Cruise Report
Cruise no. 0624

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

29 March - 12 April 2006

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. Hydrographic data were collected along the cruise tracks.

The cruise was part of a joint international survey (Faroes, Norway, Russia, Ireland, and The Netherlands) coordinated by the ICES Planning Group on Northeast Atlantic Pelagic Ecosystem Surveys (PGNAPES). Five vessels participated in the cooperative investigations, R/V *Magnus Heinason* (FO), RV *Celtic Explorer* (IR), RV *G.O. Sars* (NO), R/V *Atlantniro* (RU), and RV *Tridens* (NE). Data from all vessels will be incorporated into a comprehensive report from PGNAPES covering research surveys of blue whiting in 2006 (ICES CM 2006).

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-500 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 5 nautical mile and the recordings were scrutinised on a daily basis with the EchoView 3.5 software and allocated to blue whiting, plankton or other fish (e.g. lantern fish) based on regular pelagic trawling aimed at the various acoustic recordings.

The 38 kHz Echo sounder was operating with the following settings, as obtained from a copper sphere calibration prior to the survey (2/4 2006):

Max. Power	2000 W
Time varied gain	20 log R
Pulse length	Medium
Bandwidth	Wide
Angle sensitivity	21.9 dB
2-way beam angle	-20.6 dB
Sv transducer gain	27.22 dB
TS transducer gain	27.35 dB
3 dB beam width	7.02/6.86 dg
Along ship offset	0.18 dg
Athw. ship offset	-0.14 dg

A CTD was used to record temperature and conductivity (salinity) down to 750 m depth or to the bottom. Water samples were taken from each station, with water bottles mounted on the CTD, for analysis of nutrients. CTD stations were taken every 30-50 nm (Fig. 1).

RESULTS

The average s_A values of blue whiting by statistical square from the *Magnus Heinason* survey are shown in Fig 2. The results from the survey indicate that the post-spawning blue whiting had not entered the Faroese waters by the end of the survey. The highest concentrations of spawning and post-spawning blue whiting were recorded south of the Outer Baily and south off the Ymir Ridge. Scattered recordings were also found between the Bill Baily and Faroe Bank area (Fig. 2). The fishing vessels were concentrated along the southern border of the Faroese EEZ. The length distribution of blue whiting in the Faroese area is shown in Fig. 3 and by trawl station in Table 1.

Most of the blue whiting was 3 and 4 years old (the 2003 and 2002 year classes, Fig. 4). A combined abundance estimates of blue whiting will be calculated at a post-survey meeting in Tórshavn, Faroe Islands in 20-21 April 2006 and reported to ICES at its Annual Science Conference in Aberdeen September 2006 (ICES CM 2006).

The sea-surface temperature in the surveyed was between 8-9°C in the area (Fig. 5). The temperature did not change much with depth, only about one degree lower at 750 m depth.

REFERENCES

ICES 2006. Report of the Planning Group on Northeast Atlantic Pelagic Ecosystem Surveys (PGNAPES). ICES CM 2006.

Table 1. Length distribution of blue whiting south of the Faroes on cruise 0624, *Magnus Heinason*, 0624, 29/3-12/4 2006.

Length	6240001	6240002	6240003	6240012	6240016	6240022	6240024	6240027	6240034	Total
15	1		1							2
16	9	3	2					1		15
17	14	2	2						2	20
18	12	3	5						3	23
19	15	6	3						1	25
20	10	4	8						1	23
21	7	1	2						2	12
22	1		6			3		4	1	15
23	15	2	20			3	1	8	7	56
24	26	9	28		5	18		35	18	139
25	39	16	40		8	24	3	47	38	215
26	38	16	51		1	35		52	52	245
27	15	10	14	1	6	34	1	38	29	148
28	3	7	14		4	19		20	16	83
29		4	2	1		11		7	9	34
30		1			1	8		6	7	23
31			1		1	3		6	1	12
32		1	2			1		7	2	13
33						1		1	2	4
34								1	1	2
35								2		2
Sum	205	85	201	2	26	160	5	235	192	1111

