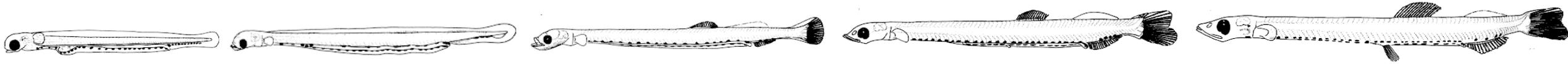


Effects of environment on distribution of capelin (*Mallotus villosus*) early life stage

Thassya C. dos Santos Schmidt & James Kennedy

Subgroup larvae: aim

Image: Fahay 2007



The aim of the study is to investigate natal origin of capelin. Efforts will be made to map the distribution of capelin larvae around the coast, and together with daily increments analyses of larvae and drift models, estimate their origin and thus spawning grounds.

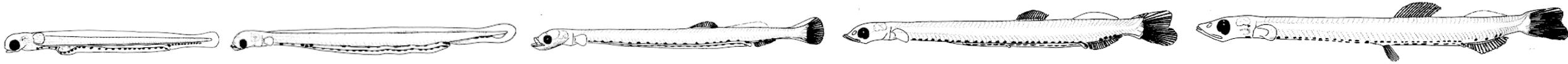
The aim of this presentation is present four years distribution of capelin larvae and the effect of environmental parameters on the capelin larvae density

Drift model will be presented at Paper 6



Objectives

Image: Fahay 2007



- i) to estimate possible interannual variation in the density and distribution of capelin larvae around Iceland from 2017 to 2020;
- ii) to estimate the effect of *in situ* sea temperature and chlorophyll-a on larvae density and distribution;
- iii) to analyze the larvae size distribution around Iceland



Material and Methods

Capelin larvae were collected in May from 2017 to 2020

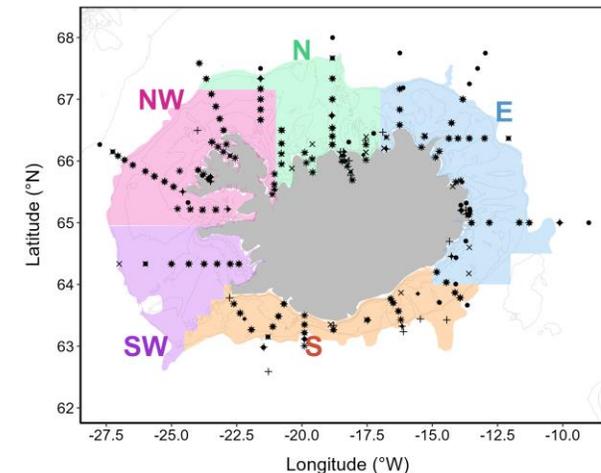
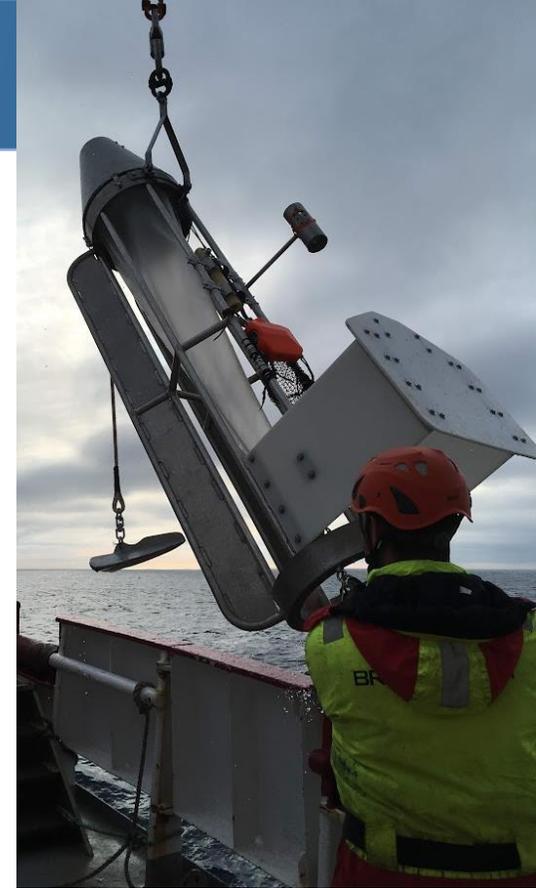
- ✓ GULF 7 (0 – 60m)
- ✓ Flowmeter attached to the net (water volume)
- ✓ Temperature and chlorophyll-a averaged in each station

Larvae were removed from the plankton samples, identified, and preserved in ethanol.

