

BIOLOGICAL OCEANOGRAPHY CRUISE REPORT

LF 27/95

Date 9 - 12 October 1995

PERSONNEL

B Stewart	(SIC), SSO, DANI
P Elliott	SO, DANI
S Bloomfield	ASO, DANI
J Xiong	State Oceanic Administration, China

CRUISE OBJECTIVES

- i. To assess temperature, salinity and nutrient distributions in the north western Irish Sea.
- ii. To monitor release of nutrients from sediment at station 38.

CRUISE NARRATIVEMonday 9 October 1995

In preparation for the cruise, all scientific crew were onboard by 2000 hrs when equipment and instrumentation was tested and confirmed to be functioning properly. The RV Lough Foyle departed Belfast at 2100 hrs and sailed overnight in a fresh breeze to station 36 (see attached sampling grid).

Tuesday 10 October 1995

Work commenced on station 36 at 0700 hrs and continued in a southerly direction to coastal station 47, where strong currents prevented the corer successfully acquiring sediment samples. A grid of open sea stations 46, 38, 45, 49, 50, 57 and 62 was then sampled in a fresh to strong southerly wind. Work for the day was completed at 2130 hrs and the vessel sailed to anchor overnight at coastal station 59.

Wednesday 11 October 1995

Work commenced on station 59 at 0705 hrs and continued in a northerly direction along a grid of stations 48, 33, 24, 26, 22, 21, 16, 15 and 14 to station 6 where strong winds prevented deployment of the rosette water sampler. The sampling survey finished on station 4 in the North Channel at 2000 hrs with a successful deployment of the water sampler. Work for the day was completed at 2130 hrs and the vessel sailed to dock in Belfast at 2200 hrs.

Thursday 12 October 1995

Unloading of scientific equipment commenced at 0830 hrs and was completed at 1130 hrs. The scientific crew disembarked at 1300hrs.

PARAMETERS MONITORED

The CTD/rosette water sampler was deployed at all stations on the sampling grid, excluding station 6, to acquire nutrient, chlorophyll *a*, temperature, salinity, oxygen and fluorescence data from the depth profile. Station 6 was sampled using the clean seawater supply pump. Suspended solids were determined on a sub surface sample from each station. Daylight permitting, Secchi disc readings were also taken at all stations. Algal samples were taken at stations 47, 38, 45, 62, 24, 4 and stored frozen for carbon/nitrogen analysis. For the nutrient release study, six sediment cores with overlying seawater were successfully taken at station 38 and incubated at seawater temperature. An additional core was taken and subsampled for C/N analysis. Samples were taken for the determination of oxygen by the Winkler method at stations 38, 45 and 50.

SUMMARY OF RESULTS

From the acquired nutrient and CTD profile data, the entire survey area was found to be mixed from surface to bottom with typical temperature and salinity 14 °C and 33.90 ppt respectively; typical inorganic nitrogen values ranged 4 - 6 micromoles N l⁻¹. Breakdown of stratification observed at stations 50, 49, 46, 45 and 38 during the September cruise, has obviously been accelerated by recent strong winds. The prolonged spell of above average air temperatures has resulted in sea temperatures similar to those monitored in September, though typically 2 °C higher than those observed during the same period last year.

Nutrient release from sediment cores

Mr Xiong is continuing with this study on the incubated cores in the laboratory. Preliminary results show significant nutrient release, particularly nitrate, from the sediment.

PROBLEMS ENCOUNTERED

Hydro-Bios water sampler

Again, only five out of twelve sample bottles were functioning on the Hydro-Bios water sampler. Duncan and Associates, the Hydro-Bios UK agent are attempting to resolve this problem.

ACKNOWLEDGEMENTS

I am grateful to Mr Xiong for his help during the cruise. The ship's master, officers, engineers, catering staff and crew are also thanked for their cooperation during this cruise.

