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

1991 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA CRUISE 8B

STAFF:
N D Pearson
H L Rees
B F Riches
C D Rees
M O Eagle
A J Kenny

M O Green )
R D Theobald, ) University of Cambridge
Xingsheng Yu )

DURATION: Left Lowestoft 0930h 10 October
Arrived Lowestoft 1300h 14 October

LOCALITY: Cross Sands area, North Sea

AIMS

1. Trials of the Hamon grab, comparing its samples with those from the anchor dredge. Some processing of the benthos collected will be undertaken.

2. Deploy the Cambridge University quadrapod to test its handling, acoustic release, data logger, and a batch of syringe water samplers.

3. Deploy the MAFF tetrapod fitted with the usual instruments plus a new MOBS arrangement.

4. Test parts of the new shipboard data logging system.

5. Test the performance of a new type of radar reflector mounted on a toroid.

6. Test the GPS slave monitor.

7. Test a special version of the 34 kHz sonar transponder.

NARRATIVE :

CIROLANA left Lowestoft on 0930h and proceeded to the first grab station, 10 miles east of Lowestoft. On route the MAFF tetrapod and Cambridge University Quadrapod were assembled and tested. The tetrapod was fitted with a special version of the sonar transponder to record its false trigger rate. At 1300h two trial deployments of the new Hamon grab were made. The Hamon grab and anchor dredge were then used at the first three sites. Benthic samples were processed after the three stations.

At 0815h on the 11 October, CIROLANA was on position for the tetrapod launch. A day grab sample was taken to confirm the site suitability. However, the 25 knot easterly wind was rising and the decision was taken not to deploy the tetrapod. The weather conditions were unsuitable for the Hamon grab and so three anchor dredge stations were performed. As the swell was increasing, work ceased at 1030h and CIROLANA dodged. By the early evening the weather conditions improved allow a further three anchor dredge stations to be worked, finishing at 1800h.

The next morning, starting at 0817h, six day grabs were taken at the tetrapod site confirming the seabed to be hard packed sand. CIROLANA had to wait for the tide to abate until 1024h when the tetrapod was laid in 23 m of water. At 1055h a CTD cast was made at the tetrapod site and water samples for sediment analysis taken. At 1135h Cambridge University's triple syringe water sampler was deployed. The tetrapod was recovered at 1323h to remove the zero-test covers from the optical backscatter sensors and the tetrapod relaid at 1344h. The quadrapod was then laid at 1359h and a guard buoy at 1421h. The guard buoy was fitted with a radar reflector borrowed from the ship's SEARIDER and the detection range measured as CIROLANA returned to the grab grid. Five Hamon grab stations were worked until 1917h.

On the 13 October at 0730h CIROLANA was in position at slack water to recover the quadrapod when thick fog suddenly appeared. At 0820h with visibility still no better, CIROLANA abandoned the recovery attempt and went off to complete the three remaining grab and anchor dredge stations. Two CTD casts were performed to get some realistic data files for future analysis by the EG&G software. The quadrapod was recovered at slack water at 1407h. It was then lowered to the seabed to test its coring device, recovered and its data transferred.

A series of five Hamon grabs without extra weight and five grabs with 148kg of lead added were taken to see if extra weight improved grab operation. Five anchor dredges were then taken to allow a comparison of the relative sampling efficiency of each device. All fifteen samples were taken in essentially the same location. The CTD was lowered and left for 15 min to check the efficacy of modification made to the warp-out meters.

The tetrapod was recovered at 0815h on the 14 October, followed by the guard buoy. The benthos samples collected the previous evening were processed.

Throughout the cruise work was carried out on the shipboard data logging software. Data were collected to compare the Guildline deck CTD and the Chelsea Instruments CT sensor. The EG&G software was tested on CTD casts using both deep and shallow Guildline probes. Ship's position, speed and Guildline CT data were logged continuously on a PC. Programs to log the Scanmar net monitor sensors were tested and further work was carried out to log position data and the ship's chronometer.

CIROLANA docked in Lowestoft at 1300h, 14 October.

RESULTS :

1. The singular grid of 12 Hamon grab and anchor dredge stations was worked successfully and the benthos processed. Successive Hamon grabs with the grab weighted and unweighted showed the efficiency of operation (as judged by sample volume) increased with the addition of weight. Sample efficiency is seemingly reduced when operating on hard-packed sands, yet for normal operation on marine aggregates the operation is good with consistently high sample volume.

2. The Cambridge quadrapod was deployed and recovered without damage. Its data logger functioned correctly. The small coring device did not take a sample on the first deployment and got severely bent on the second.

3. The MAFF tetrapod was deployed safely and appears to have logged correctly collecting 4.5 Mbytes of data and 2 Mbytes of acoustic backscatter data.

4. The EG&G software worked properly when logging the 'deep' CTD but was prevented from running correctly when logging the 'shallow' CTD by a defect in driver software loaded after the start of the cruise. Progress was made with the programs to log ship's position, chronometer and Scanmar data.

5. The radar reflector, attached to a guard toroid, was tracked out to three miles range under ideal weather conditions. However, it would be difficult to locate the target at that range if its position were not known. A more realistic range would be 1.5 miles.

6. No problems were encountered with the GPS slave monitor.

7. The sonar transponder was deployed on the tetrapod but the sonar was not operated in order to estimate the number of false transmissions. Including the handling periods before and after deployment, the false trigger rate was about once per 30 seconds.

N D Pearson
(Scientist-in-charge)

SEEN IN DRAFT: B J Chapman (Master)
J Harper (Fishing skipper)

INITIALLED : C E P

DISTRIBUTION :

Basic list +

| | | |
|---|---|---|
| N D Pearson | A J Kenny | |
| H L Rees | M O Green | ) |
| B F Riches | R D Theobald | ) Univ. Cambridge |
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| M O Eagle | | |