Cruise Report
Cruise no. 1912

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

27/3-10/4 2019

R/V Magnus Heinason OW2252

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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. Five 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 2019.

Ship	**Nation**
Magnus Heinason	Faroes
Kings Bay	Norway
Celtic Explorer	Ireland (EU)
Tridens	Netherlands (EU)
Miguel Oliver	Spain (EU)

The present survey report is based on data from R/V *Magnus Heinason* 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-60 echo sounder. Data from the hull mounted 38 kHz transducer 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 EchoView 9 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 and 200 kHz Echo sounders were calibrated prior to the survey start with a standard copper spheres.

RESULTS

The preliminary results from the Faroese investigations in April 2019 indicated around the same biomass of blue whiting this year compared with last year. Most of the fish was belonging to the 2014 and 2013 year-classes (4 and 5 year old fish). These year-classes were also abundant last year. Only in one area south of Bill Bailey smaller blue whiting around 23 cm (presumably 2017 year-class) was dominant.

The main bulk of the spawning stock of blue whiting was still south of the area surveyed by *Magnus Heinason*, and had by early April not (or only partly) reached the Faroese zone on its northward post-spawning migration towards the Nordic Seas to feed. In the western areas some spent blue whiting concentrations were found around the banks in the deeper areas. We also observed also some fish that apparently had skipped spawning this year, this fish was in good condition.

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

The weather was rather poor during most of the survey period, and this slowed down the progress speed and the heavy sea hampered the acoustic recordings in periods.

The mean length of the blue whiting observed south of the Faroes was about 27 cm (135 g) (**Fig. 4**). This was larger fish than last year, however, we were not able to tow in the southeastern region, and thus these figures are more uncertain in 2019.

A combined abundance estimates of blue whiting from all five research vessels will be calculated at a post-survey meeting later in April 2019 and reported to ICES in September 2019.

The sea-surface temperature (SST) in the surveyed area south of the Faroes was between 7-8.5°C (**Fig. 5**), at the same level as last year. The zooplankton samples generally showed very low abundance, indicating that the spring bloom was in its beginning.

The planned cruise tracks of the five participating vessels during the joint spawning stock survey are shown in **Fig. 6**.

Other species
Pearlside (*Maurolicus mülleri*) 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 *Magnus Heinason* 27/3-10/4 2019:

Effective survey period	Length of cruise track (nm)	Trawl stations	CTD stations	Plankton sampling	Aged fish	Length-measured fish
29/3-8/4 2019	1400	6	19	17	300	668

Trawl specifications for *Magnus Heinason*:

Circumference (m)	640
Vertical opening (m)	42–45
Mesh size in codend (mm)	40
Typical towing speed (kn)	3.2–3.6

