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

1986 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA : CRUISE 7/86

STAFF:

J H Nichols (14-28 August)
G Houghton (28 August-12 September)
L Woolner
T Boon
J Dann
P Large
J Hunton
G W Bunn
B D Rackham
P Platt
R A Ayers

DURATION: 14 August to 12 September

LOCALITY:

North Sea

AIMS:

1. To carry out a groundfish survey of the North Sea using a standard Granton trawl in order to obtain information on:
   (i) Distribution and abundance of all fish species caught by the trawl.
   (ii) Length and age distributions of commercially important species.
   (iii) Distribution of fish in relation to the environment.
   (iv) Distribution and abundance of macro benthos.
   (v) Gadoid interactions through collections of stomachs from cod, whiting and saithe for the ICES programme on Stomach analysis.
   (vi) Collection of herring stomachs for MAFF/ICES programme on stomach analysis.
   (vii) Distribution of caesium in fish flesh: trawl samples of selected commercial fish and invertebrates to be collected for analysis at Lowestoft.
2. Collect water samples for caesium analysis from the pumped water supply and using NISKIN bottles.
3. Sample the environment using electronic sensors in the pumped water supply and using an instrument frame for vertical sampling.
4. Sample near bottom plankton using a small net mounted on the headline of the trawl.
5. All biological data will be entered on the computer to create a data base for this cruise and to summarise the results before the cruise ends.
6. All electronic instruments will be "data-logged" and programmes used to extract and present results in graphic form.

7. Collect whiting samples for a research project on Learneocera branchialis based at Kings College, London.

8. Release sea surface drifters for Turbot larvae project off the NE coast of England.

9. Ad hoc samples of fish, fish blood and benthos.

NARRATIVE:

CIROLANA left Lowestoft at 1430 h, 14 August and proceeded towards the Smiths Knoll where the first CTD profile and trawl sampling station was begun at 1845 h. Sampling was completed at 2200 h and passage was made overnight to a position approximately 50 nml east of Flamboro Head. The following thirteen days were spent in reasonable weather conditions sampling at the standard North Sea groundfish survey stations. (figure 1). Rapid progress was made northwards on this station grid in order to complete sampling north of latitude 58°N by the mid cruise break in Aberdeen. During this first half a daily pattern of three trawl stations with a CTD profile at each one was achieved on most days. The only exceptions were on 22 August and 26 August when four valid hauls were completed and on 27 August when poor weather and a torn belly combined to reduce the valid trawl hauls to two. During a haul on 17 August at 56°46'N; 00°23'W, the towed Scanmar transducer was lost when the towing connection parted. The attempt to recover this transducer with the Granton trawl was not successful.

Sea surface drifters were released on 15 and 16 August at positions 2 nml, 12 nml and 22 nml off the coast at Whitby, Hartlepool and Coquet Island.

Surface seawater samples for caesium analysis were taken at the standard positions over the whole area indicated on figure 2. Surface and bottom Niskin bottle casts were also made on 17 and 28 August as part of the same programme.

A trawl haul and CTD profile were made on the morning of 28 August before steaming to Aberdeen arriving there at 1200 h. Mr Nichols left the vessel in Aberdeen and was replaced by Mr Houghton as SIC for the second half of the cruise.

CIROLANA left Aberdeen at 0845 h and continued sampling the southern portion of the North Sea groundfish survey grid. Three to four stations and CTD profiles were completed except on 2 August when bad weather reduced the number of trawl hauls to two, and on 7 August when failure of the main winch during the first tow prevented further work and also on the final working day of the trip when only two stations were completed to allow time for clearing up. Water stations for caesium 137 analysis were carried out each day and the remaining Niskin samples except one were taken at 57°N, one station being omitted due to bad weather.

The Scanmar transducer was replaced with a V-fin mounted sensor deployed from the forward davit from 31 August and, after working well for a few stations, ceased to give reliable results and its use was discontinued.

The vessel went into Immingham Dry Dock at 0630, 12 August.

