Mr. BARE

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

1973 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 15

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

STAFF

H W Hill
G C Baxter
T C Doddington
A Burgess (NERC)) until 29 October
G Pichot (Belgium))
B H Holford)
P A Hardiman) from 29 October
J A Henderson)

DURATION

Left Lowestoft 1142 h, 16 October

Arrived Lowestoft 1125 h, 31 October

All times are Greenwich Mean Time

AIMS

1. To recover the current meter rigs laid on CLIONE 13 as part of the JONSDAP exercise.

2. To complete a temperature and salinity grid covering the trace metal grid used on CLIONE 13 (Lines G-L).

3. To complete hydrographic sections along the boundaries of the mathematical model area.

4. If recovery work permits, to take part in the second DRCM survey in the Dover Straits.

5. To obtain duplicate salinity samples for the Netherlands intercalibration exercise.

NARRATIVE

CLIONE left Lowestoft at 1142 h, 16 October and proceeded to the western end of sampling line G of the trace metal grid to begin the temperature and salinity stations, passing current meter stations XG en route, which was observed to be moved slightly out of position with the sub-surface pellet close to the toroid, the direction of lay of the rig being different from the direction at launch, indicating interference. Hydrographic series were worked on each station of line G beginning at 1740 h, 16 October and completing the line at 1440 h, 17 October with dog-legs out to inspect current meter stations XC, XA, YY and YS, the current meter rig at YW having been already trawled up by a fishing vessel and returned intact to Lowestoft. Only the sub-surface pellet was seen at XC and YY and neither the toroids nor sub-surface pellets were seen at XA and YS in a heavy swell and a north westerly wind gusting up to 35 knots, making recovery impossible at any of these stations. The Dutch marker buoy at XA was clearly visible however. The vessel then set course for the eastern

end of sampling line H, the first station being reached at 1845 h, but the weather had by then worsened to make the station unworkable and CLIONE dodged until 1730 h, 18 October when course was set for current meter station WK which was reached at 0630 h, 19 October. The rig appeared to be complete but the tide was running too strongly to attempt recovery, so CLIONE worked the next easterly hydrographic station on sampling line H before returning to rig WK which was recovered intact by 1112 h, except for one of the chain anchors.

CLIONE steamed to current meter rig WM, using the shelter of the coast in a strong southwesterly wind and found the station marked only by the sub-surface pellet. However the rig was successfully salvaged, using the grapnel, by 1716 h, again with the loss of one chain anchor. The acoustic pinger was successfully started before salvage began, but could not be heard on the receiver. After recovery the signal was found to be very weak, presumably due to a rundown battery. The buoy tow at WM had been separated from the toroid by removing one of the scuring shackles. Hydrographic series stations were then worked along sampling line I, completing this line and the two most westerly stations on line J by 1031 h, 20 October. Current meter rig TW was then recovered intact by 1213 h, the acoustic pinger working well, but both current meter propellers were jammed by weed, and there was a considerable growth of weed on the rig generally. Two more hydrographic stations were worked along sampling line I before the weather deteriorated sufficiently to prevent further work, and although rig WQ was inspected at 1650 h in good order, it could not be recovered, so CLIONE dodged to Orfordness, where she anchored at 2125 h, sheltering in a southwesterly gale until 1520 h, 21 October.

In apparently moderating weather, CLIONE weighed anchor and steamed to current meter station WQ. However the sea was still too rough on arrival at 1925 h to recover the rig and the vessel dodged on the station until 0500 h, 22 October when recovery began. The rig was successfully recovered by 0606 h with the acoustic pinger working well, but the transducer motor gave trouble, and in fact it did not work properly again throughout the exercise. There was a slight weed growth on both current meters. Current meter station WG was next recovered by 1003 h but severe corrosion was found on the meter tow and near the chain weights. The crystal clock on meter 412 had stopped. Current meter rig XG was then recovered by 1334 h, but was found to be badly tangled, due to the buoy weight being missing, and the buoy tow twisting around the meter wire, presumably causing the bottom meter (No. 106) to shear off, since this one was missing. CLIONE then anchored in Gorleston Roads from 1555 h to 1949 h to clear the decks and winch drums of wires before proceeding to work five stations of sampling line H by 0344 h, 23 October. At 0420 h the weather had again become unworkable and it was decided to run for Den Helder to exchange salinity and nutrient samples for the intercalibration exercise.