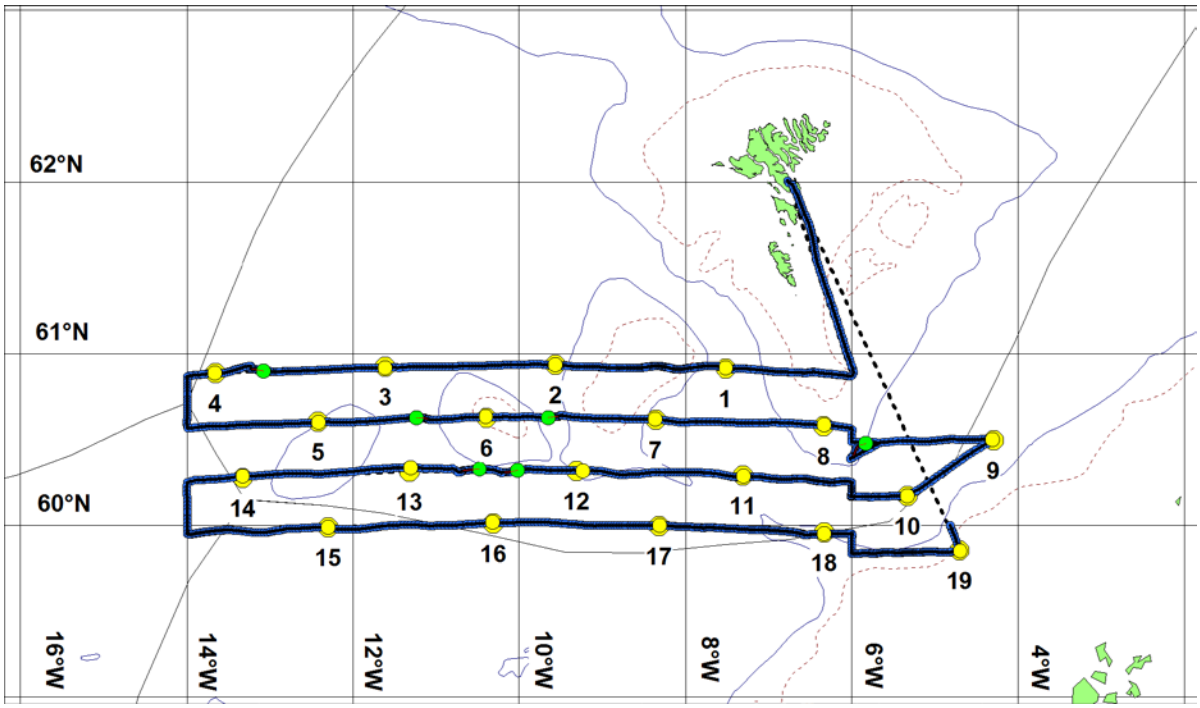

Figure 1. Cruise tracks (black lines) with hydrographic stations (light yellow circles) and trawl stations (green circles) south of the Faroes, *Magnus Heinason* cruise 1912, 27/3-10/4 2019.

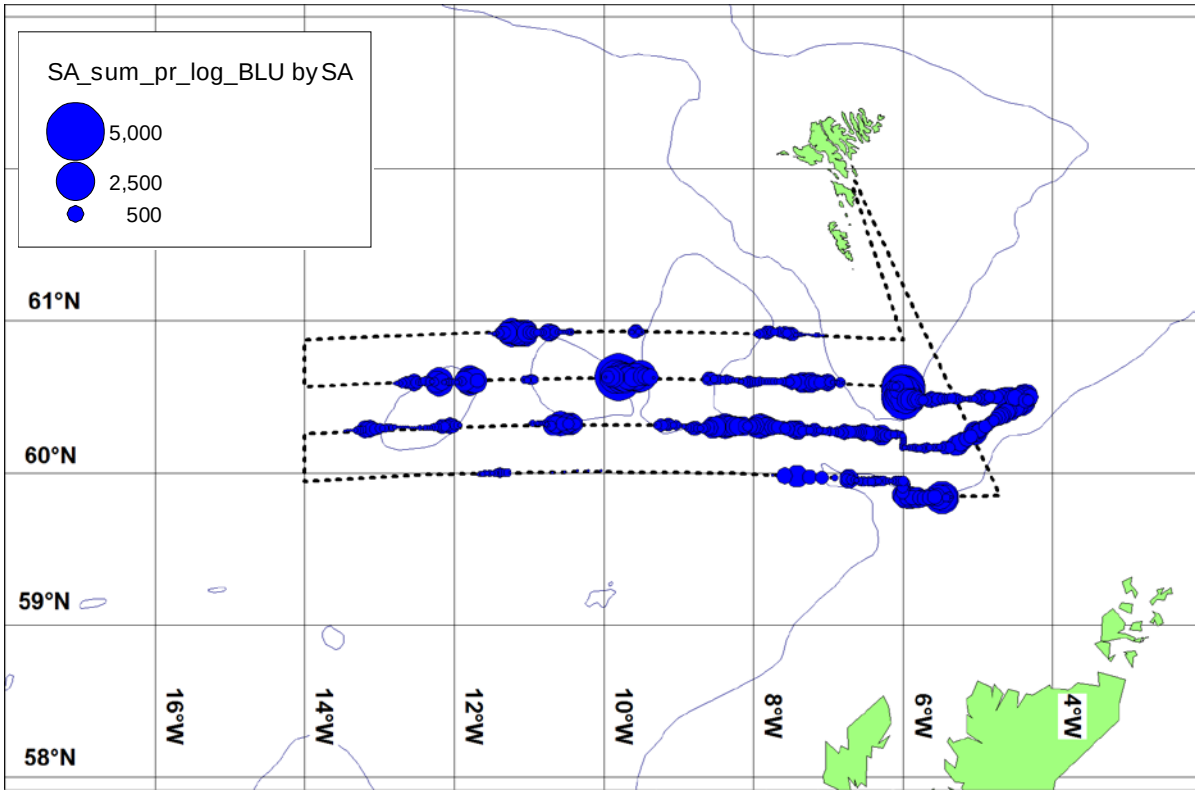

Figure 2. Integration values (s_A, m^2/nm^2) of blue whiting per each nm along the cruise tracks, *Magnus Heinason* cruise 1912, 27/3-10/4 2019. The size of the circles corresponds to amount of fish.

