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

FRV CLUPEA 1CR82

CRUISE 1/82

REPORT:
25 January - 18 February 1982

OBJECTIVES

1. To investigate the selection of fish by size/species using multi level trawls with alternative arrangements of internal panels and mesh sizes.

2. To observe and record the fishing process using the Remote Controlled Television Vehicle.

NARRATIVE

Due to the delay in completing the refit and subsequent bad weather 'Clupea' did not leave Aberdeen until 4 February when passage was made to the Orkneys. On the following day the weather was not suitable for trawling so the opportunity was taken to try out the RCTV system in the sheltered waters of Deer Sound. Some problems were encountered with the RCTV and 'Clupea' returned to Kirkwall to carry out repairs. Mr Barkel arrived in Kirkwall on 6 February, sailed with 'Clupea' on 8 and 9 February and returned to Aberdeen on 10 February.

One haul was made off Copinsay on 8 February before weather conditions forced 'Clupea' to seek shelter. A further six hauls off Copinsay were carried out on 9 and 10 February but the weather again deteriorated on 11 February and no further work was possible that week.

By 15 February the weather had moderated and another six hauls were made off Copinsay on 15 and 16 February. 'Clupea' left Orkney waters on 17 February and steamed south to Clyth Ness where a further haul was made before entering Buckie Harbour that evening. Fishing gear, instruments and TV equipment were unloaded at Buckie on 18 February and returned to Aberdeen.

RESULTS

14 hauls were made, 7 with each gear, and all but the last haul took place off Copinsay, where the predominant species was haddock, with much smaller numbers of whiting also present. Total number of haddock taken was 21,841, whiting 1,512, giving a ratio of over fourteen to one. Other species taken included skate, dogfish, cod, angler, saithe, catfish and small flatfish but not in significant numbers and confined mainly to the bottom codend.

BT 150B - This net had proved to be the most selective of the gears used on the previous cruise and had been further modified by having the upper internal panel cut back behind the lower internal panel which in its turn was cut back behind the bellyhead. At 3 knots this arrangement gave a headline height of 4.9m with internal panel heights of 1.8m and 0.9m. The proportion of haddock and whiting taken in each of the 3 codends is shown below:

| | Haddock | Whiting |
|---|---|---|
| Top | 78% | 30% |
| Middle | 15% | 42% |
| Bottom | 7% | 28% |

In order to increase the proportion of haddock in the top codend a rope array was set vertically over the two lower openings. This array consisted of 7 x 1.2m x 12mm white polypropylene strops set in parallel 0.9m apart. The headline height now became 4.6m at 3 knots with internal panel heights of 1m and 0.5m. This arrangement gave the following proportions per codend:

| | Haddock | Whiting |
|---|---|---|
| Top | 96% | 51% |
| Middle | 3% | 31% |
| Bottom | 1% | 18% |

BT 150A - This net is similar to the original Multi Level Sampling Trawl (BT 150) in that each panel extends forward over the panel below but the panels were made up in different mesh sizes ie lower internal panel 115mm mesh, upper internal panel 100mm mesh, square and baitings 90mm mesh. At 3 knots the headline height of this net measured 6.5m with internal panel heights of 3.7m and 2.1m. In this case the proportions of haddock and whiting per codend were much more evenly distributed:

| | Haddock | Whiting |
|---|---|---|
| Top | 32% | 38% |
| Middle | 32% | 35% |
| Bottom | 36% | 27% |

As this gear could be described as "a trawl within a trawl within a trawl" these figures underline yet again the significance of headline height.

With both gears there was no obvious variation in size of fish between codends.

RCTV - Due to zero visibility at the fishing depth on the Copinsay grounds it was not possible to observe the fishing process using natural light, although the vehicle was used with underwater lighting to check the performance of the gear. On the grounds off Clyth Ness, however, the underwater visibility was much improved and a 2 hour tape of the trawl gear made. The new pan and tilt unit proved particularly useful for this type of work.

R.D. GALBRAITH
22 March 1982

Seen in draft: G. Geddes