

bmc

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

REVISED

1981 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA : CRUISE 8

(Provisional: Not to be quoted without prior reference to the author)

STAFF:

- J G Pope (NIC)
- A R Child
- B Knights
- L Woolner
- B Croucher
- J Hunton (Mrs)
- B Rackham
- L Thurston (Ms) } AEP 1
- K R Wink } AEP 1
- M Dyer (Luton College)

DURATION:

Joined ship	1300 h	26-08-81
Left Grimsby	1442 "	26-08-81
Arrived Immingham	0618 "	21-09-81
IN DRY DOCK	0815 "	21-09-81

All times GREENWICH MEAN TIME

LOCALITY:

North Sea

AIMS:

1. To carry out a groundfish survey of the North Sea.
  2. To obtain the length and age distribution of cod, whiting, haddock and plaice by ICES Working Group sampling areas.
  3. To examine fish stomachs, especially in respect of predation upon other fish, and to preserve stomachs for the ICES Working Group on Multispecies Models.
  4. To collect water samples and fish fillets for caesium studies (AEP 1).
  5. To make an underwater camera survey at benthos (Dyer).
  6. To compare trawl catches of benthos with those of an Agassiz Trawl (Dyer).
  7. To collect fish tissues for genetic studies (Jamieson).
- Late aims (received too late to appear on cruise programme)

8. To collect plaice tissues for biochemical analysis (Witthames).
9. To collect rectal glands from Raja radicta (UEA).
10. To collect fish and benthos specimens for various organisations.

**NARRATIVE:**

RV CIROLANA departed from Grimsby at 1442 h 26 August 1981, the ground-fish survey being commenced at 0824 h 27 August off the Tyne. The survey then proceeded to stations off Eastern Scotland and thence to Shetland, the Norwegian sector, the Danish coast, the Dogger Bank and the Southern North Sea. The typical daily pattern of work was three hauls at each of two primary stations. Advantage was taken of night steams to take water samples at grid points indicated by AEP 1. Work continued uninterrupted except on the 13 September when gale conditions stopped work and again on the 18 September when gale conditions forced the abandonment of trawling. Work was finally abandoned at 2035 h on the 19 September due to gale conditions during a trawl haul on an extra primary station only previously worked in 1980. Conditions being unlikely to improve, course was set first for Markhams Hole for a possible station on the morning of the 20 September but gale conditions made this impossible and course was set for the Humber.

A cruise track is appended (see Chart 1). For clarity trawl station positions are shown on a second chart (chart 2) and water stations on a third (chart 3). In all 126 trawl hauls (including 11 hauls made invalid by gear damage) were made and 44 water samples taken.

In addition to the stated aims of the cruise an apparently unhealthy section of sea bed to the west of Horns Reef was investigated.

**RESULTS:**

RV CIROLANA docked at Immingham at 0815 h on the 21 September.

**Aim 1:**

All the standard groundfish survey stations were worked and at least two valid hauls made on all but 5 primary stations.

At each station the weight of each fish species and that of commercially important shellfish species was recorded. The length distribution of each fish species present was obtained at each station. The results of total weight and length measurement were recorded on special forms and then input into the shipboard computer. These data were interrogated to provide preliminary results. Validity checks were made routinely to check for discrepancies between weight and length distributions.

At each primary survey point finished, surface and bottom temperatures and salinity samples were taken by Nansen Bottle casts except for one shoal station fished in adverse weather conditions where deck hose samples were taken.

**Aim 2:**

Length distributions were obtained for all fish species at each trawl station. Stratified otolith samples were collected for cod, haddock and whiting by the appropriate ICES sampling areas. Stratified samples of otoliths for plaice were collected from areas suggested by Dr Bannister. Additionally, stratified samples of otoliths for saithe and lemon soles were collected for the roundfish areas and plaice areas respectively.

In addition to these, small samples of otoliths were collected from the following species to archive against the possibility of future interest in them.

