

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

1982 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 11

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

STAFF:

R J Wood

W L Huggins

M W Easey

S Warnes

W A Leggitt

J Zuzunaga (Peru)

DURATION:

Left Lowestoft 0845h, 18 August

Arrived Lowestoft 0650h, 31 August

(All times are Greenwich Mean Time)

LOCALITY:

Central North Sea

AIMS:

1. To make acoustic surveys of spawning herring concentrations off the Yorkshire coast and pre-spawning concentrations elsewhere in the Central North Sea, using a transducer mounted in a towed body in conjunction with the echo integrators.
2. To obtain samples of adult herring from the central North Sea for age and fecundity analysis.
3. To make hauls with the 20 inch high-speed plankton sampler in the Longstone area, in order to identify herring spawning sites more precisely.

NARRATIVE:

CLIONE sailed from Lowestoft at 0845h, 18 August and made passage northwards. An echo survey was commenced at 2252h to the north of Flamborough Head and during the night of 18/19 August an area was surveyed together with RV CORELLA between latitudes 54°16'N-54°37'N and from some 3-15 miles off the coast. This initial survey was completed by 1011h, 19 August. From 1030 to 2240h fairing was fitted to the towing cable, the towed body launched and checks made on all the acoustic equipment preparatory to surveying. A first integrator survey was commenced at 2357h over an area where fish traces had been observed to be concentrated. This was carried out in conjunction with RV CORELLA and completed by 0729h, 20 August. An additional echo survey was run 0730h-1100h to locate shoals suitable for fishing. Further checks on the acoustic equipment were made 1200h-1715h and a haul with the midwater trawl carried out 1912h-1944h. By this time the wind had reached gale force NW and CLIONE anchored in Filey Bay so that the trawl catch could be sampled (20 baskets mixed immature and adult herring).

CLIONE left Filey Bay 0730h, 21 August and carried out a survey of the Whitby/Skinningrove area together with RV CORELLA. This was completed by 1734h and CLIONE then lay while some minor repairs were made to the main engine. A second integrator survey was made over the fish concentration which had been located previously, the centre of the concentration being some 11 miles east of Robin Hood's Bay. This survey commenced 2129 GMT and was completed by 0405h, 22 August. Some repairs were made during the morning to the headline transducer cable while selecting a suitable fishing position. A midwater trawl haul 1130-1300h in the centre of the fish concentration yielded a catch of some 5 tonnes of predominantly adult herring in maturity stage V. The ship then laid whilst biological sampling of the catch was carried out. A further integrator survey was commenced over the fish concentration off Robin Hood's Bay 1758h in order to determine its northerly and southerly limits. This was completed by 0650h, 23 August and CLIONE then surveyed an area to the east of Flamborough Head returning to the Robin Hood's Bay area by 1802h to commence a further survey over the fish concentration. This was completed by 0417h, 24 August. A trawl haul on the best echo tracers yielded a catch of 1½ tonnes of adult herring in maturity stage V-VI, whilst another to the north west of the main patch of echo traces produced 4 baskets of predominantly immature herring. With a SW gale imminent and wind gusting to 30 knots CLIONE anchored off Scarborough 1700h 24 August.