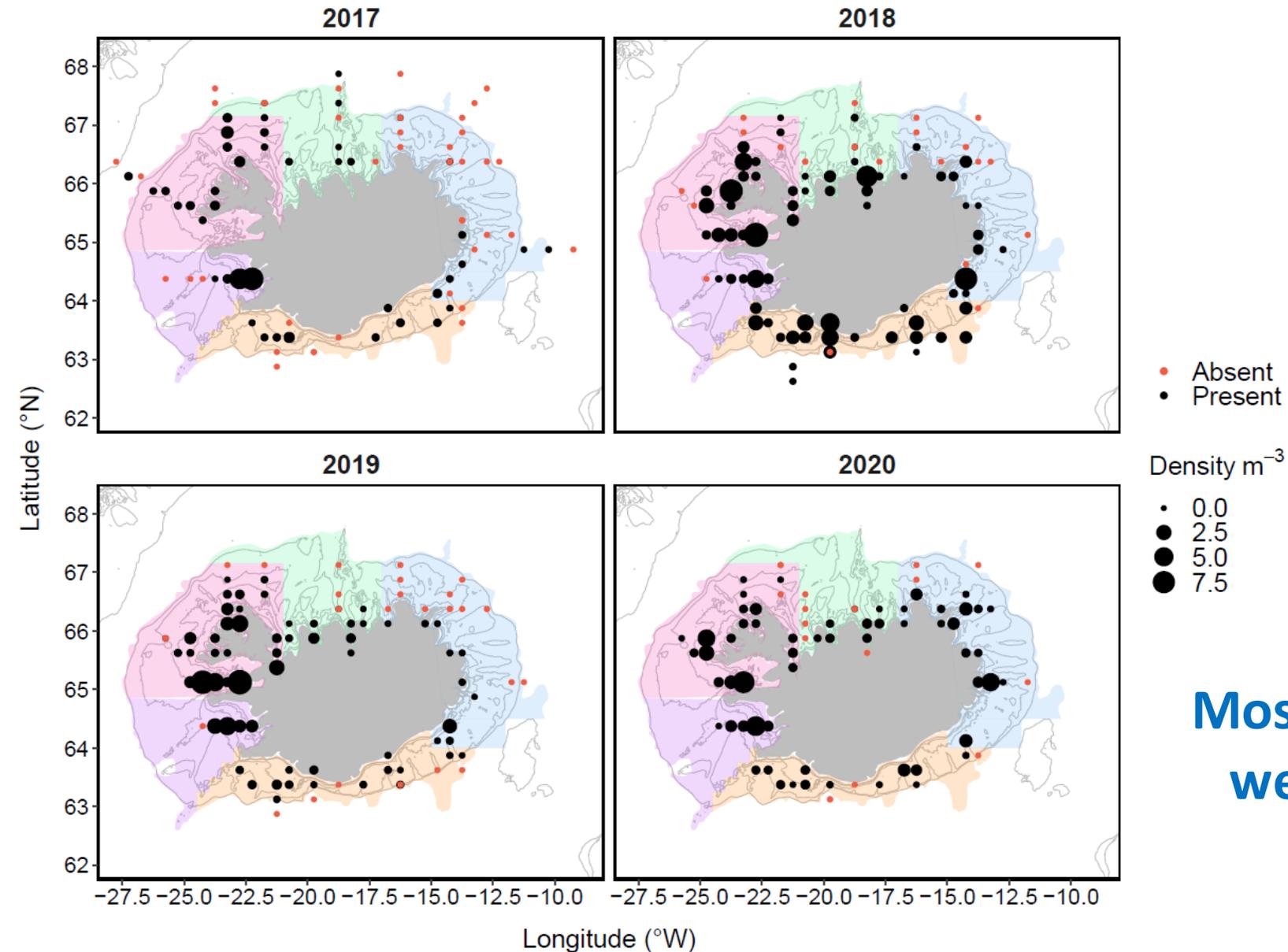
Density of larvae – number of larvae by water volume (m^{-3})

Up to 100 larvae per station were measured for size distribution

Iceland shelf was divided in 5 areas: SW = Southwest; NW = Northwest; N = North; E = East; S = South



