5693

BIOLOGICAL OCEANOGRAPHY CRUISE REPORT

LF 0295

Date 20 - 23 February 1995

PERSONNEL

B Stewart	(SIC), SSO, DANI
W Clarke	SSO, DANI
P Elliott	SO, DANI
S Bloomfield	ASO, DANI
R Anderson	Student, Coventry University
L Blee	Student, University of Ulster
C Gibson*	SPSO, DANI
L Gilpin*	Queen's University of Belfast
Students* x 8	Queen's University of Belfast

* Monday 20 February 1995 only.

CRUISE OBJECTIVES

i. To deploy moored sediment traps and guard buoy at station 38.

ii. To assess temperature, salinity and nutrient distributions in the north western Irish Sea.

iii. To provide 8 environmental science students (QUB) with a demonstration of oceanographic equipment and other instrumentation and techniques associated with the Biological Oceanography cruise programme.

CRUISE NARRATIVE

Sunday 19 February 1995

In preparation for deployment, W Clarke and P Elliott assembled and arranged the buoys, mooring components and sediment traps on the deck of the RV Lough Foyle.

Monday 20 February 1995

The RV Lough Foyle departed Belfast 2015 hrs and sailed to arrive on station 4 in the North Channel (see attached sampling grid) at 1245 hrs. The weather was dry and bright with a strong force 6-7 south westerly wind. The occasion was used to demonstrate sampling and monitoring equipment to a group of QUB students. The rosette/CTD was deployed, a plankton haul taken and light was monitored in a depth profile. On the return journey to Belfast, the shipboard analysis of samples of nutrients

and chlorophyll was demonstrated. The vessel returned to dock in Belfast at 1515 hrs when C Gibson, L Gilpin and QUB students disembarked.
The remaining DANI scientists embarked at 1700 hrs and made final preparations for the mooring deployment. The vessel departed Belfast 2100 hrs and sailed overnight to the deployment site.

Tuesday 21 February 1995

The ship arrived on station 38 at 0600hrs. The weather was dry with a fresh south westerly wind. Work commenced on the instrument mooring at 0615 hrs. Sediment traps were positioned on the mooring at depths 25, 50 and 75 metres which was then deployed at grid reference 53 51.0N 05 33.97W at 0820 hrs. In a strengthening wind, the mooring work was completed when the guard buoy was deployed at position 53 51.30N 05 33.97W at 1030 hrs. The Irish Marine Emergency Service was immediately contacted and given details of the mooring positions with instructions to commence broadcasting radio navigational warnings.
In the latter stages of the deployment work, weather conditions deteriorated rapidly as the wind increased to gale force 8. Deployment of the rosette/CTD and sediment corer was considered hazardous and any further deck work was abandoned. Water samples were taken via the clean seawater pump. The vessel sailed in a heavy sea through station 46, to arrive on coastal station 59 at 1450 hrs. Sheltered from the gale, sampling commenced in a northerly direction along a grid of coastal stations to finish on station 36 at 1845 hrs. Work was completed at 1945 hrs and the vessel anchored overnight north of the Skerries.

Wed. 22 February 1995

The ship lifted anchor at 0800 hrs and sailed north along a coastal route. In a southerly gale, forecast to turn westerly, the sampling programme was postponed and the ship anchored in Dundalk Bay. The survey continued at 1515 hrs from station 24, in a northerly direction, along a grid of coastal stations and finished on station 14 at 2110 hrs. The vessel anchored overnight in Belfast Lough.

Thursday 23 February 1995

Persistence of gale force winds prevented sampling of the remaining open sea stations and it was decided to conclude the cruise programme. The vessel sailed to dock in Belfast at 0900 hrs.

PARAMETERS MONITORED

At stations 4, 59, 48, 47, 36, 24, 22 and 14 on the sampling grid the CTD/rosette water sampler was deployed to acquire nutrient, chlorophyll a, temperature, salinity and fluorescence data from the depth profile. At stations 38, 46 and 15, due to strong winds, water samples were taken for chlorophyll a and nutrient analysis from the ship's clean seawater supply Daylight permitting Secchi disc readings were taken at all

stations. Underwater light measurements were made using a multi spectral light meter at stations 4, and 24. Algal samples were taken at stations 4 & 47 and stored frozen for carbon/nitrogen analysis. The Bowers & Connelly sediment corer was successfully deployed at station 47 where sediment samples were acquired and stored for C/N and chlorophyll a analysis.

SUMMARY OF RESULTS

Unfortunately weather conditions did not permit sampling of the open sea stations. However the nutrient and CTD profile data for coastal stations 48 & 59 south of Dundalk Bay showed the water column to be mixed with typical temperature and salinity 7.7 °C and 33.75 ppt respectively; typical inorganic nitrogen values ranged 11.0 - 13.0 micromoles N l^{-1}. At station 47 in Dundalk Bay, freshwater influence from the river Boyne was observed. A steep salinity gradient existed throughout the depth profile, with decreased temperature 7.0 °C and increased inorganic nitrogen concentrations in the range 14.0 - 19.0 micromoles N l^{-1}. County Down coastal stations 24, 22, 15, 14 and station 4 in the North Channel were generally mixed, with typical temperature and salinity 7.2 °C and 33.60 ppt respectively; inorganic nitrogen values ranged from 10.0 micromoles N l^{-1} in the Channel to 13.0 micromoles N l^{-1} in coastal areas.

PROBLEMS ENCOUNTERED

Light Meter

Depth sensor on the light meter was not reading correctly as surface was displaying depths of 6 - 7 metres. W Clarke to investigate the fault.

