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BIOLOGICAL OCEANOGRAPHY CRUISE REPORT

LF 14 2000

5 - 6 April 2000

PERSONNEL

B Stewart	(SIC), SSO, DARDNI.
W Clarke	SSO, DANI -DARDNI
C Cochrane	Temp. ASO, DANI -DARDNI

1. Prof Pearce
2. LJO

Note installation of
 basic monitoring device
 via instrument. This is
 an important state of the
 sea' measure before
 growth begins in the
 Spring. ~~to~~ 24/2/00

OBJECTIVES

- i. To recommence nutrient monitoring at station 38A.
- ii. To assess the basic nutritional quality of phytoplankton during the period of the Spring bloom.
- iii. To assess temperature, salinity and nutrient distributions over depth at stations 38A and 47.

CRUISE NARRATIVE

Wednesday 5 April 2000

In preparation for the cruise, all DANI scientific crew were onboard by 1900 hrs when moorings and instrumentation was 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 2100 hrs and sailed overnight in a light easterly wind to the mooring site.

Thursday 6 April 2000

The vessel arrived on the mooring site before dawn at 0600 hrs. The weather was dry and bright with a light easterly breeze when work for the day commenced at 0800 hrs. The nutrient sampler and biological species sampler were programmed and attached to the mooring configuration. A chain of thermistors was attached at regular intervals on the instrument wire of the mooring. The mooring was then successfully deployed at 0845 hrs on position 53° 46' .931N 5° 38' .060W.

Following deployment of the rosette water sampler, zooplankton net and sediment corer, the ship sailed to coastal station 47 in Dundalk Bay where water samples and zooplankton net hauls were taken. Work on the station was completed at 1130 hrs and the vessel sailed to dock in Belfast at 2000 hrs.

Friday 7 April 2000

Work commenced at 0900 hrs with scientific crew removing samples, scientific instruments and mooring equipment from the vessel to AESD.

MOORING

The mooring guard buoy has been fitted with a transmitter, which updates the position of the mooring every 2 hours. The location of the mooring can now be easily accessed via the Internet. Should the mooring become detached during a collision with a vessel, this action, combined with existing measures should aid recovery of instrumentation and other mooring components.

PARAMETERS MONITORED

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

SUMMARY OF RESULTS

CTD data from station 38A displays no sign of thermal stratification with temperature and salinity fairly constant at 8.0 °C and 34.4 psu respectively throughout the entire profile (Fig. 1). The low fluorescence signal coupled with significant nutrient concentrations ranging 5.0 – 8.0 micromoles inorg N l⁻¹ (Table 1), show no evidence of the spring plankton bloom at this off shore station.

In Dundalk Bay at Station 47, the profile is again mixed with temperature and salinity 8.1 °C and 33.90 psu respectively (Fig. 2). However a high fluorescence signal and depleted nutrient concentrations ranging 1.7 – 2.2 micromoles inorg N l⁻¹ (Table 2), are all signs that primary production is progressing at the inshore station.

