



Cruise Report: CO 4510

Vessel: RV *Corystes*

Date: 9th – 15th November 2010

Area: Irish Sea (north); ICES div. VIIa

Survey Type: Herring Larval Survey

Personnel:

| | | |
|---------------|------|-----------------|
| S Beggs (SIC) | AFBI | 9 – 15 November |
| P McCorriston | AFBI | 9 – 15 November |
| J Peel | AFBI | 9 – 15 November |
| I McCausland | AFBI | 9 – 15 November |
| E O'Callaghan | AFBI | 9 – 15 November |
| G Brady | AFBI | 9 – 15 November |

Objectives:

- i. To estimate the production of larvae herring in the Irish Sea as part of the time series of biomass indices used in the ICES Irish Sea herring assessment.
- ii. To collect and fix herring larvae for future growth studies.
- iii. To collect and fix plankton samples for recruitment studies

Methods:

A GulfVII High Speed Plankton sampler was deployed at a series of fixed sampling stations shown (Fig.1). The sampler was towed at between 3-5 knots passing steadily through the water column in a 'V' shape, i.e. forming a double oblique tow, the lowest point being ~3 -2 m above the sea bed. In shallow water (<25m) a double, double oblique tow was taken to ensure an adequate sample. Onboard sensors provide temperature, salinity and fluorescence depth profiles. Plankton samples were sorted onboard, with the herring larvae counted and measured to the nearest 0.1mm before being transferred to alcohol for preservation. Numbers of zooplankton predators (i.e. ctenophores) and large crustacea were also recorded. The remaining plankton sample was bottled and preserved in a 4% formaldehyde solution.

Cruise Narrative:

The vessel departed the port of Belfast on the evening of the 9th November and headed directly for the first sampling station at the mouth of Belfast Lough. The Gulf VII sampler was deployed

successfully and the vessel continued sampling in the western Irish Sea region before returning to Belfast on the evening of the 10th November.

The vessel returned to sea on the 13th November and commenced sampling in the eastern Irish Sea region, covering the main spawning ground. The larval survey was completed by the 15th November.

Work Completed:

A total of 64 stations were successfully sampled with the Gulf VII. From those samples a total of 2935 herring larvae were removed. Salinity, temperature, and depth profiles were recorded at each station using a seabird CTD system attached to the frame of the Gulf VII. A thermosalinograph was run continuously during this part of the survey to log surface temperature and salinity.

Preliminary Results:

As in previous years herring larvae were found to be most abundant to the north east of the Isle of Man and Douglas Bank spawning ground, however the distribution also extended more westwards than normally observed (Fig. 1). In common with more recent years a number of larvae were also caught in the region of the Mourne ground suggesting spawning activity in this area, however the numbers were low. The point estimate of production in the north eastern Irish Sea, used as an indicator of spawning stock biomass in the assessment of Irish Sea herring, was 2.04×10^{12} (Fig. 2).

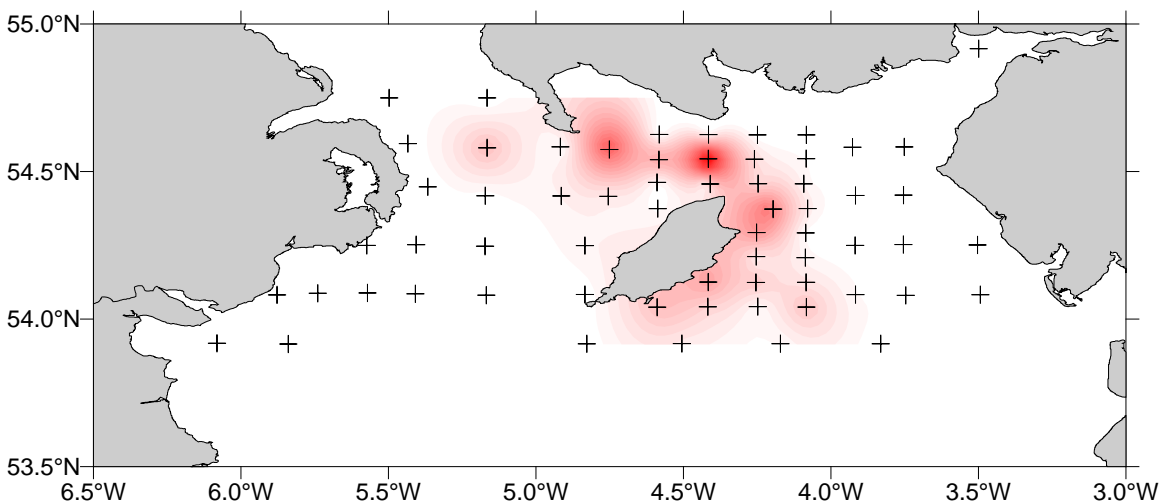


Figure 1. Spatial distribution of abundance of larval herring (no. m²) on CO4510. Areas of shading are proportional to larva abundance (maximum = 142.9 per m²).

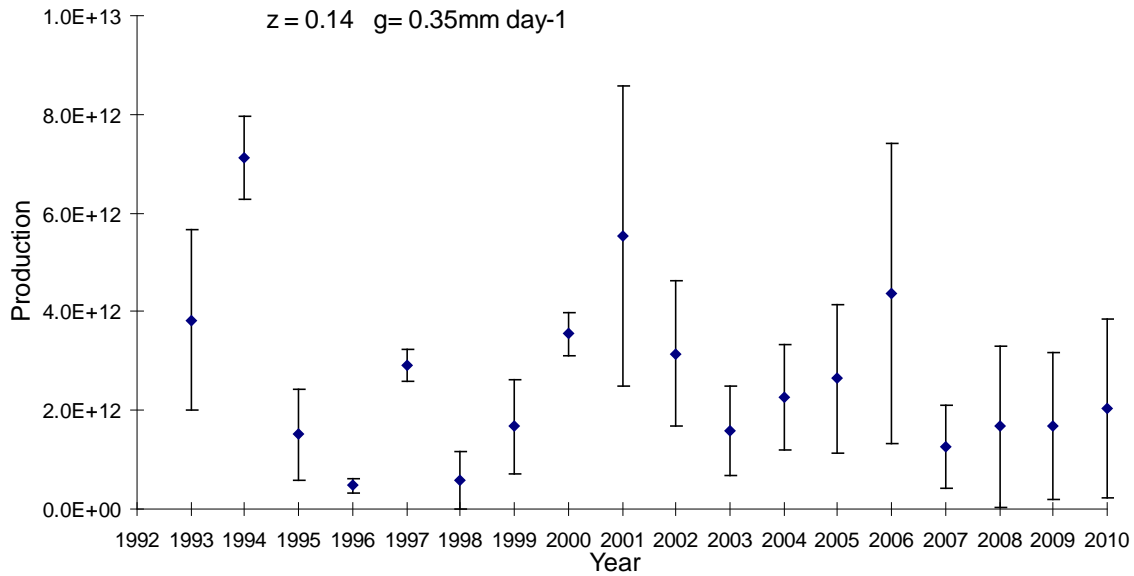


Figure 2. Estimates of larval herring production in the NE Irish Sea from 1993 to 2010. Error bars denote 1 standard error in the estimation of abundance.

Acknowledgements:

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 are commended for their thorough and efficient work throughout the survey and general good humour and teamwork which was crucial to the successful completion of the survey.

Signed:

Scientist in charge (SIC).....date

Head, AESD Aquatic Systems..... date

Master (seen in draft).....