Centre for Environment, Fisheries and Aquaculture Sciences,
Lowestoft Laboratory, Pakefield Rd, Suffolk NR33 0HT, England

1998 Research Vessel Programme

Report: RV Corystes: Cruise 11/98

STAFF

B Meadows (SIC)
MJ Kaiser (University of Wales BANGOR)
RP Flatt
DB Edwards
K Ramsay (University of Wales BANGOR)
FE Spence (University of Wales BANGOR)
C Bannister

DURATION: 26 October - 06 November

LOCALITY: North Sea

AIMS:
To survey

1. To survey areas subjected to different intensities of fishing in the North Sea using a combination of the following techniques:
2. sidescan sonar survey to ascertain the comparability of substratum type in areas used for comparative studies, and to ascertain the recent intensity of fishing in those areas.
3. Sample the epibenthic community within specific areas using repeated tows (3-5 min duration) of a 2m beam trawl to obtain quantitative estimates of epifauna.
4. Collect specimens of live bivalves at each station using an anchor dredge for determination of historical fishing intensity which can be related to the communities observed in aim 2 (NP0309).
5. Undertake video and still camera observations of the seabed.
6. Quantify the proportion of starfish with lost arms to verify differences in fishing intensity.

NARRATIVE
(all times are GMT):

R.V. Corystes sailed at 11:45 on the 26 October from Lowestoft for an area NW of the Friesian Isles. On arrival the weather rapidly deteriorated with storm force winds, and shelter sought closer inshore was not forthcoming. Corystes steamed slowly back into the lee of Southwold in storm force conditions, arriving on the morning of 29th October to conduct some sidescan sonar tests. By midday, with no immediate signs of moderating weather, Corystes moved to the shelter of the Wash to

continue sidescan tests and conduct a small survey of Razor clam habitat. On 30/31st October a grid of 10km by 6km was acoustically surveyed with sidescan, and physical samples gathered with anchor dredge and day grab. Overnight a QTC acoustic survey was performed over the survey grid.
On the night of 31st moderating weather dictated a break in Wash surveying, and return to Dutch waters. Trawl sampling commenced at first light on 1st November in marginal conditions. Catches were small despite ample evidence the 2 metre beam was fishing correctly, tows were increased from 10 to 20 minutes but numbers caught were still insufficient. The prediction of moderate weather did not materialise leaving insufficient time, to gather samples in numbers that would be statistically valid. Therefore the main aim was abandoned and, again in high North-Westerly winds, Corystes returned West to complete the Wash habitat survey. On 2nd the main survey grid was completed, additional lines to the North were completed on 3rd, again with Sidescan, Anchor dredge and Day grab. Corystes then steamed to an area 3 miles off Cley-next-the-sea to conduct a similar survey, this time over varying areas of trawl activity, before leaving for Lowestoft.
R.V. Corystes docked on the 09:30 tide on the 5th November in Lowestoft.

RESULTS & CONCLUSIONS

The main objective of this research cruise was to relate starfish damage rates to beam trawling intensity in the Dutch sector of the North Sea. Despite several attempts to collect samples, bad weather prevented us from collecting enough material for statistical comparisons to be made, hence this part of the programme had to be abandoned.

Severe winds meant that work was confined to areas close to the East coast of England. A survey of the areas below a mean chart datum depth of 10 m in the Wash was undertaken. A grid of 23 stations were sampled using a combination of anchor dredge and Day grab techniques. We were particularly interested in the distribution of razor clams. The seabed of the entire sample area was mapped using side-scan sonar and mosaicing software (figs 1-3 – including ground type for each station). This map, in conjunction with an acoustic survey using QTC should enable us to quantify the different biotopes and their area in the Wash.

The Northern end of the survey grid was characterised by a cobble and stone substratum with mixed sediment. Edible crab and lobster were recorded from the anchor dredge samples collected in this area. Further south and to the west, the seabed was much muddier with a high proportion of dead mussel (either *Mytilus edulis* or *Modiolus modiolus*) shells. The communities of animals in these areas were not particularly diverse. The seabed to the east of the grid was much coarser with sand, gravel and broken shell. These stations were closest to the shallow banks near Hunstanton and had large numbers of 0-group razor clams. Adult razor clams were found only occasionally. Epibenthic predators such as crabs and starfish were also most prevalent at these stations.