CLIONE left this anchorage 0630h, 25 August and later that morning fished on echo tracers 3 miles to the east of Robin Hood's Bay. 2½ baskets of predominantly juvenile herring (0 and 1 group) together with some sprats were taken in this haul. The midwater trawl was again shot in the afternoon on a patch of plume type echo traces 7 miles off the coast near Skinningrove, but signal was lost from the headline transducer before any fish could be caught, so CLIONE steamed back to the south east and commenced a new acoustic survey off Robin Hood's Bay at 1902h. This was completed by 0551h, 26 August after which the vessel laid while repairs were effected to the headline transducer cable which had been found to be damaged. Two trawl hauls were made during the afternoon some 8 miles NE of Scarborough. The first was abortive, signal being lost from the headline transducers after a few minutes due to a connection coming undone on the headline. During the second the lower half of the trawl was badly torn on what was presumed to have been a wreck. CLIONE lay for some hours whilst the damaged trawl was removed and rigging of a standby pelagic trawl carried out. This trawl was shot after dark in the middle of the patch of echo traces some 11 miles ENE of Robin Hood's Bay. A catch of approximately 7-8 tonnes of spawning herring was taken, mostly from part of one dense shoal, in a few minutes. A further integrator survey was conducted over the main area of echo traces from 2205h, 26 August until 0135h, 27 August. After this CLIONE steamed northwards to Baymans Hole. An echo survey was carried out in this area and also covered the Barmade Bank. A rendezvous was arranged with CORELLA and a meeting held on board 1000-1100 GMT during which plans for the remainder of the cruise were drawn up for each vessel. A trawl haul after dark near the Barmade Bank produced a small catch of mostly immature herring. A comparative integrator run with CORELLA was then made from 2204 h, 27 August until 0140 h, 28 August. After this CLIONE moved to the Farne Deeps where the 20 inch high-speed plankton sampler was calibrated in Free Flow 0830-1000h. After a short-echo survey for fishable

shoals CLIONE anchored in Alnmouth Bay 1200-1700h while the performance of all the acoustic equipment was checked. CLIONE then steamed to the Farne Deeps and the midwater trawl was shot at dusk on fish which were rising rapidly towards the surface. A small catch was obtained of sprat, 0-group herring and whiting. Course was then set to the first plankton station and the larval survey commenced at 2154h. CLIONE dodged 0730-1100h, 29 August in a strong-gale force southerly breeze while final checks were made on the acoustic equipment. The final plankton station was completed 1955h off Blyth and course then set southwards.

A final acoustic survey over the herring spawning area off Robin Hood's Bay was begun at 0439h, 30 August and completed by 1202h. Two dense shoals were located but very little else. The midwater trawl was shot during the afternoon, where those shoals had been seen, and a catch of approximately 50-60 tonnes of spawning herring obtained during a tow of only 7 minutes duration. Final measurements were made to determine the towing depth of the towed body at survey speed, 1415-1500h, after which the towed body was recovered. CLIONE commenced the passage to Lowestoft 1520h and docked there next morning 31 August at 0650h.

RESULTS:

Aim 1. The August herring spawning concentration off the Yorkshire coast was located in much the same area as in the previous 3 years, with centre some 11 miles east of Robin Hood's Bay. This concentration was surveyed acoustically by CLIONE on 7 occasions between 18-30 August. To begin with the herring were distributed over an area of some 90 square miles and were in maturity stage V (22 August). By 24 August they were in stage V-VI and close to spawning. During the night 26/27 August spawning was taking place, and the herring were found in fairly dense shoals by day and night. The area of distribution had by then contracted to some 4 square miles. Only 2 shoals were located 30 August and one of these was identified as being composed of spawning herring, a trawl catch of some 50-60 tonnes being taken. It appeared that spawning by the August concentration was then virtually complete. From the length distributions of the trawl catches it may be deduced that the youngest fish tended to spawn first and the old fish last.

Because of the importance of the herring concentration off the Yorkshire coast little time could be devoted to surveys elsewhere, although a short grid was completed off Flamborough Head, and a biological sample obtained from Barmade Bank.

Aim 2. A total of 660 herring were examined biologically during the cruise and ovaries from 130 females were preserved for fecundity analysis.

Aim 3. A total of 20 stations were sampled with the high-spread plankton sampler from north-east of the Farne Islands to Blyth between approximately 6-12 miles offshore. Small herring larvae appear to have been taken in some numbers at 7 of the stations, thus pinpointing spawning localities in this area.

MISCELLANEOUS

2 samples of sprat were deep frozen for Dr Johnson.

R J Wood
30 August 1982

SEEN IN DRAFT:+

J R French Captain
R J Hunt Fishing Skipper

