

Department of Agriculture for Northern Ireland
Agriculture and Environmental Science Division

Cruise Report: LF2894 Larval Herring Survey

Vessel: RV *Lough Foyle*

Dates & area: 13-18 November 1994 in the Irish Sea (north); ICES div. VIIa

Personnel:	Mark Dickey-Collas	DANI	SIC/HSO
	Richard Briggs	DANI	PSO
	Willie McCurdy	DANI	SSO
	John Peel	DANI	ASO
	Michael McAliskey	DANI	SO
	Helen Miller	AESD/QUB	Research Fellow

Objectives:

1. To survey the distribution and abundance of herring larval from the Manx and Mourne Irish Sea stocks, to produce a larval production estimate (index).
2. To collect otoliths of fish larvae, to investigate growth rates of Irish Sea herring.
3. To investigate the abundance of euphausiids and other macro zooplankton in the Irish Sea.
4. To collect samples for a Queens/DANI studentship.

Cruise narrative

Sunday 13 November 1994

All scientific crew were onboard by 21:00, and the ship sailed for station 59 at 21:50 (Figure 1).

Monday 14 November 1994

Sampling started at 00:30 at station 59, and then stations 2 and 7 were surveyed. Due to poor weather, the ship headed to Dundalk Bay at 06:00 for shelter. Stations 27, 36 and 60 were sampled. At 14:00 the ship anchored by the Skerries to wait for the strong south westerly winds to die down.

Tuesday 15 November 1994

Despite the strong winds, stations 45, 37, 65, 28, 64, 19, 62, 13, 20, 63, 29 and 61 were sampled. The winds worsened and sampling ceased till the following day. The ship remained sailing within the shelter of the Irish coast over night.

Wednesday 16 November 1994

Sampling started at 04:00, and the ship headed for the north Wales coast. Stations 38, 46, 47, 48, 49, 50, 51, 43, 42, 41, 40, 31, 30, 21 and 22 were surveyed.

Thursday 17 November 1994

The day was spent sampling in strong winds around the Isle of Man. Stations 15, 14, 8, 9, 10, 11, 71, 16, 69, 23, 24, 25, 70, 17, 12, 6, 5 and 4 were sampled.

Friday 18 November 1994

The ship worked its way back to Belfast along the Scottish coast and stations 3 and 1 were sampled. The ship docked at 09:00 in Belfast.

Methods

At each station the high speed plankton sampler was deployed to 5m off the sea bed. The temperature and salinity of the water column was monitored with the Pronet system. The plankton samples were sorted and all the fish removed and identified. The herring larvae were measured to the nearest 0.1mm and then fixed in 99% ethanol. The length frequencies of herring larvae at each station were adjusted to give numbers per m², and then used to back calculate a larval abundance index, using a growth rate of 0.359mm per day and a mortality rate of 0.14.

The remaining macrozooplankton were sorted from the plankton samples, identified and weighed to the nearest 0.1g, and then returned to the main sample. The plankton samples were then fixed in 4% buffered formaldehyde and stored.

Results

There were no herring larvae in the southern half of the survey area. The north eastern Irish Sea had the highest numbers of larvae (Figure 2) and these catches also resulted in the highest Larval Abundance Index data (Figure 3). There was some evidence of Mourne larvae drifting north (off the north Down coast), but the catches were much lower than those of the Manx larvae.

Euphausiids, arrow worms and large copepods dominated the zooplankton. The euphausiid distribution seemed to have changed with the breaking down of the Isle of Man front, as euphausiids were now abundant to both west and south of the Isle of Man (Figure 4). The abundance of euphausiids was higher than in any survey

throughout this year, giving a total biomass of 55,000 tonnes (1,100 tonnes of N) in the western Irish Sea.

The water in the southern region was warmer and more saline and cold fresh water inputs from the Solway Firth and Irish coast (Carlingford Lough) were apparent (Figure 5). The only evidence of water stratification was found at station 28, south east of Carlingford Lough. No evidence of a cold water input from the North Channel was found.

Acknowledgements

The officers and crew of the RV *Lough Foyle* must be thanked for their hard work and help. Their dedication lead to a very successful cruise. The commitment and ardour of the scientific team must be commended. They worked throughout the week in strong winds and swell, and yet maintained a high standard of operation and productivity. Their team work and efficiency was crucial to the successful completion of the cruise. Yet again, John Peel must be congratulated on another birthday during a larval herring cruise, Happy Birthday John.

