

Cruise Report
Cruise no. 1610

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

30/3-13/4 2016

R/V Magnus Heinason OW2252



Jan Arge Jacobsen
Leon Smith
Poul Vestergaard
Regin Kristiansen



HAVSTOVAN
FAROE MARINE RESEARCH INSTITUTE
POBox 3051 - FO 110 Tórshavn, Faroe Islands

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 parties and five research vessels (see text table below) took part in the survey, coordinated by the “Working Group of International Pelagic Surveys” (WGIPS) in ICES (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 2015.

Ship	Nation
M. Heinason	Faroes
G.O. Sars	Norway
Celtic Explorer	Ireland (EU)
Tridens	Netherlands (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 and the recordings were scrutinised on a daily basis with the EchoView 6 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 survey with a standard copper sphere.

RESULTS

The preliminary results from the Faroese investigations in April 2016 indicated large quantities of small (especially two and three year old) immature blue whiting in the Faroese area. Around the banks some larger mature blue whiting was found. 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 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 *Magnus Heinason* 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 blue whiting is shown in **Fig. 4**. The mean length was 22.8 cm (mean weight 80 g). The meanweight by haul of blue whiting is shown in **Fig. 5**, and the small size is reflected in the generally low meanweights in the area. The age distribution is shown in **Fig. 6**, and the young (2-3 yr) immature fish was found in the whole area surveyed, while the one year olds were found in high densities due south of the Faroes, south off the "Munk". Some larger fish was found around the banks southeast of the Faroes, these had not yet spawned. A combined abundance estimates of blue whiting will be calculated at a post-survey meeting later in April 2016 and reported to ICES in September 2016.

The sea-surface temperature (SST) in the surveyed area south of the Faroes was between 5.5-8.5°C (**Fig. 7**), a bit lower than last year. Temperature and salinity casts down to 500 m if possible were taken along the track. The zooplankton samples generally showed very low abundance, indicating that the spring bloom was in its beginning.

Other species

One dealfish (*Trachipterus arcticus*) was caught, while pearlside (*Maurolicus mülleri*) seemed to be less abundant in the upper scattering layer and especially lanternfish species seemed to be less abundant in the deeper layers in the surveyed area this year.

Survey effort for *Magnus Heinason* 30/3-13/4 2016:

Effective survey period	Length of cruise track (nm)	Trawl stations	CTD stations	Plankton sampling	Aged fish	Length-measured fish
1-11/4	1400	9	21	19	524	1997

Trawl specifications for *Magnus Heinason*:

Circumference (m)	640
Vertical opening (m)	45–55
Mesh size in codend (mm)	40
Typical towing speed (kn)	3.0–3.2

