

R1/6

In Confidence - not to be quoted without reference to the Laboratory

FRV 'Clupea'
Cruise 5/82

5CR82

REPORT
1-18 June 1982

Objectives

1. To tag sandeels (*A. marinus*) in the Orkney-Shetland area
2. To collect samples of bottom sediment for particle size analyses
3. To collect live sandeels for target strength measurement studies.

Narrative

Mr Gauld and Mr Edelsten joined FRV 'Clupea' at Buckie on 1/6/82, and Mr Hutcheon at Lerwick on 3/6/82. During the first part of the cruise work was concentrated in the Fair Isle-Shetland area and was aimed at tagging sandeels. In the second part of the cruise, the target number of sandeels to be tagged having been achieved, work was concentrated in the east Orkney - Moray Firth area and extended to include a survey of grounds at present not fished by commercial vessels for sandeels. The fishing gear used in these latter hauls was a standard sandeel trawl, in the tagging hauls a Marine Laboratory Sandeel Bobbin Trawl was used. Mr Gray and Mr Galbraith of the Laboratory joined "Clupea" on 17/6/82 when modifications were made to increase the efficiency of the Bobbin Trawl.

During the cruise two sets of tagging induced mortality experiments were conducted in deck-tanks on board "Clupea". "Clupea" also delivered three batches of live sandeels - to Scrabster on 11/6 and to Buckie on 16 and 17/6/82. These sandeels were then transported by road to the field station at Loch Duich by staff of the Sonar Section for experimental work on measuring sonar target strength.

When in Lerwick on 4-6/6/82 the freezing plant at Scalloway and the fish reduction plant at Bressay were visited, to obtain samples of sandeels landed at these plants by commercial vessels, for comparison with catches made by "Clupea". At the Bressay plant a small scale seeding experiment in which 50 tagged sandeels were introduced to the storage hoppers was carried out; the recovery rate for these tags is at present not known.

The cruise terminated at Buckie on 18/6/82 when scientific staff left the vessel and all gear was returned to Aberdeen.

Results

Fishing Gear: Of a total of 27 hauls, 18 were made using the new Bobbin Trawl and 9 with a standard sandeel trawl with a wrap round rope footrope. Hauls were made only in grounds which were firstly surveyed by echo sounder and considered to be of a sandy nature. No damage was sustained by the Bobbin Trawl except during the last haul when the cod-end split on hauling due to the weight of sandeels present. The standard sandeel trawl, on the other hand sustained various degrees of damage in all hauls used.

Sandeels taken by the Bobbin Trawl appeared to be in better condition than those taken by the standard trawl.

Tagging: A total of 7079 sandeels were tagged with internal metal tags; 5061 were released on commercially fished grounds whilst 2018 were released on grounds currently unfished. Details of tag releases are:-

	Area	Number of tags released
Shetland	East Fair Isle	994
	West Fair Isle	1087
	Sumburgh (Grutnes)	994
	Moussa	993
	Yell	993
Orkney	East of Copinsay	996
Moray Firth	Smith Bank	1022
		<u>7079</u>

Sandeels in each release area were normally taken in one haul and were released close to their position of capture.

Tagging Mortality: Two sets of experiments were conducted in deck tanks on "Clupea". A batch of 100 tagged sandeels were kept for up to one week and the number dying daily was recorded, a control of 100 untagged sandeels was kept in a separate tank.

13% mortality was obtained for the tagged sandeels, compared with 1% mortality in the control tank. Examination of dead tagged sandeels showed most to have suffered ruptures of the liver or intestines.

Live Sandeels: As sandeels are relatively hardy, little difficulty was experienced in holding large quantities in tanks provided with a continuous water supply. Three deliveries of sandeels were made - estimated 10,000 sandeels to Scrabster on 11/6/82
 " 7,500 " to Buckie on 16/6/82
 " 15,000 " to Buckie on 17/6/82

