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ANA is a new  
NERC funded  
analyser.  
Ab 2.06.00

Biological Oceanography Cruise : LF 19 2000

Cruise Report  
(May 08 -11)

Personnel

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Cruise Objectives

1. to record a vertical profile of temperature and salinity at the mooring station and DARD inshore station.
2. to collect water samples for determination of chlorophyll and dissolved nutrients and ring net samples of zooplankton at the two DARD stations.
3. to map the near surface distribution of nitrate and silicate using an autonomous nutrient analyser (ANA).

Cruise Narrative

Lough Foyle departed Belfast at 2000 on Monday, May 8 and sailed for the DARD coastal station in the western Irish Sea. The following morning, a vertical profile of temperature and salinity was recorded and water samples collected for the determination of dissolved nutrients and phytoplankton chlorophyll. Three zooplankton samples were collected with a 200  $\mu\text{m}$  mesh ring net. Water column sampling was completed at the DARD offshore station before the ship steamed for Belfast. Lough Foyle docked in Belfast at 1745 on Tuesday May 09. Lough Foyle departed Belfast at 2000 on Wednesday May 10 and sailed for the DARD inshore mooring. The sampling programme outlined above was repeated at both stations on May 11. Lough Foyle docked in Belfast at 1830 on Thursday, May 11. During both sampling surveys, the autonomous nutrient analyser was set up and run continuously to obtain information on the near surface distribution of nitrate and silicate.

Preliminary results

All sampling was completed successfully and the ANA unit performed well during both surveys. Inshore, chlorophyll concentrations were typically  $3.0 \text{ mg m}^{-3}$ , and results from the ANA unit show almost complete depletion of nitrate and silicate at this station (Figure 1). Offshore, there was  $2.2^\circ\text{C}$  of thermal stratification over the upper 30 m of the water column and the spring bloom was well under-way. Chlorophyll concentrations in the surface mixed layer ranged from  $8.15$  to  $12.6 \text{ mg m}^{-3}$  on May 09 and from  $11.0$  to  $11.3$  on May 11. Nutrient data from the ANA unit shows that at the inshore station, nitrate was almost completely depleted. It is also evident from the nutrient contour

diagrams, that north of the offshore station which is located in the stratified region, nutrient concentrations were still close to their winter maximum, indicating a later start to the spring bloom in these waters.

### Acknowledgements

I would like to thank the Captain, Officers and Crew for their assistance during the cruise.

R. Gowen

May 21, 2000

Figure 1. The near surface distribution of nitrate and silicate in the western Irish Sea on May 08 and 09, 2000.

