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

1989 RESEARCH VESSEL PROGRAMME

REPORT : KV CORYSTES CRUISE 2b

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

STAFF R E Mitson
N D Pearson
E G Shreeve
T J Storeton-West
C R Hood
J D Metcalfe
P Baxter (Ferrante ORE, 6 Feb only)

DURATION : 6-12 February

LOCALITY : East coast

AIMS :

1. Develop use of SM600 sonar
2. Scanner performance measurements
3. Develop acoustic survey system for use with MAPS and check the ground discrimination facility
4. Test and deployment of (a) tilt tag and (b) micro tag

NARRATIVE :

CORYSTES left Lowestoft at 1030h on 6 February and headed for an area of 20m depth off Southwold. The near bed rig was prepared for deployment, but difficulties in positioning CORYSTES caused it to be raised after being lowered to the seabed. Three of the four legs were missing so it was not possible to continue with this additional aim requested by ARP3.

A cod was fitted with a tilt tag, placed in a cage and lowered to the seabed. No signals were obtained so it was recovered. Despite careful checks down to 0°C in the laboratory the tag now appeared to exhibit a temperature effect and would only function at the ambient air temperature. Work began on replacement of part of the circuitry.

After a demonstration of the sector scanner Mr Baxter was put ashore at Lowestoft and CORYSTES anchored overnight.

On the morning of 7 February equipment was set up for a ground discrimination survey and a preliminary run was made on the way to Southwold. The modified tilt tag was then tested when suspended from a buff. In view of the sea state it was decided to put the tagged fish directly over the side and tracking began at 1300h. Measurements showed that the fish stayed close to the surface in a normal attitude. Signals were lost at about 1635h and despite a search of the area until 2300h the fish was not found.

A ground discrimination survey started in thick fog on 8 February. This continued over several transects until early afternoon when trials of another

tilt tag attached to a line took place. Immediately afterwards a similar trial was applied to 34kHz tags and the SM600 sonar. In the late afternoon and evening a further ground discrimination survey was undertaken.

Fog was still thick on the morning of 9 February so direction finding trials were started using the VHF beacon in the ARGOS buoy, these were completed by 1045h. The sun broke through in mid morning so preparations were made to follow a fish fitted with a tilt tag. It was lowered to 8m in a cage, then released. Excellent signals were obtained but within 15 minutes a serious hydraulic leak occurred from the scanner package and the track had to be abandoned. A simple system was used to search for the fish whilst Messrs Shreeve and Pitman worked hard to repair the Scanner. The search was resumed with the full system about 7h after the failure occurred but without success and was abandoned at 2200h.

CORYSTES then set a course towards the area on Broken Bank where instruments, which had been deployed in the North Sea programme, were to be recovered. Because the surface buoy was missing the sector scanner was used to search the area around the reported position. A similar hydraulic failure occurred but this time the transducer was not immediately recoverable. Through a link call to the Marine Superintendent, arrangements were made for a team of divers to be available at 0900h on 11 Feb. Meanwhile CORYSTES set off at 7 knots for Lowestoft via the second of the instrument positions. This was a tide gauge fitted with an acoustic beacon and release. It was quickly located and recovered in good condition.

Messrs Shreeve and Pitman managed to manoeuvre the scanner transducer into a position where it could be drawn into the tube, and eventually raised to deck level. This freed the ship of the speed restriction and the third instrument mooring position was approached in the early afternoon. It was thought that a pellet might still be visible but the area was searched without a sign of it. A grapnel was used but this method yielded no result so CORYSTES headed for the fourth position near Smiths Knoll. Efforts were made to contact this current meter rig using acoustics but after several attempts there was no response so CORYSTES headed for Corton Roads carrying out a ground discrimination survey en route.

On the morning of 11 February Messrs Storeton-West and Metcalfe were taken off the ship and Messrs Knudsen and Orland from Norway embarked. A course was set for the MAFF current meter position off Southwold. Inspection showed that the rig had been tampered with so recovery was delayed until slack water at 1445h. No difficulty was experienced in getting the current meters on board, the only items missing were the pellet buoy and line.

CORYSTES docked early on 12 February at Lowestoft.

RESULTS

Some additional aims were included (5,6,7)

1. It was found that a slight incompatibility between the sonar and the existing design of 34kHz transponder prevented this aim from being achieved. the experience gained will be used to modify the design.
2. The availability of live fish meant that Aim 4 was attempted first. Subsequent failure of the hydraulics stopped quantitative measurements but

qualitatively the system worked well.

3. Every opportunity was taken to run the acoustic system in ground discrimination mode and a technique was developed which gave good correlation with charted seabed differences. Conversion of results to back-scattering strengths per m^2 should enable the records to be quantified.

A similar configuration of acoustic units to that envisaged for the MAPS work was found to work well.

4. Despite the short periods over which the two fish fitted with tilt tags could be tracked it was evident that the tags worked well and give a good indication of fish tilt angle with time. No micro tags were available for trials.

5. The nearbed system was damaged when deployment was attempted so the aim of leaving it for several days during the cruise had to be abandoned.

6. Tests on the VHF direction finding system for the ARGOS buoy were inconclusive. A signal reduction facility may help to improve the accuracy but the ship's structure also causes false bearings.

7. A request from the Proudman Laboratory for the recovery of instruments deployed as part of the North Sea programme was received. Four of the given positions were carefully checked but only the equipment fitted with an acoustic release was recovered. No sign of any of the other three rigs was evident

R B Mitson

SEEN IN DRAFT G R F Master
P N Snr. Fishing Mate

INITIALLED R J P

DISTRIBUTION

Basic list+

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