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

**Cruise Report:** CO 1909
**Vessel:** RV *Corystes*
**Date:** 8th – 13th May 2009
**Area**: Irish Sea (north); ICES div. VIIa & VIIg
**Survey Type**: Biological Oceanography & Mooring Service

**Personnel:**

| | | | |
|---|---|---|---|
| B Stewart | SSO | AFBI | 8 – 13 May |
| R Gilmore | SO | AFBI | 8 – 13 May |
| A McDougall | SO | AFBI | 8 – 13 May |
| G Brady | ASO | AFBI | 8 – 13 May |
| C Scherer | Student | Napier | 8 – 13 May |

**Objectives:**

i. To maintain an insitu monitoring programme at open Irish Sea station 38A.

ii. To investigate the distribution of dissolved nutrients and phytoplankton at stations in the Irish Sea, Celtic Sea and Celtic shelf edge.

iii. To investigate the distribution of dissolved nutrients and in the water column along a grid of stations at the Beaufort Dyke in the North Channel.

iv. To initiate an insitu monitoring programme in the Celtic Sea.

| **Circulation** | ✓ |
|---|---|
| **DCSO & CSO** | ✓ |
| **Ship Managers** | ✓ |
| **Fisheries Division** | |
| **ANIFPO** | |
| **NIFPO** | |
| | |

**Comments**

**Signed Head of Branch**

**Methods:**

- Stations were profiled using a Seabird SBE 32 water sampler and SBE 911 CTD.

- Vertical zooplankton net hauls were taken using a 200 micron mesh bongo net with a 500mm diameter inlet.

**Cruise Narrative:**

Friday 8 May 2009
Following a talk on ship's safety and a demonstration of personal life saving equipment, the RV Corystes departed Belfast at 2200 hrs and sailed overnight to the survey area in Dundalk Bay.

Saturday 9 May 2009
In a strong westerly wind sampling commenced off the Drogheda fore shore on stations 47D, 36 and 37 and continued in a westerly direction to station 38a and Liverpool Bay transect stations. Sampling was then completed along the five stations of the 54 degree latitude transect and over night the vessel sailed to the mooring site.

Sunday 10 May 2009
The vessel arrived on mooring station 38A at 0630 hrs. The weather was dry and bright with a light westerly wind when work commenced at 0800hrs with recovery of the instrument mooring to ship deck. Data from thermistors, CTD and water sampler were down loaded. Samples were removed from the water sampler and following a detailed inspection of mooring components instruments were reprogrammed and mooring components reassembled. The instrument mooring was then successfully redeployed at 1545 hrs in depth 92 metres on position $53^0$ $46^l$.799N $005^0$ $38^l$.147W. Following deployment of the rosette water sampler and CTD the vessel sailed overnight to the Celtic Sea mooring site.

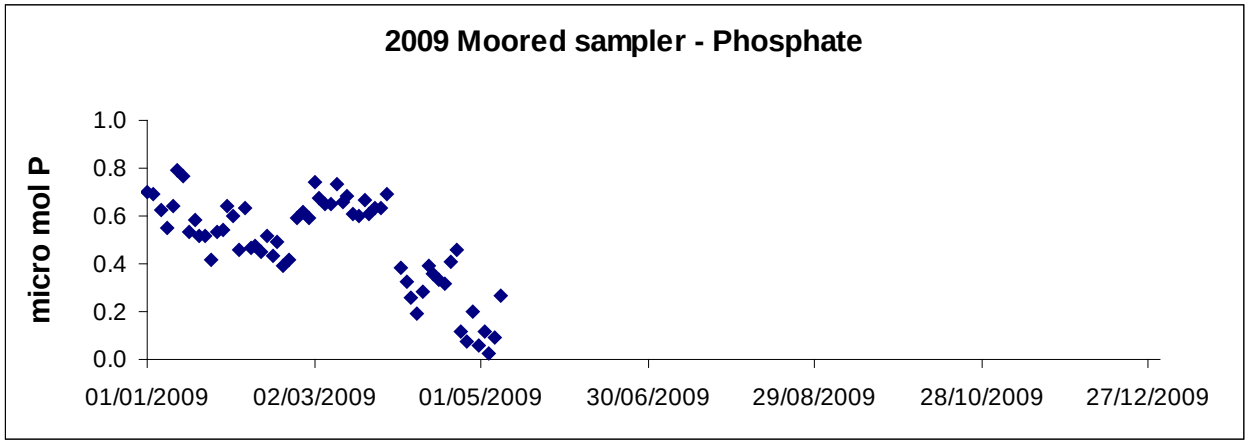
Monday 10 May 2009
With winds forecast to increase work commenced at 0630 hrs when the SmartBuoy mooring was readied for deployment. The operation was successfully completed at 0700 hrs when the mooring was deployed in depth 105 metres on position $51^0$ $14^l$.971N $006^0$ $04^l$.873W. Work continued with sampling at Celtic Sea stations B9, B8 and B7 before the southern leg of the survey area was abandoned owing to gales.

