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BIOLOGICAL OCEANOGRAPHY CRUISE REPORT

LF 44/97

27 - 31 October 1997

PERSONNEL

B Stewart	(SIC), SSO, DANI.
P Elliott	SO, DANI.
S Bloomfield	ASO, DANI.
A Reeve	SO, CEFAS
J McGinley	Student, Univ. Ulster
C Watson	Student, Univ. Ulster

OBJECTIVES

- i. To recover, service and redeploy automated sampler mooring.
- ii. To undertake measurements of phytoplankton production at Station 47 (Dundalk Bay), 38A (DANI mooring site) and LBP (Liverpool Bay).
- iii. To assess temperature, salinity and nutrient distributions at stations 47, 38A and LBP.

CRUISE NARRATIVE

Sunday 26 October 1997

In preparation for the cruise, all DANI scientific crew were onboard by 1900 hrs when monitoring equipment was tested and confirmed to be functioning properly. Following a talk on ship safety and a demonstration of personal life saving equipment, the RV Lough Foyle departed Belfast at 2030 hrs and sailed overnight in a light breeze to station 38A, the DANI mooring site.

Monday 27 October 1997

The ship arrived on station 38A at 0430 hrs. The weather was dry with a fresh easterly wind. Work commenced at 0500 hrs when the rosette water sampler was deployed to acquire a pre-dawn bulk sample for the estimation of phytoplankton production. The sample was prepared for incubation and the remainder of the experimental work was continued by A Reeve (CEFAS).

Preparation for mooring recovery commenced after breakfast at 0800 hrs. Three unsuccessful attempts were made to recover the mooring to shipdeck. During each attempt the mooring was lost to the sea after wires snapped during the recovery operation. With no visible mooring components remaining, the "creep" was deployed to drag for the mooring ground line. Eventually the the ground wire was caught and the

2. Dr Mc Murray

This cruise was part of the D17N1 Irish Sea mooring project which is now revealing quite unique results & which are ~~now~~ becoming recognised for their value at national level. It is still early days but such is the value of this work that it is likely to become part of the UK's contribution to the Global Ocean Observing System GOOS.

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remainder of the mooring with the instrumentation intact was successfully recovered to shipdeck at 1045 hrs. The water sampler was removed and the mooring reconstructed using new wires. The mooring with a replacement water sampler attached (buoy id. No. 3) was successfully deployed at 1445 hrs on position $53^{\circ} 47' .07N$ $05^{\circ} 37' .92W$. The mooring guard buoy was then recovered to shipdeck and following replacement of all wires was successfully redeployed at 1615 hrs on position $53^{\circ} 46' .90N$ $05^{\circ} 37' .97W$ (buoy id. No. 1). Following deployment of the rosette water sampler and sediment corer, work for the day finished at 1930 hrs. The vessel sailed overnight to Liverpool Bay in a fresh easterly wind.

Tuesday 28 October 1997

The ship arrived on station LBA in Liverpool Bay at 0430 hrs. The weather was dry with a fresh easterly wind. Work on the phytoplankton production experiment commenced at 0500 hrs and followed a similar protocol to the previous morning. Following deployment of the zooplankton net at 1600hrs the vessel sailed overnight to Dundalk Bay.

Wednesday 29 October 1997

The ship arrived on station 47 in Dundalk Bay at 0445 hrs. The vessel anchored and work on the production experiment commenced at 0515 hrs. The sediment corer was deployed at 0830 hrs and following three zooplankton net hauls at 1000 hrs the vessel sailed in a strong south easterly wind to dock in Belfast at 1815 hrs.

PARAMETERS MONITORED

The CTD/rosette water sampler was deployed at all three stations to acquire nutrient, chlorophyll *a*, temperature and salinity data from the depth profile. Three zooplankton net hauls were taken at each station during slack tide. The Bowers & Connelly mini-corer was successfully deployed at stations 38A and 47 where sediment samples were subsampled for carbon & nitrogen and chlorophyll *a* analysis.

