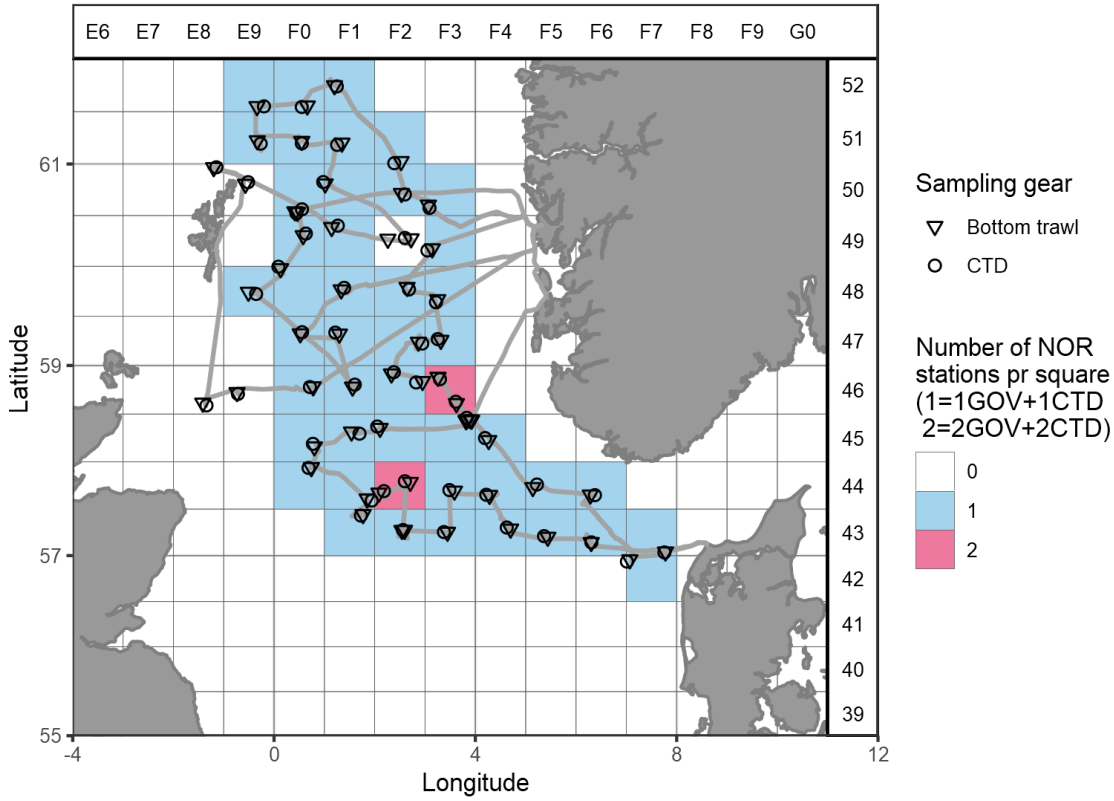
2.1 Predefined IBTS squares for sampling by the Norwegian vessel

The map below shows the northern region of the North Sea with ICES IBTS squares. The coloured squares were allocated to Norway in 2020 by the international cruise coordinator.



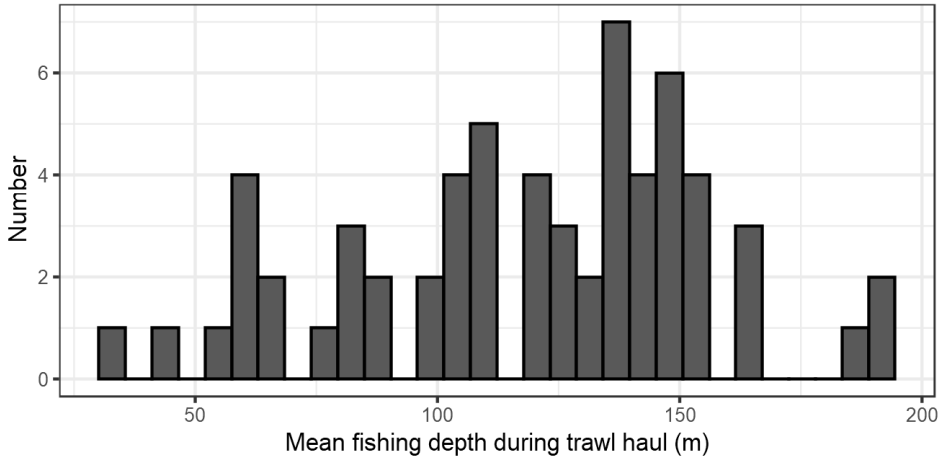
2.2 Realised cruise track and sampling locations

The map below shows cruise tracks from the position log and the randomly selected sampling locations within each ICES square. The points indicate start positions for bottom trawls (triangles) and CTDs (circles). The points are jittered slightly for better visual representation. In addition to the allocated squares, the Norwegian vessel also covered two squares for Germany (46F2 and 49F2) and four for Scotland (50E8, 50E9, 46E8, 46E9).