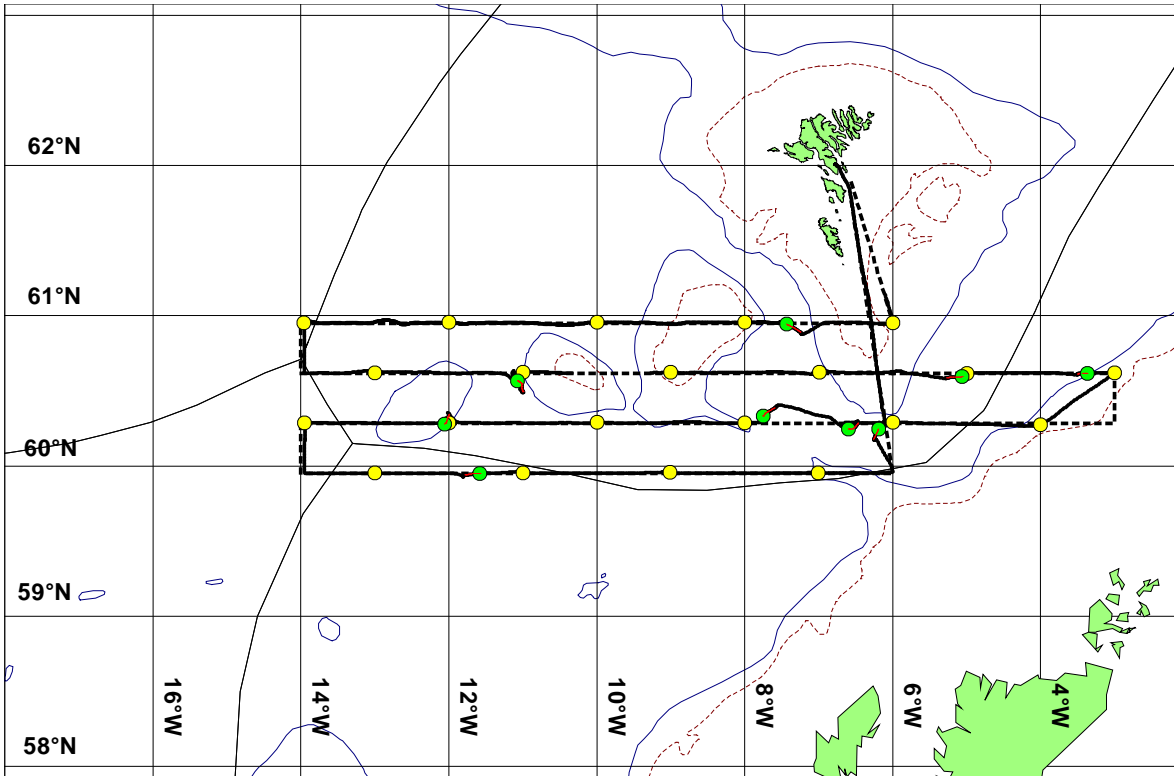


Figure 1. Cruise tracks (black lines) with hydrographic stations (light yellow circles) and trawl stations (green circles) south of the Faroes, *Magnus Heinason* cruise 1610, 30/3-13/4 2016.