Ling  
Sole  
Pollack  
Monk  
Lesser Weever  
Megrim  
Grey Gurnard  
Witch

Aim 3:

Cod, whiting, saithe, haddock and mackerel stomachs were sampled at each primary station, at which they were available, according to the instructions of the ICES Ad Hoc working group on Multispecies Models. They were preserved in 4% Formalin and will be forwarded to the Dutch, Scottish, Danish, French and Norwegian national laboratories for analysis. Additionally, small samples of Monk, Grey Gurnard, Pollack and Lesser Weever were analysed.

Aim 4:

Water samples were taken at sites along the cruise track to continue the monitoring programme of radiocaesium levels in the North Sea. The sites of those water samples were at positions preselected by AEP 1 except in the case of 3 stations modified for navigational reasons. Near-bottom samples of water were taken using Niskin samples at positions along the 57°N parallel. All water samples were filtered and passed through ASG ion exchange resin to extract radiocaesium prior to subsequent processing by AEP 1. Samples of fillets of important commercial fish were minced and frozen for subsequent analysis of AEP 1.

Aim 5:

The headline camera was used on one trawl haul of each primary station, and functioned correctly at all but two stations. Colour film was used throughout. Colour film was successfully developed to check the correct functioning of the underwater camera.

Aim 6:

The Agassiz trawl was deployed from the starboard boom on a wire from the starboard cargo winch using the ship's drift to tow it. After overcoming minor problems with the site of the net, it was made to fish reasonably but the combination of hard grounds and calm water encountered in the Northern North Sea gave disappointingly low catches. This and the deeper waters of the northern stations for which insufficient wire could be loaded on the cargo winch lead to its general use being discontinued until the stations off the Horns Reef where it was used successfully to section an area of suspected pollution. Subsequently it was used as and when time allowed and the higher wind speeds and softer bottom of the central and southern North Sea gave more satisfactory results. In all, 25 Agassiz trawl stations were worked. Benthos obtained from all Granton trawl and Agassiz trawl stations were photographed and recorded. The total benthos catch was noted and length measurements taken for the larger benthic species. A selection of specimens were preserved in formalin for subsequent sex/size analysis.

Aim 7:

Collection of materials for genetic analysis.

Liver samples were collected from cod, whiting, haddock, poor cod, Norway pout, bib, Gadiculus, ling, tusk, blue whiting and hake for biochemical taxonomy studies.

Samples of whiting were taken from Fair Isle and off the Danish coast for population genetic analysis.

A collection of tissues was made for isoelectric focus analysis from the following species: Raja radiata, R. fullonica, R. montagui, tub gurnard, Triglops, dragonet, poor cod, bib, tusk, lesser weever, scaldfish, topknot, sole, solenette, halibut, garfish, squid and octopus.

**Aim 8:**

Ovaries from plaice over 35 cm were frozen in the blastfreezer and in liquid nitrogen. Blood samples were taken from male plaice over 32 cm and female plaice over 35 cm and the plasma was preserved in liquid nitrogen. Notes were made of the gonad maturity stage and the state of digestion and gut contents.

Whole female plaice were deep frozen for body sections.

All samples were taken within 50 miles of Markhams Hole.

**Aim 9:**

Rectal glands were dissected from male Raja radiata and preserved in Bouins (5 specimens) and Zenkers (5 specimens) for Dr Kearns of UEA.

**Aim 10:**

Fish specimens were collected for the NERC Seals Research Unit and The Cambridge University Faculty of Archeology. Specimens of Metridium (anemone) were frozen for Dr E Robson at Reading University.

**Other matters:**

The thermograph was run throughout the survey. The computer run continually throughout despite a disc failure early in the cruise.

Two primary stations 24 miles west and 44 miles NNW of Horns Reef appeared unhealthy evidenced by abnormally low fish catches, dead fish and a putrid smelling benthos. This unhealthy area was delimited as far as possible using the Agassiz trawl to obtain samples of benthos and dead fish. The feature appeared to be about 40 miles long by 20 miles wide. Samples were preserved by foilwrapping and freezing for investigation by Dr Portmann.

RV CIROLANA was boarded by a Norwegian Fisheries Protection Officer on the 10 September and the net and catch examined. He was accompanied by 2 members of the Norwegian press.