2.3 Sampling depth for trawl hauls

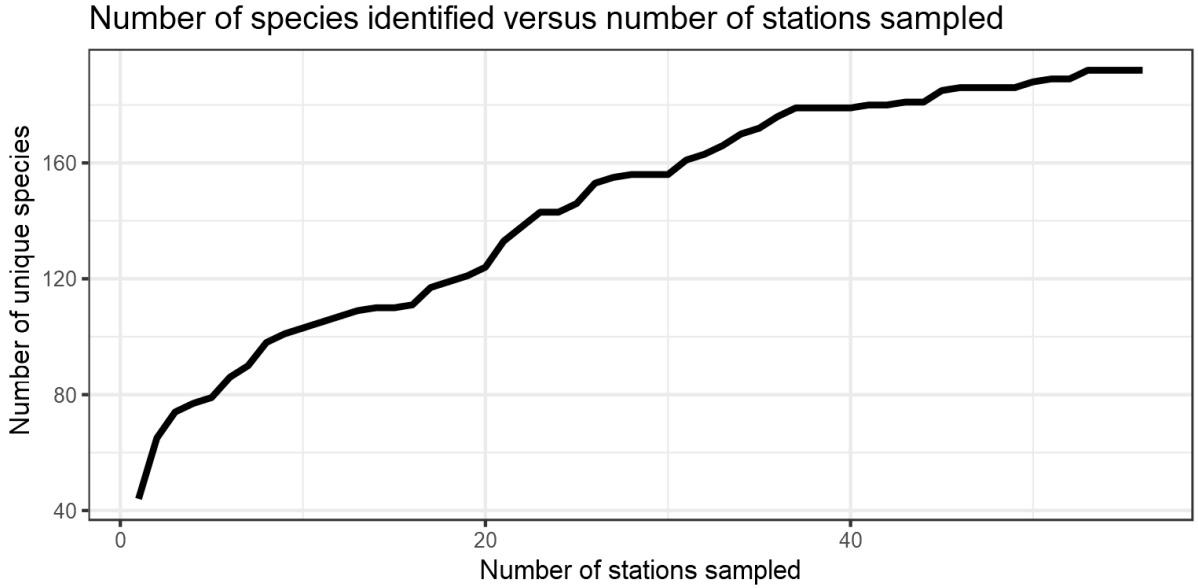
56 bottom trawl (GOV) hauls were taken during the cruise The trawl hauls covered a total distance of 8170.6 km (4411.8 nmi) and were located in areas with bottom depths from 32.8 m to 192.4 m:



3 Catch composition

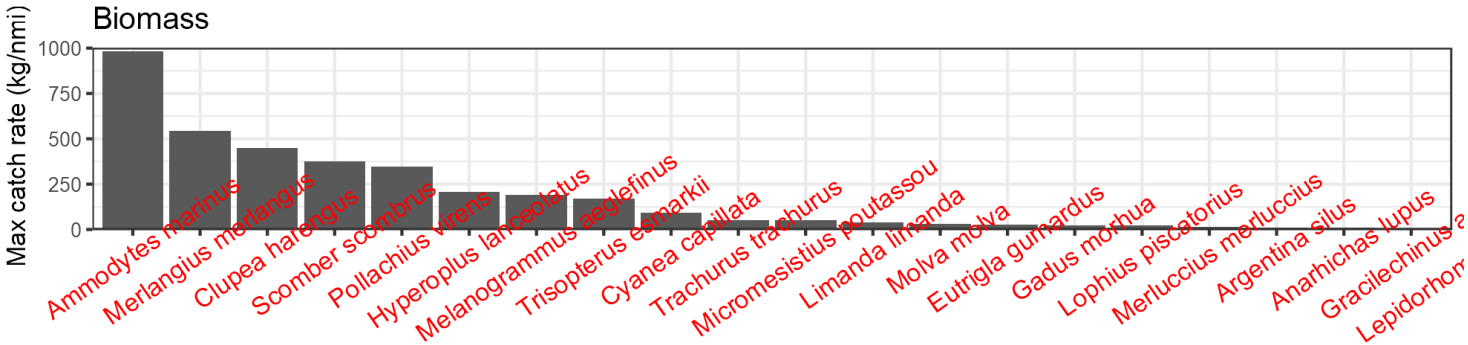
3.1 Species diversity

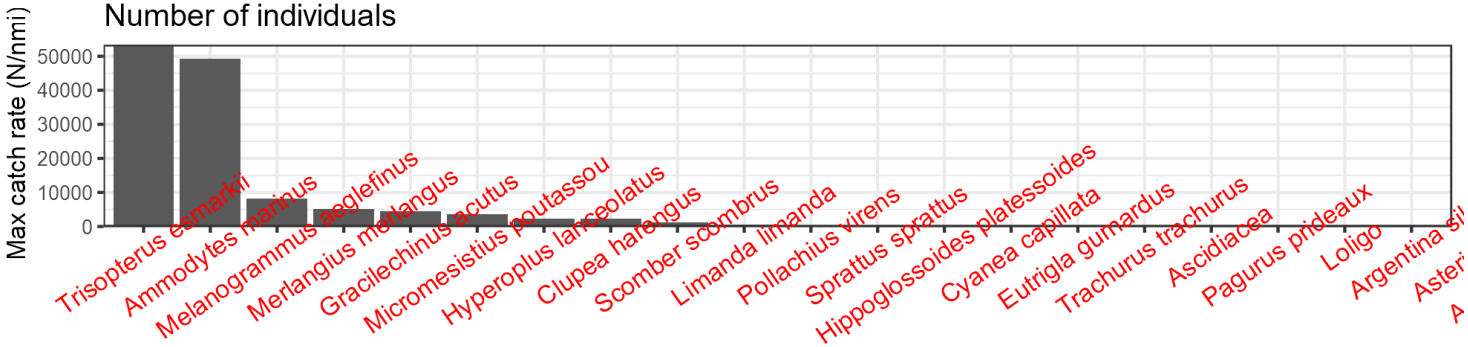
A total of 192 species (including invertebrates) were registered in the Sea2Data database during the cruise.



