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CRUISE REPORT

F.R.V. MARA

20 May - 1 June 1968

Narrative

The scientific staff joined MARA in Buckie on the morning of May 20 and the boat immediately made for the two stations near Buckie where half of the 1,000 bottom drift indicators were to be released. Unfortunately, MARA picked up a rope on her propeller on the way out of Buckie harbour and made only very slow progress towards the first position where Mr. Adams put on his diving suit and was able to clear it in about 45 minutes. After releasing the second batch of drift indicators, MARA made for the Kinnaird Head area but rapidly deteriorating weather and a large northerly swell forced her to shelter in Fraserburgh until Wednesday, the intervening time being spent preparing her current meter mooring.

The mooring was effected without any major snags on the morning of the 22nd in a position $3\frac{1}{2}$ miles NxE Rosehearty. Four parachute drogues were released between this position and the other buoy position $7\frac{1}{2}$ miles offshore but because of difficulties in tracking them one parachute had to be lifted after a few hours. The remaining drogues were tracked for 27 hours and hydro stations were worked whenever time permitted. After the drogues had been lifted on the afternoon of the 23rd, MARA then made for the Cullen area and released one drogue. As it was anticipated that the drogue would not alter its position very much over a $12\frac{1}{2}$ hour period in this area, MARA went into Buckie for the night, returning to the drogue which was found with little difficulty early the following morning. With the short time available that day hydrographic stations were worked and the drogue tracked before MARA had to return to Buckie early in the afternoon.

Work was severely curtailed during the second week due to persistent dense sea fog. Fortunately on the 27th conditions were good enough in the Banff area to be able to track four drogues which were spaced fairly close together. In spite of the conditions MARA was able to work throughout the night and the opportunity was taken to experiment with a method of lowering the parachutes into the sea using an ice release mechanism. In this way the parachute attained its depth of 40 fathoms inside two minutes as compared with 15 minutes when the parachute is sent down opened. The dangers of wires and ropes becoming twisted and entangled are also much less.

By midmorning of the 28th conditions had generally ameliorated and MARA proceeded to the Kinnaird Head area where two parachutes were released. Scarcely two hours later, however, the fog once again came down and there was no alternative but to head into the Firth once again. Unfortunately, fog was dense all the way up to Buckie and MARA berthed there at 7 p.m. MARA could not leave again until early the following afternoon because of the fog and as the weather forecast did not give out much hope for an immediate general improvement it was decided to haul up the equipment off Rosehearty. This was carried out with only one major snag. The stopper failed to pass through MARA's bollards on hauling up and this had to be removed from the line while MARA's other winch took the weight. Unfortunately, on the mooring $7\frac{1}{2}$ miles offshore the instrument line with sub-surface buoy and two current meters had parted from the mooring at a splice and were deemed lost. On the other mooring a meter had been damaged by water, leaving only one meter from which useful data could be obtained.

MARA returned to Buckie at 2200 on the 29th and, in view of the large amount of heavy equipment which she now had on board, it was considered

wise to hold on to her berth the following day because of the large number of fishing boats already entering the harbour for the weekend. Besides, visibility continued to remain very poor. The equipment was transferred to the laboratory lorry that afternoon and the cruise terminated.

Results

In spite of the severe curtailment due to weather, enough drogues were tracked to be able to ascertain the variation in residual current over the area of the southern trench from an area of zero residual near Cullen to an area to the west of Kinnaird Head with a complete suppression of the ebb current giving rise to a strong easterly residual. East of Kinnaird Head this residual backed to the north east under the influence of the northerly ebb current of the main north-south progressive tidal wave in the North Sea. The drogues tracked at depths greater than 100 m in the southern trench also revealed similar residual currents.

In general this kind of work was performed with ease on MARA but the lack of radar was a severe handicap especially during the second week. Finding the drogue dahn was always difficult but this will be readily remedied in the future by using D.F.

H.D. DOOLEY
14th June, 1968