

IN CONFIDENCE: NOT TO BE QUOTED WITHOUT REFERENCE TO THE LABORATORY

CRUISE REPORT

FRS "CLUPEA"

7-26 May 1973

OBJECTIVES:

1. To survey the ground approximately 10 miles NNE of Lossiemouth, select an area suitable for noise measurement work and to lay and calibrate a hydrophone range.
2. To make measurements of the noise generated by
 - (a) pair trawls, and
 - (b) a Danish seine net towed over the range

NARRATIVE:

Scientific gear was installed on 'Clupea' at Buckie on Monday and Tuesday (7/8 May) and the ship sailed at 0400 hours on Wednesday (9 May) to a position 10 miles NNE of Lossiemouth (57°50.5N 03°10.4W). A preliminary echosounder survey of the seabed was made and several grab samples of the seabed were obtained, and proved to consist of a fine grey mud. An array of five hydrophones, approximately 100 m apart, were laid and attached to a line stretched between two anchored dahns. A full check of the range was performed and the positions of all five hydrophones accurately determined. 'Clupea' then returned to Buckie, arriving at 1830 hours on Friday (11 May).

'Clupea' returned to the range at 1230 hours on Monday (14 May) to meet the 'Bracoden' and begin the pair trawling noise trials. Four runs were made with the 'Bracoden' steaming alone over the range under different rpm and propeller pitch conditions. On Tuesday (15 May), the 'Bracoden' was joined by her sister ship, 'Replenish', and three noise measurement runs were made, two with the ships towing a 24" mesh Appeldoorn gear, and one with them towing a Cosalt gear. After the third haul, the net fouled the propeller of 'Replenish', which was then towed to Buckie for laboratory divers to clear the propeller. On Wednesday (16 May), both ships returned to the range and performed two runs towing a 32" mesh Appeldoorn gear. Replenish then ran over the range alone, under four different rpm pitch conditions. Later that day, a haul was carried out using instruments attached to the 32" mesh gear to measure the geometry of the net (horizontal and vertical openings) and its fishing depth. This test terminated the pair-trawling trials. Both 'Bracoden' and 'Replenish' departed for Buckie while 'Clupea' began the task of recovering the hydrophones and other equipment. This work was completed by the evening of 7 May, when she returned to Buckie. Preparations were made in port, during Friday (18 May), for laying a larger array of hydrophones at a new position appropriate for the seine net work.

'Clupea' sailed from Buckie at 1400 hours on Monday, 21 May, to rendezvous with FRV 'Mara' in the Spey Bay area. A range was laid on a sandy bottom 2 miles east of Lossiemouth (position 57°43'N 03°12'W) consisting of four widely spaced hydrophones approximately 500 m apart, laid around the 'Mara's'

anticipated fishing area. The array geometry was then determined by divers placing a pinger consecutively at two of the hydrophone positions. On Wednesday 22 May, 'Mara' performed three seine net shots in the region of the array. The first was performed with a single pinger attached to the headline of the net, and the second with four pingers arranged along the port rope. The third utilised a headline-mounted pinger, but in addition three divers made concurrent observations on the gear.

The range was hauled on board 'Clupea' on Thursday, 24 May, and the ship departed for Buckie.

As a result of these trials, recordings are now available of two pair trawl vessels under different steaming conditions, and towing three types of midwater trawl. In addition, recordings of seine noise are available, including one recording with divers on the net, and an additional recording with pingers mounted along one rope to permit accurate tracking of the shape taken up by the gear. The tape recordings are at present being analysed at Aberdeen.

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