CLIONE reached Den Helder at 1024 h, and sailed again at 1735 h, samples having been exchanged and the toroid from station YS having been taken aboard from the Dutch coastguard, who reported that it had come ashore a few miles north of Den Helder. Three more series stations on line H were worked en route to current meter rig YY which was salvaged by 0815 h on 24 October. The acoustic pinger at this rig did not work, and the buoy tow was found to be chopped beneath the toroid. XA was then salvaged by 1108 h after sighting the sub-surface pellet, the acoustic pinger again found to be transmitting on recovery although it could not be heard on the shipboard receiver. CLIONE reached current meter rig XC at 1300 h, but the sub-surface pellet seen on 17 October was missing. Salvage dredging and a visual and acoustic box search was carried out without success until 1811 h when it was decided to steam overnight to retrieve JONSIS stations A and B. These were recovered without incident at 0841 h and 1338 h, 25 October, the acoustic release system chopping the wire cleanly on JONSIS B to permit a "sub-surface-first" type recovery. JONSIS A and B were not relaid.

At this stage of cruise, with 7 current meters and 5 surface toroids missing, and the Dover Straits DRCM exercise cancelled due to a cut telephone cable, it was decided to concentrate the time remaining on salvage operations at rigs YS, WC, XC and WG. CLIONE therefore steamed to station YS and spent from 0600 h to 1530 h on 26 October dredging and completing a visual box search, there being no acoustic pinger on this station. No evidence of the current meter rig was found although the launch positions of the buoy and meter weight were covered many times on the Decca plotter. Similar operations were carried out at Station WC on 27 October from 0745 h to 1440 h including acoustic searching without success, CLIONE having searched at this station unsuccessfully on a previous cruise with the sector scanner. Between these salvage attempts further stations on the trace metal grid were completed during the hours of darkness as time permitted, and we learnt that the toroids from XC and WM had been landed in Dieppe and Southampton.

At 0745 h, 28 October an acoustic search switched on the pinger on XC and the day was spent dragging a grapnel over and around the position without success. However a weighted line attached to 5 buffs was floated down on the tide over the estimated position of the sub-surface float and after several attempts was hooked around the sub-surface buoy. Further attempts were made to drag around this marker but the line was parted at 1630 h.

On the morning of 29 October a light courlene line was twice hooked around the rig but attempts to float a heavier line around, capable of lifting the rig, were abandoned at 1615 h and the vessel proceeded to Lowestoft to collect the Diving Team, arriving at 2108 h. Messrs Burgess and Pichot disembarked at Lowestoft and Messrs Holford, Henderson and Hardiman embarked with their diving equipment, the vessel sailing for rig XC at 2230 h.

Salvage operations were begun again at 0700 h, 30 October. Divers attempted to reach the rig but were unable to swim along the whole length of the attached pellet line, reporting that it had caught the rig at about 90 feet depth. During an attempt to shorten the line, it parted, and the rest of the day until darkness at 1620 h was spent attempting to hook the rig again. Diving was then abandoned and the trawl prepared. Two hauls were made over the position without success, and the pinger was switched off at 2033 h.

Two hauls were made without success at current meter station XG between 0635 h and 0922 h, 31 October in the hope of recovering the meter missing at this position. CLIONE set course for Lowestoft at 0933 h and tied up at MAFF quay at 1125 h, one day late.

RESULTS

Aim 1. Of the 14 rigs laid during the JONSDAP exercise, Figure 1, only six appear to have been undisturbed over the period. These rigs were all recovered successfully for the loss of one chain weight. A seventh, XG, appears to have been disturbed, although the toroid was still attached, and one meter and one chain weight were lost from this station. At three rigs, the sub-surface pellet was still approximately in the correct position on recovery, although the surface toroid was missing. These rigs were salvaged easily for the loss of one further chain weight. One rig, YW, was brought in intact by a trawler and at the remaining three rigs, where neither the surface, nor sub-surface markers were found, salvage attempts were unsuccessful.

At the end of the cruise 7 current meters, 3 surface toroids (XA, XC, YY) 3 chain anchors, and 3 complete underwater rigs, less toroids and meter, (WC, YS and XC), were missing. The acoustic pinger worked reasonably well, but the transducer motor is still unsatisfactory. At JONSIS B the acoustic release system functioned perfectly. There appears to be a high data return on all meters recovered, although two clocks had stopped prior to recovery, and two

meters were heavily fouled with weed.

Aim 2. Temperature and salinity were measured at the surface and at every 10 m depth to the bottom on sampling lines G, H, I and J over the trace metal grid shown at Figure 2.