ACKNOWLEGEMENTS

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

BM Stewart

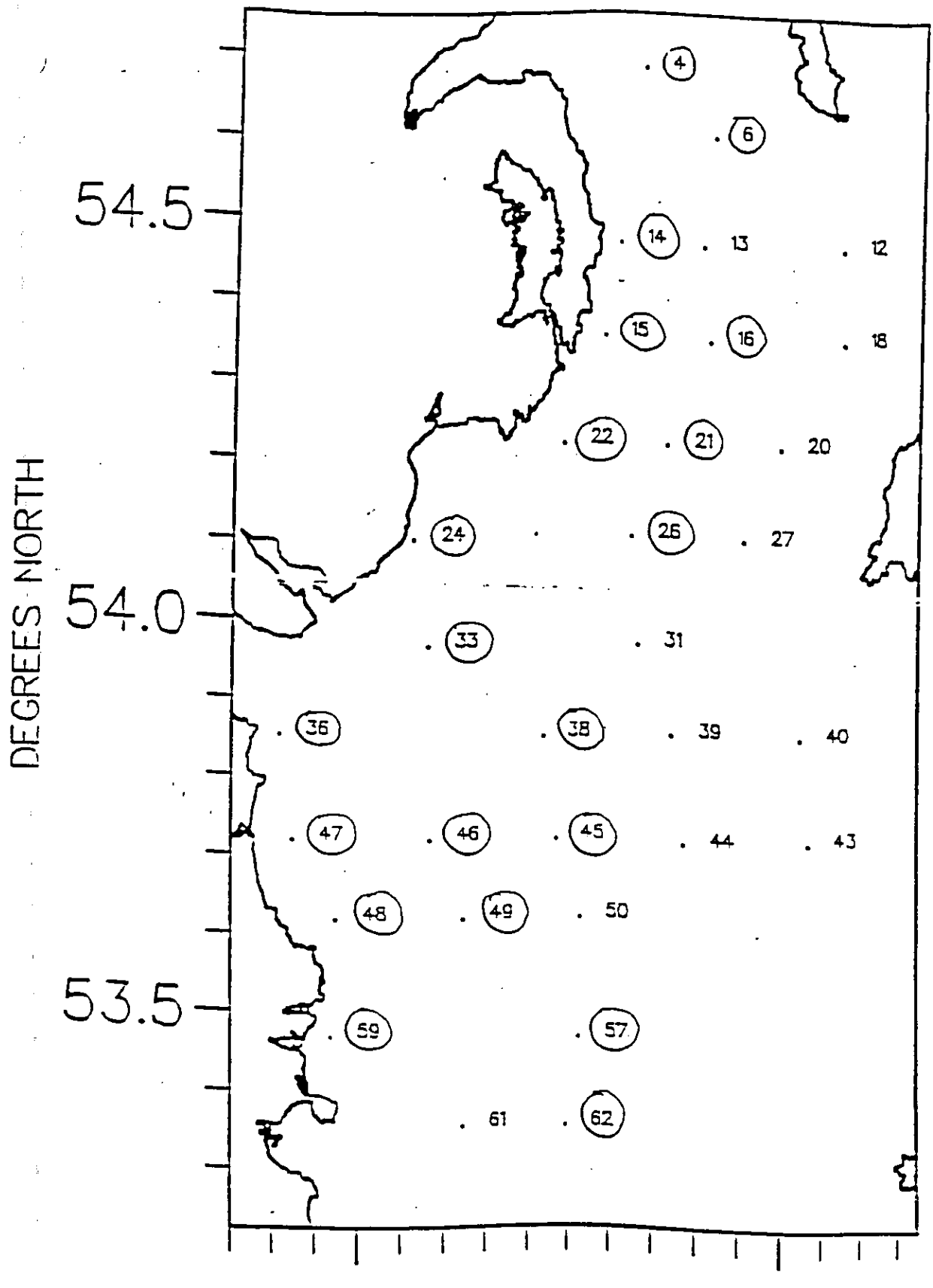
BM STEWART

27 February 1995

BIOLOGICAL OCEANOGRAPHY CRUISE LF 2/95, 20 - 24 February 1995

PROPOSED WORK SCHEDULE

STATION	Lat.	Long.	Activity
Belfast Lough entrance			CTD, Secchi & light
36	53 51	06 11	CTD, Secchi, light, susp. solids.
47	53 43	06 09	CTD, Secchi, light, corer + sediment C/N & Chl a.
48	53 37	06 03	CTD, Secchi.
59	53 28	06 03	CTD, Secchi.
62	53 21	05 30	CTD, Secchi, light, susp. solids.
57	53 28	05 28	CTD, Secchi.
49	53 37	05 45	CTD, Secchi.
46	53 43	05 50	CTD, Secchi.
45	53 43	05 32	CTD, Secchi, light, susp. solids.
38	53 51	05 34	CTD, Secchi, light, corer + sediment C/N & Chl a. **(Mooring deployment)**
4	54 41	05 20	CTD, Secchi, light, susp. solids.
6	54 36	05 10	CTD, Secchi.
16	54 21	05 10	CTD, Secchi.
21	54 13	05 16	CTD, Secchi.
26	54 06	05 21	CTD, Secchi.
33	53 58	05 50	CTD, Secchi.
24	54 06	05 52	CTD, Secchi, light, susp. solids.
22	54 13	05 31	CTD, Secchi.
15	54 21	05 25	CTD, Secchi, light, susp. solids.
14	54 28	05 23	CTD, Secchi.



It is proposed to sample and monitor at enriched stations only.