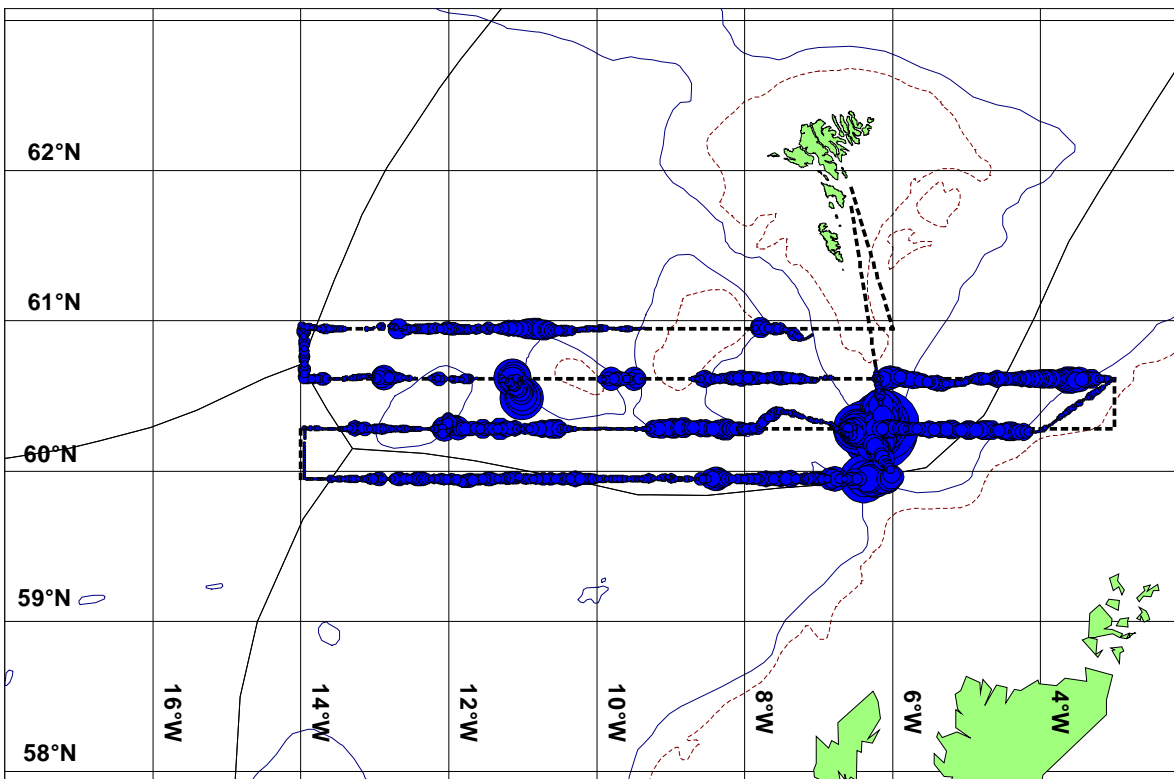


Figure 2. Integration values (s_A , m^2/nm^2) of blue whiting per each nm along the cruise tracks, *Magnus Heinason* cruise 1610, 30/3-13/4 2016. The size of the circles corresponds to amount of fish.

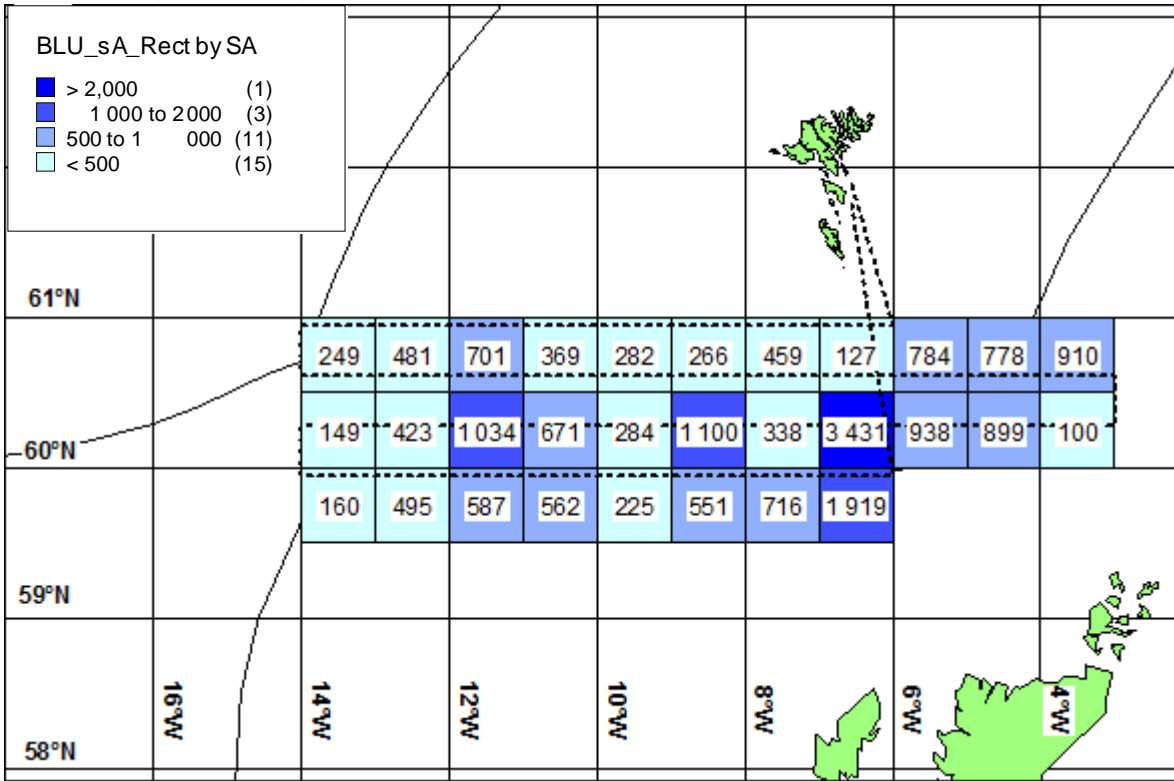


Figure 3. Mean integration values (s_A , m^2/nm^2) of blue whiting per statistical square (1x2 degrees), *Magnus Heinason* cruise 1610, 30/3-13/4 2016.