Lines K and L were abandoned due to the priority of salvage operations. A message was passed to JOHN MURRAY, known to be working in the Dover Straits, via the Operations Room, requesting her to complete the grid.

Aim 3. Hydrographic series were completed along the northern boundary of the model area only. (see Aim 2).

Aim 4. The Dover Straits DRCM exercise was cancelled after the telephone cable had been reported cut.

Aim 5. Duplicate salinity and nutrient samples were exchanged in Den Helder for the intercalibration exercise.

H. W. Hill

H W Hill
8 November 1973

SEEN IN DRAFT: MRS
GFL

INITIALLED: AJL

DISTRIBUTION:

Basic List
Mr Baxter
Mr Doddington
Mr Burgess
Mr Pichot
Mr Holford
Mr Hardiman
Mr Henderson
JONSDAP list (30)
Mr Hill

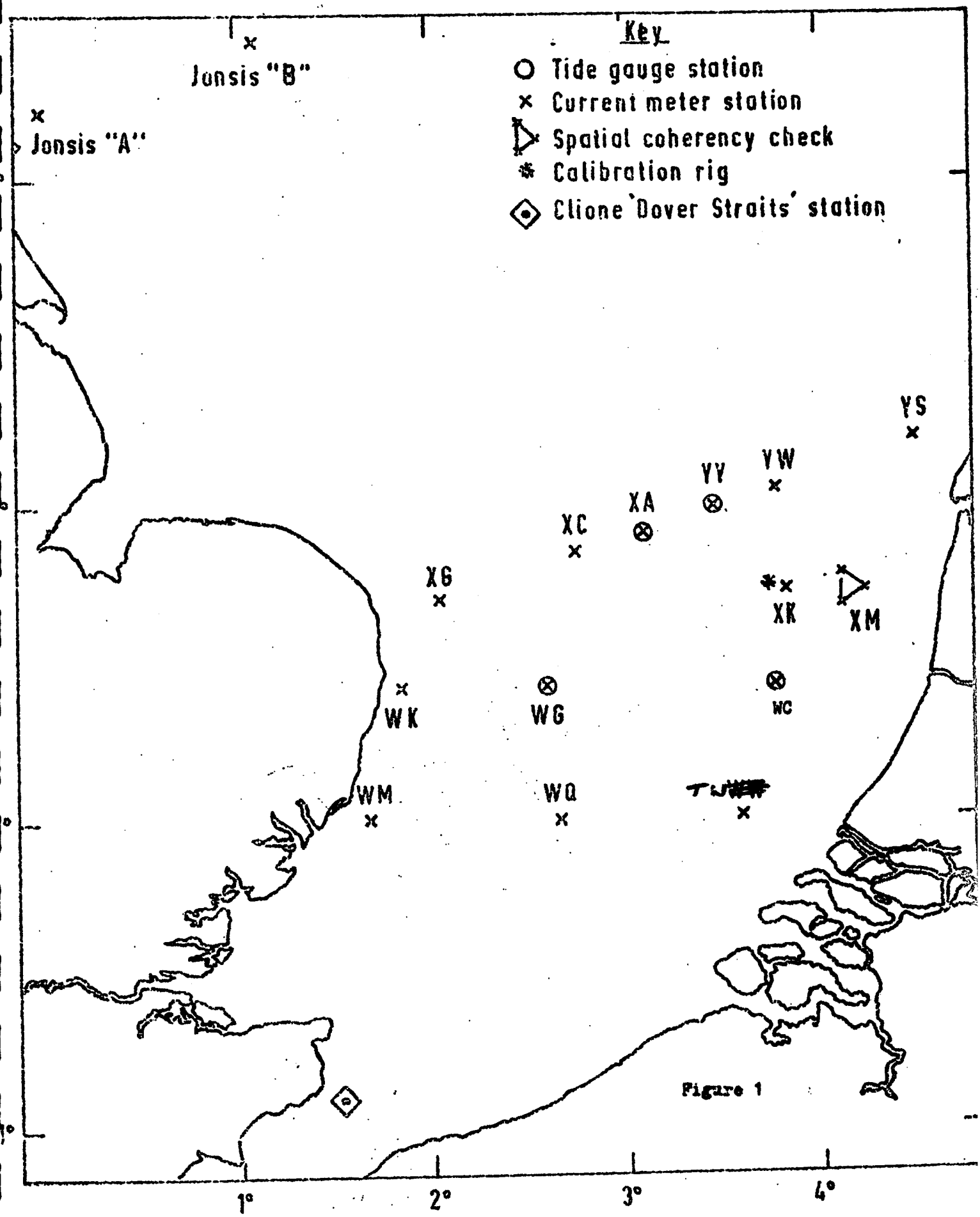
Key
Tide gauge station
Current meter station
Spatial coherency check
Calibration rig
Clione 'Dover Straits' station
Jonsis "B"
Jonsis "A"
YS
YW
YY
XA
XC
XG
XK
XM
WK
WG
WC
WM
WQ
1°
2°
3°
4°

