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

1976 RESEARCH VESSEL PROGRAMME

REPORT: RV CLIONE: CRUISE 6/76

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

STAFF

R B Mitson (NIC)
P G Griffiths
C R Hood
L Cox
A R Pratt (Loughborough University)
D Weighton (Wolverhampton Polytechnic)

DURATION

Left Lowestoft 1600 h 9 April

Arrived Lowestoft 2145 h 14 April

LOCALITY

Southern Bight

AIMS

1. To measure the performance of the new MAFF transducer.

2. To carry out a check on the performance of the full MAFF scanner and associated recording equipment.

3. Investigation of source level anomaly.

4. Operational check of Loughborough solid state transmitter.

NARRATIVE

Shortly after leaving Lowestoft CLIONE anchored in the vicinity of DBI and interrogated the acoustic tag fitted to the buoy mooring. Some calibration checks were carried out before the ship headed south towards Margate Roads. The Zodiac boat was used to carry a range of instruments for far-field measurements during 10 April. Having checked and set most of the basic parameters of the scanner equipment a number of wrecks were surveyed on 11 April before CLIONE anchored about 6 miles N.E. of North Foreland. During 12 and 13 April many detailed measurements were made of beam patterns, sidelobes, power levels and sensitivities of the transducer array. Also on 13 April recordings were made of signals received by a hydrophone suspended from the Zodiac at different ranges. CLIONE then moved north during the night reaching the Data Buoy position about 0800 h, 14 April. Some records were taken of the acoustic marker signals at the 3 mooring positions, then the scanner was run in sidescan mode for a time.

Further resolution trials were carried out before CLIONE docked in Lowestoft at 2145 h.

RESULTS

1. The new transducer meets the specification for transmitter beam pattern in both vertical and horizontal planes. Sidelobes are close to the theoretical level on the

transmitter but are about 3dB higher on the receiver. Source level measurements appear to be low relative to the calculated level i.e. 124dB instead of 130dB. The receiver beam pattern is good in both planes and sensitivity is high.

2. Scanned sector width is 27°. Single floats 1 m apart were detected and resolved to 240 m range. The same (20 cm) floats with 0.5 m separation were resolved to 100 m. The seabed was detected to a maximum range of 340 m where the water depth was 37 m. All recording systems were tested and worked adequately, apart from some loss of synchronisation on the 1" recorder. The valve transmitter gave less than ½ the required power.

3. Recordings were made for future analysis to aid the investigation of the source level anomaly.

4. One module of the solid state transmitter was run at a power level of 1.7 kW. Some radiation from one of its circuits caused problems with its operation but this was cleared up, although slight interference could still be detected on the scanner. This radiation problem did not occur when a dummy load was being used.

R B Mitson
22.4.76

SEEN IN DRAFT: JRF
GFL

INITIALLED: AJL

DISTRIBUTION:

Basic List

R B Mitson
P G Griffiths
C R Hood
L Cox
A R Pratt (Loughborough University)
D Weighton (Wolverhampton Polytechnic)