

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

1990 RESEARCH VESSEL PROGRAMME

DONE

REPORT: RV CORYSTES: CRUISE 1

STAFF: J H Nichols
Mrs W A Dawson
R P Flatt (4-9 January)
S P Milligan
Mrs G M Haynes
Mrs A J Sutcliffe
B F M Harley

DURATION: 4-18 January

LOCALITY: Southern North Sea and English Channel

AIMS:

1. To participate in the ICES coordinated herring larvae survey in regions IVC and VIID.
2. To monitor continuously sub-surface temperature, salinity and chlorophyll 'a' with sampler profiles at each larvae survey station.
3. To take concurrent fine mesh samples for microzooplankton during the larvae survey in a continuing study of the winter feeding regime for herring larvae.
4. To determine the length/age compositions of mackerel shoals in and around the 'mackerel box'.
5. To sample shoals of pelagic fish using the Engel midwater trawl.

NARRATIVE:

RV CORYSTES sailed at 1445 h 4 January and started plankton sampling by 1930 h, approximately 35 n ml, east of Lowestoft. Because of operational conditions imposed by the French it was necessary to work our way quickly to the English Channel and complete sampling in the Bay of the Seine before 7 January. These stations were completed and the vessel returned to the southern North Sea. The larvae survey progressed without interruption in exceptionally fine weather until its completion at 0920 h 9 January at 50°05'N; 00°10'W (Figure 1). Mr R Flat was disembarked from off Weymouth at 1830 h on the same day. The vessel was then rigged ready to start bottom trawling in the western Channel on the following day, using the Portuguese high headline trawl (Phht).

The trawl survey, consisting of one pre-selected tow in each of twelve ICES rectangles, began at 0715 h 10 January, and was completed by 2340 h 12 January (Figure 3). The remaining four working days of the cruise were spent attempting to locate, identify, and sample, shoals of pelagic fish within the mackerel 'box'. An echo survey between 6 n ml and 12 n ml off Start Point on 13 January located numerous traces mainly close to the bottom. These were fished with the Phht and identified as mainly horse mackerel. Only one haul in this area produced mackerel at a position where earlier, two baskets of mackerel had been taken on feathered hooks. Very

few marks were noted on an overnight echo survey in the area between Start Point and the Eddystone. One tow with the Phht in this area on 14 January, yielded a further catch of horse mackerel. Time was then taken out to change over to the 1200 Engel high speed trawl, in Start Bay. After an unproductive search for midwater traces off Start Point, an echo survey to the west was begun at 2330 h. This continued until a significant trace was located 20 n ml south of Lands End. Two unsuccessful attempts were made to sample this shoal with the Engel trawl, and only a few small fish were caught. The echo survey was continued west to the Scilly Isles, through Mounts Bay and back to the Start Point area by 0700 h 16 January. A further Engel trawl haul on a heavy trace in this area again produced horse mackerel. Acting on information received from the Plymouth Fisheries office, an echo search was begun in the area between 12 n ml and 20 n ml off Start Point, where a 6 n ml long mackerel shoal had been reported. After a long search, a small dense shoal was located 16 n ml south of Start Point. When sampled, the catch consisted of an even mixture of mackerel and pilchards. The large catch taken and deteriorating weather at the time combined to cause considerable damage to the sleeve of the Engel trawl. In view of this any further attempt to fish was abandoned and course was set for Lowestoft, continuing the echo survey east of Start Point until 2315 h 16 January.

After a good passage home RV CORYSTES docked in Lowestoft at 0125 h 18 January.

RESULTS:

1. The numbers of herring larvae in both the Southern Bight and eastern Channel were an order of magnitude greater than those found during the same period last year. The highest concentrations of up to 1500 larvae per sample were found in the vicinity of the Sandettie, Bassurelle/Vergoyer Banks, off Cap Gris Nez and North of Dieppe. Few larvae were found in the Bay of the Seine but a new 'high spot' was located just west of the Greenwich buoy. The echo sounder was run continuously during the survey but no traces were found which could be fished with the midwater trawl.
2. Surface temperature and salinity was monitored continuously and logged at fifteen minute intervals throughout the cruise. Surface salinity samples were taken at each station for calibration of both the surface unit and the profiling unit on the plankton sampler. Both Chelsea instrument fluorometers became unserviceable immediately prior to the cruise, therefore only surface chlorophyll values were monitored, using a Turner system.

Surface temperatures over the herring larvae survey area were generally higher than the high values recorded over the same period in 1989. Provisional values show that the temperatures, in the Southern Bight were about 1°C higher whilst in the eastern Channel they were about 0.5°C higher.

3. Microzooplankton samples were taken with a 35 micron mesh net at each larvae survey station. The abundance of plankton in these samples and in the main net was very low.

