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FRV *CLUPEA*

Cruise 0592C

REPORT

23 March - 3 April 1992

Personnel

J Main	SSO (in charge)
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P J Barkel	PTO
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Objectives

1. To use the RCTV to observe two experimental Norway pout trawls and confirm that they are correctly constructed and rigged. One has a grid system and the other a square mesh window in order to separate Norway pout from human consumption species.
2. To use the RCTV to study fish behaviour within the trawls.
3. To carry out fishing trials, on suitable fishing grounds in the Minch or Barra area to assess the efficiency of the experimental designs in separating pout from protected species.

Narrative

The RCTV and towing cable were prepared at Ardrossan during the period 22-23 March. The remainder of the scientific staff joined on Monday 23 March to sail at 1900. Unfortunately, the vessel was postponed for medical attention to one of the scientists. With this delay, and a very bad weather forecast, sailing was postponed until 0200 on 24 March. The *Clupea* sailed to the east side of Colinsay for sheltered and shallow water to test the RCTV and cable and to examine the trawls.

Whilst shooting the underwater vehicle problems were encountered with the winch. These were rectified by the Chief Engineer but with the poor weather it was considered inadvisable to start work in deep water. The vessel proceeded to the west side of Colinsay where there was slightly deeper water, better bottom conditions, no weed and the possibility of finding pout. The camera was found to have a faulty lens which was rectified after hauling. The *Clupea* sailed to Colinsay Pier for the night.

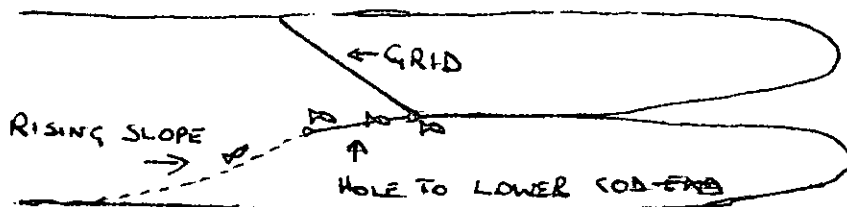
Next day, with television and winch running satisfactorily, the vessel sailed to deep water on the west side of Colinsay. Only a short time after deploying the trawl and RCTV, the trawl doors came fast in the mud stopping the ship. The warps fouled the RCTV cable which was damaged during hauling. *Clupea* returned to Colinsay Pier where the hand held cable was prepared for operation taking up the remainder of the day.

On Friday 27 March, again the trawl was shot in deep water, but a fault was found in a television cable connector making it also inoperable. This necessitated *Clupea* sailing for Oban to make repairs to both cables. These were completed overnight and the vessel sailed for the west side of Coll on 28 March.

After preparing the hand-held cable and testing it in the sea, only one short haul was obtained. *Clupea* anchored in Castlebay, Barra for the night. On 29 March the vessel sailed for the fishing grounds where three trawl hauls were accomplished during the day before returning to Castlebay for the night. With the wind increasing to a severe northeasterly gale, *Clupea* remained at the pier along with the fishing fleet. The wind was still gale force the next day but one haul without the RCTV was made. In worsening weather the vessel returned to Castlebay where Mr Barkel had medical treatment after an accident. The weather conditions confined *Clupea* to port for the next day. On 2 April, with the continuing gale force winds, *Clupea* made a passage for Ullapool at 0600 arriving at 2130. The scientific staff returned to Aberdeen on 3 April by mini-bus. The trawls and scientific equipment were returned from Fraserburgh on Monday 5 April.

### Results

Five hauls were achieved on pout fishing grounds, four with the grid system and one with the square mesh window. The grid with 20 mm spacing between the vertical bars was positioned just ahead of the cod-ends and set at  $45^\circ$  to the horizontal. A rising slope of netting set at between  $10$  and  $15^\circ$  was positioned just in front of the grid, running from the belly of the net to the leading edge of the grid. The flow of water pushing against the rising slope depressed the front of grid (the hole) by about  $10^\circ$ . This created a space under the section with the bars and allowed the fish a straight passage back and into the lower cod-end.



In a separate experiment a square mesh window was positioned just ahead of the cod-end and covered with a small meshed cover fitted with hoops; this prevented masking and allowed only the fish escaping from the window to be retained. The results of the separation into the top and lower cod-ends or cover in the case of the square mesh window are as follows:

Total caught

Haul	Grid	Esmarkii	Minutus	Whiting	Sprat	Herring	Haddock
21	20 mm	13465	0	2395	3910	757	497
22	20 mm	16788	0	3939	31710	5677	1277
23	20 mm	23458	2336	802	0	48	41
24	20 mm	3836	1707	532	0	27	13
26	square mesh window	3610	1751	339	0	2	52

Percentage in top cod-end when using grid

Haul	Grid	Esmarkii	Minutus	Whiting	Sprat	Herring	Haddock
21	20 mm	39		27	27	35	5
22	20 mm	13		10	3	61	3
23	20 mm	22	25	31	0	0	7
24	20 mm	49	33	42	0	0	0

Little credence can be given to these results because the hole into the lower cod-end could not be set on a horizontal plane and therefore fish were able to pass straight back under the grid and into the lower cod-end. Not enough time was available to correct this problem. When fish dropped back they tended to remain low and close to the rising slope and were not presented to the bars of the grid as was planned.

Percentages in the cover over the square mesh window are as follows:

Haul	Grid	Percentage in top cover over square mesh window					
26	Square mesh window	9	5	10	0	50	13

Only one, one hour haul was achieved before the trawl had to be hauled due to the bad weather. Observations of the cover over the window were also impossible due to the weather conditions. Again little can be learnt from this one result.

In both cases, no clear difference in mean length was found between the fish in either of the two cod-ends or between fish in the cover over the square mesh window and in the cod-end.

J Main  
22 July 1992