SMBA, Dunstaffnage Marine Research Laboratory.

Cruise Report: RRS CHALLENGER Cruise 12A/1975.

Duration: 1055h 26 August - 0930 h 2 September 1975. All times BST.

Locality: Rockall Channel, 55°30' to 58°N.

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Aims: 1) To retrieve the current meter mooring at 57°N, 9°W and to re-lay it after changing the current meters.

2) To work the hydrographic section to Anton Dohrn Seamount and Rockall, and the Rockall-Malin Head Section.

3) To use the submersible pump and Autoanalyser for nutrient determinations across the Scottish shelf-edge.

4) To obtain bottom samples for the Dept. of Geology, UCW, Aberystwyth.

5) To work additional STD sections across the shelf-edge, as time permits.

6) To obtain 50 litre surface water samples for 137Cs analysis by the Fisheries Radiobiological Laboratory.

7) To transmit messages of vertical temperature profiles to Bracknell.

Narrative Leaving Dunstaffnage at 1055 h 26 August, CHALLENGER steamed to the first station of the Anton Dohrn Seamount Section by way of the Sound of Mull. Surface samples for 137 Cs analysis were taken en route. In fine weather and light winds the section was commenced at 2303 h and three stations were worked during the night.

Nutrient sampling with the submersible pump took place at each. At daybreak 27 August, a search was begun for the current meter mooring, and this was located at 0900 h. Recovery, from the sub-surface float end because of the loss of the spar buoy, was straightforward and was completed by 1028 h. Work upon the section recommenced at 1135 h with one further submersible pump station. Calm weather continued and Rockall was reached at 0100 h 29 August. Shipek grab samples were taken at shelf stations and over Anton Dohrn Seamount, and the three shelf stations over Rockall Bank were sampled to 80 m with the submersible pump.

Work on the Rockall-Malin Head Section began at 0349 h 29 August and grab samples were taken over the bank. The submersible pump was used at station N, just off the bank-edge to replace nutrient and chlorophyll-a profiles missed at the similarly situated station D of the previous section when the underwater connection of the pump failed. At station M signals from the STD head ceased at the time of messenger descent. The fault, noted on previous cruises, and which had been worsening during the preceeding day, was diagnosed as arising from a break within the cable at about 650 m, and accordingly 700 m of cable were cropped. The joint was re-made and work was able to continue

without delay at the next station. Apart from slowing for minor boiler repairs.between 0130 and 0400 h 30 August, the Rockall-Malin Head section continued uneventfully in calm weather until station A was completed at 0020 h 31 August. Submersible pump lowerings were made at the four eastern-most stations and Shipek grab samples obtained upon the shelf.

During the morning of 31 August five shelf stations were worked en route to station S of the Anton Dohrn section, and between 1301 h and 1848 h stations S to P, over the break of the shelf, were repeated in force 4 - 5 south-westerly winds. Due to a fault which arose in the temperature circuits of the STD head the centre two stations were worked with water-bottles. CHALLENGER then steamed north-westwards to make a section from the deep water between the seamount and Rosemary Bank on to the shelf in the vicinity of St. Kilda. This was begun at 0210 h 1 September in freshening force 5 - 6 winds and showery weather. Due to another failure of the STD temperature circuits the second station was omitted and the third worked with water-bottles, but repairs were completed by 0732 h and four further stations were worked with the STD to end the section at 1148 h 1 September. One grab sample was taken on the shelf. The ship set course for Barra Head in force 4 - 5 winds and a moderate swell, reaching Dunstaffnage at 0930 h 2 September.

Results Aim 1) The spar buoy had vanished from the current meter. mooring, but location and retrieval was possible by way of the pellets attached to the sub-surface float. The latter was in the position in which it had been laid, and the ground wire was

each case, and continuous surface records of these parameters were taken along several sections of the ship's track.