RESULTS:

1. The North Sea groundfish survey was completed with 87 hauls of the Standard Granton trawl. CTD vertical profiles were obtained at each station. All fish and benthic invertebrates were identified and counted; the fish were also weighed and measured. Otolith samples were obtained from all the major commercial species (total 4206 otoliths); 2584 stomach samples were collected from the larger gadoids, herring and dogfish, and samples of herring, mackerel and sprat were returned frozen to the laboratory.

2. Forty-six water samples from the ships CSW supply were filtered and processed through resin filters on board ship for caesium analysis. Four surface and bottom Niskin bottle samples were obtained and similarly processed. Samples of fish flesh were obtained from a variety of species and all areas of the North Sea and returned frozen to the laboratory for radiological monitoring studies.

3. Sub-surface salinity, temperature, dissolved O_2 and chlorophyll 'a' fluorescence were monitored continuously throughout the cruise using the vessels clean sea water (CSW) supply. Problems were experienced with low volume delivery from this system, which were only resolved by dismantling the pump and renewing some rubber seals. Comparison of the sea surface temperature (by thermometer bucket) and the temperature in the monitoring container showed that the system does not give an accurate sea surface temperature measurement, due to heating in the CSW line. The error is + 1 to + 1.5°C.

4. A 270 micron mesh plankton net, fixed to a 30 cm diameter fibre glass nose cone with a 15 cm diameter aperture, was rigged and tested on the headline of the Granton trawl during the first half of the cruise. A total of six near bottom plankton samples were taken at selected stations and returned to the laboratory for analysis.

5. All of the Groundfish Survey data were entered into the data-base during the cruise and data-bases of the surveys of 1977 to 1982 were also created. A number of Norway pout survey cruises were also entered into the system.

6. A number of computer programs were written during the cruise to add to the available ship-board software. These were: DECLOG, which records ships position and time; NET, which records headline height and gape of the fishing net using the Scanmar equipment; LOG, which accepts and records ships log details for each station sampled (some interactive input is required); SHIPFORM, which outputs logged data into row format for the use of the ship's officers and CRUISETRACK, which plots station positions and the cruise track.

7. Whiting samples for Learneocera studies were collected from most of the areas requested; whiting are not common in the north-eastern part of the North Sea and samples could not be obtained.

8. Batches of 100 sea surface drifters were released at each of 9 selected stations off the north east coast of England. This forms part of the turbot larval survival studies programme in this area.

9. a) Blood samples were taken from a total of 59 fish of 13 species. After 24 hours the plasma was taken off from each sample, frozen and returned to the laboratory for analysis of transferrins.

b) The total weight of the benthos and species composition were recorded from each trawl haul. A photographic record of the total catch and of some individuals from the benthos was also taken at each station.

c) Photographs were taken of the gonads of all anglerfish (Lophius piscatorius) caught during the cruise.

d) Specimens of saithe (4), Cod (1), Ling (1) and Haddock (1) were collected and deep frozen for Dr Miller at the Cambridge Archeological unit.

e) Samples of whiting carrying various copepod parasites were collected and deep frozen for Mr Partington of University College, Swansea.

f) 140 samples of horse mackerel eyes were collected and deep frozen (Mrs Dawson).

g) 30 mackerel gonads were preserved in alcohol and the fish returned to the laboratory frozen (Mrs Dawson).

h) Very few Nephrops norvegicus or small hake were caught and so it was not possible to collect the samples requested by Mr Macer and Mr Warnes.

i) Specimens of a variety of species of fish and benthos were deep frozen for the fish identification course and various demonstrations.

j) Small fish for feeding experiments were collected and deep frozen for Dr Bromley.