Signed

SIC: Marky Gallan

Date: 22 / 11 / 94

Master: J. Subornick

Date: 22 / 11 / 94

Section Head: S. S. Kearney

Date: 28 / 11 / 94

Figure 10

Abundance of *Amphipoda* per m² on LF2894

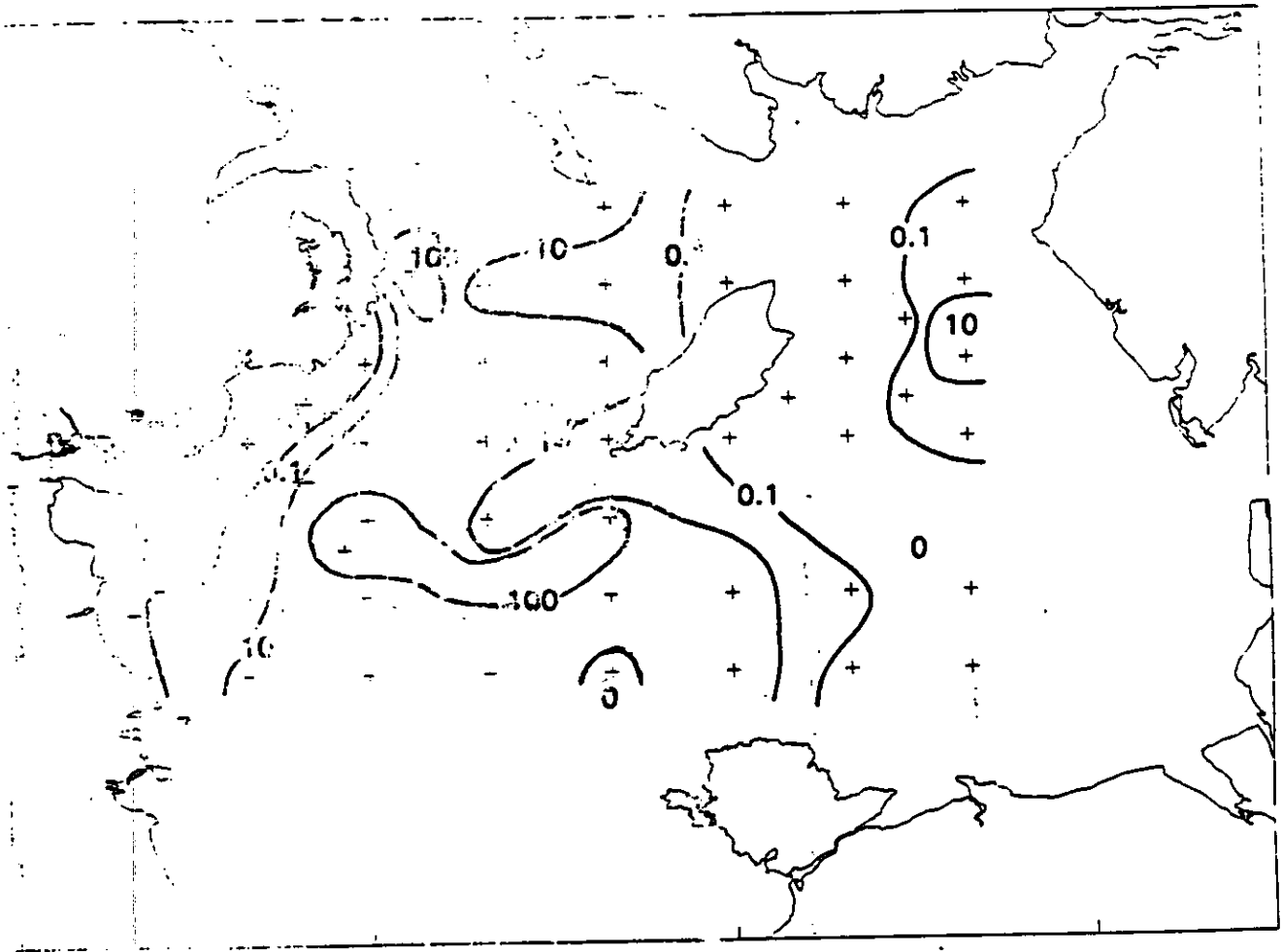


Figure 5 Mean water temperature and salinities during LF2894

