

Cruise Report
Cruise no. 2210

**Joint investigations on blue whiting south of the Faroes and in the area
west of the British Isles**

23/3-6/4 2022

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INTRODUCTION

The main aims of this survey was to investigate the distribution and abundance of spawning and post-spawning blue whiting in the areas south of the Faroes, west of the British Isles and Porcupine Bank. Zooplankton and hydrographic data were collected along the cruise tracks.

The cruise was part of the joint international blue whiting survey (IBWSS) on the spawning grounds west of the British Isles, the Porcupine Bank and the Rockall Bank. Four research vessels took part in the survey (see text table below), coordinated by the ICES “Working Group of International Pelagic Surveys” (WGIPS, formerly WGNAPES). The results from all vessels combined will be used in the assessment of blue whiting by the “Working Group on Widely Distributed Stocks” (WGWIDE) in August 2022.

Ship	Nation
Jákup Sverri	Faroes
Vendla	Norway
Celtic Explorer	Ireland (EU)
Tridens	Netherlands (EU)

The present survey report is based on data from R/V *Jákup Sverri* only. Therefore no estimate of blue whiting is given due to incomplete coverage of the whole spawning area.

MATERIAL AND METHODS

Cruise tracks with hydrographic stations (CTD) and pelagic trawl stations in the surveyed area are shown in **Fig. 1**. Acoustic data were recorded with a Simrad EK-80 echo sounder. Data from the 38 kHz transducer mounted on a drop-keel were logged at sea and used in the fish abundance estimation. The area backscattering recordings (s_A) per nautical mile were averaged by each nautical mile (m^2/nm^2) and the recordings were scrutinised on a daily basis with the LSSS software and allocated to blue whiting, plankton or other fish (e.g. pearlside, lantern fish) based on pelagic trawling aimed at the various acoustic recordings. The 38, 70, 120 and 200 kHz Echo sounders were calibrated prior to the survey start.

RESULTS

Preliminary results based on our coverage from the Faroese survey indicate that the 2020 year-class might be a strong. This year-class was spread over a relatively wide area on the Wyville Thomson Ridge and also in the Faroe-Shetland Channel and westwards on the banks in the Faroe area, with less concentrations on the continental slopes in the eastern areas (west of the Hebrides) (**Fig. 2-3**).

The sum of the s_A values of blue whiting per each nautical mile along the cruise tracks from the *Jákup Sverri* survey are shown in **Fig. 2**, and the average s_A values of blue whiting by statistical squares in **Fig 3**.

The length distribution of the blue whiting showed two tops, one at 17-18 cm (1 year olds) and one at 23 cm (2 year olds), followed by age 3+ blue whiting from followed by a tail from 26 cm and larger fish (**Fig. 4**).

The age distribution is shown in **Fig. 5**. Mainly 2 year olds followed by 1 year olds were found in the northern area while age 3 and older blue whiting was found further south.

The main bulk of the spawning stock of blue whiting was still in the southern area and had by early April (5/4 when *Jákup Sverri* finished its survey) not reached the Faroese zone on its northward post-spawning migration towards the Nordic Seas to feed.

The sum of the s_A values of blue whiting per each nautical mile along the cruise tracks from the *Jákup Sverri* survey are shown in **Fig. 2**, and the average s_A values of blue whiting by statistical squares in **Fig 3**.

The weather was excellent throughout the whole survey with optimal conditions for acoustic recordings. However the Irish vessel had to break the survey due to covid outbreak during the first part of the survey (**Fig. 6**).

Sea surface temperatures (SST, °C) observed along track during the blue whiting survey are shown in **Fig. 7**.

A combined abundance estimate of blue whiting from all five research vessels will be calculated at a post-survey meeting later in April 2022 and reported to ICES (WGWIDE) in August 2022.

The zooplankton samples generally showed very low abundance, indicating that the phytoplankton spring bloom was in its beginning.

Other species

Pearlside (*Maurolicus mulleri*) was abundant in the upper scattering layer while various species of lanternfish were abundant in the deeper layers throughout the surveyed area.

