CENTRE FOR ENVIRONMENT, FISHERIES & AQUACULTURE SCIENCE LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

2002 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 13x/02

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DURATION:Left Lowestoft0907h 10 October.Arrived Lowestoft1742h 17 October.

LOCALITY: North Sea (English NE Coast)

AIMS:

- 1. To conduct a standard underwater TV survey of Nephrops burrow densities on the Farn Deeps grounds, $55^{\circ}35' 54^{\circ}45'$ N and $1^{\circ}30' 0^{0}40'$ W, to evaluate Nephrops abundance for comparison with previous years.
- 2. To characterise sediment features at TV survey stations using a remote acoustic seabed discrimination system (QTC).

NARRATIVE:

CORYSTES sailed from Lowestoft at 0907h on 10 October, nearly 2 hours before high tide, straight into a south easterly gale. She travelled north to the southern end of the survey area. The gale persisted but work commenced the following morning at 0545h at one of the inshore stations. The gear was safely deployed but the visibility was poor probably as a direct result of the weather. The station was abandoned and more northerly and more offshore stations were attempted. Although the visibility improved dramatically, the weather deteriorated and the gear became increasingly difficult to handle. Work was abandoned at 1304h because of the concern for the safety of staff and gear. Worst gales were forecast so CORYSTES sailed north to shelter in the lee of the Farne Islands.

By 2315h on the 12 October the weather showed signs of moderating so CORYSTES sailed east to the most northerly stations. Work commenced at 0200h on 13 October. The swell left by the gales continued to moderate and work continued steadily until the two lights on the sledge tripped. As the junction box had recently been overhauled and tested, the fault was diagnosed as being a short in the umbilical cable. Further testing and possible repair was going to take over 24 hours to complete. Whilst repair of the cable was being investigated the second aim became the focus of the survey. Using Transas, the ships navigation system, grids of transects were plotted over the 10 station clusters of the March 2002 *Nephrops* survey. It may still be valid to compare the QTC indices with the population indices calculated from the March survey (*Nephrops* would not have been fished heavily over the summer months). CORYSTES started following these grids from 1700h on 13 October.

Fortunately the fault in the cable was found to be in the termination lead from the umbilical to the junction box on the sledge. So this was removed and replaced with the spare termination. Before the new joint was potted up (fixed in resin) it was tested

and a fault found in the unused spare. The old lead was cannibalised and a temporary fix made. The repaired sledge was tested and ready to use at 0800h on 15 October so the TV survey recommenced.

The original survey was pared down to a shorter list of 25 priority stations randomly distributed over the entire survey area. Despite further gales and the wire for one of the lights in the temporary fix giving out permanently, the survey continued with little delay until CORYSTES had to turn for home at 2100h on 16 October.

A total of 49 TV tows were carried out. Seven tows were abandoned due to poor visibility. This resulted in only 42 stations being successfully sampled. Preliminary *Nephrops* burrow counts were made over a ten minute part of the tow which was recorded on videotape for further detailed analysis at the laboratory.

QTC was run throughout the survey, between stations as well as on them. Six 2.5 nm square grids of transects were carried out whilst the sledge was being repaired.

RESULTS:

- Over the survey, 42 stations were successfully sampled in total. These include repeats of stations where the visibility underwater had been particularly poor. Results were obtained for the majority of video recordings. Clarity was only adversely affected by the swell lifting the sledge off the bottom and the cable disturbing the silt ahead of the sledge. Reasonably clear pictures were obtained of the substrate, *Nephrops* burrows and emergent *Nephrops*. Preliminary *Nephrops* burrow counts were made at each TV station. All burrow counts, usually of 10 minutes duration, were recorded for further laboratory analysis. Preliminary results suggest that the highest densities of burrows were found in the south of the survey area (Fig 1).
- 2. QTC was run throughout the survey. Transects were logged between stations and during each station. While the sledge was being repaired, QTC was run over six of the 10 areas covered intensively in the March burrow survey when only TV data was collected. Analysis of these data at the laboratory might provide indices that correlate with the population indices calculated from the TV analysis.

JON ELSON (Scientist-in-Charge) 17 October 2002

INITIALLED: ME (Master)

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