SUMMARY OF RESULTS

From the acquired nutrient and CTD profile data all stations were mixed from surface to bottom. Temperature and salinity at stations 38A, LBA and 47 were typically $13.6^{\circ}C$ and 34.4 ppt; $12.6^{\circ}C$ and 32.8 ppt; $12.1^{\circ}C$ and 34.0 ppt respectively. With the disappearance of the thermocline at 38A, surface inorganic nitrogen values had increased from the trace levels recorded in August to 2-3 micromoles $N l^{-1}$. This increase in nutrient concentration is supported by nutrient data acquired from daily samples taken and preserved by the *in situ* moored sampler (Fig. 1). Typical inorganic nitrogen values at station 47 in Dundalk Bay were less than 1 micromole $N l^{-1}$, while the higher levels of 4-5 micromoles $N l^{-1}$ at station LBA in Liverpool Bay, together with the lower temperature and salinity values, showed freshwater influence in the area.

ACKNOWLEDGEMENTS

The ship's master, officers, engineers, catering staff and crew are thanked for their cooperation during this cruise.

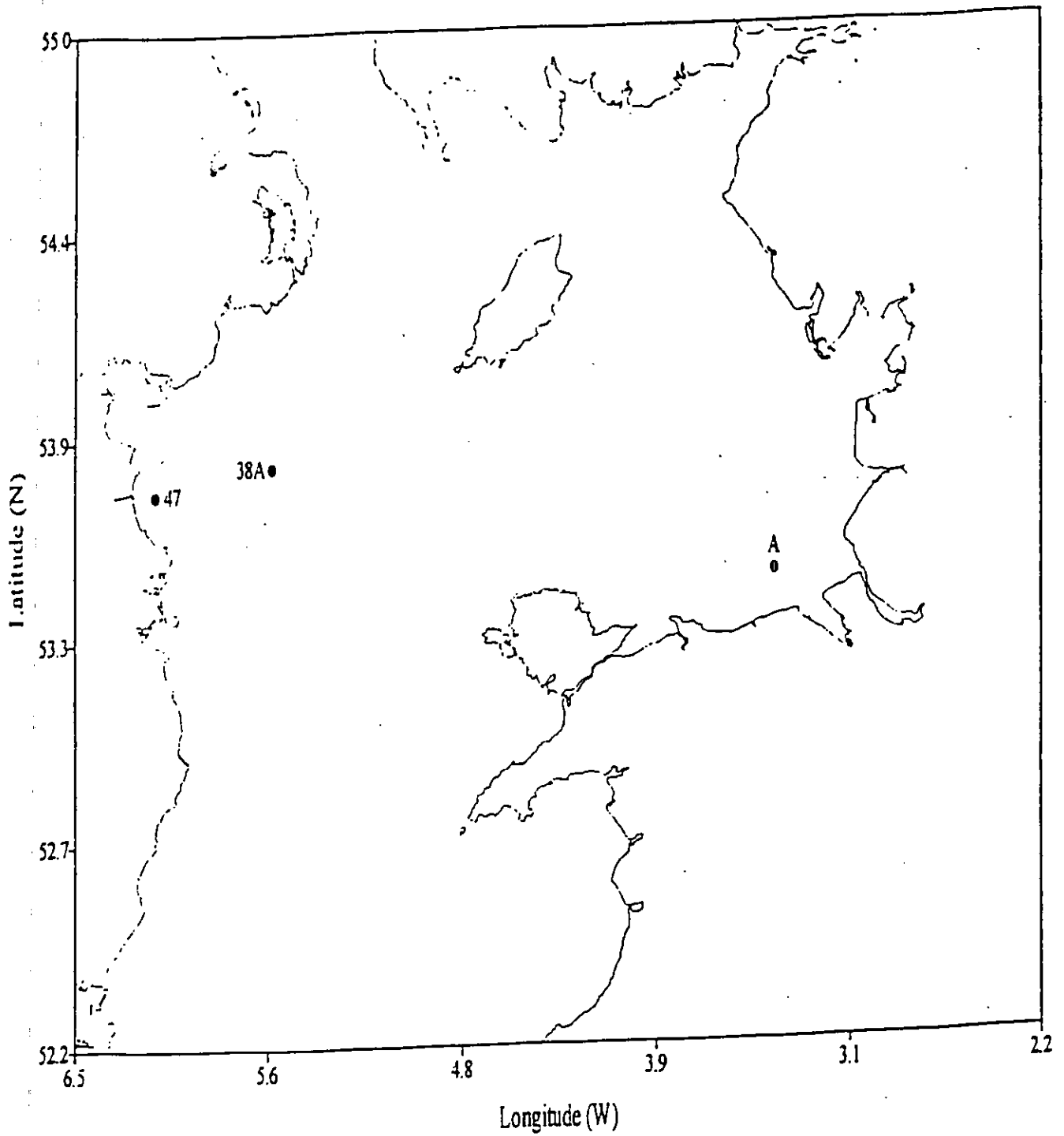
A handwritten signature in cursive script, appearing to read 'B M Stewart', written in dark ink.