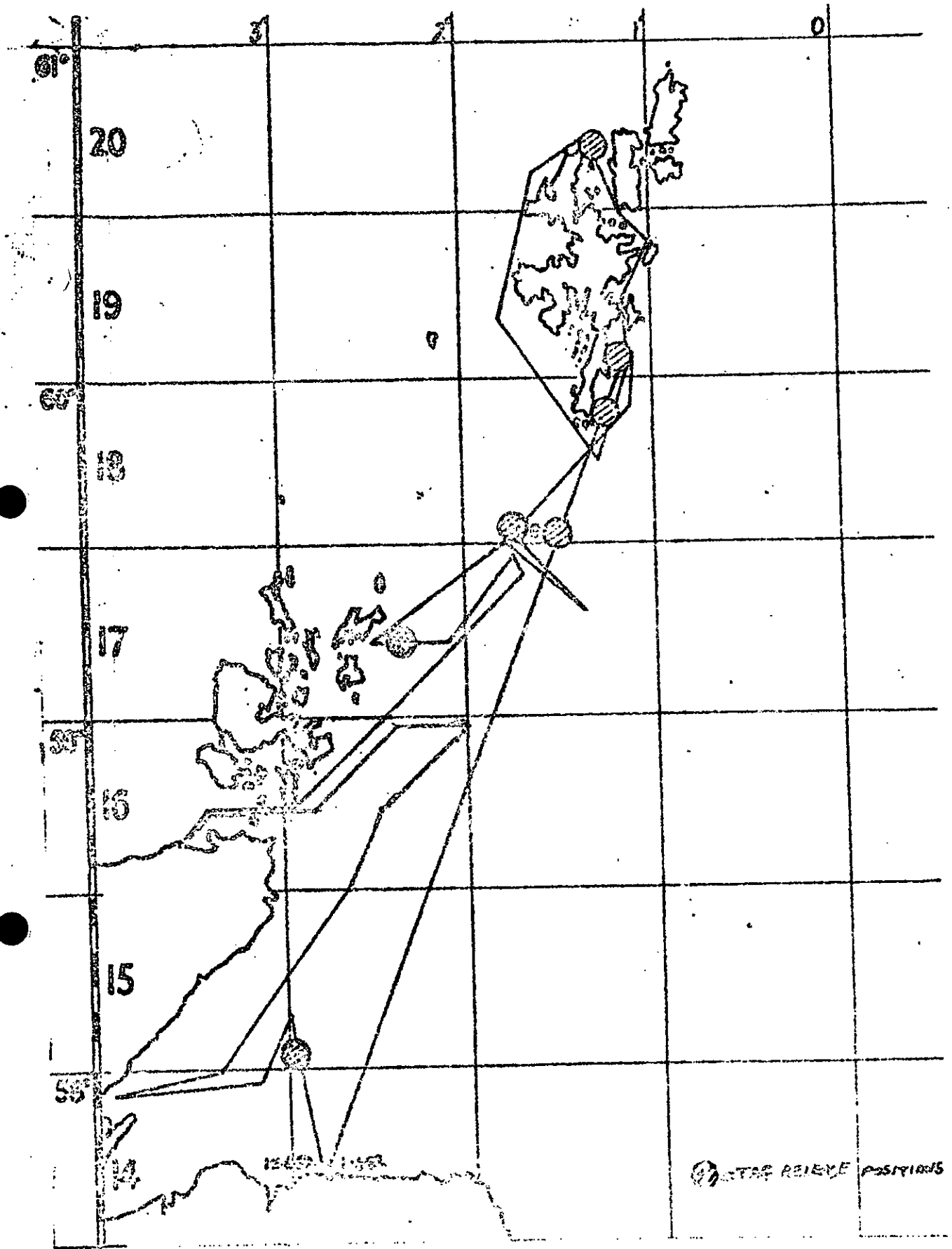
Exploratory Fishing: Hauls of 30 mins duration were made on grounds to the east of Orkney and in the Moray Firth which are not at present fished for sandeels. Two hauls of 5-6 baskets of clean sandeels were made to the E and to the SE of Copinsay. Two hauls on the south side of Smith Bank yielded 10 baskets and an indeterminate quantity as the cod-end split on hauling. Hauls in other areas to the west and north of Smith Bank, east of the Skerries and off Sanday yielded only small catches of less than 1 basket of sandeels mixed with 1-3 baskets of assorted fish species.

Substrate Sampling: No samples of substrate were collected due to a malfunction of the sampling gear.

Radio Caesium: One sample of 25 litres of sea water and one salinity sample were collected for radio caesium monitoring at 57°49'N 02°51'W (off Buckie) on 16/6/82.

J Gauld
29 June 1982

Seen in draft - G Geddes



FRV CLUSTER 1/6 - 16/6/32

CD 5 02