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BIOLOGICAL OCEANOGRAPHY CRUISE REPORT

LF 10/99

8 – 12 March 1999

1 Prof Reid
2 - McMurray
This is a short report largely referring to the servicing the DANI in situ buoy in the Irish Sea now producing very valuable time data.
9 on H 20/4.

PERSONNEL

B Stewart	(SIC), SSO, DANI.
P Elliott	SO, DANI.
S Bloomfield	ASO, DANI
C Cochrane	Temp. LA, DANI

OBJECTIVES

i. To assess temperature, salinity and nutrient distributions over depth at stations 38A and 47.

ii. To deploy an automated water sampler at the mooring station 38A

.CRUISE NARRATIVE

Sunday 7 March 1999

In preparation for the cruise, all DANI scientific crew were onboard by 2000 hrs when mooring 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 22000 hrs and sailed overnight in a light north easterly wind to the mooring site.

Monday 8 March 1999

The vessel arrived on the mooring site at 0600 hrs and confirmed the warning beacon on the existing guard buoy was functioning satisfactorily. Work for the day commenced at 0800 hrs when the mooring complete with the McLane water sampler was prepared and successfully deployed at 0900 hrs on position 53^0 46^1 .66N 5^0 38^1 .21W.
Following deployment of the rosette water sampler and zooplankton net, 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 1220 hrs and the vessel sailed to dock in Belfast at 2030 hrs.

Tuesday 9 March 1999

Scientific crew returned to the vessel at 0830 hrs to remove samples, scientific instruments and mooring equipment.

NOTE - MOORING REDESIGN

In an attempt to offer the McLane nutrient sampler better protection from collision damage and also to acquire samples close to the surface, the mooring guard buoy was redesigned to incorporate the sampler into the steel structure below the buoy. The sampler was partially encased in a clear plastic material to prevent damage to fragile components during periods of violent motion. The sample intake tube was positioned 2 metres below the surface.

PARAMETERS MONITORED

The CTD/rosette water sampler was deployed at stations 38A and to acquire nutrient, chlorophyll *a*, temperature and salinity data from the depth profile.
Three zooplankton net hauls were taken at both stations 38A & 47..

SUMMARY OF RESULTS

CTD data from station 38A showed the profile to be well mixed from surface to a depth of 65 m with typical temperature and salinity 7.8 °C and 34.1 psu respectively. Temperature monitored at this site is over 1 °C lower than observed during the same period last year. From 65 m to the sea bed a warmer more saline layer was observed with temperature and salinity 8.0 °C and 34.5 psu respectively (Fig. 1). Nutrient concentrations throughout the profile were reasonably constant and typically 9 – 9.5 micromoles inorg N l^{-1} , which is approaching the expected winter max concentration. (Table 1).
In Dundalk Bay, Station 47 exhibited freshwater influence from the river Boyne with a reduced surface temperature and salinity of 6.8 °C and 33.90 psu respectively (Fig. 2). Again temperatures are more than 1 °C lower than the same period last year. Nutrient concentrations, with the exception of inorganic nitrogen, were generally similar to the open sea station. Enrichment from the river Boyne meant inorganic nitrogen concentrations ranged 2 – 3 micromoles inorg N l^{-1} above the open sea concentration (Table 1).

HOTEL REPORT & OPERATIONAL ASPECTS OF THE SHIP

During the cruise the A-frame, main trawl winches, both hydrographic winches and the ship's clean sea-water 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.

