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

1987 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 1
(PROVISIONAL: not to be quoted without prior reference to the author)

Staff:

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Duration:

6-16 January

Locality:

Southern North Sea/Eastern English Channel

Aims:

1. To participate in the ICES co-ordinated herring larval survey of regions IVC and VIID.

2. To sample herring larvae and their potential food organisms in a study of their diet and feeding status.

3. To test the Methot/Isaacs Kidd midwater trawl and use it to sample large herring larvae and potential larvae predators.

4. To run the MS44 echo sounder continuously and to note potential adult herring concentrations.

5. To assist in the Nature Conservancy Council's long term study of the distribution of seabirds in the North Sea.

Narrative:

RV CIROLANA sailed from Lowestoft at 1445 h. 6 January and proceeded towards the first plankton sampling station 28 nml east of Lowestoft. The start of sampling was delayed by poor weather until 0700 h. 7 January. Thereafter the survey progressed in good weather moving through from the Southern Bight to the eastern Channel on 10 January. The Channel survey started in deteriorating weather conditions with strong winds eventually giving way to heavy snow showers, poor visibility and extreme cold. The final station in the eastern Channel was completed at 1430 h. 12 January. Three further stations, in the northerly routing in the Southern Bight, were sampled to complete the larvae survey at 1930 h on the same day (Figure 1).

A series of herring larvae collection tows, in three selected areas of the Southern Bight, was started at 2200 h. 12 January and completed by 1030 h. on the following day. The Methot/Isaacs Kidd midwater trawl was then tried out using the Scanmar depth transducer and a rig for shooting the trawl over the stern. After a successful trial, a grid of sampling stations over the area of highest herring larvae density was started at 1300 h. 13 January at latitude 51° 35'N longitude 03° 12'E. Five stations had been completed by 2030 h. when increasing NE winds accompanied by a heavy swell forced a suspension of this survey. RV Cirolana remained hove to in the vicinity of the Schouwenbank off the Dutch coast until 1000 h. 15 January. With continuing severe NE gales accompanied by moderate icing the survey was abandoned and slow progress made towards Lowestoft, arriving there at 1030 h. on the following day.

Results:

1. Preliminary sample sorting at sea shows that the abundance of < 17 mm herring larvae in the Southern Bight was about five times greater than that found in the same period in 1985. A comparison with the 1986 abundance cannot be made because of poor sampling coverage in that year. Highest larvae densities were in the eastern sector of the survey south of latitude 52°N and in particular in the vicinity of the Bligh Bank and east of the Sandettie Bank (Figure 2).

In the eastern Channel < 17 mm larvae abundance was similar to that found in 1985 and was approximately 20% higher than the 1986 figure. Again, the highest denisities were on the eastern side of the survey area with up to 300 m^{-2} in the Bay of the Somme. Few small herring larvae were found in the Bay of the Seine during this sampling period.

No conclusions about adult stock abundance should be drawn from these larvae densitites until the results of the Dutch survey in December and the West German survey at the end of January are known.

2. Herring larvae were sampled in three selected areas at the western edge, in the centre and at the eastern edge of their distribution in the Southern Bight, to examine their feeding status. A total of 17 samples of herring larvae in various size groups over the length range 10 mm to 30 mm was fixed and deep frozen for subsequent lipid analysis by the IMB. The samples consisted of between 2 and 70 larvae dependent on their length. A sample of phytoplankton from the auxilliary net, samples of other zooplankters and a 25 litre water sample were taken from each area as part of the same study.

A total of 12 samples of herring larvae with between 2 and 50 specimens in each was taken from the three areas for subsequent analysis of their DNA and RNA. These samples were sorted rapidly and stored in liquid nitrogen.

Auxilliary net samples with the 35 micron mesh on the standard sampler, were taken at each larvae survey station. These samples will be available for a study of larvae food densities.

3. The Methot/Isaacs Kidd midwater trawl (MIKT) was successfully rigged and operated over the stern of RV Cirolana, using the net drum winch for deployment. No difficulties were experienced in handling the system in this way although a modification to the towing block is needed to prevent the bridles from jamming. The Scanmar depth sensor was operated successfully using the transducer down the tube in the main laboratory. Frequent use of this system will require a small electric hoist, similar to that used on RV Clione, for lowering and raising the transducer.

On the five sampling stations at which the MIKT was used, encouraging catches of large herring larvae, small fish and ctenophores were made. These samples were fixed in formalin and returned to the laboratory for subsequent analysis of gut contents.

4. The bridge HS 44 echo sounder was run continuously throughout the larvae survey grid. No evidence of pre or post spawning concentrations of herring were observed. The paper records have been retained for detailed analysis if required.

5. An observer from the NCC was carried for the whole cruise. He spent most of the daylight hours observing seabirds from the 'monkey island' when weather conditions allowed it. During passage on the survey, both in the southern North Sea and Channel, seabirds were counted using the standard method of the 'sea birds at sea' team. The comparison between the southern North Sea and eastern Channel proved interesting with a high sea bird density overall in the eastern Channel compared with the sparsely populated southern North Sea.

