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BIOLOGICAL OCEANOGRAPHY CRUISE REPORT
LF 4999

18 - 20 December 1999

PERSONNEL

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OBJECTIVES

- i. To assess zooplankton populations at stations 38A & 47A.
- ii. To assess temperature, salinity and nutrient distributions over depth at stations 38A and 47A.
- iii. To service moorings and instrumentation where appropriate at stations 38A and 47A.

CRUISE NARRATIVE

Saturday 18 December 1999

In preparation for the cruise, all DANI scientific crew were onboard by 2100 hrs when moorings and instrumentation were prepared for deployment. Following a talk on ship's safety and a demonstration of personal life saving equipment, the RV Lough Foyle departed Belfast at 2130 hrs and sailed overnight in light winds to mooring station 38A.

Sunday 19 December 1999

The vessel arrived on the mooring site at 0730 hrs. The weather was dry and dull with a light breeze when work for the day commenced at 0800 hrs. On approach to recover the instrumentation mooring, it was noticed that the buoy had been severely damaged. The light tower and radar reflector had been severed from the buoy, probably as the result of a collision with a large vessel. With some difficulty the entire mooring was eventually recovered to shipdeck at 0830 hrs. The water sampler was removed and replaced with a similar pre programmed model; thermistors were removed from the mooring wire and data downloaded, then reprogrammed and reattached to the mooring. All mooring components were inspected for corrosion and replaced where

necessary. The damaged buoy was replaced with a spare and the mooring was successfully redeployed at 1110 hrs on position $53^{\circ} 46' .688N$ $05^{\circ} 38' .032W$. On approach to recover the guard buoy and anchor, it was noticed that both the recovery line and emergency recovery lines were missing from the buoy. With the guard buoy some 300m removed from its position of deployment, it is probable that the recovery lines have been caught and towed by a passing vessel. Another difficult recovery ensued, with the warning beacon becoming damaged in the process. As all spares were used to repair the instrument buoy, the guard buoy was retained on board for repair in Belfast. Following deployment of the rosette water sampler, sediment corer and zooplankton net, the ship sailed to coastal mooring site station 47A. On arrival at 1530 hrs, the guard buoy and anchor were recovered to shipdeck. After mooring components were inspected for corrosion and replaced where necessary, the mooring was successfully redeployed at 1615 hrs on position $53^{\circ} 43' .450N$ $06^{\circ} 04' .045W$. A CTD profile, water samples and zooplankton net hauls were taken, before work for the day finished 2000 hrs. The vessel sailed to dock in Belfast at midnight.

Monday 20 December 1999

Work for the day commenced at 0800 hrs when scientific crew removed samples, scientific instruments and mooring equipment from the ship. All scientific crew disembarked at 1100 hrs.

PARAMETERS MONITORED

The CTD/rosette water sampler was deployed at stations 38A and 47A to acquire nutrient, chlorophyll *a*, temperature and salinity data from the depth profile. The Bowers and Connelly sediment corer was deployed at station 38A where sediment was subsampled for chlorophyll, total carbon and total nitrogen analysis. The corer was also deployed at a dredge spoil site on position $53^{\circ} 57' .80N$ $05^{\circ} 56' .61W$, where sediment samples were taken and returned to the laboratory for inspection. Three zooplankton net hauls were taken at both stations 38A & 47A.

McLane moored water sampler

The McLane water sampler recovered from the Irish Sea had successfully sampled 36 times as programmed. To avoid sample contamination by biofoulant, the recovered sampler was returned to Belfast for cleaning, before samples were removed from their containers. The replacement sampler was programmed to take duplicate samples on every third day during the next period of deployment.

The 1999 nutrient data from the sampler is shown in Figure 1.

SUMMARY OF RESULTS

CTD profile data from station 38A showed the recent storms had finally eroded the thermocline (Fig. 2). The profile showed only a small difference between surface and seabed temperatures with cooler water overlying the warmer water. The salinity profile followed a similar pattern with bottom layer 0.1 psu above surface values. Nutrient concentrations throughout the profile were reasonably constant and typically 4–5 micromoles $N\ l^{-1}$ (Table 1). This represents an increase of almost 1 micromole $N\ l^{-1}$ since the October cruise and a continuation of the steady increase towards the normal winter maximum concentration of 9–10 micromoles $N\ l^{-1}$. In general, phosphate, silicate, inorganic nitrogen and nitrite concentrations from depth profile samples were similar to those taken during the same period by the automated sampler. In Dundalk Bay at Station 47A, salinity was 34.2 psu throughout the profile, while temperature was a constant 9.6 °C from surface to depth 19 metres (Fig. 3). Nutrient concentrations were generally similar to open sea station 38A.