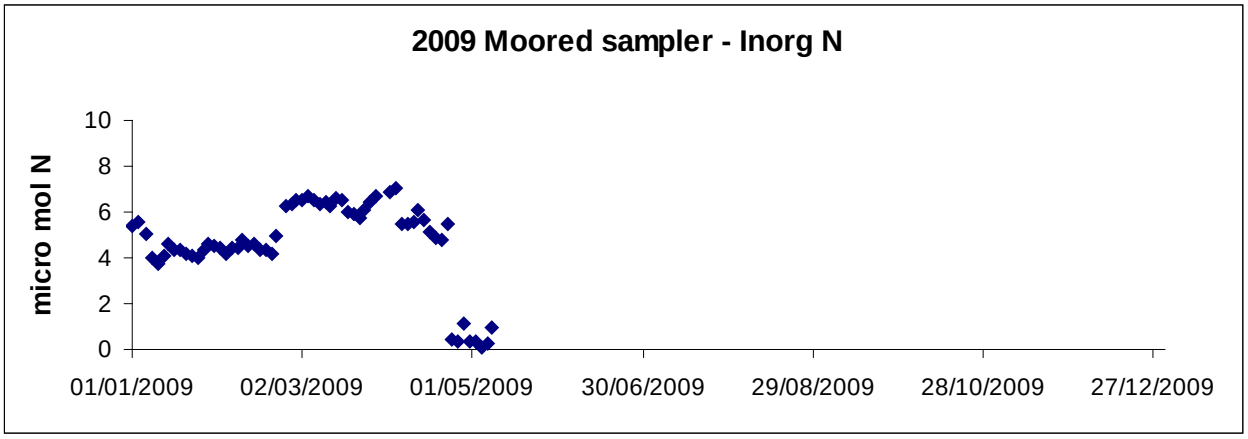
Tuesday 11 May 2009
Work continued, as the vessel sailed in a northerly direction, sampling at stations B10, B11, 62, 50, 26 and 16.

Wednesday 12 May 2009
The vessel continued on a northerly transect, sampling at station 4 before returning to dock in Belfast at1600 hrs.

**Work Completed:**
Unfortunately heavy seas and gales prevented the vessel from sampling at stations along the Celtic shelf edge. However other aspects of the survey work were successfully completed without incident.

