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

1973 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 5

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

STAFF

R R Dickson
M J Holden (8–12 March only)
B K Clarke
T J Storeton-West
K Medler
M Heaton (Bath University: 14–19 March only)
J Joseph (" " : " " " ")

DURATION

Left Lowestoft 1052h, 8 March

Arrived Lowestoft 0810h, 19 March

All times are GMT

LOCALITY

a. Southwold–Thorpeness and Shipwash

b. Hastings.

AIMS

1. Seabed surveys using the ARL Scanner and Bath University Side-scan Sonar as a back-up to the fishery and faunal surveys of the Southwold–Shipwash area already conducted by Messrs Holden and Rolfe.

2. Sidescan sonar survey: Hastings Shingle Banks.

3. Shear-velocity current measurements: Southwold–Shipwash Area.

4. Observations on the depth stability of seabed drifters equipped with acoustic tags.

NARRATIVE

CLIONE sailed at 1052h GMT, and proceeded to Harwich to install the dome before continuing to the Southwold–Thorpeness survey area. By 0750h, 9 March a shallow water mooring with one current meter at midwater depth had been laid within the survey area and from 0850–1715h a standard seabed drifter equipped with an acoustic tag (drifter H, 1 gm nett negative buoyancy) was tracked continuously around the position of the mooring using the ARL Scanner in vertical mode. The location of the drifter and its height relative to the seabed were measured at 5-minute intervals, and film of the drifter's behaviour was obtained. CLIONE anchored for the night at 1745h close to the current-meter mooring. From 0730 to 2000h, 10 March the northern part of the Southwold–Thorpeness survey area was surveyed using the ARL Scanner. 14 survey legs, of up to 5 n.mi. in length and spaced 400 to 800 yards apart were worked, and the Scanner display was filmed wherever evidence of dredging was encountered. The changing character of

the seabed was recorded during the survey on 127 polaroid snaps. The current meter mooring was then observed by Scanner at 2035h in order to obtain an accurate estimate of the current meter depth, and CLIONE anchored alongside the mooring at 2100h. From 0850-1830h, 11 March, the southern half of the Southwold-Thorpeness area was surveyed. A further 14 survey legs were worked with film and polaroid coverage as before (101 polaroid snaps). CLIONE then moved to a position north of the current meter mooring and a second acoustic-tagged drifter (drifter I, 1 gm nett negative buoyancy) was tracked as before over one southgoing tide between 2100h, 11 March and 0330h, 12 March. CLIONE anchored by the mooring at 0400h. At 0950h, 12 March Mr Holden disembarked on a local fishing vessel at Aldeburgh Napes Buoy. From 1300 to 2030h CLIONE began a survey of an area to the east of the Southwold-Thorpeness survey area where evidence of dredging had been observed. 17 survey legs were worked, with dredged seabed features recorded on film, video and polaroid (62 snaps). After anchoring overnight near the current meter mooring, this mooring was found to have lost one dan-marker overnight and was recovered at 0900h, 13 March. The survey of the dredged area was then continued between 1000 and 1150h, and a further 6 legs were worked. CLIONE then anchored at the position of the current meter mooring to make half-hourly velocity-shear measurements in the near-bottom boundary layer over one south-going tide, before resuming the survey of the dredged area. Between 1850 and 2100h, 13 March 6 more legs of this survey were completed with film, video and polaroid coverage as before, and CLIONE then steamed overnight to Dover, docking 1300h, 14 March. At 1830h, with the sidescan sonar and operators on board, CLIONE proceeded to Boulogne, docking at 2350h to offload satellite/buoy transponder 60/605 before continuing to the Hastings shingle banks. From 1010 to 1800h, 15 March, the dredged area on the shingle banks was surveyed along north-south survey legs, each 1½ n.mi. in length and 200 yards apart, using Scanner and Sidescan Sonar. The Scanner display was filmed. The pit dredged by MV CAMBROOK in July 1971 was inspected and a depth estimate was obtained using the Scanner in vertical mode. CLIONE then proceeded overnight to the Shipwash survey area. From 1100 to 1930h, 16 March a total of 14 survey legs were worked across the dredged area southwest of the Shipwash lightvessel using both Scanner and Sidescan equipment. Filming and video recording of the Scanner display were carried out on alternate legs. At 1410-1420h the survey was briefly interrupted to observe the trailer dredger SAND SKUA at work. With the survey complete CLIONE anchored for the night at 2013h. Beginning 0840h, 17 March CLIONE ran offshore to License Area 222 and between 1020 and 1430h, an 11-leg survey of this area was completed at 200 yard spacing using Scanner and Sidescan. Again, the Scanner display was filmed wherever dredged features were encountered. CLIONE then returned to a location close to the Shipwash Lightvessel where the current meter mooring was re-laid. A third acoustic-tagged drifter (drifter J, 1 gm nett negative buoyancy) was then tracked and filmed as before through the position of the mooring over one southgoing tide from 1700 to 2215h. CLIONE anchored for the night beside the mooring at 2330h. At 1130h, 18 March a fourth drifter (drifter C, 2 gm nett negative buoyancy) was released at the point where the tracking of drifter J had been abandoned on the previous day. Drifter C was then tracked by the Scanner over one northgoing tide until 1715h, with occasional filming and with the usual 5 minute fixes on location and height above the seabed. The current meter mooring was then recovered by 1820h and by running down the common track of drifters J and C an echo sounder profile of the track was obtained. This work was completed by 1958h and CLIONE proceeded to Harwich to dedome, docking at 2255h. CLIONE then continued to Lowestoft docking at 0810h, 19 March, and the sidescan equipment was immediately offloaded for onward transport to Bath.

