Cruise Report
Cruise no. 2534

Faroese part of International Ecosystem Summer Survey in the Norwegian Sea 2025

3rd-20th July 2025

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INTRODUCTION

The main aim of this survey was to investigate the distribution and abundance of Northeast Atlantic mackerel (mackerel), Norwegian spring-spawning herring (herring) and blue whiting in the Northeast Atlantic. Zooplankton and hydrographic data were collected along the cruise tracks.

The cruise was part of the joint International Ecosystem Summer Survey in the Nordic Seas (IESSNS). 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. The results from all vessels combined were used in the assessment of mackerel, herring and blue whiting by the "Working Group on Widely Distributed Stocks" (WGWIDE) in August-September 2025.

Vessel	**Nation**
Jákup Sverri	Faroes
Vendla	Norway
Eros	Norway
Árni Fríðriksson	Iceland
Ceton	Denmark

The present survey report is based on data from Jákup Sverri only. Therefore no biomass estimate is given due to incomplete coverage of the area. Only the results from the Faroese survey are presented. The combined results with biomass estimates are available in the survey report presented to WGWIDE in late August 2025, and which will be part of the WGIPS report from the upcoming WGIPS meeting in January 2026.

MATERIAL AND METHODS

Cruise tracks with stations, i.e. predefined pelagic trawl stations and hydrographical stations (CTD and WP2 plankton) are shown in **Figure 1**. For mackerel, the surface swept-area trawl survey method was used based on 30 min trawling at regularly spaced (approximately 70 nmi apart) trawl stations on equally spaced latitudinal tracks with a randomly selected starting latitude. The specifically designed standard MULTPELT 832 survey trawl (Table 1) with standardised rigging was used conforming to standard operational settings. For herring and blue whiting standard acoustic survey methods were used. The acoustic data were recorded with a Simrad EK-80 echosounder. 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 (sA) per nautical mile were averaged by each nautical mile and the recordings were scrutinised on a daily basis with the LSSS software and allocated to herring and blue whiting based on pelagic trawling aimed at the various acoustic recordings. The trawl gear was monitored during trawling with designed trawl sensors measuring depth of the trawl and spread of the trawl doors. Light

measurements were done during trawling. The 38 kHz Echo sounder was calibrated prior to survey with a standard copper sphere.

RESULTS

The total survey effort (number of trawl stations and biological sampling) is shown in **Table 2** and **3**. The various trawl settings and operation details are given in **Table 4** the reported values were all within the standards recommended for the MULTPELT trawl. The acoustic settings are shown in **Table 5**.

There were initially 31 planned surface trawl stations, however Arni Fridriksson offered to take two stations in Icelandic waters on intersects between Arni and Jakup Sverri.

Thus, there were 29 predetermined stations on the cruise. In addition 6 deep hauls were targeting blue whiting.

Mackerel

Of the 29 predetermined surface hauls, mackerel was caught in 25 hauls. However, the amounts were small, and only in 6 of the hauls the catch exceeded 100 kg. The catches of mackerel and in each surface trawl station are shown in **Figure 1,** left panel, with average weights and age of each station shown in the right panel.

The mean length of mackerel was 37.6 cm and mean weight 503 g (**Figure 2**). The bulk of the stock is 8-11 years old fish however there were also high numbers of 3 years old.

Norwegian spring spawning herring

Herring was observed east and north of the Faroes (**Figure 3**). Non-spring spawning herring was caught all around the distribution area, and in total, 15% of the aged herring were non-spring spawning. Herring was caught in 20 og the 29 surface hauls, but in none of the deep hauls. However, the acoustic scrutinization (**Figure 5)** indicates some herring in the deeper layers.

The herring was mainly 29-35 cm (**Figure 4**). The age distribution shows that the 2016 year class is still well represented, however, the 2021 year class looks promising as well.

Blue whiting

Blue whiting was distributed in the whole area as rather loose scattering layers from 100 m down to about 350-400 m (**Figure 6** – **Figure 8**).

The length and age distribution of blue whiting is shown in **Figure 7**. The mean length was 23.9 cm and the mean weight was 97 g, but these numbers do not tell the true story, as the length distribution consisted of two groups. A lower group of 0-group blue whiting with a mean length of 13 cm and a group of larger fish (> 21 cm) consisting of 1 to 7 year old fish. 0 and 4 years old blue whiting had highest abundances.

