

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

**Cruise Report:** LF 4002

**Vessel:** RV *Lough Foyle*

**Dates:** 29<sup>th</sup> September – 1<sup>st</sup> October 2002

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

**Survey Type:** Biological Oceanography & mooring service

**Personnel:**

B Stewart(SIC)	SSO	DARDNI
C Smyth	SO	DARDNI
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**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.

**Cruise Narrative**

Sunday 29 September 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 2055 hrs and sailed overnight in a fresh south easterly wind towards mooring site station 38A.

Monday 30 September 2002

The vessel arrived on the mooring site at 0600 hrs. The weather was dry with a fresh south easterly breeze when work for the day started at 0745 hrs. Problems were immediately encountered during mooring recovery when the torroid buoy became inverted in the water. Skilful work by the crew of the Lough Foyle eventually righted the buoy and the complete instrument mooring was recovered to ship deck at 0830 hrs. The mooring components were inspected for corrosion and parts replaced where

necessary. The thermistor chain was removed from the mooring wire, temperature data downloaded and individual units reprogrammed. The CTD's and fluorometer were also removed, data downloaded and reprogrammed. The sub surface water sampler was serviced; samples removed, rebuilt, reprogrammed and attached to the mooring wire. The mooring components were reassembled and readied for deployment. The CTD's and fluorometers were attached and the mooring deployed at 1305 hrs on position  $53^{\circ} 46^{\prime}.850\text{N } 05^{\circ} 38^{\prime}.065\text{W}$ . Following the deployment of the rosette water sampler and zooplankton net the survey continued to the coastal mooring station 47D. On arrival the complete instrument mooring was recovered to ship deck at 1615 hrs. The mooring components were inspected for corrosion and parts replaced where necessary. The CTD and fluorometer were removed, data downloaded and reprogrammed. The mooring components, CTD and fluorometer were then reassembled and the mooring was successfully redeployed at 1819 hrs on position  $53^{\circ} 44^{\prime}.490\text{N } 06^{\circ} 04^{\prime}.000\text{W}$ . The water and zooplankton sampling operations were then repeated.

Work on the station was completed at 1930 hrs and the vessel sailed to dock in Belfast at 0800 hrs Tuesday morning.

#### Tuesday 1 October 2002

Work for the day commenced at 0800 hrs when equipment was dismantled and removed from the vessel for return transportation to Newforge Lane.

The scientific crew disembarked at 1045 hrs.

#### **Parameters Monitored**

The CTD/rosette water sampler was deployed at stations 38A 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 30 August – 29 Sept 2002. A second McLane water sampler on long term deployment at depth 82 metres, programmed to take duplicate samples every fourth day, was confirmed working and subsequently redeployed to continue with the programmed sampling schedule. 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**

A continuation of the mild and calm weather conditions has reduced the rate of erosion of the strong summer thermocline and retained a significant temperature gradient over the depth profile at station 38A. Surface and bottom temperatures, recorded 30 Sept 2002 were 14.8 and 12.8 °C respectively; this compares with 13.9 and 13.4 °C

respectively on the same date last year. As a result of the relative stability of the water column, nutrient levels remain depleted in the surface layers at less than 1 micromole inorg N l<sup>-1</sup>. At this point last year, and similar to previous years, nutrient regeneration was well under way with 2 – 3 micromoles inorg N l<sup>-1</sup> recorded in the upper layers.

The relatively shallow coastal station 47D exhibits a typical seasonally mixed profile. Nutrient levels are much lower compared to the same period last year though this may be due to the reduced input from the river Boyne during the recent lengthy dry period.

### **Hotel Report & Operational aspects of the Ship**

During the cruise the A-frame, main trawl winches, both hydrographic winches and the ship's clean seawater supply were used. No problems were encountered with any of the ship's equipment nor indeed with any of the scientific equipment. The hotel and catering service was of the usual high standard and there was a good working relationship between the scientists and the ship's crew. Prior to the ship departing Belfast a comprehensive and detailed safety briefing was delivered to the scientific crew.

### **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**

15 October 2002