CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE, LOWESTOFT, SUFFOLK, ENGLAND

DRAFT   2007 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV Endeavour: CRUISE 3

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DURATION: Wednesday 21st February – Tuesday 27th February
Approx Sailing Time 00:01 GMT (HW 23:20 GMT)
Approx Docking Time   0700 GMT on 27th (HW   0600 GMT)
LOCALITY: Southern Bight, Oyster grounds and Central North Sea, Dogger Bank region

Background: This is the first cruise of a series, an essential part of a project addressing the source, cycling and fate of nutrients (i.e. carbon, nitrogen, silicon, oxygen) in UK Shelf Seas, specifically the North Sea. It will examine the relative importance of the various ecosystem components, their degree of connectivity and their susceptibility to change due to environmental or human pressures. The project combines an intensive observational programme in the North Sea, with model development and operation. Three representative sites have been selected for detailed process studies (up to 5 cruises per year for 3 years) of pelagic (water column) and benthic (seabed) food webs, with horizontal and vertical spatial sampling over a broader area being achieved using a variety of towed instruments, and the temporal range being extended using autonomous buoys and bottom landers. *In situ* observations will be supplemented by satellite imagery and data from other sources, such as the continuous plankton recorder (CPR) and Ferryboxes™.
Overall aims of this series of cruises are to investigate:
1. Pelagic food webs, water column measurements
2. Hydrography and seawater chemistry
3 Community structure
4 Phytoplankton and microbial production
5 Grazing impacts
6 Mesozooplankton secondary production
7 Vertical flux and budgets of carbon
8 Benthic food webs, sediment processes, exchanges across the interface
9 Sediment Profile Imagery
10 Advection in coarse sediments
11 Resuspension events

Specific cruise AIMS (not in priority order)

1. Deploy Smart buoys and other Landers at the three primary sites.
2. Sampling at frequent intervals (approx hourly) using CTD rosette at the 3 sites with LISST
3. CTD casts for Primary productivity estimates and deck incubations using N15 uptake.
4. Underway measurements for isotopic ratio work from continuous supply.
5. Trial the use of the Plankton multinet.
6. Collect Plankton samples for species composition using vertical nets.
7. Deployment of SPI camera over a wide range of sites to characterize inter site variability
8. Undertake assessment of benthic flora/fauna assemblage using Jennings beam trawls
9. Collect samples for isotope analysis of fish, fauna and flora using 2m bean
10. Collect core profiles, of nutrients, oxygen, chl-a. (NIOZ corer) and sediment profiles.

PLAN (all times GMT):

Weather permitting Endeavour will sail at approximately 00:00 on 21 st Feb and head for the Gabbard site. Work will commence here, with water sampling and on subsequent passage to the Sean Gas field site, a full complement of water column and benthic measurements will be taken including deployment of a lander. SPI camera drops will be taken around the site. Studies will take approximately 36–40 hrs. Surface water samples will be taken on transit, to the Oyster Grounds site. Here, a lander will be deployed and water column and sediment work undertaken, again including a SPI camera survey this work will take 36 –40 hours before transit to the North Dogger site. Moorings will be deployed at the site and the full suite of measurements undertaken. On passage back to Lowestoft surface sampling will be undertaken for isotope analysis, aiming to catch the morning tide on the 27th.

Liam Fernand
(Scientist-in-Charge)
18 Jan 2007

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