S M B A, Dunstaffnage Marine Research Laboratory

Cruise Report: RRS CHALLENGER Cruise 10A/1975.

Duration: 1312 h 4 July to 0845 h 10 July 1975. All times BST

Locality: Rockall Channel, 56° to 58° N.

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Aims:

1) To establish a current meter mooring in 57°N, 9°W.
2) To work hydrographic sections from the continental shelf-edge to Anton Dohrn Seamouth and Rockall, and from Rockall Bank towards Malin Head.
3) To make plankton net tows for crab larvae for Dr Williamson.
4) To obtain bottom samples for the Dept. of Geology, UCW, Aberystwyth.
5) To obtain 50 litre surface water samples for 137 Cs analysis by the Fisheries Radiobiological Laboratory.
6) To transmit messages of vertical temperature profiles to Bracknell.

Narrative: CHALLENGER sailed in fine, calm weather from Dunstaffnage at 1312 h 4 July. Surface samples were taken from the Sound of Mull en route to the first station of the Anton Dohrn Seamount section, which was reached at 2320 h. STD lowerings were made at five stations (T to P) before returning at 0845 h 5 July to station R to launch the current meter mooring. This was completed by 1012 h and work along the line of the section was resumed, plankton hauls being made in the vicinity of the 500 m isobath and a Shipek grab sample being obtained at station P.

Between 1420 h 5 July and 0120 h 7 July stations O to A of the section were completed in continuing calm weather. Plankton hauls and grab samples were obtained or attempted at many of the stations.

The Rockall-Malin hydrographic section was begun at 0310 h 7 July and light winds with barely disturbed sea conditions allowed 10 stations (Q to H) to be worked, covering the western two-thirds of the section. At 0745 h 8 July course was set for the buoy station with the aim of checking the mooring and carrying out a short shelf-edge STD section. Two plankton hauls were taken and an echo-sounder watch maintained as the ship crossed the Hebrides Terrace. However, at 1410 h a distress call was received and the ship proceeded to the assistance of the trawler GRANTON HARRIER. Ten survivors were taken off and later flown from CHALLENGER by naval Sea King helicopters to Prestwick. CHALLENGER returned to stand by the derelict vessel, which, during the evening, was boarded and got under tow. By 1430 h 9 July GRANTON HARRIER had been put into running order by a party from CHALLENGER and the

tow was cast off, both vessels setting course for Ardrossan which was reached at 0845 h 10 July.

Results: Aim 1). The current meter mooring was launched without difficulty on 5 July. The satellite navigation system, although experiencing teething troubles, was able usefully to confirm the accuracy of position fixes by other means.

Due to the distress call on 8 July it did not prove possible to check the mooring at the end of the cruise, but as the weather had been extremely calm in the interim and as no fishing had been taking place at the time of launching, the check was readily foregone.

Aim 2). All twenty stations of the Anton Dohrn Seamount section were worked, and ten stations of the Rockall-Malin Head section were completed. The STD results were logged on cassette tapes at each station. The data have yet to be studied in detail, but the mass transport values during this period of settled calm will be of considerable interest.

Aim 3). Plankton hauls were made with 50 cm nets at 23 stations by Dr Williamson. Initially, oblique hauls were made from the centre warp aft, but subsequently vertical hauls or stratified tows from the hydrographic wire were found to be preferable. Spiny crab larvae, found in earlier years over the deep water and Rockall Bank, were absent, and plans to rear adults at

Dunstaffnage were not realised. Plankton from the hauls was in general sparse, although over the western deep water extensive slicks and foam upon the unusually calm sea surface appeared to indicate plankton blooms in the upper mixed layer, which was of minimal thickness.

Aim 4). Grab samples were attempted at fourteen slope and deep water stations and seven samples obtained. The Shipek/hydrowire system is too light for reliable use in deep water, even when calm conditions produce little stray of the wire from the vertical, as on this cruise.

Aim 5). Samples for 137 Caesium analysis were obtained on 4-5 July at the ten positions also sampled in March and May.

Aim 6). Eleven messages giving details of temperature profiles to 500 m depth were sent to Bracknell during the cruise. The surface mixed layer was usually of 10 m or less depth over the shelf and bank regions, and mostly absent over the deep water. Surface temperatures of 13° - 14° C were not unusually high by comparison with 1948-65 means.

D.J. Ellett
11 July 1975.