

**CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT**

1999 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 6

STAFF:

Part A

J H Nichols (SIC)
T Boon
J Dann
B Rackham
T Watson
D Brown
N Bunn
R Zuhlke
R Casson (Visitor -NFFO)

Part B

T Boon (SIC)
J Dann
B Rackham
R Ayers
D Brown
N Bunn
R Zuhlke
R Flatt
T Hammond

DURATION: Part A: 18 August – 1 September 1999
Part B: 1 - 20 September 1999
All times are GMT

LOCATION: North Sea

AIMS:

1. To carry out a groundfish survey of the North Sea using a standard GOV trawl in order to obtain information on:
 - a) Distribution, size composition and abundance of all fish species caught.
 - b) Age - length distribution of selected species.
 - c) Distribution of fish in relation to their environment
 - d) Distribution of macrobenthos and anthropogenic debris
 - e) Surface and bottom temperature and salinity data using CTD
 - f) Length-weight information using individual fish measurements
2. To collect material for fish identification courses (T Watson, CEFAS Lowestoft)
3. To preserve material from diseased fish (S Feist, CEFAS, Weymouth)
4. To investigate starfish damage as an indicator of trawling intensity (K Ramsay, CEFAS, Conwy)
5. To monitor epibenthic diversity, using a fine mesh 2m beam trawl.

6. To calibrate the Simrad EK500 echo sounder with the low frequency 38 kHz transducer.
7. To investigate the practicalities of recording acoustic measurements during the standard GFS using the dual frequency Simrad EK500 echo sounder.
8. To obtain tissue samples from haddock (*Melanogrammus aeglefinus*), whiting (*Merlangius merlangus*), megrim (*Lepidorhombus whiffiagonis*) and hake (*Merluccius merluccius*) from a variety of locations within the survey area. (C Fox, CEFAS, Lowestoft)
9. To obtain samples of approximately 5kg each of cod (*Gadus morhua*), plaice (*Pleuronectes platessa*) and *Nephrops norvegicus* from a) the Southern North Sea and b) the Central North Sea. (A Young, CEFAS, Lowestoft)
10. To collect tissue samples from spurdogs (*Squalus acanthias*) for genetic analysis in relation to worldwide population structure (J Carlin, University of Florida)

NARRATIVE:

RV CIROLANA sailed from Lowestoft at 1300h 18 August and steamed slowly south to begin the survey east of the Thames estuary, Lat. 51°44.7'N; Long. 01°44.9E; at 0535h on the following day. Sampling at each primary station consisted of one thirty-minute tow with the GOV trawl, one five-minute drift with the two metre beam trawl and one surface to bottom deployment of the CTD. At the second primary station on the first sampling day the two metre beam trawl was lost after an accidental encounter with the ships propeller. The deployment rig was subsequently modified to reduce the risk of this occurring again. Sampling at three primary stations was completed on each of the first four days, working northwards through the southern Bight of the North Sea up to Lat. 54°30'N; by 22 August. The vessel then steamed overnight to Bridlington Bay where Bob Casson (NFFO Chairman) was disembarked by ships workboat at 0740h 23 August. Sampling at two further primary stations was completed later that day. The survey was progressed north and then eastwards, over the following four days, sampling at three primary stations per day. At the final station on 27 August the GOV trawl was severely damaged with four panels in the belly torn out. Repairs took nearly six hours to complete. After a search for a suitable alternative tow in the same area the station was successfully repeated at 0930h on the following day. Two further primary stations were completed on that day. Over the following three days the survey progressed north and then back to the west completing a further thirteen primary stations. Two more primary stations were worked on the morning of 1 September before steaming to the Tyne to disembark J Nichols and T Watson and to embark R Ayers, T Hammond and R Flatt. The staff changeover was made by ships workboat to South Shields and was completed by 1710h. RV Cirolana then steamed overnight to restart the survey at 0530h on the following day at Lat. 56°31.5'N; Long. 01°21.2W. The original pattern of three stations a day was re-established and the vessel worked to the east, then northwards along the edge of the Norwegian Deeps and then west along the northern most line of stations. After the days work was completed on 5 September the vessel set course, in freshening weather, for Lerwick to take a mid trip break. RV Cirolana departed Lerwick 0730h 8 September and moved into Dales Voe, just north of the port, where a three point anchorage was established by 0900h. Calibration of the Simrad EK500 echo sounder with the low frequency 38kHz transducer commenced and was