Other species

Lumpfish of all sizes were caught in small numbers in the upper 30 m of the water column in most stations throughout the surveyed area.

In addition capelin, saithe, monkfish juveniles, redfish (redfish juveniles, not clear which kind) as well as deepwater redfish, glacier lanternfish, arctic rockling juveniles, blackfish, blue sea cat, gurnard, lancetfish, barracudina and octopus were caught on the survey.

Hydrography and zooplankton

Temperature and salinity casts down to 500 m were taken on the 28 of the 29 predetermined trawl stations (on one of the stations the CTD didn't work). Zooplankton, which was sampled with WP2 200 µm zooplankton net, was sampled at 29 stations. The surface temperature was logged all along the cruise track, see **Figure 9**, upper left panel.

Table 1. Trawl specifications for the Faroese MULTPELT 832 in July 2025.

Circumference (m)	832
Vertical opening (m)	35
Mesh size in codend (mm)	45
Typical towing speed (kn)	4.3

Table 2. Survey effort for Jákup Sverri 3.-20.July 2025.

Effective survey period	Length of cruise track (nmi)	Trawl stations	CTD stations	Plankton sampling	Aged fish mackerel/herring/ blue whiting	Length-measured fish
3-18/7	2067/32??	29/35	28	29	575/357/324	1301/663/1140

Table 3. Summary of biological sampling in the Faroese IESSNS survey from 3.-20.July 2025 on each station. Numbers denote the maximum number of individuals sampled for each species for the different determinations.

	Species	Number
Length and weight measurements	Mackerel	100
	Herring	100
	Blue whiting	100
	Other fish sp.	20-50
Sexed and maturity determination	Mackerel	15-50
	Herring	15-50
	Blue whiting	15-50
	Other fish sp.	0-20
Otoliths/scales collected	Mackerel	15-50
	Herring	15-50
	Blue whiting	15-50
	Other fish sp.	0
Stomach sampling	Mackerel	5
	Herring	5
	Blue whiting	5
	Other fish sp.	0

Table 4. Trawl settings and operation details during the IESSNS survey in 2025.

Properties	**Jákup Sverri**
Trawl producer	Vónin
Warp in front of doors	Dynex – 38 mm
Warp length during towing	350 (350-370) m
Difference in warp length (m) port/starboard	0-10 m
Weight at the lower wing ends	2*400 kg
Setback in metres	8.5
Type of trawl door	Injector Twister
Weight of trawl door (kg)	1650
Area trawl door (m2)	4.5
Towing speed (knots)	4.3 (3.7-5)
Trawl height (m)	34.6 (33-39)
Door distance (m)	120 (115-134)
Trawl width (m)*	65.4
Turn angle	5 degrees
Fish lock in front end of cod-end	Yes
Trawl door depth (port, starboard, m) (min-max)	Stb: (4-20) Pb: (6-23)
Headline depth	0 m
Float arrangements on the headline	Kite + float array together with kites on each wingtip
Weighing of catch	All weighted

Table 5. Acoustic instruments and settings for the primary frequency in the IESSNS survey in 2025.

Parameter	**Jákup Sverri**
Echo sounder	Simrad EK80
Frequency (kHz)	18,**38**,70,120,200,333
Primary transducer	ES38-7
Transducer installation	Drop keel
Transducer depth (m)	6-9
Upper integration limit (m)	15 m
Absorption coeff. (dB/km)	10.2
Pulse length (ms)	1.024
Band width (kHz)	3.064
Transmitter power (W)	2000
Angle sensitivity (dB)	21.9
2-way beam angle (dB)	-20.4
TS Transducer gain (dB)	26.84
sA correction (dB)	0.07
dB beam width alongship:	6.49
dB beam width athw. ship:	6.53
Maximum range (m)	500
Post processing software	LSSS 3.0.0

