

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

1994 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 8/94

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

STAFF: P J Bromley (SIC)
L T Kell
J Dann
T Watson
B D Rackham
A R Lawler

DURATION:

Left Lowestoft 1206h 13 July 1994
Arrived Lowestoft 0100h 28 July 1994

LOCATION:

North Sea

AIMS:

- a. To monitor the distribution of 0-group cod and whiting in relation to the distribution of sandeels in the southern and central North Sea using the International Young Gadoid Pelagic trawl (IYGPT).
- b. To conduct depth stratified trawling to investigate the 0-group descent from the pelagic to the demersal phase at selected sites using an IYGPT and a 4-m beam trawl.
- c. Use the Roxann system to monitor the sea bed at the fishing sites.
- d. To log surface temperature and salinity and take temperature and salinity profiles at selected sites.
- e. To preserve samples of sandeels and 0-group haddock for SOAFD.

NARRATIVE:

CORYSTES made good passage north-west to commence a grid of 24 IYGPT and beam trawl stations south west of the Dogger Bank on 14 July in an area which is subjected to industrial fishing for sandeels. After completing the grid on 16 July, CORYSTES sailed north-west as far as the Firth of Forth and then eastwards along latitude 56° 15'N, deploying the IYGPT in each ICES rectangle. A large catch of 0-group cod (1376 fish per hour) was taken in 41F3 and 4 trawl stations were undertaken in the vicinity to determine the extent of the area over which the population was distributed. On 19 July, CORYSTES commenced fishing a

grid of IYGPT stations west of Denmark/south-west of Norway. Beam trawls were also undertaken at selected sites to compare catch rates of pelagic and demersal phases of the 0-group gadoids. On 21 July, in rectangle 43F5, fishing was undertaken in close proximity to industrial fishing boats. From 23 July onwards, fishing centred on rectangle 41F3 in order to investigate the 0-group descent from the pelagic to the demersal phase. Depth stratified, 24 h fishing with the IYGPT was undertaken on 24 and 25 July, followed by a 24h series of beam trawl tows on 26 July. On completion of fishing on the 26 July CORYSTES set course for Lowestoft.

RESULTS:

- a. In the area south-west of the Dogger Bank, whiting was the principal gadoid caught along with the sandeels. Few sandeels were caught in the block of rectangles to the west of Denmark. During fishing in rectangle 45F4 the IYGPT catch was almost pure 0-group Norway pout.

The Scanmar data on the gape of the net opening and clearance of the footrope from the bottom for each tow was logged to a micro computer.

- b. Two 24h, depth stratified trawling cycles were successfully completed with the IYGPT in rectangle 41F3 to investigate the 0-group descent from the pelagic to the demersal phase. The three depth bands sampled were a) 10m below the surface, b) the middle of the water column and c) bottom. This was followed by a 24h series of 4-m beam trawls at the same location. In total during the three days of 24h sampling there were 36 tows with the IYGPT and 18 with the beam trawl.

Preliminary results suggest a marked diurnal vertical migration pattern in 0-group cod, but not in whiting. Catch rates in the IYGPT reached 13000 cod per 40 minute tow in midwater during the dark.

The distribution of the cod appeared to be reasonably extensive in the central region of rectangle 41F3. The area would appear to be an important nursery ground and a region where cod settle out during the change from the pelagic to the demersal habit during the course of development.

- c. The Roxann system used to monitor the sea bed sediment at the fishing sites proved to be reliable. On the occasions when day grab samples were taken, the sediments from the grab were in agreement with Roxann's pronouncements.
- d. Surface temperature, salinity and conductivity were logged continuously throughout the cruise. For a while the navigation data failed to log correctly, but this fault later rectified itself. Surface water samples were collected regularly in order to calibrate the salinity data from the Chelsea unit. Temperature and salinity profiles were recorded at selected sites using the CTD. Nansen water bottle samples were also taken for calibration purposes.

- e. A sample of sandeels from rectangle 41E9 and 0-group haddock from a variety of stations were preserved frozen for SOAFD. In addition, a range of fish species were preserved frozen for MAFF's fish identification course.

