

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

MR BATE
(K1B2A24)
Mrs. Corrigan

1972 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 5

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

STAFF

Part 1: R B Mitson
A J Lee
P G Griffith
T J Storeton West
J Rous
A Spencer (Loughborough University)

Part 2: F R Harden Jones
M Greer Walker
G P Arnold
P G Griffith
J Rous
A O'Sullivan (Sandwich Course Student)

DURATION

Part 1: Left Lowestoft 1245 h 4 April
Anchored Felixstowe 1040 h 8 April
Part 2: Left Felixstowe 1120 h 8 April
Arrived Lowestoft 0700 h 23 April
All times are Greenwich Mean Time

LOCALITY

Southern Bight

AIMS

Part 1: (1) Run up sector scanner
(2) Carry out telemetering tag tests
Part 2: (1) Tracking plaice tagged with acoustic transponding tags.

NARRATIVE

CLIONE left Lowestoft at 1245 h 4 April, and arrived at Harwich at 2030 h. The sonar dome was fitted and the ship left Harwich at 0600 h the following day to anchor near the CORK LV. Basic checks on the Sector Scanner performance were completed by midday and trials then began on the modulation system of the telemetering tag. These continued throughout the day with W and SW winds force 9. Further trials, including those of a trawl guidance system, and a plaice tracking exercise, were carried out on 6/7 April. Mr Mitson

left CLIONE early on 7 April and further trials were carried out that morning. Mr Lee, Mr Storeton West and Mr Spencer, left CLIONE on the 8 April, and the staff for second part of the cruise joined the ship which sheltered in the Cork anchorage waiting for the weather to moderate. On the 9 April conditions had improved and after checking the position of the most southerly of the pair of moored current meters laid by CORELLA (Cruise 5), the first tagged plaice was released. Tracking started at 1200 h, and continued until 1030 h 10 April, when the weather (winds S, 45 knots) curtailed the exercise. CLIONE returned to the Cork anchorage. Conditions were still poor the next morning so CLIONE steamed south to the Black Deep-Barrow Deep area. The Sector Scanner was used to survey a channel previously dredged through sandwaves for the Unit of Coastal Sedimentology (requested by Mr Lougholm of UCS aboard RV SARSIA which was working in the area) and to examine the vertical distribution of sludge dumped by a barge (requested by Mr Talbot). When this work was completed the weather had improved and CLIONE returned to the tracking area and the second plaice was released at 2100 h and followed until 0030 h 12 April. CLIONE then steamed north to the Smiths Knoll area to rendezvous with the motor trawler "Constance Banks" and make sector scanner observations of a commercial trawl. When this work was completed, CLIONE returned south to the tracking area and released a third plaice at 2200 h which was followed until 0100 h 15 April. At the end of this track it appeared that the toroidal buoy from the southerly meter was adrift. The buoy was recovered. The next morning the sector scanner was used to search for the submersible buoy but it was not located. One strong bottom target in the area was positioned. With increasing winds and a forecast of northerly gales the search was abandoned at 1200 h and CLIONE steamed to Boulogne which was reached at 2300 h. CLIONE left Boulogne at 1215 h 16 April and steamed to the Sandettic-Ruytingen area to survey the noisy sand ridges discovered in 1970 (CLIONE 7/70, 15/70). This work was completed at 1717 h and CLIONE steamed north to land Dr Greer Walker (who was unwell) at Great Yarmouth early on 17 April. A fourth plaice was released near the northern current meter at 1030 h and followed until 2300 h on 18 April when the fish was abandoned. There were strong northerly winds and an increasing swell. CLIONE anchored in Gorleston Roads until 0800 h 20 April. The weather then showed signs of moderating and CLIONE steamed south to check the position of the northern current meter and to make a second search for the submersible buoy of the southern meter. A fifth plaice was released at 1700 h and tracked until 1330 h the following day. At CLIONE entered Harwich where the sonar dome was removed. Mr O'Sullivan left the ship, while Mr G Baxter and Mr S Patel joined. CLIONE left Harwich at midnight. The northerly current meter was lifted successfully, but the southern meter was not recovered. CLIONE returned to Lowestoft at 0700 h 23 April.