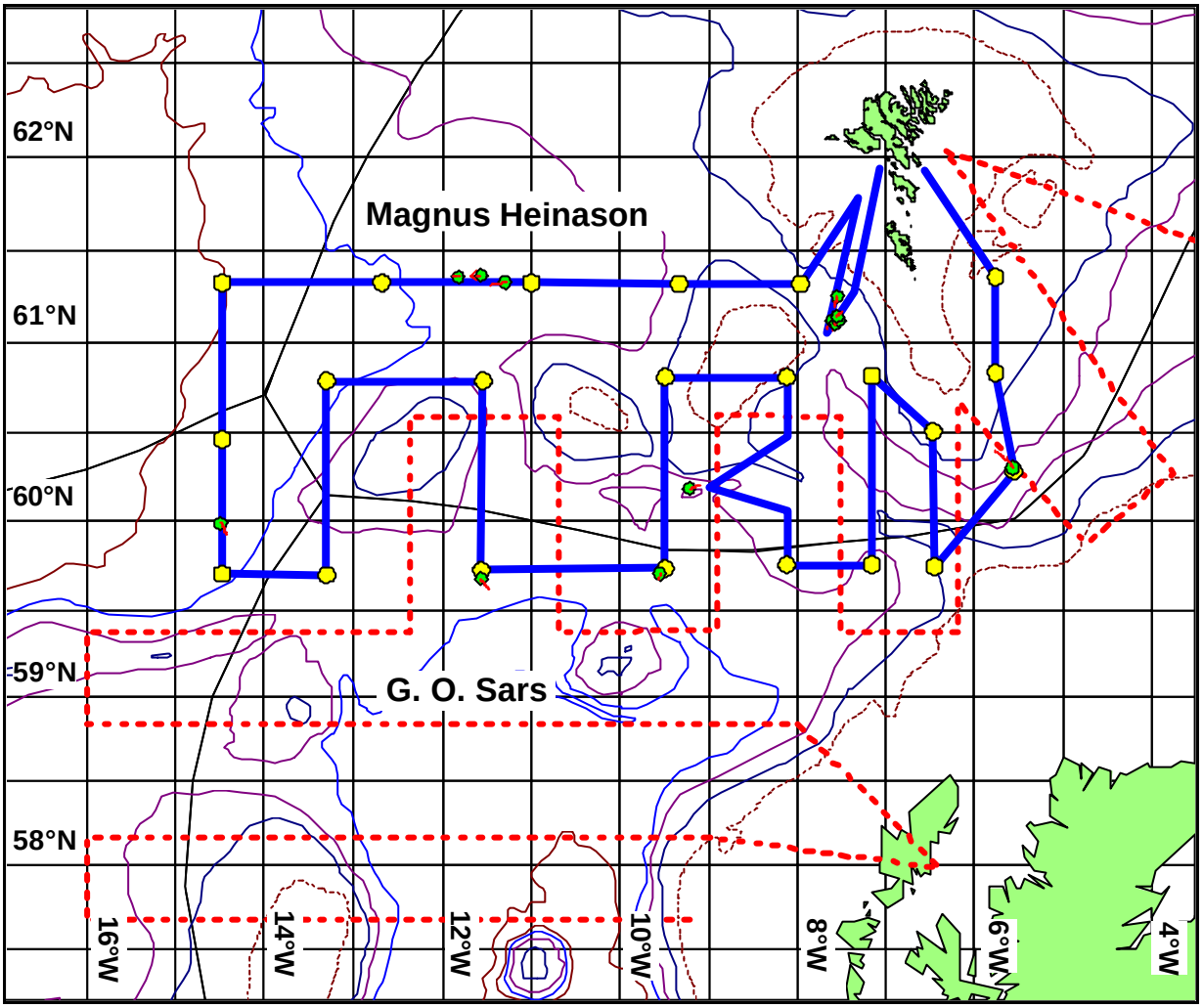

Figure 1. Cruise tracks (blue lines) with hydrographic stations (light yellow circles) and trawl stations (dark green circles) south of the Faroes, *Magnus Heinason* cruise 0624, 29/3-12/4 2006. The northern part of the cruise tracks of the Norwegian R/V *G.O. Sars* (red dotted lines) is shown for comparison.

