

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

1992 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 7/92

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DURATION: 4-18 June 1992

LOCATION: North Sea

AIMS:

- 1) To map the distribution of pelagic 0-group gadoids in the northern and eastern regions of the North Sea and to collect samples to determine the extent to which these fish prey upon each other.
- 2) To conduct 24h sampling to investigate feeding during the diel vertical migration of 0-groups.
- 3) To sample the planktonic prey organisms of the 0-groups.
- 4) To sample other fish species that are potential predators of pelagic 0-group gadoids.
- 5) To collect live 0-group gadoids for aquarium studies.
- 6) To release 100 plaice with dummy Data Storage Tags and 100 Controls (J Metcalfe).
- 7) To test the Ichthyometre fish measuring board under working conditions.

NARRATIVE

RV CORYSTES sailed from Lowestoft at 1017 GMT on 4 June and headed southwards to 52°20'N 02°20'E where the first 40 tagged plaice (20 with Petersen tags and 20 with both Petersen and Dummy data storage tags) were released. The remaining fish were released in batches of 40 at four more stations working northwards to 52°00'N 02°20'E.

The ship then proceeded NNE in rather uncomfortable weather to 55°40'N 04°29'E to commence the survey of 0-group gadoids in a block of 9 ICES rectangles west of Denmark (Fig 1) using the International Young Gadoid Pelagic Trawl (IYGPT), with a 7mm stretch mesh blinder. Initially, the trawl was rigged with a headline transducer as well as Scanmar wing end, depth and height sensors, which were logged to a micro using the SCAN33 (B Riches) program. The wing ends were weighted with 1 cwt each side, but later, this was

increased to 1½ cwt. The bottoms of the doors were also weighted with 1cwt weight. This made it easier to control the depth of tow and stabilised the doors vertically, reducing the chances of them locking. The headline transducer system broke down early in the trip, but the Scanmar gear functioned effectively throughout.

The survey tows were of 1h duration, 30 minutes at a depth of 10m and 30 minutes at a depth of 25m or 35m (Depth of headline below the surface). The spread of the wing ends and gape were approximately 10m. The 0-groups were sorted, measured and preserved in 4% buffered formal saline for stomach analysis in the Laboratory. Temperature and depth were to have been profiled at each station, but the CTD failed to operate and surface temperature was recorded from the ship's continuous temperature recorder at the start and finish of each tow, along with a recording of surface light intensity.

On the second tow of the survey west of Denmark the net was damaged beyond repair. With a new net and fine weather, the survey restarted in 40F6 and the block was finished on 7 June.

The first 24h fishing cycle was undertaken in 42F5, where good concentrations of 0-group cod and whiting had been detected. Alternate 30 minute tows with the IYGPT and 10 minute tows with the High Speed Tow Net (HSTN) were undertaken to sample both the 0-group gadoids and their pelagic prey. These were undertaken at 10m and 25m depth throughout the 24h period. The plankton samples were preserved in formalin for analysis in the Laboratory. Data on depth, temperature, salinity, temperature and light intensity were logged to the new EG&G program on a micro. The real time display of the dive profile of these parameters proved extremely useful in controlling the tin tow net and holding constant depth during deployment.

The ship sailed northwards on 9 June to start surveying the grid to the east of the Shetlands. Exceptionally good weather facilitated progress and on 12 June in 48F0, at the site where 24h sampling had been conducted by RV CLUPEA in 1991, two consecutive 24h fishing cycles were undertaken. These involved repeated 30 minute tows with the IYGPT at depths of 10, 35 and 110m, interspersed with 10 minute stratified tows with the High Speed Tow Net to sample the prey organisms of the 0-groups in the different depth bands. In all, 36 trawl stations and 16 HSTN stations were successfully completed. Additional HSTN stations were undertaken to increase sampling coverage at dusk and dawn. At this intensity of sampling it was necessary to freeze down samples of 0-groups to sample length distributions later.

In order to estimate the incidental catches during shooting and hauling, a series of V-dives was undertaken with the IYGPT and HSTN to compare catch rates with the standard 30 minute and 10 minute tows respectively. Afterwards, on 14 June, the survey continued and the Shetland sector was completed on 16 June, after a brief interlude spent dodging. The CTD was made operational with parts from the HSTN.

