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

1972 RESEARCH VESSEL PROGRAMME

REPORT: R V CORELLA: CRUISE 11

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

STAFF

A J Lee
J W Talbot
I A Huggins
T C Doddington
J Wooltorton

DURATION

Left Lowestoft 0905 h 27 July

Arrived Lowestoft 0805 h 9 August

All times are Greenwich Mean Time

LOCALITY

Thames Estuary

AIMS

1. To measure the dispersal of a cargo of sewage sludge dumped at the Barrow Deep spoil ground.

2. To measure the hydrographic conditions in the area at the time.

3. To test the Cornes recording current meter.

4. To collect grab samples for Dr Shelton.

NARRATIVE

17 July: CORELLA left Lowestoft at 0905 h. Proceeded to Kentish Knock. Laid Recording Current Meter Station N. Proceeded to Black Deep and laid Station L.

28 July: Laid Station K in Black Deep; Stations D, C, F and J in Barrow Deep, Station E in Middle Deep, and Station H in the East Swin.

29 July: Commenced survey of background radioactivity levels in Barrow Deep at 1323 h.

30 July: Completed survey at 1403 h. Laid Recording Current Meter Station G in Barrow Deep. Tested towed gamma detector system with two probes being towed simultaneously at 3.5 and 7 m depth.

31 July: CORELLA was joined by R V NUCELLA, and both vessels stood by as MV HOUNSLOW made a release of sewage sludge labelled with radioactive silver over the Barrow Deep Spoil Ground at 1029 h. Mr Hetherington was aboard MV HOUNSLOW supervising the release. NUCELLA marked the sewage slick with Rhodamine B and CORELLA and NUCELLA then tracked the labelled sludge using towed gamma detectors. Mr Talbot was transferred to NUCELLA for the first part of the exercise. CORELLA stopped trackimg at 1917 h.

1 August: At 0800 h CORELLA started a survey of the radioactivity levels of the sea-bed in the Barrow Deep in order to delineate the fall-out area of the labelled sewage sludge.

4 August: Finished survey at 1050 h. It had covered the Barrow Deep, Middle Deep, the channel between the Barrow and West Barrow banks, and the South-West Reach. (CORELLA was assisted by NUCELLA on 1 and 3 August.) Grab samples were taken during part of the survey.

At 1335 h Current Meter Station G was recovered. During this task the wind speed increased to 28 knots and considerable difficulty was experienced in making the recovery, but it was achieved without mishap. Worsening weather conditions led to a stoppage of work at 1505 h and a sheltered anchorage was sought off Clacton.

5 August: At 0900 h some further survey work was done in the fall-out area and at 1218 h a grid of grab stations was started. A series of transects were worked across the Barrow Deep to provide Dr Shelton with information concerning the distribution of the areas of sewage sludge contamination. This survey was completed at 1725 h.

6 August: A second survey of the area of fall-out of the labelled sewage sludge was carried out between 0800 and 1955 h. No change was observed in the distribution of radioactivity. During this survey Current Meter Station E was recovered at 1230 h.

7 August: Started recovery of moored current meter array at 0900 h.

8 August: Completed recovery of array at 1100 h. Worked grid of grab stations in Middle Deep for Dr Shelton. The last three current meter stations were recovered in wind speeds of 25-30 knots and the grab stations were worked in similar conditions. With no improvement in weather forecast, course was set for Lowestoft at 1530 h.

9 August: Secured alongside at Lowestoft at 0805 h.

RESULTS

Aim 1: The labelled sewage sludge was tracked successfully and its area of fall-out on the sea bed was mapped and contoured. This formed a narrow band along the southeast edge of the Barrow bank, reaching as far as the South West Reach. The northwestern boundary of the patch could not be mapped because it lay in the shallower parts of the Barrow.

Aim 2: A moored recording current meter array was deployed successfully in and around the area in which the labelled sewage sludge was dumped and tracked. Station E proved to be strategically well placed in that it was located close to the area of maximum fall-out. If the meter there functioned correctly, its record should be very valuable indeed.

Aim 3: The Cornes recording current meter was put out on a mooring for a period of five days. Minor damage to the central suspension rod occurred during recovery. Handling aboard RV CORELLA raised no problems, but damage to the rod due to its striking against the ship's side in rough weather is likely to occur in the same way that damage occurs to the Plessey meter's tail fin.

Aim 4: Fifty-six grab samples were collected in the Barrow Deep, Middle Deep and South West Reach for examination of sludge content by Dr Shelton. These samples can also be used by Mr Hetherington for radioactive silver analysis.

MISCELLANEOUS

1. Work was helped by the absence of shipping in the Thames Estuary brought about by the dockers' strike. If ships had been present in their usual numbers, it would have been difficult to work in the narrow waters of the Barrow Deep in order to track the labelled sewage sludge.

2. The new Research Vessel Station and Deck Log sheets, which have been designed in order to allow a computer-based Research Vessel data file to be developed, were used on a trial basis on behalf of Computing and Statistics Section. They were completed in parallel with the normal Station and Deck Logs.

A J Lee
14 August 1972

SEEN IN DRAFT: JEMB (Master)
CNS (Skipper)

INITIALLED: AJL

DISTRIBUTION

Basic list

Mr Talbot
Mr I Huggins
Mr Doddington
Mr Wooltorton