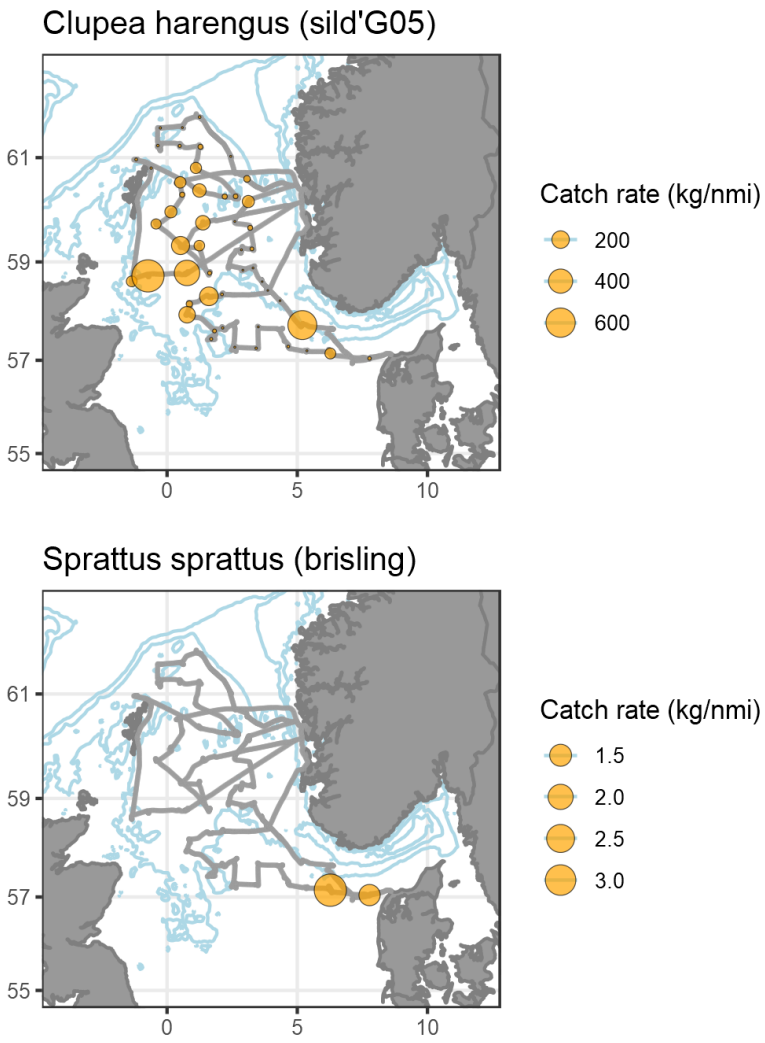
3.2 Max catch rate by species for the 20 species with highest catch rates

The species with highest catch rates were Ammodytes marinus (havsil) by biomass, and Trisopterus esmarkii (øyepål) by number.

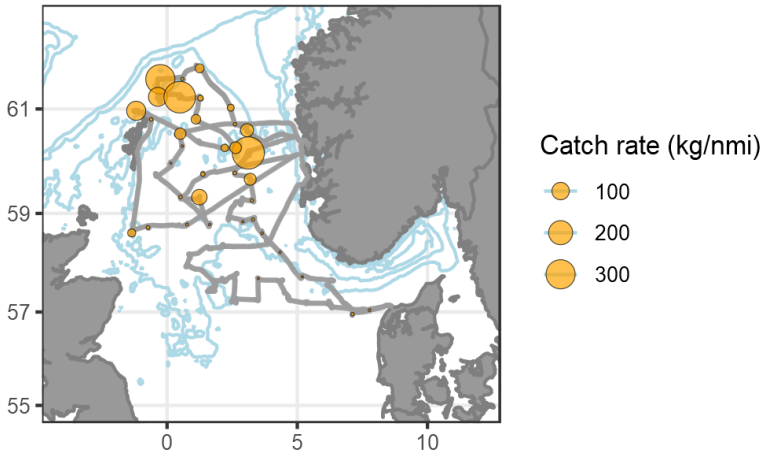




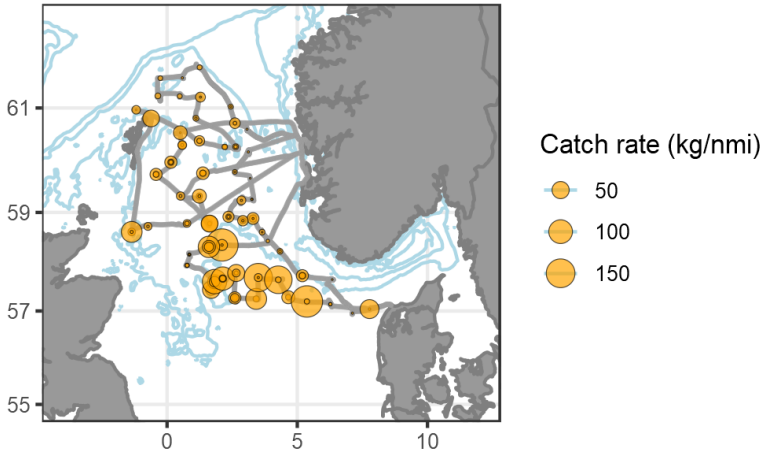
3.3 Spatial variation in catches of common species