Survey effort for *Jákup Sverri* 23/3-6/4 2022:

Effective survey period	Length of cruise track (nm)	Trawl stations	CTD stations	Plankton sampling	Aged fish	Length-measured fish
25/3-5/4 2022	1434	9	25	26	550	1460

Trawl specifications for *Jákup Sverri*:

Circumference (m)	852
Vertical opening (m)	47
Mesh size in cod-end (mm)	45
Typical (average) towing speed (kn)	3.54

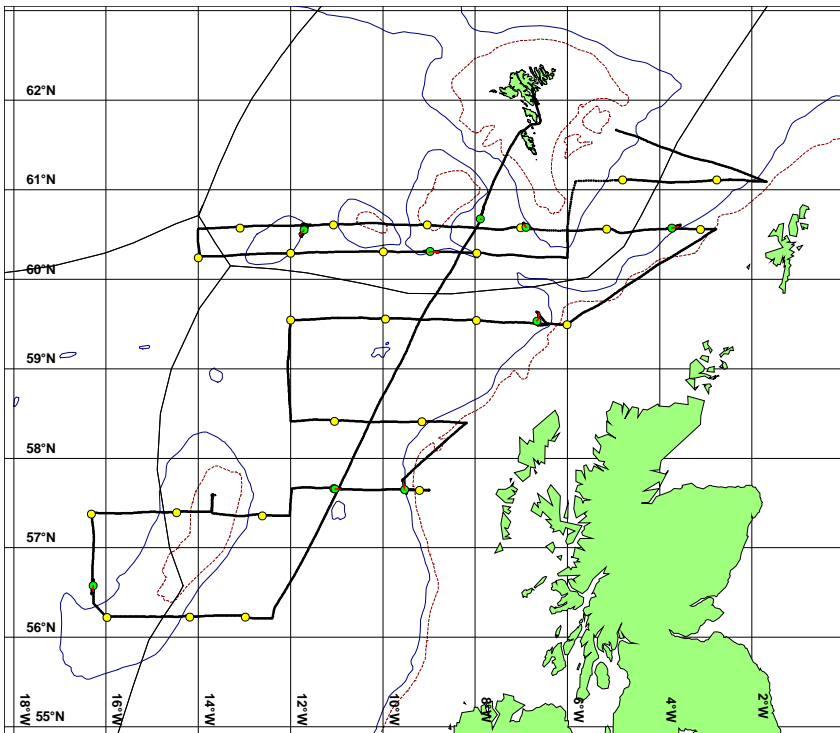


Figure 1. Cruise tracks (black line) with hydrographic stations (yellow circles) and trawl stations (green circles) taken by *Jákup Sverri* cruise 2210, 23/3-6/4 2022. The coverage was hampered by bad weather.

