

In Confidence: Not to be quoted without reference to the Laboratory

CRUISE REPORT

FRS CLUPEA

10 May - 3 June 1976

Objectives:

1. To conduct comparative fishing trials between the North Sea Trawl and Aberdeen 40' boltrope trawl.
2. Provided that conclusive comparative fishing results had first been obtained, to examine the effect of mesh size in the square on selectivity by substituting a $3\frac{1}{2}$ " mesh square in the Aberdeen trawl.

Narrative:

'Clupea' sailed from Aberdeen at 12.30 on 10 May and proceeded north to begin trials on the commercial fishing grounds in the Shetland area.

Fishing commenced on Tuesday 11th on the Balta grounds with two 2-hour hauls with the North Sea trawl, which produced 13 and 11 baskets of fish of which haddock was the dominant species. It was decided that 2-hour hauls would be adequate to produce sufficiently large catches to permit a reasonable comparison to be made between the two gears. On Wednesday 12th a further two hauls were made with the North Sea trawl of which one was invalid. The gear was then changed, a common cod-end being retained, and one haul made with the Aberdeen trawl before deteriorating weather conditions drove 'Clupea' into shelter where she remained throughout the following day. On Friday 14th a further two hauls were made with the Aberdeen trawl before bad weather again terminated fishing.

On Saturday 15th 'Clupea' put into Lerwick for a weekend break at which H Cogan replaced R D Galbraith.

On Monday 17th 'Clupea' proceeded to the Balta grounds where once again bad weather prevented fishing. Over the period 18-21 May 'Clupea' continued fishing when possible and moved from the Balta area on the east of Shetland to the Gloop Holm ground on the west of Shetland to avoid the worst of the bad weather. A total of 8 valid hauls was made in this period, 5 with the North Sea trawl and 3 with the Aberdeen trawl.

On Saturday 22nd 'Clupea' put into Lerwick for a weekend break during which A Rashad left the ship and returned to Aberdeen.

On Monday 24th 'Clupea' sailed, again meeting with bad weather, which deteriorated throughout the week. A total of 4 valid hauls was made, 2 with the North Sea trawl and 2 with the Aberdeen trawl. On Friday 28th 'Clupea' put into Lerwick for a weekend break.

On Monday 31st, faced with the prospect of being unable to work in the Shetland area due to adverse weather conditions, a change was made to the cruise programme. 'Clupea' proceeded south to Turbot Bank some 47 miles east of Aberdeen, with a view to fishing intensively for the time remaining of the cruise. A total of eight 3-hour hauls was made during the 48 hours spent on this ground, four hauls

by each gear. The catch rate was not as high in this area as it had been in the Shetland area, and the catch was characterised by large numbers of small flatfish. 'Clupea' was however outfishing those commercial boats working in this area.

'Clupea' then steamed for Aberdeen, docking on the morning of 3 June.

Results

As described in the narrative, the amount of fishing was severely restricted by poor weather. Also, it became evident early in the cruise that with hauls of 2 hours duration and a change of gear at mid-day, an experimental design requiring four hauls per day was over ambitious. A total of eighteen valid hauls was made in the Shetland area, 10 with the North Sea trawl and 8 with the Aberdeen trawl. Table 1a provides a summary of these hauls in terms of the numbers caught of haddock, whiting, cod and combined flatfish, together with the arithmetic mean number caught per 2-hour haul. Table 1b provides an equivalent summary for the 8 hauls made at Turbot Bank.

From a preliminary analysis of these results it appears that at least for haddock, the most dominant species, the North Sea trawl was outfishing the Aberdeen trawl. For whiting, combined flatfish and cod the lower numbers caught and high haul to haul variability prevented the detection of any significant difference which may have existed between the gears.

These results are similar to those obtained by 'Clupea' in February 1976, and again there is the suggestion that the North Sea trawl's superiority is greater for fish below approximately 40 cm. Unfortunately it was not possible due to the poor weather conditions to pursue the second objective of this cruise to examine in greater detail the effect of mesh size in the square of the Aberdeen trawl, which would hopefully have clarified this apparent difference in selectivity of the two gears.

M D Nicholson
6 August 1976

Numbers caught per two hours fishing of haddock, whiting, cod and combined flatfish by the North Sea trawl and the Aberdeen trawl by 'Clupea', May - June 1976.

TABLE 1a Shetland Area

	North Sea Trawl				Aberdeen Trawl			
	Haddock	Whiting	Cod	Flatfish	Haddock	Whiting	Cod	Flatfish
	841	75	7	109	32	4	20	31
	860	11	49	63	573	120	15	100
	816	144	129	53	860	106	21	76
	36	-	35	29	511	81	28	86
	3231	574	72	-	156	61	61	37
	1800	375	73	79	198	90	103	32
	1100	72	-	127	744	8	-	140
	840	-	-	203	187	95	12	13
	1081	19	-	258				
	725	10	-	121				
Average	1133	128	36	104	408	71	32	64

TABLE 1b Turbot Bank

	North Sea Trawl				Aberdeen Trawl			
	Haddock	Whiting	Cod	Flatfish	Haddock	Whiting	Cod	Flatfish
	466	25	47	238	353	39	31	48
	311	36	46	134	421	15	23	69
	155	21	23	289	15	-	7	391
	134	23	28	45	30	5	5	194
Average	266	26	36	176	205	15	16	176