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

1976 RESEARCH VESSEL PROGRAMME

REPORT: RV CORELLA: CRUISE 4

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

STAFF

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DURATION

Left Lowestoft 1345 h 8 March

Arrived Lowestoft 0945 h 18 March

All times are Greenwich Mean Time

LOCALITY

West Central North Sea - North Coast of Norfolk to 56°N

AIMS

- 1 Investigate the distribution and abundance of planktonic fish eggs and larvae, zooplankton predators and competitors and the phytoplankton using the Lowestoft multipurpose plankton sampler.
- 2 Monitor the sub-surface water continuously along the ship's track for temperature, salinity, transparency and chlorophyll 'a'.
- 3 Collect water samples from the pump for salinity and nutrient analyses; calibrate the fluorometer with chlorophyll 'a' extracts; measure phaeophytin, and identify the phytoplankton contribution to chlorophyll 'a' fluorescence including the preparation of slides for electron microscope examination of the micro-flagellates.
- 4 Carry out hauls with the Boothbay net to sample young fish.
- 5 Use the changing net sampler to investigate vertical distribution of fish eggs and larvae and the zooplankton, alternating with water bottle casts for phytoplankton, chlorophyll 'a' and phaeophytin in relation to temperature and light penetration into the water column over a 26 hour period.
- 6 Collect samples of fish for stomach content analysis using the young gadoid trawl in midwater.
- 7 Collect live plankton and fish eggs as required.

## NARRATIVE

RV CORELLA sailed at 1345 h 8 March in fine weather. Once clear of port all the environmental monitoring instruments were calibrated and continuous recording commenced. The high-speed plankton sampler was calibrated on passage and the survey grid started at 1913 h. The grid was worked without interruption until 2000 h 11 March. Deteriorating weather then forced a change of plan and after station 58 CORELLA worked northwards on the inshore stations, passing inside the Farne Islands early on the morning of 12 March. One further station (station 66) was completed before gale force winds and a heavy swell curtailed any further work. CORELLA ran for shelter and anchored in Berwick Bay but a change of wind direction in the early hours of 13 March forced her to put to sea again. She dodged until 2054 h, when work began again on station 67. A further 21 stations were worked in poor weather until the grid was finally abandoned at 1117 h 15 March and CORELLA set course for the Tees. She arrived in Tees Dock at 1800 h, took on fresh water and sailed again an hour later. The vertical distribution sampler was rigged and work began again at 0400 h the following morning in the centre of the plaice egg and larval patch. Five stations were worked with this sampler during the day and one set of measurements were made with the spectroradiometer during the afternoon. In the middle of station 93 a major electrical failure occurred with the vertical distribution sampler and thus part of the programme had to be abandoned. The ship was then rigged for trawling and work started again at 0600 h 17 March with the young gadoid midwater trawl. Four stations were worked between dawn and dusk. CORELLA then set sail for Lowestoft and docked at 0900 h the following morning. A sample of live and preserved plankton for Dr Dodge was collected on passage.

## RESULTS

88 out of an intended 102 stations were worked on the plankton grid and 650 seabed drifters were released on 13 of these stations. The cruise track is shown in Fig. 1. A preliminary inspection of the plankton samples showed that since the last cruise (CORELLA 3/76) the centre of the plaice egg patch had moved some 50 miles northwest to lie about 45 miles due east of the Tees (Fig. 2). The maximum density had decreased from 430 per haul to 250 per haul. The plaice larvae (Fig. 3) showed a broadly similar distribution but the centre of the patch in this case was about 30 miles east of Flamborough Head. All stages of larvae from I to IV were present.

The evening haul with the young gadoid trawl yielded the largest catch of  $\frac{1}{2}$  basket of small fish consisting of gurnards, sprats, whiting, dabs and a few herring. Samples of whole fish and stomachs were preserved. Few fish traces were seen on the MS29 echosounder which was run continuously through the cruise. A small Boothbay net was not available in time for the cruise so that Aim 4 was not attempted.

The measurements with the spectroradiometer were made in a very heavy swell. A new method was used of suspending both the surface reference cell and the main instrument A-frame from a buff floating at the surface and it was found that the oscillations on the spectral scan resulting from wave action were considerably reduced. The technique could perhaps eliminate the problem of wave action in less severe weather.

G P Arnold

23 March 1976

SEEN IN DRAFT J E M Balfour  
E T Bridge

INITIALLED AJL

DISTRIBUTION

Basic List

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