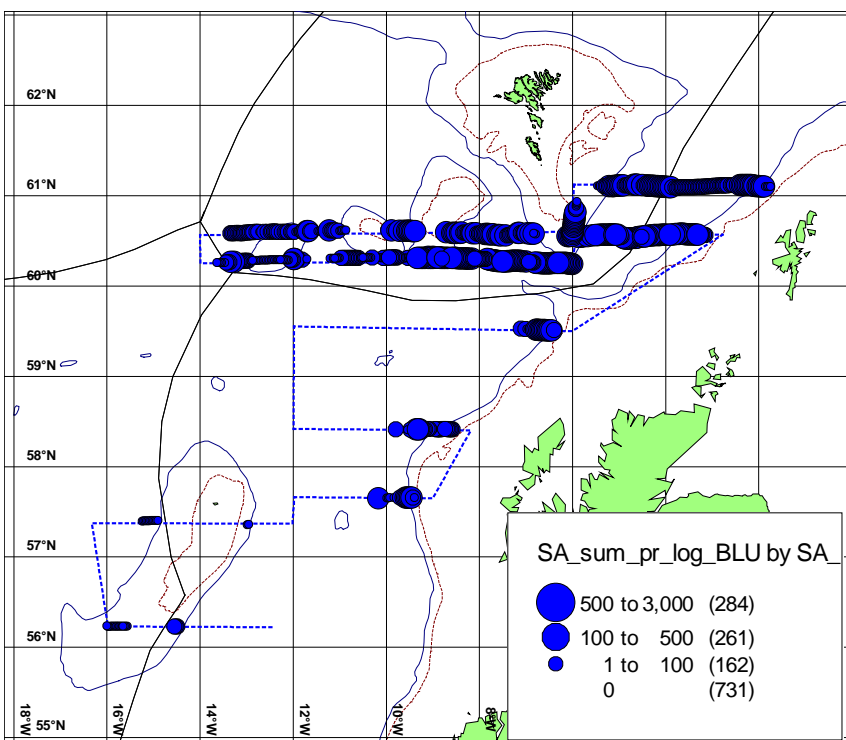


Figure 2. Integration values (s_A , m^2/nm^2) of blue whiting per each nm along the cruise tracks, *Jákup Sverri* cruise 2210, 23/3-6/4 2022. The size of the circles corresponds to amount of fish, also note that circles overlap.

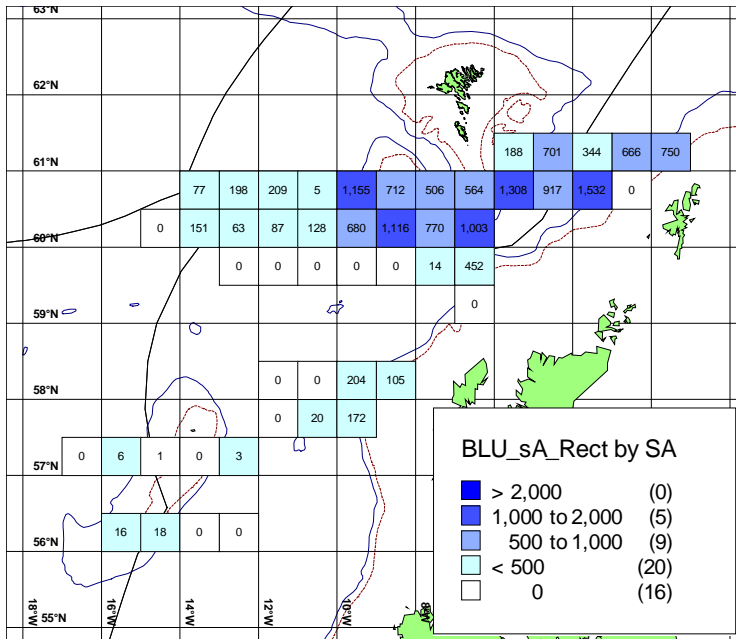


Figure 3. Mean integration values (s_A , m^2/nm^2) of blue whiting per statistical square (1x2 degrees), *Jákup Sverri* cruise 2210, 23/3-6/4 2022.

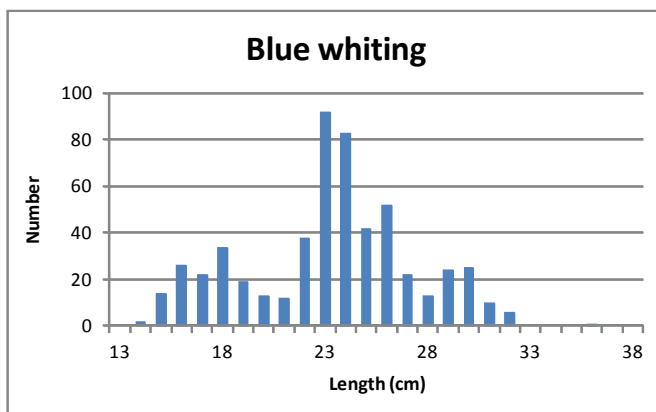


Figure 4. Length distribution of blue whiting south of the Faroes, *Jákup Sverri* cruise 2210, 23/3-6/4 2022.

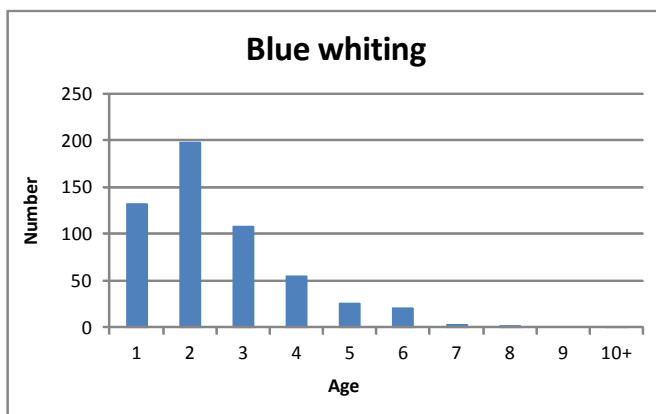


Figure 5. Age distribution of blue whiting south of the Faroes, *Jákup Sverri* cruise 2210, 23/3-6/4 2022.