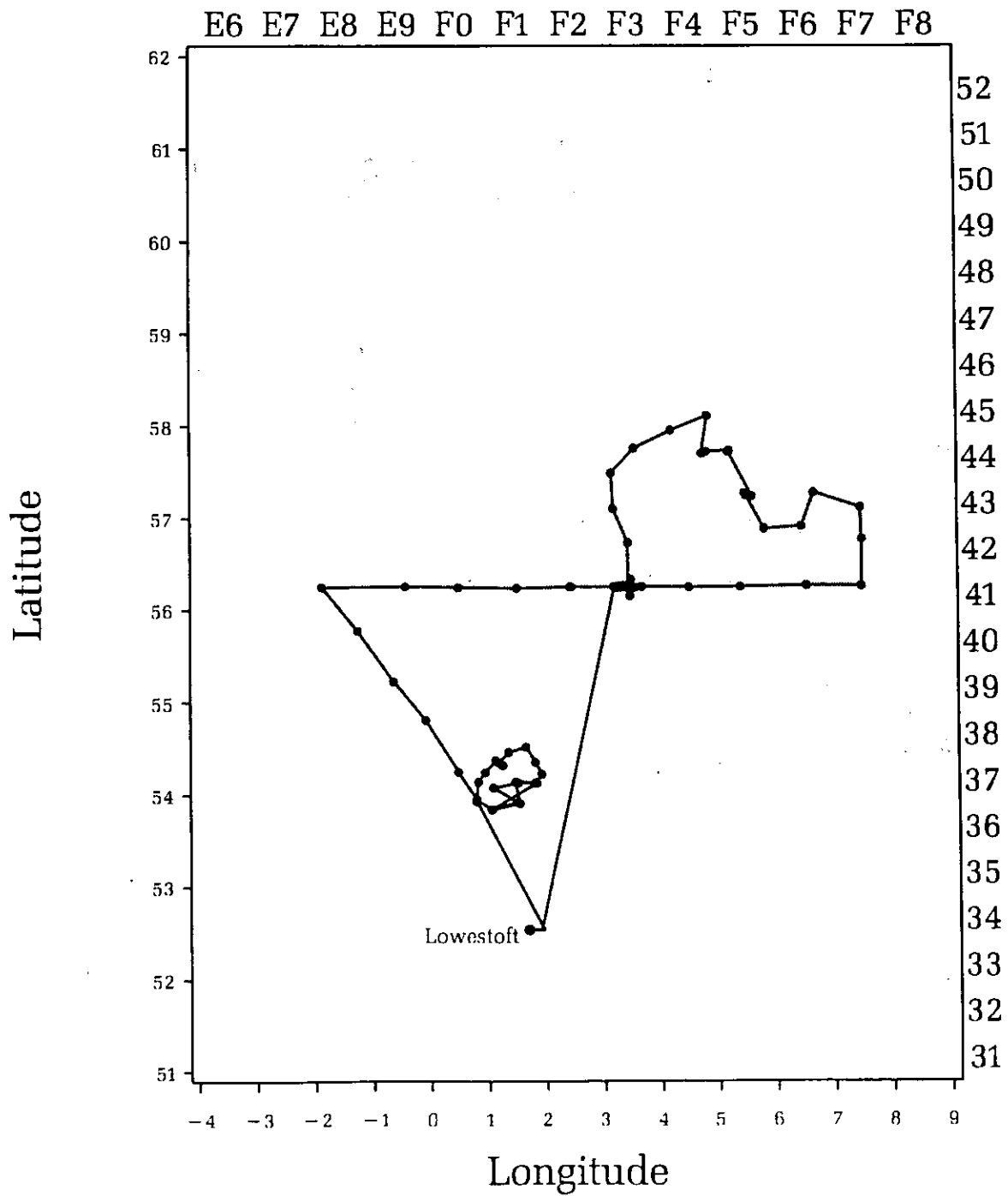
P J Bromley
(Scientist-in-Charge)
20 September 1994

INITIALLED: JWH

SEEN IN DRAFT: MJW
RG

DISTRIBUTION:

Basic list +
P J Bromley
L T Kell
J Dann
T Watson
B D Rackham
A R Lawler



Corystes 8/94