

R1/6

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

FRV "Clupea"

Cruise 14/81

REPORT

12-23 October 1981

AR

14CR81

### Objectives

- 1) To compare the selectivity of 25mm and 35mm shrimp trawls.
- 2) To determine the quantity and composition of the shrimp catch and by-catch of the two nets, and the proportion discarded.
- 3) To observe the behaviour and density of shrimp populations using underwater TV and photography.

### Narrative

The scientific staff joined "Clupea" at Buchie on 12 October, but because of severe NW winds she did not sail until 13.30 on 13 October. Strong northerly winds persisted and "Clupea" made directly for the Farn Deeps arriving there at 11.30 on 14 October. A programme of trawl hauls and transects with the towed photographic sledge was carried out in the Farn Deeps. A total of 3 one-hour and 1 three-hour hauls were made using the 25mm net, and 4 one-hour and 2 one-and-a-half hour hauls using the 35mm net. Continuing strong north and north-westerly winds prevented any attempt being made to reach the Fladen grounds, and on 21 October they disrupted work at the northern edge of the Farn Deeps. "Clupea" steamed for the Firth of Forth, and on 22 October the camera sledge was used to observe Nephrops grounds in Largo Bay and off the Isle of May. "Clupea" then proceeded to Aberdeen where the cruise finished on 23 October.

### Results

Trawling: All trawl work was carried out in the Farn Deeps. Catches of Pandalus borealis ranged from 0.5kg/hr to 78kg/hr. Using the 25mm mesh trawl the average catch was 20.7kg/hr, and 15.1kg/hr with the 35mm mesh net.

Nephrops catches were generally good with up to 60kg/hr being taken.

Whiting (size range 9-27cm) was the predominant species in the under-sized fish catch, constituting 52% by weight of the total discarded by-catch. Other species discarded were haddock (size range 10-13cm) 10%, Norway pout 17%, long rough dab 6% and herring (size range 11-19cm) 3%. There was no significant difference in the species composition of the by-catch of the two nets, but the 35mm net consistently caught more. The mean catch rates of discarded by-catch were 485kg/hr with the 25mm net and 578kg/hr with the 35mm net. There was no significant difference in the mean catch rates of retained fish, cod, haddock and whiting were the commonest fish of commercial size. Catch rates for each haul are shown in Table I.

Photography: The towed camera sledge worked well, and the additional flash lights greatly improved the quantity of the still photographs. In the Farn Deeps vision was partially obscured at times because of sediment scoured by the very strong tides. Excellent results were obtained in the Firth of Forth, particularly off the Isle of May.

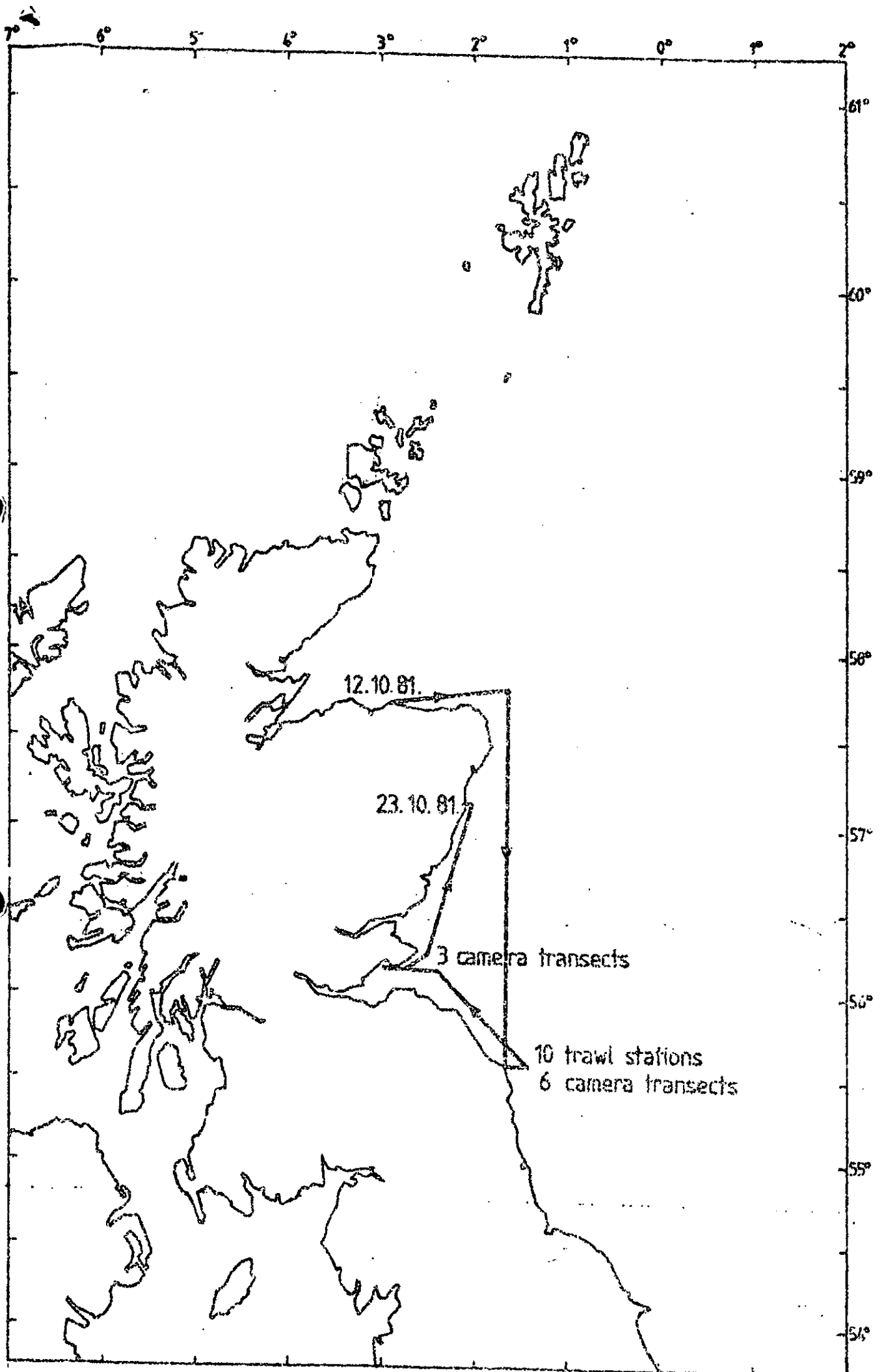
F G Howard  
16 December 1981

Seen in draft: G Geddes

Table I

Catch rates of 25 and 35mm shrimp trawls on the Farn Deeps.

Haul No.	1	2	3	4	5	6	7	8	9	10
Mesh size (mm)	25	25	25	25	35	35	35	35	35	35
Duration (hr)	1	1	3	1	1	1	1	1	1.5	1.5
Shrimp (kg/hr)	26	78	15	1	39	40	20	0.5	3.3	0.7
Nephrops (kg/hr)	10	60	35	33	35	35	15	30	47	3.3
Commercial sized fish (kg/hr)	30	30	20	60	30	10	15	30	60	40
Discarded fish (kg/hr)	510	390	510	500	540	210	630	660	740	600



FRV Clupea

12.10.81 - 23.10.81

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