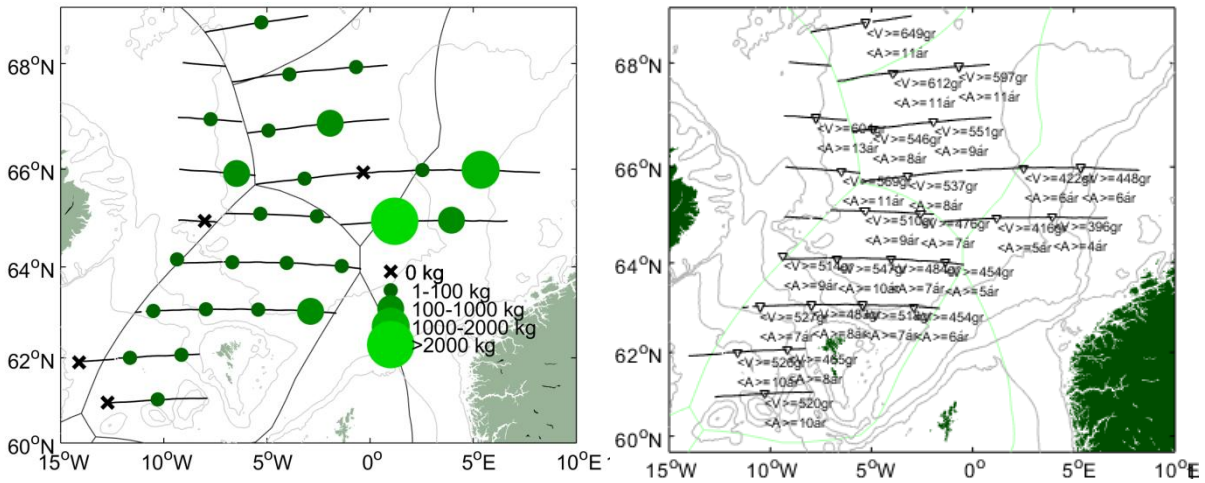

Figure 1 Cruise tracks with predetermined trawl/CTD/WP2 stations (circles) approximately 70 nmi apart during the Jákup Sverri cruise 2534, 3.-20.July 2025 with catch of mackerel (left panel) by ½ hour trawl haul and average weights and ages pr station (right panel). The total covered distance was 3260 nautical miles. The size of the circles corresponds to total amount of fish caught (in tonnes).

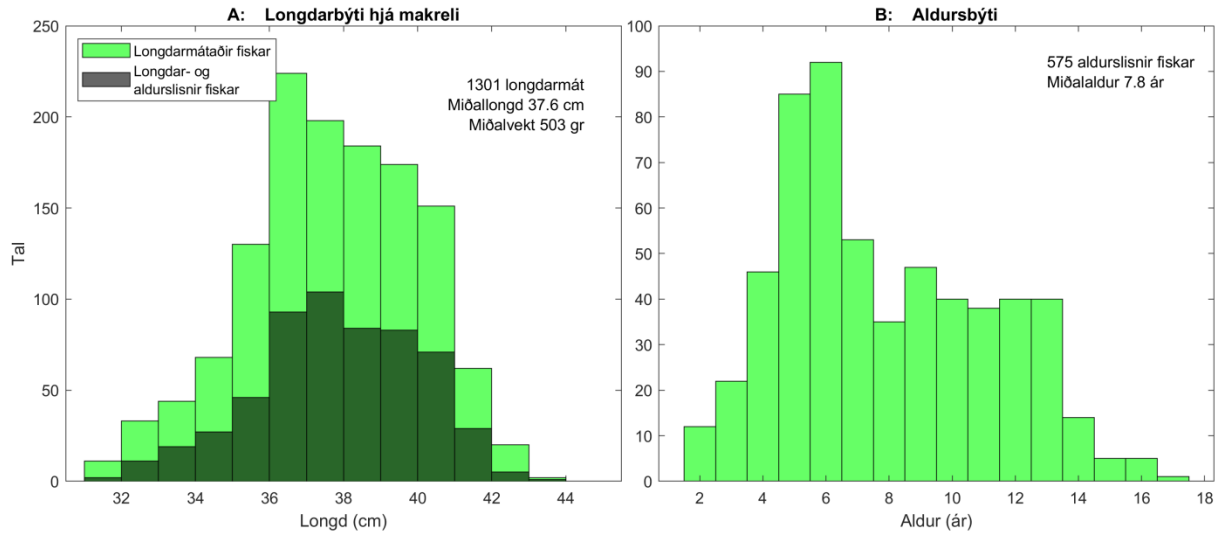

Figure 2 Length (left) and age (right) distribution of mackerel during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025. 1301 fish were length measured, average length was 37.6 cm, average weight was 503 gr. 575 fish were aged and had an average age of 7.8 years.

