

Department of Agriculture for Northern Ireland
Agriculture and Environmental Science Division

Cruise Report: LF2696, Juvenile gadoid investigations
Vessel: RV *Lough Foyle*
Dates & area: 24-27 June 1996 in the Irish Sea; ICES div. VIIa

Personnel:	Mark Dickey-Collas	DANI	SIC/HSO
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	Michael McAliskey	DANI	SO
	John Peel	DANI	ASO
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Objectives:

1. To investigate the summer transport of pelagic juvenile gadoids from the coast to the stratified waters of the western Irish Sea (Third in a series of three cruises).
2. To assess fish growth rates in May and June.
3. To carry out trials of the multiplankton sampler.
4. To investigate the abundance of euphausiids and other macro zooplankton in the Irish Sea.
5. To collect samples for *Sagitta elegans* study.

Cruise narrative

Sunday 23 June 1996.

All scientific crew were onboard by 21:00 and the ship sailed at 22:00. A full safety and man overboard drill was carried out before sailing. The ship sailed for the first MIK net station (Figure 1).

Monday 24 June 1996

Sampling began at 02:30 and continued throughout the day without any problems. 5 MIK net samples and 16 GULF III samples were taken.

Tuesday 25 June 1996

The vessel headed south and collected a further 24 samples.

Wednesday 26 June 1996

The remaining stations were sampled and then multiplankton sampler trials were carried out.

Thursday 27 June 1996

Final multiplankton trials were carried out and the ship returned to Belfast dock.

Methods

Juvenile fish were sampled in darkness with the MIK net, plankton samples with the Gulf III were taken during the daylight hours. Plankton samples were sorted and the fish and *Nephrops* larvae removed and fixed in either 4% buffered formaldehyde. Fish were measured to the nearest 0.1mm. Large Crustacea were also removed from the sample and weighed to the nearest 0.1g. The remaining plankton sample was fixed in 4% buffered formaldehyde and stored.

The multiplankton sampler was deployed from the A frame using the Lebus winch. Qualitative samples were described and sorted to species.

Results

All MIK net and Gulf III stations were sampled. In total 69.2 million litres of seawater were sampled for plankton.

Most of the fish species were found 40-50km offshore in the stratified waters, but further analysis and speciation of the catches is required. These data will be combined with those collected in late May and early June, to determine the growth, mortality and transport of juvenile fish (especially cod, whiting, haddock, sprat, dab and witch) in the western Irish Sea.

Euphausiids were typically found in the deeper waters, whilst ctenophores were more common at the coastal and Isle of Man Dublin front.

The water warmed during the period of the three surveys (20 May- 27 June). The transect A (Figure 1) had a rise in surface water temperature of 4°C (Figure 2) from May to late June. The maximum difference between surface and bottom water temperature (ΔT) was 4.9°C, 40km east of The Skerries.

The salinity of the water remained very similar throughout the three cruises, with runoff effects near the Irish coast reducing the salinity to 34.50 ‰.

The multiplankton sampler proved to be operational, but more nets are needed, as is a suitable depth monitor. However, although 4 trials were carried out at a station with the high juvenile fish abundances, in both darkness and light, no juvenile fish were caught. The multiplankton sampler is very useful for catching vertically stratified zooplankton and fish larvae samples but it seems unable to catch larger (>40mm) post metamorphic fish. Other sampling equipment must be considered for further studies on juvenile gadoid growth and mortality.

Acknowledgments

The captain, officers and crew of the RV *Lough Foyle* must be thanked for their hard work and assistance. The scientists must be commended for their team work and ardor, which resulted in a very successful research cruise.