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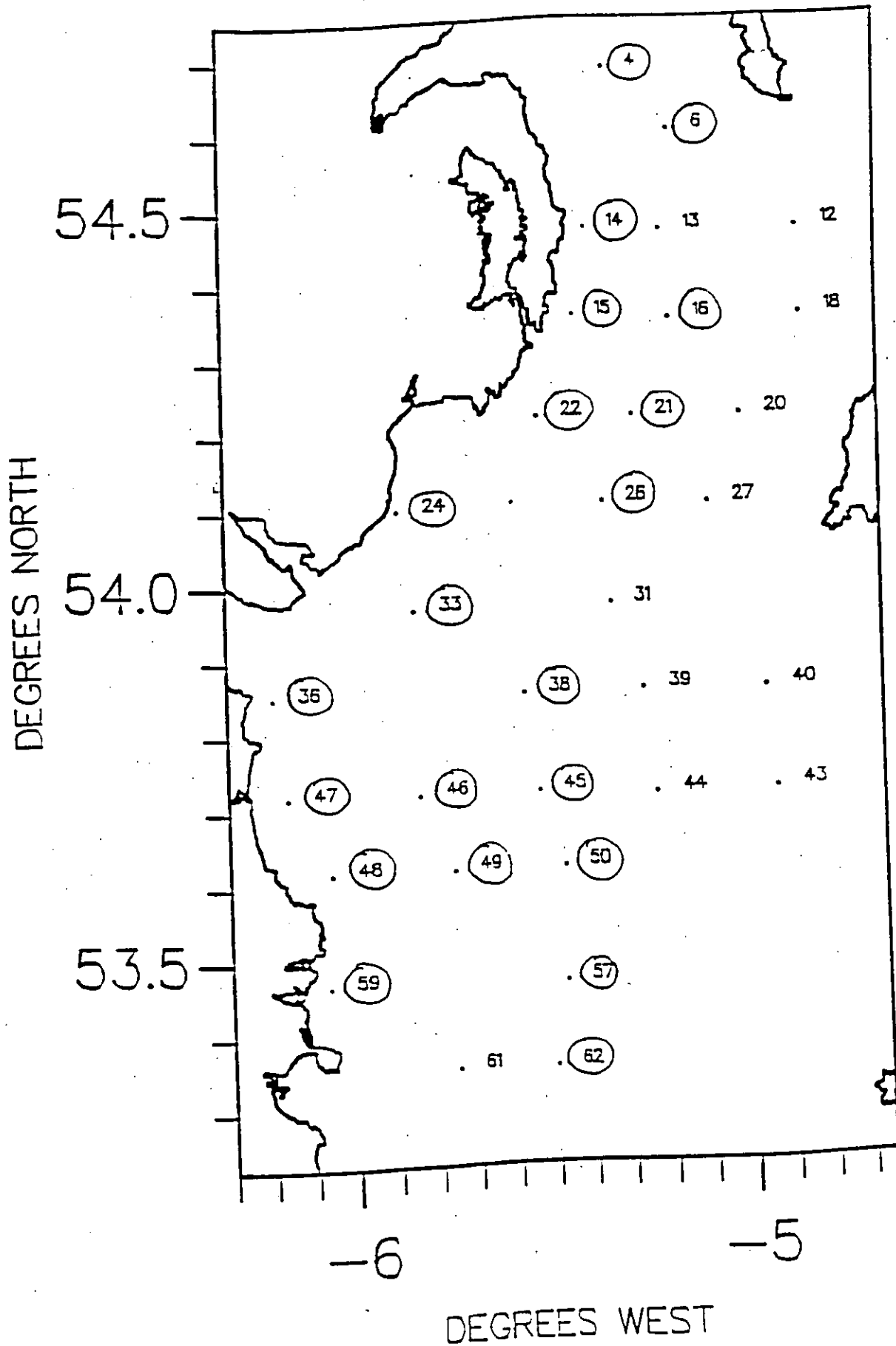
B.M. Stewart

25 Oct 1995

Proposed sampling stations

For Biological Oceanography cruise LF 27/95

Date 9 - 13 October 1995



BIOLOGICAL OCEANOGRAPHY CRUISE LF 27/95, 9 - 13 October 1995

PROPOSED WORK SCHEDULE

STATION	Lat.	Long.	Activity
36	53 51	06 11	CTD, Secchi
47	53 43	06 09	CTD, Secchi, C/N, 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 & C/N.
57	53 28	05 28	CTD, Secchi & C/N.
49	53 37	05 45	CTD, Secchi
46	53 43	05 50	CTD, Secchi
45	53 43	05 32	CTD, Secchi & C/N.
50	53 37	05 28	CTD, Secchi & C/N.
38	53 51	05 34	CTD, Secchi, C/N, corer + sediment Chl a.
4	54 41	05 20	CTD, Secchi & C/N.
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 & C/N.
22	54 13	05 31	CTD, Secchi
15	54 21	05 25	CTD, Secchi & C/N.
14	54 28	05 23	CTD, Secchi