

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

2007 RESEARCH VESSEL PROGRAMME/REPORT

PROGRAMME: RV CEFAS ENDEAVOUR SURVEY : 18/07

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DURATION: Left Lowestoft 0900h 27 September.

Arrived Lowestoft 1600h 04 October.

LOCALITY: North Sea (English NE Coast)

AIMS:

1. To conduct a standard underwater TV survey of *Nephrops* burrow densities on the Farn Deep grounds, 55° 35' - 54° 45' N and 1° 30' - 0° 40' W, and to evaluate *Nephrops* abundance for comparison with previous years.
2. To collect concurrent video data, using a second camera, which will be directly comparable with that collected from other *Nephrops* grounds.
3. To characterise sediment features at and between TV survey stations using a remote acoustic seabed discrimination system (swathe bathymetry and QTC).
4. To trial the deployment of a lander for the remote collection of static video observations and environmental data.

NARRATIVE:

CEFAS ENDEAVOUR sailed from Lowestoft at around high tide at 0900h local time on 27 September.

Gales in the Northern North Sea made for an uncomfortable passage up to the Farn Deep. We arrived at the southerly end of the grid at about 0300h 28 September. Because of the North Easterly gale force winds and swell, we continued to the north of the survey area and waited until daylight. The first station was carried out at 0730h. Although the swell, wind and strong spring tides affected the quality of the first few tows, these tows allowed the sledge and camera setup up to be tuned for the rest of the survey.

The weather improved slowly as we worked round the clock picking our way from one station to another zigzagging southwards down the survey grid. However at 2200h we lost the picture from the sledge, the sledge was retrieved and work stopped. The fault was traced to the cable and a loose connection on the winch slip rings. It was apparent that the cable would fail eventually – but it would take 24hrs to repair. It was still usable, so despite the fault it was re-rigged and the survey recommenced at 0330h 29 September. While the survey carried on, the spare cable and the side winch were prepared for the original cables eventual demise. At 1845h it did fail, the cables were changed over, and the survey recommenced at 2200h. Because the wires in the

spare cable were rigged for another use and it did not carry a coax we had to sacrifice some of the readings from the sledge and a little of the video quality. We lost readings from the meter wheel and the altimeter and images from the forward-looking camera. The re-termination of the original cable would take around 24hrs so whilst this was being carried out we would still be able to work to meet the 1st aim of the survey.

The survey continued until 1815h 01 October when the original cable was available and refitted. At 2015h the survey recommenced and then continued uninterrupted. The survey grid was completed at 0545h on the 03 October and the priority was then given to repeating stations where video recordings had been poor because of weather or fishing vessel activity.

The reruns were successfully completing at 2040h and after the sledge was calibrated, CEFAS ENDEAVOUR set a course for Lowestoft at 2115h.

RESULTS:

1. On the Farn Deeps ground a total of 119 TV tows were carried out providing clear video data for nearly all 105 stations. Preliminary *Nephrops* burrow counts were made over a 10-minute part of the tow, which was recorded on DVD and DV tape. All recordings were then recounted under controlled conditions. Preliminary results suggest that the highest burrow densities are found to the west of the survey area, similar to last year (Figure 1).
2. At 67 stations, concurrent video data was collected on Hi Definition Mini DV tape using a camera looking forward of the standard camera. The forward-looking camera mirrors the system used by other countries. These data compared with the standard data will allow us to see if there are differences between the indices calculated using the different systems.
3. With a HIPAP acoustic beacon on the sledge, Tower survey software was used to record ship and sledge position at regular intervals throughout the TV tow.
4. The Dynamic Positioning system (DP) was used throughout the survey to provide a controlled towing speed of around 0.7 knot.
5. QTC was unavailable for this survey. Swathe was used throughout the survey between and over TV stations. Analysis of these data at the laboratory might provide indices that correlate with the population indices calculated from the TV analysis.
6. Additional data collected include: continuous readings on the sledge of turbidity, temperature, conductivity, depth and camera height. Laser spots projected on to the image will also contribute to calibrating the field of view.
7. After all the repairs and re-runs there was insufficient time to trial the lander.