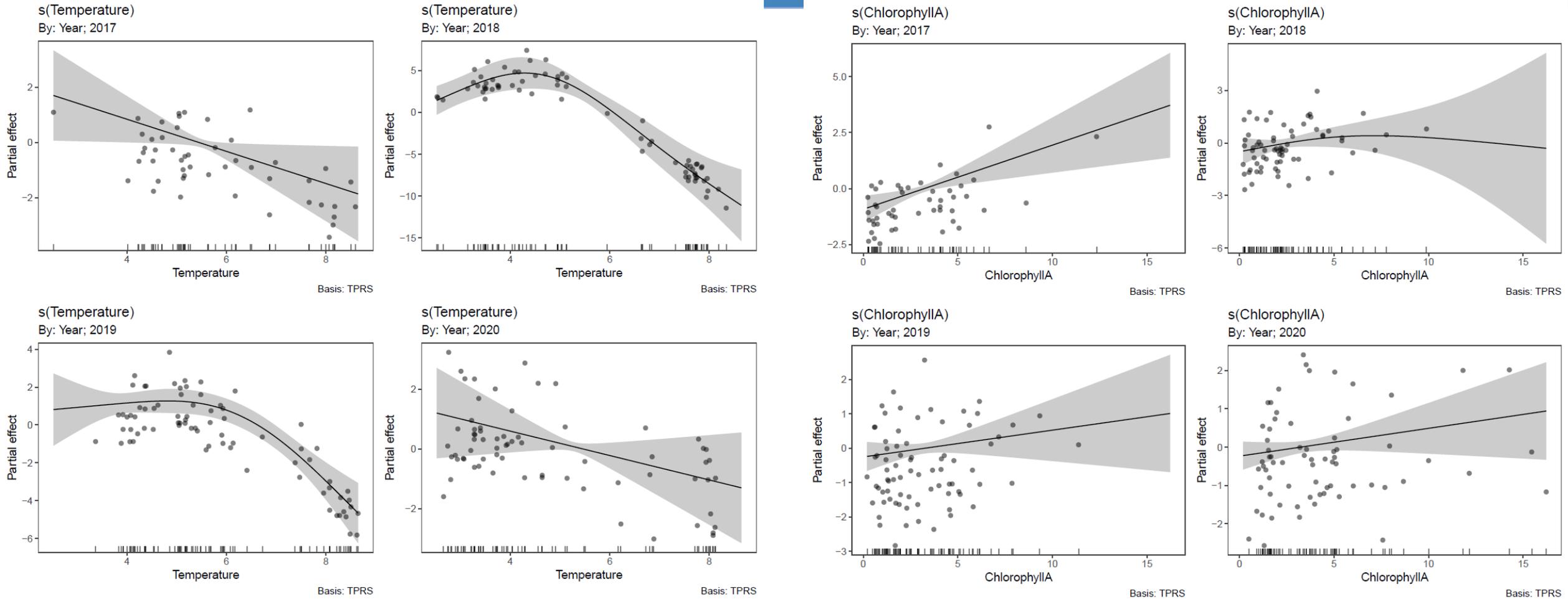
Results



- Interannual change in larvae density
- Higher capelin larvae density in 2018 and 2019

Most larvae concentrated in the western (all years) and south (2018) areas of Iceland