RESULTS

Part 1:

1. The ARL scanner and its associated equipment was checked thoroughly. No adjustment was needed.
2. Weather conditions did not permit the use of a small boat so the pulse code modulated tag was attached below a surface float and allowed to drift away. It was interrogated up to a range of 260 m. Excellent results were obtained under the turbulent sea conditions which prevailed throughout the tests.

An experiment in positioning two receivers relative to a transponding tag failed because of the difficulty of controlling the cable under the conditions of wind and tide which existed.

A tagged plaice was released at 1500 h 6 April and tracked until 0200 h the next day when it moved on to a sandbank and could not be followed.

Part 2:

1. Tracking plaice tagged with acoustic transponding tags.

This was a continuation of the work carried out on CLIONE, Cruise 7/71 and 13/71. On this cruise it was intended to relate vertical migration to the water currents measured by the two moored current meters and to obtain more detailed observations of the behaviour of plaice at slack water. Five plaice were released and tracked as follows:-

<u>Plaice Number</u>	<u>Duration of track h</u>	<u>Reason for ending track</u>
* 1	23	Bad weather
2	27	Sufficient information
3	27	Sufficient information
4	37	Sufficient information
5	20	No more time

All these tracks gave useful and detailed information. Observations on the depth of swimming were made for all tracks at 2 min intervals before and after slack water and throughout much of tracks 2 and 3. The results fill in some of the uncertainties of the previous work while confirming the original observations. Tracks 1, 2 and 3 were carried out near the southern current meter and the possible loss of this meter causes concern. But track 4, close to the northern meter may provide the critical observations.

The tracking exercise has now become a routine technique for the ship. Fish were never lost, even though the conditions were often poor.

2. Other activities.

1. Exercise with MT Constance Banks: This was very worthwhile. In 3 h we were able to measure the effect of speed over the ground and length of warp out on door spread. Detailed examination of the films may provide some information on dan leno spread. The tickler chains produced a lot of noise and it was not possible to measure headline height.

2. Trench survey: A detailed examination was made of the UCS trench, and film, video and polaroids should be available. Details of the results will be passed to Dr Cloet.

3. Barge sediment: The sludge released by a barge (No. 55, 1545 h, 11 April) in the Barrow Deep returned a strong echo for 5 min. No echo was detected 10 min after release.

4. Sandettie-Ruytingen sand ridges: A survey was made of the transect last examined in December 1970. The bottom configuration was quite different, the 5 'noisy' ridges having been replaced by a more varied and hilly bottom. Noise was associated with the larger hillocks, but the area was almost noise-free towards slack water. The weather was not suitable for hydrophone work from a small boat.

5. Current meters: The current meter rigs were closely examined with the sector scanner. For the northern rig it was concluded that the toroidal buoy had lost its anchor and this was confirmed on recovery. The toroidal

buoy of the southern rig was found adrift and its mooring appeared to have been cut. A survey of the area indicated one distinct target similar in strength to that of the anchor or submersible of the northern meter. Attempts were made to recover this target by dragging the snow anchor. The anchor brought up a length of courlene on the first drag, and this was secured on the second drag. It is very likely that this line was one or other of the anchor pellet lines. Unfortunately the courlene line fouled the hull and parted and further drags failed to bring any other part of the gear to the surface. It is possible that the bottom target is part of the southern rig. The position is known and it should be possible to recover it by trawl.

3. Reliability of equipment:

1. The sector scanner and its ancillary equipment ran for 207 h. No time was lost by the failure of any part of the system.

2. There were no acoustic tag failures.

3. The sonar dome (canvas RN2) was in good condition when removed in Harwich. This was its first cruise and it survived 596 n miles under rather poor conditions. The cover suffered some minor damage during handling on deck but can be easily repaired.

F R Harden Jones
24 April 1972

SEEN IN DRAFT JEMB
 AHB

INITIALLED AJL

DISTRIBUTION

Basic list
R B Mitson
A J Lee
P G Griffith
T J Storeton West
J Rous
A Spencer (Loughborough University)
F R Harden Jones
M Greer Walker
G P Arnold
A O'Sullivan (Sandwich course student)
G Baxter
S Patel