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## Cruise Report

Biological Oceanography July 31<sup>st</sup> - August 3<sup>rd</sup> 1993

### Personnel:

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### Cruise Narrative

Lough Foyle departed Belfast at 0700 on Saturday July 31st and worked a series of stations in coastal waters of County Down and in Dundalk Bay (Figure 1). Scientific work was completed by 2000 h and the ship anchored in Dundalk Bay for the night. On Sunday August 1<sup>st</sup> stations 48 and 47 were worked. Station 47, was occupied from 0900 to 1900 h to undertake primary production experiments. Scientific work was completed by 2200 h and the ship remained at anchor in Dundalk Bay overnight. The following day (Monday August 2<sup>nd</sup>) five stations were worked in the central Irish Sea. Before occupying station 38 the sediment traps and guard buoys were recovered. The ship remained at station 38 for five hours to complete the productivity study. Scientific work was completed by 2200 h and the ship remained in the region overnight. On Tuesday August 3<sup>rd</sup> three stations were worked in the vicinity of the North Channel and on completion the Lough Foyle returned to Belfast for 1600 h.

### Objectives

- 1) to collect biological (phytoplankton and zooplankton), chemical (dissolved inorganic nutrients and particulate carbon and nitrogen) and physical (sea temperature, conductivity and surface and sub-surface irradiance) data from selected stations in the Irish Sea for the purpose of continuing the observational study of the biological oceanography of the NW Irish Sea.
- 2) to undertake experiments to estimate the rate of carbon fixation by phytoplankton at selected stations using simulated *in situ* and *in situ* incubation techniques. To carry out size fractionation productivity experiments.
- 3) to make measurements of the natural fluorescence emitted by phytoplankton as part of a study to evaluate the use of natural fluorescence as a measure of phytoplankton biomass and production.
- 4) to collect sediment cores from selected stations for the purpose of estimating the amounts of phytoplankton pigments in the sediment and the organic carbon and nitrogen content of the sediment.
- 5) to retrieve the sediment traps deployed at station 38.

### Preliminary Results

Since additional work was carried out at stations 38 and 47 stations 39, 45 and 50 were not worked and weather conditions prevented the collection of sediment cores from station 38. All of the other stations were satisfactorily completed. A total of 7 primary production experiments were carried out and the solar

fluorometer (which measured natural fluorescence) was successfully deployed on two occasions. The productivity size fractionation work was abandoned when it became apparent that the filtration equipment was not suitable for the task and would not have yielded quantitative results. Recovery of the sediment traps took 1.5 hours mainly because the retrieval float on one of the guard buoys was missing and there was a moderate swell and fresh southerly wind.

#### Acknowledgements

I would like to thank the captain, G. Martin, his officers and crew for their support during the cruise. I would particularly like to thank the deck crew for their efforts in successfully recovering the sediment traps. The scientific support given by Mr. Elliott and Mr. Bloomfield was of the usual high standard and I would like to thank them for their hard work.

R J Gowen (SIC)

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FIGURE 1.