Signed

SIC: *Mark Collins*

Date: *29/7/96*

Master:

Date:

Section Head: *J. J. Henry*

Date: *1/8/96*

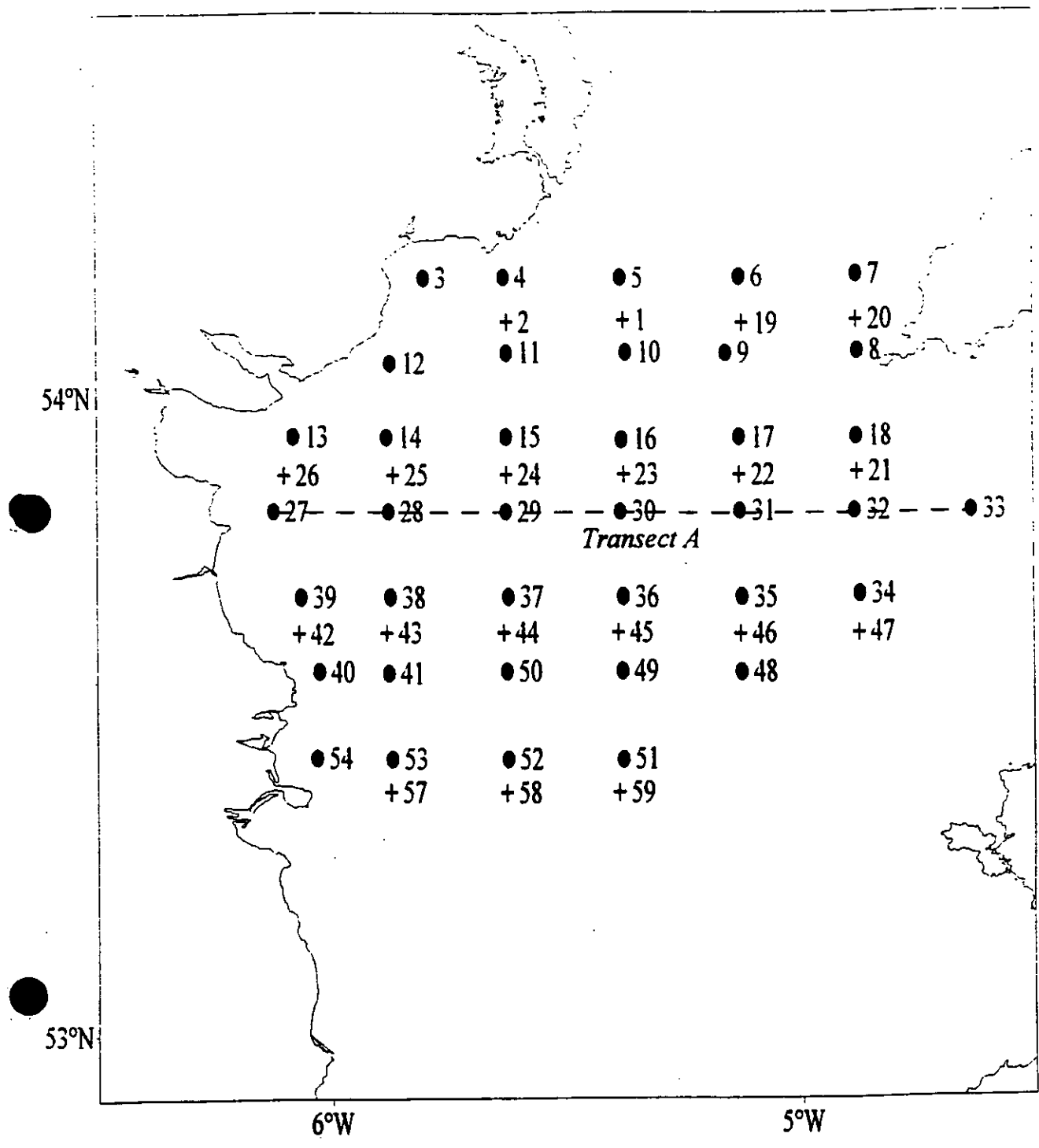


Figure 1 Hauls taken during LF2696
