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Charter Vessels "Acorn" and "Erica"

Cruise Report

8-14 July 1987

Personnel

M Walsh	SSO
D Beveridge	ASO
J Roddin	Staff Inspector (9 July)

Objectives

1. To carry out an echo survey in collaboration with "Clupea".
2. To sample echotraces.

Narrative

The scientists joined the charter vessel "Acorn" in Carradale at 0800 on 8 July. The "Acorn" and her partner the "Erica" sailed shortly afterwards to join FRV "Clupea" in the Clyde south of Campbeltown. During the course of the day a grid covering the outer Clyde south of 55°25' was surveyed and two trawl hauls were made to identify echo traces. The vessels docked in Troon at 2100 that night.

Mr John Roddin of the Scottish Office Efficiency Unit joined the "Acorn" the following morning and all vessels sailed at 0700. An echo survey was carried out in the area to the east of Arran between latitudes 55°25'N and 55°45'N and two trawl hauls were made before docking at 2100 in Troon where Mr Roddin disembarked. During the following 3 days one complete coverage of the remaining areas of the Clyde (except for Loch Long) was completed and a further 9 trawl hauls were made. Loch Long could not be surveyed for reasons of naval security. Overnight stops were made in Carradale on the 10th and in Rothesay on the 11th and 12th. Fishing operations were curtailed at 1800 on the 12th in order to effect net repairs on Rothesay pier.

The remaining two days were spent re-surveying the inner Clyde east of 5°W, where the highest abundance of adult herring had been observed, and also the Pladda, Kilbrennan Sound and Cock of Arran areas. A further 5 trawl hauls were made during this period. The charter vessels docked in Carradale at 1630 on 14 July and the scientists departed at 1700.

Results

During the course of the cruise a total of 18 trawl hauls were made to identify echotraces. The distribution of hauls is given in Figure 1. The species composition for all hauls combined was:

	Weight (Kg)	Percentage
Herring	5267	78.3
Sprat	481	7.2
Mackerel	157	2.3
Gadoids	235	3.5
Other fish	22	0.3
Euphausiids	564	8.4
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Total	6726	100.0
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The length frequency distributions of herring by sub area and for all areas combined are given in figure 2. For large herring (≥ 24 cm) the modal size was 28-29 cm with no clear cut geographical trend in size from north to south. For small herring (< 23 cm) the modal size per haul was very variable (from 14 to 19 cm) and there was a tendency for it to be higher in catches taken in the outer firth than in the inner Clyde. The overall percentage of herring < 20 cm in the catches was 17.5% by weight and 54.1% by number. This represents a much higher proportion of juveniles in July in the catch than in commercial catches in the previous two years. Amongst the adults sampled for maturity 43% were filling while 57% were still in recovering spent condition. It was evident from the echo trace records and from fishing that, while adult herring were present on the bottom in several locations over a wide area of the Clyde, mid water echo traces were relatively scarce in all areas except in the inner Clyde and Loch Striven. An unexpected feature in these latter areas was that catches fished from two different depth strata yielded significantly higher proportions of adult herring in the upper than in the lower stratum.

M Walsh

17 August 1987

FIGURE 1 HERRING SURVEY AREA AND TRAWL POSITIONS

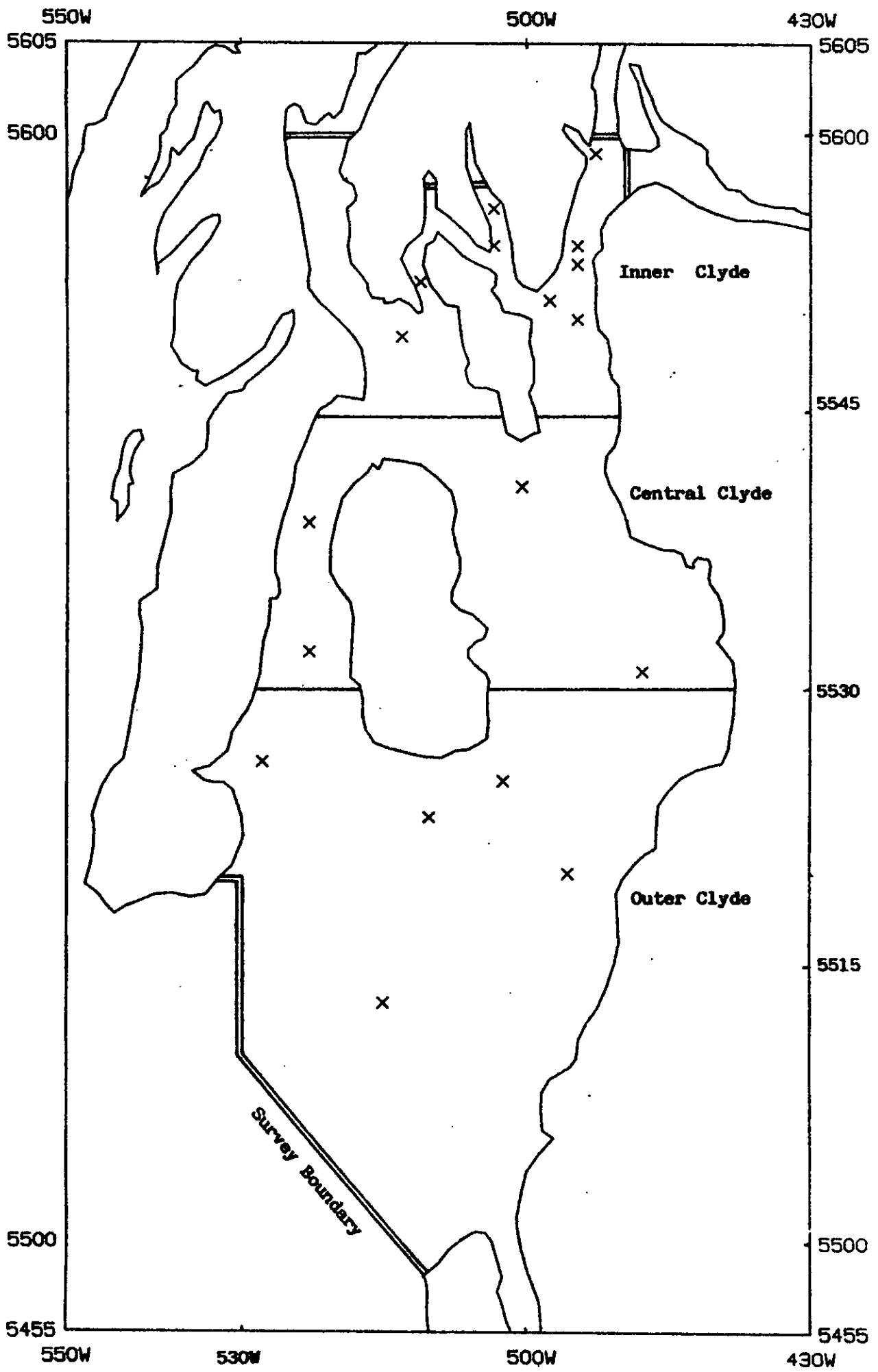


Figure 2 : Herring Length Distributions