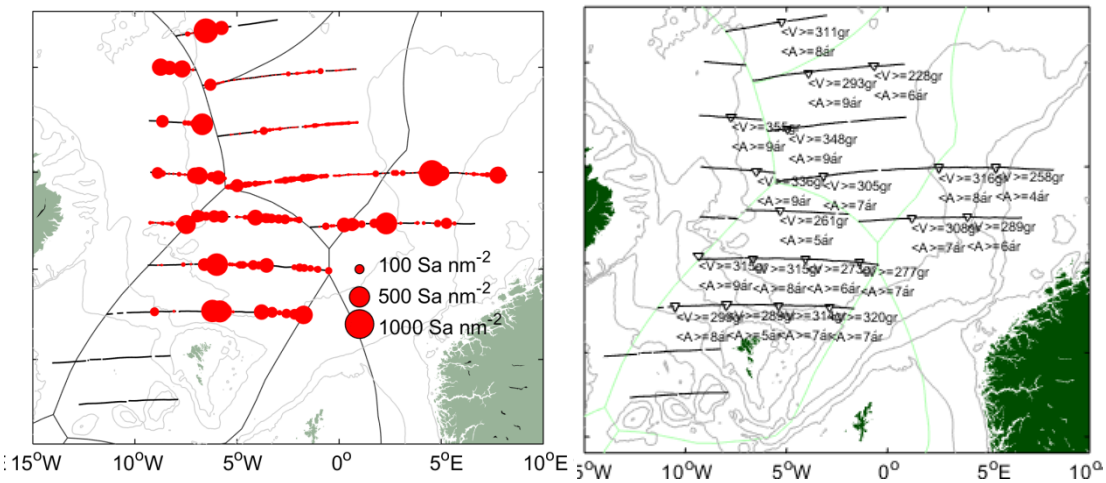

Figure 3 Herring Sa-values (left panel) and average weight and age (right panel) during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025.

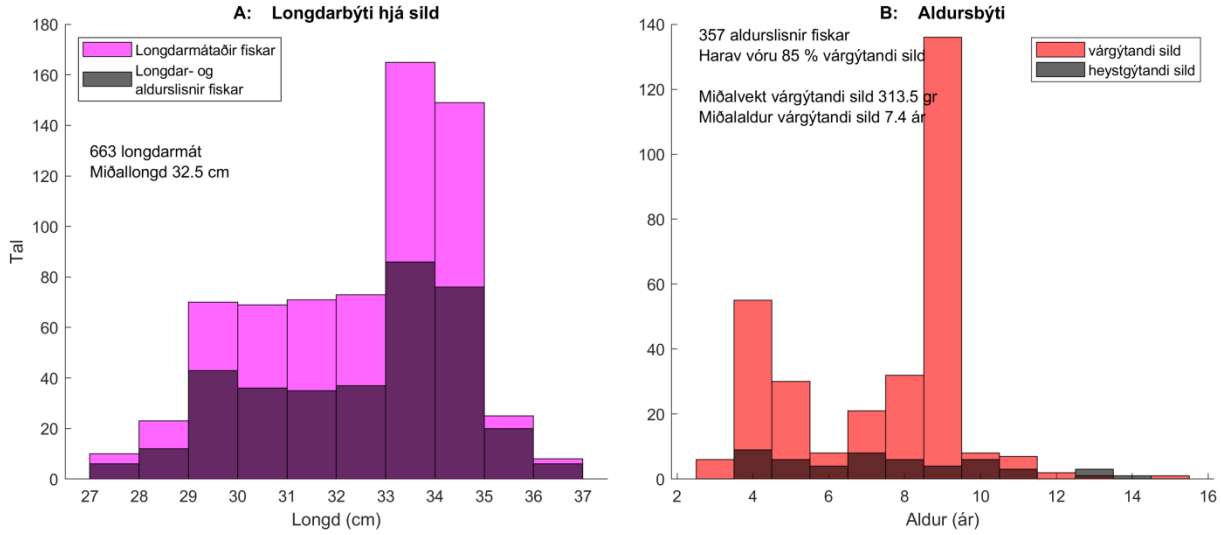

Figure 4 Herring length and age distribution during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025. Left panel: Length distribution. Right panel: Age distribution of spring spawners (red) and autumn spawners (black). 663 fish were length measured, average length was 32.5 cm. 357 fish were aged. Of these, 85% were spring spawners and had an average age of 7.4 years.