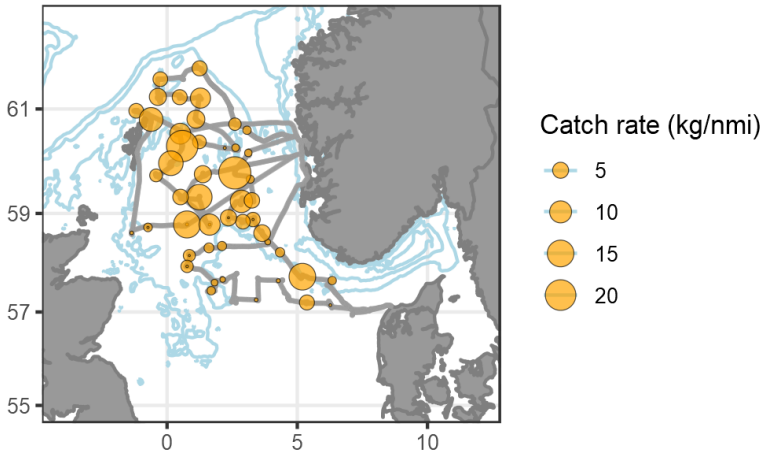
Scomber scombrus (makrell)



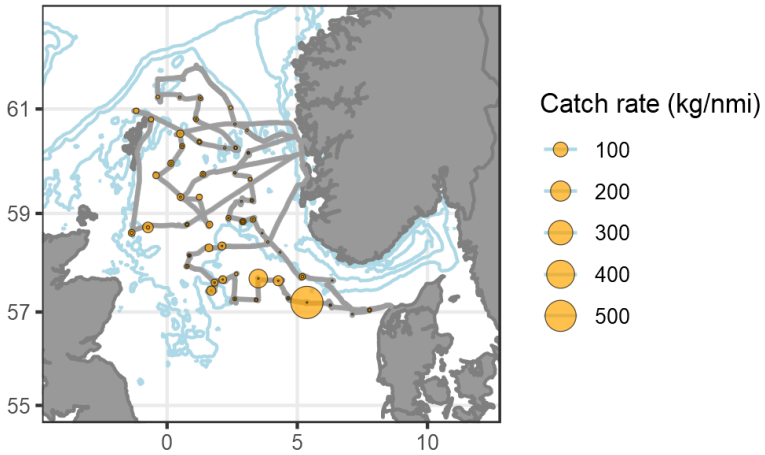
Melanogrammus aeglefinus (hyse)



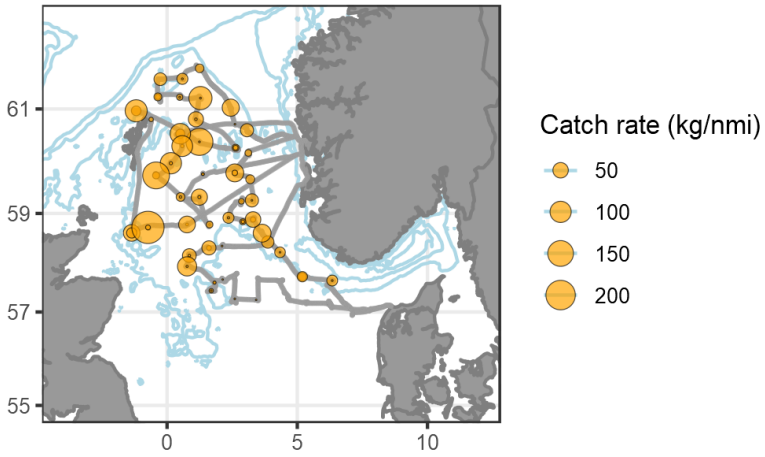
Gadus morhua (torsk)



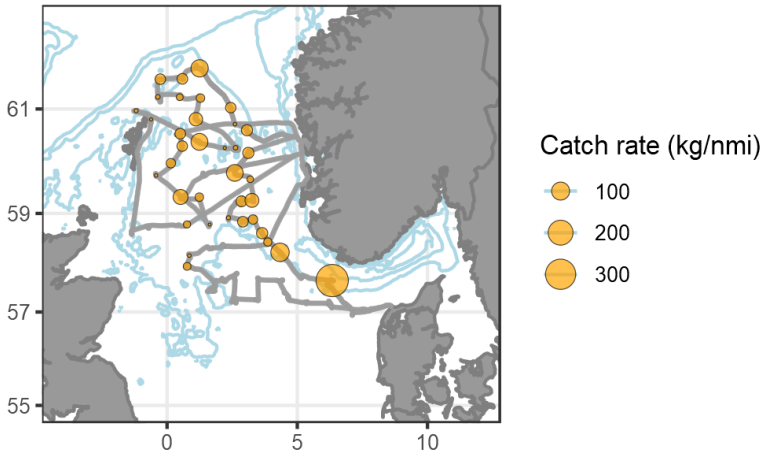
Merlangius merlangus (hvitting)



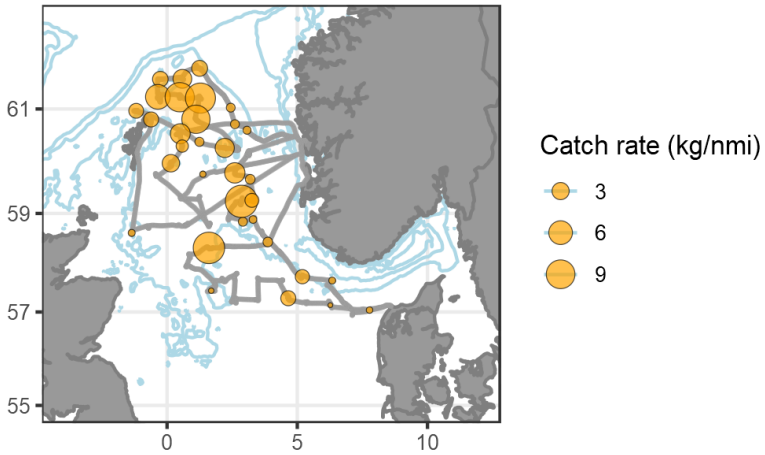
Trisopterus esmarkii (øyepål)



