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

2005 RESEARCH VESSEL REPORT

REPORT: RV ENDEAVOUR: CRUISE 8/05

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DURATION: 21 May - 26 May 2005

LOCALITY: North Sea (ICES IVb)

AIMS:
This was the second of five related cruises to the Silver Pit, central North Sea in 2005 to describe the effects of fishing and the environment on production and food web structure during a seasonal production cycle. The data collected will be used to parameterise size-based food web models and to describe how seasonal patterns of energy flow affect indicators of fisheries impacts on trophic structure, biomass and production. The specific objectives of the cruise were:

(1) To collect samples to allow analysis of spatial and temporal variation in carbon and nitrogen stable isotope ratios close to the base of marine food chains (filter feeding infauna and zooplankton).
(2) To collect samples to allow analysis of relationships between body size, energy content and trophic level (from nitrogen stable isotope analysis) in space and time for zooplankton, benthic invertebrate and fish communities.
(3) To collect samples to allow analysis of relationships between body size and production for zooplankton, benthic invertebrate and fish communities.

NARRATIVE: (all times are GMT)

Endeavour sailed from Lowestoft at 07.56h on Saturday 21 May 2005. She proceeded to the Silver Pit region of the central North Sea to begin work at the first (P5) of eight zooplankton stations (TTN) at 17.20h, having been diverted away from an earlier station (P4) by the 'Northern Explorer' who was carrying out seismic survey work in the vicinity. The sample collected at station P5 proved invalid, and Endeavour steamed to a second zooplankton station

to begin work at 18.28h. Work was successfully completed at 19.05h, and Endeavour then proceeded to the first of five 'benthic ecology' sites. NIOZ coring started at 05.00h on Sunday 22 May 2005. Seven replicate cores and 2 2-m beam trawl collections were carried out at each of the five stations during daylight hours, with this work being completed by 10.50h on Monday 23 May 2005. Cores were sieved to obtain benthic infauna for stable isotope and energetic analysis and 2m beam epifauna catches were size fractionated for the same purpose. On Sunday 22 May 2005 from 15.27h to 22.00h, three TTN zooplankton samples were collected and size fractionated at sea. On Monday 23 May, from 12.24h to 13.24h, two 4-m beam trawl tows were completed at one of three 4-m beam stations. The fish caught on these tows were processed for stable isotope and energetic analysis. A further three TTN were completed from 14.45h to 20.50h. Endeavour then steamed to the second 4-m beam trawl station to start work at 04.11h on Tuesday 24 May. The remaining 4 tows were completed at the last 4-m beam trawl stations by 08.52. Endeavour then steamed to the last TTN station, arriving at 10.00h. The TTN tow was completed at 10.24h. From 14.54h until 21.15h several attempts were made to catch mackerel (for ovary analysis) using fishing rods and feathers off the starboard of the ship. This proved unsuccessful and Endeavour then steamed SE to a trawl line in the Indefatigable area (53°50.05' N, 02°10.00'E to 53°47.53'N, 02°15.06'E). From 06.00h to 10.10h on Wednesday 25 May 2005 three 4-m beam trawl tows and three 2-m beam trawl tows were completed to collect fish and bivalves for stable isotope analysis as part of an ongoing study in this area. Samples of scaldfish and solenette were also collected and frozen. Following the completion of a TTN test/ practice tow, and with the planned work for the cruise complete, Endeavour sailed for Lowestoft at 17.30h on Wednesday 25 May.

Endeavour docked in Lowestoft at 11.08h on Thursday 26 May.

The following progress was made in relation to the primary objectives:

1. *To collect samples to allow analysis of spatial and temporal variation in carbon and nitrogen stable isotope ratios close to the base of marine food chains (filter feeding infauna and zooplankton).*

   Met in full

2. *To collect samples to allow analysis of relationships between body size, energy content and trophic level (from nitrogen stable isotope analysis) in space and time for zooplankton, benthic invertebrate and fish communities.*

   Met in full

3. *To collect samples to allow analysis of relationships between body size and production for zooplankton, benthic invertebrate and fish communities.*

   Met in full

Tracy Dinmore
Scientist in Charge
26 May 2005

SEEN IN DRAFT: B. McCurry (Master)

B. Salter (FM)

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

DISTRIBUTION:
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