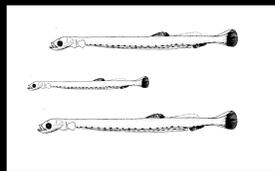
Results



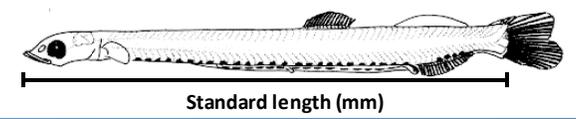
Optimum temperature ~ 6°C

Chlorophyll-a

Positive but no significant effect on capelin larvae density in 2018-2020



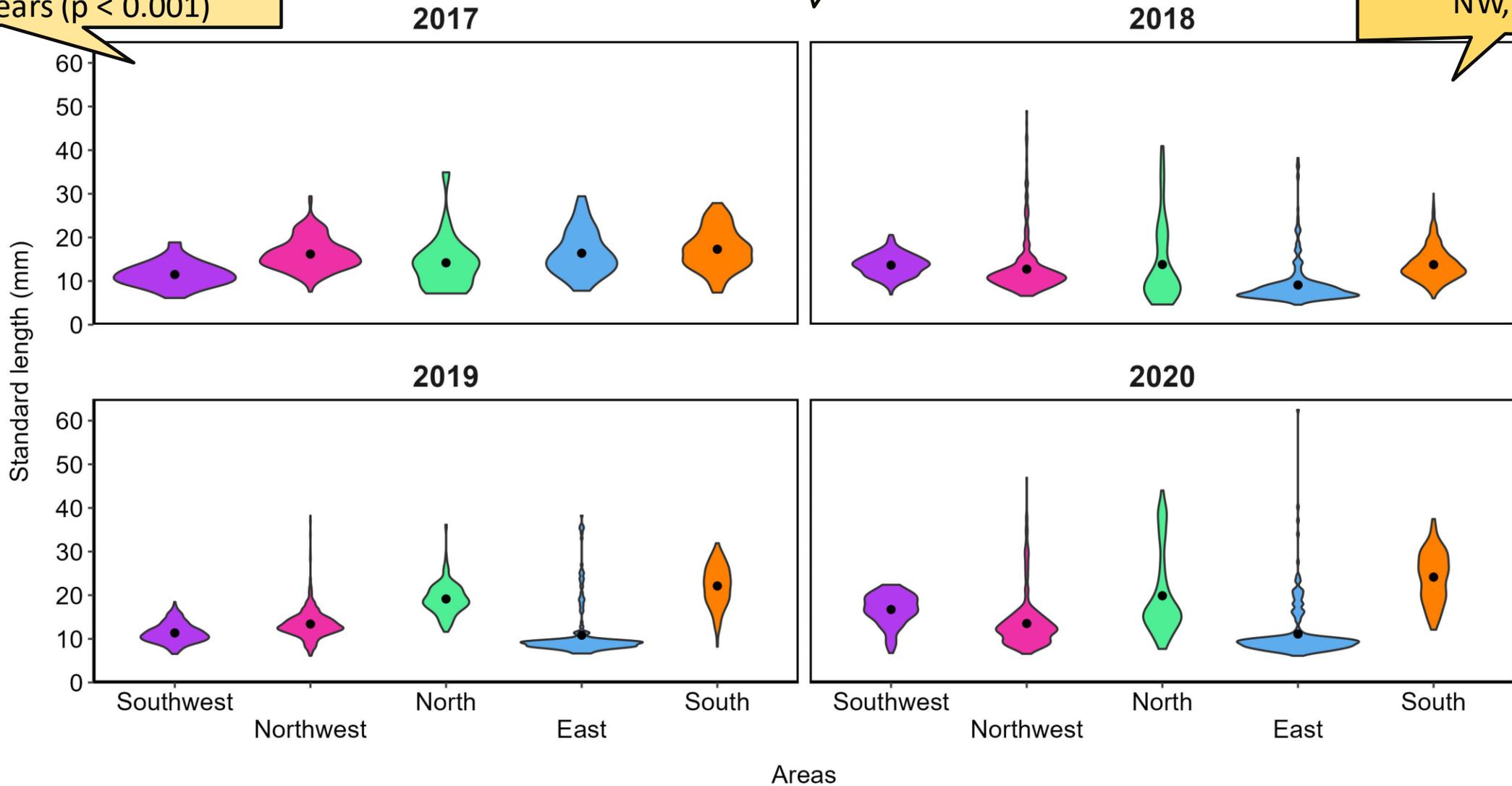
Results



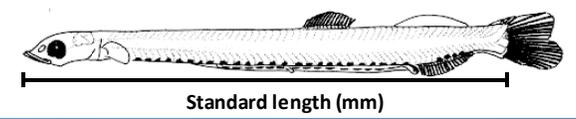
Difference in mean size between areas in all years ($p < 0.001$)

Larvae size differed among years

Large larvae found in NW, N, and E



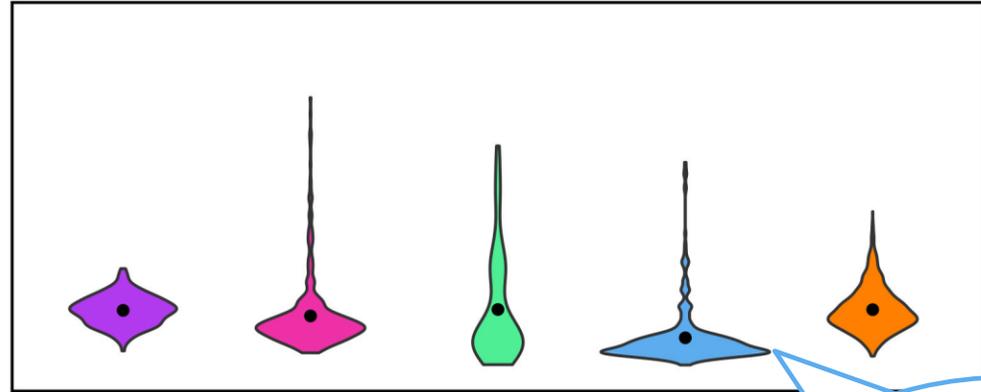
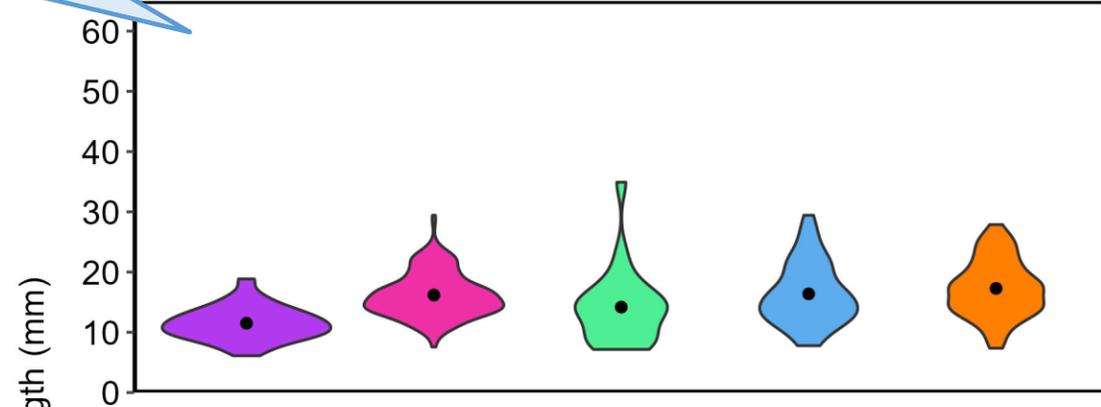
Results