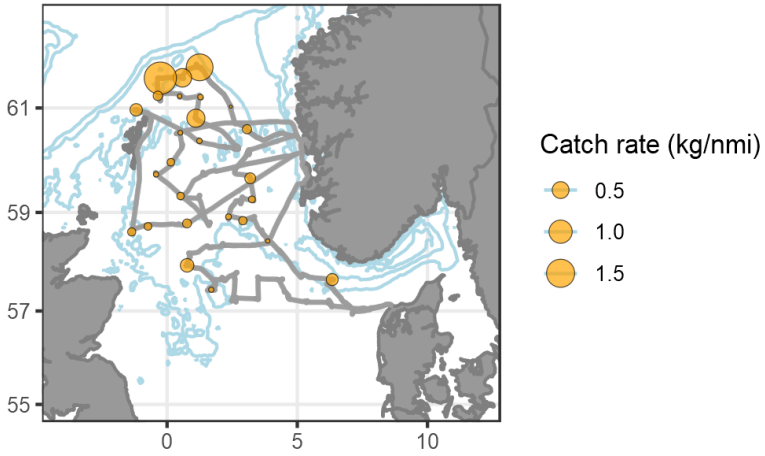
Pollachius virens (sei)



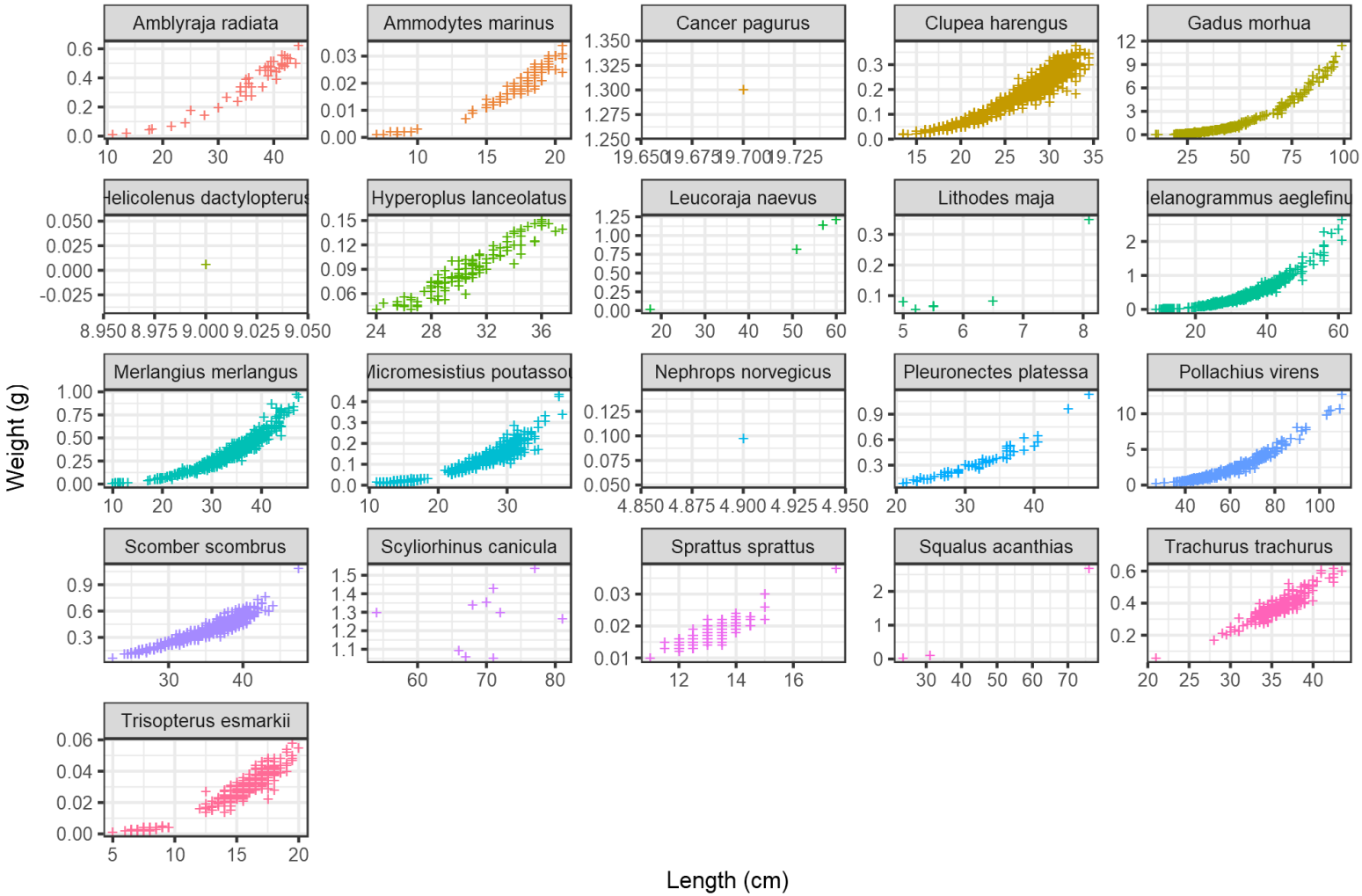
Merluccius merluccius (lysing)



