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Not to be cited without prior reference to the Marine Laboratory, Aberdeen

FRV *Clupea*

Cruise 1099C

REPORT

17-28 June 1999

Ports

Loading: Kyle of Lochalsh

Unloading: Fraserburgh

Personnel

R D Galbraith (In charge)
P J Barkel
N S Collie
C C S Radcliffe (18-21 June)
G N Graham (22-25 June)

Shore based diving team who attended trials from 18 to 21 June

G I Sangster
M Breen
G N Graham
R J Kynoch
A S Revill

Shore based visitors who attended trials as follows:

E Buyvoets (18-25 June)
C C S Radcliffe (22-26 June)
A S Revill (22-23 June)
H Polet (22-25 June)
H Benkreira (23-24 June)
B Hoddevik (23-24 June)

Fishing Gear

Experimental Prawn Trawl fitted with selection grids.

Objectives

1. To carry out diving observations and engineering measurements on above gear in the shallow waters of Broad Bay.

2. To conduct instrumented fishing trials with the same trawl in deep water using RCTV to observe gear and fish behaviour on North Minch *Nephrops* grounds.

Out-turn days per project: 12 day C 627

Narrative

Clupea left Kyle on 17 June and made passage to Stornoway where the divers' towed underwater vehicle was taken on board. From 18 to 21 June *Clupea* carried out gear trials in Broad Bay, working in cooperation with the diving team based ashore at Brevig harbour. On the evening of 21 June *Clupea* returned to Stornoway where diving equipment was put ashore and RCTV gear taken on board. From 22 to 26 June *Clupea* worked on commercial *Nephrops* grounds off Tiumpán Head, returning to Stornoway each evening to disembark shore based staff. *Clupea* left Stornoway on the evening of 26 June and made passage to Fraserburgh, arriving on the afternoon of 27 June. Fishing gear and scientific equipment were unloaded in Fraserburgh on 28 June, when scientific staff returned to Aberdeen.

Results

1. Twelve hauls were carried out in Broad Bay, on eleven of which diving observations were made. Bottom debris was seen to obstruct the passage of fish through the spaces between bars so modifications were made to the primary grid to allow debris to pass through the grid below the barred area. The prototype plastic grids proved insufficiently robust to withstand operating conditions so a steel grid was manufactured in Stornoway in preparation for the fishing trials. Water flow in front of, above and behind the primary grid was measured on three hauls. Underwater video recordings of between fifteen and thirty minutes were made on all diving hauls.
2. Thirteen hauls were made on commercial fishing grounds using both steel and plastic grids, with bottom debris proving to be much less of a problem in the deeper water. The gear fished well and catch rates of up to four baskets of *Nephrops* per hour were achieved, but few finfish were present on the grounds. At a grid angle of attack of 45 to 50 degrees and bar spacing of 30 mm the vast majority (> 95%) of *Nephrops* were taken in the lower codend. With shallower angles of attack the proportion in the upper codend increased. RCTV observations were hampered by mud clouds generated by the gear so a mini TV system using artificial light was positioned on the grid. Some seven hours of behavioural observations of both *Nephrops* and finfish in the vicinity of the grid were recorded using this method.

Selected footage from both the diving trials and fish behaviour observations will be used at a later date in a compilation video tape describing the NETRASEL project (EU shared cost contract FAIR - CT98 - 4164).

R D Galbraith
2 July 1999

Seen in draft: A Simpson, OIC