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

1976 RESEARCH VESSEL PROGRAMME

REPORT : RV CIROLANA : CRUISE 10

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

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DURATION

Left Grimsby 1836 h 12 November
Arrived Falmouth 0919 h 11 December

All times are Greenwich Mean Time

LOCALITY

North-east Atlantic

AIMS

1. To moor three deep current meter moorings around a full depth current meter mooring set in the NEA dumping zone by RRS DISCOVERY on Leg 1 of Cruise 80.

2. To carry out float tracking experiments through the current meter array.

3. To work standard hydrographic sections around the NEA dumping zone.

4. To carry out tests of an acoustic vertical profiler.

5. To carry out an acoustic survey of mackerel in the Western Approaches.

NARRATIVE

The ship sailed from Grimsby at 1836 h 12 November and proceeded directly to the NEA dumping zone centred on 46°15'N, 17°25'W, reaching the first station in the zone at 1900 h, 16 November, after a good passage during which a new 6000 m hydrowire was stretched, current meter mooring multiplait ropes were stretched and measured, and various acoustic tests were made on equipments lowered on the hydrowire. An echo survey was also completed on both the outward and homeward runs, using a towed body streamed from the port baggage davit, with XBT stations being made at approximately 20 mile intervals. An echo survey was then made in the dumping zone to choose suitable locations for the

three deep current meter moorings and three bottom transponders which were to be used to fix the neutrally buoyant floats during the float tracking exercise, the moorings and transponders being successfully emplaced, as shown on the attached track chart, by 1347 h, 19 November, with the transponders fixed by SATNAV. The three transponders were then surveyed in using Dobfax fixes in conjunction with SATNAV while the first float launched at 0207 h, 19 November was tracked to indicate the general advective drift at a depth set for 3700 m. Once the transponders were accurately fixed, three more floats were launched at depths intended to be 3700 m, in a north-south line across the transponder triangle, the drift at that depth now being known to be westerly.

During the next 8 days, 5 more floats were launched and tracked through the area, with hydrographic water bottle stations being worked between DOBFAX fixes, and two floats were recovered, with only a short period of dodging between 2250 h, 25 November and 0830 h, 26 November. While recovering a further float on 27 November the wind increased quickly to Force 9 and the ship dodged from 1306 h, 27 November until 0830 h the next day when the weather had improved slightly thus enabling further fixes to be made during alternate dodging and running before the wind, but no hydrographic series stations were possible. The ship continued dodging and running with an occasional DOBFAX fix as opportunities arose until 0845 h, 4 December, when the weather had moderated sufficiently to bring aboard the towed body streamed from the port baggage davit so that the cable, frayed through during the gales, could be repaired. By 1615 h one float and the northern-most bottom transponder had been recovered and a series of fixes were made to locate the floats still deployed. This was completed by 2210 h and two further floats were recovered the following morning before the ship moved south at 1316 h to avoid the storm centre of a deep depression approaching the area. Dodging continued until 2200 h, 7 December, gusts reaching over 90 knots during the early morning hours of that day.

By 0245 h on 8 December, the vessel was back within DOBFAX range of the remaining floats and began location fixes. The two remaining floats and two bottom transponders were recovered by 1550 h and the ship made ready to sail for Falmouth which was reached at 0919 h, 11 December, some noise trials being completed on the homeward run.

A total of 9 days 19 hours was lost due to weather.

RESULTS

1. Three deep current meter moorings were deployed in the NEA dumping zone, each with Bergen meters at 3700 m below the sea surface and 50 m above the sea bed. These are due to be recovered by RRS DISCOVERY in the second half of this month.

2. 7 successful float tracks were obtained at depths varying between 1000 m and 4700 m. The two 1000 m floats drifted at speeds of up to 10 cm/sec in a westerly or north-westerly direction. At the deeper levels velocities were of the order of 3 cm/sec, the most northerly float moving away to the north-west while those towards the south of the transponder triangle moved first to the west and then gradually turned south and later the most southerly floats had a slight easterly drift. One float was lost during the exercise. It was launched

at 0324 h, 24 November and followed down to within a few hundred metres of the bottom, but was not heard thereafter. An attempt was made to fire the acoustic release and a box search was made after the float should have surfaced, but no trace was seen.

3. Two hydrographic sections were begun in approximately north-south and east-west directions through the transponder triangle but only 7 stations were completed due to the time lost for bad weather. However, some geostrophic velocities have been calculated to compare with the estimates of drift given by the floats and current meters.

4. Tests were made of an IOS acoustic profiler down to 4000 m on the hydrowire, which achieved satisfactory results. There was insufficient time for free floating tests within the transponder triangle.

5. Because of the amount of time lost to bad weather, Aim 5 was abandoned.

H W Hill
15 December 1976

SEEN IN DRAFT R A Taylor
W J Saxby

INITIALLED AJL

DISTRIBUTION

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18° 16° 14° 12° 10° 8° 6° 4°

50°

48°

46°

● XBT

\+ Hydro WB Stations

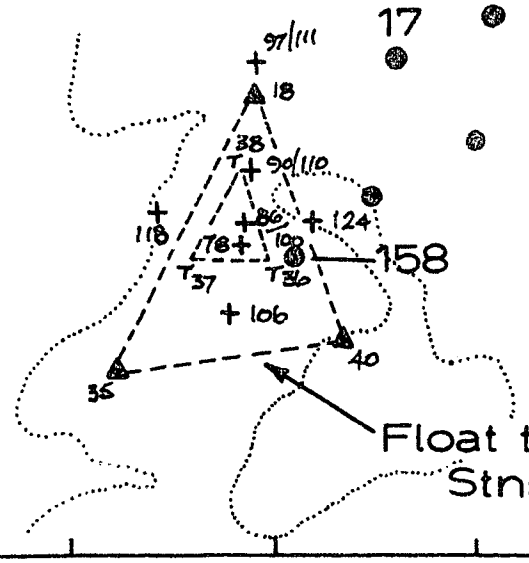
▲ Current meters

T Transponders

--- 200m.

..... 4000m.

172 1 3 5 6 7 8 9 166 167 168 162 17 158



Float tracking in this area
Stns. 19-34, 39, 41-157

CIROLANA 10/1976

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