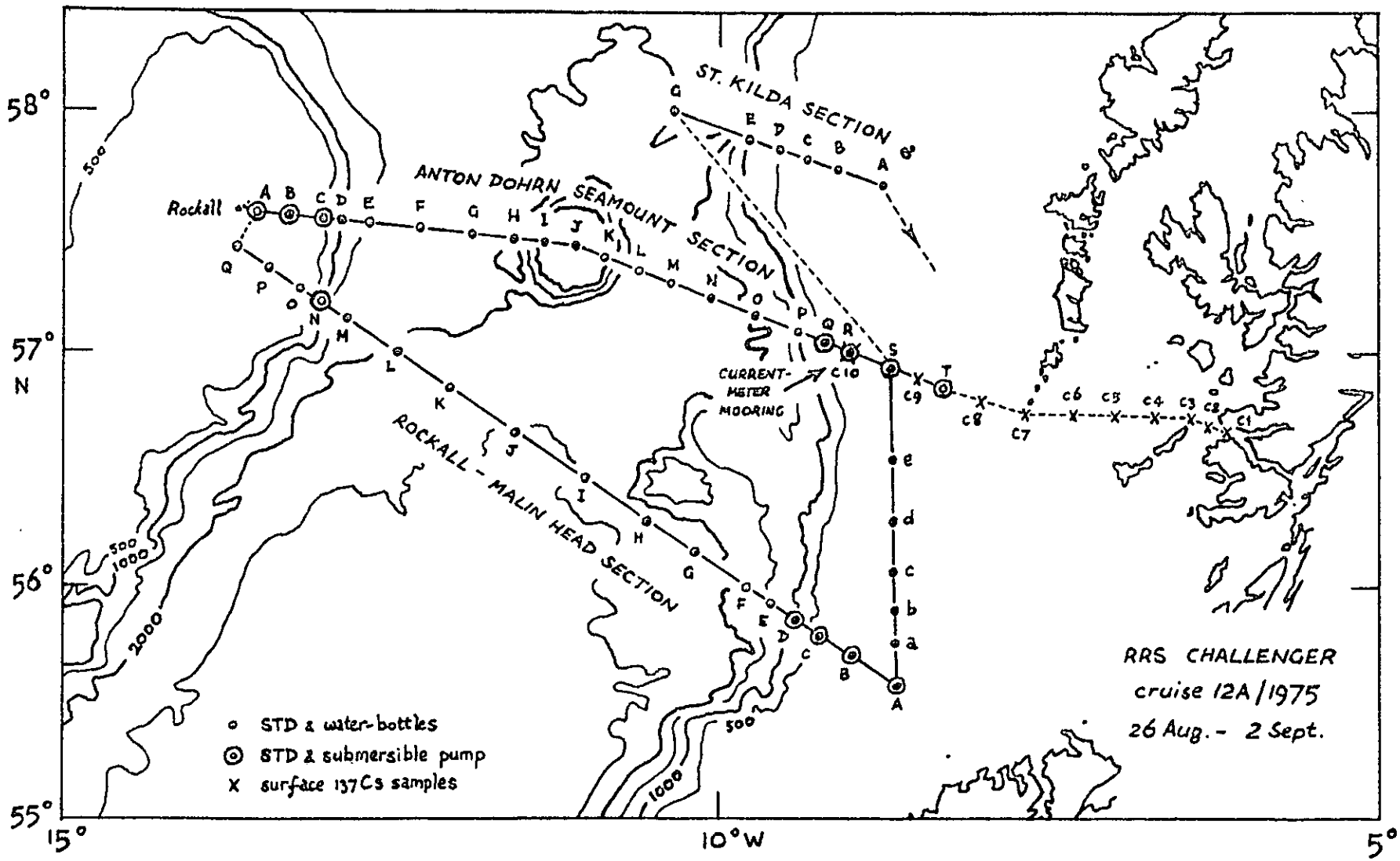
Aim 4) Grab samples were attempted at 22 shelf stations with the Shipek grab, and 20 samples successfully obtained.

Aim 5) In addition to the shelf-edge crossings of the two main sections, four stations of the Anton Dohrn section were repeated after an interval of four days and an additional section of six stations was worked inwards to the shelf in the vicinity of St. Kilda.

Aim 6) 10 Surface water samples for 137 Cs analysis and associated salinity samples were obtained between Ardmore Point and station R, Anton Dohrn section, on 26 - 27 August.

Aim 7) 14 Messages of temperature profiles were encoded from STD traces and transmitted to Bracknell during the cruise. Surface mixed layer depths were very variable, with transients of up to 0.5 deg C., and less than 5 m depth appearing at the surface over the shelf-edge on the warm afternoon of 30 August.

D.J. Ellett.
4 September 1975.


ST. KILDA SECTION
ANTON DOHRN SEAMOUNT SECTION
ROCKALL - MALIN HEAD SECTION
Rockall
CURRENT-METER MOORING
C10
RRS CHALLENGER
cruise 12A/1975
26 Aug. - 2 Sept.
STD & water-bottles
STD & submersible pump
surface 137Cs samples
58°
57°
N
56°
55°
15°
10°W
5°
500
1000
2000