Agri-Food and Biosciences Institute
Agriculture, Food and Environmental Science Division
Fisheries and Aquatic Ecosystems Branch

Cruise Report: CO 1306
Vessel: RV *Corystes*
Date: 27th – 30th March 2006
Area: Irish Sea (north); ICES div. VIIa
Survey Type: Biological Oceanography & Mooring service

Personnel:

B Stewart (SIC)	SSO	DARDNI	26 – 30 March
C Smyth	SO	DARDNI	28- 30 March
R Gilmore	SO	DARDNI	27- 30 March
P McShane	ASO	DARDNI	27 – 30 March
M Service	SSO	DARDNI	27 – 28 March
J Hill	Student	QMUL	26 – 30 March

Objectives:

i. To maintain *insitu* monitoring at inshore and offshore sites in the NW Irish Sea.

ii. To investigate the distribution of dissolved nutrients and phytoplankton in relation to water column structure in the Irish Sea, Celtic Sea and Celtic Shelf Edge.

Circulation	✓
DCSO & CSO	
Ship Managers	
Fisheries Division	
ANIFPO	
NIFPO	

Comments

Signed Head of Branch

Methods:

- Stations 38A and 47D were sampled using a Seabird 911 and Falmouth Scientific CTD.
- Vertical zooplankton net hauls were taken using a 200-micron mesh bongo net with a 600mm diameter inlet.
- Samples for nutrients and chlorophyll analysis were taken at off shore station 38A and coastal station 47D.
- Throughout the cruise surface salinity and temperature recordings were made using a Sea-bird SBE21Thermosalinograph.

Preface:

Shortly after the deployment of the off shore mooring on Monday 13 February, the guard buoy was reported free floating and recovered by the fishing boat Beniah IV. The buoy was returned to Kilkeel and recovered by DARD personnel on Friday 17 February. The skipper of the Beniah IV reported recovering the buoy from position 53^0 55^l N 5^0 52^l W, some 8 miles north of the position of deployment. As a result an automated water sampler, a CTD, five thermistors, a sub surface buoy and approximately 400 metres of mooring wire and chain were missing. The RV Corystes departed Belfast Friday 3 March and spent several hours trawling the area in which the mooring was deployed and also around the position where the guard buoy was recovered. Despite an intensive trawling operation the mooring was not located. The side scan sonar would be used during the next oceanography cruise to help locate the sub surface buoy and the remains of the instrument mooring.

Cruise Narrative:

Sunday 26 March

A problem with the ship's sewage system meant that sailing was postponed until contractors had repaired the fault.

Monday 27 March

In preparation for the cruise, all DANI scientific crew were onboard by 1400 hrs when mooring components and automated samplers were prepared for deployment. Following a talk on ship's safety and a demonstration of personal life saving equipment, the RV Corystes departed Belfast at 1455 hrs and sailed overnight in fresh southerly wind to the mooring site at station 38A.

The vessel arrived on the mooring site at 2200 hrs. The weather was wet with a strong southerly wind. Problems were encountered with the hydrographic gantry and as a result the rosette water sampler and zooplankton nets could not be deployed. The side scan sonar was then prepared and deployed at 2300 hrs. Overnight the side scan sonar was used to search the area where the mooring had been deployed.

Tuesday 28 March

The side scan survey was completed at 0800 hrs and with winds increasing to gale force it was no longer safe to deploy the "creep" to trawl the seabed for the instrumentation. At this point the vessel sailed to dock in Belfast at 1530 hrs when Matthew Service was replaced by Claire Smyth and contractors worked to repair the hydrographic gantry. The vessel departed Belfast at 2120 hrs and sailed overnight in a light westerly wind to the off-shore mooring site on station 38A.

Wednesday 29 March

The vessel arrived on the mooring site at 0700 hrs. The weather was dry and bright with a moderate westerly wind. Work for the day commenced after breakfast with the deployment of the "creep" when the area around the mooring site was searched for the remains of the instrument mooring. Unfortunately nothing was found so a replacement mooring was constructed to include water

samplers, CTD and thermistors and deployed at 1110 hrs in depth 91 metres on position 53^0 46^l .984N 5^0 38^l .089W. Following the deployment of the rosette water sampler and zooplankton net the vessel sailed to coastal station 47D. On approach, the inshore guard buoy was discovered free floating on position 53^0 44^l .851N 6^0 01^l .005W approximately 1.5 miles west from the point of deployment. The upper stainless steel structure of the buoy was damaged and the connecting wire to the seabed anchor broken suggesting a collision with a large vessel travelling at speed. Fortunately at this time there was no instrumentation deployed on the mooring. Following recovery of the buoy to ship deck at 1515 hrs the rosette water sampler and zooplankton net was then deployed. With insufficient time available to complete the Celtic Sea and Celtic shelf edge survey the vessel sailed to dock in Belfast at 0800 hrs Thursday morning.

Thursday 30 March

Work for the day commenced at 0800 hrs when scientific staff prepared equipment for unloading. Equipment was transferred to Newforge and stored when work for the day finished at 1700 hrs.

Work Completed:

Time spent in repairing the ship's sewage system, operating the side scan sonar and trawling the seabed for the remains of the damaged instrument mooring meant insufficient time remained to complete the survey of the Celtic Sea and Celtic shelf edge. However despite the loss of the offshore mooring, the onboard construction and deployment of a replacement mooring and instruments ensured the continuation of the *insitu* mooring programme.

Results:

CTD profile from off shore station 38A, show a typical seasonal temperature 8.1 ^{o}C throughout the depth profile. Salinity is approximately 0.3 lower at the surface than at depth suggesting riverine influence. This is supported by nutrient data where a source of inorganic nitrogen had elevated surface levels by approximately 1 micro mol N l^{-1}.

CTD profile is seasonally typical of this shallow inshore station. Freshwater influence from the Boyne is demonstrated with increased nutrient levels and lower temperature and salinity in comparison to the off shore station. Some early spring biological activity is suggested by an increase chlorophyll levels since the February cruise; typically 3 micro mol Chl l^{-1}.

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. Unfortunately the hydrographic gantry would not function but an in port repair enabled the safe deployment of the rosette water sampler and zooplankton net. No other problems were encountered with either the ship's equipment or 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 Corystes 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. A special thank you to Matthew Service for his help with the side scan sonar.

Scientist in Charge *Master (seen in draft)*
Date

Not to be cited without prior reference to DARD/AFBI (Aquatic Sciences)