

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

1976 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 9a

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

STAFF

M S Rolfe
P C Wood
K W Wilson
P A Ayres
R S Nunny
J E Thain
P A Hardiman
J M Everett
A Hunter (MAFF, North Shields)

DURATION

Left Grimsby 0745 h 28 September
Arrived Liverpool 1331 h 4 October
All times are Greenwich Mean Time

LOCALITY

North Sea and Liverpool Bay

AIMS

1. To collect sediment samples off colliery waste beach tipping areas off the north-east coast of England to supplement the CLIONE 7/76 survey (B1.4, 1.7).
2. To investigate by a programme of grabbing, coring and trawling disposal grounds in Liverpool Bay (B1.4, 1.7).
3. To collect samples of sediment, benthos and fish from Liverpool Bay for chemical and micro-biological studies (B1.1, 2.1, 2.6).
4. (Additional) To collect sediment samples in the vicinity of Farn Deep, Buchan Deep and Southern Trench for the identification of sites of mud accretion (Preliminary study in relation to I.C.E.S. sediment monitoring programme).

NARRATIVE

RV CIROLANA sailed from Grimsby on the morning tide of 28 September and proceeded northwards. Coring with the Reineck box corer commenced at 1730 h at one station in Farn Deep (Aim 5) and continued off Lynemouth, where five stations were worked until 2105 h (Aim 1).

Between 0925 h and 1433 h 29 September, three stations were worked in Buchan Deep and Southern Trench (Aim 5), using a 1/10 m² Day grab (there was too much motion for effective deployment of the Reineck corer). At these offshore stations sediment subsamples and surface water samples were collected for Dr I Campbell, ICI Mond (R+D) Division, Runcorn, for hydrocarbon studies.

Passage through the Pentland Firth was delayed by a severe easterly gale on 29 September, forcing RV CIROLANA to dodge. In improving weather RV CIROLANA proceeded through the Firth at slack water on the morning of 30 September.

Granton trawling was commenced in Liverpool Bay (Aim 2) at 2030 h 1 October and was followed by a 64 station grabbing survey using a 1/10 m² Day grab (Aims 1 + 2). These stations comprised:

- a) 17 of the 24 stations previously worked annually by HRS and MSL, Menai Bridge for the DOE monitoring programme. (Five stations east of the Bar Light float (DOE transect T) could not safely be worked by RV CIROLANA).

At these stations two grab samples were taken for benthic analysis and one sample for sedimentological and microbiological studies.

- b) An additional 35 stations where only one sample was taken for sedimentological and microbiological studies. Most of these stations had been previously worked on RV CORELLA 16/75 cruise and were sited between the 'HRS' stations to form a continuous grid.
- c) An additional 12 stations to continue the grid northwards. Three samples were taken as at (a).

On completing the grab survey at 0105 h 3 October, RV CIROLANA moved off to deeper water following a gale warning. Four further Granton trawl and ten Agassiz trawl hauls were made between 0821 h and 2346 h 3 October (Aim 2). The scientific programme was completed after revisiting eight selected grab stations for Reineck box coring for sediment studies and further Day grabbing for obtaining benthic infauna for chemical analysis (Aims 1 & 2). RV CIROLANA proceeded to Liverpool after taking on a pilot at 1200 h 4 October and berthed at Princes landing stage at 1331 h. Here the scientific staff disembarked and the staff for the second part of the cruise went aboard.

RESULTS

All the aims were successfully achieved.

Aim 1: The Reineck corer worked well and core samples up to 30 cm depth were obtained.

Aim 2 + 3: The Day grab worked faultlessly throughout the survey, providing good benthos samples, preserving the sediment/water interface for sedimentological and microbiological sampling, and allowing cores up to 15 cm deep to be taken from material in the grab.

The Coliform/E. Coli survey was successful. Techniques had been perfected since initial attempts in 1974/75, and the work ran smoothly. Results showed a consistent pattern of coliform dispersion inshore of the dumping ground. The mud area off the Queens Channel showed low or zero counts, suggesting that the high counts between the Bar L.F. and the disposal grounds resulted from dumping activity.

All sedimentological aims were realised. eH/pH profiles were measured in situ, and eH values were plotted and contoured. The distribution emphasizes the influence of fine organic-rich material discharging from Queens Channel and the sedimentological regime in Liverpool Bay. The overall pattern of the eH distribution varies little from that obtained in 1975.

The 4 m Agassiz trawl performed well at two stations before being damaged on rough ground. Good samples of epifauna for chemical analysis were also obtained with the 2 m Agassiz trawl. Representative samples of a range of fish species were obtained for chemical analysis by trawling from 3 sites.

At several stations, samples of the molluscs Abra alba and Cultellus pellucidus were picked out and cleansed in aerated sea water for chemical analysis.

M S Rolfe
9 November 1976

SEEN IN DRAFT THF
WJS

INITIALLED AJL

DISTRIBUTION

Basic List

M S Rolfe
P C Wood
K W Wilson
P A Ayres
R S Nunny
J E Thain
P A Hardiman
J M Everett
A Hunter (MAFF, North Shields)