Figure 1

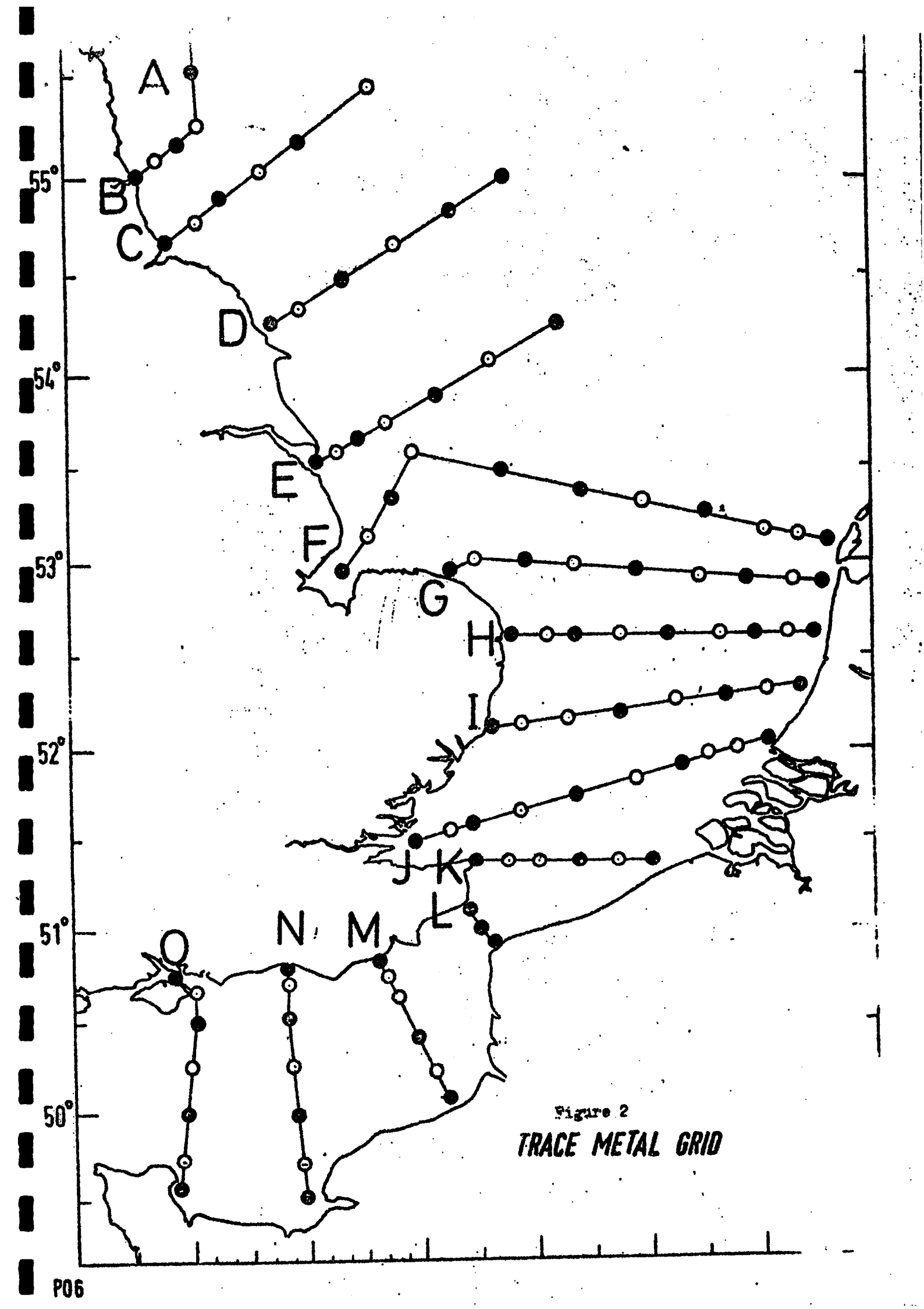

Figure 2

TRACE METAL GRID

P06