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In Confidence: Not to be quoted without reference to  
the Laboratory.

CRUISE REPORT

F.R.V. "CLUPEA"

July 1st - July 20th, 1968

Objectives

- 1) To carry out an echo-sounding survey off south-east Shetlands in order to estimate the abundance and distribution of herring shoals.
- 2) To obtain plankton samples from the same area for the Scottish Marine Biological Association at Edinburgh.

"Clupea" sailed from Buckie Harbour on the morning of July 1st and proceeded to Lerwick. The first week was to be spent in a general echo survey of the herring distribution off East Shetlands, but bad weather prevented this.

In the second week a region 24 miles square bounded by the coordinates

60°19'N	01°00'W	60°19'N	00°12'W
59°55'N	01°00'W	59°55'N	00°12'W

was chosen after consulting fishing reports. An echo search plan was carried out inside this region. The same region was surveyed during the third week.

During the search plankton samples were taken with a plankton indicator every hour from 6 p.m. (B.S.T.) to 6 a.m. (B.S.T.).

The main concentrations of herring shoals were observed in the northern part of the region surveyed. The number estimated was 36 per square mile in the northern half and 14 in the southern half. Considerable differences in the number of shoals were observed in the same areas of the region from day to day.

The distribution of the shoals was not random but could be accounted for by the random distribution of groups of shoals.

J. A. Urquhart  
9th October, 1968