

Cruise Report

FRS 'Explorer'

3-29.11.76

Objectives

- (1) To perform an exploratory acoustic and fishing survey for blue whiting in the southern part of the Norwegian sea.
- (2) To investigate hydrographic conditions in relation to fish distribution.

Narrative

Explorer sailed from Aberdeen at 1300 hours on the 3rd November and proceeded north to a position ($60^{\circ} 15' N$ $02^{\circ} 40' W$) west of Flugga to begin the acoustic survey and hydrographic work. A line of hydrographic stations was completed at 15 mile intervals across the Faroe-Shetland channel and to the north east of Faroe. Subsequently detailed hydrographic observations were made at each trawl station. Surface temperature and salinity were recorded continuously. On the 11 November Explorer carried out acoustic calibration exercise in Ronas Voe and then sailed for Aberdeen, docking at 1200 hours on the 12 November. Explorer sailed again at 1600 hours on 16 November and proceeded to $61^{\circ} 00' N$ $01^{\circ} 00' W$ to resume the survey. A second line of hydrographic stations was carried out at 30 mile intervals between $61^{\circ} 00' N$ and $64^{\circ} 00' N$. The acoustic survey was completed on 27 November and Explorer docked in Aberdeen at 0700 hours on 29 November.

Results

Echo traces that fishing results suggested were associated with blue whiting were observed over most of the area surveyed. The density of fish was generally very low, at a mean density over the area surveyed of 13 tons per square kilometre, and no areas of high density were encountered.

The echo trace associated with blue whiting showed a marked diurnal variation. During the day the fish formed a diffuse layer at 300-400 m depth and migrated upwards at dusk, around 1600 hours, to become very dispersed in the upper 200 m at night. The migration downwards occurred with first light, around 0700 hours, the fish being most concentrated at this time. The high dispersion of the fish at night may have resulted in some underestimation of the abundance of fish. Fishing was carried out when possible to identify the traces and to provide fish for biological and parasitological analysis. Because of extreme weather conditions, particularly during the second half of the survey, the number of trawl hauls was limited to seven. As expected from the trace density, catches were low, never exceeding one basket. Blue whiting was the main species caught; others taken in small numbers were Sebastes, Myctophids and pearlsides. The blue whiting caught were a mixture of juveniles and adults; hauls from the southern part of the area, near the continental shelf, having a high proportion of juveniles. The hydrographic data is being analysed.

J Richards
14 December 1976

Seen in draft: J W Gillon