MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1972 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 6/72

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

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DURATION

28 June–27 July

Left Grimsby 1800 h 28 June
Arrived Grimsby 0700 h 27 July
All times are Greenwich Mean Time

LOCALITY

Faroe, Iceland

AIMS

1. To make a survey of the distribution and abundance of 0-group fish at Faroe and eastern Iceland as part of an international survey in the Faroe-Iceland area.

2. To obtain samples of 0-group cod for immunogenetic studies.

3. To obtain samples of young fish for feeding studies.

4. To undertake hydrographic studies of the deeper waters of the northern Rockall Channel.

NARRATIVE

CIROLANA sailed from Grimsby on the evening tide of 28 June and made passage for Aberdeen. Echo sounder noise trials were carried out en route. Mr Jones joined the ship by pilot cutter from Aberdeen at 1735 h 29 June and the ship continued to the starting point of the survey grid just east of Faroe Bank. The echo and trawl survey of 0-group fish followed initial calibration trials and continued for 19 days until 29 July. An intensive trawl grid of 100 hauls was worked over Faroe Bank and Faroe Plateau and an average of 10 hauls per day were made with the Norwegian capelin trawl which fished well. The survey continued across to southeast Iceland and along the east, north and northwest coasts of Iceland involving another 45 trawl hauls.

CIROLANA called at Reykjavik on 29 July and results of the survey were discussed with the international co-ordinator, Mr Vilhjalmsson, On departure from Reykjavik on 21 July, the ship proceeded to the first station of the hydrographic survey of the northern Rockall channel. A series of hydrographic stations were worked and a continuous record was made of bottom soundings.

Work was completed on the evening of 25 July and the ship made passage for Grimsby, docking at 0700 h, 27 July. Good weather prevailed for the majority of the cruise and only about one day was lost due to adverse weather.

RESULTS

Aim 1: The trawl and echo survey of 0-group fish was completed as planned. The new capelin trawl with Primar fabric liner took good samples of 0-group fish in a standard 30 minute tow. At Faroe, 0-group cod were most abundant (up to 7 500 per tow) close to the islands on Faroe Plateau with a secondary patch on Faroe Bank. Haddock had the centre of their distribution to the east of the islands and there was also a patch on Faroe Bank. 0-group sandeels were abundant over the greater part of the Plateau and Bank and were taken in numbers of up to 50 000 per haul. 0-group Norway Pout were abundant (up to 40 000 per tow) close to the islands. Blue whiting were found over Faroe Bank and Myctophids (not 0-group) occurred over the deep water especially at night. With most species however, their distribution was confined to the waters over the shelf with very few being taken over deep water. Occasional adult haddock and adult mackereal (up to $\frac{1}{2}$ basket) were taken in the trawl in the Faroe area.

At Iceland cod were taken in small numbers on the north and northwest coasts (maximum 190 per tow) and haddock in small quantities were limited to the west coast. 0-group capelin were very abundant especially in the west and northwest (up to 65 000 in the cod end with many thousand in the meshes). Young sandeels were also abundant in catches off northwest Iceland.

Apart from fish, jellyfish were frequently taken in large numbers, and salps were abundant southwest of Faroe. Euphausiids often occurred in night hauls and a catch of about $\frac{1}{4}$ ton of almost pure euphausiids was taken off Melrakka, Iceland.

The echo-sounding equipment worked well and a continuous integrator record was kept of the 10-60 m depth layer and a second record was made of a 10 m layer at the depth of the trawl for each haul. It appeared that abundant planktonic life, especially large numbers of young sandeels, were contributing to the integrator record.

Aim 2: Samples of 0-group cod for immunogenetic studies were collected from Faroe Bank and Faroe Plateau and were preserved frozen in liquid nitrogen.

Aim 3: Samples of 0-group fish were taken from two localities, one on Faroe Plateau, and one on Faroe Bank, where series of hauls at different depths were made. These were supplemented with samples from other areas of species not represented in the stratified tows.

Aim 4: Twenty-three serial water-bottle stations were worked in the area between Lousy Bank, Rosemary Bank and the Wyville-Thomson Ridge in an attempt to trace the source of Northeast Atlantic Deep water found in the Rockall Channel. At the deeper levels samples for dissolved oxygen and silicate content were collected in addition to salinity, and comment rests to a large degree upon the subsequent determination of these three parameters. However, temperatures suggest that this water was not entering the Rockall Channel between Lousy and Bill Bailey's Bank, although present outside it on the western flank of Lousy Bank. It cannot be identified by temperature alone on sections worked between Lousy and Rosemary Banks and Rosemary and Bill Bailey's Bank, but cold water (4.7-5.4°C) existed at 900 m at three stations in the basin at the

northwestern foot of the Wyville-Thomson Ridge. Immediately above the basin at 600 m depth, about 1 mile to the west of the Ridge crest, a temperature of 1.8°C was found 11 m above the sea-bed. At 21 m and 36 m above the bottom, values were 6.0°and 8.3°C respectively. It thus appears that Norwegian Sea Deep water was overflowing the Wyville-Thomson Ridge in a very thin layer at this point and mixing with Atlantic water in its descent to produce the water found in the adjoining basin.

Extensive topographical data was obtained during the survey and it was possible to site most of the stations upon critical, but small-scale, bottom features. The rebuilt bottom pinger worked excellently and was indispensable.

Surface and 50 m temperatures and salinity samples were collected at all trawl stations. At Faroe surface values were below 9°C around the coasts and below 9.5°C over Faroe Bank, but off the shelf temperatures rose generally to 9.5°C-10°C. At Iceland temperatures at 50 m were warmer by comparison with the previous year's survey, minimal values of about 3.7°C being found off Seydisfjordur.

MISCELLANEOUS

1. 49 XBT messages were sent by radio in accordance with the IGOSS pilot Bathy project for the rapid dissemination of oceanographic data. The failure rate for the probes amounted to 29%.

2. Samples of sandeels, adult capelin, 0-group fish and euphausiids were frozen as food for hatchery fish.

3. Oceanic sea water samples were collected for Dr Reynolds from an area between Faroe and Iceland.

B W Jones
11 August 1972

SEEN IN DRAFT: W C
G W A

INITIALLED A J L

DISTRIBUTION

Basic List
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