

R1/3

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MFV *Enterprise*

Cruise 0104H

REPORT

6-25 July 2004

Personnel

| | |
|-------------|-----------------------|
| P Fernandes | (SIC) |
| F Armstrong | |
| E Hatfield | |
| D Beare | (6-16 July) |
| O Goudie | (6-16 July) |
| F Burns | (16-25 July) |
| C Millar | (16-25 July) |
| C Embling | St Andrews University |

Objectives

1. To conduct an acoustic survey to estimate the abundance and distribution of herring in the north western North Sea and west of Scotland (ICES area VIaN) as part of the ICES International North Sea Herring Acoustic Survey.
2. To obtain samples of herring for biological analysis, including age, length, weight, sex, maturity and ichthyophonus infection.
3. To obtain samples of herring in support of the WESTHER project (biological and photographic data).
4. To collect passive acoustic data for the detection of cetaceans.

Out-turn days per project: RV0407 – 20 days

Narrative

All gear was transported to Fraserburgh on 5 July and installation was complete the same day. Scientific staff joined the vessel at 1900 on 5 July and it departed at 0400 on 6 July. A small meeting was held with all scientists, and crew taking a navigational watch, to explain the objectives of the survey and to describe general operating procedures. The vessel then proceeded to Loch Eriboll where calibration of the three transducers was carried out starting at 1300 on 6 July. The survey commenced in the North Minch at 0200 on 7 July. Zig-zag transects at a spacing of 15 nmi were adopted in the Minch. On reaching the southern limit of the Minch, transects progressed northwards along lines of latitude, at spacings of 15, 7.5 or 3.75 nautical miles (nmi). Transect spacing was based on the results of previous surveys and transects were placed relative to ICES rectangles. Transects extended as far as the shelf edge

(450 m contour) to the west, and as far as safely possible to the east, on approaching the coast. A half landing took place on 16 July in Ullapool in accordance with rest provision for the working time directive and for the exchange of personnel (F Burns and C Millar for O Goudie and D Beare). All three transducers were calibrated once again in Loch Broom prior to landing. The vessel resumed surveying at 1800 on 17 July. North of the Hebrides, transects extended from the shelf edge to longitude 3° West, progressing northwards as far as 59°57' North. The survey was completed on 24 July at 1145. The vessel returned to Fraserburgh on the morning of 25 July. All equipment was unloaded the following morning and returned to Aberdeen.

Results

The survey was completed successfully, with no time lost due to weather and no damage to the acoustic gear or fishing gear. The total mileage surveyed was approximately 2500 nmi with 1051 acoustic log intervals recorded, providing approximately 20 GB of data (*.ek5 files). All acoustic data were scrutinised and saved as daily Echoview (*.EV) files. Two successful calibrations were carried out, which gave consistent results to within 0.08 dB for the 38 kHz transducer. Fishing exercises were generally successful; 42 trawls were taken, of which 37 contained herring. In addition to length frequency data, a total of 2321 herring were sampled for weight, sex, maturity and otoliths. Digital photographs and associated biological samples of herring were taken for the WESTHER project: a total of 455 adults and 50 juveniles. Continuous passive acoustic recordings were made at 0.1-20 kHz and 110-150 kHz for the detection of dolphin whistles and clicks. Visual sightings of common dolphins and white beaked dolphins provided complementary data.

Preliminary indications are that the amount of fish detected was in line with previous surveys. Medium sized schools of herring were detected all along the west of the Hebrides between the 100 and 200 m contours. However, unlike previous years, no significant concentrations were detected at Gallan Head and Barra Head, and very few herring were detected in the Minch. Most of the fish was concentrated in the northern half of the survey area, particularly west of Papa Bank (north west of Orkney). Herring schools were generally more diffuse than in previous years, with the exception of one extremely dense school of herring detected immediately north west of Orkney east of 4° longitude. A full stock estimate and survey report will be prepared shortly.

P G Fernandes
20 September 2004