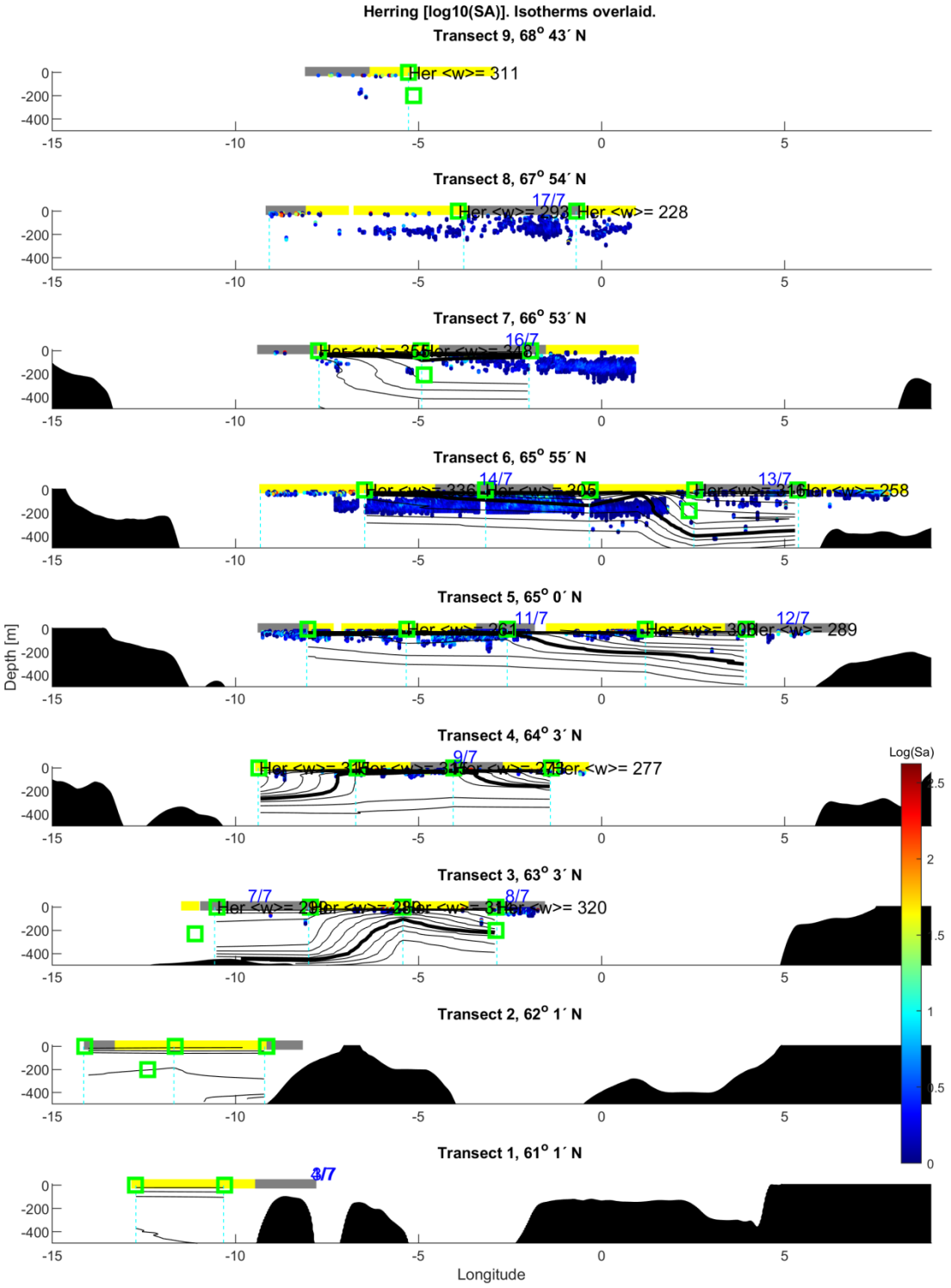

Figure 5 Vertical distribution of acoustic registrations of herring (log(Sa)) during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025. Yellow/grey colors on the top of each panel indicates day/night time, green squares indicates trawl stations, with text indicating if herring was caught and what the average weight was. Black lines indicate isotherms as observed with the CTD. 1 degree is between each isotherm, with the 4°C shown in bold.

