

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

2005 RESEARCH VESSEL PROGRAMME

REPORT: RV ENDEAVOUR: CRUISE 4/05

STAFF: Simon Jennings (SIC)
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Mike Shaw

DURATION: 28 March- 2 April 2005

LOCALITY: North Sea (ICES IVb)

AIMS: This was the first 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 09.30h on Monday 28 March. She proceeded to the Silver Pit, central North Sea to begin NIOZ coring at the first of five 'benthic ecology' stations at 05.00h on Tuesday 29 March. Seven replicate cores and 2 2-m beam trawl collections were completed at each of the five stations during daylight hours, with this work being completed by 07.00h on Wednesday 30 March. 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. Overnight from 17.00h Tuesday 29 March to 02.00h Wednesday 30 March, TTN zooplankton samples were collected at five TTN stations and size fractionated at sea. From 12.15h on Wednesday 30 March to 16.00h Wednesday 30 March, four 4-m beam trawl tows were completed at two of three 4-m beam stations. The fish caught on these tows were processed for stable isotope and energetic analysis. From 17.40h on Wednesday 30 March to 01.30h on Thursday 31 March, zooplankton were sampled at a

further 4 TTN stations. From 05.00h on Thursday 31 March, the two remaining tows were completed at the remaining 4-m beam trawl station. Endeavour then steamed to the next TTN station, arriving at 09.30. Four TTN tows were completed from 09.30h to 15.30h. 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) and, from 04.40h to 07.00h two 4-m beam trawl tows and two 2m beam trawl tows were completed to collect dab, whiting and bivalves for stable isotope analysis as part of an ongoing study in this area. When the beam trawling was complete, Endeavour steamed N to the final TTN site. The TTN tow was completed at 10.00h and sample processing by 11.00h. Following the completion of two TTN test/ practice tows, and with the planned work for the cruise complete, Endeavour sailed for Lowestoft at 12.50h on Friday 1 April.

Endeavour docked in Lowestoft at 01.30h on Saturday 2 April.

The following progress was made in relation to the 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

In addition, samples of dab ovary were collected in the Silver Pit for Alex Scott.

Simon Jennings
Scientist in Charge
2 April 2005

SEEN IN DRAFT: B. McCurry (Master)



T. Skews (FM)



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



DISTRIBUTION:

Basic List +

Tracy Dinmore (2IC)

Myrtle Boon

Matt Eade

Chris Firmin

Michaela Schratzberger

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SIGS

Fishing skipper: Endeavour

Eastern SFC

North Eastern SFC