Cruise Report: CO 0610
Vessel: RV *Corystes*
Date: 8th – 14th February 2010
Area: Irish Sea (north); ICES VIIa
Survey Type: Irish Sea Egg Production (Cruise 2 of 5)

Personnel:

S Beggs (SIC)	AFBI	8-14 February
I McCausland	AFBI	8-14 February
R McAlister	AFBI	8-14 February
F George	AFBI	8-14 February
D Pearce (SIC 2)	CEFAS	8-15 February
A Pliru	CEFAS	8-15 February
M Brown	CEFAS	8-15 February
S Pearson	CEFAS	8-15 February
T McGowan	CEFAS	8-15 February

Objectives:

i. To conduct a plankton survey using a Gulf VII high speed plankton sampler to determine the distribution and abundance of cod (*Gadus morhua*), haddock (*Melanogrammus aeglifinus*) and plaice (*Pleuronectes platessa*) eggs.

ii. To remove stage 1A & 1B gadoid eggs like from fresh plankton samples at sea. To measure, stage and preserve these eggs in ethanol prior to species identification using a DNA technique on return to the laboratory (CEFAS).

iii. To collect a salinity water sample at every second sampling station.

iv. To collect plankton (270µm) and fine mesh (80µm) PUP net samples at each of the sampling stations.

v. To record sub-surface salinity and temperature data with the constant thermosalinograph.

vi. To record sub-surface environmental data using the valeport self-logging package mounted on the plankton sampler.

Methods:
A Gulf VII high speed plankton sampler was deployed at a series of fixed sampling stations (Figure 1). The Gulf VII plankton sampler, fitted with a 40cm aperture nosecone and 270µm mesh net was used during this survey, with an auxiliary 80µm mesh 'Pup' net attached. A Valeport CTD mounted on the sampler provided 'real time' flow-meter data as well as salinity

and temperature profiles for each double oblique plankton haul. The sampler was towed at between 3-4 knots, the lowest point being ~3 m above the sea bed (where seabed topography safely allowed). A minimum tow duration of 15 minutes was required, meaning that at shallow stations double or triple hauls were taken. Gadoid like eggs were removed from the fresh plankton samples at sea and measured, staged and preserved in ethanol. The remaining plankton sample was preserved in a 4% formaldehyde solution. A sub-surface thermosalinograph with attached positional information was run continuously to log temperature and salinity data. Salinity samples were taken from the lab seawater supply at every other station.

Cruise Narrative:

The RV Corystes departed Belfast on Monday 8th February at approx. 13:00 and headed directly to the first sampling station in the North Channel. All scientific personnel where present for the first number of stations so that the techniques and procedures involved could be shared between those present on the previous survey (CEFAS Endeavour 02/10) and those who where not. During these initial hauls an electrical fault with the winch control system was identified and quickly rectified.

The RV Corystes made way eastwards along the top row of stations towards stratum D, where sampling continued southwards until the 9th February (Figure 1). The vessel then continued sampling in the Eastern Irish Sea, passing briefly into stratum C to sample the two stations south east of the Isle of Man, before continuing into stratum E, and working south towards the Welsh coast. Target eggs became more abundant in the samples as the vessel headed southward. In total 818 target eggs were identified, sorted and preserved from Strata D and E, with the majority in stratum E (Figure 2).

An intermittent fault with the PUP flowmeter developed, which later resulted in the failure of this device. It was deemed worthwhile to continue collection of PUP samples despite the missing flowmeter information. A number of PUP samples were not preserved while this decision was made (stn. 48 & 49).

In excellent weather conditions, which the survey enjoyed for the duration, the RV Corystes continued sampling throughout the deeper stations of stratum B, few target eggs were found. By the 12th February the vessel began sampling in stratum A, where more target eggs were anticipated. 273 target eggs were identified, measured and preserved in this particular stratum. By the night of the 13th February the RV Corystes had entered the final stratum C and continued sampling northwards towards the North Channel and Belfast, finally docking at approx. 18:30 on the 14th February, Valentines Day.

Scientific equipment, samples and supplies were packaged and made ready for transport the following day.

Work Completed:

All 106 stations were successfully sampled, giving complete coverage of strata A, B, C, D and E. The exceptional progress of the survey was aided by the excellent weather conditions throughout, and the minimal equipment and mechanical problems encountered. Any problems that did arise were quickly rectified. In total 1178 gadoid like fish eggs in early development stages 1A & 1B, between 1.10 and 1.75mm diameter were removed and individually preserved in ethanol. A plankton sample and PUP sample were preserved at each station, (no PUP sample stn. 48 & 49). The Valeport self logging system recorded environmental profile data, while the sub-surface constant thermosalinograph recorded temperature and salinity data along the cruise path. Salinity samples were collected at every second station (even numbers).

Acknowledgments:
The Master and Crew of *RV Corystes* are thanked for their assistance and cooperation in ensuring the successful completion of the survey. The scientific staff from CEFAS and AFBI are commended for their thorough and efficient work throughout the survey, excellent teamwork and enthusiasm which was key to the successful completion of the survey.

