

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

1981 RESEARCH VESSEL PROGRAMME

REPORT: RV CORELLA : CRUISE 2

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

STAFF:

P O Johnson

H R Stewardson

J Dann

P A Large

N Mason

DURATION:

Left Lowestoft 1430 h 27 January

Arrived Gt Yarmouth 1630 h 9 February

(All times are Greenwich mean time)

LOCALITY:

Southern Bight and West Central North Sea

AIMS:

1. To carry out an acoustic survey for sprat, as part of an ICES co-ordinated programme, in the Thames Estuary, Southern Bight and west central North Sea, north to about  $55^{\circ}\text{N}$  and offshore to  $4^{\circ}\text{E}$ .
2. To sample any major concentrations with mid-water trawl and plot the area of their distributions more precisely.
3. To calibrate the towed body transducer.
4. To carry out in situ target strength measurements on sprat using the narrow beam transducer.
5. To collect species of fish for the fish identification courses

(Mr R W Blacker)

NARRATIVE:

CORELLA sailed from Lowestoft at 1430 h on 27 January and proceeded to deeper water off Lowestoft to calibrate the towed body. Calibrations were completed early the following day and the acoustic survey commenced at 0830 h in dense fog, which prevailed over the next few days.

A grid covering the southern half of the Southern Bight was completed by 30 January, but continuing dense fog caused postponement of the survey planned for the Thames Estuary and the next stage of the survey covered the region between the Norfolk banks and Dutch coastal area, extending north to the Outer Silver Pit, Skate Hole and Flamborough area by 1 February. The weather then deteriorated and passage was made to the Humber, where CORELLA docked at Grimsby on 2 February to take on fresh water and effect repairs to the headline transducer cable winch, this having broken down early in the trip. After leaving Grimsby the following afternoon further calibration work was carried out off Mablethorpe and the survey was resumed in improved weather on 4 February when the Wash area and Inner Silver

Pit were covered. However, the weather again deteriorated and a north westerly gale caused a temporary break in the survey during which CORELLA dodged towards Flamborough Head where an improvement was awaited. The survey was resumed at 1600 h on 5 February and then extended offshore from Flamborough to the Outer Silver Pit and Botney Gut region.

Radio contact was made with the FP vessel LINDISFARNE who informed us that a group of Danish pair-vessels had been sprat fishing in the Outer Silver Pit, the boardings showed no herring by-catch and their catch rates had been about 40 tonnes per day. This information was passed on by T Whyatt from the Fisheries Inspectorate who was on board.

After finishing work in this region CORELLA returned south to the Thames area which was surveyed on 7 February in fine weather. After overnight anchorage in Margate Roads the immediate offshore region of the Thames Estuary was covered on 8 February, and the survey was completed off the Norfolk coast at 1230 h the following day, when passage was made to Great Yarmouth where CORELLA docked at 1630 h.

#### RESULTS:

1. A total of 1600 nautical miles were completed on the acoustic survey grid, which covered an area between  $51^{\circ}24'N$  and  $54^{\circ}18'N$ , offshore to  $3^{\circ}-4^{\circ}E$ . (See track chart).

2. The only major sprat concentrations located were in the Skate Hole - Outer Silver Pit and Indefatigable Bank areas, where Danish pair vessels were operating. Biomass densities of up to 225 tonnes/km<sup>2</sup> (using a target strength of -29 dB/kg) were recorded. These were in fairly discrete patches some 1½-2 miles in extent.

A more scattered distribution of sprat was found in the Wash.

Over the Southern Bight traces were generally at such lower densities, and of a rather diffuse nature which remained much the same day or night. This type of trace became denser towards the English coast and immediately offshore from the Thames Estuary. Fishing with mid-water trawl in this region suggested a general mixture of whiting, herring and sprat, with a very abundant component of white-bait size (5-6 cm) sprat. Trace levels were generally very low within the main channels of the Thames Estuary upriver to Southend.

3. Length distributions were obtained from the catches of whiting, herring and sprat, whilst samples of herring and sprat were deep frozen for further analysis at the laboratory. A mixed sample of sprat and young herring was also retained for Mr R W Blacker's fish identification course.

4. An interesting capture made about 40 miles east of Lowestoft were two Blue Whiting, one of which was an advance maturity male and the other a ripe running female.

5. A calibration was carried out on the wide-beam transducer using a table-tennis ball mounted on a fixed frame attached below the towed body housing the transducer. The results were close to those obtained from an earlier calibration made at RDV CRYSTAL last year.

6. Preliminary trials were made on the upward firing transducer.

7. Noise tests were carried out at different speeds, and the results showed no significant increases compared with previous checks.

8. In situ recordings were made with the narrow beam transducer on four stations of fish signals for target strength determinations, about six hours recordings in total. One series of measurements were made over a concentration of larger 'pure' sprat.

P O Johnson  
18 February 1981

SEEN IN DRAFT:

G S  
R C N

INITIALLED:

D J G

DISTRIBUTION:

Basic List+  
P O Johnson (3)  
H R Stewardson  
J Dann  
P A Large  
N Mason

