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

1979 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 9
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

Part A: J Wooltorton
S R Jones
G Landles

Part B: M S Rolfe
Lindsay Murray
R J Law
T B Fileman
J E Thain (until 8 Sept)
Jackie Bonnett (" ")
B Riches (from 8 Sept)
D A Cook (" ")

DURATION

Part A: Left Lowestoft 1320 h 30 August
Arrived Lowestoft 0445 h 2 September

Part B: Left Lowestoft 1805 h 3 September
Arrived Lowestoft 0605 h 17 September

LOCALITY

North Sea, English Channel, Celtic Sea, Liverpool Bay.

AIMS

Part A: 1. To service the JONSIS, Tees and South Falls current meter stations.

2. To collect 25 litre seawater samples at each JONSIS station.

3. To release 100 seabed drifters at the South Falls station.

Part B. 1. To study bottom morphology in the vicinity of dumping grounds in Liverpool Bay, at the Falls, and at Roughs Towers using sector scanner.

2. To assess water quality in the vicinity of the sewage sludge disposal ground in Liverpool Bay using embryo development of the oyster, Crassostrea gigas. Water samples to be taken at intervals while steaming over a grid.

3. To collect fish for chemical analysis from Liverpool Bay, Morecambe Bay and the Falls area.

4. To collect sediment samples for biological, physical and chemical analysis from the vicinity of the Falls and Roughs Tower dumping grounds.

5. To collect water and sediment samples for hydrocarbon analysis from Celtic Sea, Liverpool Bay and the English Channel.

6. During Aims 4 and 5 to collect sediment samples for Dr M Goodfellow of Newcastle University Medical School (for Actinomycetes studies)

NARRATIVE

Part A. CLIONE left Lowestoft at 1320 h 30 August and steamed to the Tees current meter station arriving there at 0620 h 31 August in fog. The station was recovered and relaid by 0745 h. Recovery started at 1215 h of the JONSIS 1 current meter station, still in fog, and the station was relaid by 1305 h. Fog still persisted at JONSIS 2, recovery of which started at 1710 h. The station was relaid by 1800 h.

CLIONE steamed overnight to the South Falls station arriving at 1230 h 1 September, servicing was completed by 1310 h.

CLIONE docked at Lowestoft at 0445 h, 2 September.

Part B. CLIONE left Lowestoft at 1805 h, 3 September and arrived in Liverpool Bay (Bar light float) at 0915 h, 6 September to await sludge vessels from the R Mersey. Aim 2 was commenced at 1030 h when CLIONE steamed in the wake of the sludge vessel PERCY DAWSON and then MANCUNIUM while frequent water samples were taken, via CLIONE's stainless steel pump, both during discharge and subsequently through the dispersing waste. In addition, simultaneous water samples through the water column were taken at the surface and 12m and 27m below the surface. During the sampling and subsequently during the remainder of the cruise, temperature, salinity, pH and dissolved oxygen concentration of surface waters were monitored using the Environmental package, and the suspended solids distribution was determined using the HIAC particle counter. On anchoring in Llandudno Bay, Crassostrea gigas oysters, which had been held in aerated tanks, were opened and the collected water samples innoculated with fertilized embryos using the procedure previously employed on CLIONE 3/79.

On 7 September further water sampling was carried out over a large area of Liverpool Bay (see figure attached) in a series of transects which, when tidally corrected to HW at Liverpool, passed through the sewage sludge dumping ground. Water samples taken at 70 stations were then innoculated with further fertilized oyster embryos while CLIONE was again at anchor in Llandudno Bay.

