

Miss Howard

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

1971 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 1 PART B

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

STAFF

J W Ramster
R R Dickson
J A Durance
N D Pearson
J W Horwood
J W Read

DURATION

Left Lowestoft 1130 hours 14 January

Arrived Lowestoft 1630 hours 21 January

All times are British Standard Time

LOCALITY

Central North Sea

AIMS

1. To establish the 3 United Kingdom (Lowestoft) moored current meter stations of the ICES pilot North Sea current meter networks.
2. To test an acoustic release system that may be used in conjunction with moored current meter rigs in the future.
3. To make serial hydrographic observations between the stations and detailed tidal stream measurements at each station that will complement the long-term records.

NARRATIVE

The ship left Lowestoft at 1130 hours 14 January and course was set for Flamborough Head. Bottom temperatures and salinities were taken en route at 30 mile intervals. During the early hours of the following day the ship reached the area of Flamborough Head and then steamed on to Station A, the most western of the proposed moored stations.

At 0600 hours work began on preparing the wires and the toroidal buoy for the station and the rig was launched by 0900 hours. The gear for Station B was then made ready as the ship steamed towards the Dogger Bank and was put out by 1330 hours. Station C was launched at 0900 hours the next day after an overnight steam across the Bank.

A spare current meter rig was then prepared and the MAFF acoustic release attached to it just above the meter weight. Some tests of the range at which the system could be controlled from the ship began but the presence of two Danish seine netters towing around the moored rig produced ambiguous results and so the gear was recovered and re-laid 5 miles westwards.

After the tests the ship returned to Station C, released 100 Woodhead sea-bed drifters there and then, at 1700 hours, 16 January, began a hydrographic survey of the Clay Deep - Silver Pit region. This was interrupted for a few hours the following morning to allow further trials of the release system, but by 1900 hours Station B was reached at the end of a line of stations stretching across the western end of the Silver Pit. The ship anchored within a mile of the station and a Kelvin Hughes Direct Reading Current Meter (DRCM) was rigged. Observations were made every hour at 10 metre intervals throughout the water column for the next 12½ hours.

At 0800 hours, 18 January, a 100 sea-bed drifters were released at Station B and the ship moved off towards station 5 of the "Flamborough Line", made serial observations there and began to steam towards Flamborough Head sampling each station of the section in turn. By midday however, a southerly gale was blowing and a lee was sought in Filey Bay. Further tests of the acoustic release system were made while the ship lay at anchor in the Bay the following morning.

The weather moderated during this period and so, once the tests had finished the vessel moved out to Station A, anchored close by it and another set of DRCM observations began at 1400 hours and lasted until the early hours of Wednesday 20 January. The rest of that day was spent finishing off the sampling of the Flamborough Line stations and extending the hydrographic survey southwards to cover most of the region between the River Humber, Flamborough Head and the western end of the Silver Pit. Once this grid had been covered course was set for Lowestoft and the vessel docked at 1630 hours the following day.

RESULTS

1. Moored current meter Station A, B and C were established as part of the United Kingdom's contribution to the ICES pilot North Sea current meter networks.
2. Several vessels were seen to fish throughout the night in the vicinity of Station A and it was felt that they might be coming from one of the near-by Yorkshire ports. A vessel, thought to be an oil-survey ship, towed instruments on a long wire within a mile of the surface buoy. Clearly we must make sure that Yorkshire inshore fishermen and the oil companies know of the existence of the station. No vessels were seen around Station B but several ships, most of them thought to be Danish seiners, were working within 5 miles of Station C.
2. A detailed hydrographic survey of the region lying between the three moored stations was made. It is hoped that similar surveys will be possible in other seasons so that any changes in the overall character of the residual drift shown by the current meters can be compared with the general water mass distribution in the region.
3. The detailed character of the tidal streams over the whole water column at Stations A and B at near-Near tides was ascertained via the DRCM.

At Station A the near-surface south-going stream ran for 7 hours and attained a peak velocity of 51 cms/sec but the north-going stream was relatively poorly developed peaking at 37 cms/sec. A 20 knot southerly wind blew throughout observation period. Near the surface at Station B westerly and south-east-going tidal streams were observed and both attained maximum velocities of 35-40 cms/sec. No unusual features were observed in the vertical profiles at either station.

4. The MAFF acoustic release system was tested at sea for the first time. It was found initially that both the noise stemming from seine netters towing within a mile of the release system and from the RV CLIONE as she manoeuvred around the moored rig was enough to trigger the "call-up" circuitry. A modification to the system was then made and subsequently the noise generated by RV CLIONE did not trigger it.

"On/Off" command from the ship was accomplished in principle but further work will be needed before the specified 4-5 mile range is achieved. A full-scale test culminating in the cutting of a wire via acoustic command was postponed until the required modifications have been made.

As far as launching techniques are concerned these tests showed:-

- (a) that the exposed ends of the underwater unit should be protected by guard rails or a complete cover.
- (b) that we may have to move the bottom current meter up the wire 1-2 metres so that the release system can be attached and lowered away into the water before the weight is attached.

An alternative plan is to secure the weight outboard initially, launch the top and middle meters as normal, hoist the last 18 feet of the wire into the boom via a lifting eye, attaching the frame, meter and release system at the appropriate levels and then clip on the weight taking the strain on the main winch via the ground wire. For a successful launching the ground and meter wires would then have to be paid out at the same rate by separate winches.

5. Bottom temperatures and salinities were collected at 35 stations at 10-30 mile intervals in accordance with the recommendation of the Pelagic Fisheries (Northern) Committee of ICES. (C. Res. 1970/4:2).
6. One hundred Woodhead sea-bed drifters were released at Stations C and B on 16 and 18 January respectively.

J W Ramster

26 January 1971

SEEN IN DRAFT JEMB

INITIALLED AJL

DISTRIBUTION

Basic list

J W Ramster
R R Dickson
J A Durance
N D Pearson
J W Horwood
J W Read