

In Confidence - Not to be quoted without prior reference to the Laboratory
FRV "Clupea"

Cruise 13/81

REPORT

21 September - 9 October 1981

Objectives

- (1) To observe the fish behaviour to a 3 level sampling trawl using both diving techniques from (TUVII) and the remote vehicle (RCTV). (2) To assess and measure the trawls and adjust the levels of the 3 fishing lines of the net for separation of the species.

Narrative

The ship sailed from Buckie at 1600 hours on Monday 21 September for Kirkwall in Orkney and early on Tuesday morning the spares for the Remote Controlled Vehicle and some ~~trawling~~ ^{hauling} gear were landed and stored ashore. The ship then proceeded to Deer Sound where two hauls were made to allow divers to measure and observe the first trawl BT150B. This area was subsequently used for observing both the BT150A and BT150 by the divers.

"Clupea" worked between Start Point and Copinsay for the whole cruise returning each evening either to anchor in Deer Sound or lie at Kirkwall Pier. The weekends were spent alongside Kirkwall Pier.

Although the weather was poor during the three weeks only three days were lost due to gale or storm force winds.

Fishing was steady during the first two weeks with catches ranging from 16 to 34 baskets for the two hour hauls in the daylight and 42 and 44 baskets for two x one hour hauls in the dark. The third week fishing was rather patchy with catches from three baskets to 60 baskets for 1½ hour tows.

Both objectives in the programme were achieved during the cruise.

The ship docked at Buckie at 1830 hours on Thursday 8 October.

Results

During the first week the BT150B bottom trawl with two unequal horizontal separating panels was fished. These unequal panels were set with the fishing line of the first one (1.8 metres) behind the bobbins and the second at 1.5 metres. The other dimensions of the trawl when fished with 150 metres of warp aft, towing at 3.1 knots and using 2.75 metres flat doors were

Door Spread	46 metres
Wingend Spread	18.3 metres
Wingend Height	3.3 metres
Headline	5.0 metres

From earlier observations on the fish behaviour in the mouth of the trawl by the divers the two separating panels were tied down to the bobbins with 0.6 m and 1.2 m foot stropes respectively.

Fish were counted and measured from each of the three codends and good separation of the species resulted with the bulk of the haddock being caught in the top codend with only a small proportion passing into the middle and bottom ones.

Only a few cod were caught and these were mostly found in the bottom codend with one or two in the middle one. Whiting ranged between the top and middle codends with only a few in the bottom but again no large quantities were caught.

The second week the BT150A with both separating panel fishing lines directly above the bobbins was fished. This gear was also measured with the same warp length and doors, speed was 2.9 knots.

Door Spread	35 metres
Wingend Spread	13.7 metres
Wingend Height	4.3 metres
Headline	5.8 metres

Again the two separating panels were tied down giving $\frac{1}{2}$ metre gaps in each case. Good fish species separation was achieved but with the fishing lines further forward i.e. directly above the bobbins more haddock were caught in the middle codend but the bulk of the haddock still rose and entered the top one. Cod and whiting behaviour patterns remained the same as in BT150B.

Two hauls were made during darkness to see if the behaviour would remain the same. In this case good catches were obtained for one hour tows giving 42 and 44 baskets respectively. Again the bulk of the haddock were in the top codend but an increase was shown in both the middle and bottom codends. Whiting were represented in all three codends with cod only in the bottom one. No television was used for these two hauls.

The third week the BT150 was used with the horizontal separating panels set in advance of the footrope. The first being set 1 metre, the second 2.4 metres and the headline 4.3 metres all in advance of the bobbins.

~~The other dimensions with the same doors and rig using 150 metres of~~
warp aft and towing at 3.1 knots were

Door Spread	36.6 metres
Wingend Spread	11.0 to 12.0 metres
Lower wingend Spread	4.1 metres
Wingend Height	3.3 metres
1st Separator Panel	1.5 metres from the seabed
2nd Separator Panel	2.7 metres from the seabed
Headline	4.9 metres

Fishing during this last week was rather spotty with both dogfish and whiting appearing on the grounds.

This new arrangement was not selective in its fishing and the bulk of the fish were caught in the bottom codend with the middle next and the top least.

In the last haul when 60 baskets were caught the reverse occurred with the top codend again having the most haddock but from the television pictures these were seen along with whiting breaking up through the panels in the square with many eventually escaping through the top square of the net. This behaviour was not seen in the other nets.

For all three nets flatfish, gurnard, skate and pout were caught in the bottom codend. Two hake were caught one in the top and one in the bottom codend.

Spotted dog were mostly in the bottom codend but most spur dogs were found in the middle or top.

It was noted from the television that large quantities of haddock were escaping over the 16 foot headlines of all three nets fished.

Video films are now being analysed and an edited version showing all the important points will be compiled.

J Main

19 October 1981

Seen in draft by George Geddes