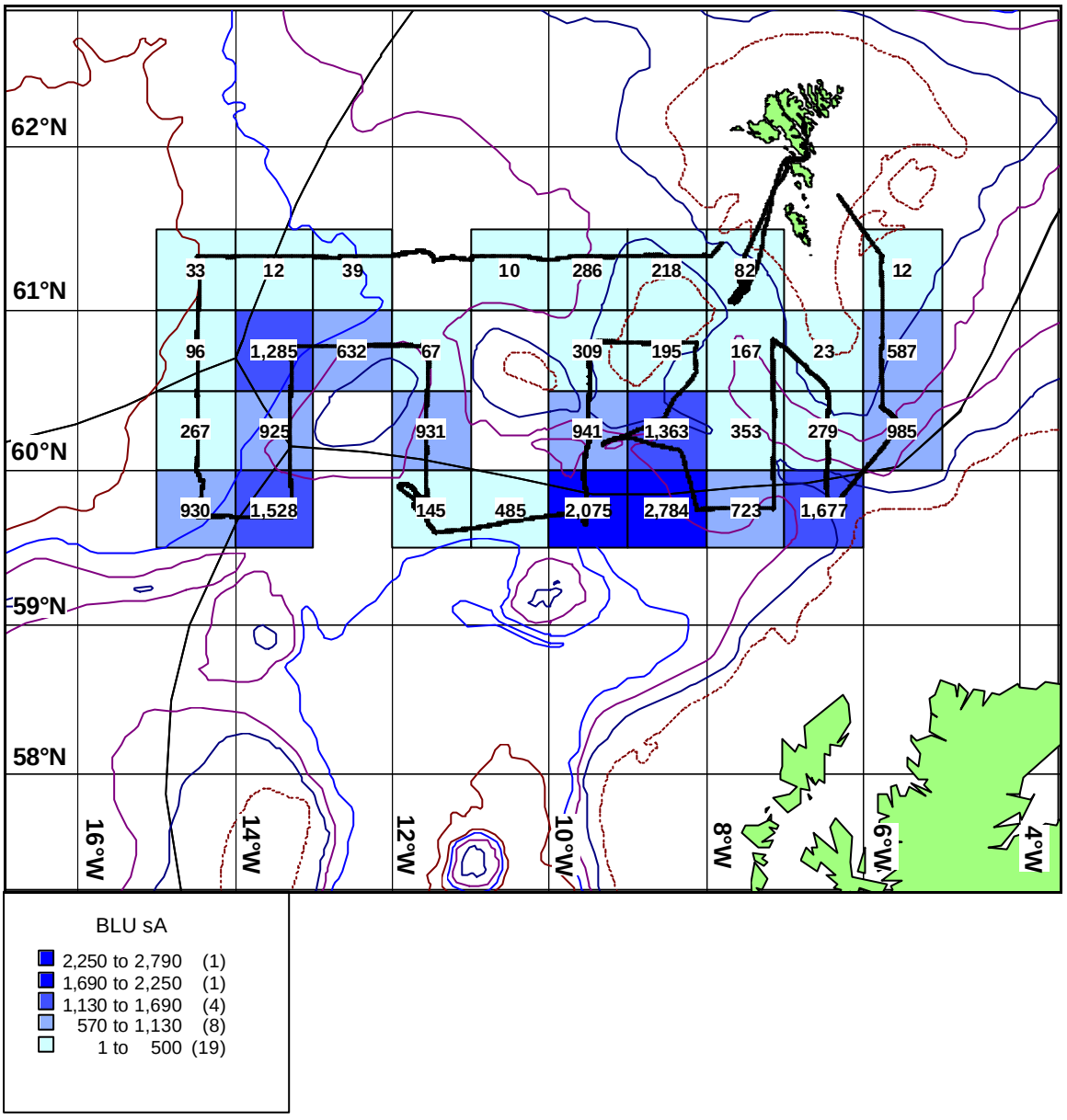

Figure 2. Mean integration values (s_A, m^2/nm^2) of blue whiting per statistical square (1x2 degrees), *Magnus Heinason* cruise 0624, 29/3-12/4 2006.

