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R.V. CLIONE

Report of Cruise 7/67

Staff:

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Duration:

8-18th August

Aims:

1. To moor 7 recording current meter stations at intervals of five and ten miles in the form of a cross, and ascertain how representative of all the readings those at the centre station are.

2. To suspend two Plessey meters and a Direct Reading current meter from one point and thus compare closely the speeds recorded by each over a 12½ hour tidal period.

3. To test the ion-exchange salinometer, the expendable bathythermograph system and other items of hydrographic equipment.

Narrative:

The ship sailed for the Flamborough Off Ground at 1000 hours 8th August and reached the region just before midnight. During the hours of darkness a search was made around the proposed working-area for groups of trawlers and in particular for a fleet of foreign trawlers known to be fishing the western half of the central North Sea. Since no uncommonly large number of vessels was sighted the first station was laid at 0815 hours 9th August and by 1900 hours all seven had been satisfactorily moored. Buoys C, D, E, F and G were anchored at various points along a 17 mile section of 54°07' latitude. Buoy A lay 6 miles south and Buoy B 6 miles to the north of Buoy E.

The ship lay that night near the centre station, Buoy E, anchored within a mile of it at dawn and by 0830 hours 10th August the gear was being rigged for a Direct Reading Current Meter station. Captain Craig then received the news that his daughter had been taken to hospital and that he should return to Lowestoft. The anchor was therefore weighed and the ship set course for Grimsby landing him at 1530 hours. The ship then anchored in the river off Grimsby between the Fairway buoys.

By 1700 hours two Plessey meters and a Direct Reading current meter had been suspended from a buoyed beam lowered into the water and floated off some thirty yards from the ship. During the next 12½ hours all meters recorded current speed and direction continuously and, as a check, the DRCM was read every ten minutes.

The ship left the Humber at 0900 hours 11th August and by 1700 hours had passed close to each of the moored stations. All the positions were checked and found to be correct, and the news that the buoys were present was passed on to a trawler working in the area. At 2200 hours the first measurements of a DRCM station 1½ miles south of Buoy E were made and were continued at half-hourly intervals during the next 12½ hours. Successful preliminary checks of the expendable bathythermograph system were also made.

At 1400 hours the ship weighed anchor and proceeded to check the positions of each buoy and the relative efficiency of the two types of radar reflector in use. No trouble was experienced at six stations, though two trawlers were warned en route that the buoys lay in their working area, but on approaching the seventh station (Buoy C) it was found that three Polish trawler-drifters were setting their nets dangerously close to it. Each was "visited" by the CLIONE and verbal exchanges ensued while at the "Maskonar" (SAN 19) a copy of the "Notice to Fishermen" poster issued by the Laboratory was thrown on to her deck. Unfortunately part of her long line of drift nets had already fouled the buoys and the CLIONE lay-off while the Polish skipper "walked" his nets clear of the buoy, deliberately cutting his headrope in the process. The three vessels then steamed off northwards.

It was found that Buoy C was within half a mile of its original position and that the Plessey meters were still working. The ship then retraced its course along the line of buoys in case further damage had been done. Since there was no damage and since there were few trawlers in the area the ship steamed eastwards to Skate Hole and at 0750 hours 13th August tests of the expendable bathythermograph system in deeper water than before and at half and full-speed were made. These were completed by 1050 hours and a further survey of the anchored stations was made while en route for Bridlington Bay where the ship anchored at 1810 hours.

At 0630 hours the next morning sampling began along a grid of stations spread across the moored-buoy region. By the middle of the afternoon the weather had deteriorated and the ship had to dodge head to wind for a few hours. By 0400 hours 15th August however the grid had been completed and several of the buoys seen en route. The ship then set course for the vicinity of Buoy A because a group of vessels had been seen there while the sampling was in progress. At 1130 hours the Laboratory reported that the trawler OLIVEAN had landed Buoy F, last seen at 1446 hours 13th August, at Grimsby that morning. The ship moved to the area of Buoy F but no signals could be heard from the meters that had been moored there.

Although the weather was far from favourable it was thought best to pick up the rest of the anchored stations and then search for the missing instruments. At 1500 hours Buoy E was recovered intact and the operation continued in rapidly improving conditions until 2200 hours when the final line of instruments was hauled inboard. The "Maskonar" station (Buoy C) was badly tangled and there is little doubt that the meter wire was dragged into the buoy wire by the drift nets.

At 0040 hours 16th August, a hydrophone search of the 16 square miles of sea in the immediate vicinity of the original position of Buoy F began. At 0720 the first definite groups of Plessey signals were seen and in the next thirty minutes they increased in strength. A dahn-buoy was thrown over and a hydrophone survey relative to its position suggested that the meter that was sending the signal lay about 100 yards east of it. Trawling began at 1300 hours and after the second tow (1520-1755 hours) an almost complete vertical fin of a Plessey meter was found in the cod-end.

Nothing else was found that night and the ship lay during the hours of darkness since the Decca was proving difficult to use and everything depended on its accuracy.

At 0545 the next morning another hydrophone survey was made and this time the critical area was defined as a circle, radius 200 yards, lying south west of the dahn-position and having that point on its circumference. Four two hour trawls were made through this region from 0740 until 1730 hours but nothing was recovered. A short hydrophone survey carried out just before the ship set course for Lowestoft showed very strong signals coming from two points about 300 yards south of the previously defined "critical" area in a region where weak signals had been seen the previous day. The ship docked at Lowestoft at 0800 hours 18th August.

Results:

1. For three days recording current meters were working normally at all seven stations. The measurements at Buoy C probably ended on 12th August and those at Buoy F on the following day. All the other stations seem to have been operational for the period 9-15th August.

2. The detailed vertical current structure near Buoy E was investigated for one tidal period and the temperature and salinity of the whole moored buoy area sampled by conventional means and by the ion-exchange salinometer.

3. An excellent comparison was obtained of the velocities as measured by two Plessey meters and a DRCM over the range 10-231 cms/sec.

4. The expendable bathythermograph was found to work well as an instrument per se and comparison of its performance against those of the ordinary bathythermograph and mercury thermometers were made.

5. The new buoy light and the new radar reflectors did not prove to be significant improvements on the present equipment. The "Sutton" wire-coiler proved most useful and a great improvement on all other methods tried to date.

6. The signals from only one of the three meters moored at Buoy F were picked up during the hydrophone surveys. Since the region of greatest signal strength changed slightly from day to day and since a fin from one of the meters was recovered it seems likely that at times CLIONE's trawl was very close to the instrument and may have been rolling it about the sea-bed. The facts that the meters were not "on station", that only one meter was working and that at least one fin had been broken off suggests that all the meters were stripped from their mooring-wire and broken up by the trawl of a commercial vessel.

J. W. Ramster
21.8.67.

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