Provisional: not to be quoted without reference to the writer

R.V. CLIONE

Report for Cruise 13B/1968

Staff

P. O. Johnson
A. M. Watson
T. W. Boon
T. Storeton-West
H. Braithwaite (Birmingham University)

Duration

5-20 December

(All times BST)

Aims

1. To carry out an echo and fishing survey to determine the distribution and strength of sprat concentrations off the northeast, east and southeast coast of England.

2. To test a towed body sector-scanning asdic device.

3. To make a more detailed study of individual target strengths and durations in relation to the 100 kHz counter system.

Narrative

After changing gear and staff on the morning of 5 December CLIONE sailed at 1200 hours, 5 December. Overnight passage was made to the Farn Deep, where an echo and fishing survey commenced the following morning. This covered the area between the Farn Islands to Whitby and up to 30 miles offshore over the period 6-8 December. On the night of 8-9 December the trip was briefly broken to land a catch of herring at North Shields. The survey then continued out to Skate Hole and from there to the Wash area. The latter was surveyed between 10-12 December inclusive. The Sole Pit-Norfolk Banks-Smith's Knoll-Shipwash region was then covered between 13-15 December, after which the offshore Thames section of the survey commenced. Deteriorating weather conditions later on the 15th and the need to replenish the freshwater supply necessitated putting into Boulogne harbour, where the vessel remained until the evening of 17 December when weather conditions had moderated somewhat. Overnight passage was made back to the East Anglian coast, when the wind dropped sufficiently to allow the survey to continue. The final stage of operations was carried out between 18-19 December to cover the Suffolk coast area and offshore approaches to the Thames Estuary. CLIONE then anchored overnight in Yarmouth Roads and entered Lowestoft harbour at 0930 hours, 20 December.

Results

1. Extensive patches of small pelagic shoals were located near the surface over the Farn Deep. Fishing with a midwater trawl showed that these were mainly small sprat 6.0-7.5 cm in length. Commercial fishing operations had just commenced on a patch of larger sprats about 10-12 miles northeast of Tynemouth.

2. Pelagic traces thinned out further south off the Yorkshire coast, but about 15 miles northeast of Tees Bay several large shoals were located in daylight close to the bottom. These were later relocated after dark and were then near the surface, but had not broken up. The Simrad sonar proved very useful in fishing these shoals and a catch of 17½ crans of herring was made, these being mainly 22-23 cm in length.

3. Very little pelagic trace was found further offshore, although one patch was noted about 30 miles east of Flamborough Head towards Skate Hole, but weather conditions were too bad to fish these. Traces began to increase near the north end of the Inner Silver Pit and showed an almost continuous but thinly dispersed distribution from here to the Inner Wash. The only patch of fish dense enough for commercial exploitation was located at the extreme southwest end of the Wash near the Roaring Middle. Fishing was carried out on the shoals in the outer Wash area and these proved to be mainly small sprat, 6.0-7.0 cm long, with some small herring 11.0-13.0 cm long.

4. The results of this first stage of the survey were passed by radio-telephone to the District Inspector at Grimsby.

5. Scattered small pelagic shoals were noted near the Norfolk Banks and a more extensive patch of these to the east of Smith's Knoll. Midwater trawling again produced sprat, but slightly larger than those taken further north, with modes at 7.5 and 9.5 cm.

6. In the East Anglian coastal sector between Yarmouth and Orfordness, within a strip extending up to 10 miles from the coast, very diffuse and in places fairly dense trace was evident with many small shoals close to the surface. Fishing in this area yielded larger sprat (with modes at 10.0 and 13.5 cm) with whiting and some codling. The whiting were feeding heavily on sprat.

7. Very little trace was evident in the offshore Thames region between the Gabbards-Galloper-North Falls and the outlying banks of the estuary, but as the water shallowed to about 12 fathoms on the inner fringe of the northern part of this area between the Sunk and Shipwash, very similar trace to that found off the Suffolk coast appeared and showed continuity with it.

8. Samples of sprat and herring were deep-frozen for further biological examination, whilst samples of sprat blood and muscle were taken from four localities for population studies on their chemical characteristics.

9. The 100 kHz echo sounder with counting equipment attached was run over a good proportion of the survey area, although its use was limited over the first few days due to the development of a number of minor faults.

10. Observations were carried out in the Wash whilst at anchor on single fish targets using the pulse-height analyser and an oscilloscope display, results from the latter being recorded on video tape. Some measurements on a standard target were also made. Concurrent observations on tidal velocities were also carried out using a KH Direct Reading Current Meter.

11. Surface temperatures were recorded using a towed thermistor and a salinity grid was also carried out in the Wash area.

12. Mr. Braithwaite, from the Department of Electronics and Electrical Engineering at Birmingham University, carried out a series of trials with his towed body digital sonar system, which worked very well and yielded some useful results.

P. O. Johnson

20 December 1968

Seen in draft: MRS

Initialled: AJL

Distribution

Basic list, plus the following:

Dr. Johnson)
Mr. A. Watson) Scientific staff
Mr. Boon) on cruise
Mr. Storeton-West)

Mr. Braithwaite (Birmingham University)