completed by 1900h. The anchorage was then moved closer to the land and the next 36 hours were spent sheltering from strong SW winds. The vessel left the anchorage at 0545h 10 September and proceeded to a position approximately 30 miles east of Lerwick where a series of replicate hauls were made with the 2m beam trawl. One GOV trawl haul was also completed that day. The regular daily pattern re-commenced the following day at the western end of the northern most line. Over the next seven days all outstanding primary stations were picked up by zigzagging east and west in a southerly direction, the last one, off Aberdeen, being completed by 1800h 17 September.

The following morning, after completing repairs to the net, two 0.8m Morgere canvas kites were attached to the headline to replace the Exocet kite. Whilst maintaining a southerly passage two additional trawl hauls to test the kites were made that day and one more on the morning of 19 September. During this last haul severe damage to the trawl was incurred with loss of three belly panels. The planned final haul was abandoned and a course was set for Lowestoft Roads. The vessel dock at 0530h 20 September.

RESULTS:

Aim 1. All seventy four standard 30 minute GOV trawl stations were successfully completed. Two tows incurred damage, one being repeated and the other having been adjudged to have fished 30 minutes before the damage occurred. Trawling was carried out using the standard specification for International Young Fish Surveys. At each trawling position a surface to bottom CTD profile was made to obtain temperature and salinity data. A chart indicating the position of each valid trawl station is attached (Figure 1). Scanmar equipment was used to monitor headline height and door spread. At each station, the catch of each species was weighed and all fish, or representative samples, were measured. Samples of otoliths for age determination were taken as specified. Benthos and crustacea were identified to the species wherever possible and recorded as weight and number. Any anthropogenic waste material was recorded and weighed. The resultant data were input to computer database using the CEFAS Electronic Data Capture System, and preliminary summations and analyses were made. Preliminary estimates of 0' group haddock (*Melanogrammus aeglefinus*), whiting (*Merlangius merlangus*) and cod (*Gadus morhua*) are shown on charts in (Figures 2-4). These data will be analysed further at CEFAS Lowestoft and will provide a major input to the ICES assessment of North Sea gadoids.

Aim 2. Specimens of approximately 45 different species were preserved for the Laboratory's fish identification courses.

Aim 3. No unusual occurrences of diseased fish were encountered on the survey.

Aim 4. This aim was cancelled due a re-appraisal of the project.

Aim 5. The 2m beam trawl was drifted over a target distance of 200m at 73 of the 74 primary station positions. One haul was abandoned due to poor weather conditions and safety considerations. The majority of catches were sorted and identified on board but some material was preserved for future sorting and identification. A series of six replicate hauls was made at a position prescribed by the co-ordinated epibenthos diversity project.

Aims 6 & 7. These were successfully completed and further details are available from either R Platt or T Hammond, CEFAS, Lowestoft

Aim 8. Gill arch sections from each of ten haddock (*Melanogrammus aeglefinus*), ten whiting (*Merlangius merlangus*), ten megrim (*Lepidorhombus wiffiagonis*) and ten hake (*Merluccius merluccius*) were preserved in methanol. Two whole hake and two whole megrim were deep frozen. (C Fox, CEFAS, Lowestoft)

Aim 9. Approximately 5kg each of cod (*Gadus morhua*), plaice (*Pleuronectes platessa*) and *Nephrops norvegicus* from a) the Southern North Sea and b) the Central North Sea were deep frozen. (A Young, CEFAS, Lowestoft)

Aim 10. Tissue samples from seven spurdogs (*Squalus acanthias*) were collected and preserved in methanol. (J Carlin, University of Florida)

MISCELLANEOUS:

- a) Maturing testes from plaice (*Pleuronectes platessa*) were deep frozen. These were requested by A P Scott, CEFAS, Lowestoft after the cruise had begun.
- b) Morgere canvas kites were trailed as a replacement for the standard Exocet kite used on the GOV trawl. Scanmar data on headline height and door spread were recorded from three additional trawl hauls. The kites did not impart as much lift as the Exocet kite even when ten additional floats were added to the headline. Because these kites have a fixed angle of attack and their operation depends on the through flow of water, they were found to be particularly unstable in heavy weather.

