

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

**2008 RESEARCH VESSEL PROGRAMME**

**REPORT: RV CEFAS ENDEAVOUR: SURVEY 10/08**

**STAFF:**

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**DURATION:** 4 May 2008 - 18 May 2008

**LOCATION:** Western English Channel and Celtic Sea

**AIMS:**

This is the third in a series of cruises being carried out over five years in the South-Western Approaches, in support of MF1001. The results of this work will describe the effects of fishing and the environment on production and food web structures. The specific objective of this cruise was:

- (a) Describe the impacts of trawling disturbance on the structure and productivity of benthic communities
- (b) Investigate sediment chlorophyll 'a' levels to allow comparisons with surface chlorophyll levels available via satellite imagery

**NARRATIVE:**

The scientific staff joined CEFAS ENDEAVOUR early evening (approx. 17:00 GMT) on Sunday 4 May, after being transported out to the ship via the port vessel from Portland harbour. Once all the staff were on board, CEFAS ENDEAVOUR steamed south westwards overnight to the first chlorophyll grid station. Sampling started at 07:00 the following day (Monday 5 May) at station C1 where seven successful replicate deployments were made with the mini Hamon grab. The samples were sieved to obtain the benthic infauna and the fauna frozen for later analysis. A further single NIOZ core was also taken and the sediment collected was sub-sampled for chlorophyll 'a', porosity, sediment granulometry and meiofauna. CEFAS ENDEAVOUR then proceeded on to stations C2 and C3 collecting a single NIOZ core at each, before proceeding to stations C4 and C10 where a single NIOZ sample was collected at each, along

with seven replicate mini Hamon grab samples. Work at the final station of the day (C9) was completed by 20:50 with the successful retrieval of a NIOZ core sample. CEFAS ENDEAVOUR then steamed north overnight to station C5. Between 07:00 and 12:23 on 6 May, 4 chlorophyll stations (C5, C6, C7 and C8) were completed, after which CEFAS ENDEAVOUR steamed southeast to the first mini Hamon grab box at South Eddystone, completing seven valid replicate drops to collect benthic infauna, at each of the four stations (E1, E2, E3 and E5) between 14:23 and 22:29, as well as an additional Nioz sample at E3. CEFAS ENDEAVOUR then steamed south to continue with the chlorophyll 'a' / NIOZ grid stations. Between 02:45 on 7 May and 15:38 on 8 May, 16 Nioz core stations (one drop at each) and 6 mini Hamon grab stations (seven replicates at each) were successfully completed. CEFAS ENDEAVOUR then steamed to the second mini Hamon grab grid (South Scilly) arriving at station S3 at 16:35 and completing all four sampling sites (S3, S4, S2 and S1) by 04:07 on 9 May, along with Nioz stations C22 and C28. Work then again commenced with the Nioz grid. Between 05:25 on 9 May and 14:35 on 11 May, 19 Nioz core stations (one drop at each) and 8 mini Hamon grab stations (seven replicates at each) were successfully completed. From Nioz station C43 through to C94 all core samples were sieved over a 1mm mesh and the fauna collected, frozen for later analysis. However, sampling at station C44 proved to be unsuccessful. The ground type was exceptionally hard, and after 12 invalid deployments, the station was abandoned. CEFAS ENDEAVOUR then steamed to the third Hamon grab benthic ecology site (North Seven Stones). Sampling at station N1 continued for the next two hours, but again hard ground prevented the collection of any valid samples, and after 15 unsuccessful attempts, CEFAS ENDEAVOUR continued onto station N2. Between 19:45 on the 11 May and 08:32 on the 12 May all three remaining North Seven Stones stations were successfully completed, with seven mini Hamon grab infaunal samples being collected from each. At N3, one Nioz core sample was also taken.

CEFAS ENDEAVOUR then sailed westwards, and throughout the remainder of the day, completed all four sampling stations at the last Hamon grab grid (Haig Fras – H1, H2, H3 and H4), adding an additional Nioz deployment at H2 to replace station C55 (which was dropped because of risk of gear damage on hard ground), and completing two further mini Hamon grab stations and 3 Nioz deployments. Over the following four days (22:00 12 May until 22:27 on 15 May, all remaining primary Nioz / Hamon stations were completed. CEFAS ENDEAVOUR then sailed westwards to begin sampling on a series of ten additional stations (C85 to C94 – 10 Nioz stations, four of those with associated Hamon grab replicate sampling), which completed sampling in ICES rectangles VIIg and VIIh.

With all of the primary aims of the cruise achieved, and additional sampling completed, CEFAS ENDEAVOUR then set sail for Swansea at 05:48, docking at 05:30 on 18 May.

## **RESULTS:**

### **PRIMARY AIM 1: Benthic survey of a series of sites subject to different levels of trawling disturbance for production studies**

At four locations (South Eddystone, South Scilly, North Seven Stones and Haig Fras) subject to differing levels of fishing impact, samples were successfully collected for the analyses of benthic infauna (with the exception of N1 which was abandoned due to unsuitable ground type) and sediment granulometry.

### **PRIMARY AIM 2: Assessment of sediment chlorophyll 'a' and sediment-biota coupling**

95 Nioz core samples were collected for analyses of meiofauna, sediment particle size and chlorophyll a / porosity. At 35 of these stations, replicate Hamon grab sampling was carried out to obtain benthic infaunal samples. Additionally, at 52 Nioz stations, the core sample was processed and the infauna retained for later comparison with the fauna collected from the Hamon grab samples.

I would like to thank the officers, scientists and crew for their hard work during the course of the survey.

T Maxwell  
18 May 2008

#### **SEEN IN DRAFT:**

R McCurry (Master)  
A Simpson (Senior Fishing Mate)

#### **INITIALLED:**

S Jennings

#### **DISTRIBUTION:**

Basic list  
Staff on Cruise  
Fishing Skipper: Endeavour  
Newlyn, SH H (MFA)  
Plymouth, SH H (MFA)  
MilfordHaven, SH (MFA)  
Devon SFC  
Cornwall SFC  
Isles of Scilly SFC  
Republic of Ireland

**Figure 1:** Figure 1: Survey area indicating study sites sampled with mini-Hamon grab (red diamonds), and the wider survey grid sampled with NIOZ corer (+) or NIOZ corer and mini-Hamon grabs (filled circles). Sites where hard ground precluded sampling indicated with open circles. At stations E3, N3 and H2 (red diamonds), a NIOZ core sample was also taken.