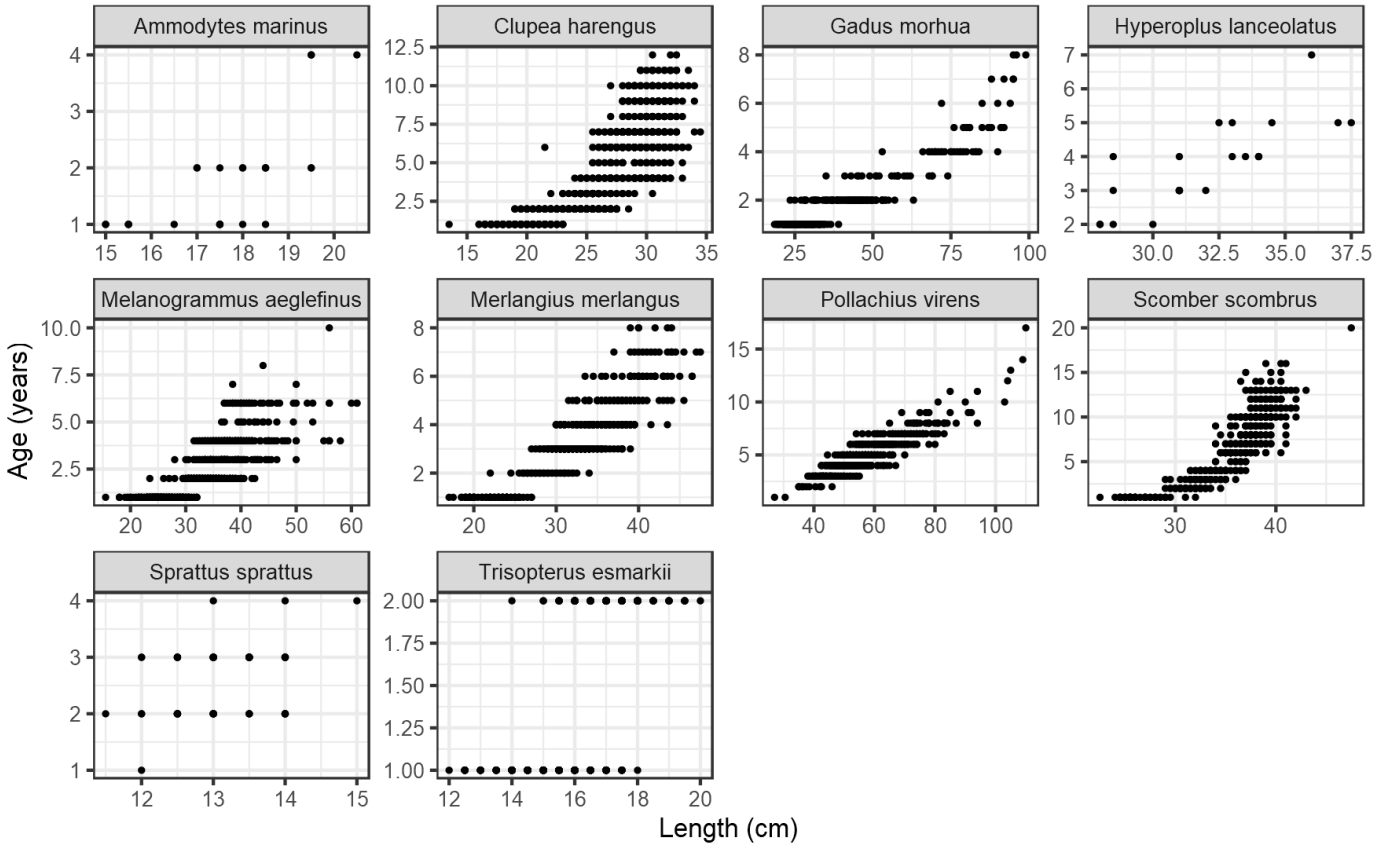
Helicolenus dactylopterus (blåkjeft)