HOTEL REPORT & OPERATIONAL ASPECTS OF THE SHIP

Smoking in the ship's saloon

During the cruise, I received complaints from both junior scientists about ship's officers smoking in the saloon during the evening period. One scientist refused to enter the saloon during this period as he felt the "smoky" atmosphere was a danger to his health and consequently spent both evenings alone in his cabin.

After a lengthy work day, the saloon is the only area on the ship where scientists can relax, socialise and watch television or a video. It is unacceptable that scientists should have to tolerate this situation when there are many other parts of the ship where officers can smoke without causing offence. Smoking is already prohibited in other key areas and I have spoken to the ship's master who will support a ban on smoking in the saloon.

I am aware this is a delicate matter but I refuse to allow those who insist on smoking, deprive scientists of an area where they can relax in the evening and make use of the ship's limited social facilities.

I request that DANI and the ship's management committee pursue a non-smoking policy at all times in the ship's saloon.

During the cruise the A-frame, main trawl winches, both hydrographic winches and the ship's clean seawater supply were used. No problems were encountered with any of the ship's equipment nor indeed with any of the scientific equipment. The hotel and catering service was of the usual high standard and there was a good working relationship between the scientists and the ship's crew. Prior to the ship departing Belfast a comprehensive and detailed safety briefing was delivered to the scientific crew.

ACKNOWLEDGEMENTS

I am indebted the deck crew of the RV Lough Foyle for their co-operation and assistance particularly during the mooring recovery and deployment operation. The ship's master, officers, engineers and catering staff are also thanked for their co-operation during this cruise.

A handwritten signature in black ink, appearing to read 'B M Stewart', written in a cursive style.

B M STEWART

10 February 2000

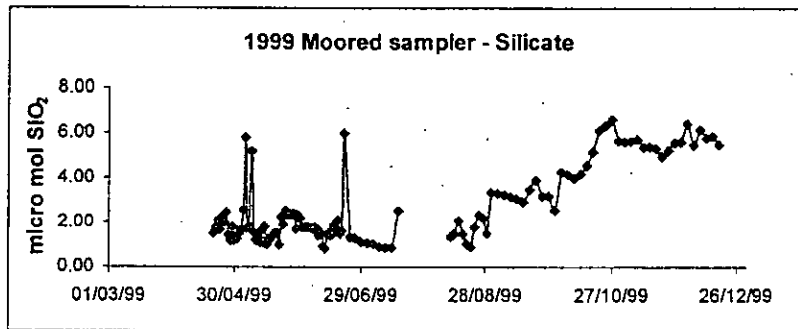
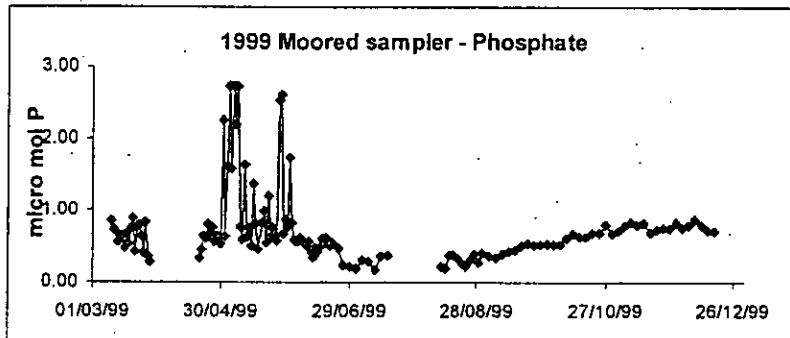
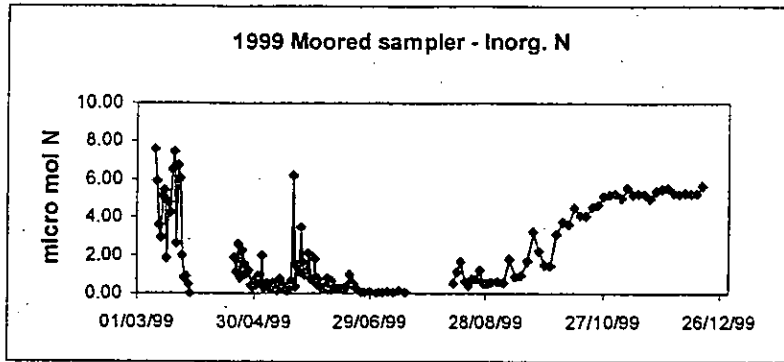
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Depth profile samples (19 December 1999)