4. A wide variety of species was taken in the twelve pre-selected bottom trawl hauls, but few were of commercial interest. The main species caught, other than mackerel and horse mackerel, were poor cod, pollack, ling red gurnard and whiting. Of interest were two specimens of a sting ray (Dasyatis pastinaca) 105 cm and 50 cm in length. This species has not previously been recorded on the western groundfish survey. Length measurements and otolith samples were taken from selected commercial species which included hake, lemon sole, mackerel and pilchard. The four directed bottom trawl hauls off Start Point each produced a large catch of horse mackerel from which length distributions were obtained. Only one of these contained a large catch of mackerel.
5. The 1200 Engel trawl was shot on four midwater traces, but only two of the tows were successful in catching a representative sample. A total of 75 baskets of horse mackerel was taken in the tow in Eddystone Bay and a large catch, many of which were lost, of mixed mackerel and pilchard were taken 16 n ml south of Start Point.

All catches containing mackerel had a high proportion of juvenile fish with 74% less than 30 cm in both the Phht and Engel trawl. The feather caught sample contained a higher proportion of juvenile fish but was consistent with the other results.

J H Nichols
22 January 1990

INITIALLED: JGS

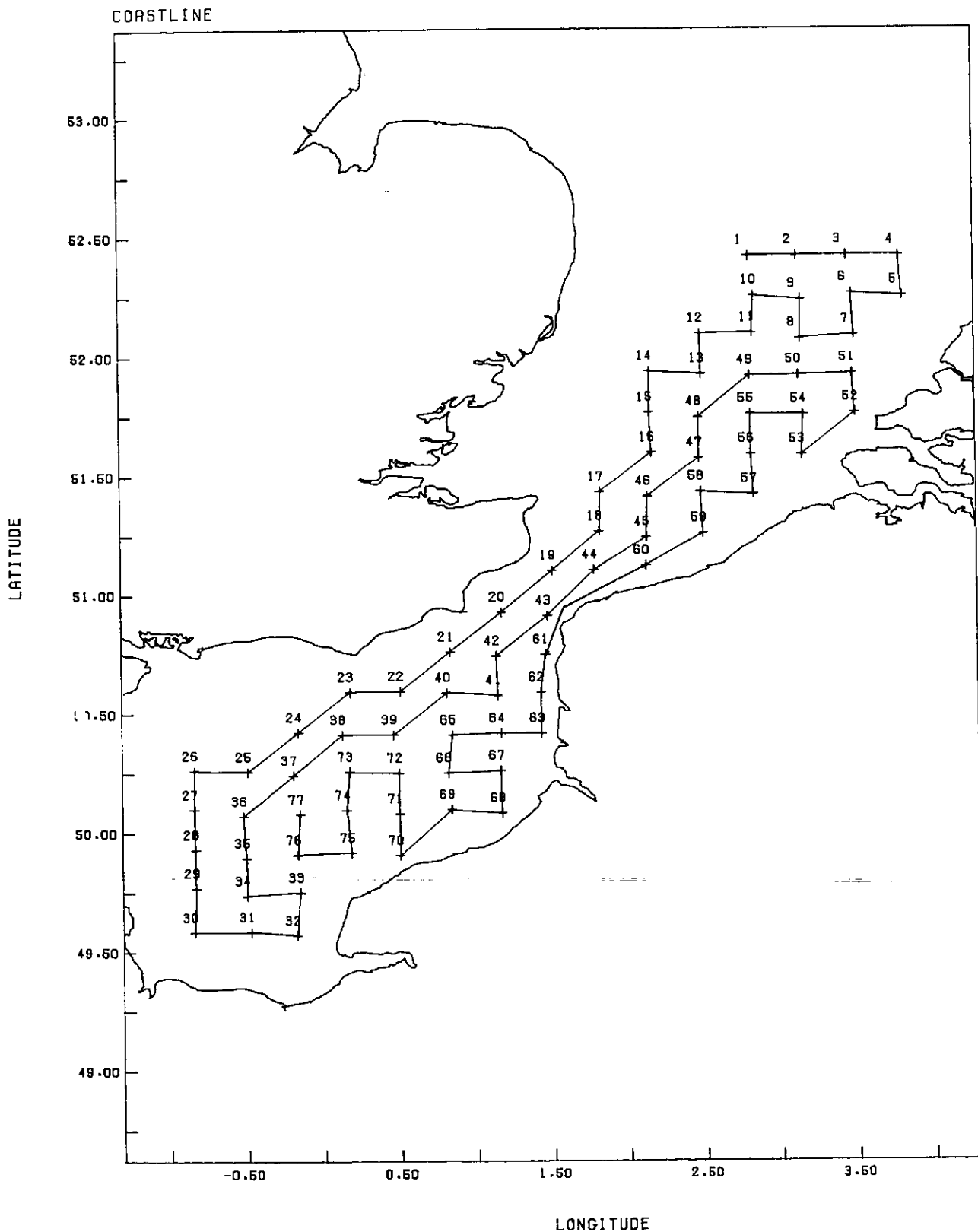
SEEN IN DRAFT: JF, PM

DISTRIBUTION:

