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

1972 RESEARCH VESSEL PROGRAMME

REPORT: RV CORELLA: CRUISE 5

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

STAFF

J W Talbot
G C Baxter
J Wooltorton
P A Ayres
R L Keeble
Mrs M J Boon
Miss M T Rodgers

Part-time

DURATION

Left Lowestoft 1443 h 9 March

Arrived Lowestoft 1415 h 23 March

All times are Greenwich Mean Time

LOCALITY

Thames Estuary and Suffolk Coast

AIMS

1. To lay two moored current meter stations to complete the Thames Estuary array.

2. To work a number of hydrographic stations in the Thames Estuary including measurement of the suspended load particle size distribution at different states of the tide.

3. To survey one or more continuous releases of Rhodamine WT which were to be made from RV TELLINA.

4. To give assistance, as circumstances require, with the transfer of one scientist and a vertical log current meter to the GALLOPER Light Vessel.

5. To make a number of sea bed drifter releases.

6. To recover all meters of the Thames Estuary and Suffolk Coast arrays.

7. To lay two moored current meter stations needed for CLIONE 5.

NARRATIVE

CORELLA proceeded direct to the vicinity of Sizewell Bank and recovered the outer moored meter station. The next morning the second station in this area was recovered and course was set for the Thames Estuary. On arrival in the Barrow Deep Station E was laid near the Barrow Deep Buoy and three releases of sea bed drifters made, close to this Station and to Buoys D and F respectively, the latter being one at each side of the Barrow Deep Channel.

A grid of stations was then worked in deteriorating weather, samples were taken for salinity and absorption spectrophotometric examination and temperature was also measured. The next two days brought North Easterly gales gusting to 50 knots and the ship sheltered off Southend. Whilst at anchor off Southend pier a series of water samples and temperature measurements were taken over a tidal cycle, the samples being for analysis in a similar fashion to those taken earlier in the Barrow Deep. On 13 March, when the weather was moderating the ship proceeded to the Knock Deep Channel where a series of water samples and temperature measurements were first taken. In addition to salinity and absorption spectrophotometric examination the particle size distribution of the samples was determined. In addition to the taking and analysis of these samples the two moored current meter stations in the Knock Deep Channel were recovered; two of the four anchor weights on these rigs were lost because the snap schackles parted during the recovery operation. The next day, 14 March, a hydrographic station was worked in the Black Deep for one tidal cycle and a day later the two moored current meter rigs at the sides of this Channel were lifted. This operation was carried out in perfect weather and the ship then steamed to the Galloper Light Vessel. Mr Keable and a vertical log current meter were transferred to the Light Vessel and the ship then proceeded to the vicinity of the West Gunfleet Buoy where current meter rig B was laid and 50 sea bed drifters released. Mr Keable was collected from the Galloper Light Vessel at daybreak on 16 March and the ship then proceeded to Felixstowe, docking at 0955 h. Here the recovered current meters and their rigs were offloaded for return by road to Lowestoft. Messrs Ayres and Keable left the ship in Felixstowe and Mrs Boon and Miss Rodgers joined. CORELLA sailed again at 1404 h and proceeded to the Barrow Deep where a station was worked over a tidal cycle for salinity, temperature, ultra violet spectrophotometric examination, particle size distribution and water velocity. The depth fluorometer was also made ready for use next day.

On 17 March CORELLA met TELLINA near moored meter station B, just off the Gunfleet sandbank. Two releases of Rhodamine B were made by TELLINA, each of about 2 hours duration, and each was surveyed over a similar period by CORELLA. A third similar release was made next morning. These three releases were surveyed using the ship board fluorometer only since a leak on the underwater unit was causing difficulty, but this was repaired by the afternoon of 18 March. Since the tidal conditions were not suitable for a second release that day CORELLA steamed to the Kentish Knock Light Vessel, near to moored meter station L. This was lifted in very calm weather shortly after daybreak on 19 March and CORELLA then proceeded to the Middle Deep where a hydrographic station was worked from 1030 to 1500 h. After this, from 1600 to 1900 h the ship surveyed a release of Rhodmine WT made from TELLINA at the same position as the earlier releases. The following morning a fifth release of Rhodamine was made from TELLINA and was surveyed by CORELLA from 0430 to 0700 h. The ship then proceeded to the sludge dumping area in the Barrow Deep where a hydrographic station was worked for one tidal cycle. The next morning, 21 March, two of the moored current meter stations in the Barrow Deep were lifted before TELLINA arrived, having brought Captain Sellers from Burnham-on-Crouch. The last remaining moored meter station in the Barrow Deep was lifted after Captain Sellers had transferred to CORELLA. Next morning the last two moored meter stations were lifted and two lines of hydrographic stations were worked, one along each side of the Barrow Deep Channel. During this work Captain Sellers transferred from the ship to TELLINA. CORELLA then proceeded North to the Suffolk Coast where, next morning, two moored current meter stations were laid to assist the acoustic tag work to be carried out on CLIONE 5/72.

RESULTS

1. The Thames Estuary current meter array was completed by laying two stations in addition to those remaining from CORELLA 3, and all moored stations were later

recovered according to plan.

2. A number of hydrographic stations were worked in the Thames Estuary and particularly in the Barrow Deep. These have included measurements of salinity, temperature, particle size distribution, U/V spectrophotometric absorption analysis and water velocity using Direct Reading Current Meters.

3. Two continuous releases of Rhodamine WT and three of Rhodamine-B, made from TELLINA, were surveyed by CORELLA. The last two releases were surveyed at an intermediate depth as well as at the surface.

4. A vertical log current meter has been installed on the GALLOPER Light Vessel.

5. Eight releases of sea bed drifters were made.

6. Two moored current meter stations, needed for CLIONE 5, were laid off the Suffolk coast.

Most of the data collected on this cruise has to be processed in the laboratory before it can be properly interpreted but the comparatively small quantity of data provided by the Direct Reading Current Meters has shown that strong tides, exceeding 3 knots occur in the Barrow Deep and these results suggest that the residual flow in this Channel is out of the estuary. The moored current meter results should lead to a much firmer conclusion on this point. The spectrophotometer analyses have suggested that rotting sludge is present on the sand banks bordering the Barrow Deep Channel and particularly upstream from the dumping area.

J W Talbot
29.3.72

SEEN IN DRAFT: W Craig (Master

C Snowling (Fishing Skipper)

INITIALLED: HWH

DISTRIBUTION

Basic List

J W Talbot
G C Baxter
J Wooltorton
P A Ayres
R L Keable
Mrs M J Boon
Miss M T Rodgers