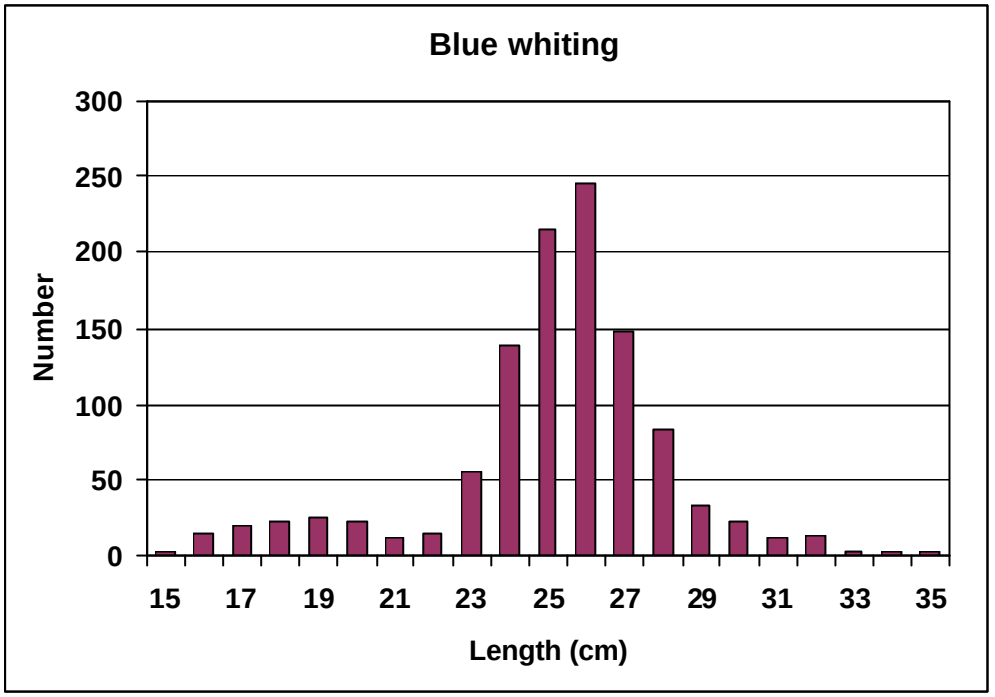

Figure 3. Length distribution of blue whiting south of the Faroes, *Magnus Heinason* cruise 0624, 29/3-12/4 2006.

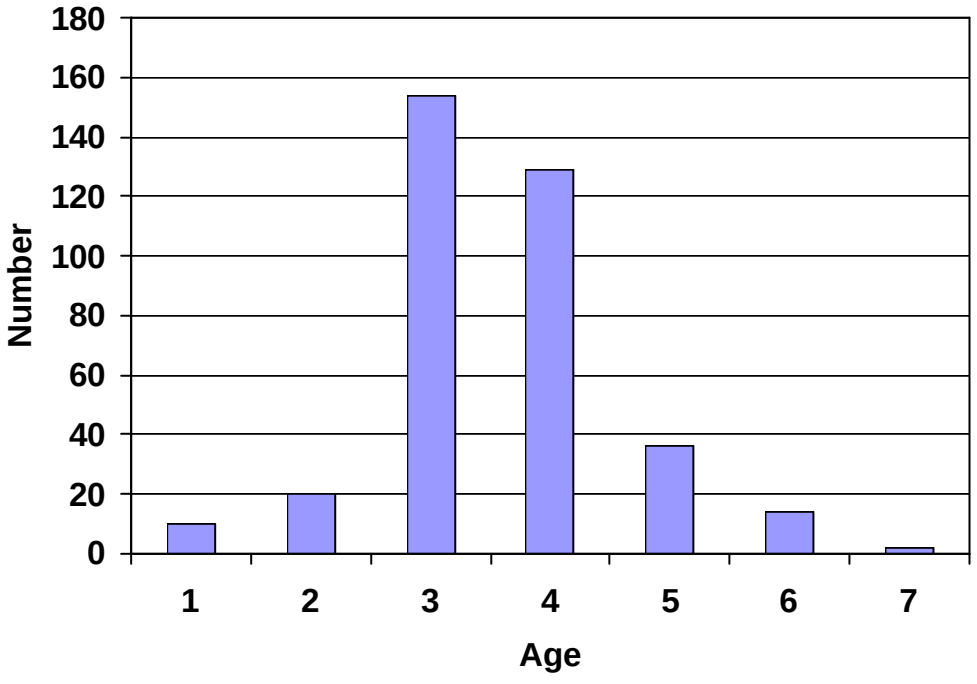

Figure 4. Age distribution of blue whiting south of the Faroes, *Magnus Heinason* cruise 0624, 29/3-12/4 2006.