J G Pope  
7 October 1981

**SEEN IN DRAFT:**

W J S  
M F W

**INITIALED:**

D J G

**DISTRIBUTION:**

Basic List +

- J.G. Pope
- A.R. Child
- B. Knights
- L. Woolner
- B. Croucher
- J. Hunton (Mrs)
- B. Rackham
- L. Thurston (Ms) } AEP 1
- K. R. Wink
- M. Dyer (Luton College)

Please append the following charts to the Cruise Report for Cirolana  
8/81

Distribution:

Basic list plus

J G Pope

A R Child

B Knights

L Woolner

B Croucher

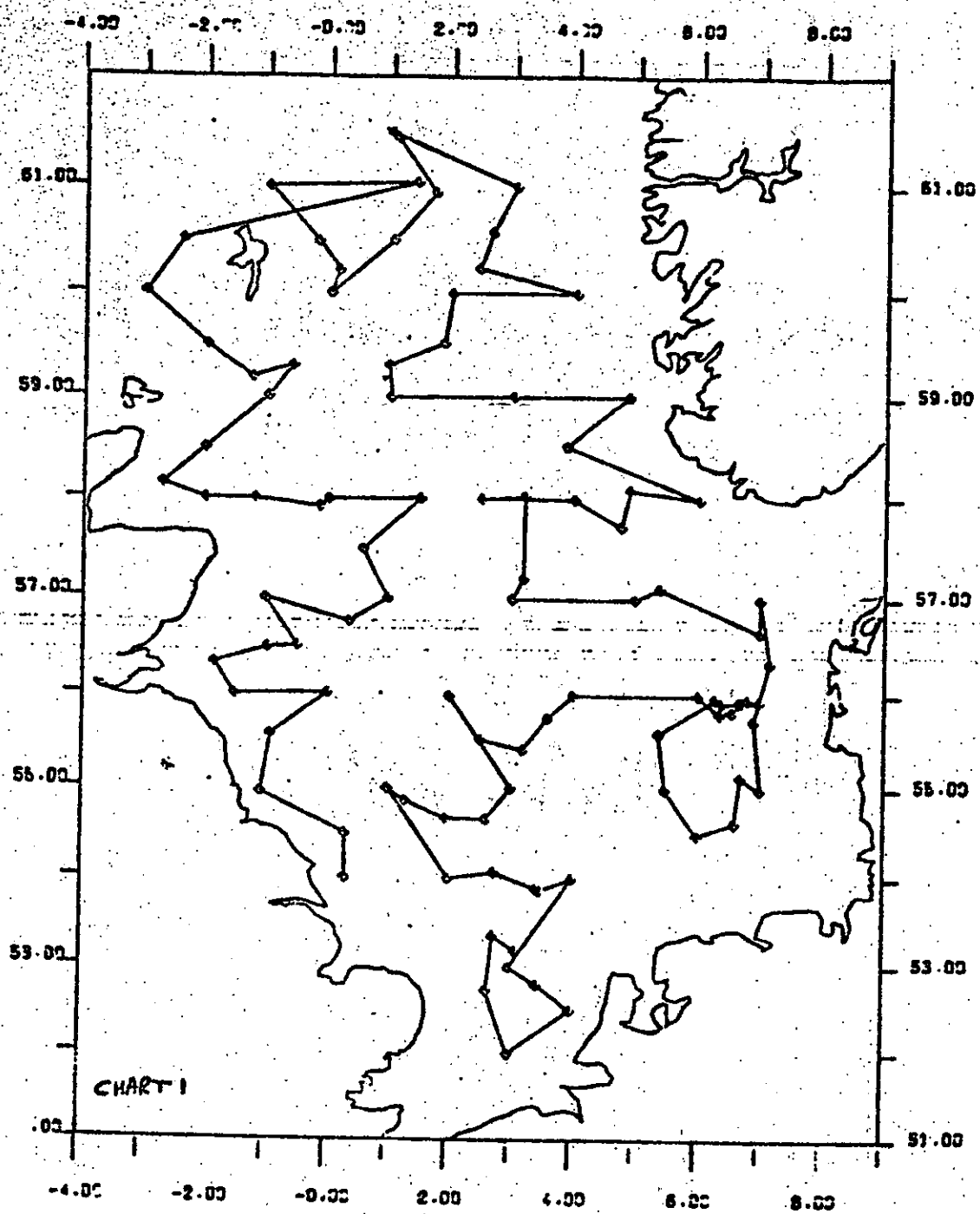
J Hunton (Mrs)