B M STEWART

9 April 1999

Station 38 8 March 1999

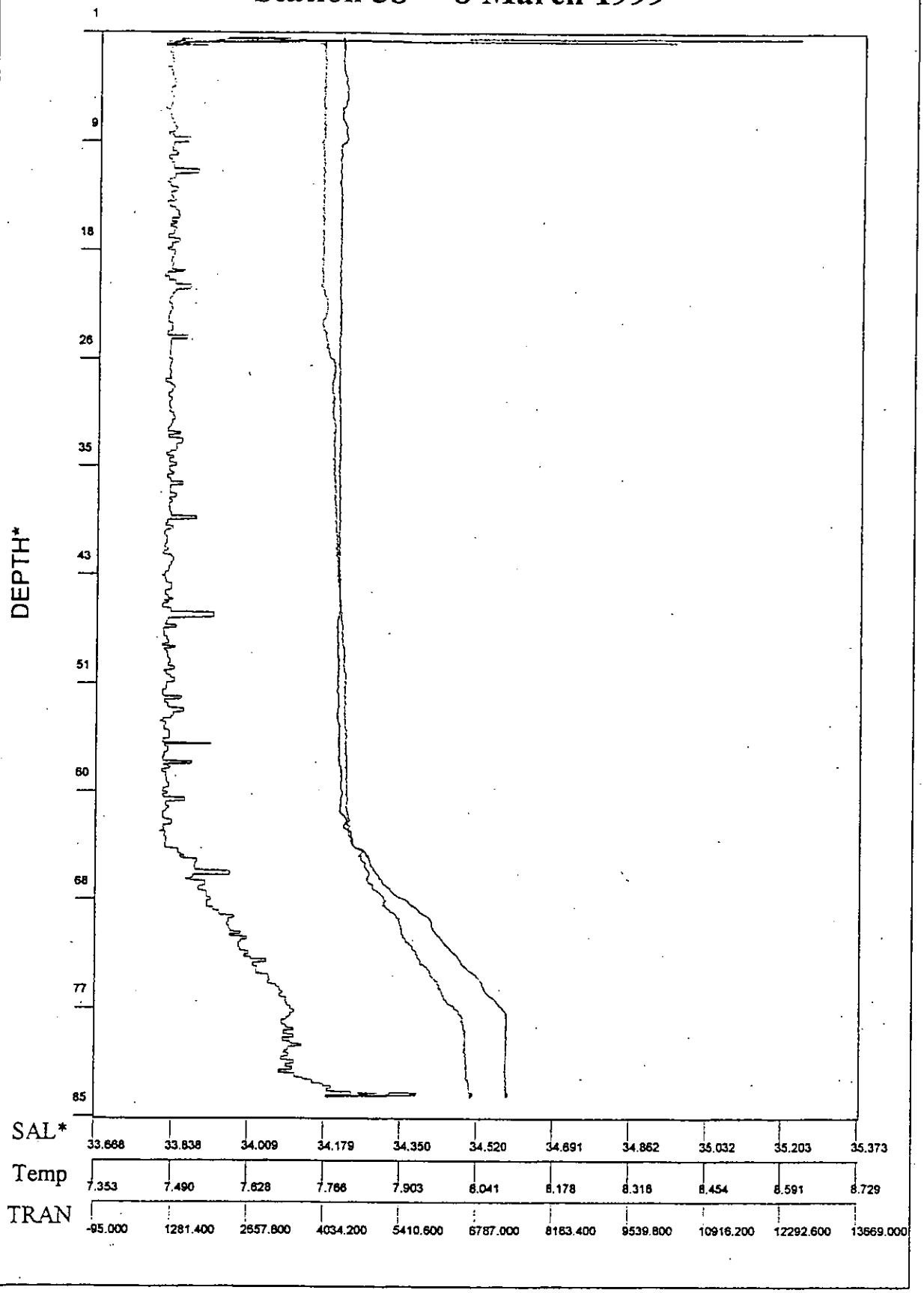

Figure 1

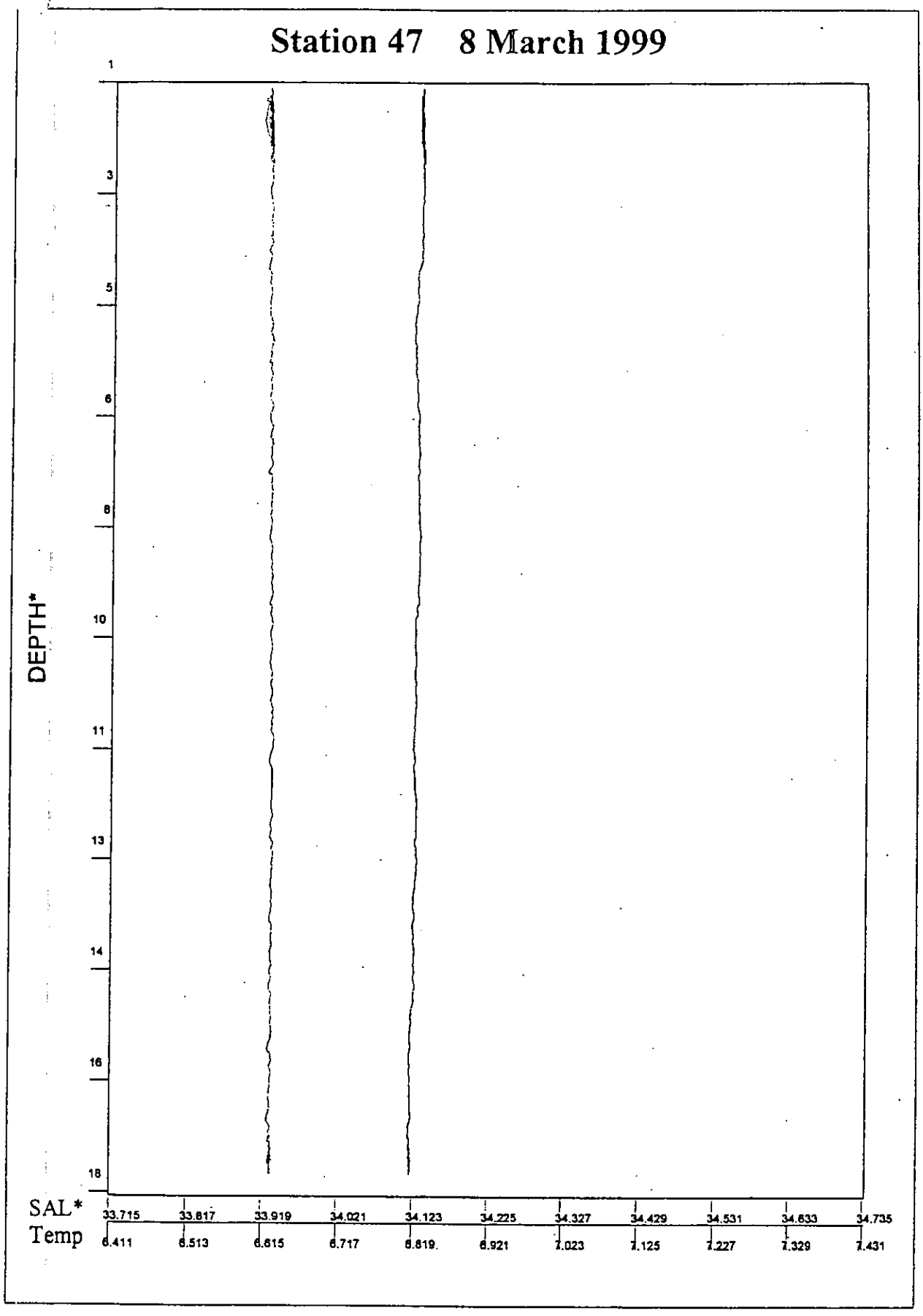
Station 47 8 March 1999
DEPTH*
1
3
5
6
8
10
11
13
14
16
18
SAL*
33.715
33.817
33.919
34.021
34.123
34.225
34.327
34.429
34.531
34.633
34.735
Temp
6.411
6.513
6.615
6.717
6.819.
6.921
7.023
7.125
7.227
7.329
7.431

Figure 2.

IRISH SEA OCEANOGRAPHY 1999

Depth profile samples (8 March 1999)

	DEPTH M	AMMONIA μm N l^{-1}	PHOSPHATE μm P l^{-1}	INORG N μm N l^{-1}	SILICA μm SiO_2 l^{-1}	UREA μm N l^{-1}	NITRITE μm N l^{-1}
STATION 38A	2.6	2.64	0.88	9.12	7.17	1.02	0.07
08/03/99	10.4	2.27	0.88	8.95	6.89	0.99	0.06
	21.0	3.06	0.89	9.54	6.96	1.04	0.07
	30.8	3.01	0.95	9.53	6.88	1.05	0.06
	40.8	2.59	0.91	9.66	7.16	1.65	0.10
	51.2	2.23	0.78	9.32	6.88	1.15	0.10
	60.4	2.48	0.91	9.70	7.04	1.23	0.07
	68.9	2.73	0.83	9.82	6.51	1.18	0.07
	83.0	2.49	0.73	8.26	5.67	1.04	0.23
STATION 47	2.4	2.22	0.78	11.13	8.92	1.11	0.23
08/03/99	10.6	2.52	0.92	12.05	8.70	1.09	0.24
	17.7	2.42	0.78	11.31	8.71	1.27	0.13

Table 1.