MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, PAKEFIELD ROAD, LOWESTOFT, SUFFOLK NR33 0HT

1990 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE12A
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF: E G Shreeve
B F Riches
C D Rees
M O Eagle
J D Metcalfe - Part 1
A W Emery - Part 1
R P Flatt - Part 2
M Lloyd - Part 2

DURATION: Left Lowestoft 1745h 30 October
Arrived Lowestoft 1600h 10 November

LOCALITY: North Sea, English Channel

AIMS:

1. To test MAFF 300kHz longer life transponding tag on free swimming plaice.

2. To carry out trials of the MAFF tilt and depth telemetry tags.

3. To carry out trials with the MAFF/Guildline modified MG82/76cm plankton sampler.

4. To carry out trials with the General Oceanics line tension measuring block.

5. To carry out fishing trials using a GOV trawl equipped with Scanmar sensors.

6. To test the MAFF 34kHz transponding tag using the Simrad SM600 sonar.

7. To carry out a ground discrimination survey using the Simrad acoustic survey equipment.

8. To carry out a side scan survey of the Hastings Shingle Bank, using the MAFF Sector Scanner equipment together with the MAFF underwater photographic sledge for ground truth observations.

NARRATIVE

CORYSTES sailed at 1745h on 30 October and proceeded to a position, 51°16.3N 04°48.3E off the Suffolk coast to commence work on Aims 1 & 2. This work was completed during the morning of Thursday 1 November. During the afternoon of 1 November, J Metcalfe and A Emery were disembarked and R Flatt and M Lloyd were embarked. CORYSTES proceeded, overnight, to the Hastings Shingle Bank. On the morning of 2 November work started on Aim 3 followed by Aim 8, a side scan survey of the Hastings Shingle Bank. The aims were completed in very good weather conditions.

On Monday 5 November, at 1300h, CORYSTES left the Hastings Shingle Bank area for the Inner Silver Pit area arriving at 1000h on 6 November, to start work on Aim 5 and complete work on Aim 3. After two hauls with the GOV trawl, which resulted in damage to the belly and bosom, the remaining work on Aims 3

& 5 was carried out in the Sole Pit area during the period 7 to 9 November inclusive. Good weather conditions prevailed throughout.

At 2100h CORYSTES left the area, all Aims completed, to return to Lowestoft. CORYSTES docked at Lowestoft at 1600h on 10 November.

RESULTS

Aim 1. The original plan was to use the longer life transponding tag for tracking purposes. However, prior to sailing, it was agreed that the tilt tag should be used on a free swimming fish; therefore pre-tracking tests were carried out using the tilt tag. The tag was successfully tested by attracting it, at known angles, to a weighted line which was supported by a surface buff which in turn was tethered to the ship.

A cod, with the tilt tag attached, was then placed in a release cage lowered to the seabed and left for a period of 12 hours to acclimatise.

On the morning of Wednesday 31 October, in difficult weather conditions, the release cage dan was recovered. The fish was released and tracking commenced at 1015h, unfortunately the release cage recovery cable parted before the cage was brought on board.

The fish was tracked for a total of 21½ hours, sometimes to a range of 392 metres, until 0730h on 1 November when the signal was lost.

The signal was becoming weak and intermittant after approximately 20 hours tracking. The calculated life of the tag battery pack is approximately 26 hours at 4 pps. The fish was abandoned at 0900h on 1 November. The tracking exercise data will be evaluated within FSM3.

Aim 2. During the morning of Thursday 1 November successful tests were carried out with the MAFF depth and the longer life transponding tags; each in turn, was attached to a weighted line, at a measured distance, and floated away from the ship using a buff and long line.

Aims 3. A series of runs with existing MAFF 53cm and 76cm Plankton Samplers together with the new MG90/76cm Plankton Sampler were made in water depths up to 80 metres. The samplers were fitted with the standard survey instrumentation plus roll and pitch sensors.

The preliminary results, comparing the old MG82/76cm with the new MG90/76cm looks very encouraging. Hydrodynamic stability of the new sampler and dive profile recordings indicate a great improvement.

The opportunity to collect and record data on all the samplers in various configurations, under similar conditions, has been very worthwhile.

The data will be published, at a later date, as a technical report by RSG2.

Aim 4. The General Oceanics line tension block was used throughout Aim 3. The block was rigged in series with a calibrated load shackle. The results which were recorded, show a measurement of disagreement. No common factor in the results can be seen. Further calibration checks, against known large weights, ie, up to 1½ tonne will be carried out before a constructive complaint is made to General Oceanics.

Aim 5. During this Aim two engines, with chokes in, were used. Ships speed was 4 knots through the water. A total of 15 hauls were made with the GOV trawl, using a combination of Scanmar sensors. Throughout the trials in shallow, up to 30 metres, and deep up to 80 metres of water the distance

sensors consistently gave good results from both door and wing end locations. The door spread maximum in shallow water was 44 metres and in deep water 72 metres.

The depth sensor gave consistent results when it was used.

The results obtained using the MkI headline height sensor were not so consistent. A typical pair of hauls, with the sensor in the same place, would provide good results on one haul and intermittant results on the other haul. Several positions around the headrope and above the footrope were tried to obtain consistent results, finally a position was found which gave very consistent results for two consecutive hauls. Using the method recommended by Scanmar for attachment of the sensor, a position 400mm behind the headrope gave consistently good results.

Trawl depth to warp out ratios were recorded on most trawl stations.

The data from the various sensors was logged to an onboard Apricot Xen.

Aim 6. Tests using the MAFF 34KHz transponding tag with the ships' SM600 Simrad sonar were carried out by releasing the tag from the ship on a tethered line.

The tag could be located without difficulty in azimuth, but the displayed signal was dispersed which made range fixing difficult.

The same tag was successfully detected during tests on RV CIROLANA, the displayed signal was a precise target in range and bearing.

The tests indicate that the SM600 sonar installed on CORYSTES requires a thorough performance check.

Aim 7. The ground discrimination equipment was run during the first two days of the cruise. The data obtained will be analysed, at a later date, within RSG2.

A system, whereby the vertical angle component of the transducer beam can be measured relative to the seabed, particularly in rough sea conditions, is under consideration.

Aim 8. A side scan survey, using the MAFF sector scanner in side scan mode was carried out on the Hastings Shingle Bank. This was followed by a run with the MAFF underwater photographic sledge along a selected leg of the survey.

The side scan paper record and the CCTV video of the survey will be made available to AEP2 for comment.

The Sector Scanner stabilization package completed a total of 55 hours trouble free running during the cruise.

Additional: Computer programs to log Decca, Guildline and Scanmar data, using an Apricot Xen, were written and successfully used during the cruise.

E G Shreeve
14 November 1990

SEEN IN DRAFT: Captain M J Willcock
R F Graham - Senior Fishing Mate

INITIALLED: ISP

DISTRIBUTION:

Basic List +
B F Riches
C D Rees
M O Eagle
J D Metcalfe
A W Emery
R P Flatt
M Lloyd