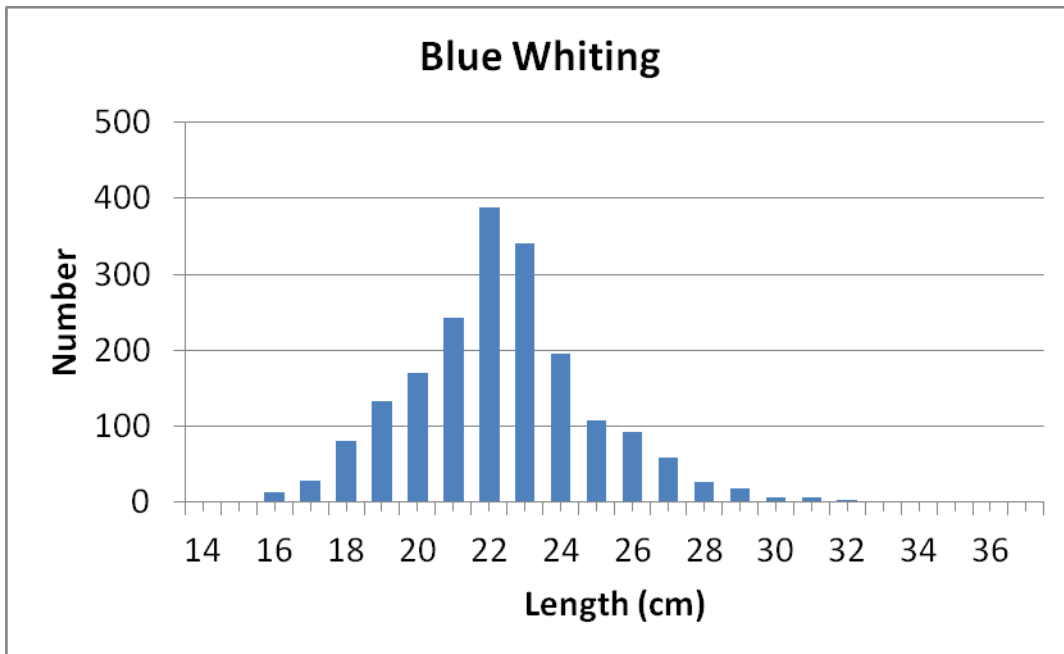


Figure 4. Length distribution of blue whiting south of the Faroes, *Magnus Heinason* cruise 1610, 30/3-13/4 2016.

