5750 BIOLOGICAL OCEANOGRAPHY CRUISE REPORT

LF 25 2000

18 – 21 June 2000

PERSONNEL

B Stewart	(SIC), SSO, DARDNI.
R Gowen	SSO, DARDNI.
P Elliott	SO, DARDNI
C Cochrane	Temp. ASO, DARDNI
M Charlesworth	Res. Assist. QUB

OBJECTIVES

i. To maintain a nutrient monitoring programme 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

Sunday 18 June 2000

In preparation for the cruise, all DANI scientific crew were onboard by 2200 hrs when mooring components and the automated sampler 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 2300 hrs and sailed overnight in a light southerly breeze, to the mooring site.

Monday 19 June 2000

The vessel arrived on the mooring site at 0600 hrs. The weather was dry and bright with a light southerly breeze. Work for the day commenced at 0645 hrs with the deployment of the rosette water sampler and 3 zooplankton net hauls.
After breakfast, the instrument mooring was successfully recovered to ship deck at 0900 hrs. The ship then sailed to coastal station 47 in Dundalk Bay where water samples and zooplankton net hauls were taken.

Meanwhile, the mooring components were inspected for corrosion and replaced where necessary. Both the nutrient water sampler and biological water sampler were removed to the ship's laboratory and samples were removed. The thermistor chain was removed from the mooring wire and temperature data downloaded. Both samplers were then programmed and attached to the mooring configuration. The thermistors were reattached at regular intervals on the instrument wire of the mooring. However, during the period of the shipboard mooring service, the weather rapidly deteriorated, with the southerly wind gusting to force 7. Redeployment of the mooring was considered at 1400 hrs and again at 1730 hrs; on both occasions, conditions rendered the operation hazardous. With no shelter from the strong to gale force southerly wind, the vessel sailed to dock in Belfast at 0100 hrs Tuesday morning, when Claire Cochrane disembarked.

Tuesday 20 June 2000

After breakfast, Richard Gowen disembarked and Mark Charlesworth joined the vessel. The ship departed Belfast at 0945 hrs and sailed for the mooring site. The weather was dry and bright with a strong southeasterly wind. En route to the mooring position, sediment samples were taken at 3 sites using the Day grab. In the afternoon the weather again deteriorated with winds gusting to gale force 8. With wind direction moving to the south/south west, the vessel sailed to anchor overnight in the shelter of the Skerries. Work for the day finished at 1800 hrs.

Wednesday 21 June 2000

The vessel sailed from anchorage to the mooring site where work for the day commenced at 0745 hrs. The weather was dry and bright and the wind had reduced to a southwesterly force 3 – 4. The mooring components were again inspected and the mooring was successfully redeployed at 0815 hrs on position $53^0\ 46^l.96N/5^0\ 38^l.00W$. The vessel then sailed for Belfast, stopping en route at 3 sites to collect sediment samples.

Thursday 22 June 2000

Work commenced at 0800 hrs with scientific crew removing samples, scientific instruments and mooring equipment from the vessel to AESD

McLane moored water samplers

The McLane large volume water sampler recovered from the Irish Sea had operated as programmed. Unfortunately the nutrient water sampler failed after a few samples had been taken.
The nutrient sampler was removed and replaced by another that had been previously programmed to sample on alternate days during the period of deployment.
Samples from the biological sampler were removed and stored for an assessment of the phytoplankton's nutritional quality. The sampler was then reprogrammed and prepared for deployment.
The fault on the nutrient sampler was diagnosed and rectified in preparation for deployment in July.

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 shows a classic example of thermal stratification with a temperature difference of about 3.5 °C between surface water and depth 20m (Fig.1). Inorganic nitrogen levels were fully depleted in this region of the water column and concentrations close to the seabed were reduced to $3 - 4$ µmol N l^{-1} .
At station 47 in Dundalk Bay a similar picture exists, with a well-defined thermocline observed between 10 and 12 metres (Fig. 2). Inorganic nitrogen levels were fully depleted throughout the water column. The salinity value of 34 psu is unusually high for this region and reflects the reduced freshwater influence during the dry summer conditions.