**Results:**



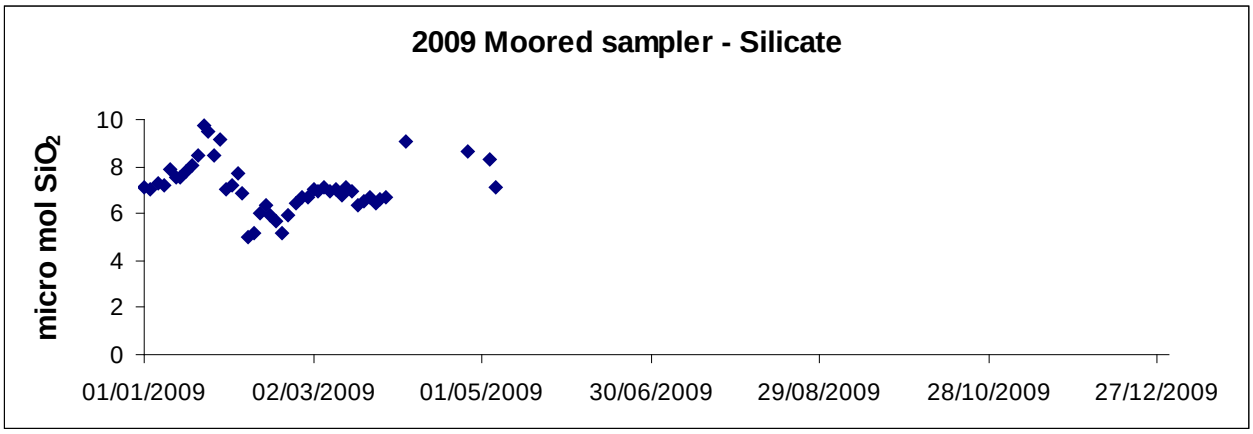




Fig. 1. Phosphate, Inorganic Nitrogen and Silicate concentration at mooring station 38A

The graphs illustrate nutrient data from samples taken by the moored water sampler during the survey periods. The "winter max" for nitrate, 7.04 micromoles $Nl^{-1}$ is recorded in early April and thereafter as the spring bloom occurs, nitrate and phosphate concentrations are rapidly depleted.

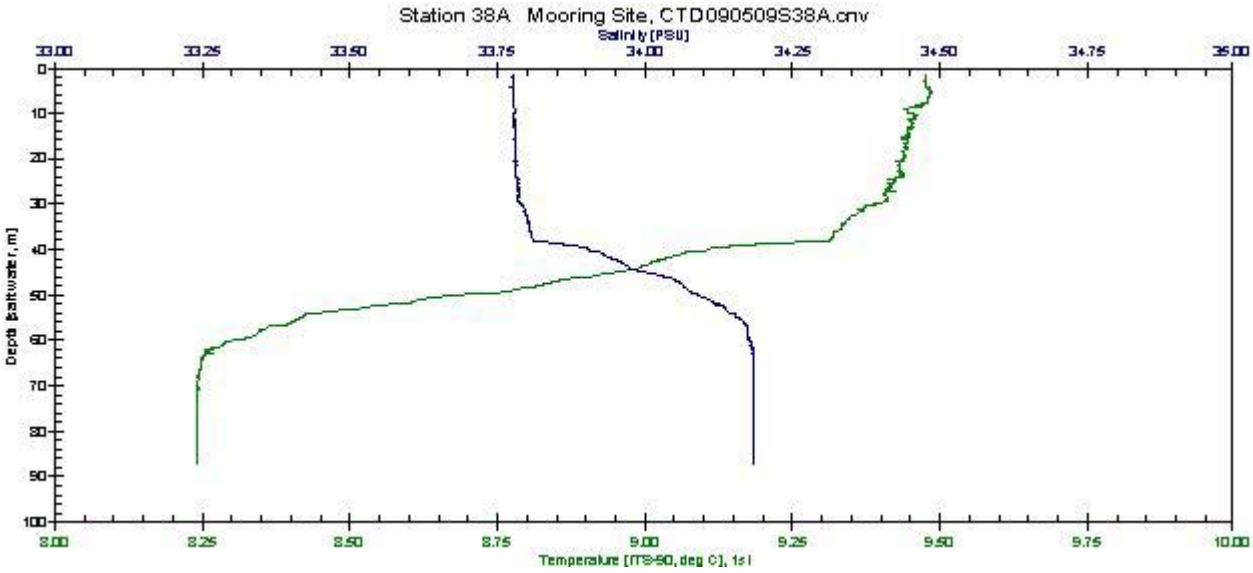


Fig. 2 Temperature and salinity profile at mooring station 38A on 9 May 2009

Figure 2 details temperature and salinity profile data at moored station 38A in early May and illustrates the early stages of development of the spring/summer thermocline when the temperature difference between the upper and lower layers is recorded at approximately 1.2 $^{0}$C. Despite the off shore location the salinity profile shows evidence of freshwater influence with the presence of a lower saline, less dense, upper layer of the profile.