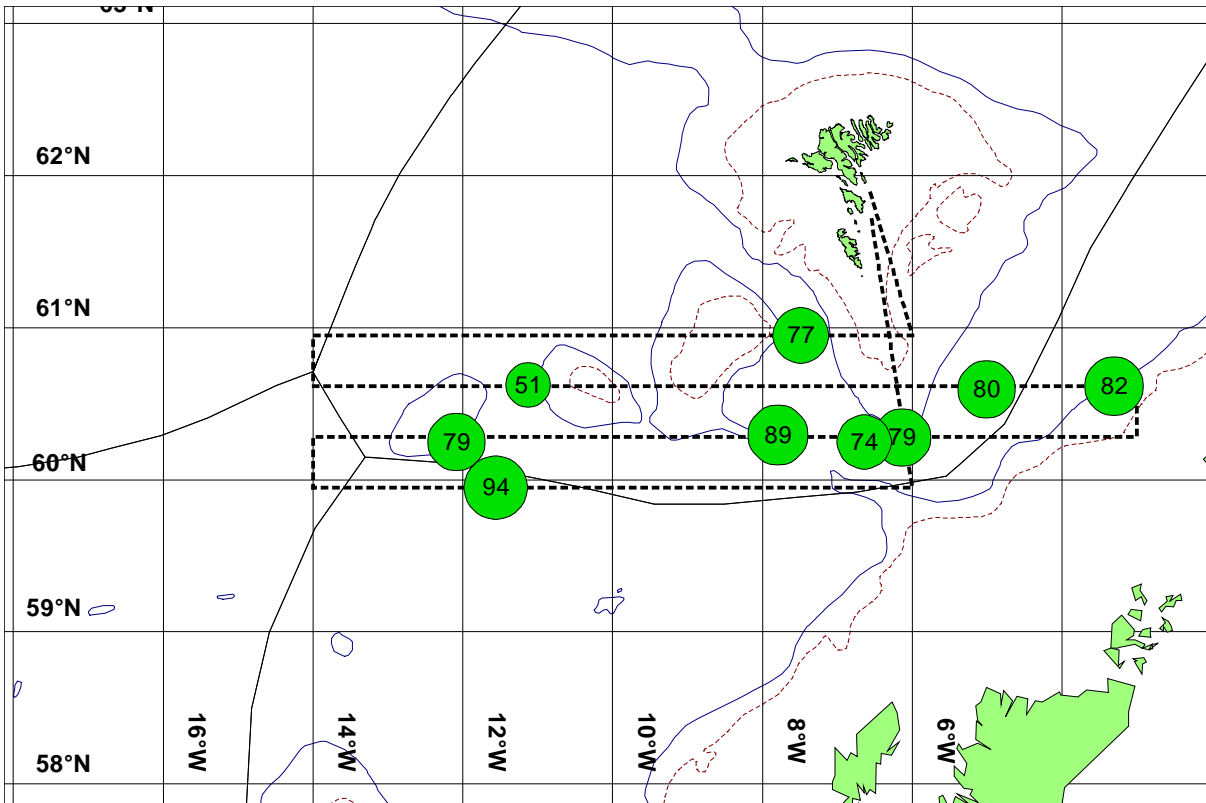


Figure 5. Mean weight of blue whiting by haul. Large differences in the two stations at around 60°N 13°W is due to different depths of the tows, the larger mean weight was in the deeper tow close to bottom. *Magnus Heinason* cruise 1610, 30/3-13/4 2016.