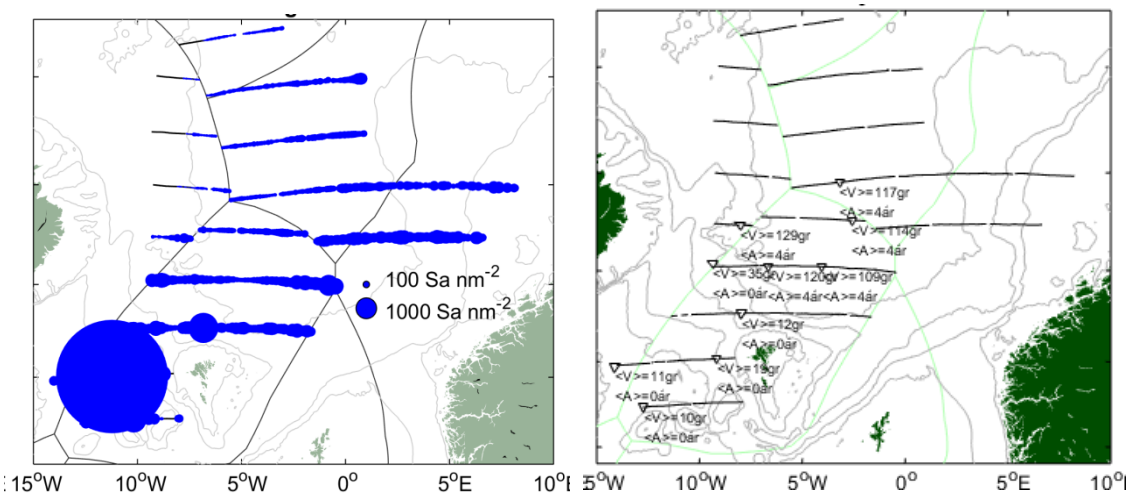

Figure 6 Blue whiting Sa-values (left panel) and average weight and age (right panel) during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025. The very high SA-value west of the Faroes is not an error, but has after thorough consideration been ascribed to blue whiting.

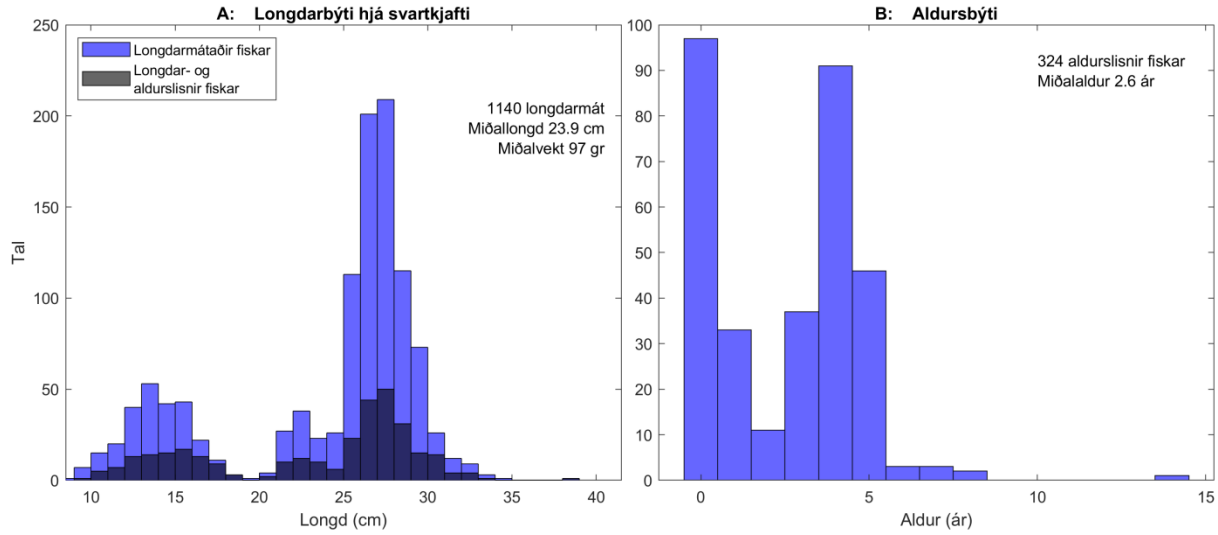

Figure 7 Blue whiting length distribution (left panel) and age distribution (right panel). 1140 fish were length measured, average length was 23.9 cm, average weight was 79 gr. 324 fish were aged and had an average age of 2.6 years.

