

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

Cruise Report: LF 3502

Vessel: RV *Lough Foyle*

Dates: 26th – 30th August 2002

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

Survey Type: Biological Oceanography & mooring service

Personnel:

B Stewart(SIC)	SSO	DARDNI
C Smyth	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 deploy moored instrumentation at a site off the Drogheda fore shore.

Cruise Narrative

Monday 26 August 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 2030 hrs and sailed overnight in a light southerly wind towards the mooring site at station 47D.

Tuesday 26 August 2002

The vessel arrived at the mooring site at 0600 hrs. The weather was dry with a light southerly breeze when work for the day started at 0800 hrs. The mooring components were assembled and readied for deployment. The CTD and fluorometer were attached and the mooring deployed at 0851 hrs on position 53° 44' .485N 6° 03' .970W. Following the deployment of the rosette water sampler and zooplankton net the survey

continued to the open sea mooring station 38A. On arrival the complete instrument mooring was recovered to ship deck at 1105 hrs. The mooring components were inspected for corrosion and parts replaced where necessary. The thermistor chain was removed from the mooring wire and temperature data downloaded. The CTD's and fluorometer were also removed, data downloaded and reprogrammed. The sub surface automated water sampler was removed and replaced with a similar pre programmed unit. A second water sampler was positioned on the mooring to operate at depth 85 m. The mooring components, thermistors, CTD and fluorometer were then reassembled, the satellite tracking system was confirmed working and the mooring was successfully redeployed at 1545 hrs on position $53^{\circ} 46' .795N$ $5^{\circ} 38' .122W$. The water and zooplankton sampling operations were then repeated.

Work on the station was completed at 1630 hrs and the vessel sailed to dock in Belfast at 1030 hrs.

Wednesday 27 August 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 47 to acquire nutrient, chlorophyll *a*, temperature, light and salinity data from the depth profile. Three zooplankton net hauls were taken at stations 38A & 47.

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 8 - 27 August 2002. A second McLane water sampler on long term deployment at depth 82 metres functioned as programmed taking duplicate samples every fifth day during the period 8 - 18 August 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 on the mooring wire.

Summary of Results

A recent spell of light winds and sunshine has maintained the summer thermocline at station 38A. The CTD profile shows surface temperature $15.8^{\circ}C$ with continued nitrate depletion in the upper layers. During this period last year mixing had commenced with a lower surface temperature $14.8^{\circ}C$ and nitrate concentrations already beginning their ascent towards winter levels.

The relatively shallow coastal station 47D also continues to exhibit thermal stratification. An increased fluorescence signal below 18 metres shows a flurry of biological activity at a point in the profile where nitrate levels are no longer depleted.

Salinity values at both stations were fairly constant throughout the respective profiles though lower values recorded at coastal 47D result from the freshwater influence of the river Boyne.

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

9 September 2002