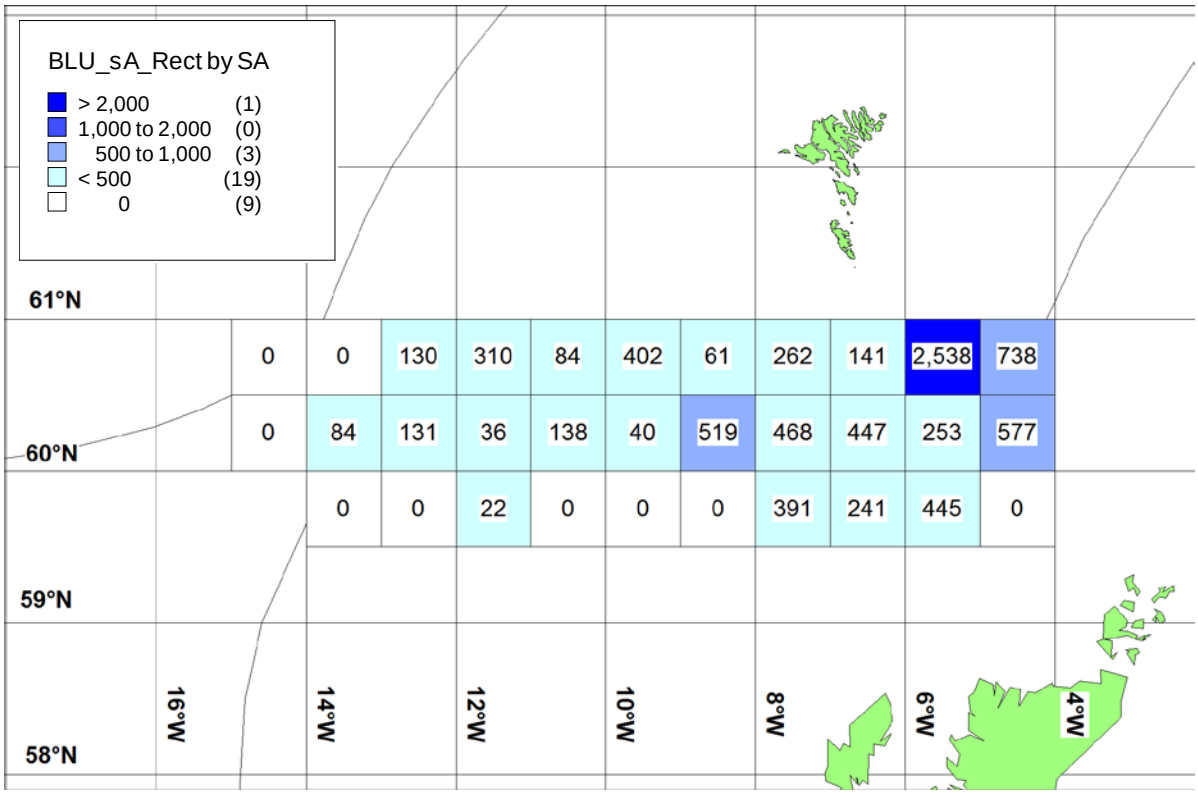

Figure 3. Mean integration values (s_A, m^2/nm^2) of blue whiting per statistical square (1x2 degrees), *Magnus Heinason* cruise 1912, 27/3-10/4 2019.