Dome distance this cruise 688 n.mi.

Total dome distance 786.8 n.mi.

RESULTS

1. While little evidence of dredging was observed in the Southwold-Thorpeness

survey area itself, moderate to intensive trailer dredging had been carried out within a strip of seabed 1 mile wide running closely along the eastern margin of the Southwold-Thorpeness area.

2. During the resurvey of the illegally-dredged complex on the Hastings shingle banks, the characteristically-shaped pits which have been observed since December 1970 were again encountered, confirming that seabed recovery rates are very slow in this area. Notably, the single trailer track running north from the "clover-leaf" pit was still clearly present; this feature trends across the tide and in July 1971 was six inches to one foot in depth by six feet across.

3. The experimental pit dredged in July 1971 was still sharply defined with no evidence of infill. Acoustic target 13, laid 0.6m from the rim of the pit in May 1972 was still on the outside edge of the pit. Using the Scanner in vertical mode the depth of the pit was estimated at 4.5-5 metres.

4. The surveys in the complex of dredged areas to the south and west of the Shipwash Lightvessel and in the isolated license area 222 showed that dredging had been well confined to the licensed area.

5. The two standard sea-bed drifters (H and I) tracked off Southwold at neaps showed saltation but no tendency to lift off for prolonged periods. The mean height attained during saltation was 2-3 metres above the seabed. However in the stronger spring tides near the Shipwash Lightvessel drifter J (also standard at 1 gm nett negative buoyancy) was shown to lift off for as long as 40 minutes continuously and attained a maximum height of 19 metres above the seabed in 25-30m. water depth. Drifter C (2 gm nett negative buoyancy) was tracked along the same path as J and while saltation was evident, the increased weight greatly reduced the tendency to prolonged lift off (4 minutes maximum) and the maximum height attained was less than 4 metres above the seabed.

ACKNOWLEDGEMENTS

The assistance of Professor Deryck Chesterman of Bath University in providing the side-scan equipment, and of Messrs Heaton and Joseph in ensuring its successful operation is gratefully acknowledged.

R R Dickson
9 April 1973

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