JON ELSON
(Scientist-in-Charge)
04 October 2007

INITIALLED: AR (Master)

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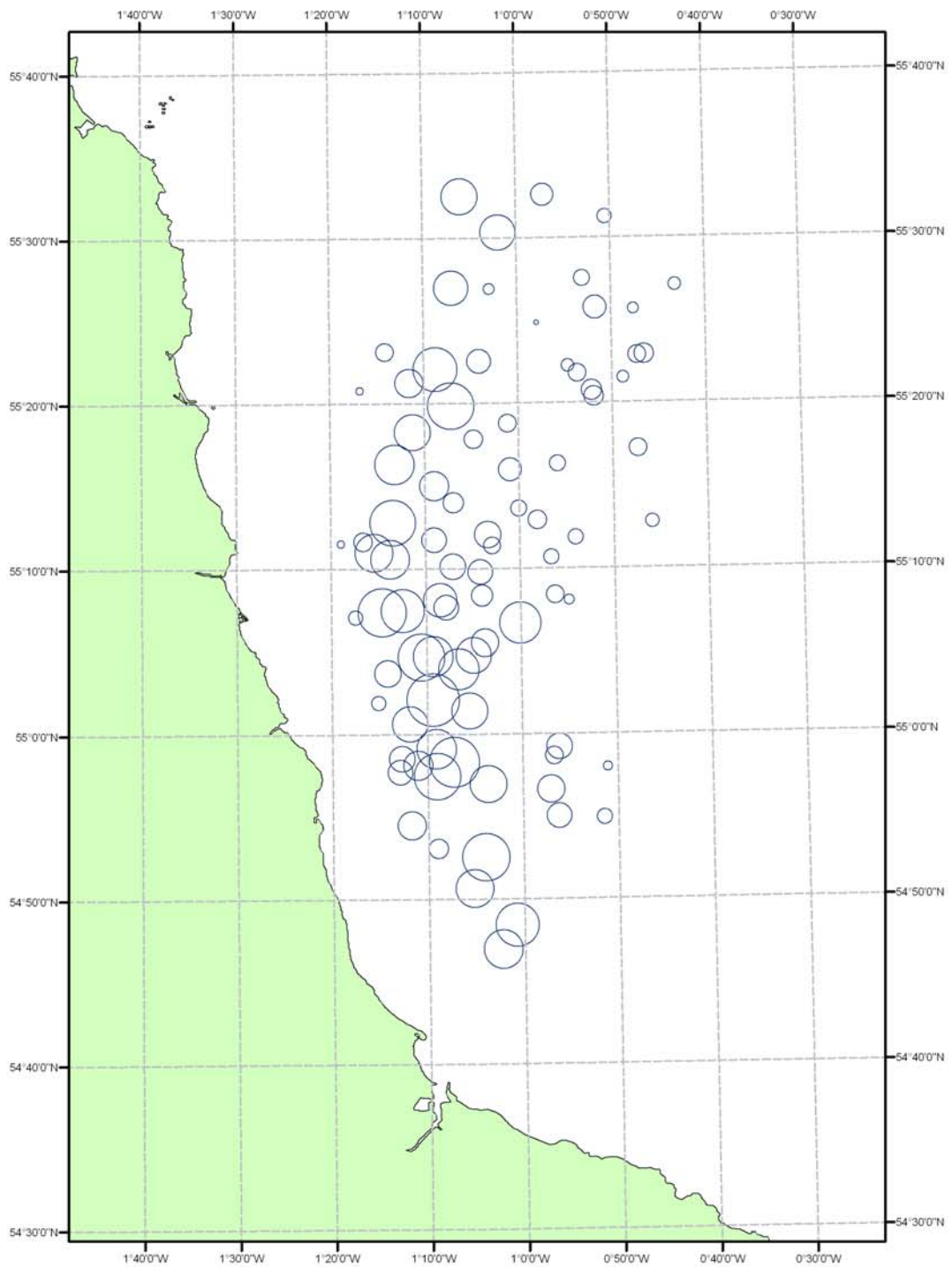


Figure 1. CEFAS ENDEAVOUR 18/07 Bubble plot of the relative burrow counts from standard TV tows on the Farn Deeps ground.