23-27 June 1996

+ MIK net
● Gulf III

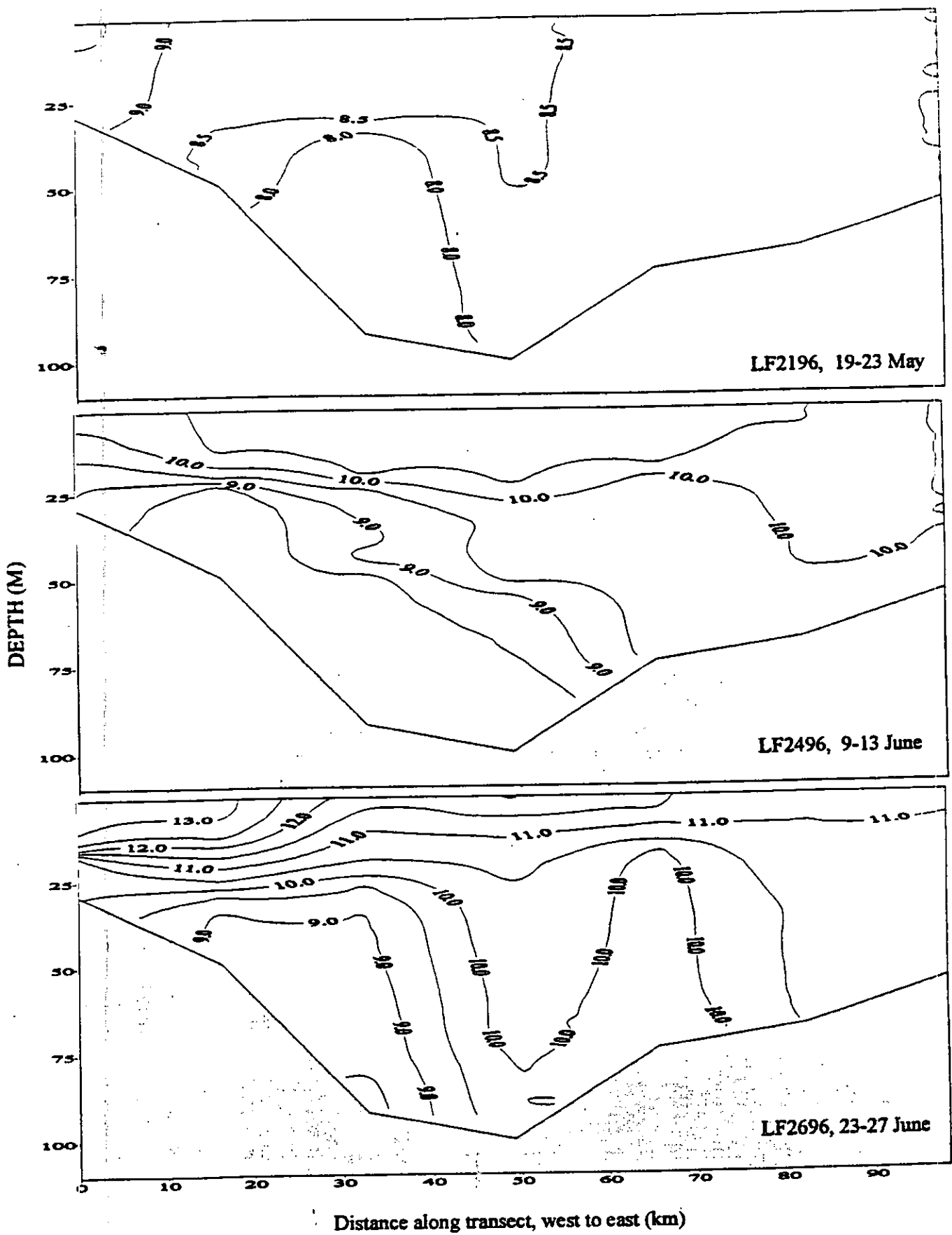


Figure 2 Temperature ($^{\circ}\text{C}$) depth profiles along Transect A from late May to late June 1996.