In Confidence - Not to be quoted without reference to the Laboratory. 3MR67

CRUISE REPORT

F.R.S. MARA

March 28th - April 14th 1967

Personnel
C. J. Chapman, S.O.
B. S. McCartney, (N.I.O.)
A. R. Stubbs, (N.I.O.)
A. Ranachan, S.S.A.

MARA left Buckie on 27th March and arrived at Kyle on 29th. The next four days were spent wiring up the ship's laboratory and testing equipment in Kyle. On 3rd April MARA proceeded to Loch Torridon. An echo-survey was then carried out and a suitable deep hole was found S.E. of Alligin, (57°32.85'N, 5°35.35'W) for acoustic work. Three anchors were laid around this position and MARA remained at anchor until 11th April except for the night of the 7th when she returned briefly to Kyle to take on water and stores.

The system of anchoring was unsatisfactory. One or more anchors dragged on the 4th, 5th April in squally weather. Plans are underway for the Admiralty moorings department to lay more permanent moorings before the next cruise.

Results

1. The main object of the cruise was to test a number of low frequency sound sources in the chosen position in preparation for the second cruise in May and June. A 3Ko array, "Gloria" array and a compressed air source all worked satisfactorily (see separate report from N.I.O.).

2. Ambient noise measurements were carried out for different sea state conditions. During this work the N.I.O. and the Marine Laboratory's A.R.L. hydrophones were compared. At sea state 0, the ambient sea noise at the anchorage position was too low to be measured above the internal noise of either hydrophone-systems.

3. 'Knock-like' pulsed sounds were heard when a hydrophone was lowered to within 5 fathoms of the bottom at the anchorage position. These can almost certainly be attributed to haddock which were present in small numbers in this area.

4. Shoals of whiting appeared to be abundant in the area. These were first observed as dense echo-traces which were identified by handline fishing. On one occasion the echosounder was run for 24 hours and diurnal movements of the shoals were observed. An interesting observation was the reaction of these fish to the compressed air sound source. At first the fish were seen to dive down 10 fathoms as soon as the sound started but over a period of several minutes, the fish appeared to get used to it and return to their original depth.

C. J. CHAPMAN
9th May 1967