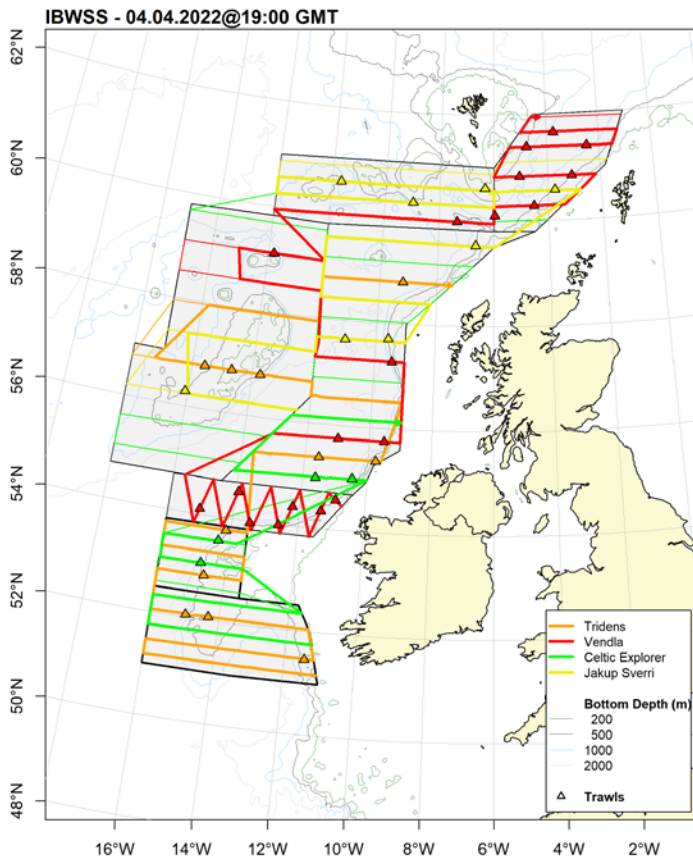


Figure 6. Coverage during the joint international blue whiting spawning stock survey (IBWSS) in April 2022 (bold lines) compared to planned cruise tracks (thin lines). All four vessels are shown on the map.

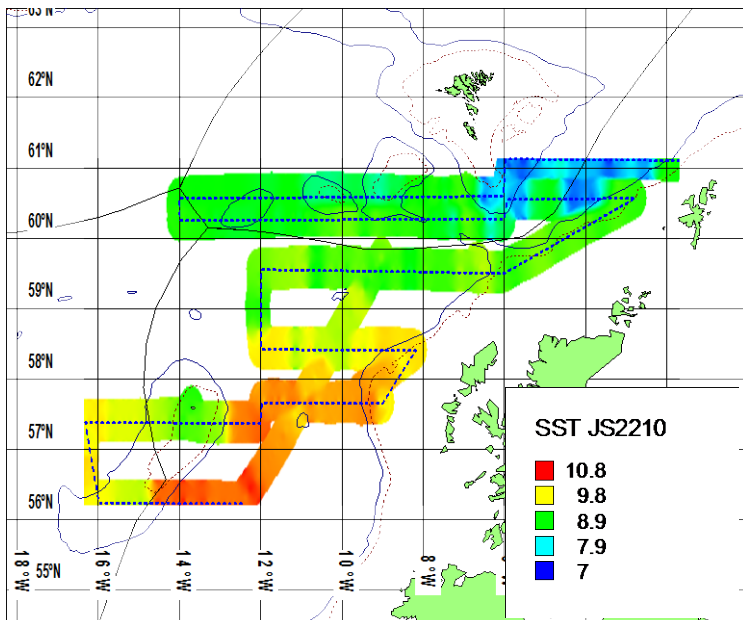


Figure 7. Sea surface temperature (SST, °C) during the blue whiting survey south of the Faroes, *Jakup Sverri* cruise 2210, 23/3-6/4 2022.