

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

2005 RESEARCH VESSEL REPORT

REPORT: RV ENDEAVOUR: CRUISE 11/05

STAFF: Tracy Dinmore (SIC)
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DURATION: 12 July - 16 July 2005

LOCALITY: North Sea (ICES IVb)

AIMS:

This was the third 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 BST)

Endeavour sailed from Lowestoft at 12.59h on Tuesday 12 July 2005. Whilst on route to the primary sampling site in the central North Sea, the plankton sampler was deployed to check that all of the equipment was operational. Endeavour then proceeded to the Silver Pit region of the central North Sea, reaching the first benthic ecology sampling station at 20.16h. NIOZ coring started at 06.00h and work continued until 17.15h on Wednesday 13 July. Seven replicate cores and 2 2-m beam trawl collections were successfully obtained at stations H1 (54°

05° N, 01° 50' E), H2 (54° 02' N, 02° 05' E) and H3 (54° 05' N, 02° 17' E). A further 2 2-m beam trawls were carried out at station H4 (54° 02' N, 02° 32' E). All cores were sieved to obtain benthic infauna for stable isotope and energetic analysis and 2m beam epifaunal catches were size fractionated for the same purpose. Samples for sediment analysis, meiofauna, chlorophyll 'a' and porosity were also taken at the NIOZ core stations. Endeavour then proceeded to the first of eight TTN zooplankton stations. Four TTN stations (P13: 54° 00' N, 02° 30' E; P9: 54° 05' N, 02° 40' E; P8: 54° 05' N, 02° 30' E and P7: 54° 05' N, 02° 20' E) ~~were~~ were sampled for zooplankton between 17.50h on Wednesday 13 July and 00.42h Thursday 14 July. Following the completion of the TTN stations, Endeavour returned to benthic ecology station H4. Seven successful NIOZ cores were collected at this station between 05.55h and 06.55 h on Thursday 14 July. Endeavour then sailed to the last benthic ecology station in the Silver Pit region, reaching the station at 08.20h. Seven successful NIOZ cores and 2 2m-beam trawls were collected, and at 1031h, Endeavour steamed to the first (4B3) of 3 4-m beam trawl lines in the Silver Pit study area, (54° 03'N, 02° 40'E to 54° 00'N, 02° 36'E). Two 30-minute tows were carried out to collect fish liver and tissues samples for stable isotope and energetic analysis. Sampling was completed at 12.59h, and Endeavour then proceeded to the second 4m-beam trawl line (4B2: 54° 03'N, 02° 15'E to 54° 00'N, 02° 20'E). A further two beam trawls were completed and processed by 17.00h. Endeavour then steamed to TTN station P6 (54° 05' N, 02° 10' E) to begin work at 1800h. Two TTN stations were sampled (P5: 54° 05' N, 02° 00' E and P4: 54° 05' N, 01° 50' E) with the final dive being completed at 22.28h. Endeavour then steamed overnight to the last 4m beam trawl line (4B1: 54° 03'N, 01° 55'E to 54° 00'N, 02° 00'E), to begin work at 08.35h on Friday 15 July. The two remaining 4m beam trawl tows were completed by 09.57 and Endeavour sailed to the final plankton station (P10: 54° 00' N, 02° 00' E). With all work being completed at the primary sampling stations in the Silver Pit by 11.16h Endeavour then steamed SE to a trawl line in the Indefatigable Banks area of the North Sea (53°50.05' N, 02°10.00'E to 53°47.53'N, 02°15.06'E). From 13.04h to 16.18h on Friday 15 July 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.

With the planned work for the cruise successfully completed, Endeavour sailed for Lowestoft at 16.25h on Friday 15 July.

Endeavour docked in Lowestoft at 16.10h on Saturday 16 July 2005.

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

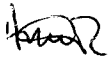
3. *To collect samples to allow analysis of relationships between body size and production for zooplankton, benthic invertebrate and fish communities.*

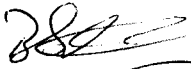
Met in full.

We thank the officers and crew for their hard work during the course of the survey.


Tracy Dinmore
Scientist in Charge
16 July 2005

SEEN IN DRAFT:

A. Reading (Master) 

B. Salter (FM) 

INITIALLED:

E.C.E. Potter (FB SAH) 

DISTRIBUTION:

Basic List +

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SIGS

Master: Endeavour

Fishing skipper: Endeavour

Eastern SFC

North Eastern SFC