3.4 Length-weight relationships



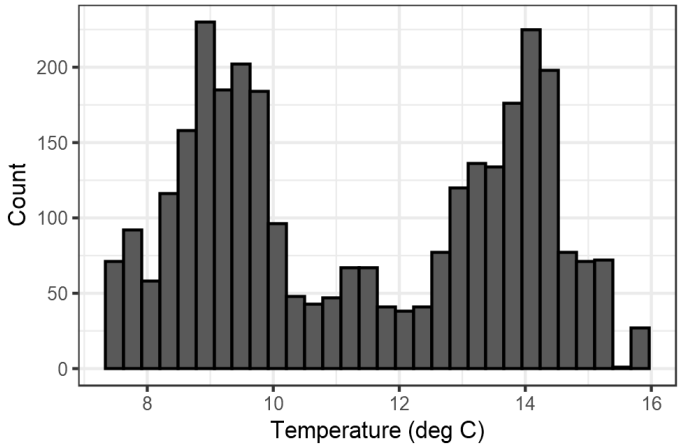
3.5 Length-age relationships

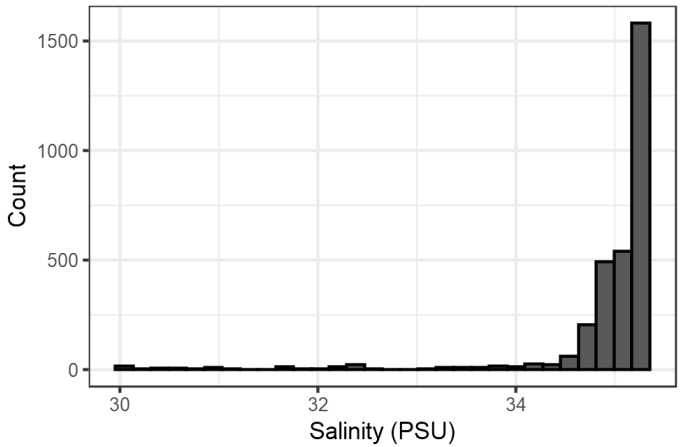


4 CTD

4.1 Summary of measurements

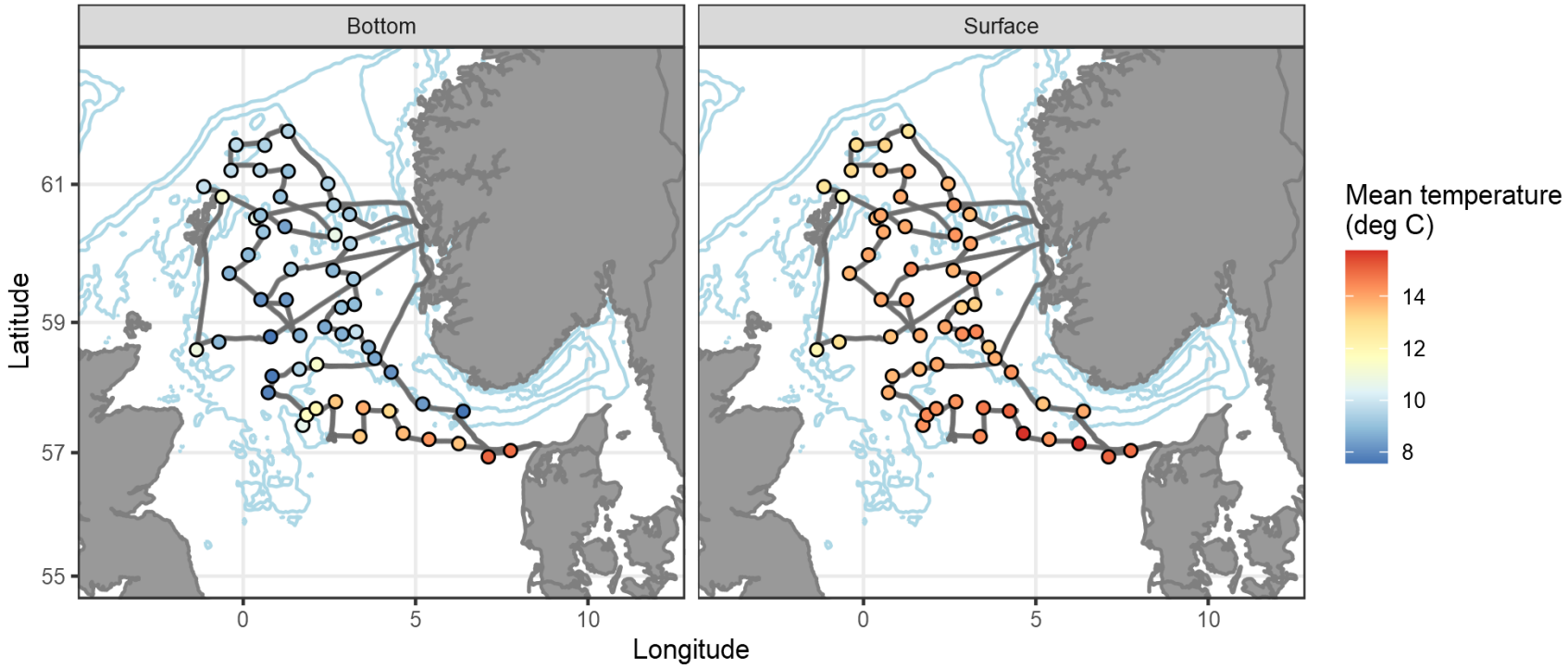
55 CTD casts were done during the cruise, covering a total depth of 3.1 km. The following figures illustrate the temperature and salinity measurements, across all depths:

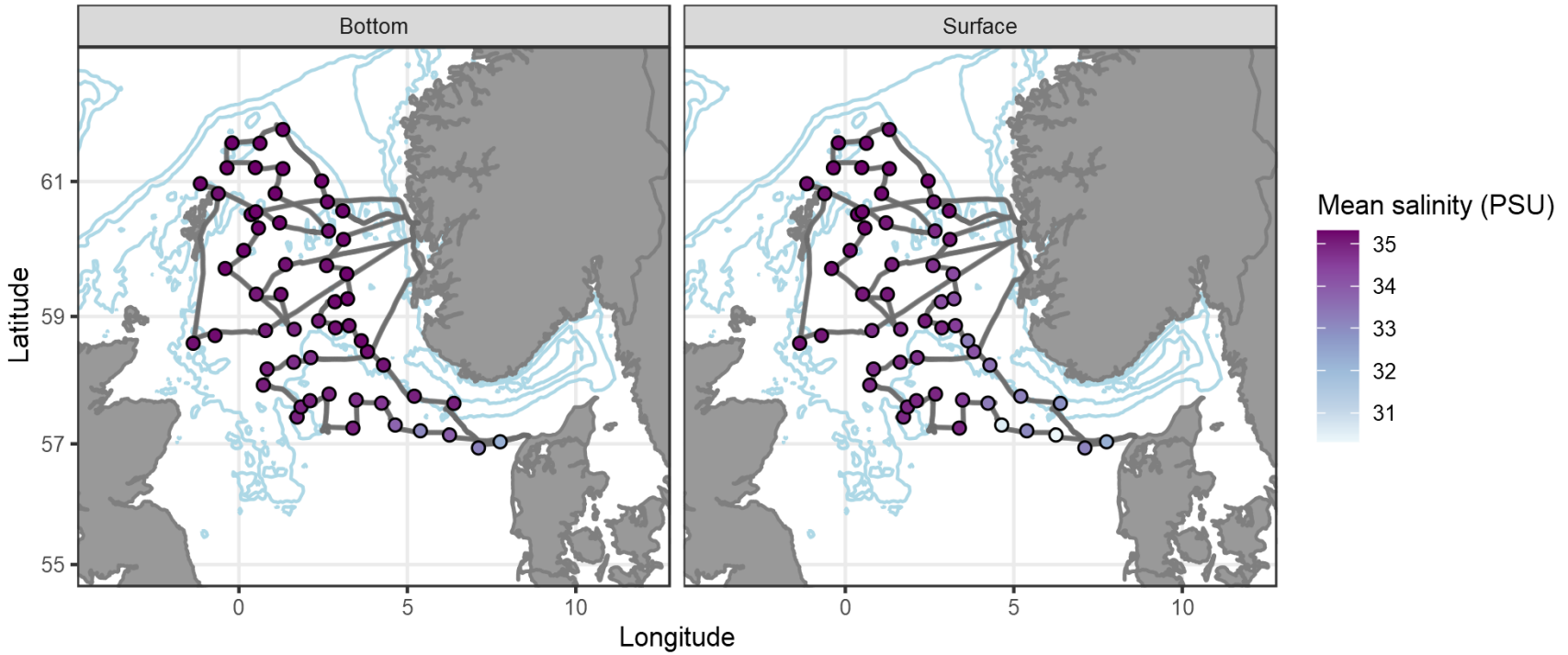




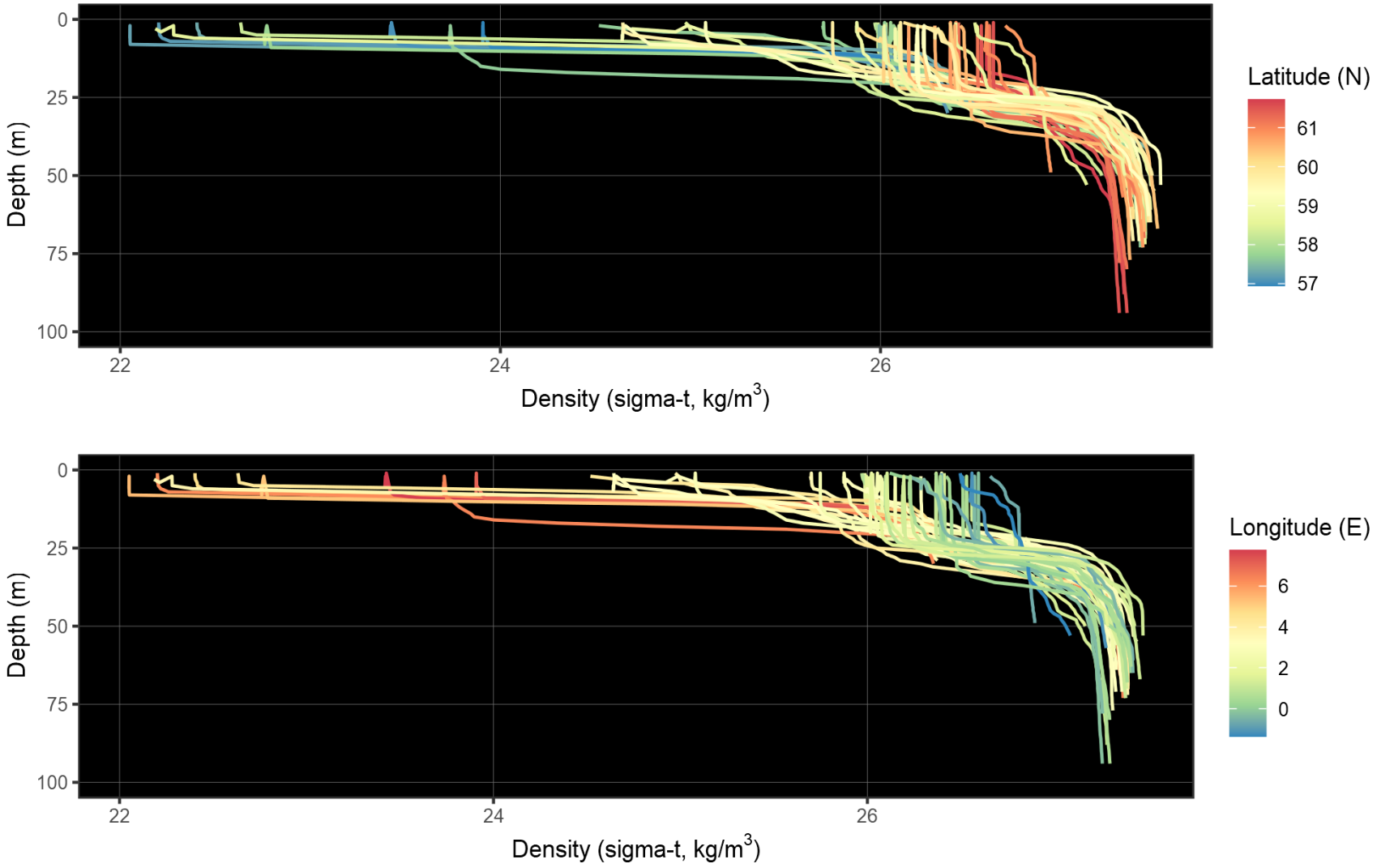
4.2 Spatial variation in temperature and salinity

Temperature and salinity vary with bathymetry and geographical location. In the figures below, "surface" was defined as the mean of measurements at <= 25 depth, and "bottom" was defined as the mean of measurements at <= 25 distance from the seafloor.




Bottom
Surface
Latitude
61
59
57
55
0
5
10
Longitude
Mean salinity (PSU)
35
34
33
32
31

4.3 Density in the water column (all cross-sections)



4.4 Light in the water column (all cross-sections)