

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

1970 RESEARCH VESSEL PROGRAMME

REPORT: R V CLIONE: CRUISE 9

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

STAFF:

F R Harden Jones
M Greer Walker
C R Hood
T J Storeton-West
J Rous
M G Pawson (NERC student, part-time)
Prof. E Eisner (University of Strathclyde, part-time)

DURATION:

Left Lowestoft 1000 hours, 3 July
Arrived Lowestoft 1400 hours, 11 July

All times are British Standard Time.

LOCALITY:

Suffolk coast.

AIMS:

1. To carry out trials with acoustic transponding tags.
2. To make measurements across rehoelines and relate these to the movements of fish tracked by sonar.
3. To test attractants for demersal fish.

NARRATIVE

CLIONE sailed from Lowestoft at 1000 hours 3 July and entered Harwich at 1800 hours that evening when the dome was fitted. CLIONE sailed early the following morning and a series of acoustic tag trials were completed before returning early in the afternoon to pick up Professor Eisner who came out on a pilot boat. Acoustic tag trials continued in the area until late in the afternoon of 5 July when CLIONE returned to Harwich to land Professor Eisner and pick up Mr Pawson, the exchange being made via pilot boat within the estuary. Trials continued in the Shipwash-Gabbard area until 10 July when CLIONE returned to Harwich at 1700 hours to remove the dome. CLIONE left Harwich at 0630 hours 11 July to arrive at Lowestoft at 1400 hours.

RESULTS

1. Acoustic tag work. (Report by M G Walker)
 - a. Trials: Preliminary work indicated some distortion of the received signals when the tags were astern of the ship so the trials were carried out with tags suspended from an anchored buoy abeam at three difference

depths (on the bottom, in midwater, and 1 fm below the surface). The maximum recognition range was determined in depths of 9, 17, and 25 fm over sand-and-gravel and mud-and-clay bottoms. The results suggest that a substantial improvement would be obtained by increasing the pulse length from 400 μ s, to 3 to 4 ms. With a longer pulse, recognition range was up to 400 m both in midwater and on the bottom. Close to the surface, and under good sea conditions, range was limited to 250 m. Range in midwater and on the bottom was not affected by differences of the sea beds within the working area.

b. Plaice tracking experiment: An acoustic tag (pulse length 3 ms) was attached to a conventional flag tag on a 40 cm plaice. The fish, released at 1000 hours 9 July, was followed over a 15 hour period (until 0010 hours 10 July) when the chase was given up. During the period the fish moved south, north, and south, with the tide. Contact was maintained up to ranges of 400 yards, but a range of 150-250 yards was found to be most suitable for ship handling. The main engines were used for manoeuvring the ship. After dark the plaice spent 80% or more of the time some 2 fms off the bottom (when it usually moved down tide). A detailed and lengthy search was made for the plaice from 0845-2230 hours 10 July, covering an area some 5-6 n miles by 1 mile, but contact was not re-established. This preliminary trial showed that the sector scanner can be used to track fish and that contact can be maintained over a relatively long period. The critical factors appear to be ship handling and watch-keeping by experienced operators.

2. Tracking at rheoclines. There was no opportunity to carry out this aim.

3. Fish attractants (Report by M G Pawson)

The ship was anchored for this work and a method developed for paying out a 120 m length of hose so that it lay on the bottom abeam of CLIONE. Mashed herring solution was pumped down the pipe whose end was marked with an acoustic tag. An area up and downtide of the pipe was kept under surveillance with the sector scanner for 2-3 hours and long sequences were filmed. Very few fish were detected in the vicinity of the outlet.

4. Reliability of equipment

a. the sector scanner and stable platform were used for 88 working hours. There were no serious faults.

b. the dome cover, previously used on Cruises 6, 7, and 8, was in good condition when removed in Harwich. After some minor repairs it should do service on Cruise 10. This cover has now lasted 1790 n miles.

Seen in draft: JEMB, AHB, AL

F R Harden Jones
15 July 1970

Initialled: A J L

Distribution:

Basic List

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