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

Cruise Report: LF 2602
Vessel: RV *Lough Foyle*
Dates: 24th – 28th June 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 stations38A 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 24 June 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 25 June 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 53^0 44^l .485N 6^0 03^l .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 fluorormeter 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 at1545 hrs on position 53^0 46^l.795N 5^0 38^l.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 26 June 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 prolonged spell of strong winds causing mixing of the upper layers has produced a weakened summer thermocline at station 38A. The CTD profile at station 38A shows a stepwise reduction in temperature of less than 2 ^oC between the surface layer and depth 40 metres. This compares to a 4 ^oC difference over a similar depth for the same period last year. Intense mixing of the layers has produced periodic nutrient enrichment of the upper layers. This is illustrated in nutrient data obtained from the water sampler moored at depth 7 metres. Currently surface layers have again been depleted of nutrients with only base levels being recorded.

The CTD data from station 47 shows a typical summer profile for this shallow coastal station; stratified with the upper layer warmer and less saline. This is due to the freshwater influence of the River Boyne and as an ample source of nutrients has prevented nutrient depletion throughout the station 47 profile.

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 July 2002