

CRUISE REPORTF.R.S. "SCOTIA"May 5-23, 1965Narrative

"Scotia" arrived in Aberdeen from Leith at 0250 hours on 5th May and the scientific gear was loaded later that day. Due to the illness of two members of the ship's complement, however, the ship did not sail until 1625 hours on 6th May. The ship proceeded to Fladen to begin the Fladen-Rattray line which was completed early on the morning of Saturday 8th May, the ship later docking at Aberdeen at 0810 hours to exchange scientific personnel.

"Scotia" sailed again 24 hours later and proceeded south to begin the herring-environmental survey at the landward end of 57°N. Apart from bad weather during the period 0130 hours to 1930 hours on 10th May conditions were excellent, and "Scotia" surveyed the area from 57°N to 59°N and from approximately 2°W to 1°E during the next eight days. The ship then returned to Aberdeen to land the samples collected during the survey so that analysis could be started, and to take on stores and fuel.

Illness again delayed the ship's departure and it was impossible to leave before 1455 hours on 19th May. Overnight the ship proceeded to Fair Isle. The area to the east of Fair Isle and Shetland was then surveyed but due to poor weather conditions which developed during the 21st, and the limited time available, the survey was not as detailed as that obtained during the first part of the herring-environmental survey. Only five stations were worked during the 22nd, and after an uncomfortable passage south "Scotia" docked at Aberdeen on the evening of 23rd May.

Results

The area surveyed extended from 57°N to 60°45'N and from approximately 2°W to 1°E. No details were obtained from the area to the west of Fair Isle or Shetland. In the extreme south of the area temperatures below 7°C were recorded by the thermograph. Temperatures above 8°C were recorded in the inshore waters off the Aberdeenshire coast, to the south east of Orkney and in a small tongue east of Unst. A more extensive area with temperatures above 8°C was located between approximately 57°45'N and 58°45'N and between 1°30'W and 1°00'E.

All chlorophyll a data are now available, but it has been possible to analyse in detail only every fourth Gulf III sample. Variations in the plankton community suggest that the area may be sub-divided into three sub-areas - south of 58°N, 58°N to 59°N inclusive, and north of 59°N. The main features of the plankton community in each sub-area are given in tables 1, 2 and 3.

Echo-sounder survey

Few really big "plume" traces were found during the first part of the survey, but "tick" and "small plume" traces (young herring?) were present over a large area to the west of 1°W. During the second part of the survey

the laboratory echo-sounder was not operating properly and the bridge echo-sounder had to be used. Dense concentration of midwater "plumes" and "ticks" were recorded to the east of the northern part of Shetland.

Trawling

It was only possible to do one trawl at E16c. Eleven herring (size range 18.3 ~ 32.3 cm) were caught. Six had been feeding on euphausiids. The other species caught were Trisopterus esmarkii (136 per hour haul), long rough dab (70), cod (24) and Pandalus borealis (300).

General

Thirty-six Plankton Indicator samples were obtained for S.M.B.A. Edinburgh.

Bivalve larvae were collected for K.W. Jockelmann of Helsingør.

Standard net, sedimentation and 1m (26) net samples were collected at selected positions.

Salinity and phosphate samples were obtained at all stations, while at selected stations salinity, oxygen, phosphate, nitrate, silicate and untreated 'K' samples were collected at all depths.

Eight zooplankton feeding experiments were carried out.

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30th June, 1965.

Table 1

	Average values				
	Chlorophyll <u>a</u> mg/m ³	Total Dry Weight g/100m ³	1) General Dry weight mg/100m ³	Carnivore Dry weight mg/100m ³	Euphausiid Dry weight mg/100m ³
North of 59°N	0.8	7.6	7,400	9	184
58° - 59°N	2.6	3.5	2,700	12	2) 714
South of 58°N	1.7	2.4	2,100	46	268

Note 1) All adult euphausiids, larval fish and large carnivores (e.g. Sagitta, Pleurobrachia and medusoids) were extracted. The remaining fraction is then referred to as the general fraction.

Note 2) The high euphausiid standing crops in the central area was due mainly to Meganyctiphanes norvegica.

Table 2

	General Fraction		% <u>Calanus</u> Stages I-III in <u>Calanus</u> population
	% <u>Calanus</u>	% <u>Pseudo/Paracalanus</u>	
North of 59°N	82	5	73
58° - 59°N	57	27	46
South of 58°N	36	39	69

Table 3

	Numbers per 100m ³		
	Sand eel Larvae	Haddock larvae	Other Fish Larvae
North of 59°N	0	28 (6mm)	2
58° - 59°N	11 (11-39mm)	0.5	0.2
South of 58°N	14 (8-37 mm)	2	2

Modal lengths or size range shown in brackets