Miscellaneous

i) During the cruise the data logging package was converted for use on an Apricot XEN micro: this will not only provide a logging system for use on non MAFF vessels but will also serve as a shipboard backup to the HP system.

ii) The herring larvae measurement software for the BBC micro; obtained from DAFS, was modified to suit our own 128k model, during the cruise. This system is now available for a trial in the plankton laboratory.

J H Nichols
23 January 1987

SEEN IN DRAFT:
R Taylor (Captain)
(Senior Fishing Mate)

INITIALLED:
D J G

DISTRIBUTION:

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Figure 1.

CIROLANA 1 1987 CRUISE TRACK 1

SHOWING :
CRUISE TRACK
STATION NUMBER

COASTLINE

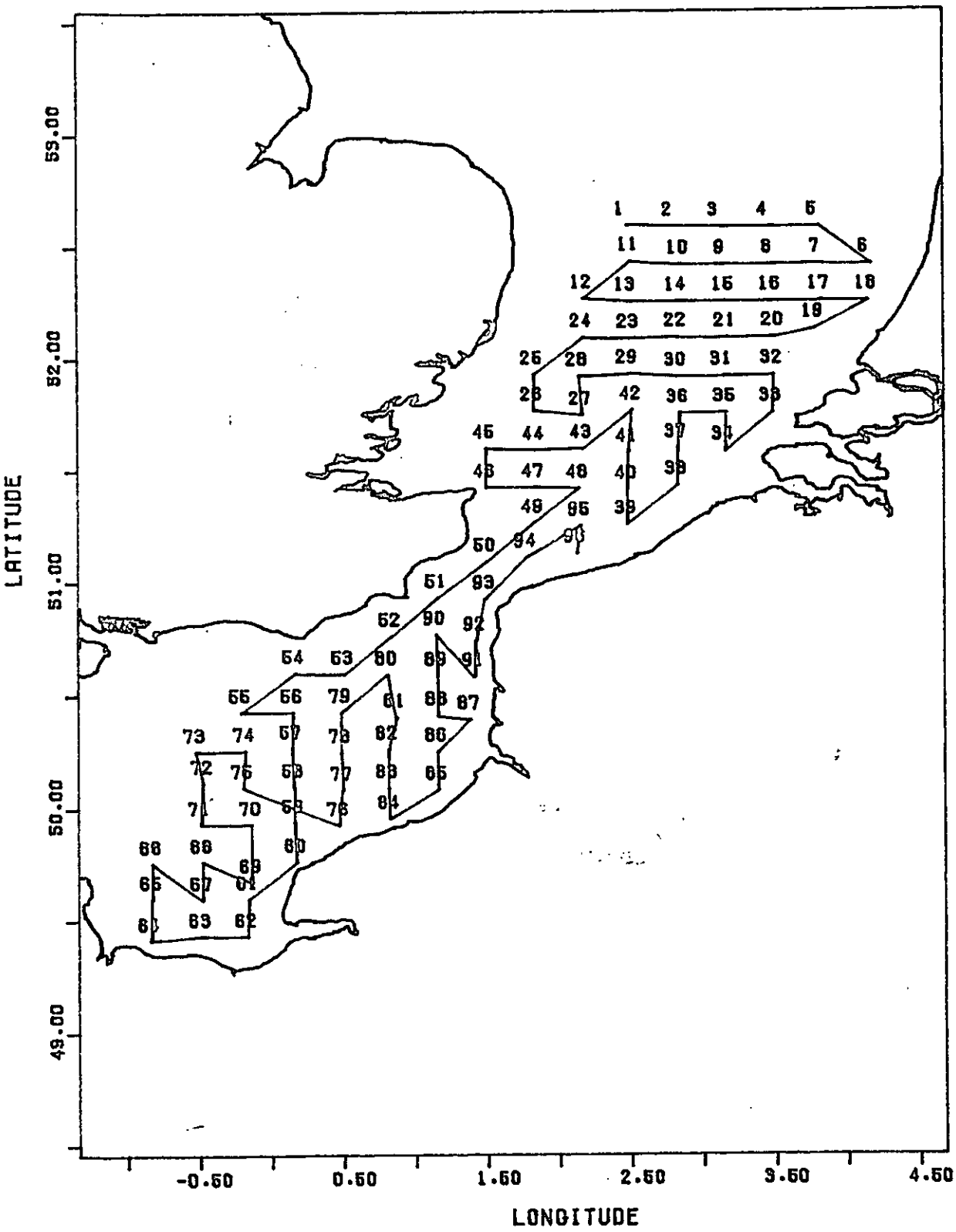

Figure 2.

CIROLANA 1 1987 CRUISE TRACK 1

SHOWING :

DATA VALUES REPRESENTING : HERRING LARVAE NTR/2 <17mm.
COASTLINE