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

2004 RESEARCH VESSEL PROGRAMME

REPORT: RV CEFAS ENDEAVOUR: CRUISE 13/04

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DURATION: Left Lowestoft 0900h 12 October.
Arrived Lowestoft 1300h 19 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° 35' - 54° 45' N and 1° 30' - 0° 40' W, to evaluate Nephrops abundance for comparison with previous years.

NARRATIVE:

CEFAS ENDEAVOUR sailed from Lowestoft at around high tide at 0900h local time on 12 October.

In strong southeasterly winds and with a following sea the ENDEAVOUR was on station south of the survey area by 2345h. Our first station was completed satisfactorily and the sledge back on deck by 0030. We then worked round the clock picking our way from one station to another zigzagging northwards up the survey grid. High winds, large swell and big tides made it difficult to keep the sledge on the seabed so we had to overrun on most stations for the first day to get clear 10-minute tows.

For most of the 14 October the weather was calmer and the survey continued uneventfully until early 15 October when the camera stopped working. Diagnosing the fault and changing and mounting a spare camera took six hours. At 1100h the survey was resumed.

However 10 stations later the spare camera appeared to malfunction and a further 7 hours were taken diagnosing faults, re-rigging the sledge and changing umbilical cables. Three faults were found: bad connections and voltage leakage at the termination on the cable; a dry joint through a corroded connector in the junction box; and suspect connections in the socket on the camera. The third and final spare camera was attached to the sledge. The umbilical cable on the winch on the starboard side gantry was fed through a block on the deck before going through a block on the stern gantry. Once re-rigged, the sledge was deployed as normal at the next station.

Although the third camera worked, the quality and contrast was poor compared to the earlier cameras. It was replaced with the second camera en route to the next station, but care was taken to ensure no strain was put on the lead going to it. This seemed to

work and with the wind and swell fining away and weaker tides we were able to complete the remainder of the main grid, except for one lower priority station, by 0640 on 18/10/04. The remaining survey time was used to repeat higher priority stations where the previous recordings had been very poor.

After successfully completing these stations and calibrating the sledge CEFAS ENDEAVOUR set a course for Lowestoft at 1740h 18/10/04.

A total of 115 TV tows were carried out - 88 priority stations and 16 of the lower priority stations were successfully sampled. Preliminary *Nephrops* burrow counts were made over a 10-minute part of the tow, which was recorded on videotape and DVD for further detailed analysis at the laboratory. 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.

The Dynamic Positioning system was used throughout the survey to provide a controlled towing speed of <1 knot.

A remote acoustic seabed discrimination system (QTC) was run throughout the survey. Transects were logged between stations and during each station. Analysis of these data at the laboratory might provide indices that correlate with the population indices calculated from the TV analysis.

The swathe bathymetry system was run parallel to the QTC system. This data could provide better discrimination as it covers a wider area and will provide the topography either side of each tow.

RESULTS:

1. Over the survey 104 stations were successfully sampled. This required the repeating of stations where the visibility underwater had been particularly poor. Results were obtained for nearly all of the video recordings. Underwater visibility was very poor where the swell lifted the sledge off the bottom or the towing cable disturbed the silt ahead of the sledge. Occasionally fishing vessel activity reduced visibility. 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 burrow densities are found to the east of the survey area, similar to last year, but this year extending further north (Fig 1).

JON ELSON

(Scientist-in-Charge)

18 October 2004

INITIALLED: AR (Master)

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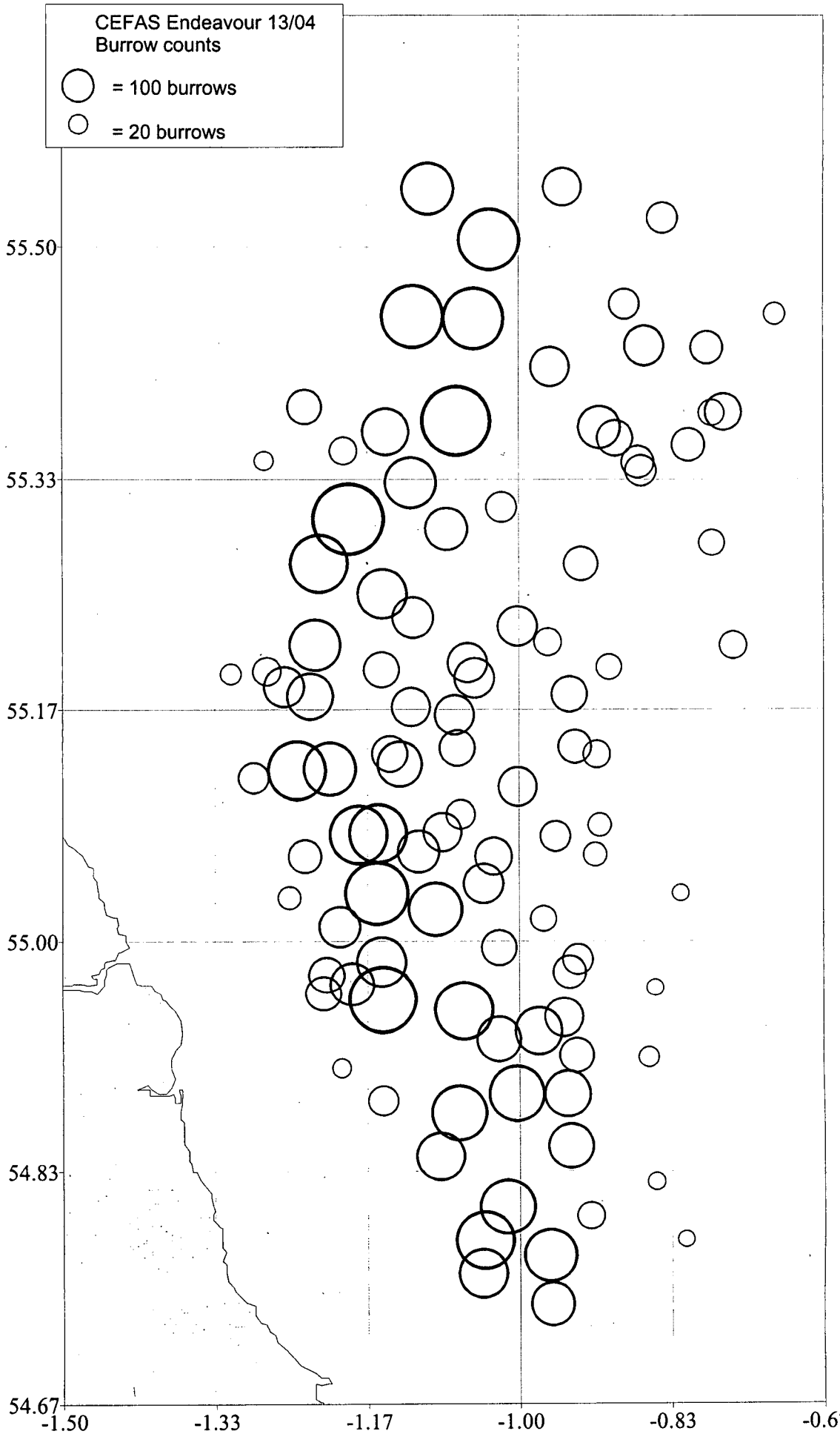

Figure 1

File: CEnd1304stplotRep.srf