Three Granton trawl hauls were made near the dumping ground on 8 September (Aim 3) before CLIONE proceeded to Amylurch where Mr Thain and Miss Bonnett went ashore at 1718 h by pilot boat and Messrs Riches and Cook came aboard. Sector scanning, in side scan mode, was commenced at 0801 h 9 September over site Z spoil ground (north of Queen's Channel((Aim 1) and continued until 1800 h. From then until 0918 h the following morning water and sediment samples were collected at four stations in Liverpool Bay, after which sector scanning was resumed at site Z. After working 12 grab stations over the scanned area, hydrocarbon sampling was recommenced in Liverpool Bay at 1530 h 10 September and continued into the Celtic Sea and English Channel.

At 0600 h 14 September sector scanning was commenced in an area to the west of South Falls to investigate possible sites for a new dumping ground to serve London and Ramsgate. Scanning was completed at 1922 h and was followed by a grab survey over the area for ground truth. The 39 grab stations were completed at 1550 h 15 September. Granton trawling near the existing Falls dumping ground, postponed from early morning on account of substantial gear damage, was recommenced at 1740 h. Only a basket or so of sole, whiting and pouting was taken in a two hour tow and the presence of lumps of black mud together with the gear damage sustained earlier in the day suggested that possibly short dumping was taking place at the Falls.

27 grabbing stations were worked in the vicinity of the Roughs Tower dumping ground between 0751 h - 1246 h, 16 September, followed by sector scanning over the area until 1730 h. Before berthing at Lowestoft at0605 h 17 September a further short sector scanning survey was made within the experimental gravel extraction area off Southwold in response to a request received from Burnham -on-Crouch during the cruise.

RESULTS

Part A. 1. The current meter stations at JONSIS, Tees and South Falls were serviced.

2. Two 25 litres of seawater were collected at the JONSIS stations.

3. 100 seabed drifters were released at the South Falls station.

Part B. With minor exceptions all aims were successfully achieved.

Aim 1. The sector scanner was used in side scan mode at 200m range at all three sites; the Alden paper recorder was used throughout.
Site 2 (Liverpool Bay). Although discrete spoil heaps were clearly distinguishable, the general superimposition of spoil over the fine sands of the area could not be detected. However areas of sand waves were clearly visible.
South Falls. Scanning, supported by ground truth, enabled the major sediment types to be mapped out. The presence of one or two continental trawlers and beamers in areas thought to be unsuitable for fishing will add further difficulties to the siting of any additional dumping ground.
Roughs Tower. A satisfactory examination of the area was made, but full interpretation of sediment distribution including the presence of spoil must await further examination of the Alden record and particle size analysis.
Aim 2. The bioassay was not completed on board; the embryo samples were killed and preserved in buffered formalin for subsequent counting at Burnham-on-Crouch.
Aim 3. No fish were obtained from the Morecambe Bay area, but the following were collected elsewhere for chemical analysis: Liverpool Bay: 50 + whiting, 35 Dover sole, 20 plaice, 20 cod; Falls: 20 whiting.
Aim 4. A total of 78 grab stations were worked for physical and chemical analysis of sediments as follows: Site 2, 12; South Falls, 39; Roughs Tower, 27.

Aim 5. A total of 23 hydrocarbon stations were worked. Water samples were obtained at all, but only 16 sediment samples were collected because of hard substrates encountered at 7 stations.
Aim 6. 16 sediment samples were collected for Dr Goodfellow.

J Wooltorton
M S Rolfe
20 September 1979

SEEN IN DRAFT: Captain J R French - Master
G F Lee - Fishing Skipper

INITIALLED: AJL

DISTRIBUTION:

Basic List
J Wooltorton
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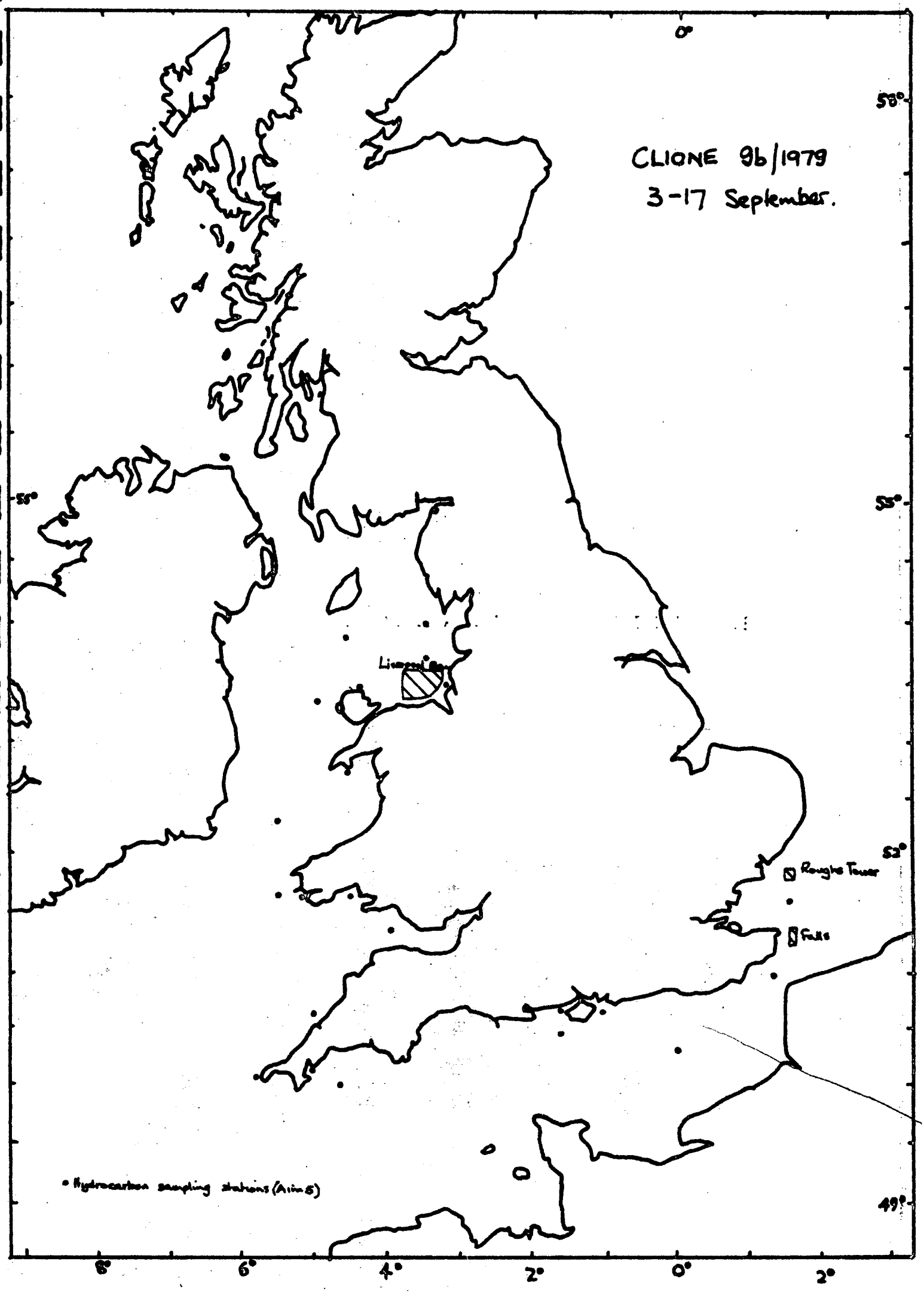
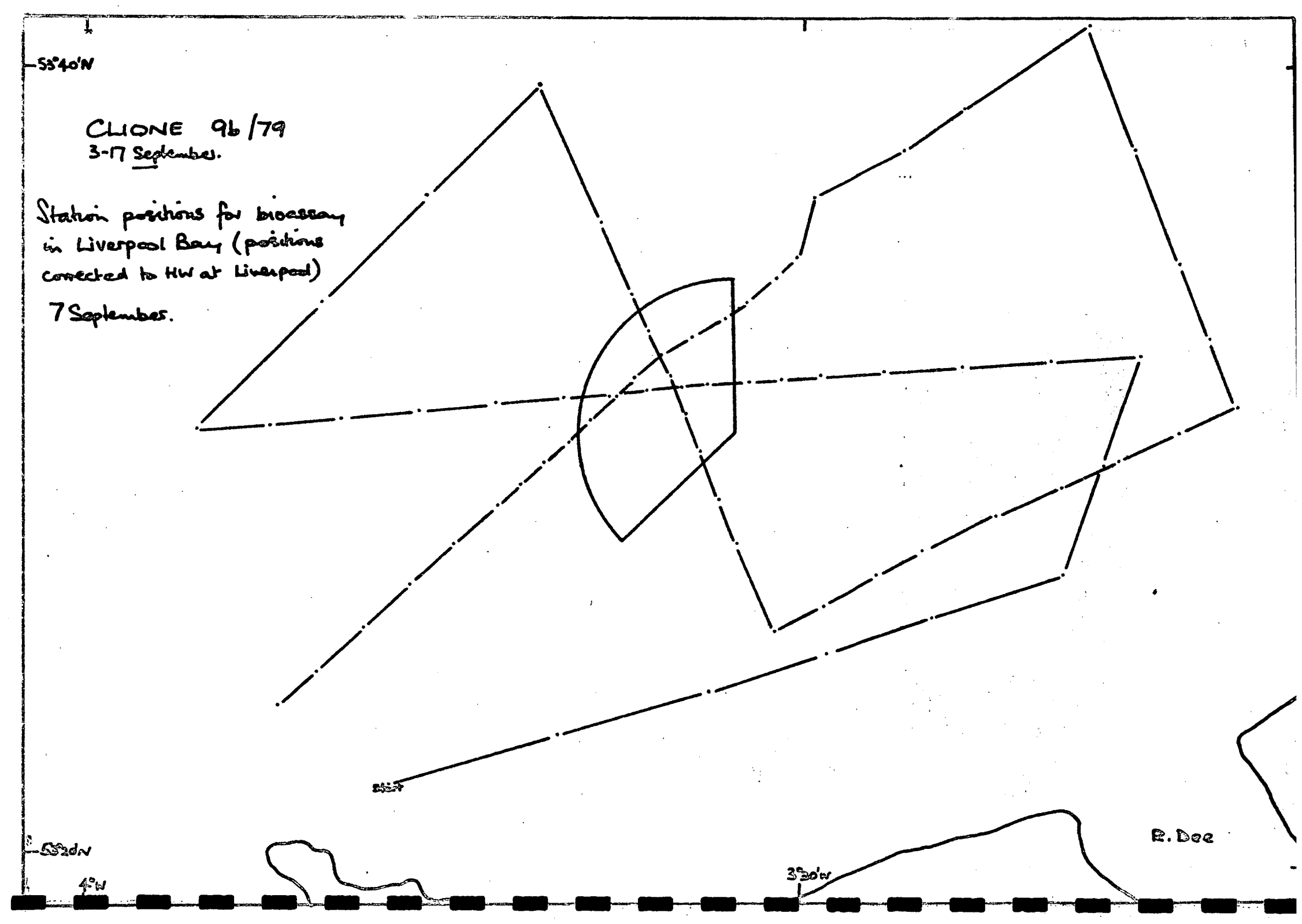

CLIONE 9b/1979
3-17 September.
0°
58°
55°
55°
52°
Rough Tower
Fulls
49°
8°
6°
4°
2°
0°
2°
• Hydrocarbon sampling stations (A1 to 6)


53°40'N
CLIONE 96/79
3-17 September.
Station positions for bioassay in Liverpool Bay (positions corrected to HW at Liverpool)
7 September.
53°30'N
53°20'N
4°W
3°30'W
R. Dee