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MV "Aquila"

Report

5-12 January 1988

Personnel

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Objectives

1. To investigate the distribution, biology and behaviour of sandeels in Shetland waters.
2. To collect measurements of sea temperature and salinity.

Narrative

Scientific staff joined "Aquila" in Lerwick at 1130 hours on 5 January. As the vessel had been fitted out for sandeel fishing and as all scientific gear had been unloaded previously, through the cooperation of the vessel's agents and crew, "Aquila" sailed directly to start work in the south Sand area. Over 6-9 January sandeel grounds at Fair Isle, Mousa, Sands Voe and Fethaland were surveyed. Sunday 10 January was lost due to bad weather. On 11-12 January the South Sand and Mousa grounds were surveyed a second time and in addition sampling was carried out on the grounds at Voe, Braeside and Helliness. Scientific staff left the vessel at 2200 hours on 12 January and returned to Aberdeen the following day.

Results

Two trawl hauls and four dredge hauls were made in each of the four main study areas, namely South Sand, Fair Isle, Mousa and Sands Voe. In addition, Voe and Fethaland were sampled using trawl and dredge whilst the Braeside and Helliness areas were sampled by dredge only. Quantities of A. marinus, in both immature and mature condition, were taken on all grounds surveyed. The greatest catch was 0.5 t taken in a 20 minute trawl haul at Voe consisting predominantly of large fish on the point of spawning. Although the vessel's echo sounder was run continuously when on the fishing grounds no obvious sandeel marks were observed.

Based on TV observations made in 1986 and 1987, it was assumed that sandeels taken by trawl had been free swimming near the sea bed whereas those taken by dredge had been taken from within the bottom substrate. Samples were worked up separately for each gear to determine if dredge and trawl caught fish were similar. For A. marinus in each area data were collected on length distribution, age structure, sex ratio and maturity stage. In addition samples of mature ovaries were collected for fecundity counts to be carried out in the Laboratory.

The stomach contents of representative samples of all fish species caught were examined for the presence of sandeels. A total of 20 fish species were caught and of these 12 were found to have been feeding on sandeels. The main predators on sandeels were Scylliorhinus caniculus and Lophius piscatorius.

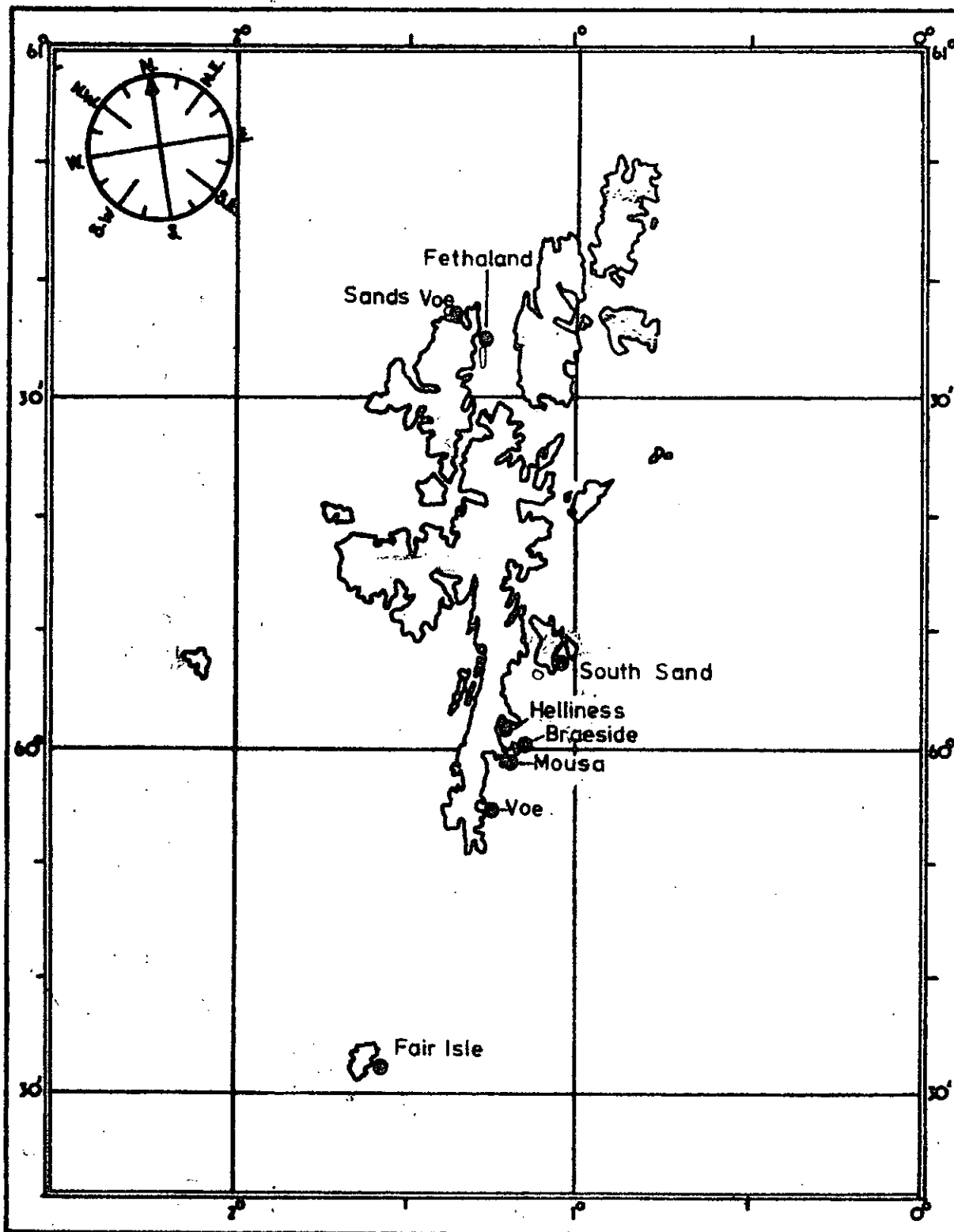
Vertical plankton hauls were made at 3 locations to determine the availability of potential food species for A. marinus. On each ground surveyed, stomachs of

A. marinus were collected to determine if A. marinus had been feeding and, if so, to identify the prey species.

Top and bottom water temperature and salinity measurements taken at the 3 locations, the respective measurements were:

<u>Location</u>	<u>Temperature</u>		<u>Salinity</u>	
	<u>Top</u>	<u>Bottom</u>	<u>Top</u>	<u>Bottom</u>
South Sand	8.55	8.57	35.136	35.142
Mousa	8.61	8.64	35.149	35.154
Fair Isle	9.21	9.21	35.075	35.076

J A Gauld
22 February 1988



"AOUILLA" 5-12/1/88

● = Sampling locations