

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

CRUISE REPORT

FRS 'Clupea'

10 - 27 February 1976

<u>Personnel:</u>	<u>Full-time</u>	R D Galbraith	SO	(in charge)
		W R Leys	PTO IV	
		A MacDonald	PTO IV	
	<u>Part-time</u>	J Main*	HSO	(10 - 20 February)
		G I Sangster*	SO	(" ")
		S J McMinn	ASO	(20 - 27 February)
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*Diving Team

Objectives

1. To instrument, observe and compare the performance and drag of the small mesh North Sea Trawl with the Aberdeen 40' boltrope trawl.
2. To conduct comparative fishing trials between the North Sea Trawl and Aberdeen 40' trawl.
3. Provided conditions are suitable, to observe the behaviour of round fish in or near the trawl mouth during comparative fishing trials on the fishing grounds.

Narrative

Due to the various delays at the start of the trip the instrumentation/diving observation work scheduled to take place off Lossiemouth was cancelled and after completing compass adjustments in the Moray Firth on Wednesday 11th 'Clupea' steamed north to the Orkneys, where this work was carried out with a reduced diving team.

The first instrumented haul with the North Sea Trawl on Thursday 12th in Sanday Sound resulted in the gear coming fast before being blocked up, with extensive net damage, and this, coupled with the rapidly deteriorating weather conditions, prevented any further work that day. A further three instrumented hauls were carried out on Friday 13th and the morning of Saturday 14th, two with the North Sea Trawl and one with the Aberdeen 40' net, and divers were able to observe both nets in shallow water before 'Clupea' docked in Kirkwall at noon on Saturday 14th for the weekend break. The instrument readings and diver observations indicated a fault in the rigging of the North Sea Trawl and this was corrected before the commencement of the comparative fishing trials.

On Monday 16th four hauls were made with the Aberdeen 40' net SE of Start Point, with a catch rate averaging 15 baskets per hour, mostly small haddock, but a southerly gale prevented any work on Tuesday 17th, and 'Clupea' sought shelter in Deer Sound. With the wind moderating during the evening 'Clupea' steamed overnight to fishing grounds 15 miles SE of Fair Isle and seven hauls of good quality round fish were made here, four with the North Sea Trawl on

Wednesday 18th and three with the 40' net on Thursday 19th. Fishing in this area was both steady and productive, with 252 baskets taken for 10 hours fishing. Indeed, according to R/T reports, on a catch per hour basis 'Clupea' with both nets consistently outfished the commercial trawlers heard working in the area. 'Clupea' entered Lerwick on the evening of Thursday 19th to change scientific staff, collect mail, pay crews overtime, etc and returned to the fishing grounds on the evening of Friday 20th. Two hauls were carried out in the dark, with disappointing results, and R/T reports from commercial vessels confirmed that although fish were present in some quantity during daylight little or nothing was being taken during the hours of darkness. 'Clupea' then steamed south to dock in Kirkwall on the morning of Saturday 21st for the weekend break.

Continuing bad weather kept 'Clupea' in harbour on Monday 23rd and although two hauls for indifferent catches were possible in the Start Point area on Tuesday 24th worsening weather conditions yet again forced 'Clupea' to seek shelter. On Wednesday 25th with a SW gale blowing and a storm 10 forecast prohibiting any chance of a return to the Fair Isle area, 'Clupea' steamed south and a further three instrumented hauls with the 40' net were carried out E of Cruden Bay on Thursday 26th. 'Clupea' docked in Aberdeen at 2200 hours on the Thursday evening and scientific instruments, fishing gear, etc were unloaded and the ship cleared on Friday 27th.

Results

1. Instrumentation/Diving Observations

Gear drag, net drag, headline height and board spread measurements for both nets at various speeds were obtained, and divers observed and made further underwater measurements on both nets in shallow water.

2. Comparative Fishing

As already described in the narrative the comparative fishing trials were severely disrupted by bad weather, with the result that the only valid comparison available is restricted to the 7 hauls SE of Fair Isle where each net was fished on consecutive days on the same grounds, in daylight, under similar weather conditions (wind SSE 5 - 6).

The North Sea Trawl took 144 baskets (all species) for four hauls (5 hours fishing) and the 40' net took 108 baskets (all species) for three hauls (5 hours fishing) thus giving a catch rate per hour of 28.8 and 21.6 baskets respectively. Obviously with such a small number of hauls a comprehensive statistical analysis is not possible but a preliminary analysis of such results as are available indicates that the North Sea Trawl fished better for haddock, whiting and flat-fish while the 40' net took more cod. The results also indicate that the North Sea Trawl outfished the 40' net on haddock up to 37 cm and whiting up to 34 cm with the two gears catching more or less the same above these lengths.

3. Fish Behaviour Observations

Apart from weather conditions being totally unsuitable, the depths of water worked during comparative fishing (35 - 63 fathoms) prevented any attempt by divers to study the behaviour of roundfish in or near the trawl.

R. D. Galbraith
5 April 1976

Seen in draft - G Geddes