B M STEWART

2 December 1997

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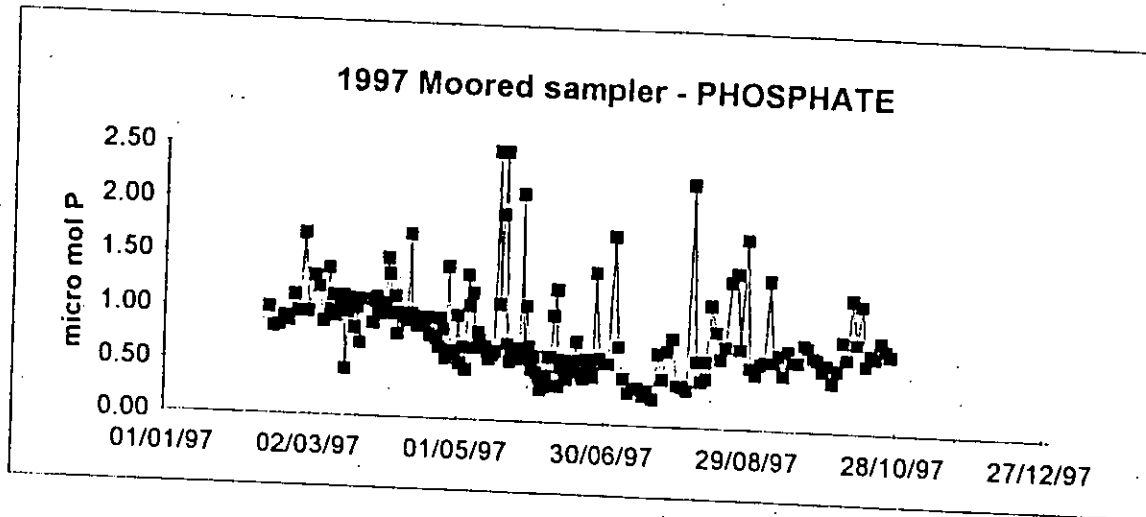
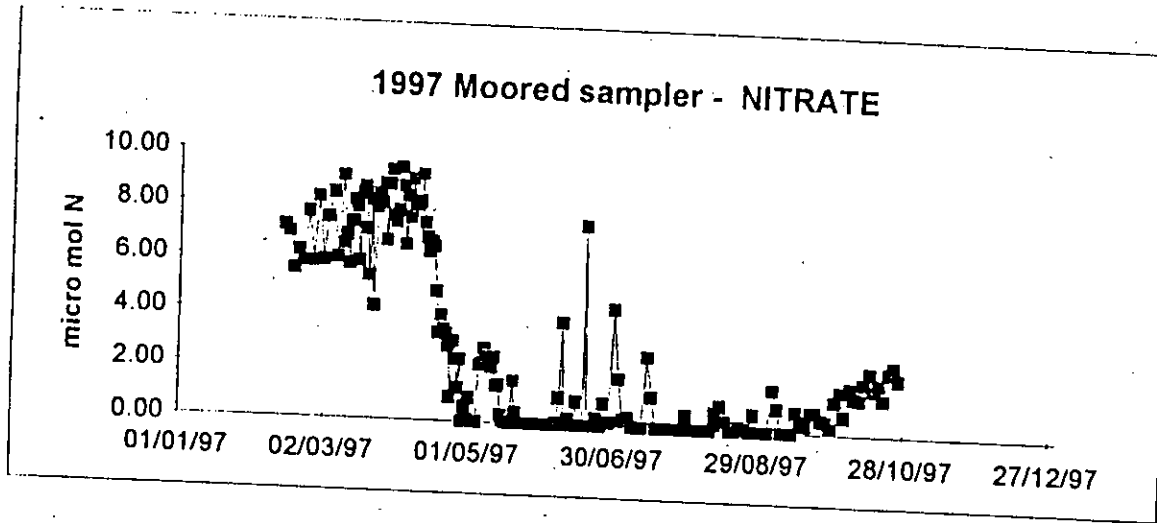


Fig. 1