

FRS 'Explorer'

15 March - 4 April 1977

Objectives

- 1) To assess the size and distribution of the spawning stock of blue whiting to the west of Scotland by means of an acoustic survey.
- 2) To carry out pelagic trawling to identify echo traces and to provide samples for biological investigation.
- 3) To measure the target strength of blue whiting in-situ.
- 4) To provide information on blue whiting concentrations to fishing vessels.

Narrative

'Explorer' sailed from Stornoway on the afternoon of 15 March and proceeded south to begin the survey at $55^{\circ}45'N$ $09^{\circ}30'W$. The start of the survey was delayed until 17 March due to extreme weather conditions. Continuing poor weather enforced adoption of a survey pattern less satisfactory than the planned survey. The survey was broken on 25 March to exchange personnel in Stornoway. An attempt was made to calibrate the acoustic system in Broadbay on the way into Stornoway. The survey was continued on 26 March in continuing poor weather conditions which prevented satisfactory coverage of the area under investigation. 'Explorer' returned to Aberdeen on 4 April.

Results

Coverage of the area to be surveyed whilst not entirely satisfactory was sufficient to enable the distribution of blue whiting within the area to be determined (see attached chart). The distribution pattern shows the main centres of blue whiting to the south of Rosemary bank and around the Wyville Thomson ridge with smaller concentrations along the edge of the continental shelf. Assuming a target level of -34 dB per kg for blue whiting the mean density in the area surveyed was calculated as 33_2 tonnes per km^2 . This compares with a mean density of 106 tonnes per km^2 in April 1976. The total biomass of blue whiting in the area surveyed was approximately 6.1 million tons.

Fishing operations were very limited by the adverse weather conditions. On only three out of five hauls were blue whiting taken (the remaining two hauls were invalid because of gear problems). The blue whiting were all in pre-spawning condition with half to three-quarter ripe gonads. The distribution and maturation stage indicate that the fish were still entering the area. It was observed in the southern part of the area that the fish did not form the characteristic echo layers but were in discrete shoals and were also deeper than found in previous surveys.

The weather conditions were unsuitable for in-situ target strength measurements. Contact was maintained with the commercial fishing vessels operating for the White Fish Authority.

J Richards
25 April 1977

Seen in draft: J W Gillon