B Rackham

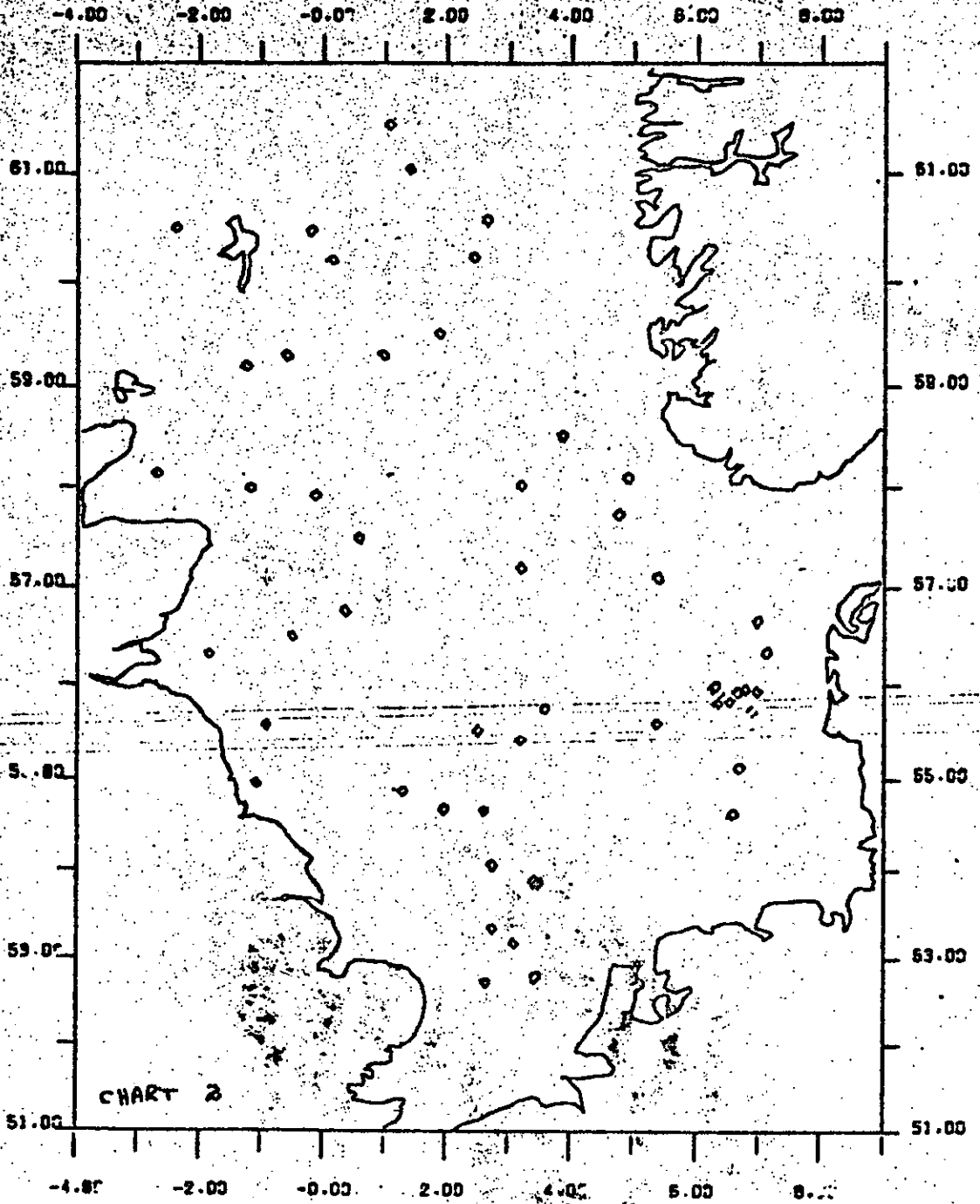
L Thurston (Ms) } AEP 1

K R Wink

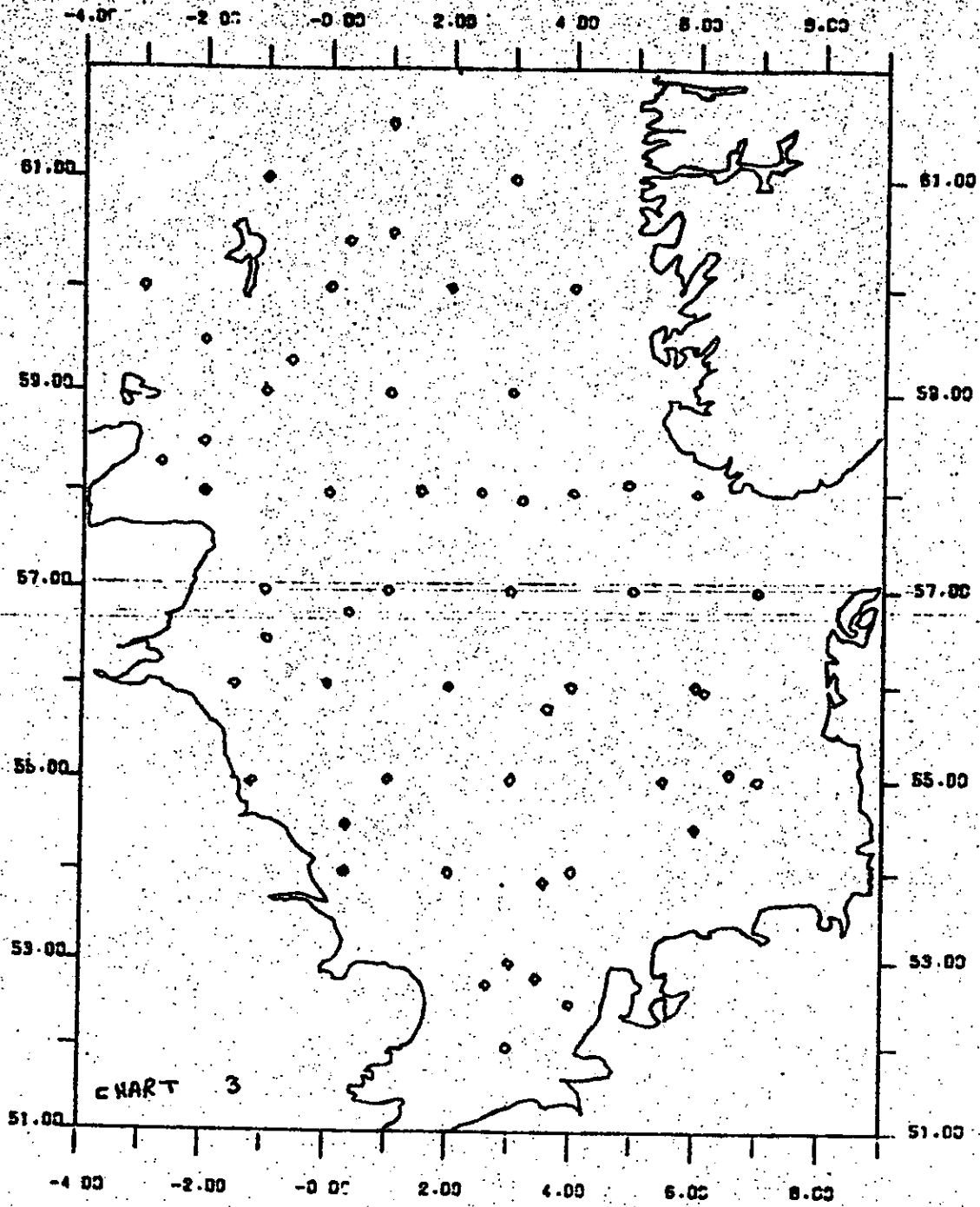
M Dyer (Luton College)



CIRCLANA 8/93 - CRUISE TRACER



(IRDLMA 8/81) FISHING STNS



(INDIANA 8/9) WATER STNS