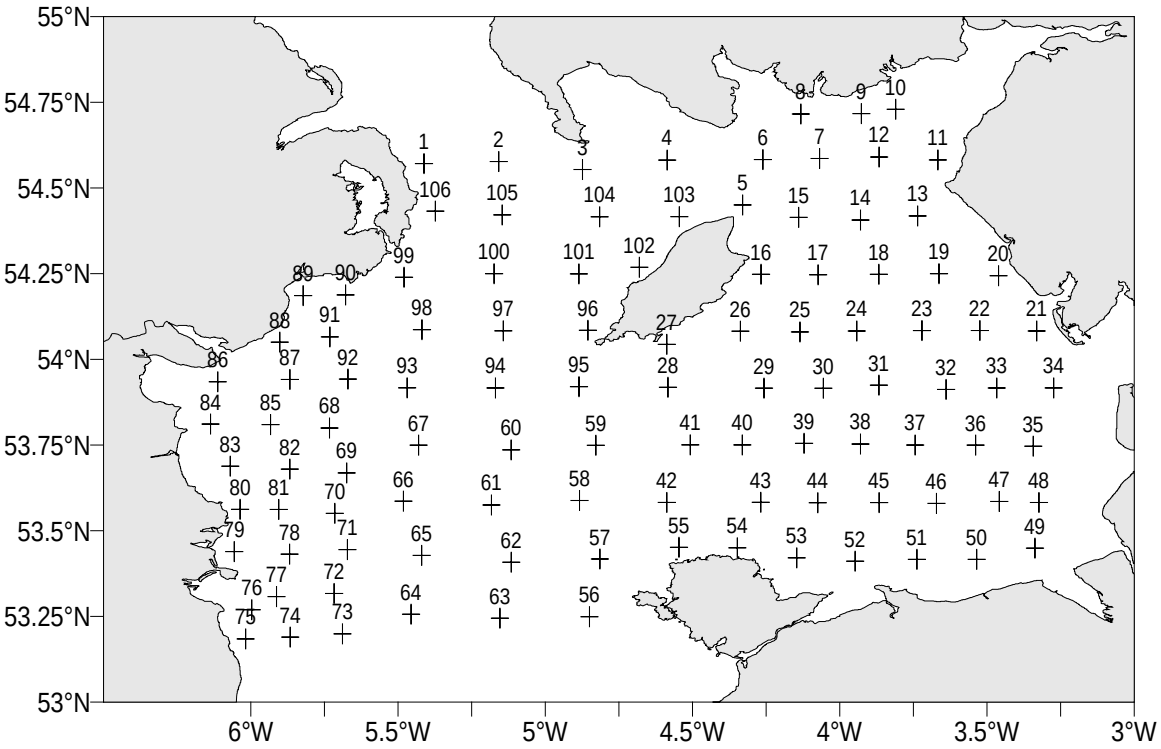

Figure 1. CO0610 sequential sampling positions.

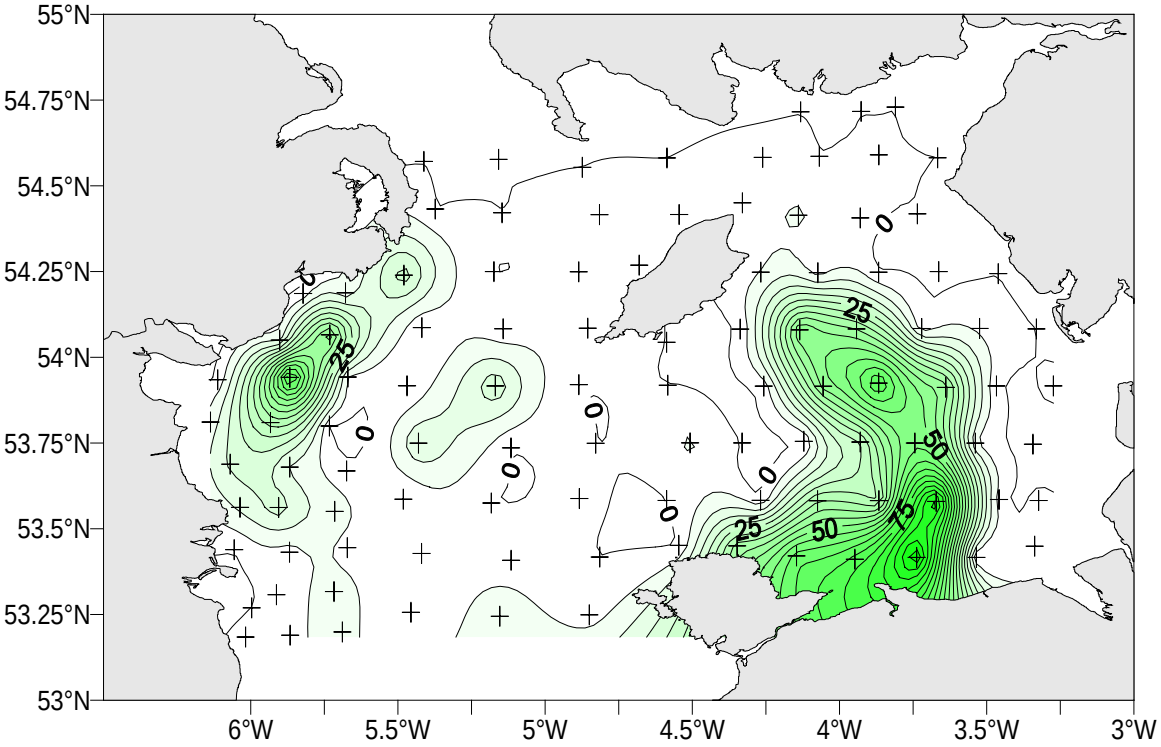

Figure 2. Contour plot of distribution and abundance of gadoid like stage 1A and 1B eggs sorted, measured, staged and preserved for DNA analysis. Maximum abundance 105 eggs.