HOTEL REPORT & OPERATIONAL ASPECTS OF THE SHIP

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

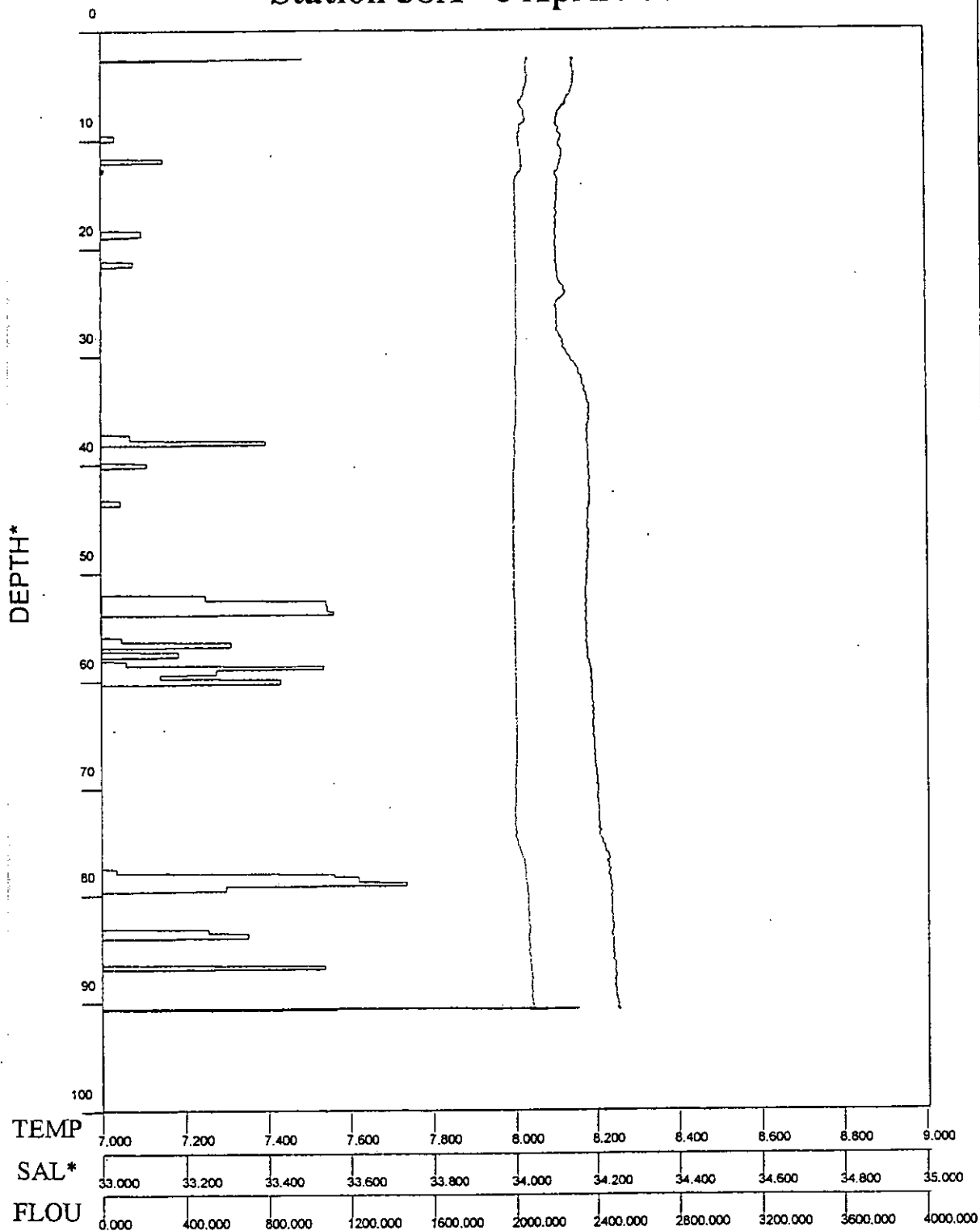
I am indebted the deck crew of the RV Lough Foyle for their co-operation and assistance during the mooring recovery and deployment operation. The ship's master, officers, engineers and catering staff are also thanked for their co-operation during this cruise.