J H Nichols / T W Boon
20 September 1999

SEEN IN DRAFT:

Master	A R Williams
Senior Fishing Mate	R F Graham

INITIALLED:

FSMG Board	A P Scott
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DISTRIBUTION:

Basic list +

J H Nichols	R Flatt	J Ellis
T Boon	T Hammond	C Fox
J Dann	R Zuhlke	A Young
B Rackham	R Ayers	C O'Brien
T Watson	D Brown	A P Scott
N Bunn		

Figure 1

CRUISE DATA FILE FOR C1R0699TRK

SHOWING :
CRUISE TRACK
STATION NUMBER
COASTLINE

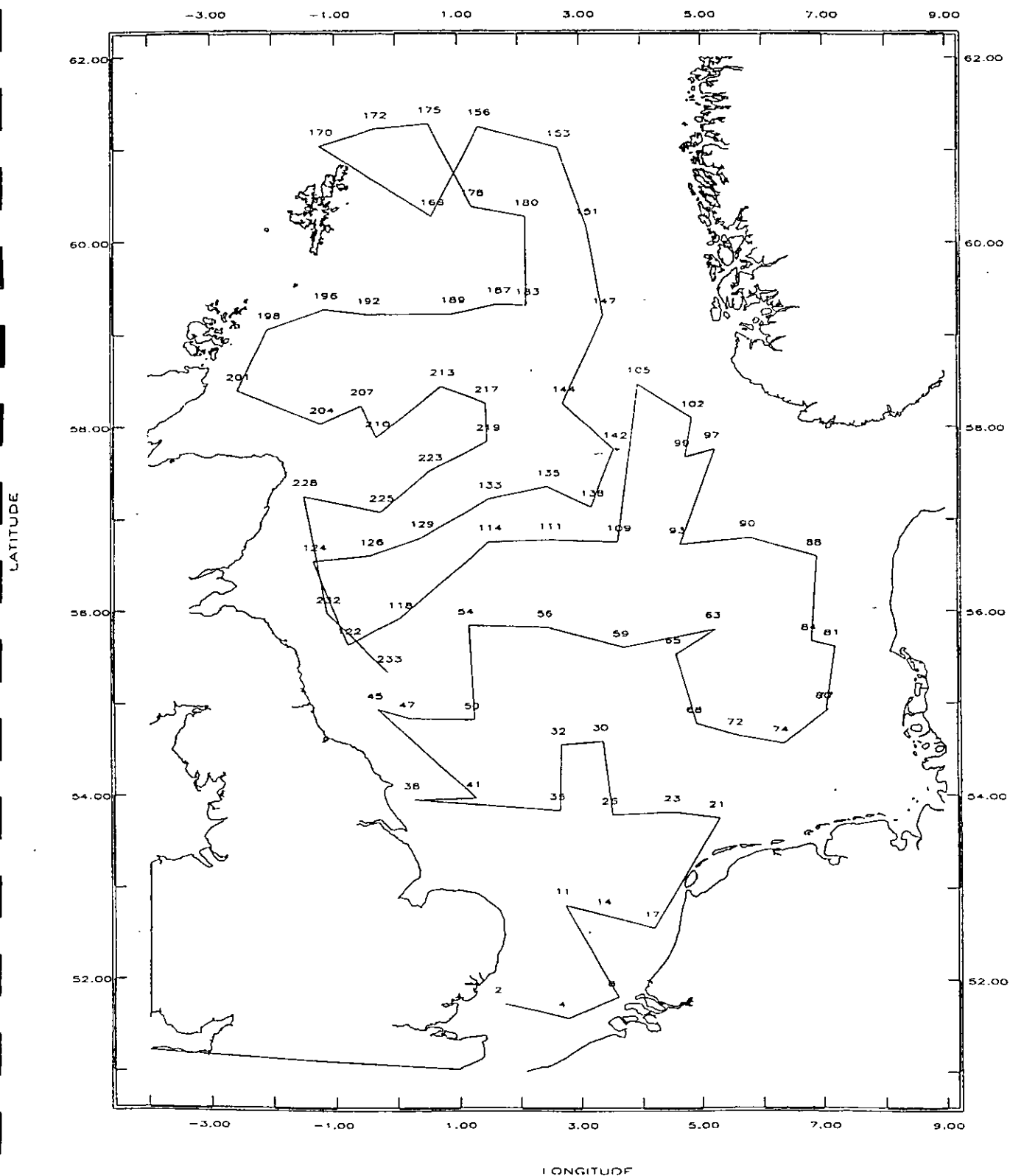


Figure 2

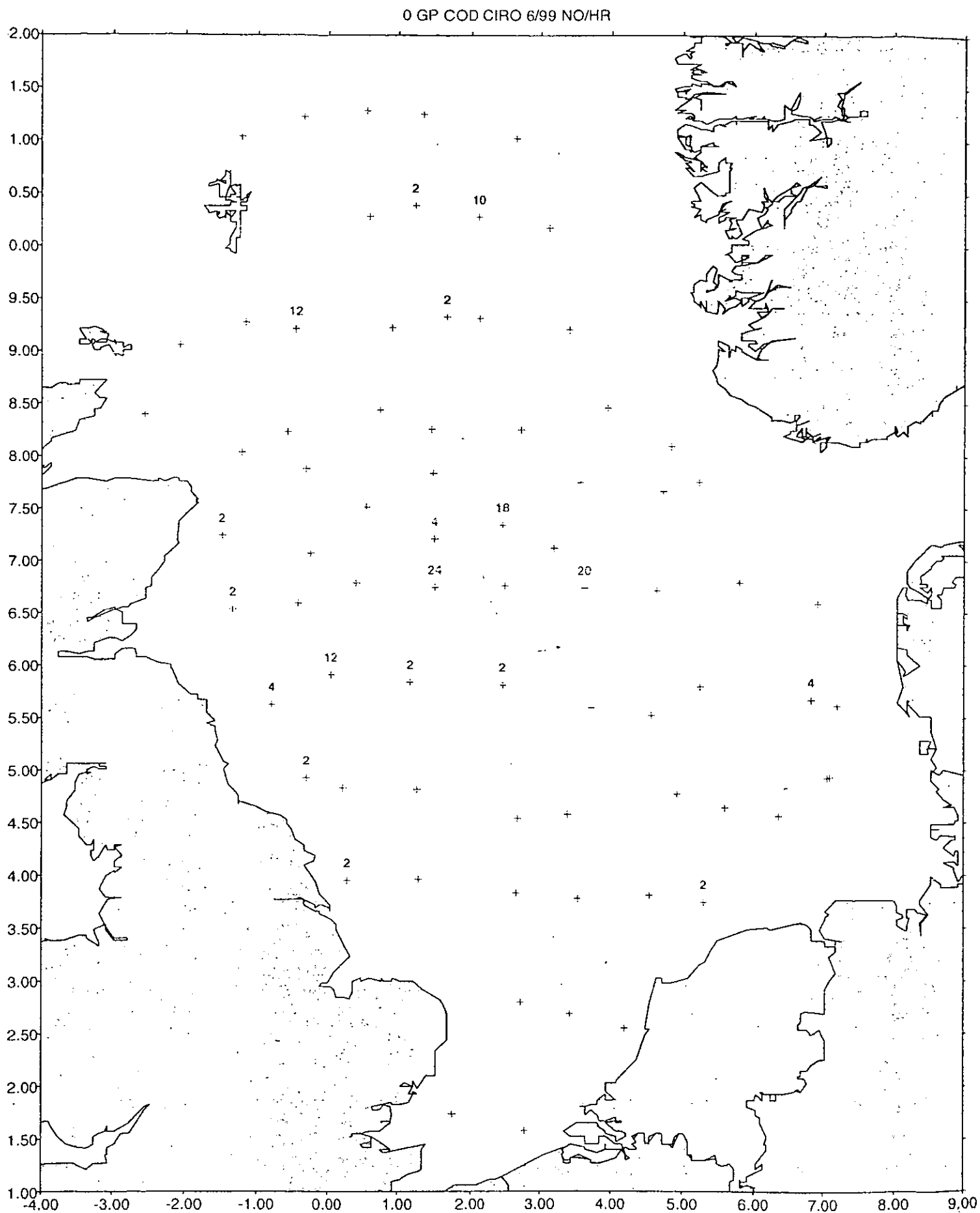


Figure 3

0 GP HADDOCK CIRO 6/99 NO/HR

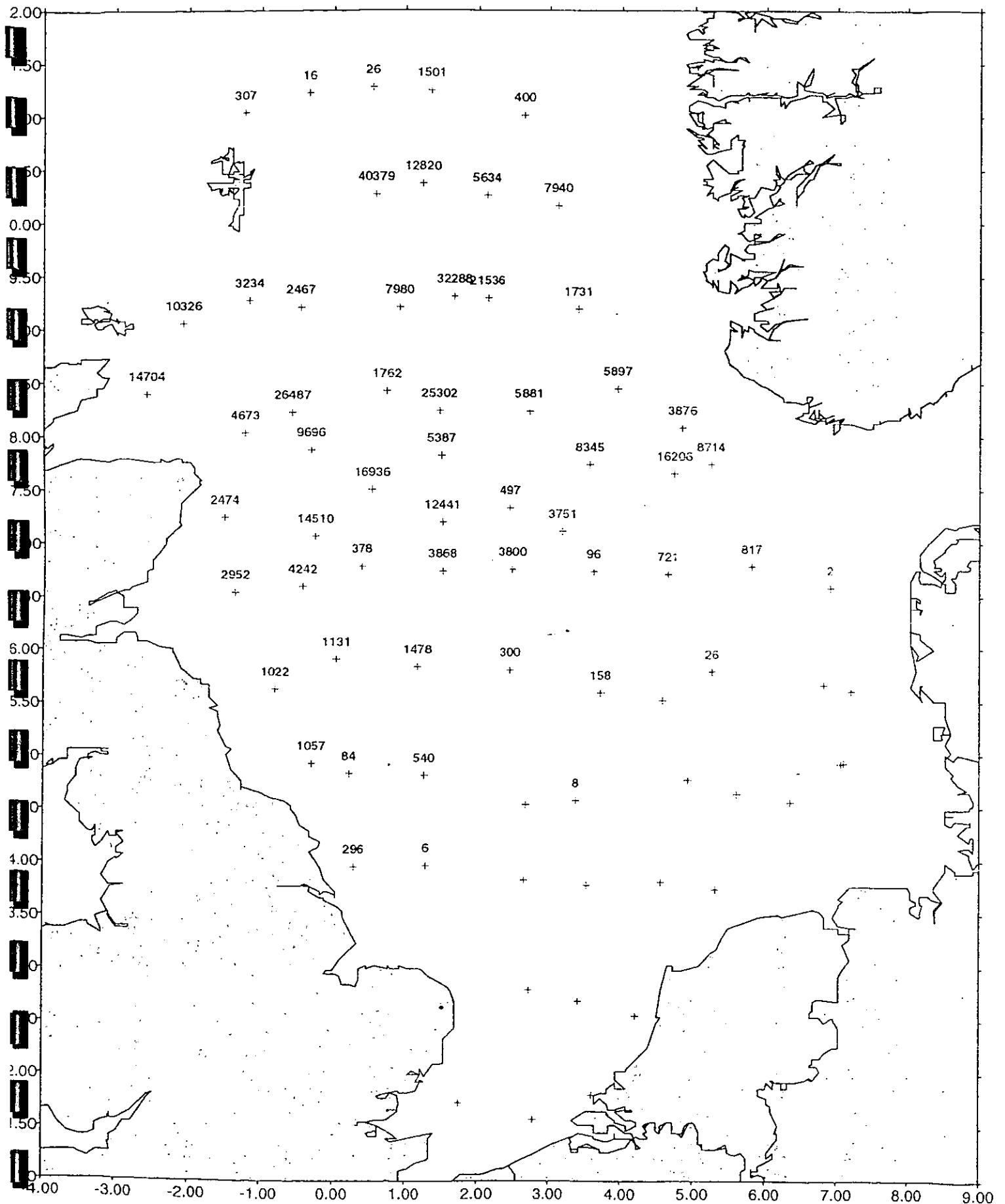


Figure 4

0 GPWHITING CIRO 6/99 NO/HR