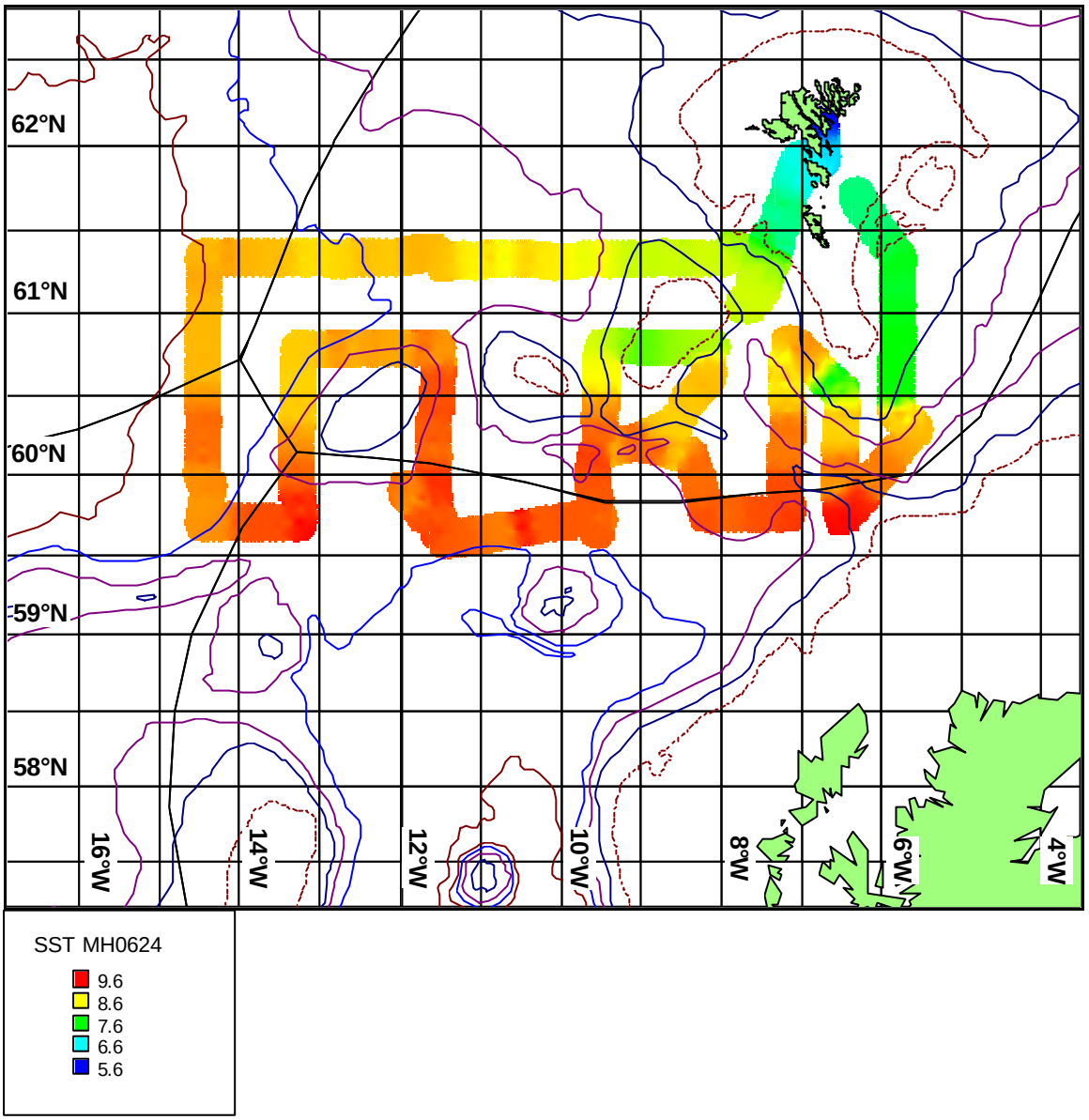

Figure 5. Sea-surface temperature south of the Faroes, *Magnus Heinason* cruise 0624, 29/3-12/4 2006.