CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE, LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK, NR33 OHT, UK

2004 RESEARCH VESSEL PROGRAMME

REPORT: RV ENDEAVOUR: CRUISE 11/04

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DURATION: 8 September - 16 September 2004

LOCALITY: North Sea (IVb and IVc)

AIMS:

The aims of this cruise were to (1) describe the impacts of trawling disturbance on the structure and productivity of benthic communities and (2) describe spatial variation in carbon, sulphur and nitrogen isotopes at the base of marine food chains. Specific objectives were:

1. To sample infaunal invertebrates at a series of sites subject to different levels of trawling disturbance for production studies.

2. To sample infaunal invertebrates at a series of sites subject to different levels of trawling disturbance for food web studies.

3. To collect benthic invertebrate species for stable isotope analysis.

NARRATIVE (all times are in BST):

RV ENDEAVOUR sailed from Lowestoft at 18:00 on 8 September 2004. She proceeded to a Hamon grabbing box at the Indefatigable Banks (location 53° 46.26' N to 53° 56.99' N and 01° 54.00' E to 02° 21.95' E). Sampling was scheduled to begin on Thursday, 9 September 2004 at 06:00 but this was precluded by a faulty electro-hydraulic valve on the side gantry A-frame. The problem was soon rectified and Hamon grabbing (seven replicates) at each of five sites within seven individual sampling boxes commenced at 8:30 on 9 September and continued the following day from 06:00 to 18:45. The analysis of Hamon grab samples from the Indefatigable Bank will provide information on the size distribution and trophic structure of invertebrate communities in areas subject to different levels of trawling intensity.

On the morning of Saturday, 11 September, work began at 05:45 with replicate 4-m and 2-m beam sampling at a trawl line (53°50.050’ N, 02°10.000’E to 53°47.530’N, 02°15.061’E) adjacent to the Hamon grabbing box. These samples together with similar trawls collected at

two further sites located at the Barmade Bank and the NW Rough will be utilised for the analysis of size distribution and stable isotope ratios of bivalves. Survey work at the Indefatigable Bank finished with the completion of the Hamon grabbing grid at 13:00.

From the Indefatigable Banks, RV ENDEAVOUR steamed approximately 80 miles north-west to the second trawl site at the Barmade Bank (trawl line 54°50.127' N, 00°19.842'E to 54°52.577'N, 00°14.948'E) where fishing commenced at 05:00 on 12 September and was completed at 06:30. RV ENDEAVOUR then proceeded to the final trawl station in the NW Rough (trawl line 55°00.800' N, 01°18.500'E to 55°03.770'N, 01°12.400'E). When ENDEAVOUR arrived on station in the afternoon, wind had risen to force 6 to 8 SW and trawling work was postponed until 18:30 when the wind had dropped slightly and conditions were workable. Two 4-m beam trawls were completed successfully by 20:00 the same day.

The Hamon grab samples collected at the Indefatigable Banks appear to be of good quality. Infaunal communities are typical of those generally found in sandy and gravelly North Sea sediments. Polychaete worms generally dominated whereas the density and diversity of bivalves was comparatively low. The collection of bivalves by means of 2-m and 4-m beam trawl was successful along all three trawl lines. At the Indefatigable Banks, the 2-m beam trawl proved suitable for the collection of smaller species (*Abra*, *Spisula*, *Nucula* etc.) while at the Barmade Bank and the Middle Rough, 4-m beam trawls yielded good results for larger species (*Modiolus*, *Aequipecten*). Results from further laboratory analyses of these sediment and trawl samples are expected to augment findings from similar studies carried out during previous cruises.

With all the primary cruise objectives met, RV ENDEAVOUR steamed approximately 70 miles NE to the second Hamon grabbing box in the Middle Rough (location 55° 34.50' N to 55° 44.34' N and 02° 42.00' E to 03° 2.70' E) over night. Arriving on site at 13:00 on 13 September, work could not commence as planned due to strong gale force SW winds. Hamon grabbing was attempted at 18:30 but abandoned at 19:00 because no valid samples were obtained. With strong SW winds prevailing, a second attempt was made at 17:40 on 14 September during a period when the wind had dropped to force 5 to 6. Although four valid samples were collected, further work was abandoned at 18:00 because it was not possible to guarantee the safe operation of equipment and processing of sediment samples.

The weather conditions remained poor the following day (15 September) when northerly gales prevented further progress with the Middle Rough Hamon grabbing box. The winds were forecast to remain strong, veering SW, and thus a joint decision was made between the master, senior fishing skipper and the SICs to steam back to Lowestoft where RV ENDEAVOUR docked one day earlier than scheduled at 10:00 on 16 September.

The scientists are grateful to the officers and crew for their efforts that contributed significantly to the achievements of this cruise. The RV staff's positive approach to work, their professionalism, expert knowledge and willingness to help made this cruise a pleasant experience.

Michaela Schratzberger
Scientist in Charge
16 September 2004

SEEN IN DRAFT: R. McCurry

A. Lincoln

INITALLED: E. C. E. Potter (FB SAH)

DISTRIBUTION:

Basic list +
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