R1/6

6CR73
7

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

CRUISE REPORT

FRS "CLUPEA"

28 May - 22 June 1973

STAFF:

P A M Stewart	SSO	(in charge)
R D Galbraith	ASO	
C W Shand	ASO	
J H B Robertson	ASO	

OBJECTIVES:

1. To conduct a comparative fishing experiment for Nephrops norvegicus using a 9 m beam trawl with electric ticklers and twin cod-ends. Each side of the net was rigged with a set of electrodes in contact with the bottom, only one set being energised at a time. The net was divided from the beam back to the codends.

2. To continue experiments on the response of N. norvegicus to electric fields using underwater TV.

GENERAL:

"Clupea" left Buckie on 28 May and sailed to the North Minch via the Pentland Firth. During the first week "Clupea" fished off the east coast of Lewis, during the second week in the outer Sound of Raasay, and in the third and fourth weeks off Gairloch. The vessel returned to Aberdeen via the Pentland Firth.

The weather was suitable for shooting the beam trawl throughout the cruise, except for one day in the third week. Observations with the TV system were made in Loch Shell and Loch Torridon.

RESULTS:

The results obtained by comparative fishing were very encouraging. Some initial difficulty was experienced in handling the power transmission cable and in rigging the beam trawl to fish correctly. It proved necessary to use a high tensile power cable and to fish the beam trawl with a warp length $1\frac{1}{2}$ to 2 times the water depth.

Low catch rates were obtained off Lewis and in the Sound of Raasay, but catch rates adequate for statistical analysis were obtained off Gairloch. The number of valid comparative hauls made was not large but in every case the catch in the electrified side was greater than that in the non-electrified side. The ratio of the total catch in the electrified side to that in the non-electrified side was 1.46. At this stage however, this figure can only be taken as an indication of the effectiveness of the technique. The side of the net electrified was changed periodically.

The electrical stimulus used was 1 second long bursts of 15 Hz DC pulses at a burst repetition rate of 0.5 Hz. The electrodes were 1 m apart and the pulse amplitude was 50-60V.

Good quality video tape recordings were made of the reactions of N. norvegicus to electric fields, principally in Loch Torridon.

P A M Stewart
31 July 1973