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2. Prof. M. Murray

These two short cruises extend study of the onset of the regular early growth of plankton in the Irish Sea & contribute to our time series for this region & our understanding of interannual variability with its potential impact on fish recruitment

2000 11 30/5

Biological Oceanography Cruise : LF 16 2001

Cruise Report
(April 17-20)

Personnel

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Cruise Objectives

- 1) To map the surface distribution of temperature and salinity in the western Irish Sea.
- 2) To investigate water column structure and the vertical distribution of dissolved inorganic nutrients and microplankton biomass at the DARD fixed sampling stations in the Irish Sea.
- 3) To collect samples of suspended particulate material for estimation of particulate organic carbon and nitrogen, bulk biochemical constituents (protein, carbohydrate and lipid) and microplankton species composition and abundance.
- 4) To collect zooplankton samples from the DARD fixed sampling stations.

Cruise Narrative

Lough Foyle departed Belfast at 0800 on Thursday April 19 and sailed for the DARD offshore mooring in the western Irish Sea. On arrival at the station a vertical profile of temperature and salinity was recorded and water samples collected for the determination of dissolved nutrients, estimation of phytoplankton chlorophyll and characterisation of the seston. Three zooplankton samples were collected by vertical haul with a 200 μ m ring net. On completion of the work, Lough Foyle worked a transect of 5 CTD stations across the western Irish Sea front before steaming overnight for the DARD fixed station in Irish coastal waters. On the morning of April 20, a CTD profile was recorded at the coastal station and water samples collected for determination of dissolved nutrients and chlorophyll. Three zooplankton samples were also collected. Sampling at the DARD offshore mooring site was repeated on the morning of April 20 before Lough Foyle returned to Belfast. The ship docked at 1945h.

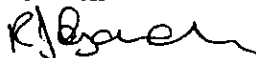
Preliminary results

On April 19, the surface mixed layer was approximately 40 m deep. This compares with a mixed layer depth of 16 m on April 11. The increase in the thickness of the layer was probably due to persistent strong northerly winds between the sampling dates. It is interesting to note that the water column was colder in April 2001, compared to April 2000. For example, on April 06 2000, the mean water column temperature was 8.0°C compared to 7.5°C on April 11 2001. Near surface winter nutrient concentrations at the offshore mooring site were close to their winter maximum (8.23 – 8.79µM) suggesting little uptake by phytoplankton. Concentrations of chlorophyll (0.58 – 0.75 µg l⁻¹) in near surface waters also suggest that the spring bloom had not begun. At the inshore station, the water column was isothermal at 7.8°C, although it was clear from the chlorophyll data (2.37 – 2.50 µg l⁻¹) that the spring bloom was underway.

Acknowledgements

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

R Gowen



May 14 2001