

Department of Agriculture and Rural Development (Northern Ireland)
Agriculture and Environmental Science Division

Cruise Report: LF 4702

Vessel: RV *Lough Foyle*

Dates: 17th – 19th November 2002

Area: Irish Sea (north); ICES div. VIIa

Survey Type: Biological Oceanography & mooring service

Personnel:

B Stewart(SIC)	SSO	DARDNI
C Smyth	SO	DARDNI
R Gilmore	SO	DARDNI
A Downie	ASO	DARDNI
A M Coyle	Res. Tech.	QUB

Objectives:

- i. To maintain a nutrient and remote monitoring programme at mooring stations 38A and 47D.
- ii. To assess temperature, salinity and nutrient distributions over depth at stations 38A and 47D.
- iii. To characterise deep, high saline Atlantic water in the central Irish Sea.

Cruise Narrative

Sunday 17 November 2002

In preparation for the cruise, all DANI scientific crew were onboard by 1930 hrs when mooring components and the automated sampler were prepared for deployment. Following a talk on ship's safety and a demonstration of personal life saving equipment, the RV Lough Foyle departed Belfast at 2025 hrs and sailed overnight in a fresh south easterly wind towards mooring site station 38A.

Monday 18 November 2002

The vessel arrived on the mooring site at 0600 hrs. The weather was dry with a fresh to strong south easterly wind when work for the day commenced at 0745 hrs. Owing to the strong wind and sea state a decision was taken to postpone the mooring service. However weather conditions permitted the successful deployment of the rosette water

sampler and zooplankton net. Following this the survey continued in a southerly direction to station 62 where the rosette water sampler was again deployed to acquire deep water samples. With the winds increasing the survey continued in a north westerly direction towards the coastal mooring station 47D. In deteriorating weather conditions the mooring service was aborted but water and zooplankton sampling was successfully completed. With gales forecast for the remainder of the week the vessel sailed to dock in Belfast at 0030 hrs Tuesday morning.

Tuesday 19 November 2002

Work for the day commenced at 0800 hrs when samples and some small pieces of equipment were removed from the vessel for return transportation to HQ.

The scientific crew disembarked at 1045 hrs.

Parameters Monitored

The CTD/rosette water sampler was deployed at stations 38A, 62 and 47D to acquire nutrient, chlorophyll *a*, temperature, light and salinity data from the depth profile. Three zooplankton net hauls were taken at stations 38A & 47D.

Moored Instrumentation

The McLane water sampler at depth 10 metres functioned as programmed. Duplicate samples, for nutrient analysis, were taken every second day during the period 3 October – 18 November 2002. A second McLane water sampler on long term deployment at depth 82 metres functioned as programmed. Duplicate samples, for nutrient analysis, were taken every fourth day during the period 30 August – 30 November 2002. Temperature data recorded at 3 hourly intervals was recovered from seven thermistors positioned at intervals throughout the water column. Temperature, salinity and fluorescence data recorded at 10 minute intervals was recovered from CTD's positioned at near surface and near bottom at station 38A and at near surface only at coastal station 47D.

Summary of Results

Open sea stations 38A and 62 were thermally mixed with CTD data showing a constant temperature and salinity pattern across the entire profile. While temperature values at both stations were similar at 13.2 °C, southerly station 62 exhibits higher salinity (typically 34.6) which may be due to ingress of Atlantic water to the southern Irish Sea. In general nutrient concentrations were similar at both stations and also constant throughout the profile; typically 6–7 micromoles inorg N l⁻¹.

Freshwater influence of the River Boyne can be observed at coastal station 47D with the presence of a cooler less saline near surface layer. Elevated nutrient concentrations in this upper layer (typically 12–14 micromoles inorg N l⁻¹) provide further evidence of freshwater influence at this station.

Currently, values for the major nutrients inorganic nitrogen, phosphate and silicate from the *insitu* sampler are similar to those from previous years as they slowly progress towards the “winter max”.

Acknowledgements

I am indebted the deck crew of the RV Lough Foyle for their co-operation and assistance during the mooring recovery and deployment operation. The ship's master, officers, engineers and catering staff are also thanked for their co-operation during this cruise.

B M STEWART (SIC)