

5727

Biological Oceanography Cruise : LF2298

Cruise Report  
(May 27 - 28)

Personnel

R. Gowen (SIC)	SSO (DANI)
S. Bloomfield	ASO (DANI)
G. M <sup>c</sup> Cullough	RA (QUEENS)
M. Trimmer	PD (ESSEX)

Cruise Objectives

1. to determine oxygen consumption and denitrification at the sediment-water interface at the DANI mooring site in the central Irish Sea.
2. to collect data on water column structure at the DANI mooring site and standard station in Irish coastal waters.
3. to collect water samples for determination of phytoplankton biomass and dissolved inorganic nutrients.
4. to collect zooplankton samples from the two stations.

Cruise Narrative

R.V. Lough Foyle departed Belfast at 2100 on Wednesday May 27 and sailed for the DANI mooring station in the central Irish Sea. On Thursday May 28, bottom sediments were collected and used in ship-board experiments to determine rates of sediment oxygen consumption, sulphate reduction and nutrient efflux. A CTD profile was recorded but failure of the bottle firing mechanism prevented the collection of waters samples from a range of depths. A water sample for estimation of chlorophyll was taken from the clean seawater supply. Zooplankton samples were collected using a 0.6 m 280  $\mu$ m mesh ring net (vertical hauls). On completion of the work at the mooring station the ship sailed for the standard DANI station in Irish coastal waters. The CTD work and collection of zooplankton was repeated at this station. Water samples were collected using the rosette sampler. On completion of the work, Lough Foyle steamed for Belfast and docked at 2130.

### Preliminary Results

All of the experimental work was undertaken successfully and counting of the isotope labelled sediment samples is on schedule.

At the time of the cruise the water column at S38A (the DANI mooring station) was thermally stratified with a surface to bottom temperature difference of  $\approx 1.5^\circ \text{C}$ . The fluorescence record from the *in situ* fluorometer mounted on the rosette indicated the presence of a substantial biomass of phytoplankton in the surface mixed layer at the mooring station. This was confirmed by a chlorophyll concentration of  $6.2 \text{ mg m}^{-3}$  measured in the water sample taken from the clean seawater supply (depth  $\approx 4 \text{ m}$ ). The water column at the coastal station was vertically mixed. Compared to the offshore station, the biomass of phytoplankton was lower ( $1.8 \text{ mg m}^{-3}$ ) inshore and was evenly distributed throughout the water column.

### Acknowledgments

I would like to thank the captain, officers and crew of the R.V. Lough Foyle for their assistance during the cruise. I also wish to express my thanks to the scientific staff who participated in the cruise.



Richard Gowen

June 08, 1998