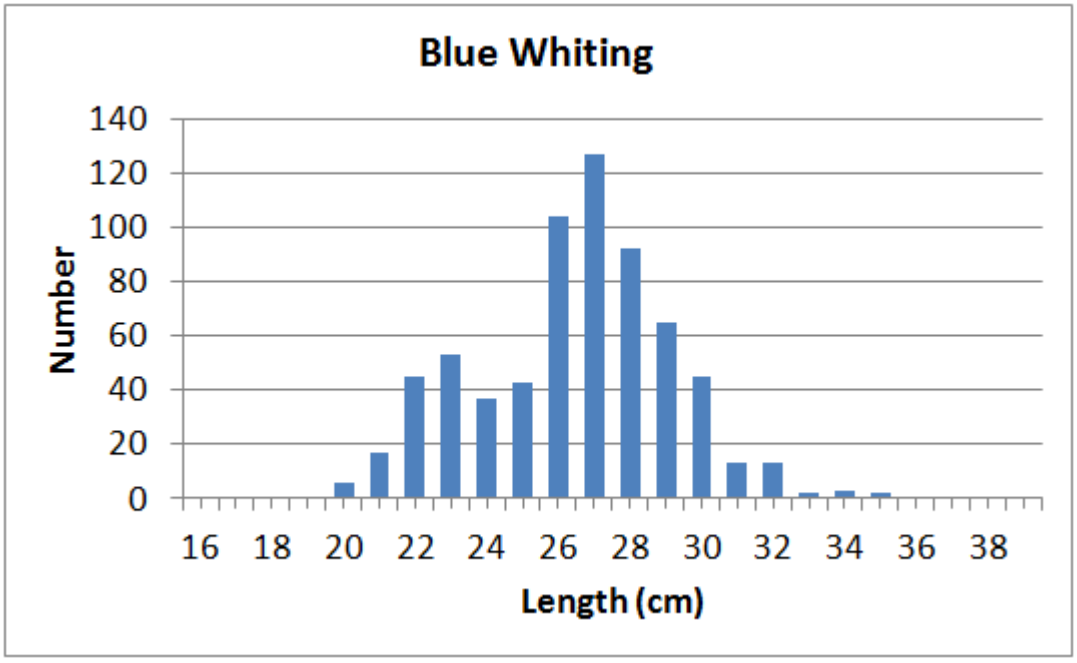

Figure 4. Length distribution of blue whiting south of the Faroes, *Magnus Heinason* cruise 1912, 27/3-10/4 2019.

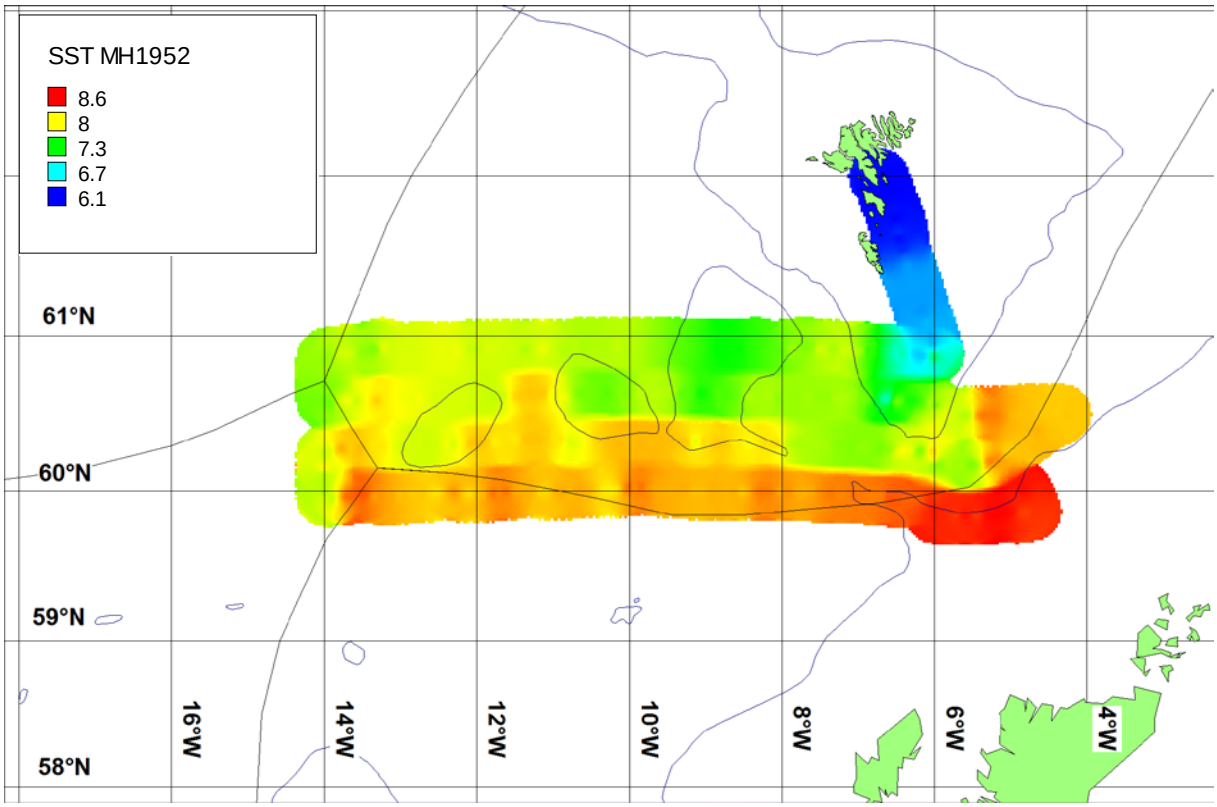

Figure 5. Sea-surface temperature (°C) south of the Faroes, *Magnus Heinason* cruise 1912, 27/3-10/4 2019.