J H Nichols
(SIC up to 28 August)

R G Houghton
(SIC from 29 August)

30 September 1986

SEEN IN DRAFT:
J F
P M

INITIALLED:
D J G

DISTRIBUTION:

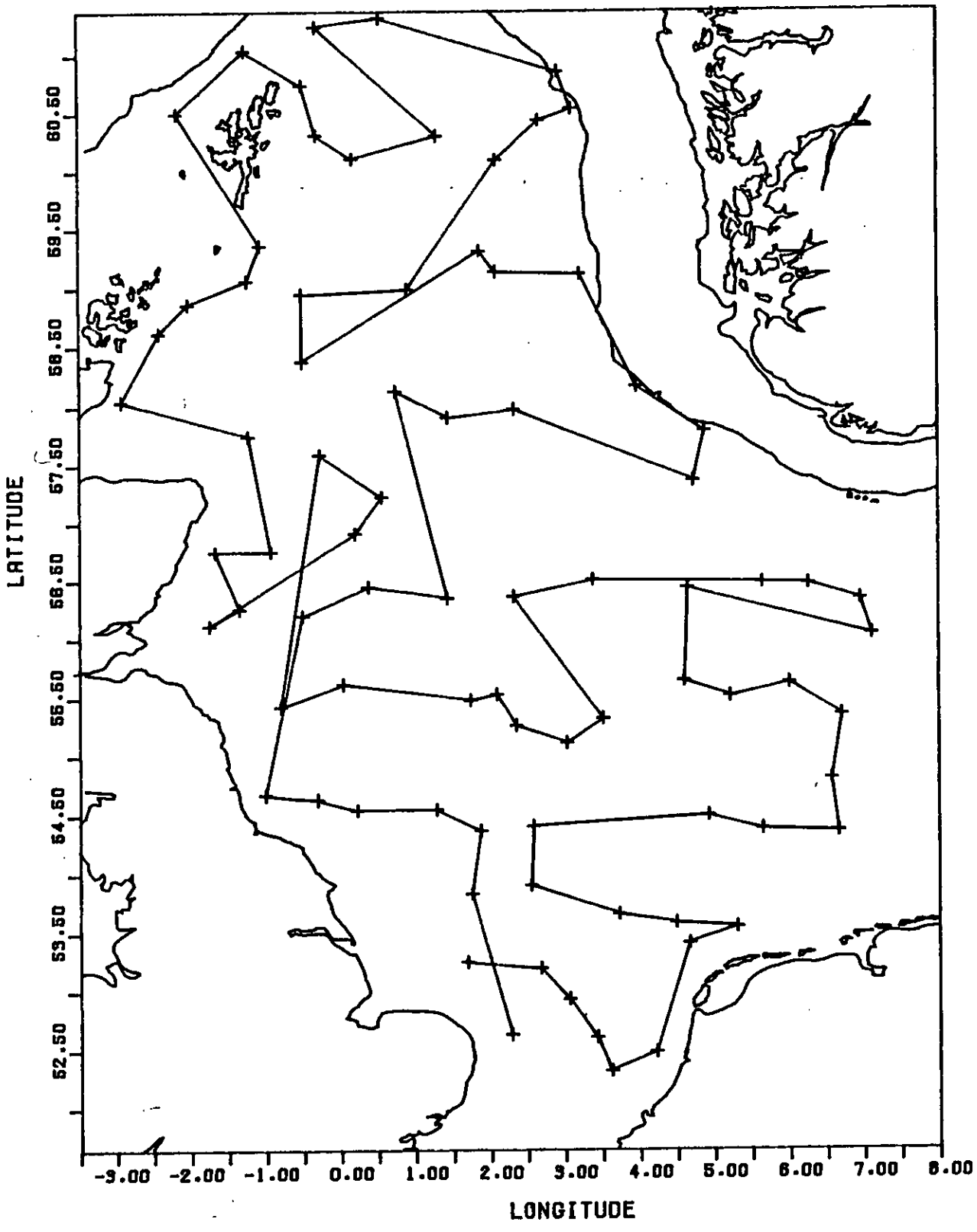
Basic List +

J H Nichols
R G Houghton
L Woolner
T Boon
J Dann
P Large
J Hunton
G V Bunn
B D Rackham
R P Flatt
R A Ayers

CRUISE TRACK CIRO 7/86 GRANTONS.

SHOWING :
CRUISE TRACK

COASTLINE



CRUISE TRACK CIRO 7/86 WATER STATIONS.

SHOWING :

COASTLINE