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TO THE LABORATORY

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CRUISE REPORT

FRS 'CLUPEA'

23 FEBRUARY-28 MARCH 1970

OBJECTIVES

1. To carry out a herring egg survey on Ballantrae Bank.
2. To survey the Ballantrae Bank area for herring larvae to assess larval production.
3. To measure the availability of suitable food for herring larvae.
4. To carry out tests of the relative efficiencies of the Standard Gulf III sampler and the Dutch and German versions of this sampler.

FIRST PART - 23 FEBRUARY-5 MARCH

'Clupea' sailed from Greenock at 1300 hours on 23 February to begin the herring egg survey on Ballantrae Bank. Strong to gale force westerly winds hindered the work and the survey was not begun until the following morning. Thereafter work with the grab proceeded uninterrupted for the remainder of the week.

The egg survey on Ballantrae Bank was continued during the second week of the cruise. In addition to the grabbing work, a series of underwater photographs were taken of the sea bed to supplement the information obtained by grab. On 2 March grabbing had to be temporarily abandoned due to stormy weather but conditions had improved by the following morning and the survey was resumed. The work continued until the evening of 5 March when 'Clupea' proceeded to Greenock for the arranged long weekend break for ship personnel. 'Clupea' berthed in James Watt dock at 2200 hours.

Herring spawn was first sampled in the afternoon of 25 February. The eggs were in early stages of development, indicating that they had been recently deposited. The spawn covered an area of about 180,000 square metres and was situated in the same locality of the Bank as the patch located in 1969. While the area of the egg patch appeared to be slightly smaller than in 1969 the average density of eggs per square metre was very much higher.

During the second week of the survey good catches of ripe herring were still being obtained by the trammel net fishermen and it was clear that spawning had not yet ended. The grab and photographic survey was continued over a wide area of the Bank in order to locate other possible patches of spawn. Results from the photographic survey made on 4 March showed that there was a second small patch of spawn about $\frac{1}{2}$ mile south of main patch located in the previous week.

During the period of the egg survey, plankton hauls were made over the Bank. No herring larvae were observed in the collections taken in this period.

SECOND PART - 10-24 MARCH

'Clupea' sailed from Greenock at 0100 hours on 11 March to continue work on Ballantrae Bank. On arriving at the Bank some grabbing work was done to obtain further samples of eggs and a few plankton hauls were made in the vicinity of the egg patch to determine if hatching had begun. Having obtained a few larvae on the 11th, the first larval survey of the Bank was carried out on 12 March. On the 13th, because operating time was curtailed by the need for some minor engine repairs, a survey of the Bank to collect samples of available food for herring larvae was carried out.

A second survey of the Bank was done on 16 March but no work was possible on the 17th or 18th because of gale force NW winds. On the 19th, conditions improved enough to allow some of the Gulf III efficiency tests to be carried out. No work was possible on the 20th because of gale force NW wind. It was, however, possible to complete the comparative Gulf III tests on 23rd and 24 March.

Larvae were first recorded in hauls on the 11 March and concentrations increased up to the 16th when hatching reached its maximum. However, larvae persisted in fairly dense concentrations on the southern part of the Bank until the end of the cruise, allowing all the Gulf III tests to be carried out in approximately the same area.

I G BAXTER
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17 April 1970