**Operational Aspects of the Ship:**

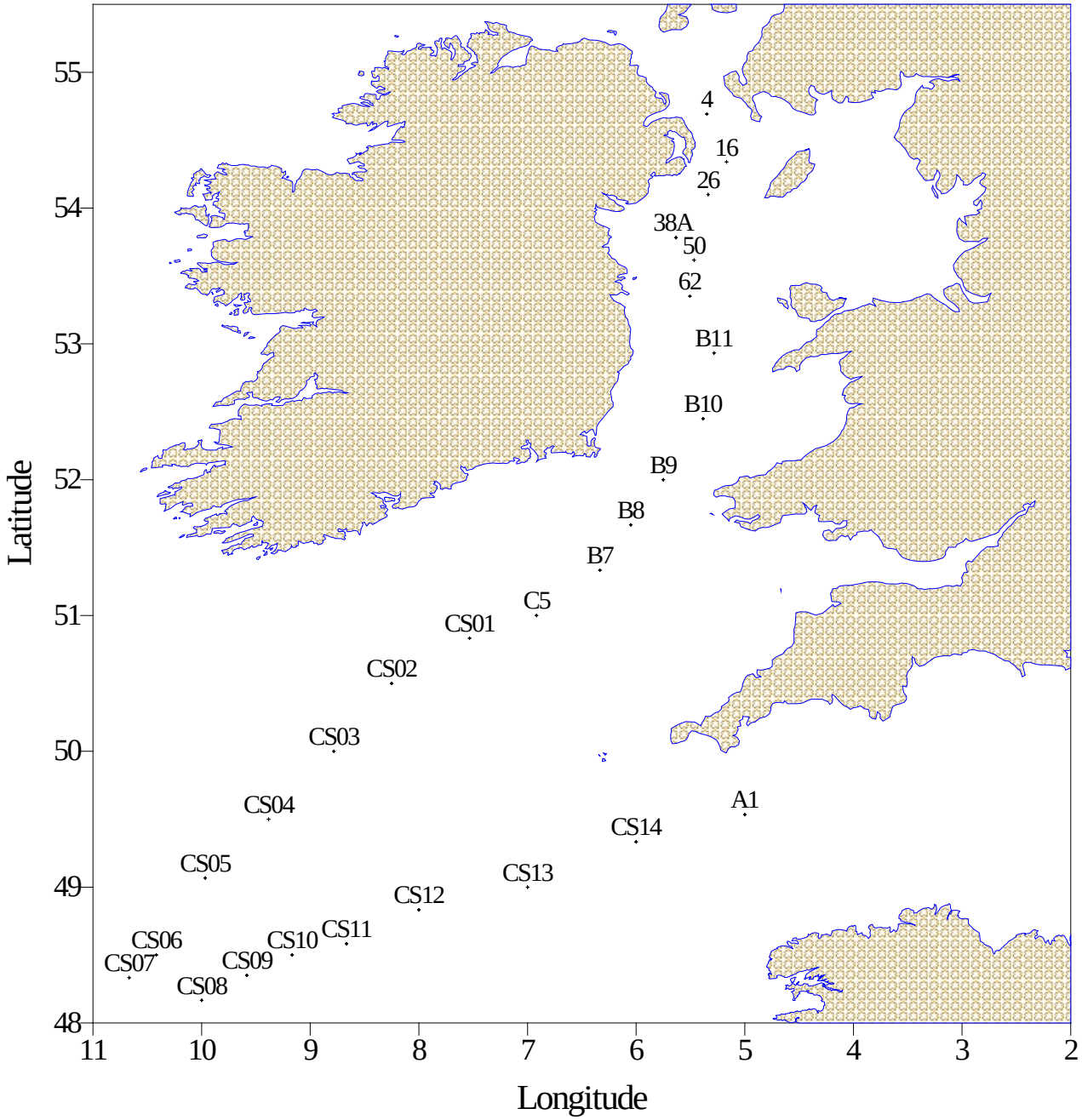
During the cruise the A-frame, main trawl winches, both hydrographic winches and the ship's clean seawater supply were used. No problems were encountered with ship's equipment. The hotel and catering service was of an acceptable standard and there was a good working relationship between the scientists 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.

Scientist in Charge

Date: 24 June 2009




**Survey Transect CO 1909**