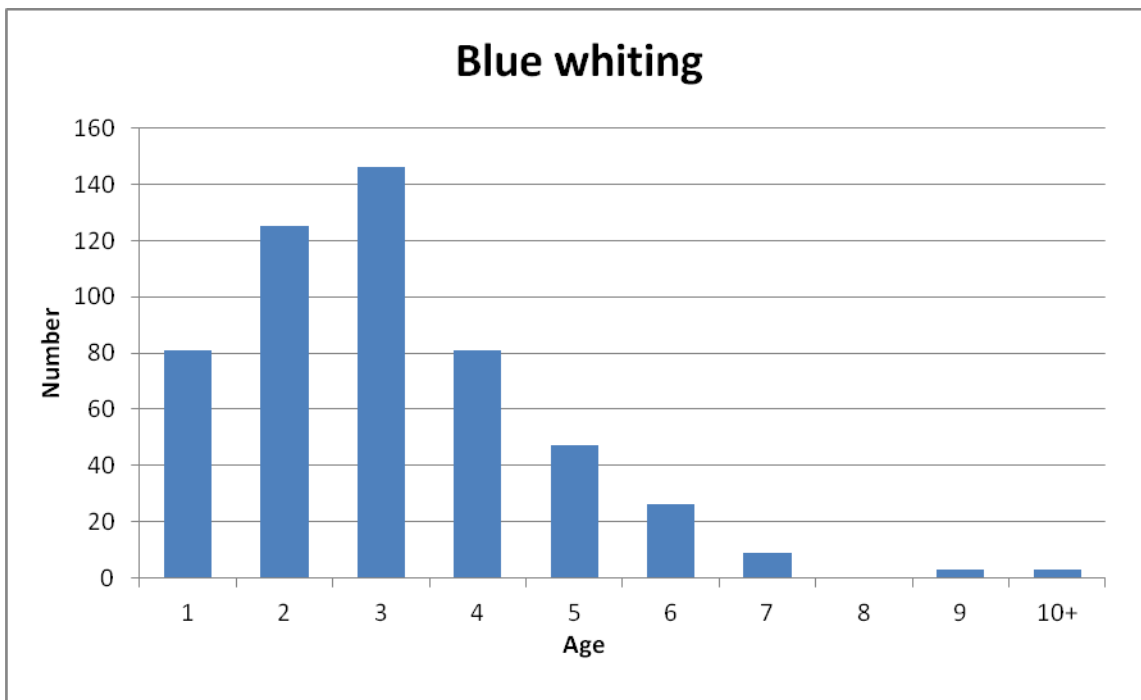


Figure 6. Age distribution of blue whiting south of the Faroes, *Magnus Heinason* cruise 1610, 30/3-13/4 2016.

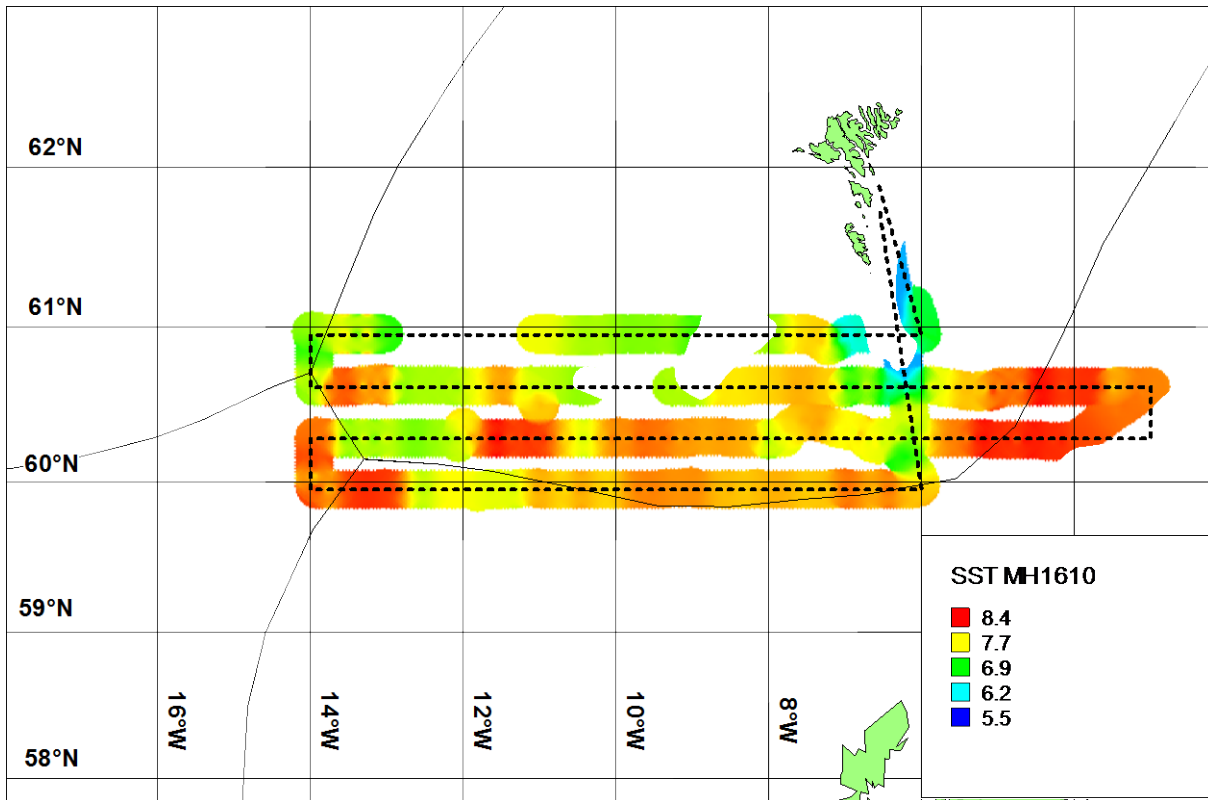


Figure 7. Sea-surface temperature (°C) south of the Faroes, *Magnus Heinason* cruise 1610, 30/3-13/4 2016.