

R1/3

Not to be cited without prior reference to the FRS Marine Laboratory, Aberdeen

MFV Unity

Cruise 0307H

REPORT

7 – 21 May 2007

Personnel

D Reid (In charge)
I Gibb
F Burns
E Armstrong
R Watret

Objectives:

1. To carry out mackerel egg survey (ICES Triennial Survey), on the western shelf edge.
2. To collect fish samples from trawling for atresia and maturity assessment.

Out –turn Days per Project: MF01Ta – 15 Days.

Narrative

Unity sailed from Fraserburgh at 1200 on the 7 May and proceeded into the Buchan Deeps in the Moray Firth to test deployment of samplers and trawls and to calibrate the sampler flowmeters. The vessel arrived at the first station (59°45N, 5°15W) at approximately 1200 on the 8 May to commence the survey. Survey stations were then taken at 30'E/W intervals, on transects separated by one degree of latitude. This was continued to the southernmost transect along 55°15N. The survey then continued to transect northwards, mainly occupying transects at 15' in each degree of latitude. I.e. on alternate rows of latitude to those covered during the first half. Sampling was completed at 0700 on the 20 May and the ship headed for Fraserburgh and landed at 1000 on the 21 May.

Results

A total of 110 full plankton stations (see Figure. 1) and 7 calibration stations were collected during the cruise with the Gulf VIII. All samples were sorted for fish eggs during the survey. Full staging was not expected to be possible during this survey, but preliminary staging was carried out to comply with the adaptive survey design. Based on these preliminary figures, the survey showed up a very wide range of spawning by the mackerel. The survey design requires that transects be continued until close to zero target species eggs are found. As can be seen from the map in figure 1, the egg distribution extended as far west as Rockall (57°45N, 13°45W)! This pattern continued across most of the survey area, with almost all the eggs being found well west of the shelf break. This quite different to previous years or the previous survey in April, when the eggs were generally found straddling the shelf break. In addition to the anomalous westerly distribution, spawning also appeared to continue to the

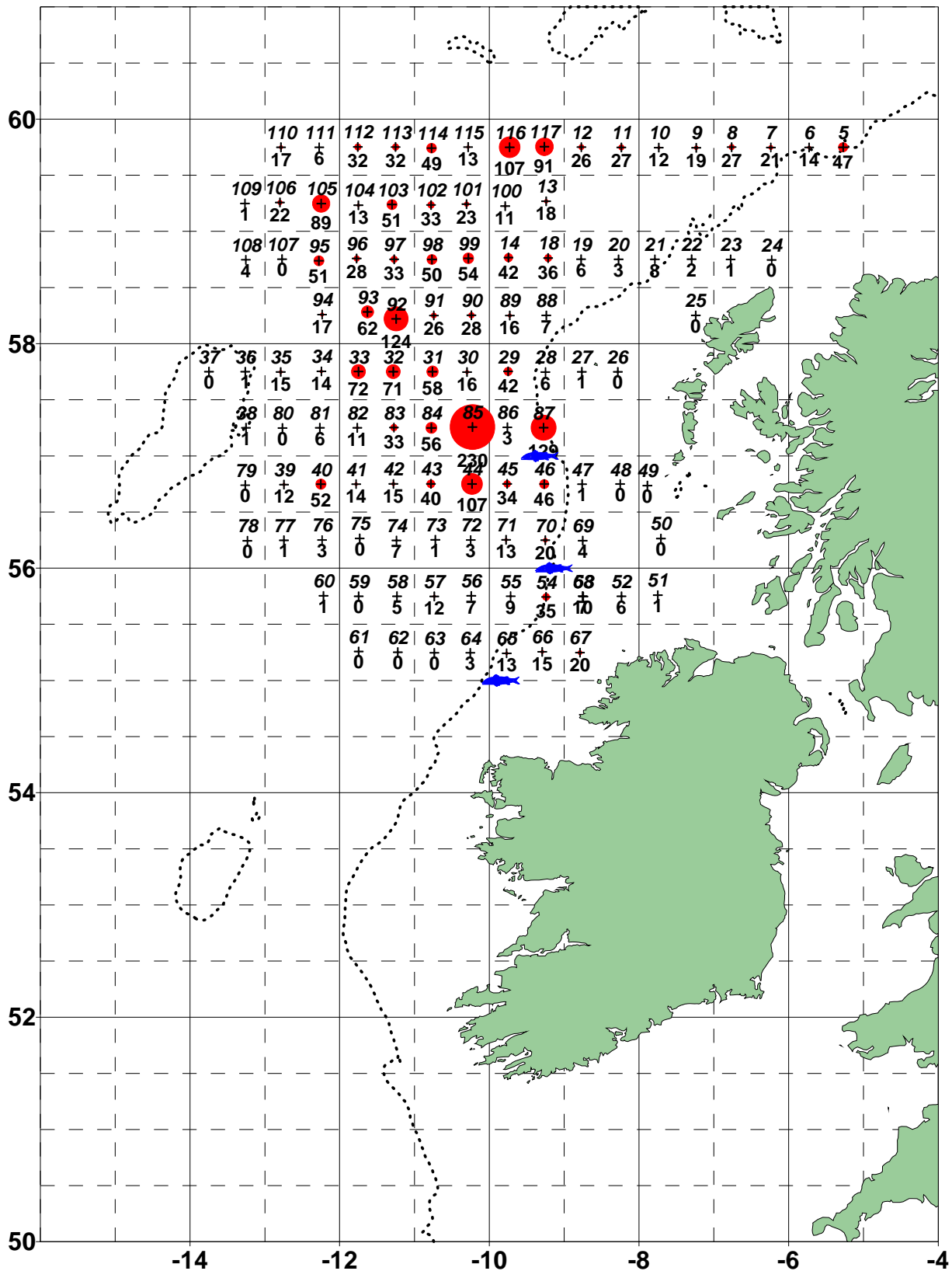
north, with significant numbers of eggs caught on the most northerly transect between 8 and 12°N.

Relatively few horse mackerel eggs were identified during the survey, although at this time of year and in these latitudes, few were expected. Post cruise egg sorting and staging may indicate more horse mackerel eggs. Egg production results from this survey will be included in the international database for further analysis.

Egg densities presented in this report are very preliminary and presented as an illustration of distribution pattern only. The samples have not been completely scrutinised for eggs and the staging conducted at sea was highly preliminary.

Four trawl samples for adult fish were taken during the survey using the PT170 trawl to collect mackerel and horse mackerel. Ovary samples were collected for fecundity and atresia assessment. Information on length, sex, maturity, total weight, gutted weight, liver weight and age was also collected from each sample. The locations of the samples are shown on the attached map. These locations were based on the planned adult sampling protocol provided by ICES WGMEGS.

D G Reid
21 May 2007



Unity Mackerel egg survey - stations and mackerel stage 1 egg counts
 Circles are linear scaled to a maximum of 230 eggs. Fishing locations are marked with fish symbol