The secondary grid off the Moray Firth was then undertaken, but on the penultimate station of the Cruise (45E9) a bag full of jelly fish rent the net apart beyond immediate repair and Corystes sailed southwards. During passage, the frozen samples were worked up and the cruise data entered in a SAS database. Corystes docked at Lowestoft at 1030 GMT on 18 June.

RESULTS

- 1) The survey covered the areas sampled by RV CLUPEA and RV TRIDENS during the ICES 1991 Year of The Stomach Programme (Cruise Track). There were good catches of cod west of Denmark, but relatively few were caught east of Shetlands compared with 1991. Whiting were ubiquitous and abundant, as were haddock in the northern sector (Tables).
- 2) & 3) Three 24h sampling cycles were successfully completed, one off Denmark and two consecutive cycles SE of the Shetlands.
- 4) The stomachs of any larger fish caught in the trawl were examined. The stomach contents of those eating fish were frozen for analysis in the laboratory. Few such fish were caught in the northern sector, but off Denmark, whiting, sandeels and grey gurnard were found to be eating 0-groups in moderate numbers.
- 5) The trawl caught 0-groups, even from the V-tows in 10m of water, exhibited poor survival and none were collected alive for the aquarium.
- 6) The tagged plaice were released successfully.
- 7) The Ichtyometre fish measuring board which logs fish measurements to a PC via a Psion organiser was tried under working conditions. It enabled the operator to both measure and record at the same time and reduced the risk of data entry error and the time spent entering data into the database. (Dr Kell is organising a more detailed feasibility study.)