82% larvae smaller than 20 mm

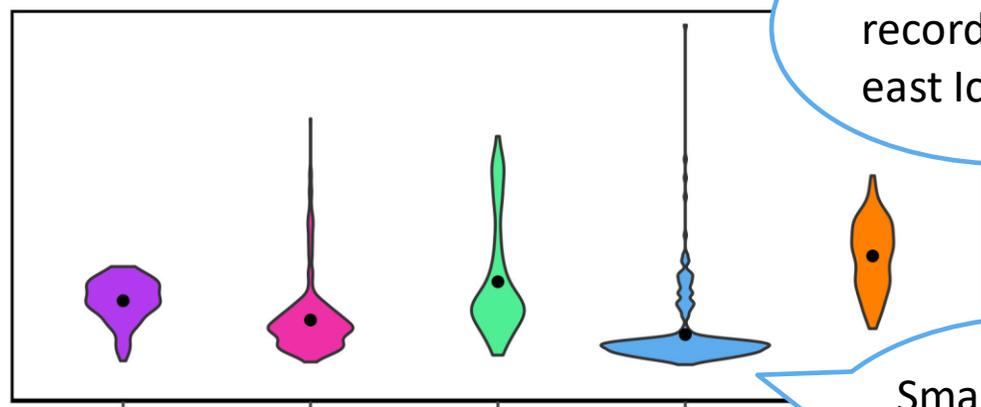
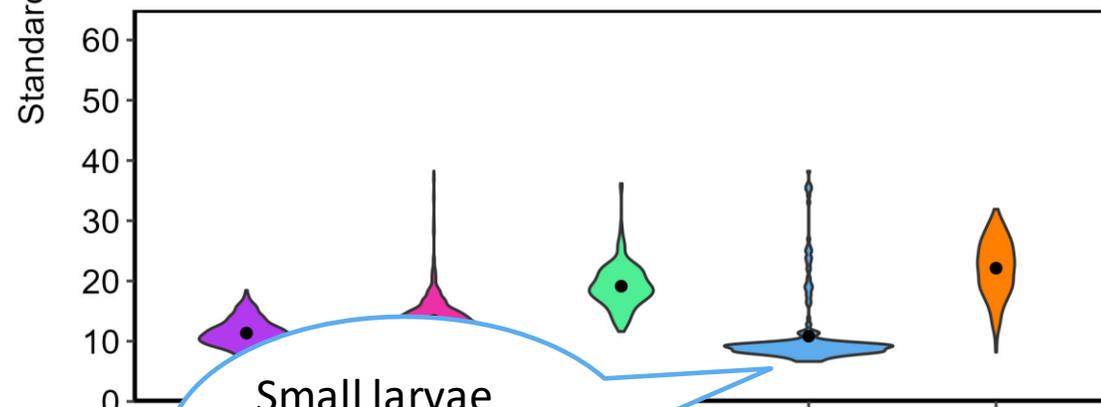
2017

2018



2019

2020



Small larvae recorded in the east Iceland

Small larvae recorded in the east Iceland

Small larvae recorded in the east Iceland

Areas

Conclusion

- **Interannual change on larvae density**
- **South and western areas are still main spawning grounds**
 - **Eastern areas of Iceland shelf is also used as spawning ground – based on small size of the larvae captured**
- **Optimum temperature around 6°C – drift pattern and growth rate**

Thank you for
your attention!

Questions?



Image: MFRI