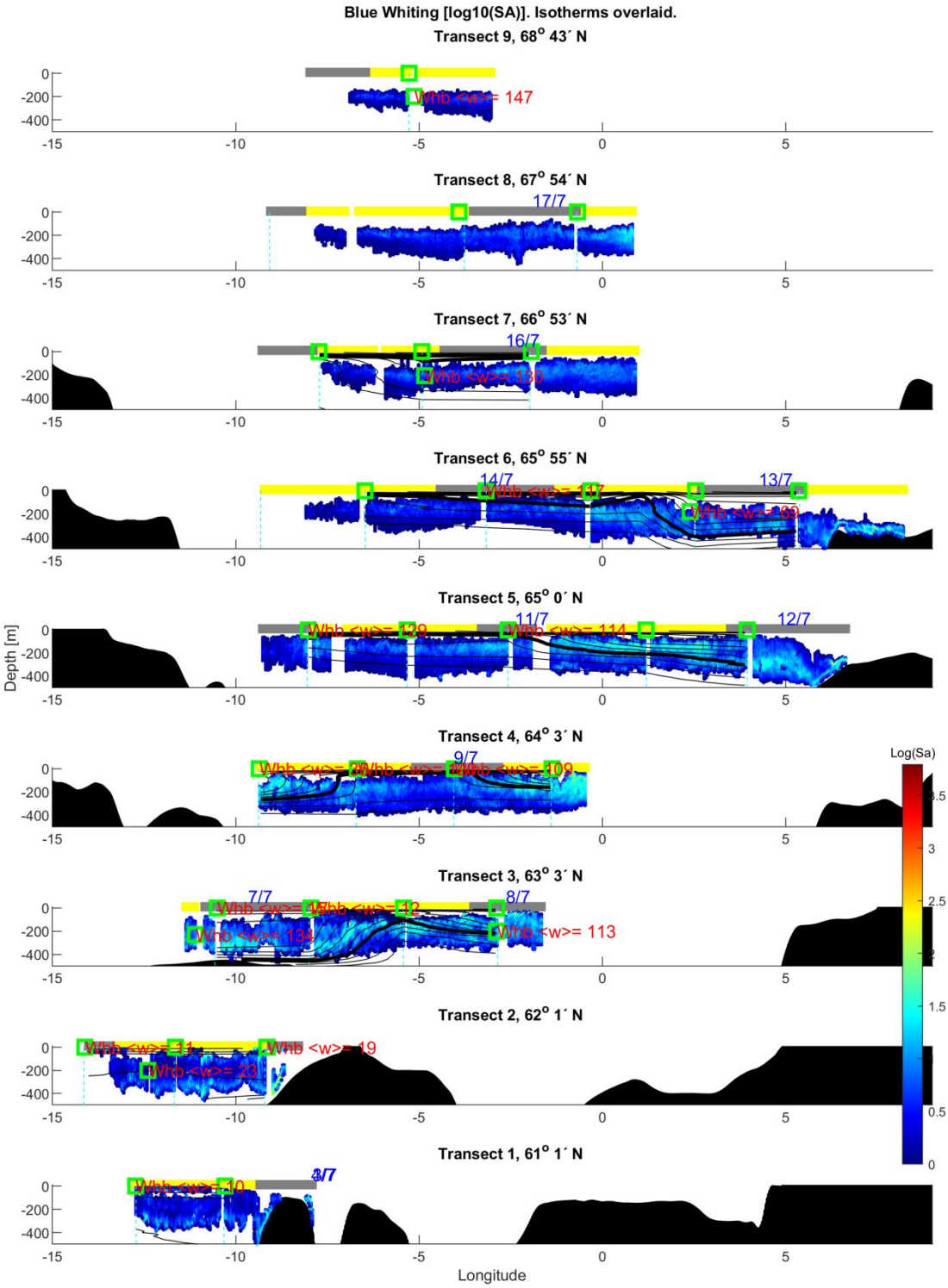

Figure 8 Vertical distribution of acoustic registrations of blue whiting during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025. Yellow/grey colors on the top of each panel indicates day/night time, green squares indicates trawl stations, with text indicating if blue whiting was caught and what the average weight was. Black lines indicate isotherms as observed with the CTD. 1 degree is between each isotherm, with the 4°C shown in bold.

