

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

1977 RESEARCH VESSEL PROGRAMME

REPORT: RV CORELLA: CRUISE 4A

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

STAFF

R G Houghton (NIC)
M J Holden
S Flatman
R Stewardson
M Pawson

DURATION

Left Lowestoft 1400 h 25 February
Arrived Grimsby 1730 h 11 March

LOCALITY

North-east coast

AIMS

1. To tag spawning cod off Flamborough.
2. To carry out a simultaneous trawl and acoustic survey of the area off Flamborough using the Granton trawl and the Triton echosounding gear.
3. To identify the main acoustic target types in the area by fishing and to describe their behaviour over a 24 hour period.
4. To collect ovaries of cod, plaice, lemon sole and whiting for fecundity work and to collect samples of cod blood.
5. To collect live dabs (15 cm+) and turbot - Dr Htun Han.
6. To freeze a variety of fish samples for use on a fish identification course - Mr Blacker.
7. To collect 6 to 12 live elasmobranchs for tracking work using the sonic tag - Dr Greer Walker.
8. To freeze 20 I-group fish of each gadoid species caught - Mr Child.
9. To collect 2000-5000 live plaice eggs using the 2 m stramin net - Mr Thompson.
10. To test the MAFF inductive salinometer.

NARRATIVE

Trawling with the Granton began at 0830 h 26 February 10 miles west of the Southernmost Rough and continued each day in the area between the Dogger Bank and the Yorkshire coast until 0915 h 4 March. Several short echo-surveys (using the KH 44) were made during this period in an effort to locate spawning cod. Large single fish were recognized with the Triton gear during a survey leg on 27 February and fishing here produced 178 cod, 163 of which exceeded 65 cm. These fish were either spawning or just about to spawn. Unfortunately, the trawl had come fast during

the tow and the doors became locked which meant that it took $1\frac{1}{2}$ hours to haul the net. Only 28 of these fish were tagged.

In worsening weather CORELLA steamed in to Sunderland to take on fresh water. She tied up at 1700 h 4 March. The vessel remained in Sunderland on 5 March and set sail at 0700 h 6 March for the Whitby Rough area. The rig of the Granton was altered into a 'flying wing' rig to allow it to be used on this rougher ground on which most of the cod had been found. This gear was used until 8 March in the Whitby Rough area without serious damage and also without the spectacular success of 27 February. Only 2 or 3 large cod were caught per haul with either rig and the very good haul of 27 February seemed to be due to the very patchy distribution of spawning cod.

The Granton was removed during the night of 8 March and replaced with the 800 mesh Engel trawl. Two successful hauls were made approximately 5 miles east of the coast between Scarborough and Whitby during daylight on 9 March on a patch of acoustic targets in midwater. CORELLA steamed out to the Whitby Rough area but could not fish that evening because of a heavy swell. One haul was completed on 10 March between 0530 and 0630 h.

Strong winds prevented further work and the vessel steamed into the Humber and anchored off Grimsby at 0900 h 11 March. The scientific staff left the ship at 1730 h and were replaced by the scientific staff for Cruise 4B.

RESULTS

1. 894 cod were caught of which 206 were tagged. 92 of these were greater than 65 cm in length.
2. The Triton acoustic signal processing equipment was used to obtain a paper record of received signals during a series of Granton hauls. The cathode ray oscilloscope (CRO) was used to identify the targets as possible single fish or shoals and also to determine their amplitude. Photographs of the CRO display were taken whenever possible. The 40 log R time-varied gain amplifier (TVG) was not working and so all the work was carried out using the 20 log R TVG. It was not practicable to use the Simrad integrators whilst trawling because both the bridge sounders, one of which is essential to the fishing skipper when fishing, produced massive interference on the Triton. The interference, whilst high and frequent, was in short pulses and so did not prevent the use of the paper record and CRO. A series of noise measurements was made on the Triton for various ship speeds.
3. Several acoustic target types were recognized and recorded. Perhaps three of these were identified with the Engel and Granton trawls.
4. The ovaries of 21 cod, 27 plaice, 24 lemon soles and 6 whiting were preserved in Gilson's fluid.
5. 20 live dabs were held in the deck tanks and delivered to Lowestoft.
6. Samples of all the fish species caught during the trip were frozen for the fish identification course.
7. One lesser spotted dogfish was kept.
8. Samples of I-group cod, whiting, poor cod, Norway pout and haddock were frozen.

9. This aim was given to the staff of Cruise 4B because it was impractical to keep plaice eggs alive for more than 2 days.
10. The salinometer appeared to function satisfactorily except when air bubbles were introduced along the seawater feed pipe. Water samples were taken at regular intervals throughout the cruise.

R G Houghton

17 March 1977

SEEN IN DRAFT JEMB
 TJD

INITIALLED AJL

DISTRIBUTION

Basic list
R G Houghton
M J Holden
S Flatman
R Stewardson
M Pawson