Basic list +
J H Nichols
Mrs W A Dawson
R P Flat
S P Milligan
Mrs G M Haynes
Mrs A J Sutcliffe
B F M Harley
Dr P Hopkins (DAFS)

CORYSTES 1/90 4-9 JANUARY

SHOWING :
CRUISE TRACK
STATION NUMBER

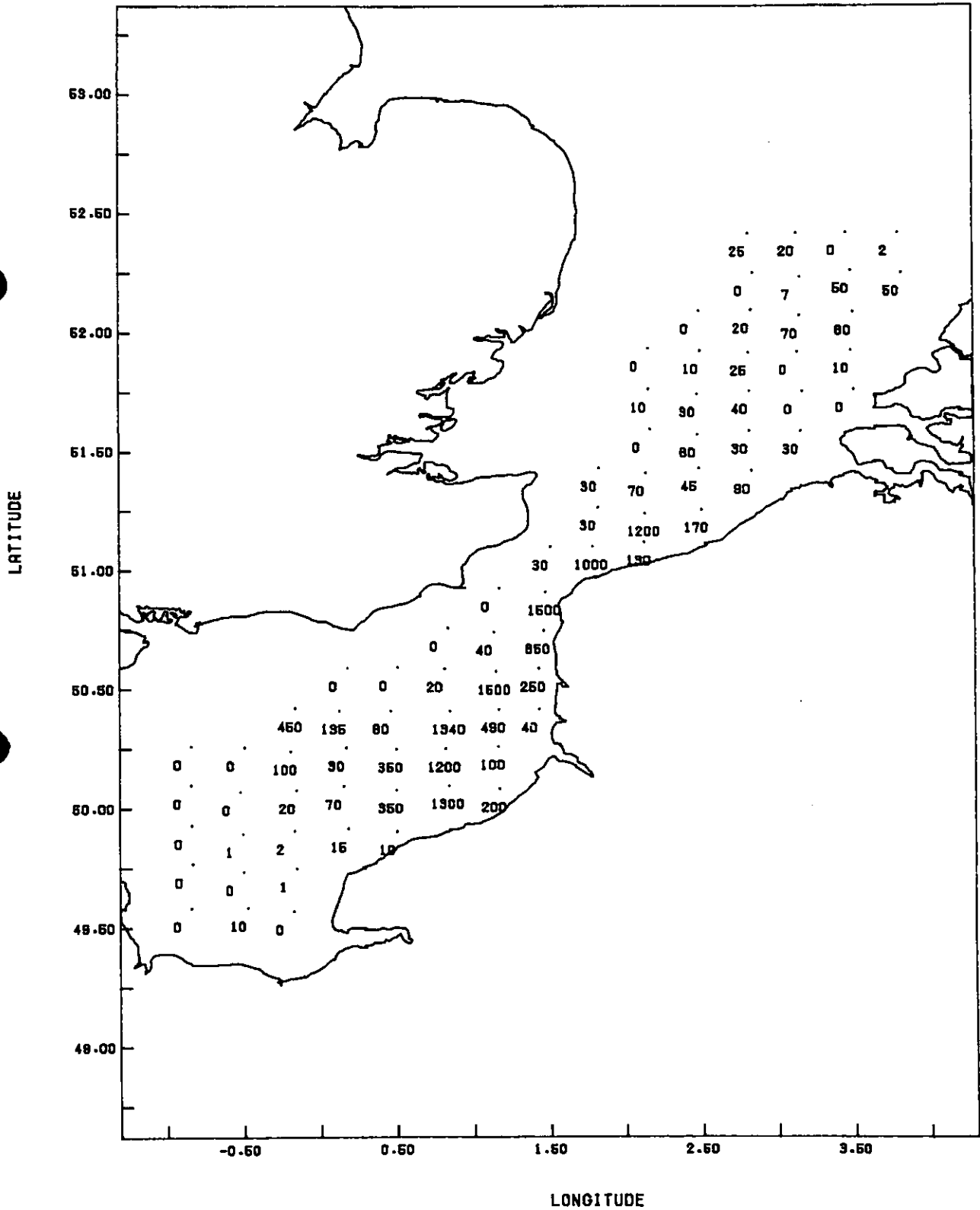


CORYSTES 1/90 4-9 JANUARY

SHOWING :

DATA VALUES REPRESENTING : LARVAE NOS (PROVIS)

COASTLINE



CORYSTES 1/90 10-14 JANUARY

SHOWING :

CRUISE TRACK

STATION NUMBER

Sand E boundaries of the
'Mackerel box'

COASTLINE