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 to 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

29 June 2000

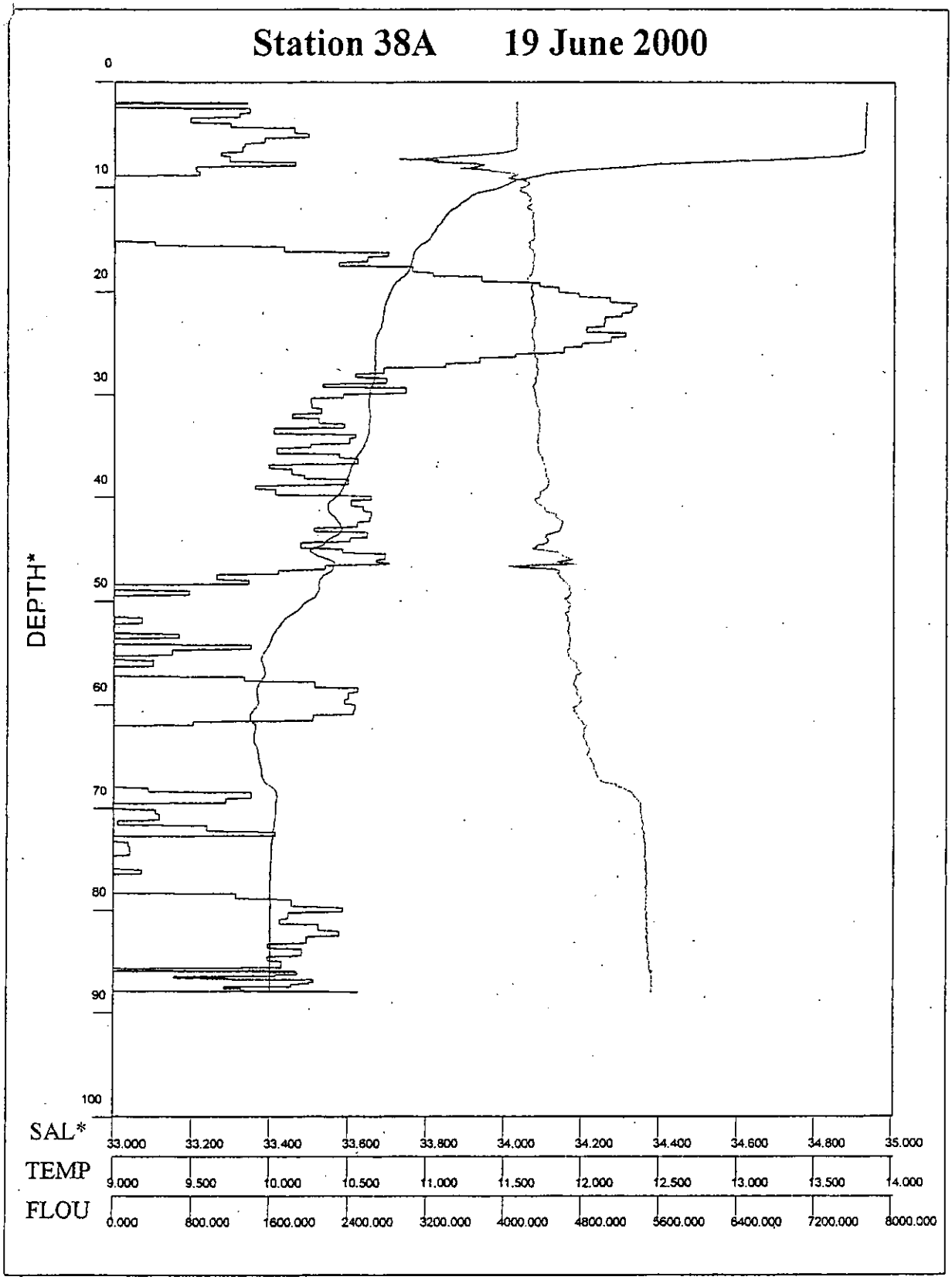
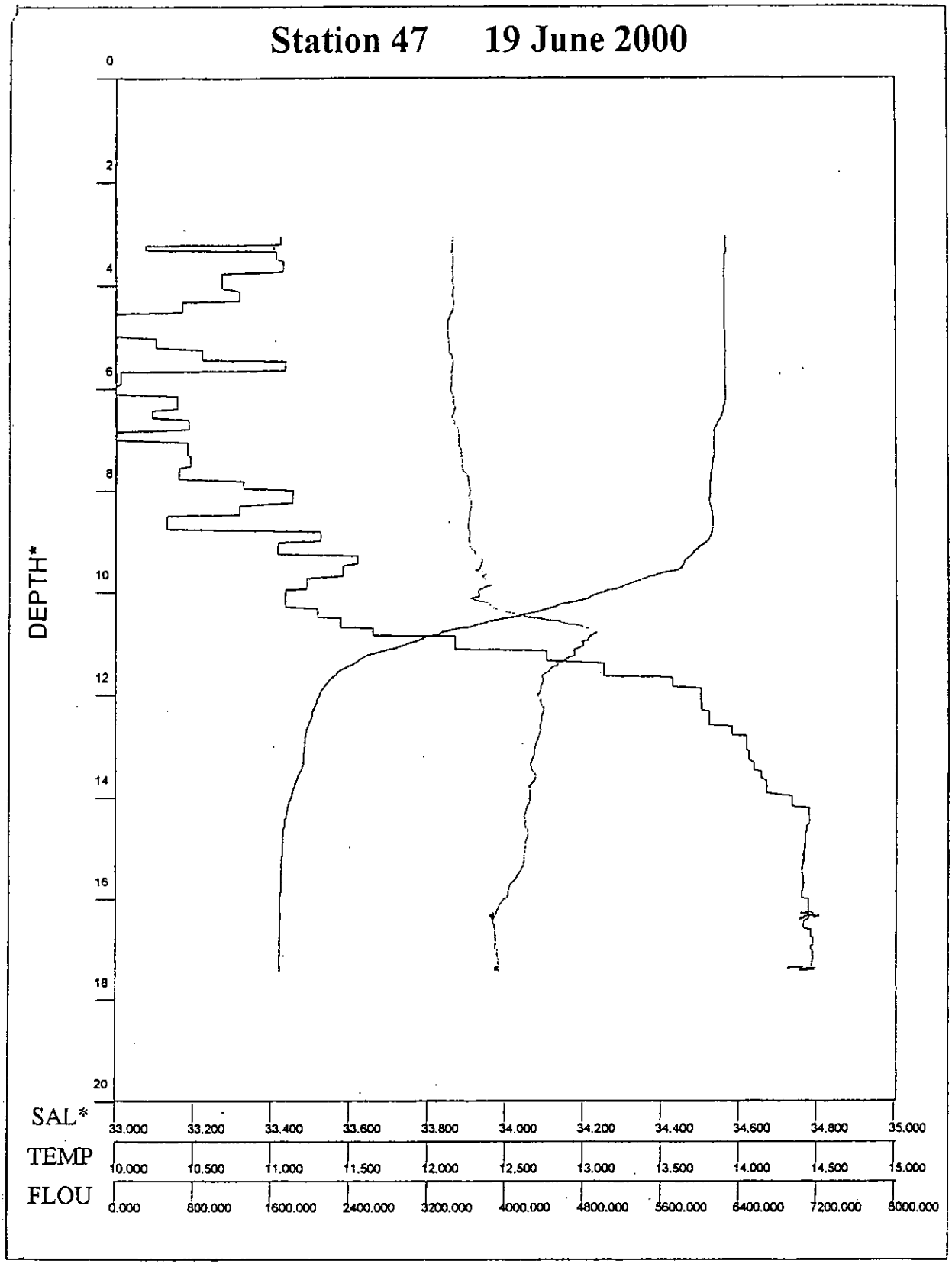

Station 38A 19 June 2000
DEPTH*
0
10
20
30
40
50
60
70
80
90
100
SAL*
33.000
33.200
33.400
33.600
33.800
34.000
34.200
34.400
34.600
34.800
35.000
TEMP
9.000
9.500
10.000
10.500
11.000
11.500
12.000
12.500
13.000
13.500
14.000
FLOU
0.000
800.000
1600.000
2400.000
3200.000
4000.000
4800.000
5600.000
6400.000
7200.000
8000.000

Figure 1.


Station 47 19 June 2000
DEPTH*
0
2
4
6
8
10
12
14
16
18
20
SAL*
33.000
33.200
33.400
33.600
33.800
34.000
34.200
34.400
34.600
34.800
35.000
TEMP
10.000
10.500
11.000
11.500
12.000
12.500
13.000
13.500
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2400.000
3200.000
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Figure 2.