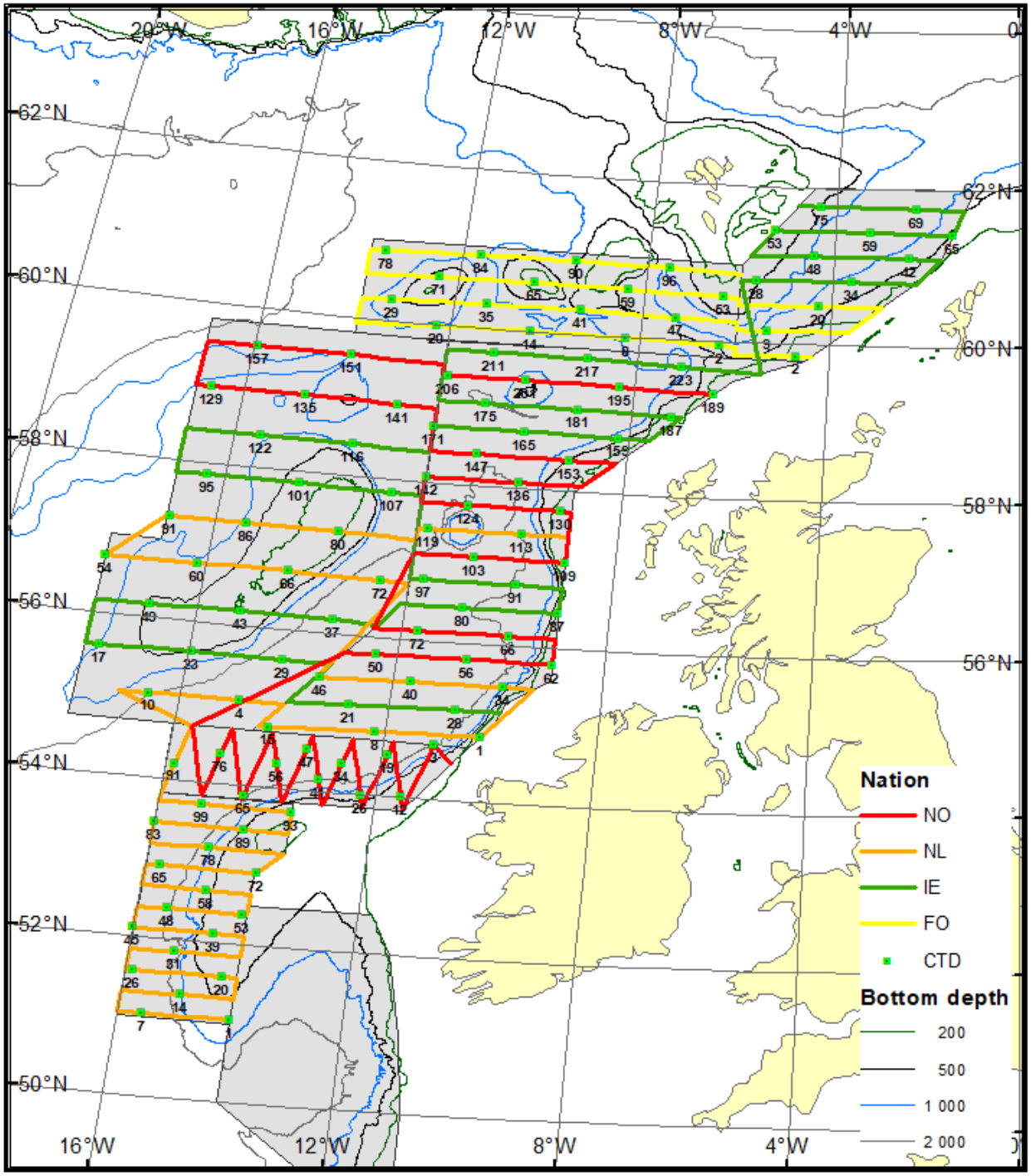

Figure 6. Planned cruise tracks during the joint international blue whiting spawning stock survey (IBWSS) in April 2019. Four vessels shown, the fifth research vessel from Spain covered the area southeast of Porcupine Bank (not shown on the map).