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

Cruise Report: LF 2003
Vessel: RV *Lough Foyle*
Date: 11th – 13th May 2003
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. Assist.	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.

Cruise Narrative:

Sunday 11 May 2003
In preparation for the cruise, all DANI scientific crew were onboard by 2000 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 fresh westerly wind to station 47D mooring site.

Monday 12 May 2003
The vessel arrived on the mooring site at 0600 hrs. The weather was dry with a westerly breeze when work for the day started at 0745 hrs with the complete instrument mooring eventually recovered to ship deck at 0820 hrs.

The mooring components were serviced, CTD and fluorometer downloaded and reprogrammed before redeployment at 0935 hrs on position 53^0 44^l .496N 06^0 03^l .973W. Following deployment of the water sampler and zooplankton net the vessel sailed to the off shore-mooring site 38A. The instrument mooring was recovered to ship deck at 1230 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 "large volume" sub surface water sampler was serviced; samples removed, rebuilt, reprogrammed and attached to the mooring wire. The nutrient water sampler was replaced. The mooring components were reassembled and readied for deployment. The CTD's and fluorometers were attached and the mooring redeployed at 1515 hrs on position 53^0 46^1 .860N 05^0 38^1 .173W

Following deployment of the water sampler and zooplankton net the vessel sailed to dock in Belfast at 0020 hrs Tuesday.

Tuesday 13 May 2003
Work for the day commenced at 0745 hrs when samples and equipment were removed from the vessel and returned to HQ.

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:
Both water samplers at approximate depth 12 metres functioned as programmed. Duplicate samples, for nutrient analysis, were taken every second day during the period 4 April 2003 – 10 May 2003. A second "large volume" water sampler took daily samples during the same period. 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 15 minute intervals was recovered from CTD's positioned near surface and near bottom at station 38A and near surface only at 47D.

Summary of Results:
Almost 6 weeks earlier than last year, the timing of the 2003 spring bloom, *circa* 7 March, is the earliest recorded during the 12-year history of oceanographic survey work. The CTD profile at station 38A shows enhanced surface warming, nutrient depletion and elevated chlorophyll content. Simultaneous draw down of silicate together with nitrate and phosphate indicate diatoms have made a significant contribution to this early bloom. Recent prolonged spells of heavy rainfall have increased riverine inputs to the region. The salinity profile at offshore station 38A shows a reduced value, 33.4, in the upper layer. Similar salinity values are recorded in the upper layers at inshore station 47D, identifying the river Boyne as the main source of freshwater influence in the region.

Salinity and temperature profiles at the shallower station 47D exhibit a similar pattern to station 38A with surface warming and virtual nutrient depletion in the upper layers.

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

6 June 2003