P J Bromley
10 July 1992

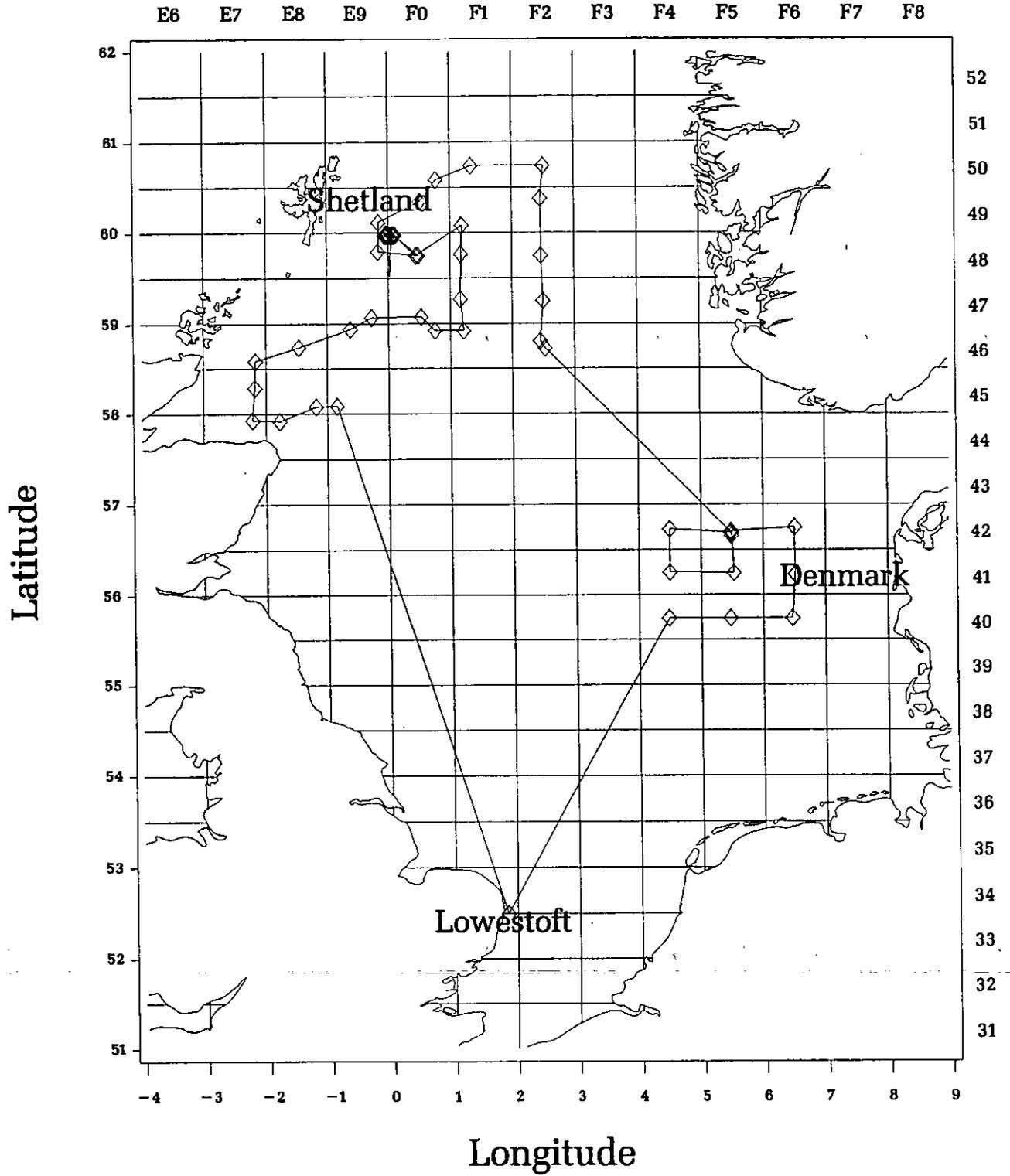
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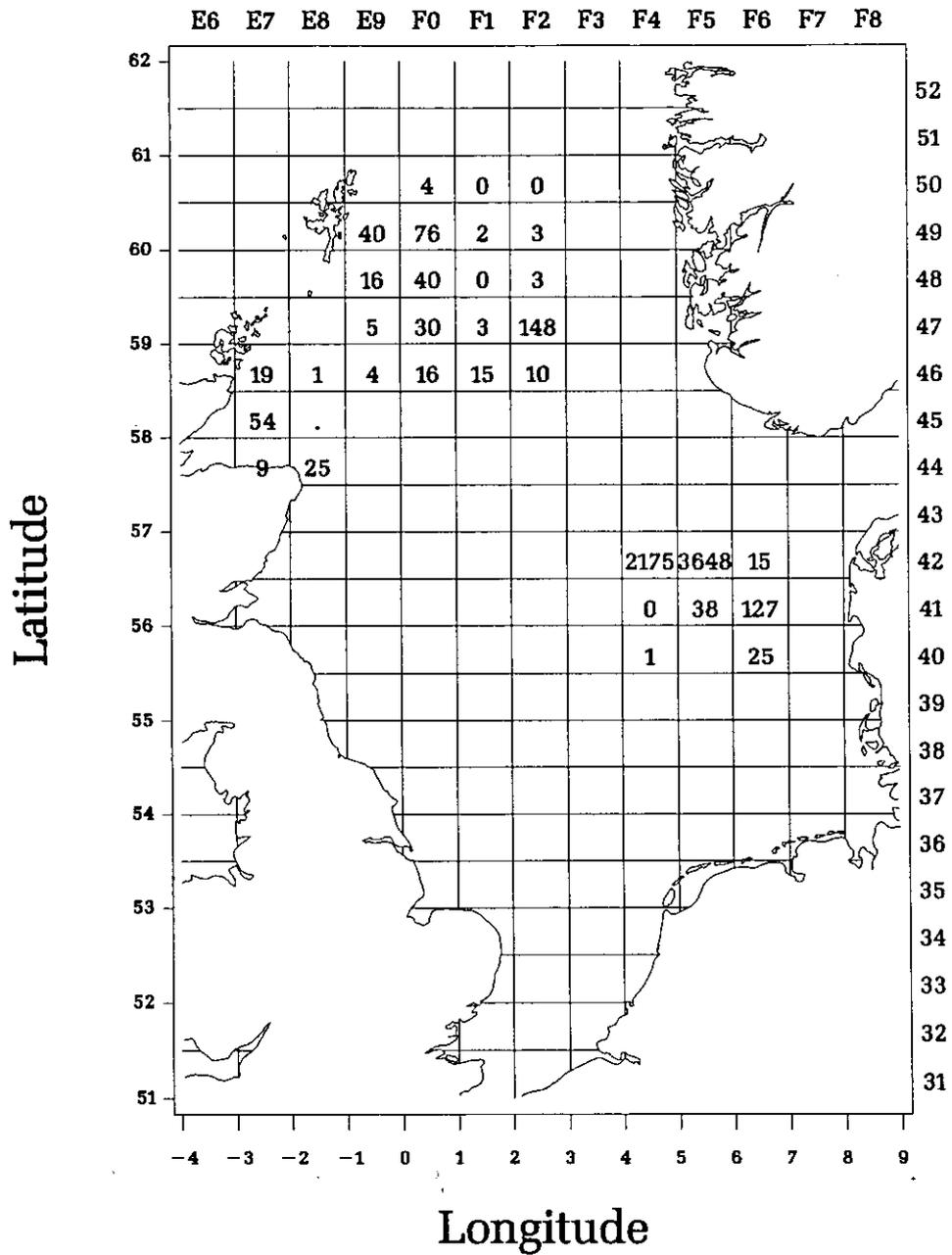
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Cruise Track Corystes 7/92