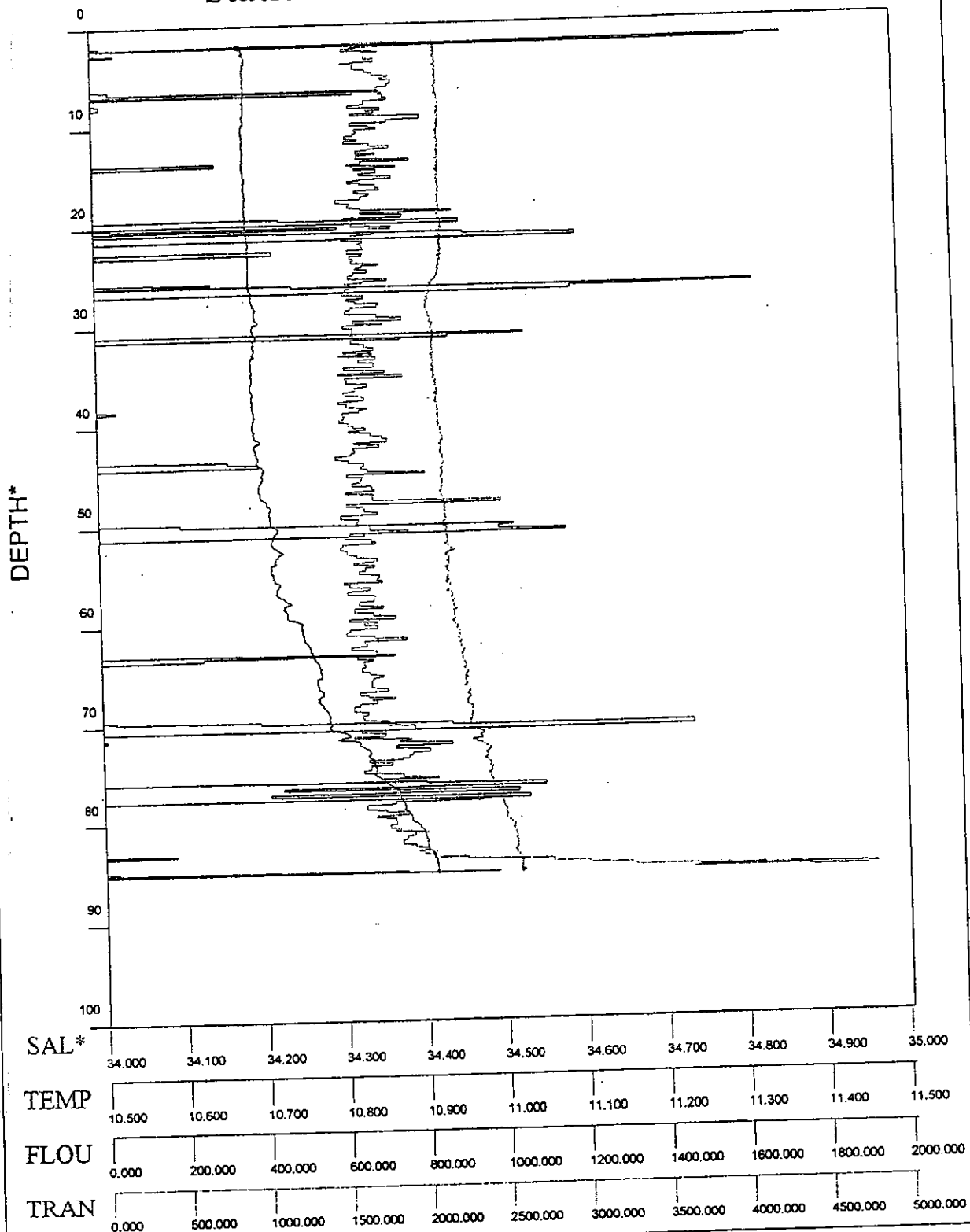
	DEPTH M	AMMONIA $\mu\text{m N l}^{-1}$	PHOSPHATE $\mu\text{m P l}^{-1}$	INORG N $\mu\text{m N l}^{-1}$	SILICA $\mu\text{m SiO}_2 \text{ l}^{-1}$	NITRITE $\mu\text{m N l}^{-1}$
STATION 38A	2.8	0.85	0.58	5.27	5.58	0.10
19/12/99	15.2	0.59	0.48	4.32	5.61	0.30
	25.4	1.22	0.66	5.55	6.08	0.06
	45.3	0.74	0.53	4.87	5.61	0.04
	65.9	1.11	0.48	5.31	5.56	0.06
	84.7	0.83	0.45	4.99	5.49	0.11
STATION 47 A	3.2	1.07	0.58	5.52	6.58	0.04
19/12/99	12.9	0.82	0.53	5.34	6.41	0.07
	26.6	1.14	0.65	6.99	6.92	0.11

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Table 1.



Station 38A 19 December 1999



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Figure 2.

Station 47A 19 December 1999

