

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD  
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1974 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 9

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

F R Harden Jones  
A R Margetts  
T Wyatt (part time)  
A Cardle (student)  
P Griffiths  
C Lee (student)  
P Witthames (part time)

DURATION

Left Lowestoft 1833 h 1 July

Arrived Lowestoft 1018 h 10 July

All times GMT

LOCALITY

Southern Bight, North Sea

AIM

To continue, in conjunction with RV CORELLA, acoustic tag and sector scanning studies of the efficiency of the Granton trawl.

NARRATIVE

CLIONE left Lowestoft at 1833 h on 1 July and arrived at IJmuiden at 0608 h, 2 July. The sonar dome was fitted and CLIONE left IJmuiden at 1110 h to join CORELLA in the working area at 1530 h. Work started at once and continued in the normal manner until 1400 h the following day when strong NW winds intervened. The weather moderated during the night and by 0400 h 4 July conditions had improved, and the work continued until 2000 h when CORELLA had to leave for Great Yarmouth to put Mr Bridger ashore. During the break CLIONE steamed to the Sandettie area to locate the long-life acoustic tag marking the position of a sand ridge and then returned to the Black Bank area and resumed work with CORELLA at 1400 h 6 July until both ships were forced to dodge at 1715 h. Conditions improved during the night and work was resumed at 0400 h 7 July and continued until 1100 h 9 July. CLIONE returned to IJmuiden to remove the sonar dome, entering and leaving port at 1700 h and 1917 h respectively and arrived back at Lowestoft at 1018 h 10 July.

During the latter part of the cruise Mr Wyatt joined CORELLA in exchange for Mr Witthames and Mr Johannesson (Iceland) came on board CLIONE to see something of our work.

## RESULTS

Efficiency of the Granton trawl: sixteen plaice were fitted with acoustic transponding tags and 36 attacks were made on 12 of these fish. Of these 36 attacks, 21 attacks (58%) were made with the fish positioned between the otter boards. Of these 21 attacks 14 were valid for the purpose of the experiment and the results were as follows:

Position of fish	Number of attacks	Fish caught	
		n	%
Between boards	14	7	50
Between boards and wing ends	3	0	0
In path of net	11	7	64

When these results are added to those already obtained, the position can be summarised as follows:

Position of fish	Number of attacks	Fish caught		Error limit ± %
		n	%	
Between boards	141	61	44(41)	+ 8.4
Between boards and wing ends	64	13	20(21)	+10.0
In path of net	77	48	63(62)	+11.4

The percentages in parentheses are those obtained before including the present results. A further 16 attacks are required to bring the error limit for the efficiency of the gear for fish in the path of the net within the target level of  $\pm 10\%$ .

Two special observations were made during this cruise. Firstly, a plaice lying in the path of the net and within 2 m of a dan leno moved in towards the centre of the gear. This was the first occasion on which such a response had been observed. Secondly, a 69 m (228 foot) door-to-door tickler chain was added to the trawl for one haul in order to catch plaice no. 15 which was not caught in three previous attacks in which it lay directly in the path of the net. The quality of the acoustic tag signal, and the position of the signal in vertical scan, suggested that this fish was buried deep in the bottom and thus was not accessible to the gear. So the door-to-door tickler was added to the trawl to disturb the fish and perhaps recover the tag. The sonar display of the door-to-door tickler was excellent and the form of its catenary in relation to the line of the bridles, wing ends and headline very clear. The apparent response of the buried plaice as this tickler passed over it was dramatic: the indifferent and hardly recognisable signal suddenly developed full strength, suggesting that the fish had come out of the bottom; and after a few multiple signals the fish passed directly into the net and down to the cod-end where it was found on hauling. This result shows that it should therefore be possible to start the experiments with the door-to-door tickler chain while gathering the few remaining results needed to make up the number still outstanding in respect of the fish in the path of the net: such fish as are not caught should be attacked a second time after fitting the door-to-door tickler.

Acoustic marker tag:

This tag was positioned close to a sand ridge in December 1973, and found again in April 1974. It was found a second time this cruise and the crest of a nearby ridge related to the position of the marker tag. The tag signal was poor and could not be detected at ranges greater than 140 m.

Reliability of equipment:

Sector scanner: the overall performance of the equipment was remarkably improved. A leak in the main stabilisation control cable caused some concern but the package was recovered quickly and safely and work continued when the cable was replaced. There were no failures among the acoustic tags. The sonar dome cover (new this trip) was found to be torn beyond repair when the dome was removed in IJmuiden.

F R Harden Jones

12 July 1974

SEEN IN DRAFT: J French  
G F Lee

INITIALLED: AJL

DISTRIBUTION

Basic list

F R Harden Jones  
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T Wyatt  
A Cardle (student)  
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