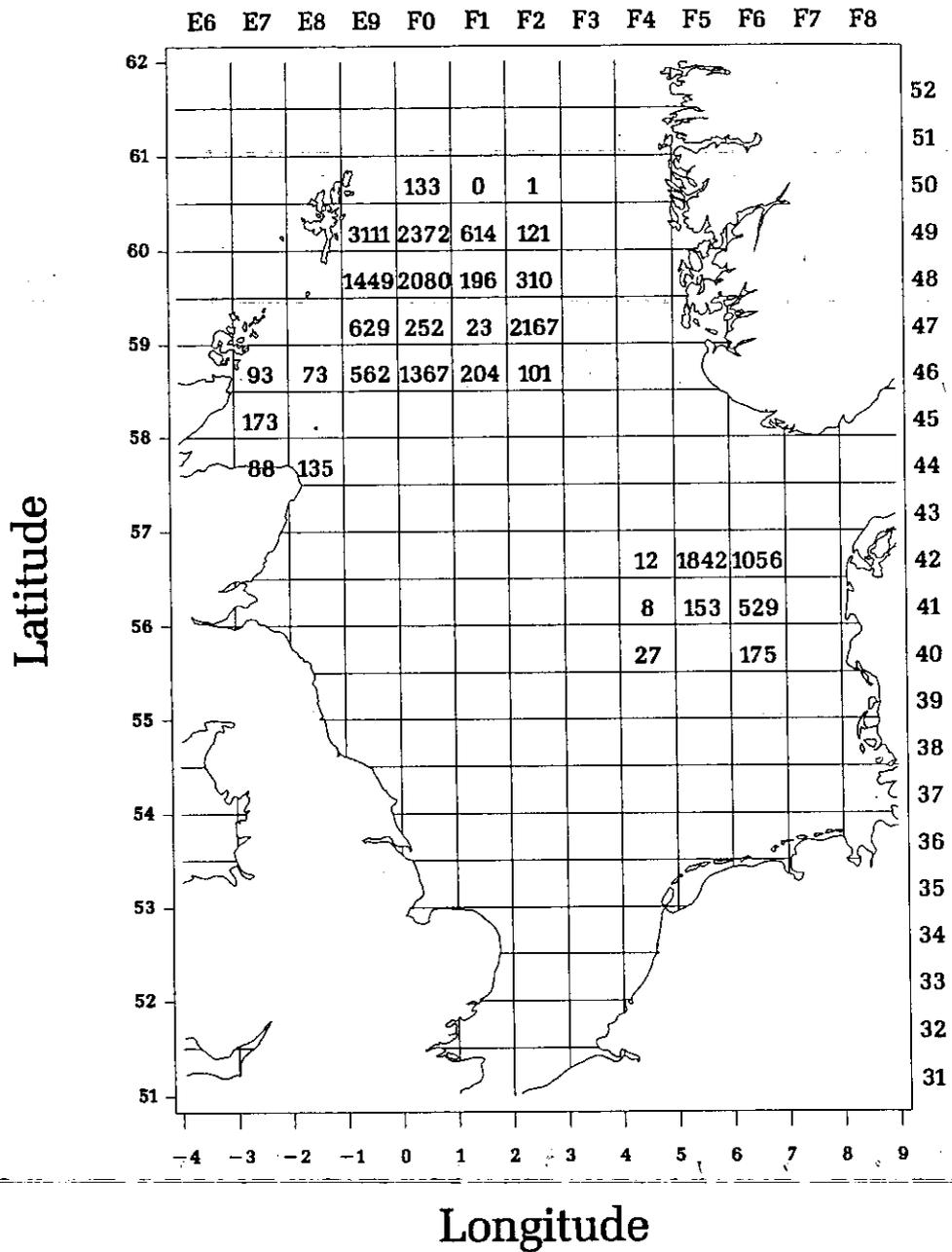


Numbers of cod per hour



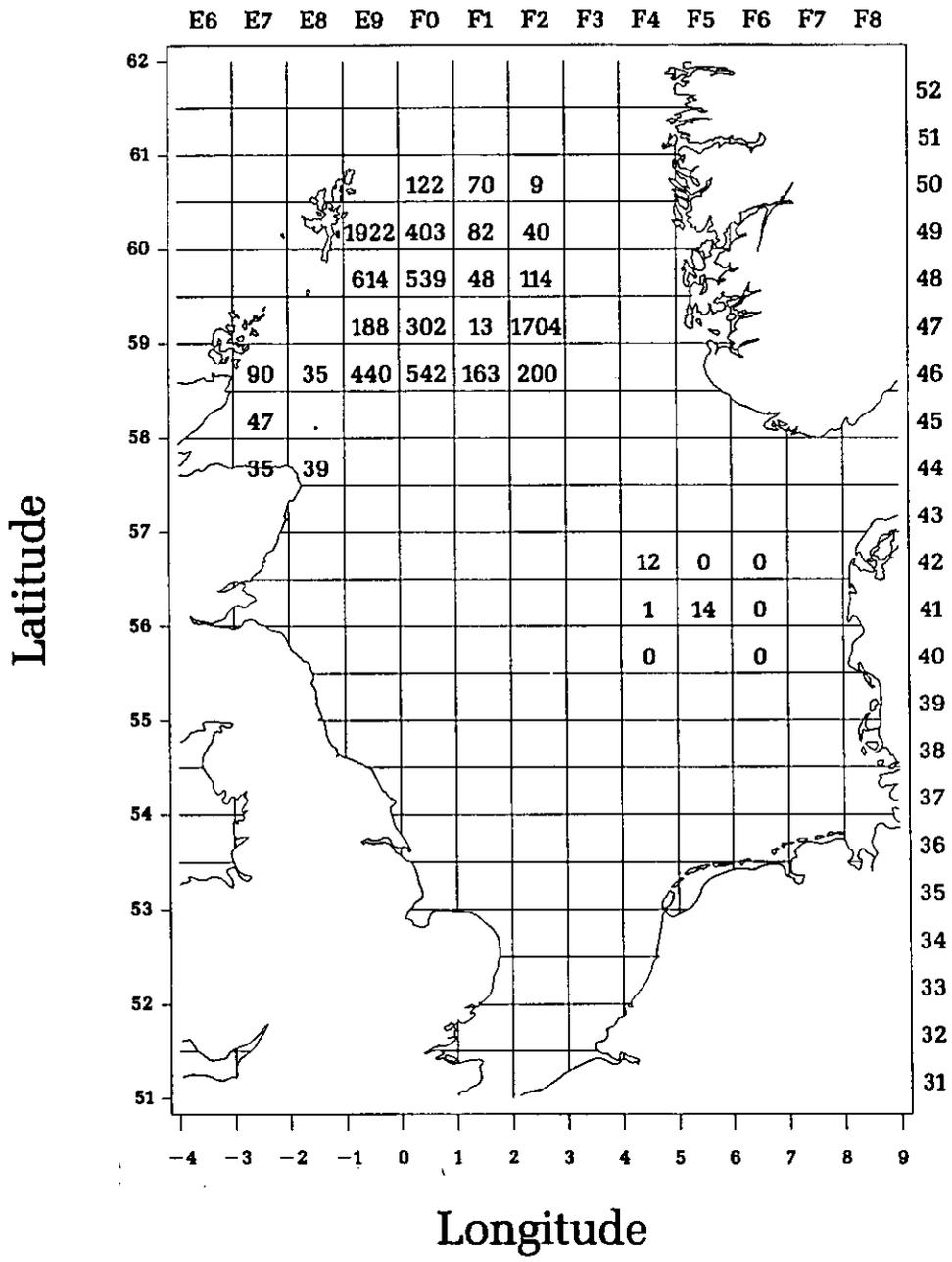
Corystes 7/92

Numbers of whiting per hour



Corystes 7/92

Numbers of haddock per hour



Corystes 7/92