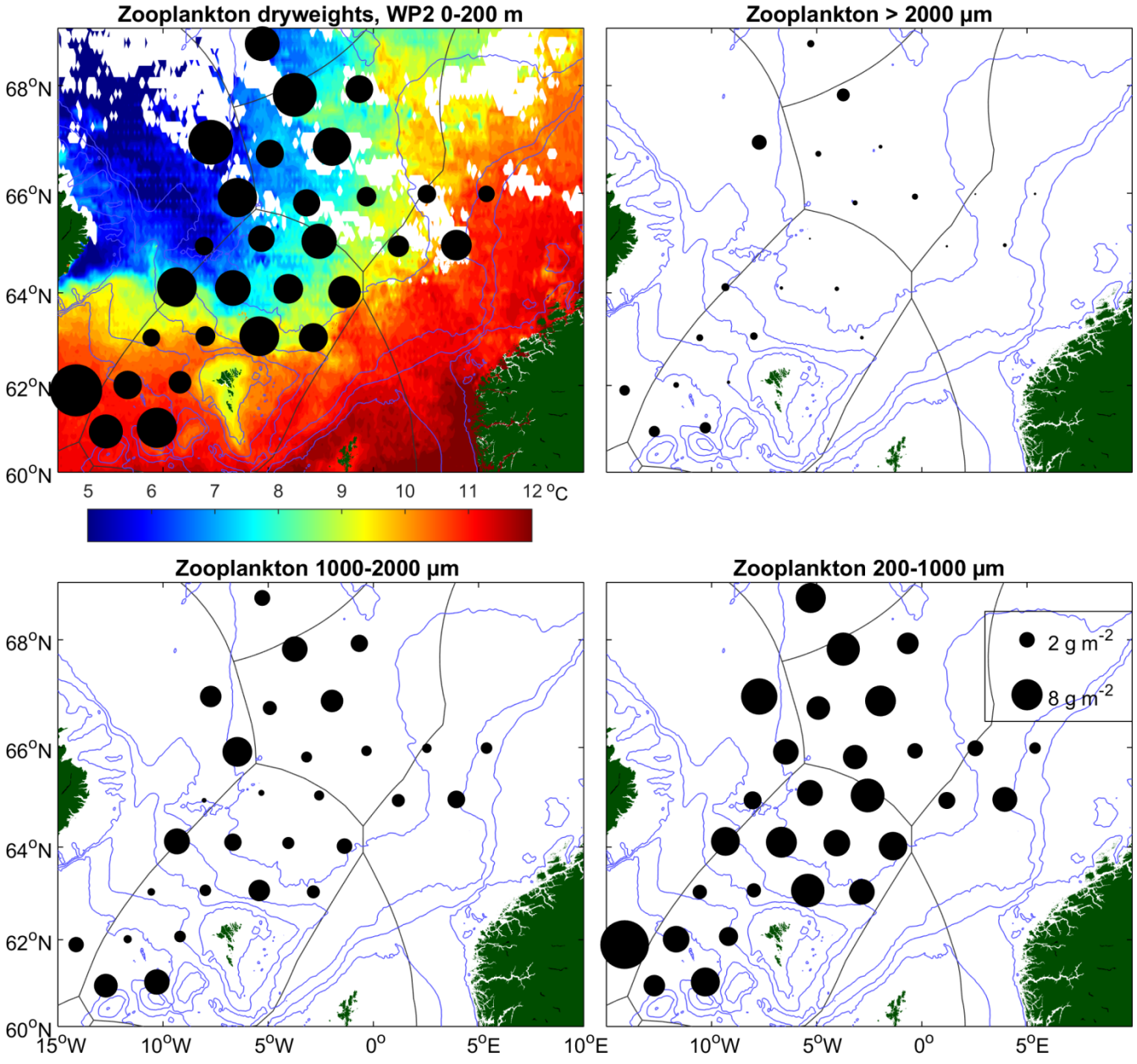

Figure 9 Zooplankton sampling during the IESSNS 2025 cruise, Jákup Sverri cruise 2534, 3.-20.July 2025. In the upper left panel sea surface temperature is shown as well.