A more detailed description of the fauna will be forthcoming once laboratory analyses have been completed. The final report will aim to relate the acoustic and biological data and to quantify the real extent of the different biotopes in the surveyed area.

A similar survey was also undertaken off Cromer, although we were only able to spend one day on this site due to continuous stormy weather. The survey was designed such that it overlapped areas open to towed fishing activities all year, an area open to towed fishing activity for six months of the year, and an area from which all towed fishing activities are prohibited. Visual assessment of the fauna did not reveal any striking differences between any of these areas, however more formal analysis will be undertaken after laboratory processing of the samples. Interestingly, the benthic communities off Cromer were characterised by dense beds of tube-dwelling amphipods that are known to form an important part of the diet of crustacea and a wide range of fishes.

W Meadows/M J Kaiser

Initialled: seen in draft :Master

SFM

Distribution:

Basic List + (names on staff list)

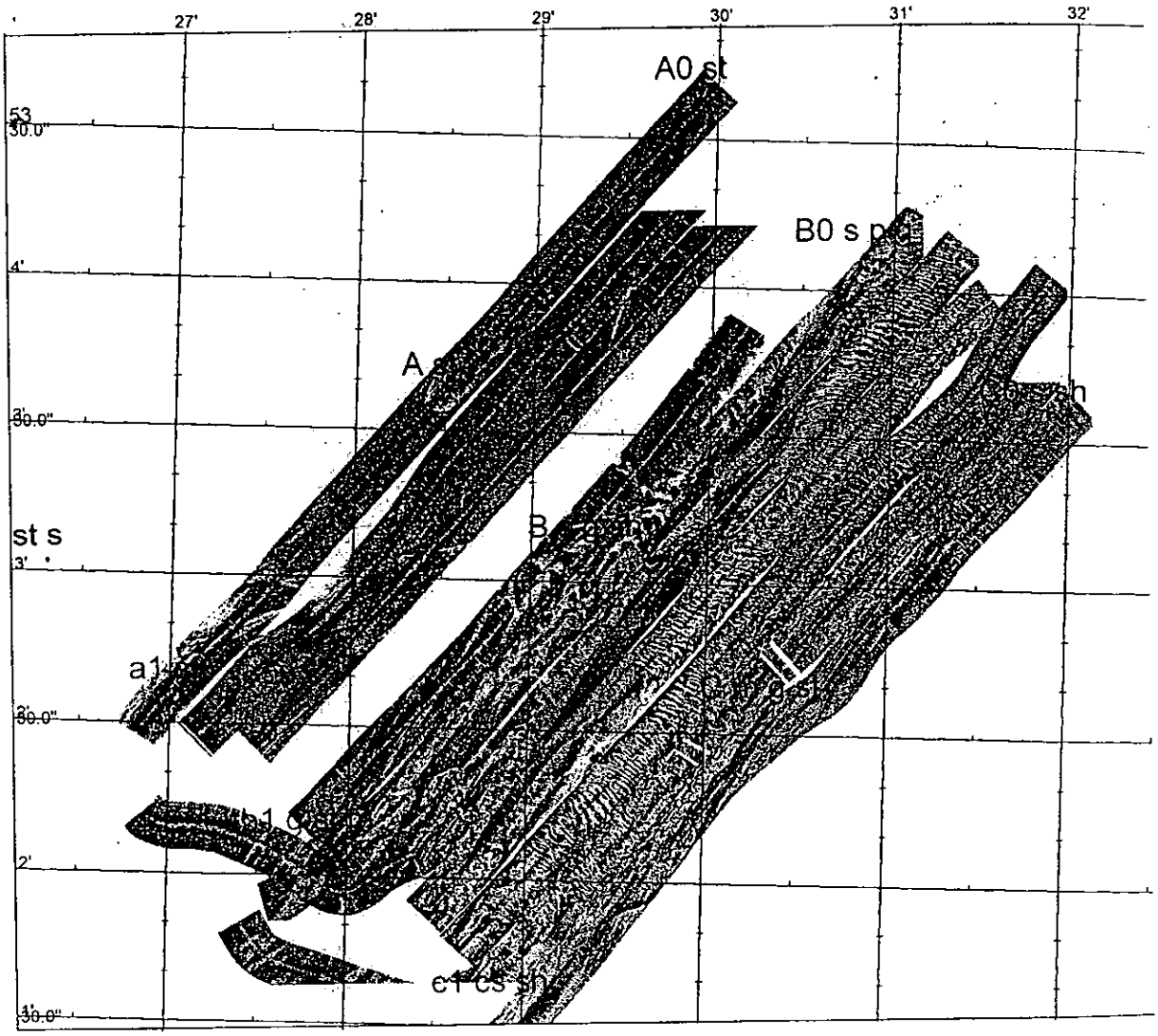

Fig 1 – Sidescan survey - Wash Northern section

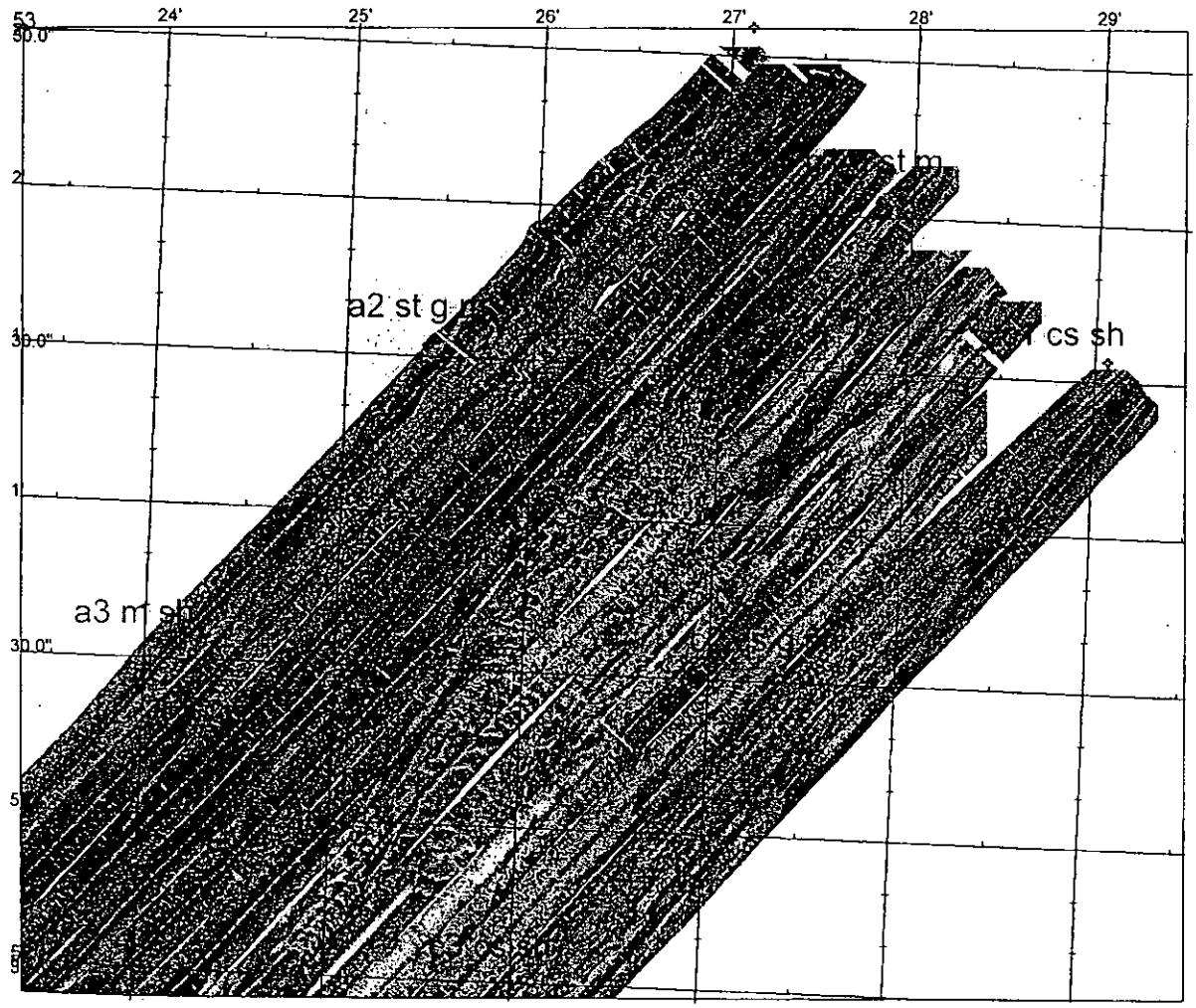

Fig 2 – Sidescan survey - Wash mid section

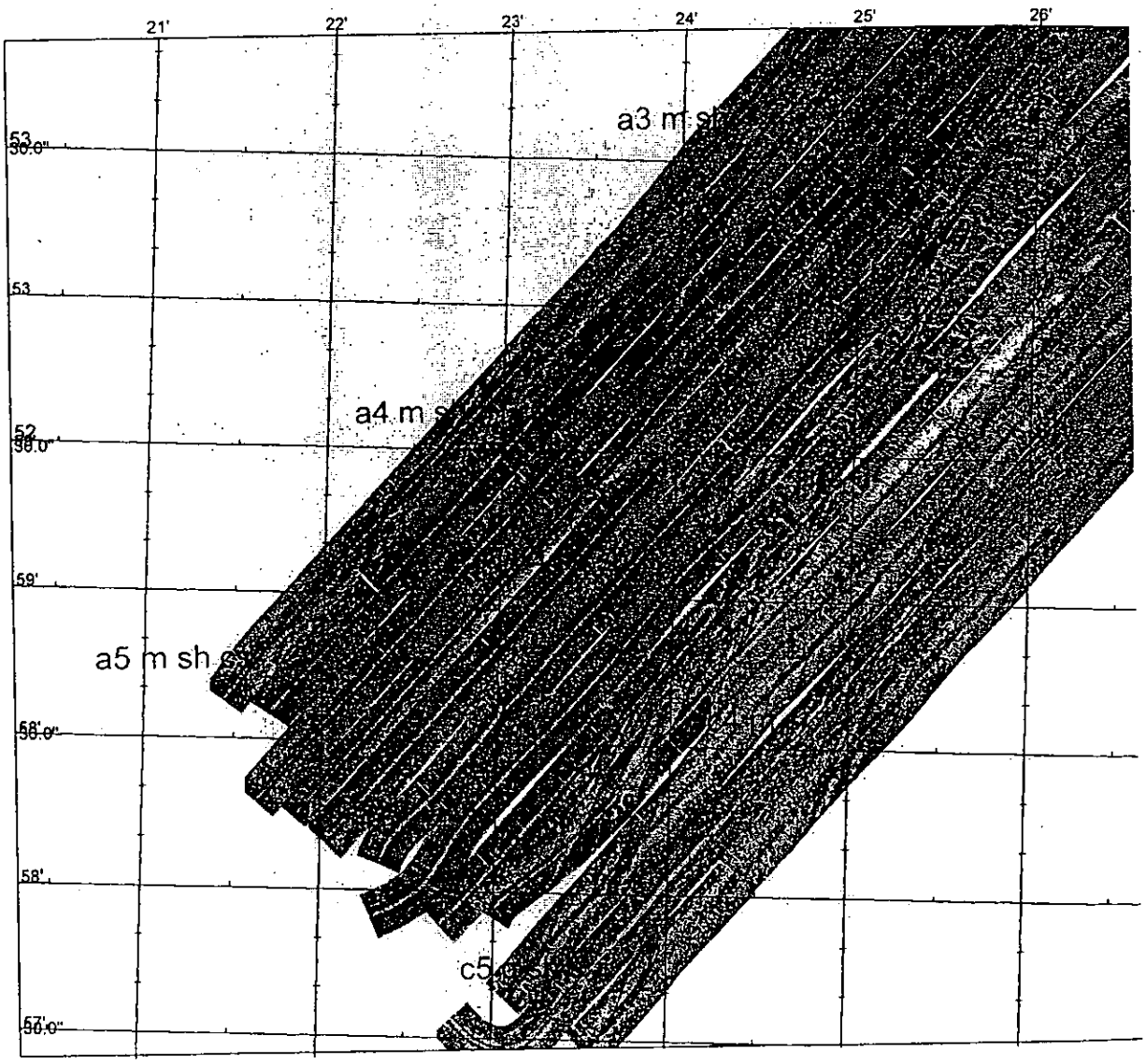

Fig 3 – Sidescan survey - Wash Southern section