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

B M STEWART

16 May 2000

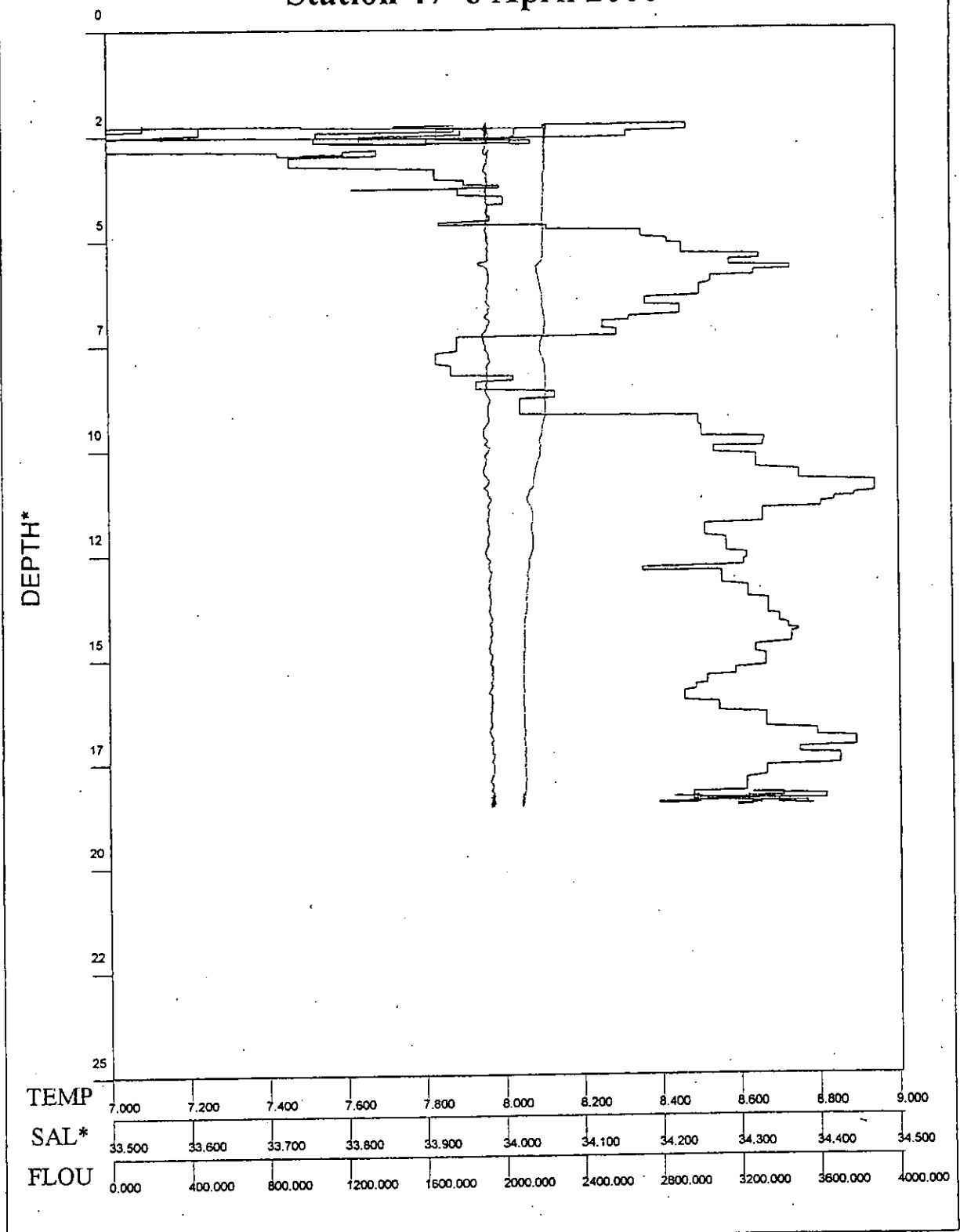
Station 38A 6 April 2000



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Fig 1.

Station 47 6 April 2000



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Fig 2.

IRISH SEA OCEANOGRAPHY 2000

Depth profile samples (6 April 2000)

STATION	DATE	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 $\mu\text{m SiO}_2 \text{ l}^{-1}$	UREA $\mu\text{m N l}^{-1}$	NITRITE $\mu\text{m N l}^{-1}$	CHL	PHAEO	ACID RATIO
38A	06/04/00	2.1	1.94	0.66	5.03	4.04	-1.00	0.15	0.38	0.15	1.7
38A	06/04/00	10.0	2.19	0.77	7.30	5.33	-1.00	0.16	0.22	0.14	1.59
38A	06/04/00	20.0	2.47	0.70	5.95	4.51	-1.00	0.13	0.30	0.14	1.66
38A	06/04/00	30.6	1.95	0.67	5.20	4.30	-1.00	0.12	0.30	0.15	1.65
38A	06/04/00	50.3	2.06	0.66	4.93	3.87	-1.00	0.10	0.33	0.16	1.65
38A	06/04/00	70.1	2.32	0.75	7.58	5.09	-1.00	0.15	0.37	0.14	1.71
38A	06/04/00	90.9	2.46	0.76	7.85	4.96	-1.00	0.15	0.44	0.17	1.7

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Table 1.

IRISH SEA OCEANOGRAPHY 2000

Depth profile samples (6 April 2000)

STATION	DATE	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 $\mu\text{m SiO}_2 \text{ l}^{-1}$	UREA $\mu\text{m N l}^{-1}$	NITRITE $\mu\text{m N l}^{-1}$	CHL	PHAEO	ACID RATIO
47	06/04/00	2.3	2.68	0.43	1.73	2.27	-1.00	0.15	3.25	0.66	1.88
47	06/04/00	6.3	3.13	0.45	2.00	2.21	-1.00	0.17	3.25	0.54	1.91
47	06/04/00	12.1	3.09	0.43	2.25	2.22	-1.00	0.15	3.38	0.55	1.91
47	06/04/00	18.4	3.07	0.43	2.10	2.25	-1.00	0.16	3.42	0.66	1.89

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Table 2.