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FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1970 RESEARCH VESSEL PROGRAMME

REPORT: R V CLIONE: CRUISE 13

STAFF: A R Margetts  
G P Arnold  
W L Huggins  
I L Davies  
B K Clarke  
A Hawkins (DAFS)  
J P Bridger) Commercial  
B C Mumford) vessels

DURATION: 14-31 October 1970

LOCALITY: Minch

AIMS: To make sector scanning sonar observations of commercial purse seine fishing and perhaps also of pelagic pair trawling.

NARRATIVE:

CLIONE left Lowestoft at 0900 hours 14 October, picked up Mr Hawkins via the Aberdeen pilot cutter at 1530 hours 15 October, and reached Stornoway at 1330 hours 16 October. There the scanner dome was fitted, water taken and minor engine repairs effected, before CLIONE sailed at 0600 hours 17 October. That date marked the onset of bad weather which was to largely dominate the cruise right through to berthing at Lowestoft.

A wreck survey was attempted in the Little Minch on 17 October but we failed to locate the wreck near the position approximate given.

During the next two days of very high winds the ship sheltered in convenient places off Rhum, Eigg, Muck, Point of Sleat and Loch Nevis. Contact was established and maintained with Mr Bridger at Mallaig. No commercial vessels were then working but target tests were made with the sector scanner.

With a weather improvement on 21 October we sailed at 1100 hours and joined the purse-seiner fleet (five pairs of vessels) at Tree Holes at 1700 hours. Between 21 and 28 October we worked for five nights with purse-seiners, observing in all twelve hauls by MVs PROWESS, CLADEN, CONQUEST and LUNAR BOW, aboard which (or their carrier vessel) were Mr Bridger and Mr Mumford. Despite the effects of bad weather, very useful and interesting results were obtained by use of the sector scanner and invaluable experience was gained in the technique of manoeuvring to make observations. Fishing was only in the night time and on very diffuse shoals, but catches were good. The seiners mostly made about three shots each per night.

Also in this period a search was made off Castlebay, Barra, on 24 October for equipment lost by AERE, Harwell.

On 22 October CLIONE took an injured man off M V HERITAGE and landed him to a flying ambulance on Tree while the seiners were landing fish at Mallaig.

During bad weather on 25 October, further target trials were made to study the spacial resolution of the scanner.

After completion of the nights work 27-28 October, CLIONE left for Stornoway which was reached at 1800 hours 28 October. There the dome was removed and Mr Hawkins left the ship which sailed for Lowestoft at 2000 hours the same evening berthing at 1030 hours 31 October.

Sailings on purse seiners were as follows:

21-22/10 J Bridger on M V PROWESS, B Mumford on M V CLABEN  
22-23/10 B Mumford on M V CONQUEST  
25-26/10 J Bridger on M V CLABEN, B Mumford on ANCHOR OF HOPE  
26-27/10 J Bridger on M V CONQUEST, B Mumford on M V CLABEN  
27-28/10 J Bridger on M V LUNAR BOW, B Mumford on M V CONQUEST

#### RESULTS:

1. In a variety of sea conditions necessitating different actions by the pull-off carrier vessel, the purse-seine was watched from immediately after pursing through to brailing or pumping out. The netting itself was a much more conspicuous target than expected and the shape of at least half of the net, with gatherings caused by the drying-up, was easily discernible. By panning from side to side across the net with the scanner in vertical mode, sections were obtained which will be integrated in a solid model to show the overall shape and changes in shape of the net; the shape of the net during drying up was seldom that of a regular dish. Some of the float-line could be seen with the scanner in horizontal mode, but swell often restricted range to viewing the nearside only. Effective range was up to only 220 yards. Close inspection of shooting and pursing must be left for daylight working.

Fish shoals were sometimes seen on the scanner in the vicinity of but not inside the purse-seines. The herring shoals being fished were apparently very loosely packed and gave extremely diffuse echoes on both sonar and echometers. It is probable that our normal echo survey technique would have indicated only a very low abundance of fish. Catches while we were present were never blank, often of 30-90 crans and quite frequently of 100-500 crans. The technique of finding and fishing shoals by Scottish vessels is quite specialised and different from that in the Norwegian and Icelandic fisheries.

Although fish could not be seen as shoals within the purse-seines, there were indications that catches could be judged as either good or poor from the brightness of patches in the target area of the net as seen by the scanner.

Six reels of scanner film were exposed and 8 video tapes used. A sample of the herring fished was deep-frozen for return to the laboratory.

2. Despite searching for  $4\frac{1}{2}$  hours on the extreme detectability range of the equipment with a big tilt angle narrowing the field of vision, no trace was found of the equipment lost at Barra by AERE. All possible Decca navigator errors were allowed for in delimiting the search area which was fairly thoroughly covered before the Decca began to wander at dusk.

3. A series of pictures was taken of the scanner view of a three-dimensional float target with various float spacings at various ranges.

4. When the dome was removed after 12 days and 690 miles steaming it was found that the cover had been completely destroyed. Two days previously the cover could be seen through the tube but water surge in the tube indicated it was not intact.

ACKNOWLEDGEMENT

I would like to record appreciation of the help and cooperation of the skippers of the purse-seine fleet, without which this cruise and its achievement would not have been possible. Especially I would thank Skipper Tait of M V CONQUEST, Skipper Lovie of M V CLABEN, Skipper Buchan of M V LUNAR BOW and Skipper West of M V PROWESS. Also appreciated was the successful contribution by Messrs Bridger and Mumford who arranged sailings and liaison with the purse-seiners, and worked aboard them at sea often under very arduous conditions.

A R Margetts  
2 November 1970

SEEN IN DRAFT: MRS (Master)  
                  AHB (Fishing Skipper)

INITIALLED:       HAC

DISTRIBUTION:

Basic List

Mr Margetts  
Dr Arnold  
Mr Huggins  
Mr Davies  
Mr Clarke  
Mr Hawkins  
Mr Bridger  
Mr Mumford